ANNUAL REPORT 2018

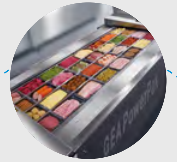
engineering for
a better world

IFRS Key Figures of GEA

(EUR million)	2018	2017[1]	Change in %
Results of operations			
Order intake	4,917.7	4,750.8	3.5
Revenue	4,828.2	4,604.5	4.9
Operating EBITDA[2]	518.2	563.5	–8.0
as % of revenue	10.7	12.2	–
Operating EBIT[2]	417.6	477.8	–12.6
as % of revenue	8.6	10.4	–
EBIT	259.8	380.2	–31.7
Net assets			
Working capital intensity in % (average of the last 12 months)	16.9	15.9	–
Net liquidity (+)/Net debt (-)	–72.2	5.6	–
Financial position			
Operating cash flow driver margin[3]	6.8	8.4	–
ROCE in % (goodwill adjusted)[4]	9.2	15.6	–
Full-time equivalents (reporting date)	18,642	17,863	4.4
GEA Shares			
Earnings per share (EUR)	0.63	1.30	–52.1

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Before effects of purchase price allocations and adjustments (see page 220 f.)
3) Operating cash flow driver = operating EBITDA – capital expenditure + adjustment of capital expenditure in strategic projects – change in working capital (average of the last 12 months)
4) Capital employed excluding goodwill from the acquisition of the former GEA AG by former Metallgesellschaft AG in 1999 (average of the last 12 months)

Popular drinks with pulps, berries and cereals increase the requirements for hygienic processing and filling enormously, because liquid and solid components should be treated differently. GEA supplies the right filling plant for this demanding process.



OUR PRODUCTS
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TO OUR SHAREHOLDERS

GEA – globally active

GEA is one of the largest suppliers for food processing technology and a wide range of other industries. The global group specializes in machinery, plants, as well as process technology and components. GEA provides sustainable solutions for sophisticated production processes in diverse end-user markets and offers a comprehensive service portfolio.

GEA 2018

REVENUE
4,828
EUR million

DIVIDEND PROPOSAL
0.85
EUR per share

OPERATING EBITDA-MARGIN
10.7
%

EMPLOYEES
18,642
Full-time equivalents

ORDER INTAKE
4,918
EUR million

OPERATING EBITDA
518
EUR million

In 2018, GEA generated consolidated revenues of around EUR 4.8 billion. The food and beverages sector, which enjoys long-term sustainable growth, accounted for around 70 percent of this total. The company is listed on the German MDAX (G1A, WKN 660 200), the STOXX® Europe 600 Index and selected MSCI Global Sustainability Indexes.

Customized solutions to meet the highest demands

Our customers are at the heart of everything we do and we build strong partnerships with them. We provide tailored, sustainable solutions for a wide range of customer-specific applications.

Infinite possibilities

Our Products

Automation & Control Systems

From process automation and machine control to data capture systems, GEA can provide tailor-made solutions for process plants and complete production lines.

Barn Equipment & Manure Management

GEA is one of the world's leading solutions providers in dairy farming. From barn design and planning, to herd and farm management, we offer a complete package to help farmers manage their businesses efficiently and sustainably.

Brewery Plants

We have extensive experience building complete brewery plants and are capable of providing solutions down to the smallest detail of the brewing process.

Centrifuge & Separation Solutions

Our centrifuges combine high separating and clarifying efficiency with high throughput capacities to ensure maximum savings in terms of energy, water and disposal costs.

Cleaners & Sterilizers

We supply both manual and fully automated clean-in-place (CIP) and sterilize-in-place (SIP) solutions that ensure reliable process outcomes with minimal downtime.

Compressors

We have a wide range of compressors for commercial and industrial refrigeration, air-conditioning and heat pump applications in the market. Our technologies have been cooling processes and products and controlling the temperature of transported goods since the late 1800s.

Innovative solutions

Our Products

Distillation & Fermentation Systems

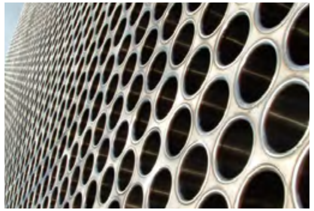
Our detailed knowledge of distillation and fermentation processes allows us to plan and deliver complex plants to meet detailed customer specifications.

Dryers & Particle Processing Plants

We offer a diverse portfolio of drying technologies which can be used to manufacture a wide range of products, ranging from bulk goods to the most advanced powders in food, beverages and dairy products, chemicals and pharmaceuticals.

Emission Control Systems

We are a market leader in the development, design and installation of emissions reduction systems.



Evaporators & Crystallizers

We have extensive experience in designing evaporation and crystallization plants that concentrate liquids, remove by-products or impurities and produce pure, high quality crystals.

Filling & Packaging Systems

We design systems to fill and package food and renewable raw materials, beverages, dairy products and pharmaceuticals.

Flow Components

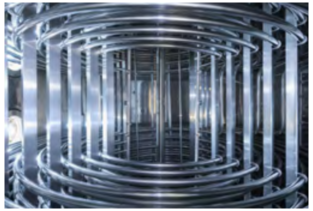
In the area of process components, we offer a complete range of valve, pump and cleaning technologies.

Customer-inspired

Our Products

Food Processing Systems

We have a multifaceted product portfolio of secondary technologies for food processing, covering everything from individual, stand-alone machines to fully integrated processing lines.



Freezers

Our highly respected design and manufacturing teams produce a diverse range of energy-efficient freezing and cooling systems. Our customized systems are based on our extensive experience with a diverse portfolio of products and processes.

Granulators

Each of our granulation and drying plants is a unique union of proven technology and tailored solutions. Our plant and process expertise is based on years of R&D and global experience.

Homogenization Solutions & Systems

High-pressure homogenizers are used to micronize fluid particles to obtain stable and uniform emulsions. From the laboratory to industrial-scale production, GEA equipment covers a wide range of customer applications.

Liquid Processing Systems

Systems for liquid processing are a GEA core competency. Our mixing, blending, heat treatment and pasteurization equipment ensures optimum production safety and hygiene.

Membrane Filtration Systems

We are one of the global leaders in custom-designed, cross-flow membrane filtration. This is the technology of choice for many industrial processes where liquids must be separated and concentrated without applying heat.

Process-proven

Our Products

Milking Systems
Our solutions for dairy farming include fully integrated dairy systems and lifetime service to ensure a long-term partnership.

Mixers & Blenders
We offer a wide range of technical solutions and process options to ensure the efficient mixing and blending of liquids, powders and granules for diverse industries and applications.

Product Handling Systems
The careful handling of our customers’ products requires a complete range of standard and customized equipment to deal with products as diverse as powders, liquids, foods and tablets.

Refrigeration Solutions & Systems
Each industry we serve utilizes GEA industrial refrigeration technologies. We provide sustainable solutions that reduce both energy consumption and CO_2 emissions.

Tablet Presses
Our strong drive to innovate and improve the compaction process is reflected in the individual and patented features found in our tablet press range, all of which deliver considerable benefits to our customers.

Vacuum Systems
Vacuum technology is used extensively in the chemical, pharmaceutical, food and oil refining industries. Our process- integrated systems reduce costs and environmental pollution.

A reliable service partner

Working with GEA means partnering with a dedicated team of service experts. Our focus is to build, maintain, and improve customer performance throughout the entire life cycle of plants or farm operations and their equipment.

Beginning of Life Services – getting you started:
seamless support for instant productivity and performance

Lifetime Services – keeping it running:
the most cost-efficient way to ensure safety and reliability

Extended Life Services – constantly improving:
sharing our knowledge to safeguard the customer's investment

Consulting & Enhanced Operations – together with our customers:
enduring commitment to our customer's business

MORE DETAILS
»»»
gea.com/service

Steffen Bersch
Member of the Executive Board

Martine Snels
Member of the Executive Board

Stefan Klebert
CEO

Dr. Helmut Schmale
CFO

Niels Erik Olsen
Member of the Executive Board

GEA Executive Board

Executive Board of GEA Group Aktiengesellschaft

Stefan Klebert, Chairman of the Executive Board (since February 18, 2019)

Born on June 27, 1965, in Stuttgart, Germany, Stefan Klebert was appointed Chairman of the Executive Board on February 18, 2019, having joined the Executive Board on November 15, 2018. His period of office runs until December 31, 2021. He is the Board's Labor Relations Director since February 18, 2019. In addition to Human Resources, he is in charge of the departments Communication, Marketing & Branding, Corporate Development, Internal Audit, Investor Relations and Legal & Compliance.

Jürg Oleas, Chairman of the Executive Board (up to February 17, 2019)

Jürg Oleas, a Swiss national born on December 8, 1957, in Quito, Ecuador was Chairman of the Executive Board of GEA from November 1, 2004 to February 17, 2019, having joined the Executive Board on May 1, 2001. In the 2018 financial year, he held the post of Labor Relations Director. Communication, Marketing & Branding, Corporate Development, Human Resources, Internal Audit and Legal & Compliance also fell under his remit.

Steffen Bersch, Member of the Executive Board

Steffen Bersch was born on June 12, 1969, in Wattenscheid, Germany and appointed to the Executive Board with effect from January 1, 2016. He is responsible for the Business Area Equipment. His period of office runs until December 31, 2021.

Niels Erik Olsen, Member of the Executive Board

Niels Erik Olsen, born on September 3, 1966, in Guldborgsund, Denmark, has been a member of the Executive Board since January 1, 2016, where he is responsible for the Business Area Solutions. His period of office runs until December 31, 2021.

Dr. Helmut Schmale, Chief Financial Officer

Born on November 9, 1956, in Gelsenkirchen, Germany, Dr. Helmut Schmale became Chief Financial Officer on April 22, 2009, having joined the Executive Board on April 1, 2009. Dr. Schmale is responsible for the areas of Finance, Tax, and Treasury & Corporate Finance. Dr. Helmut Schmale will leave the company as of May 17, 2019. Marcus A. Ketter will succeed as a Chief Financial Officer with effect from May 20, 2019.

Martine Snels, Member of the Executive Board

Martine Snels was born on February 19, 1969, in Hoogstraten, Belgium. Since October 1, 2017, she has been a member of the Executive Board with responsibility for the company's regional and national organization. Her period of office runs until September 30, 2020.

Stefan Klebert
Chairman of the Executive Board of GEA Group Aktiengesellschaft

Dear Shareholders,

Looking back on 2018 reveals a mixed year, in which revenue growth clearly outperformed expectations, while the company's earnings margin turned out to be disappointing. Our ambition for the future is therefore clear: GEA must regain its former strength as the company holds plenty of potential.

I have been a member of GEA's Executive Board since November 15, 2018, and took over as its Chairman on February 18, 2019. Over the last several months, getting to know GEA has been at the very top of my agenda. For this reason, I primarily devoted the first few weeks to gaining a better understanding of our company, our employees and customers, as well as our products. I have visited numerous sites worldwide and also attended a few specialty trade shows; on these occasions, I spoke to many employees and engaged with clients. I wanted to find out their concerns, what challenges they see for GEA and what, from their respective point of view, should be addressed or tackled differently in the future.

I have learned a lot about this impressive company. A company holding leading positions in a wide range of different industries with excellent prospects for the future and which possesses unique know-how, innovative products and highly committed employees, who sincerely regard GEA as their company by putting their hearts and souls into their work each day.

However, I also fully recognise that GEA's capital market performance has been disappointing. The share price responded accordingly, and our enterprise value has witnessed a sharp decline since fall 2016. This development clearly underlines that we cannot and will not continue like this. We are seeking to regain your trust in GEA – including the trust of the entire capital market – by taking consistent and transparent action.

As a first step and for the purpose of demonstrating our dividend continuity, the Executive Board and the Supervisory Board have taken the following decision: Despite the unsatisfactory development of our business throughout the previous year, we intend to once again propose a dividend in the amount of EUR 0.85 per share at the Annual General Meeting. Once again, this would be equivalent to a dividend payout of EUR 153.4 million for the 2018 fiscal year.

Now, we must look ahead to the future and urgently take forward the most important topics. Immediately after taking over as Chairman of the Executive Board, I met with roughly 60 of the company's most senior executives from all areas of our global business for an intensive workshop. Together, we took stock of GEA's current situation and set priorities for the months ahead. We will critically scrutinize both our fundamental structure and internal processes. Moreover, we see potential for improvement, in particular in terms of organizational structure, financial transparency as well as IT, purchasing, our global manufacturing footprint and internal responsibilities. We are analyzing in detail those areas responsible for our decline in earnings for the purpose of taking countermeasures as soon as possible. Because GEA will primarily focus on tackling these challenges, I do not anticipate any significant acquisitions in the near future.

Our common objective is to clearly demonstrate one thing: that GEA is a market and innovation leader in many promising industries, plays in the premier league and reaps the respective economic rewards of its efforts. GEA's ambition is to wow its customers by offering sustainable products and solutions while being an attractive employer to its workforce. Last but not least, we jointly seek to ensure that GEA is a company that is held in high esteem by you, dear Shareholders.

We have a lot of work ahead of us that will certainly require effort and time, notably due to the fact that the market is unlikely to deliver any positive tailwinds in 2019. Nonetheless, I am absolutely certain that we will get GEA back on track and on the road to success by focusing on our own strengths and by joining forces and pulling together. We are a company with great products, excellent employees and a healthy balance sheet. This is what we need to rely and build upon.

I am looking forward to meeting these challenges together with the GEA team and very much appreciate the trust and confidence you have placed in this company.

Sincerely,

Stefan Klebert
Chairman of the Executive Board

Dr. Helmut Perlet
Chairman of the
Supervisory Board of
GEA Group Aktiengesellschaft

Report of the Supervisory Board

During fiscal year 2018, the Supervisory Board performed the monitoring and advisory functions incumbent upon it by virtue of the law, the Articles of Association and the Rules of Procedure. In doing so, it regularly dealt with the progress and the prospects of the company as well as all specific material issues while continuously advising the Executive Board on matters relating to the management of the company.

For fulfilling its tasks, the Supervisory Board, on the one hand, relied on the discussions held during its meetings and the meetings of its Committees. On the other hand, the Executive Board – in compliance with its obligation to inform – kept the Supervisory Board and its Committees up to date through regular, timely and comprehensive written and/or oral reports on all relevant matters and measures relating to the company, its course of business, corporate planning, strategy as well as the progress of the group. The Supervisory Board was involved in all decisions of fundamental importance to the company and assisted the Executive Board in an advisory capacity. At Committee level and during the meetings of the full Supervisory Board, the members of the Supervisory Board were given sufficient opportunity to critically analyze and appraise the reports and motions for resolution submitted by the Executive Board - and to put forward recommendations. The results obtained and the essential contributions made during the discussions held at Committee meetings were presented by the Chairmen of the Presiding and the Audit Committees at the respective following Supervisory Board meetings and, thus, assisted the full Board in forming an opinion. This way, the preparatory and in-depth work undertaken by the Committees was instrumental in enhancing the overall efficiency of the activities of the Supervisory Board.

Furthermore, the Chairmen of the Supervisory Board and the Audit Committee maintained regular contact with the Executive Board. Between the meetings, the Chairman of the Supervisory Board and the Chairman of the Executive Board regularly discussed matters of strategy, planning, business progress, risk exposure, risk management and compliance. Outside of meetings, the Chairman of the Audit Committee remained in contact with members of the Executive Board, in particular the Chief Financial Officer, to keep abreast of current developments relevant to the work of the Audit Committee and to discuss them, if necessary. In preliminary meetings with the Executive Board, the employee representatives regularly deliberated on the most important agenda items prior to the meetings of the full Supervisory Board.

On a regular basis, the Supervisory Board received specific information on the order intake, revenue, earnings as well as the employment situation of the group and its business areas. Explanations on deviations of business performance from set plans and targets were given on the basis of supporting documents. Prior to and between the meetings, the Executive Board delivered written reports on significant events to the members of the Supervisory Board. Following deliberations at Committee level, the future prospects and the strategic orientation of the company and its business areas, as well as corporate planning were extensively discussed and agreed with the Supervisory Board.

After extensive scrutiny and deliberations as well as discussions at Committee level, as the case may be, the members of the Supervisory Board cast their votes on the reports and motions for resolution submitted by the Executive Board insofar as this was appropriate or required by law, the provisions of the Articles of Association or the Rules of Procedure. For reasons duly substantiated, in particular in matters of special urgency, resolutions were adopted by written procedure.

In the year under review, there were no conflicts of interest involving members of the Executive Board and the Supervisory Board that would have required immediate disclosure to the Supervisory Board and communication to the Annual General Meeting.

Focal points of Supervisory Board deliberations

In fiscal year 2018, the Supervisory Board held eight meetings. On these occasions, the Supervisory Board regularly discussed matters relating to the company's business progress, its financial position as well as share price performance. Apart from that, the following key topics were debated.

The key items on the agenda of the Supervisory Board meeting held on February 15, 2018, included the 2018 budget, the current progress of Project Value as well as the 2017 bonus achievement of the Executive Board.

Key issues addressed during the Supervisory Board meeting held on March 8, 2018, embraced the adoption of the annual financial statements and the approval of the consolidated financial statements for fiscal year 2017, including the appropriation of net earnings. Apart from that, the Supervisory Board dealt with the final determination and weighting of the Executive Board members' individual targets for the 2018 fiscal year, the reappointment of two members of the Executive Board, the motions for resolution on individual agenda items that were to be submitted to the 2018 Annual General Meeting as well as the capital markets day and the "OneGEA Finance" project. In addition, the company's Chief Compliance Officer delivered a detailed report on the 2017 fiscal year.

The extraordinary conference call Supervisory Board meeting held on March 19, 2018, focused on the early departure of the Chairman of the Executive Board and the further proceedings to be taken in relation to CEO succession.

At the Supervisory Board meeting held on April 18, 2018, the Board addressed Executive Board matters including Executive Board succession as well as the preparation of the Annual General Meeting on the following day. Furthermore, the Supervisory Board and Dr. Helmut Schmale, the company's Chief Financial Officer, mutually agreed that Dr. Helmut Schmale would retire from the Executive Board before the end of his appointment that was due to expire at the end of March 2021.

Key issues raised during the meeting held on June 21, 2018, included a report on the current state of play in Executive Board succession planning, the new Executive Board remuneration scheme, the performance of the Shared Service Center, the strategy and objectives pursued in connection with digitalization as well as the portfolio analysis. Moreover, the Supervisory Board passed resolutions on the cancellation of treasury stock, the pension benefits adjustment as regards former members of the Executive Board as well as the conduct of the efficiency check with the support of an external consultant.

On September 18, 2018, the Supervisory Board convened in Venice, Italy. Apart from the regular meeting of the Supervisory Board, the agenda included a visit to the head office of the recently acquired Pavan S.p.A. group located near Venice. During their tour, the members of the Supervisory Board were shown various digital solutions and applications developed by GEA within the framework of a so-called digital market place. During its meeting, the Supervisory Board continued its deliberations on the current progress of the new Executive Board remuneration system as well as Executive Board succession planning. On top of that, the Supervisory Board was informed about the current state of play in the 2018 target achievement of the Executive Board. Another topic raised was Supervisory Board succession planning. Finally, the Supervisory Board addressed performance initiatives and portfolio issues.

In its extraordinary meeting on September 19, 2018, the Supervisory Board appointed Stefan Klebert to the Executive Board, first as an ordinary member, then as Chairman of GEA's Executive Board with effect from February 18, 2019. Besides, the Supervisory Board agreed on a potential candidate to fill an employer representative position on the Supervisory Board that was expected to become vacant.

During its meeting held on December 19, 2018, the Supervisory Board addressed the performance of Dairy, the report on the integration of the Pavan Group, the level of target achievement attained by the members of the Executive Board in 2018 as well as the proposal for Executive Board targets for the year 2019. Furthermore, the final report on the 2018 efficiency check was presented and discussed. In addition, those present delved deeper into the "new Executive Board remuneration system" and were brought up to speed on "Executive Board succession planning". The new Executive Board remuneration system was adopted, factoring in observations and comments made by investors who had been familiarized with the new Executive Board remuneration system during a roadshow in autumn 2018. Moreover, the Supervisory Board appointed Marcus A. Ketter as new Chief Financial Officer and approved the termination agreement concluded with Jürg Oleas. Colin Hall was elected as new Presiding Committee member and Dr. Molly Zhang as new member of the Mediation Committee. In addition, the Supervisory Board adopted the 2018 Declaration of Conformity pursuant to the German Corporate Governance Code.

Work of the Committees

In the year under review, the Presiding Committee met on eight occasions with a main focus on succession planning processes in relation to the CEO and CFO positions, as well as the new Executive Board remuneration system. Apart from that, the Presiding Committee specifically addressed the topic of corporate governance and transactions requiring approval. Furthermore, the Presiding Committee's remit includes matters of corporate strategy, capital investment as well as funding that are addressed together with the Executive Board.

The Audit Committee held five meetings. In the presence of the auditor, the Chairman of the Executive Board as well as the Chief Financial Officer, it focused on the annual financial statements in conjunction with the consolidated financial statements for 2017, the 2018 quarterly financial statements and the half-yearly financial reports. Furthermore, the Committee's key activities included monitoring the accounting process, the effectiveness of the internal control, risk management and audit systems, the audit of the annual financial accounts as well as compliance.

At regular intervals, the Audit Committee was briefed on the risks and opportunities faced by the company. The auditors extensively elaborated on their audit activities and the audit process. In addition, the Audit Committee submitted its proposal for the appointment of an auditor to the Supervisory Board, dealt with the engagement of the auditor of the annual financial accounts, determined the audit process and the key audit areas including audit fees, ensured the required independence of the auditor and addressed the permitted non-audit services provided by the latter.

In the year under review, the Nomination Committee was convened on one occasion and discussed the replacement of a retiring Supervisory Board member.

The year under review did not see a meeting of the Mediation Committee.

The Committee chairmen briefed the Supervisory Board on the activities undertaken by the Committees during the Supervisory Board meetings following the respective Committee meetings.

With effect from May 1, 2019, the Supervisory Board formed a Technology Committee comprising Dr. Molly Zhang, Jean E. Spence, Michaela Hubert and Brigitte Krönchen.

Disclosure of individual meeting attendance

Supervisory Board member	Supervisory Board and Committee meetings	Attendance	Attendance rate
Dr. Helmut Perlet (Chairman)	21	21	100 %
Kurt-Jürgen Löw (Deputy Chairman)	16	16	100 %
Ahmad Bastaki	16	12	75 %
Prof. Dr. Werner Bauer (member until November 12, 2018)	13	13	100 %
Hartmut Eberlein	14	14	100 %
Rainer Gröbel	16	16	100 %
Colin Hall (member since November 13, 2018)	3	3	100 %
Michaela Hubert	16	16	100 %
Eva-Maria Kerkemeier	8	7	88 %
Michael Kämpfert	13	13	100 %
Brigitte Krönchen	13	13	100 %
Jean Spence	8	8	100 %
Dr. Molly Zhang	8	7	88 %

Whenever Supervisory Board members were unable to attend meetings of the Supervisory Board or its Committees, they had asked to be excused and usually cast their votes in writing, in particular as regards the personnel decisions that were taken.

Corporate governance

The Supervisory Board is continuously monitoring the evolution of the standards set out by the Corporate Governance Code. At its meeting on December 19, 2018, it discussed the recommendations and suggestions of the German Corporate Governance Code as amended on February 7, 2017, as well as the structure and contents of the draft German Corporate Governance Code that had been submitted in early November 2018 and was to enter into force in 2019 following a fundamental overhaul. After concluding their respective deliberations, the Executive Board and the Supervisory Board issued an updated Declaration of Conformity in accordance with s. 161 AktG (Aktiengesetz – German Stock Corporation Act) and made it permanently accessible to the general public on the company's website. Further information on corporate governance can be found in the Corporate Governance Report (see page 59 ff.).

Annual financial statements and consolidated financial statements 2018

The 2018 annual financial statements of GEA Group Aktiengesellschaft, the consolidated financial statements prepared in accordance with IFRS and the combined management report were audited by KPMG AG Wirtschaftsprüfungsgesellschaft and received an unqualified audit opinion. Since fiscal year 2011, KPMG AG Wirtschaftsprüfungsgesellschaft, Berlin, has audited the financial statements of GEA Group Aktiengesellschaft and the group. The head auditor responsible for conducting the audit since 2018 has been Michael Jessen.

In the presence of the auditors, the combined management report, the annual financial statements of GEA Group Aktiengesellschaft, the proposal for the appropriation of net earnings as well as the consolidated financial statements and the audit reports for fiscal year 2018 were extensively discussed during the meeting of the Audit Committee on March 7, 2019, and at the Supervisory Board meeting for balance sheet approval held on March 13, 2019. The auditors reported on the audit process and the key findings of their audit. They were also available to answer questions.

On the basis of the final result of the examination performed by the Audit Committee and after conducting its own scrutiny, the Supervisory Board agreed with the auditors' findings at its meeting held on March 13, 2019, and found that there were no objections to be raised. The Supervisory Board approved the 2018 consolidated financial statements, the 2018 annual financial statements of GEA Group Aktiengesellschaft, as well as the combined management report. The annual financial statements of GEA Group Aktiengesellschaft are hereby adopted. The Supervisory Board considers the proposal for the appropriation of net earnings to be reasonable.

The review of the company's non-financial statement for fiscal year 2018 by the Supervisory Board pursuant to s. 171 para. 1 AktG was supported by a limited assurance engagement conducted by KPMG. For this purpose, KPMG audited GEA's risk assessment as regards information on the company's sustainability performance, evaluating the design and implementation of systems and processes designed to ascertain, process and monitor disclosures on environmental, employee-related and social matters, human rights, corruption and fraud, including data consolidation. Referring to the auditor's findings, the Audit Committee also conducted its own audit steps and satisfied itself that the data submitted was in compliance with the legal requirements; thereafter, the Chairman of the Audit Committee informed the Supervisory Board accordingly.

Changes in the composition of the Supervisory Board and the Executive Board

Steffen Bersch's and Niels Erik Olsen's appointments as ordinary Executive Board members due to expire on December 31, 2018, were renewed for another three-year term until and including December 31, 2021.

Jürg Oleas left the company on February 17, 2019. Dr. Helmut Schmale will retire from the Executive Board on May 17, 2019. The Supervisory Board would like to thank Jürg Oleas and Dr. Helmut Schmale for their many years of dedicated service to GEA and their good and trusting cooperation, and wishes them all the best for the future.

Stefan Klebert was appointed to the company's Executive Board with effect from November 15, 2018, until December 31, 2021. He took over as Chairman of the Executive Board from Jürg Oleas on February 18, 2019. Marcus A. Ketter will assume the position of Chief Financial Officer on May 20, 2019. He was appointed for a term of three years.

At midnight on November 12, 2018, Prof. Werner Bauer resigned as a member of the Supervisory Board of GEA Group Aktiengesellschaft. By resolution of November 13, 2018, Colin Hall was appointed as new member of the company's Supervisory Board by the Düsseldorf Local Court. Succeeding Prof. Bauer, Dr. Molly Zhang was elected as new member of the Mediation Committee and Colin Hall as new Presiding Committee member on December 19, 2018.

The Supervisory Board wishes to express its gratitude and appreciation to the senior management teams, employee representative bodies and, in particular, to all employees of GEA Group for their personal commitment and dedication as well as their hard work throughout an exceptionally challenging fiscal year.

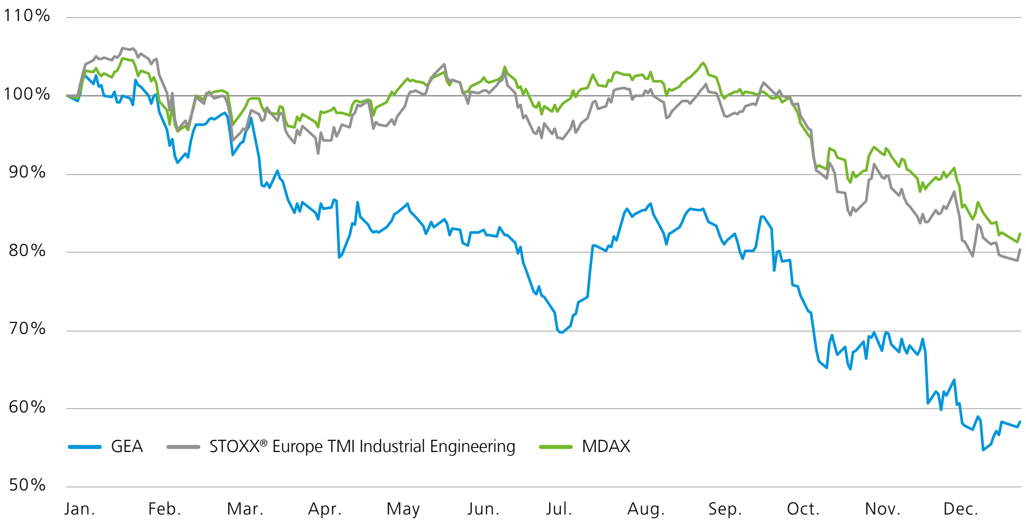
Düsseldorf, March 13, 2019

Dr. Helmut Perlet
Chairman of the Supervisory Board

GEA Shares/Investor Relations

Performance of GEA shares on the capital markets

In a market environment characterized in 2018 by trade barriers, GEA's share price dropped 43.8 percent over the course of the fiscal year. On January 9, 2018, GEA shares reached EUR 41.05 – the highest closing price. The share price fell to its lowest point of the year – EUR 21.04 – on December 14, 2018. At the end of the year, the share was quoted at EUR 22.50.



Shareholder structure

On February 6, 2018, the GEA Group Aktiengesellschaft completed on schedule its share buyback program, which had begun on March 8, 2017 and amounted up to EUR 450 million. The repurchased shares accounted for 6.24 percent of the company's registered share capital and, as had been announced in 2017, were retired with the consent of the Supervisory Board in June 2018. As a result, the company no longer holds any treasury shares. After the retirement of shares, there were 180,492,172 shares in circulation as of the end of 2018 (previous year: 192,495,476 shares). Market capitalization at the end of 2018 amounted to EUR 4.1 billion (previous year: EUR 7.7 billion).

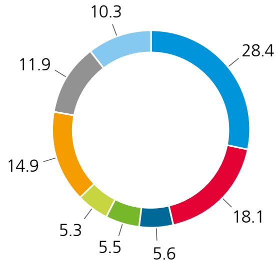
As in previous years, the company performed half-yearly analyses of its shareholder structure in 2018 too. The last analysis – from the third quarter of 2018 – identified 92 percent of the company's shareholders and indicates that institutional investors held 80 percent of all GEA shares.

The German stock exchange does not count two investors towards free float: Kuwait Investment Office and Oliver Capital (principal shareholder of Groupe Bruxelles Lambert). According to the most recent voting rights announcements submitted to us, Kuwait Investment Office held 17,129,370 voting rights (through shares and instruments) as of November 26, 2015, which corresponded to some 9.5 percent as of December 31, 2018. As of December 3, 2018, Oliver Capital held a total of 15,357,460 voting rights (exclusively shares), which corresponded to some 8.5 percent as of December 31, 2018. The German stock exchange therefore presumed that approximately 82 percent of GEA shares were in free float as of the reporting date.

Regional breakdown of shareholders

(in %)

- United States of America (USA)
- United Kingdom (UK)
- France
- Canada
- Germany
- Rest of Europe
- Rest of World (incl. Kuwait)
- Not identified (incl. 2.4% non-institutional shareholders)

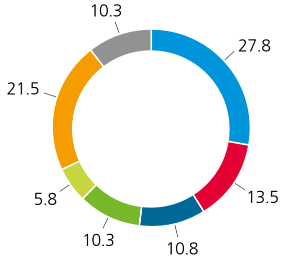


Based on 180.492.172 shares, which were issued by GEA Group Aktiengesellschaft at the date of the survey in the third quarter of 2018

Investment styles of institutional investors

(in %)

- Growth
- GARP*
- Value
- Index
- Hedge fund
- Others (incl. Kuwait Investment Office)
- Not identified (incl. 2.4% non-institutional investors)



*) Growth at a reasonable price
Based on 180.492.172 shares, which were issued by GEA Group Aktiengesellschaft at the date of the survey in the third quarter of 2018

Investor relations activities

GEA engages in regular dialog with capital market players in addition to quarterly financial reporting. Moreover, GEA kept in close contact with investors in 2018 by participating at 15 conferences and hosting 13 roadshows – some of which the company's CEO and the CFO attended.

GEA held over 300 one-on-one meetings at these events. And on a capital markets day in March 2018, the entire Executive Board informed attendees about strategic initiatives.

Credit ratings/debt market

Rating agencies assess the ability of a company to honor its financial obligations. Through regular meetings with a company's management and financial department, and by conducting its own extensive analysis, the agencies are able to arrive at an individual score or rating for the organization. These ratings serve as evidence of the Company's creditworthiness to existing and potential debt capital providers. For many years now, the international agencies Moody's and Fitch have rated the financial standing of GEA Group Aktiengesellschaft. In the 2018 fiscal year, Moody's upheld its assessment of GEA Group Aktiengesellschaft's creditworthiness. Fitch, however, reduced its outlook to "negative" without changing its rating.

	2018		2017	
Agency	Rating	Outlook	Rating	Outlook
Moody's	Baa2	stable	Baa2	stable
Fitch	BBB	negative	BBB	stable

The ratings enable GEA to raise funding by utilizing various debt instruments available on the international financial markets. This highlights how important it is for GEA to maintain its investment grade rating and continue to optimize its financial results going forward.

In total, GEA has credit lines totaling EUR 1,123.7 million, of which EUR 318.2 million had been utilized as of the reporting date. Further information on the credit lines and their utilization can be found in note 3, beginning on page 164 ff., to the consolidated financial statements.

COMBINED GROUP MANAGEMENT REPORT

Fundamental Information about the Group

Group business model

Combined management report of GEA Group Aktiengesellschaft and the GEA Group

GEA Group Aktiengesellschaft is home to central management functions of the group. Profit and loss transfer agreements exist with key domestic subsidiaries. In addition, GEA Group Aktiengesellschaft performs central financial and liquidity management. Furthermore, it provides its subsidiaries especially with services from the Global Corporate Center on the basis of service agreements.

Since the course of business, the economic position, and the opportunities and risks associated with the future development of GEA Group Aktiengesellschaft do not differ from the course of business, the economic position, and the opportunities and risks associated with the future development of the group, the management report of GEA Group Aktiengesellschaft has been combined with that of the group in accordance with section 315 (5) of the Handelsgesetzbuch (HGB – German Commercial Code). In contrast to the consolidated IFRS financial statements, the annual financial statements of GEA Group Aktiengesellschaft are based on the HGB, supplemented by the Aktiengesetz (AktG – German Stock Corporation Act). All the financial statements relate to the 2018 financial year (January 1 to December 31, 2018).

GEA reports also on non-financial performance factors in the 2018 Annual Report. The sustainability report follows the international standards of the Global Reporting Initiative (GRI). The GRI Content Index can be found at the end of the Annual Report (see page 248 ff.). Since the 2016 Annual Report, GEA's Annual Reports have included an annual sustainability report. In addition, the management report also contains the Combined Corporate Governance Statement.

Organization and structure

The group

The global group specializes in machinery, plants, as well as process technology and components. GEA provides sustainable solutions for sophisticated production processes in diverse end-user markets and offers a comprehensive service portfolio. GEA is one of the largest suppliers of systems and components for the food processing industry and a wide range of other processing industries.

The group is a specialist in its respective core technologies and a leader in many of its sales markets worldwide. GEA consistently promotes an innovation-led culture thereby maintaining its technological edge. Active risk management, stability through diversification, and a focus on the markets of the future are binding principles for all GEA business units.

The group's enduring success is based on a number of major global trends, including:

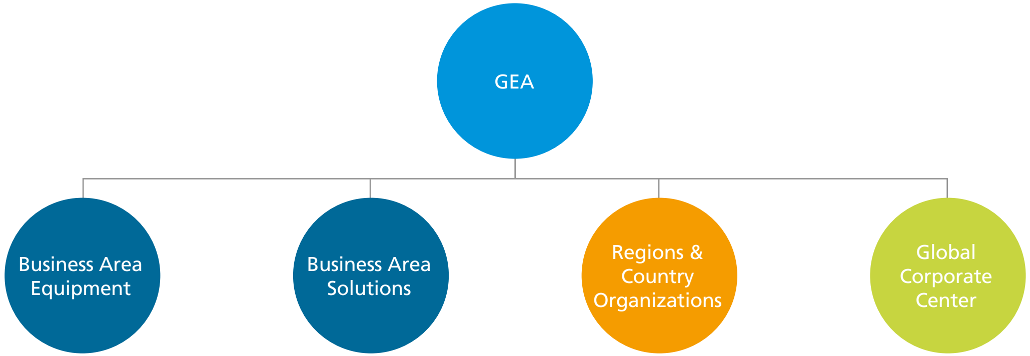
1. Continuous global population growth
2. Growing middle class
3. Increasing demand for high-quality foods and beverages
4. More demand for efficient production methods that also conserve valuable resources.

Group structure

GEA groups the development and manufacturing of products and the provision of process solutions and services into two operating segments, namely Business Area (BA) Equipment and Business Area Solutions. In the year under review, the Business Area Equipment was headed at Board level by Steffen Bersch, while Niels Erik Olsen was responsible for the Business Area Solutions.

Having a structure made up of two business areas of roughly equal size and strength promises operational synergies across technologies and applications, and helps achieve functional excellence through the standardization of processes.

Executive Board member Martine Snels is responsible for the company's regional and national organization.



Operating segments

Business Area Equipment

The Business Area Equipment brings together all activities ranging from largely standardized to customer-specific equipment offerings. The products are primarily manufactured as part of series production on a standardized and modular basis. Typical products of this business area include separators, valves, pumps, homogenizers and refrigeration equipment such as compressors. The equipment portfolio also includes process technology for food processing and packaging, for example extrusion and milling equipment. The product range also extends to dairy equipment, feeding systems and slurry engineering as well as an entire service portfolio.

Business Area Solutions

The Business Area Solutions encompasses all group activities related to customer-specific products, projects, after-sales and services. These cover scopes ranging from small to complete plants tailored to specific applications and customer requirements. The offering primarily includes the engineering, design and delivery of customized process solutions for the dairy, food, beverage, pharma and chemical industries. This business area also provides efficient, industrial refrigeration and sustainable energy solutions across all markets served.

Other companies

The "Other companies" area includes GEA Group Aktiengesellschaft and those companies with business activities that do not form part of the core business. The management report refers to this area only selectively.

Organizational units

Country organizations

Customer-centric sales and local service activities are unified under the umbrella of a single country organization, with the countries grouped under their corresponding regions. GEA customers have a single national organization per country, which is their central point of contact to the entire product portfolio and comprehensive services offered to them locally.

Administrative organization

A Global Corporate Center provides centralized support to all management and administrative functions and performs the management functions for the entire group. This includes the groupwide management of strategy, human resources, legal and tax matters, mergers & acquisitions, the central financial organization, internal auditing, marketing & communication and IT. As of November 1, 2018, all functions previously combined under the independent Shared Service Center (SSC) have been integrated into the Global Corporate Center. The operating expenses of the Global Corporate Center are allocated, where possible to the business areas.

Discontinued operations

Discontinued operations comprise the remaining risks from the sale of GEA Heat Exchangers, along with the ongoing process of winding-up past discontinued operations, including individual legal disputes arising from them.

Capital expenditure

GEA develops and engineers specialized components, largely on a make-to-order basis, and also designs process solutions for a broad range of customer industries. The focus is on the food and beverage sectors. With its global engineering and production network, the group is able to provide customers with solutions that are precisely tailored to their individual requirements. Customers also benefit from our flexible production concepts, which ensure fast throughput and low costs, and minimize the capital tied up.

Strategic projects accounted for EUR 27.9 million of the total capital expenditure of EUR 135.9 million (see page 220 f.), of which EUR 18.6 million to the Business Area Equipment and EUR 1.5 million to the Business Area Solutions. Thus, capital expenditure before strategic projects amounted to EUR 108.0 million, higher than the previous year's level of EUR 90.6 million excluding strategic projects. This increase is attributable primarily to investments in new products as well as in research and development (R&D). Expenditure for rationalization and replacements also increased.

The largest shares of capital were spent on R&D and new products (together approx. 52 percent) as well as replacements (some 32 percent). R&D expenditure mainly benefitted two Business Area Equipment product groups: Milking & Dairy Farming and Food Processing & Packaging. This spending enabled GEA to further expand its range of digital solutions for farmers in the context of 365FarmNet as well as add features to the fully automated DairyProQ milking system. In addition, GEA enhanced its dairy robot with a multi-box configuration. Within the Food Processing & Packaging product group, GEA optimized the loading of products as well as the technology and process flows for cutting machines. The Business Area Solutions improved the automatic filling system (Aseptic Blow Fill, ABF) and harmonized its software technologies.

EUR 75.6 million of the capital expenditure (excluding strategic projects) was attributable to the Business Area Equipment, and EUR 30.2 million to the Business Area Solutions.

Capital expenditure in tangible and intangible assets per type (without strategy projects)

(in %)

Capital expenditure in tangible and intangible assets by region (without strategy projects)

(in %)

Management system

Basis of information

Group reports are prepared with the aid of standard applications that are precisely tailored to the needs of GEA and subject to continuous enhancement. Standard reports prepared on the basis of unified data are used throughout the group to report net assets, financial position, and results of operations. These standard reports are supplemented by special analyses as well as analyses and reports related to specific businesses and strategic measures. Besides the budget for the coming fiscal year, corporate planning covers a further two planning years.

Routine reporting procedures are supplemented by committee meetings that provide members of the group management with an opportunity to share information on strategic and operational issues. Meetings of the Executive Board of GEA Group Aktiengesellschaft and of the Extended Management Board (Global Leadership Team), which comprises the Executive Board members, the management of the two Business Areas, the heads of the sales regions and representatives of the Global Corporate Center (GCC) and the Finance and Human Resources areas are held once a month. The Executive Board meetings concentrate on issues of relevance to the group as a whole, whereas decisions with a direct impact on the Business Areas and Regions are prepared in meetings of the Global Leadership Team (GLT), before passing to the Executive Board for approval. In addition, the individual Business Areas regularly hold meetings. These are attended by the competent Executive Board member along with the heads of the respective Business Area, and business partners of GCC Finance. Such meetings entail detailed discussions of the net assets, financial position, results of operations, and business development of the Business Area concerned. Separate meetings for each Business Area are also held to discuss earnings for the latest fiscal year and the business plan for the following years.

Key performance indicators

Key financial performance indicators in the management system in 2018

GEA's prime objective is to increase the value of the enterprise year on year. Trends in key indicators are, therefore, defining factors and an essential basis for the company's lasting success. In 2018, the key financial performance indicators for GEA were as follows:

- Revenue
- Operating EBITDA margin
- Operating cash flow driver margin

With respect to earnings, GEA focused on the operating EBITDA margin. In fiscal year 2018, GEA defined the expression "operating" as adjusted for effects resulting from the remeasurement of assets added due to acquisitions and for expenses for strategic projects (see page 220 f.).

The operating cash flow driver margin is the balance of operating EBITDA, the change in average working capital, and capital expenditures for property, plant, and equipment, and intangible assets. Also, capital expenditure was adjusted for investments in strategic projects.

In 2018, in order to neutralize currency translation effects for operational management purposes, GEA reported the key performance indicators of revenue, operating EBITDA margin and operating cash flow driver margin at constant exchange rates compared with the previous year.

Other indicators in the management system in 2018

GEA also routinely gathers various other performance indicators in order to obtain a meaningful picture of the overall situation.

Revenue is analyzed by region, product group and application on a monthly basis in order to identify market trends quickly. We also evaluate leading indicators such as the GEA Business Climate (GBC – see page 117), and order intake.

To enable a rapid response to developments, the Business Areas also provide regular forecasts – for the quarters and the year as a whole – for the key performance indicators of revenue and operating EBITDA. Beyond that, GEA makes estimates for other indicators, such as order entry, and publishes these together with the Business Areas' forecasts.

The return on capital employed (ROCE), calculated as the ratio of EBIT to capital employed, provides a further performance indicator for measuring the value added that is generated by the group's operating activities. It is reflected in the regular reporting as a building block in the measurement of variable remuneration in the group. In order to anchor ROCE even more strongly at an operational level, the ROCE drivers EBIT and EBIT margin, working capital – the key driver of capital employed – and the ratio of working capital to revenue are monitored continuously. When calculating capital employed, effects arising from the acquisition of the former GEA AG by the former Metallgesellschaft AG in 1999 are not taken into account.

The difference between the expected ROCE and the weighted average cost of capital (WACC) is a key criterion for investment and portfolio decisions.The group calculates WACC on the basis of the following factors: the cost of equity, based on the return yielded by an alternative, risk-free investment plus a market risk premium and the beta factor, actual borrowing costs, and the rate used to discount pension obligations.

Key financial performance indicators in the management system in 2019

GEA revised its management system for the 2019 financial year with the aim of simplifying value-oriented control parameters and introducing customary market indicators, thus safeguarding accountability, transparency and comparability. Also, from 2019 on, GEA will no longer be additionally reporting key performance indicators at constant exchange rates and this will serve to further reduce complexity.

GEA's key performance indicators as of the 2019 financial year are as follows:

- Revenue
- EBITDA before restructuring measures
- Return on Capital Employed (ROCE)

EBITDA before restructuring measures

Starting in 2019, GEA will use EBITDA (earnings before interest, taxes, depreciation and amortization) as its chief earnings indicator. EBITDA is adjusted to take account of the effect of restructuring expenditures. The relevant restructuring measures are outlined in terms of content and scope, presented to the Chairman of the Supervisory Board by the CEO and, where required by the Board's rules of procedure, approved and finalized by the Supervisory Board. Only measures requiring funding in excess of EUR 2 million are taken into account. Accordingly, this indicator is termed "EBITDA before restructuring measures". Adjustments are no longer made for expenses incurred in other strategic projects above and beyond restructuring measures.

Return on Capital Employed (ROCE)
The performance indicators "revenue" and "EBITDA before restructuring measures" are supplemented by another accounting ratio, namely the ROCE or the "return on capital employed". The ROCE corresponds to the ratio of earnings before interest, taxes and restructuring measures (EBIT before restructuring measures) to the capital employed.

Capital employed includes (all items calculated as averages for the past four quarters) non-current assets less interest-bearing non-current assets and working capital plus other non-interest-bearing assets, liabilities and provisions less assets and liabilities in connection with income taxes. When calculating capital employed, the effects arising from the acquisition of the former GEA AG by the former Metallgesellschaft AG in 1999 and further effects from discontinued operations are not taken into account.

As a strategic indicator, the ROCE measures the relative profitability of a company when compared with the weighted cost of capital used (WACC). If the ROCE is above the WACC, this is an indication that the business is gaining in value as the expectations of the capital market have demonstrably been exceeded.

In order to anchor ROCE even more strongly at an operational level, the ROCE drivers "EBIT before restructuring measures", "working capital" or the "ratio of working capital to revenue" – the key driver of capital employed – are evaluated on a continuous basis.

Furthermore, the indicators EBITDA before restructuring measures and ROCE are fixed elements of the new remuneration model for Executive Board members (see page 79 ff.).

In fiscal year 2019 as well, GEA will also routinely calculate various other performance indicators in order to obtain a meaningful picture of the overall situation. Reference is made to the above section entitled „Other indicators in the management system in 2018". With the exception of ROCE, these continue to apply in fiscal 2019.

Management of capital employed

Resources are allocated within the group primarily on the basis of strategic and medium-term planning. This provides the framework for preparing key decisions on core technologies, sales markets, and other strategically important variables.

Acquisitions and expansion investments are assessed not only on the basis of key performance indicators showing potential returns, but also in terms of their importance for achieving the group's strategic goals. The key economic criterion for evaluating rationalization and expansion investments is the net present value. The payback period is also calculated as an additional benchmark for assessing the risk arising from changing economic conditions.

Working capital is another key element of capital employed. Working capital management begins before an order is accepted with the payment terms that are offered or negotiated.

Project- and activity-based management

In addition to general management with the aid of the key performance indicators described above, GEA has established individual assessment and approval procedures for customer and investment projects, utilizing specific thresholds for the different hierarchy levels. Customer projects are evaluated primarily on the basis of their expected margins (gross margin on a fully absorbed cost basis) and of their technical, commercial and contractual risk profile, with a particular emphasis on cash flow. Project management is also backed up by extensive project control not only at operating unit level but also – depending on the size of the project involved – at Business Area or group level in the form of a separate reporting system for major projects. In many cases, the findings gained from this analysis yield suggestions for improving internal processes, which can be used in subsequent projects. At group level, the analysis focuses on deviations between the calculated and the expected or realized contract margin.

Supply chain management

The costs of materials generated by GEA's continuing operations in 2018 totaled approximately EUR 2.4 billion (previous year: EUR 2.2 billion). It represents the largest single expense item recognised in the company's income statement. In terms of raw material procurement, the focus was on stainless steel. However, the amounts directly purchased were relatively small compared with GEA's overall demand, since the company procures most of its stainless steel in the form of processed products on the market or in connection with assembly services. Year on year, the average prices of virtually all semi-finished and finished industrial products purchased by GEA have risen, just like commodity prices. Hikes in the price of stainless steel were mainly attributable to alloy surcharges.

GEA relies on its own material group classification scheme for obtaining information on its overall purchase volume. The system provides a detailed overview of suppliers as well as a regional breakdown of purchased volumes. Serving as a basis for defining the procurement strategies relevant to the principal commodity groups, the system is available to each and every GEA buyer.

Spanning all functional areas and regions, the "GEA Procurement Council" (GPC) is responsible for managing the company's procurement organization. Headed by a member of the Global Leadership Team, it comprises managers from the Business Area Equipment, the Business Area Solutions as well as the country organizations. Attached to the GPC is the Procurement Coordination Unit that coordinates global purchasing.

The previous year already witnessed the purchasing organization launch of the "Supply Chain Excellence Project", a multi-stage scheme scheduled to last until 2020 that aims at harnessing optimization and savings potentials in a structured manner. On top of that, the company's day-to-day business included additional cost optimizing projects.

The GEA organization opens up the possibility of driving the standardization of material specifications while increasing the company's reliance on strategic suppliers. In the previous year, a strategic policy for group-wide procurement management ("Qualified and Preferred Suppliers Policy") was put into effect with the aim of ensuring a strategic selection of suppliers based on an optimal mix of risk and cost profiles, establishing well-defined relations with selected suppliers and significantly reducing the supplier base by the year 2020. Aggregating volumes and enhancing cooperation with suppliers helps reduce handling, administrative as well as unforeseen expenses and allows the company to build an integrated platform for embracing other initiatives, compliance and innovation. A project launched in the year under review seeks to identify preferred suppliers in relation to frequently required standard components for the purpose of leveraging clustering benefits in the procurement domain, in particular in connection with large projects.

As a rule, GEA's supply chain is structured as follows:

In 2018, the Business Area Equipment manufactured its products at 38 different sites across the globe. This is where GEA purchases raw materials, semi-finished goods, precursors and, notably, components based on other than its core technologies from external suppliers.

At its 26 production sites, the Business Area Solutions develops, designs and delivers process solutions for a wide variety of different applications. Within the framework of the respective projects, the company also purchases plant components while awarding work to subcontractors, in particular when it comes to field assembly services. As far as steelwork is concerned, the respective steel usually forms part of the service package provided by the subcontractors.

At present, nine production sites located in China, Germany, India, Italy and the USA are capable of manufacturing several product lines (multi-purpose sites), which places certain demands on the supply chain and creates opportunities for the respective local suppliers. Moreover, the dynamic business development in the burgeoning economies and emerging markets will require more and more local procurement.

Wherever possible, the "local for local" principle applies. Aside from short response times, especially the reduction in economic and ecological impacts arising from fewer shipments as well as the stimulation of the local economy at the production and project sites are of advantage. In general, GEA makes use of its own dedicated local procurement organization. The region of the respective supplier is identified on the basis of its sales office. For this reason, it is not always possible to provide explicit information on the origin of a product, all the more so due to the fact that while some products are manufactured in one region only, they are being sold worldwide.

Region	2018 Local procurement as a percentage of total volume*	2017 Local procurement as a percentage of total volume*
Europe/Middle East & Africa	89	95
Asia Pacific	72	82
North and Latin America	86	90

*) Excluding intercompany procurement

Owing to the "local for local" principle, transport and logistics merely account for a small proportion of the company's total purchasing volume. In the year under review, GEA further pursued its objective of setting up a centrally managed logistics organization for the purpose of harnessing efficiency-related and ecological benefits. In this context, the year 2018 saw global projects in relation to both air and sea freight shipping. As to air freight, in particular, the focus was placed on stabilizing and renegotiating air shipping charges on account of capacity constraints in the market. In 2018, GEA launched an initiative aimed at moving spare parts inventories closer to the customers, which will entail a reduction in transport costs. This initiative is set to continue in 2019. It will be instrumental in minimizing GEA's carbon footprint. In addition, GEA is working side by side with forwarding companies that support the company in its efforts to scale down transport emissions.

Due to the multitude of suppliers, GEA does not experience any dependency issues. The hundred largest suppliers account for approximately one quarter of GEA's overall volume of procurement (26.7 percent) while around 200 suppliers jointly share more than a third of said volume (36.0 percent).

For information on a responsible supply chain, see Sustainability Report (see page 107 f.).

Research and Development

The primary objective pursued by a technology group like GEA is to offer bespoke customer solutions that provide outstanding product and process efficiency allowing the company to successfully compete on a global scale. Efficiency implies a minimum input of energy, the conservation of natural resources and a high level of recyclability, always in relation to optimized performance. For this reason, GEA's innovative strength is key to its future success in business. Apart from engaging in in-house research and development (R&D), the company gets involved in projects where it connects with customers and suppliers as well as research partners, the public sector, and selected start-ups.

GEA's R&D activities are subsumed under its core value proposition and corporate claim "Engineering for a better world". By coming up with more and more efficient products and process solutions, GEA is doing its bit to ensure the responsible development of value creation processes, sustainable management and the protection of the natural environment.

For this reason, a number of key R&D efforts focus on the development of efficient process technologies and their contribution to value creation processes. This is GEA's way of dealing with macroeconomic trends like a growing world population, urbanization and rising energy costs. After all, the consequences become particularly apparent in the food and pharmaceutical sectors served by GEA: consumers set highest standards in terms of the safety, quality and service life of their products, a challenge that may only be met with the help of industrial process engineering.

Another trend shaping process design and tomorrow's world of work is industrial digitalization. As a technology company, GEA seeks to harness the opportunities of digital transformation in the long run: For this reason, digitalization is part and parcel of GEA's innovation process. The company aims at developing plants and processes that are flexible and may easily adapt to changing market conditions by means of digitalization. Integrated business processes, connected production data, smart data analysis tools as well as virtual simulations are to enhance system safety, performance and life while simultaneously reducing downtime and capacity constraints to a minimum.

GEA is steadily expanding its digital product portfolio. In 2018, the group launched GEA LYOSENSE for the purpose of assuring the quality of lyophilized pharmaceutical products. The system allows for 100-percent continuous real time quality control. When used in conjunction with LYODATA, the products are fully traceably and clearly attributable. Apart from that, GEA expands its service business by adding digital solutions. In 2018, GEA also introduced the OptiPartner process control solution designed to ensure stability of the production line, for instance in the event of varying raw material quality or changing ambient conditions, while simultaneously enhancing process performance.

One focus of R&D is placed on creating additional value from by-products – for instance in the field of agriculture. Efforts undertaken by the company aim at hygienically treating previously disposed of products for the purpose of reintroducing them into the food and animal feed cycles as high-quality reusable materials. With this in mind, GEA has been involved in the EU SABANA (Sustainable Algae Biorefinery for Agriculture and Aquaculture) project since 2016. The partners are working on a one-hectare microalgae cultivation plant that is to commence operations in Almería, Spain, in the course of the year 2019. The algae farm will produce biofertilizers and biostimulants for the agricultural sector, to name but a few. Moreover, the plant's output will include feed additives for fish farms and other types of aquafarming. In summer 2018, the first project, a smaller research and development plant of the IFAPA Institute of Agricultural and Fisheries Research and Training at the University of Almería went into continuous operation. GEA contributed by supplying the disc stack separator for harvesting microalgae, the high-pressure homogenizer for cell disruption as well as the spray dryer for drying the biomass.

This core area of R&D also embraces the "Pro-Enrich" EU development project that unites GEA and various food companies in an effort to produce functional proteins and bioactive ingredients for food, cosmetics and animal feed applications. For this purpose, the parties involved make use of side streams from the olive oil, rapeseed oil, tomato and citrus industries. Their aim is to set up a closed bio-economic cycle. New processes for treating such by-products, which will rely on separation processes as key technologies, are to be further developed to help save more resources while gaining market readiness. The project headed by the "Danish Technological Institute" (DTI) started in 2018 and will run for a period of three years.

Another project run by the DTI - in this case managed by the affiliated "Danish Meat Research Institute" (DMRI) – is the "Pro-Chick" development project that receives funding from the Danish state. Within the framework of this project, GEA, a Danish poultry meat producer, the University of Copenhagen as well as further companies take a closer look at side streams from the poultry meat industry that are approved for human consumption. They are seeking to generate superior, high-protein products for the food industry to enhance added value.

Another GEA key field of research that addresses alterative raw materials in the food sector includes the "Insects for Proteins" project. This is where GEA takes up the challenge of exploiting alternative sources of protein for human consumption and animal feed. At present, the environmental impact of conventional protein production in agriculture and fishery is already devastating and about to increase due to the growth in population. Insects and their larvae could serve as new sources of protein and fat, providing a solution that is sustainable in multiple respects: Measured by their protein content, their cultivation and nurture require comparatively few resources, which, in turn, will free up more farmland for supplying food for human beings instead of growing animal feed. Moreover, serving as a substitute for fishmeal, they also reduce overfishing in the oceans. GEA offers basic technologies that may be employed along virtually all stages of the value chain pertinent to this new market. A decisive step was taken in November 2018, when, for the first time, GEA put into operation an industrial plant on behalf of the world's biggest fly larvae producer in South Africa. It produces protein and fat from black soldier fly larvae to fortify fish feed. GEA supplied decanters, separators, pumps, heat exchangers, valves, the cleaning unit as well as plant automation technology and will continue to optimize and streamline the processes on site. A research project conducted in tandem with an Australian animal feed startup commenced in late 2018.

In the year under review, GEA and other partners successfully completed the DRIVE4EU project that explored whether Russian dandelion could serve as an alternative to tropical rubber trees in the production of natural rubber. GEA assisted in developing a biorefinery process that allowed GEA decanters to extract both natural rubber and inulin on a pilot scale, whereupon the latter were tested in products and analyzed. In the course of the year, the partners successfully managed to manufacture prototype bicycle and vehicle tires. The material properties were impressive: ageing was similar to conventional rubber while tire grip was even superior, with processing as such turning out to be a lot easier. Thus, industrial exploitation is just around the corner.

GEA is also seeking to find sustainable solutions for the packaging industry: For this purpose, GEA is looking into various applications of natural materials that rely on thermoplastic polymers. Filtering and drying processes, in particular, may leave residues that contain tiny particles of these thermoplastics, which is unacceptable in many food applications. Currently, such residues must still be removed from the process and disposed of as waste, which entails a loss for the customer. Novel filter media based on natural fiber would allow the recovery of these residues while keeping waste streams to a minimum. At present, these materials would be primarily used in drying processes for dairy products. To accelerate such developments at an early stage, GEA connects with stakeholders from the science and industry community like the MassChallenge Switzerland Business Accelerator Program. Since 2016, GEA has acted as one of the founding sponsors while playing an active part in the startup community whose main focus is placed on nutrition, health and energy. In the year under review, GEA renewed its sponsorship for another three years.

Furthermore, GEA is also dedicated to protecting the oceans by providing solutions for marine applications like the one showcased at the 2018 SMM international maritime trade fair in Hamburg, where GEA launched the “GEA BilgeMaster”, a separator designed to clean bilge water. The latter accumulates on ships due to ingressing saline water as well as coolant, fuel and lube oil spills, but also drains from settling and sludge tanks, while also including effluents from various cleaning processes as well as soot and dirt particles. The “International Maritime Organization” stipulates that bilge water may only be discharged into the sea if its residual oil content is below 15 ppm (parts per million). It is expected that the rules and regulations governing disposal will get tighter, mainly due to more stringent national water protection legislation applicable to the sensitive areas of the ocean. Today, many shipping companies already demand guarantees ensuring a residual oil content of less than 5 ppm in treated bilge water, a requirement that is met by GEA’s BilgeMaster. GEA offers mobile units designed for treating bilge water aboard a vessel or onshore in harbors. Another economic and environmental benefit is the recovery of valuable resources of energy: the oil recycled this way may also be reclaimed and used as fuel oil.

As one of the leading suppliers of process technology in the dairy sector, GEA is continuously advancing its technologies to support its customers as far as animal health, product quality, productivity and economic efficiency are concerned. For instance, GEA launched its “GEA DairyMilk M6850” cell count sensor at the 2018 EuroTier trade fair in Hanover, where it won the “Novelty of the Year“ audience award, followed by 3 Stars the company received at the Agromek industry exhibition in Denmark. The system was developed to ensure the early detection of mastitis, since cell count concentration in milk is indicative of udder infections. It represents the world’s first somatic cell count system that specifically focuses on each individual quarter of the udder throughout the entire milking process. This early detection system helps minimize the time required for medical treatment while ensuring the healing process and guaranteeing the productivity of a healthy herd. Apart from that, GEA’s DairyMilk M6850 requires no additional consumables, which makes it one of a kind in the market.

In the year under review, GEA won numerous further awards that bear witness to GEA’s innovative strength:

Amongst other things, GEA advocates the use of heat pumps as part of the cooling processes utilized in the food and dairy sectors. GEA’s latest generation of pumps relies on ammonia, a natural refrigerant, which generates higher heating temperatures due to its superior level of efficiency. Instead of heating food with the help of traditional boilers that require a lot of energy when they need to be cooled down at a later stage, manufacturers may increase the temperature of waste heat by means of a heat pump and feed it back into the system. For this reason, GEA modified a large refrigeration plant for Moy Park, one of the biggest poultry meat producers in Europe, by switching to ammonia for the purpose of heating large amounts of cleaning water. Instead of using conventional boilers, GEA deployed a 1.5 megawatt compressor that recompresses the waste gas by acting as a booster heat pump in Great Britain. This allows the water to heat up to a temperature of 67 degrees Celsius. As a result, the customer uses a heat pump to supply all on-site hot water and heating systems with the waste heat of the refrigeration plant. This way, Moy Park emits less Co_2 – an amount equivalent to the volume that would be released by 250 average households in Great Britain over the period of one year. For this modification, GEA took home the “RAC Cooling Industry Award“ in the “Building Energy Project” category from the British “Refrigeration & Air Conditioning Magazine” (RAC). This prize recognizes companies that go out of their way to promote environmentally-friendly and innovative solutions in the refrigeration and air-conditioning sector.

Apart from that, GEA also received an award from another business magazine for a new system designed to treat and add temperature controlled process water in the food industry – a system already successfully installed and operating in a cheese dairy. Cooled or heated water plays a decisive role in many processes utilized in the food sector. Impacting cheese quality when used as a wash, it reduces phage risk in automated plants when employed for rinsing purposes. The new system impressed the jury with its ultimate product safety and high level of standardization while offering maximum flexibility and incurring low costs for running the operation. It was not the first time that GEA won the “Dairy Technology Award” in 2018.

The readers of the “Accelerate Europe Magazine” voted “GEA BluQ” – the world’s first ammonia chiller equipped with a semi-hermetic compact screw compressor - the “Innovation of the Year”. By use of natural refrigerants, this system offers the possibility of operating large air-conditioning systems in commercial and public buildings in an environmentally-friendly way.

GEA’s quest for technological leadership is underpinned by the fact that around 40 percent of its workforce are performing engineering or engineering-related activities. In 2018, approximately 600 employees were assigned to the field of research and development. In fiscal year 2018, GEA filed applications for a total of 69 (previous year: 58) new patent families as a result of their endeavors. Overall, GEA holds around 1,000 patent families comprising approximately 4,700 individual patents in the following key disciplines: separation technology, drying processes and powder processing, refrigeration and freezing technology, energy supply, liquid and food processing, filling and packaging, homogenization, farm technology as well as materials handling technology including pumps and valves.

In the 2018 fiscal year, expenditure on research and development amounted to EUR 113.5 million (before adjustment EUR 119.9 millon). This figure includes expenses that are refunded from third parties to the tune of EUR 18.2 million, which are reported under cost of sales. At 2.4 percent, the company’s R&D ratio was substantially higher than in the previous year. Depreciation of capitalized development projects amounted to EUR 28.9 million in the year under review (previous year: EUR 19.5 million). Capitalized development expenses added up to EUR 37.6 million versus EUR 32.1 million in the previous year. Compared with EUR 102.9 million the year before, expenses for research and development accounted for a total of EUR 128.7 million.

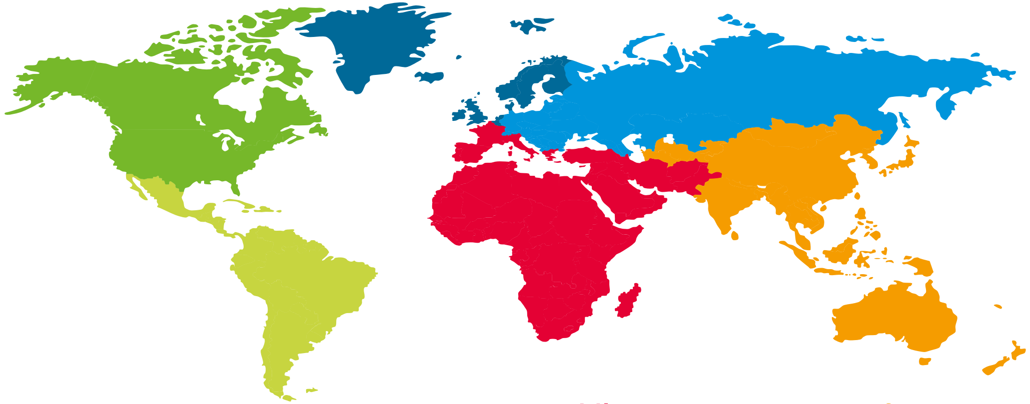
Research and development (R&D) (EUR million)	2018	2017	Change in %
Refunded expenses from third parties	18.2	25.1	–27.7
Non-refunded R&D expenses after adjustments	95.3	65.3	46.0
Total R&D expenses after adjustments	**113.5**	**90.3**	**25.6**
R&D ratio (as % of revenue)	**2.4**	**2.0**	**–**
Total R&D expenses	**128.7**	**102.9**	**25.1**
R&D ratio (as % of revenue)	**2.7**	**2.2**	**–**

Report on Economic Position

North America
1,821
866 million

North and Central Europe
3,056
643 million

DACH & Eastern Europe
6,765
1,039 million



Latin America
518
347 million

Western Europe, Middle East & Africa
3,434
853 million

Asia Pacific
3,049
1,081 million

= Employees (FTEs)
= Revenue

GEA in fiscal year 2018

The forecast for the 2018 fiscal year was based on exchange rates that would not change relative to 2017 and assumed that there would be no slowdown in global economic growth. The acquisitions of Pavan Group and VIPOLL (but not other potential acquisitions in 2018) were factored into calculations of the key performance indicators. Further, we assumed an absence of serious slumps in demand from relevant customer industries or shifts between these industries that could negatively impact margins.

Over the course of the reporting year, GEA adjusted its forecast several times – most recently as follows:

- Revenue growth of around 7.5 percent
- Operating EBITDA margin of around 11.1 percent, and
- Operating cash flow driver margin between 6.5 and 7.0 percent

Revenue growth was significantly greater than in GEA's original forecast, published in the 2017 Annual Report, or the most recent adjusted forecast. The operating EBITDA margin and the operating cash flow driver margin, however, were lower than expected. The main reasons for missing the forecast were unexpected price pressure and a decline in margins as well as an unfulfilled earnings expectation at the Application Center (APC) Dairy. The operating EBITDA margin (at constant exchange rates) of GEA and both Business Areas declined by around 170 basis points each.

The chapter "Course of business" provides more information on GEA's business development.

Fiscal year 2018	Revenue growth	Operating EBITDA margin	Operating cash flow driver margin
Outlook 2018 at constant exchange rates (2017)	**5.0% – 6.0%**	**12.0 % – 13.0%**	**8.7% – 9.7%**
Most recent update	around 7.5%	around 11.1%	6.5% – 7.0%
Actual 2018 at constant exchange rates (2017)	**7.9%**	**10.6%**	**6.0%**

The key indicators developed as follows in the 2018 fiscal year:

	2018 reported	2018 at constant exchange rates (2017)
Revenue (EUR millions)	4,828.2	4,969.2
Revenue growth (in %)	4.9	7.9
Operating EBITDA (EUR millions)	518.2	524.6
Operating EBITDA margin (in %)	10.7	10.6
Operating cash flow driver margin* (in %)	6.8	6.0

*) with reference to the last 12 months

Macroeconomic environment

As a global technology company, GEA considers growth in global gross domestic product (GDP) and hence the International Monetary Fund's (IMF) assessments in this regard to be key benchmarks for its own development. The forecasts ventured by the United Nations and the World Bank Group are other key indicators for this macroeconomic environment.

According to the IMF, global economic activity has continued to weaken (World Economic Outlook, January 2019). According to its latest estimates, the global economy grew by 3.7 percent in 2018. According to IMF data, the world economy is still expanding – but growth particularly in the third quarter of 2018 was disappointing. The situation in the financial markets had further deteriorated, with political trade uncertainties, concerns about China's economic prospects, and volatile crude oil prices conspiring to make matters worse. Growth in world trade had slowed considerably and was now below the average for 2017. According to the economic experts, the financial circumstances in the industrialized nations and in the emerging and developing countries have steadily deteriorated since the autumn of 2018. All told, the slowdown in economic growth in the second half of 2018 had prompted several economies to downgrade their forecasts. As such, economic growth in 2018 stood at 2.3 percent in the industrialized nations and at 4.6 percent in the emerging and developing countries. What is more, the IMF expects the weakness in the second half of 2018 to have a knock-on effect in subsequent quarters.

In their most recent publications, the United Nations (UN) and the World Bank Group stated their predictions of global growth rates of 3.1 and 3.0 percent respectively for 2018. According to the World Bank Group, whereas the global economy was still in full swing at the start of 2018, it gradually lost momentum as the year progressed. According to the United Nations, the increasing tension afflicting world trade was a particularly pernicious factor in 2018. Both the UN and the World Bank Group believe that the industrialized nations will post growth of 2.2 percent in 2018, while the experts at both institutions downgraded their growth forecasts for the emerging markets to 4.4 percent (UN) and 4.2 percent (World Bank Group).

Significant changes

Acquisitions

On January 3, 2018, GEA completed the acquisition of VIPOLL, headquartered in Križevci pri Ljutomeru, Slovenia, which was signed in November 2017 (see page 172 ff.). With the acquisition, GEA has added to its group a manufacturer of filling technologies for soft drinks, beer and fresh milk products into glass bottles and cans, as well as PET bottles. GEA is looking to strengthen its position as a leading global supplier of complete solutions for the beverage industry.

Disposals

On October 1, 2018, GEA closed the sale of GEA Westfalia Separator Production France SAS to the French industrial group Altifort. This is another step towards streamlining GEA's global production footprint. The transaction comprised the sale of the on-site production facility for standard separators and the respective real estate in Château-Thierry in the Hauts-de-France region.

Management

The long-time CEO of GEA Group Aktiengesellschaft, Jürg Oleas, retired early by mutual agreement with effect from February 17, 2019. On September 19, 2018, the Supervisory Board of GEA Group Aktiengesellschaft appointed Stefan Klebert to the Company's Executive Board with effect from November 15, 2018. Stefan Klebert succeeded Jürg Oleas as CEO on February 18, 2019.

After serving ten years as CFO of GEA Group Aktiengesellschaft, Dr. Helmut Schmale will also leave the company early and by mutual consent on May 17, 2019. He will be succeeded by Marcus A. Ketter, who is set to take over as CFO on May 20, 2019.

As such, GEA was managed by a team of six Executive Board members at the end of the 2018 fiscal year (see page 12 f.).

Share buyback program and retirement of treasury shares

On February 6, 2018, GEA completed its program to buy back treasury shares worth up to EUR 450 million within the envisaged timeframe. With the consent of the Supervisory Board, GEA retired these shares on June 21, 2018. In total, 12,003,304 treasury shares were retired. The total number of outstanding shares after the retirement process was 180,492,172 shares, a reduction of 6.24 percent. GEA no longer holds any treasury shares. The repurchased and retired shares were not eligible for dividends in the 2018 fiscal year.

Course of business

The following explanation of GEA's course of business relates initially to its continuing operations, i.e. to its two operating Business Areas. The quarterly information contained in this management report is sourced from quarterly reports that were not reviewed by an auditor. All amounts have been rounded using standard rounding rules. Adding together individual amounts may therefore result in rounding differences in certain cases.

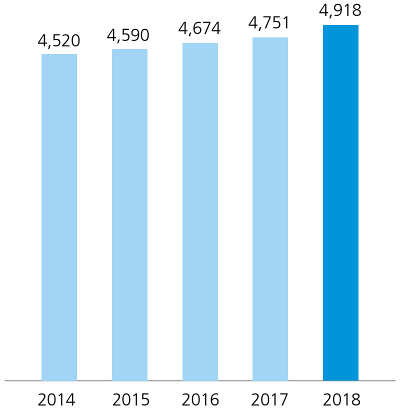
Order intake

The group's order intake for the whole of 2018 amounted to EUR 4,917.7 million, or 3.5 percent above the previous year's level – a new record for GEA. This increase was mainly due to acquisitions. Adjusted for exchange rate fluctuations (minus 2.9 percent) and acquisition effects (4.2 percent), adjusted growth amounted to 2.2 percent. This increase resulted above all from order intake in the range up to EUR 5 million.

Order intake (EUR million)	2018	2017	Change in %	Adjusted growth in %
BA Equipment	2,662.4	2,491.5	6.9	3.2
BA Solutions	2,499.1	2,484.0	0.6	1.9
Total	**5,161.5**	**4,975.5**	**3.7**	**2.5**
Consolidation	–243.7	–224.7	–8.5	–
GEA	**4,917.7**	**4,750.8**	**3.5**	**2.2**

The drop in order intake was particularly noticeable in the chemical and food application centers, while beverages posted double-digit growth.

Order intake for the last 5 years
(EUR million)



GEA secured 13 major orders (volumes exceeding EUR 15 million) in the reporting year, with a combined value of nearly EUR 330 million. Most orders came from the dairy and beverage sector. In addition, the company posted one large project each for pharma, lithium, cheese and coffee. A majority of these projects came from customers in Asia Pacific. In the previous year, GEA posted 12 major orders with a total volume of almost EUR 300 million.

Order intake[1] GEA

	Change 2018 to 2017	Share[2] of order intake in %
PGs Food Processing & Packaging; Pasta, Extrusion & Milling	> 5 percentage points	10
PGs Separation, Homogenizers, Flow Components, Compression	1 to -1 percentage points	25
PG Milking Dairy Farming	-1 to -5 percentage points	15
Business Area Equipment	> 5 percentage points	**50**
APC Dairy	-1 to -5 percentage points	10
APC Beverage	> 5 percentage points	10
APC Food	< -5 percentage points	10
APC Utilities	-1 to -5 percentage points	10
APC Pharma	> 5 percentage points	5
APC Chemical	< -5 percentage points	5
Business Area Solutions	1 to -1 percentage points	**50**
GEA	1 to 5 percentage points	**100**

> 5 percentage points · 1 to 5 percentage points · 1 to -1 percentage points · -1 to -5 percentage points · < -5 percentage points

1) External business only; PG = Product Group, APC = Application Center
2) Split rounded to nearest 5 %

Nearly all regions contributed to growth in order intake, which developed in a particularly gratifying manner in North and Central Europe, where adjusted growth surpassed 18 percent.

Order backlog

Expressed in terms of the order intake for the fiscal year, the order backlog as of December 31, 2018 amounted to 5.9 months (previous year: 5.9 months). In line with the different types of business performed, the order backlog ranged from three to four months in the Business Area Equipment to around eight months in the Business Area Solutions.

Order backlog (EUR million)	12/31/2018	12/31/2017	Change in %	Change (absolute)
BA Equipment	793.5	757.6	4.7	35.9
BA Solutions	1,687.2	1,654.9	1.9	32.2
Total	**2,480.7**	**2,412.6**	**2.8**	**68.1**
Consolidation	–64.4	–61.9	–4.1	–2.5
GEA	**2,416.3**	**2,350.7**	**2.8**	**65.6**

Revenue

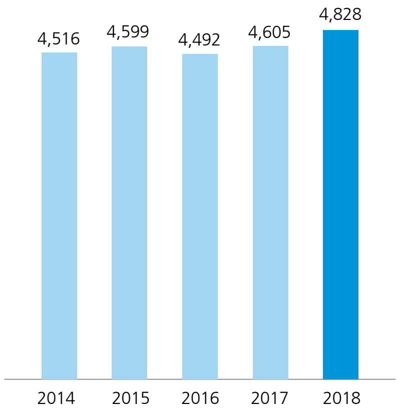
The 2018 revenue also sets a new record for GEA. It rose by 4.9 percent to EUR 4,828.2 million. Adjusted for exchange rate fluctuations (minus 3.1 percent) and acquisition effects (4.1 percent), revenue in the 2018 fiscal year was 3.8 percent higher year on year. At 30.9 percent, the share of revenue enjoyed by the service business was exactly the same as in the previous year. Adjusted growth in this business once again amounted to gratifying 6.4 percent in the reporting period.

The book-to-bill ratio, the ratio of order intake to revenue (before adjustments), was 1.02 in 2018 and therefore slightly lower than the previous year's ratio of 1.03.

Revenue (EUR million)	2018	2017	Change in %	Adjusted growth in %
BA Equipment	2,627.6	2,371.0	10.8	7.4
BA Solutions	2,441.1	2,441.6	–0.0	1.3
Total	**5,068.6**	**4,812.6**	**5.3**	**4.3**
Consolidation	–240.4	–208.1	–15.5	–
GEA	**4,828.2**	**4,604.5**	**4.9**	**3.8**

Revenue for the last 5 years

(EUR million)



Revenue rose in nearly all product groups and APC's, except the APC Dairy. The Homogenizers and Food Processing & Packaging product groups achieved double-digit rates of growth.

Revenue[1] GEA	Change 2018 to 2017	Share[2] of revenue in %
PGs Food Processing & Packaging; Pasta, Extrusion & Milling	↑	10
PGs Separation, Homogenizers, Flow Components, Compression	↗	25
PG Milking Dairy Farming	↗	15
Business Area Equipment	↑	**50**
APC Dairy	↓	15
APC Beverage	↑	10
APC Food	↗	10
APC Utilities	→	10
APC Pharma	↑	5
APC Chemical	↑	5
Business Area Solutions	→	**50**
GEA	↗	**100**

↑ > 5 percentage points ↗ 1 to 5 percentage points → 1 to -1 percentage points ↘ -1 to -5 percentage points ↓ < -5 percentage points

1) External business only; PG = Product Group, APC = Application Center
2) Split rounded to nearest 5 %

The company posted growth in nearly all regions worldwide. GEA even posted double-digit growth in Latin America as well as high, single-digit rates of growth in North and Central Europe.

Revenue by regions GEA	Change 2018 to 2017	Share of revenue in %
Asia Pacific	↑	22
DACH & Eastern Europe	↑	22
Western Europe, Middle East & Africa	↘	18
North and Central Europe	↑	13
Latin America	↑	7
North America	↗	18
GEA	↗	**100**

↑ > 5 percentage points ↗ 1 to 5 percentage points → 1 to -1 percentage points ↘ -1 to -5 percentage points ↓ < -5 percentage points

Business Area Equipment

The Business Area Equipment established a new revenue record of EUR 2,627.6 million, growing by a strong 7.4 percent on a constant exchange rate basis and adjusted for acquisitions. The reported increase resulted above all from the new Pasta, Extrusion & Milling product group as well as Food Processing & Packaging and Separation.

The Business Area Equipment boosted revenue in every region – with adjusted double-digit rates of growth in North and Central Europe, Latin America as well as Western Europe, Middle East & Africa. As in the past, the most significant sales regions were Germany, Austria, Switzerland (DACH) & Eastern Europe as well as North America – each region accounts for over 20 percent of revenue.

Adjusted for exchange rates and acquisitions, the service business grew by 6.4 percent in the reporting year. Because the Business Area Equipment considerably increased revenue especially of its new machinery business (by an adjusted 8.1 percent); the service business's share of the Business Area's total revenue dropped slightly to 37.0 percent (previous year: 39.0 percent).

Revenue by regions Business Area Equipment	Change 2018 to 2017	Share of revenue in %
Asia Pacific	↗	18
DACH & Eastern Europe	↑	23
Western Europe, Middle East & Africa	↑	18
North and Central Europe	↑	13
Latin America	↑	7
North America	↗	21
Business Area Equipment	↑	**100**

↑ > 5 percentage points ↗ 1 to 5 percentage points → 1 to -1 percentage points ↘ -1 to -5 percentage points ↓ < -5 percentage points

Business Area Solutions

Adjusted for exchange rate and acquisition effects, revenue in the Business Area Solutions was 1.3 percent above the value for the previous year. With the exception of dairy, all application centers increased revenue.

A decline in revenue was recorded only in the Western Europe, Middle East & Africa region; large projects in Africa had been completed in 2017. The Business Area Solutions increased revenue in all other regions, and even posted double-digit adjusted rates of growth in Latin America and Asia Pacific. The regions with the highest revenue figures for the Business Area Solutions were Asia Pacific and DACH & Eastern Europe. These regions contributed 20 percent or more, respectively, to overall revenue.

Adjusted for exchange rates and acquisitions, the volume of service business was 6.0 percent above the level of the previous year. This business area's share of total revenue amounted to 23.3 percent (previous year: 22.4 percent).

Revenue by regions Business Area Solutions

Revenue by regions Business Area Solutions	Change 2018 to 2017	Share of revenue in %
Asia Pacific	> 5 percentage points	26
DACH & Eastern Europe	> 5 percentage points	20
Western Europe, Middle East & Africa	< -5 percentage points	18
North and Central Europe	> 5 percentage points	15
Latin America	> 5 percentage points	8
North America	1 to 5 percentage points	14
Business Area Solutions	1 to -1 percentage points	**100**

> 5 percentage points; 1 to 5 percentage points; 1 to -1 percentage points; -1 to -5 percentage points; < -5 percentage points

Results of operations, financial position and net assets

Results of operations

For some time now, the key indicators for the operating result as used by the management for controlling purposes have been defined in the context of the guidelines on alternative performance measures published by the European Securities and Markets Authority (ESMA). Expanded in the course of 2017 for the 2018 financial year, these are as follows: In the 2018 financial year – in line with its internal management system – GEA's management team used the operating EBITDA margin (the ratio of operating EBITDA to revenue) as a measure of its operating performance. In addition, GEA reported key indicators for sales revenue, operating EBITDA margin, and operating cash flow driver margin in 2018 (based on constant year-on-year exchange rates). Thus, as in previous years, the figures for operating EBITDA and operating EBIT were adjusted for items which, in the opinion of the management, did not reflect GEA's financial achievements in the period under review. This related, on the one hand, to adjustments for purchase price allocation effects that were determined for all significant past acquisitions, and, on the other, to the adjustment for expenses for strategy projects. These included restructuring costs, expenses for external consultants, outlay on scheduled and completed acquisitions, together with other material expenses directly attributable to the projects.

In addition to M&A activities, the following strategic projects were underway in the period under review:

- "Restructuring/Footprint": measures to optimize the production network, including ongoing expenses with respect to the "Fit for 2020" program
- "IT Transformation": to standardize and outsource the IT platform as the basis for digital transformation, and to roll out a uniform ERP system
- "Steering Systems": to consistently align the financial information and management systems to the new fully functional OneGEA organization

As a result, the operating EBIT figure for 2018 was adjusted by EUR 88.9 million in total (see page 220 f.).

At EUR 518.2 million, operating EBITDA in the 2018 fiscal year was around 8 percent down on the previous year. This corresponds to an operating EBITDA margin of 10.7 percent.

Cost of sales rose by EUR 250.3 million to EUR 3,421.7 million in fiscal year 2018. Compared to the EUR 223.7 million increase in revenues, this represents a slightly disproportionate increase.

Due to the increase in revenues, selling expenses increased by EUR 37.9 million to EUR 556.6 million in fiscal year 2018.

Business Area Equipment

Thanks to the acquisition of the Pavan Group, the Business Area Equipment once again improved upon its prior-year figure for operating EBITDA, establishing a new record in fiscal year 2018 of EUR 393.1 million. Considerable price squeeze, however, hampered the Separation and Flow Components product groups in particular. In addition, the lower share of high-margin service revenue also dragged down earnings. As a consequence, the operating EBITDA margin of the Business Area Equipment fell by around 145 basis points to 15.0 percent.

Business Area Solutions

The operating EBITDA of the Business Area Solutions declined by EUR 38.6 million year on year to EUR 122.6 million. This was due in particular to a greater margin squeeze of dairy processing projects. As a consequence, the operating EBITDA margin fell by around 160 basis points to 5.0 percent.

Other

As in 2017, the result carried under Consolidation/other in the reporting year is positive. Recent findings – regarding predictions of future cash outflows for commitments stemming from environmental protection and mining – thus led to earnings in fiscal year 2018 of EUR 24.0 million. In the previous year, GEA generated income from the sale of superfluous real estate (EUR 14.8 million). Despite the contribution to earnings from commitments stemming from environmental protection and mining, the result carried under Consolidation/other dropped by EUR 10.5 million to EUR 2.5 million (previous year: EUR 13.0 million). This reflects for the most part higher IT infrastructure costs of EUR 10.0 million as well as other expenses, including those for HR consulting and severance payments in connection with personnel changes in the Executive Board.

The table below shows operating EBITDA and the corresponding operating EBITDA margin per business area:

Operating EBITDA/operating EBITDA margin* (EUR million)	2018	2017	Change in %
BA Equipment	393.1	389.3	1.0
as % of revenue	15.0	16.4	–
BA Solutions	122.6	161.3	–24.0
as % of revenue	5.0	6.6	–
Consolidation/others	2.5	13.0	–81.0
GEA	**518.2**	**563.5**	**–8.0**
as % of revenue	**10.7**	**12.2**	**–**

*) Before effects of purchase price allocations and adjustments (see page 220 f.)

The following table shows the reconciliation of EBITDA before purchase price allocation and adjustments (operating EBITDA) through EBITDA and EBIT to EBIT before purchase price allocation and adjustments (operating EBIT):

Reconciliation of operating EBITDA to operating EBIT (EUR million)	2018	2017[1]	Change in %
Operating EBITDA[2]	**518.2**	**563.5**	**–8.0**
Realization of step-up amounts on inventories	–4.6	–2.1	–
Adjustments	–82.4	–62.9	–
EBITDA	**431.2**	**498.5**	**–13.5**
Depreciation of impairment losses on property, plant, and equipment, and investment property, and amortization of and impairment losses on intangible assets and goodwill, as reported in the statement of changes in non-current assets	–170.6	–118.3	–
Other impairment losses and reversals of impairment losses	–0.8	–	–
EBIT	**259.8**	**380.2**	**–31.7**
Depreciation and amortization on capitalization of purchase price allocation	47.5	31.2	–
Impairment losses and reversals on capitalization of purchase price allocation	16.8	0.8	–
Realization of step-up amounts on inventories	4.6	2.1	–
Adjustments	88.9	63.4	–
Operating EBIT2	**417.6**	**477.8**	**–12.6**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Before effects of purchase price allocations and adjustments (see page 220 f.)

Operating EBIT and the corresponding operating EBIT margin per business area appear in the following table:

Operating EBIT/operating EBIT margin* (EUR million)	2018	2017	Change in %
BA Equipment	328.6	330.8	–0.7
as % of revenue	12.5	14.0	–
BA Solutions	95.8	141.3	–32.2
as % of revenue	3.9	5.8	–
Consolidation/others	–6.8	5.7	–
GEA	**417.6**	**477.8**	**–12.6**
as % of revenue	**8.6**	**10.4**	**–**

*) Before effects of purchase price allocations and adjustments (see page 220 f.)

The table below shows the key indicators affecting GEA's results of operations:

Key figures: Results of operations (EUR million)	2018	2017[1]	Change in %
Revenue	4,828.2	4,604.5	4.9
Operating EBITDA[2]	518.2	563.5	–8.0
EBITDA	431.2	498.5	–13.5
Operating EBIT[2]	417.6	477.8	–12.6
EBIT	259.8	380.2	–31.7
Interest	29.1	22.2	30.9
EBT	230.7	358.0	–35.6
Income taxes	115.5	130.4	–11.4
Profit after tax from continuing operations	115.2	227.6	–49.4
Profit/loss after tax from discontinued operations	–1.6	15.2	–
Profit for the period	113.5	242.8	–53.2

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Before effects of purchase price allocations and adjustments (see page 220 f.)

In the 2018 fiscal year, EBT was EUR 127.3 million below the previous year's level. The reasons for this were a decline in operating earnings and higher expenses from strategic projects, as well as greater depreciation and amortization due in part to impairments on market-related and customer-related intangible assets. The EBT margin fell by around 300 basis points to 4.8 percent.

The income tax expense of EUR 115.5 million in fiscal year 2018 (previous year: EUR 130.4 million) comprised current tax expenses of EUR 64.2 million (previous year: EUR 64.3 million) and deferred taxes of EUR 51.3 million (previous year: EUR 66.1 million). The tax rate amounted to 50.1 percent in the reporting year (previous year: 36.4 percent). The marked rise in the tax rate is due primarily to the measurement of deferred taxes following changes in corporate planning. This resulted in tax expenditure of EUR 46.2 million from the remeasurement of deferred tax assets and liabilities in connection with GEA's German and U.S. subsidiaries.

Income from discontinued operations was nearly offset in the reporting year. Mitigated or eliminated risks and liabilities from the sale of GEA's Heat Exchangers Segment positively affected income, due in part to a legal dispute that was decided in GEA's favor. This was offset by negative interest effects from the measurement of non-current liabilities relating to former mining activities (see page 188 f.).

Consolidated profit for the year amounted to EUR 113.5 million (previous year: EUR 242.8 million), almost all of which was again attributable to GEA Group Aktiengesellschaft shareholders in 2018. Due to the share buyback program launched in March 2017, the average number of shares in circulation as of December 31, 2018 fell to 180,528,462 (previous year: 186,337,459). As a result, earnings per share amounted to EUR 0.63 compared with EUR 1.30 in the previous year.

In addition to holding company costs in the narrower sense, the results of operations of GEA Group Aktiengesellschaft are primarily driven by net investment income and net interest income. There were no significant effects from the first-time application of IFRS 15 with regard to the earnings and asset situation. More detailed information on the earnings situation is provided in the section entitled "Net assets, financial position, and results of operations of GEA Group Aktiengesellschaft" (see page 51 ff.).

The Executive Board and Supervisory Board are proposing to pay the same dividend as in the previous year, i.e. EUR 0.85 per share. As such, the target distribution to shareholders of 40 to 50 percent of consolidated profit for the period communicated in 2014 will be exceeded by far.

Financial position

GEA remains in a very strong financial position. However, the management of liquidity and centralized financial management remain of key significance due, among other factors, to the volatile market environment.

GEA's cash credit lines and their utilization were as follows at the reporting date:

GEA cash credit lines incl. discontinued operations (EUR million)	Maturity	12/31/2018 approved	12/31/2018 utilized
Borrower's note loan (2023)	February 2023	128	128
Borrower's note loan (2025)	February 2025	122	122
European Investment Bank	December 2025	150	50
Bilateral credit lines including accured interests	until further notice	74	18
Syndicated credit line („Club Deal")	August 2022	650	–
Total		**1,124**	**318**

The group's financial management encompasses liquidity management, group financing, and the management of interest rate and exchange rate risks. As the group management company, GEA Group Aktiengesellschaft is responsible for GEA's central financial management, which aims to reduce financing costs as far as possible, to optimize interest rates for financial investments, to minimize counterparty credit risk, to leverage economies of scale, to hedge interest rate and exchange rate risk exposures as effectively as possible, and to ensure that loan covenants are complied with. The goal of GEA's financing strategy is not only to be able to meet its payment obligations whenever they fall due, but also to ensure that sufficient cash reserves are always available in the form of credit lines, in addition to maintaining a strategic cash position.

Cash flow from operating activities is the most important source of liquidity. Intragroup cash pooling aims to limit external cash investments and borrowings to as low a level as possible. To achieve this, GEA has also established cash pooling groups in 17 countries that automatically balance the accounts of the participating group companies every day by crediting or debiting a target account at GEA Group Aktiengesellschaft. Any additional liquidity requirements are generally borrowed by group management, which also invests surplus liquidity. In a number of cases, however, liquidity peaks in individual countries cannot be reduced on a cross-border basis due to legal or tax-related reasons.

On December 31, 2018, net debt including discontinued operations amounted to EUR 72.2 million – after net liquidity of EUR 5.6 million at the end of the previous year. Aside from the dividend payout, this fall in liquidity is due in particular to outlay on strategic projects, capital expenditures and to the build-up of working capital.

Overview of net liquidity incl. discontinued operations (EUR million)	12/31/2018	12/31/2017
Cash and cash equivalents	247.9	250.5
Liabilities to banks	320.1	244.9
Net liquidity (+)/Net debt (-)	**–72.2**	**5.6**
Gearing (%)	2.9	–0.2

As of December 31, 2018, cash and cash equivalents fell slightly year on year to EUR 247.9 million. Compared with December 31, 2017, liabilities to banks rose by EUR 75.2 million to EUR 320.1 million.

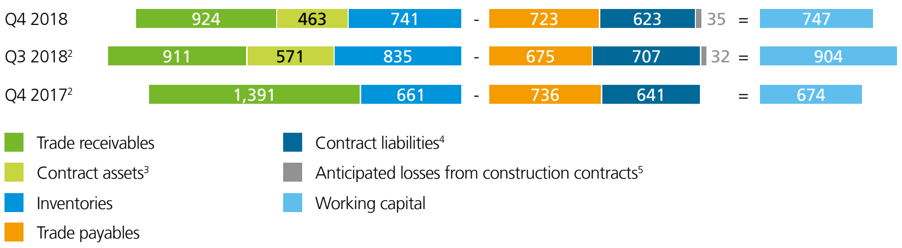
Detailed information on the maturity, currency, and interest rate structure of debt financing can be found in the notes to the consolidated financial statements (see pages 164 ff.).

Guarantee lines – which are mainly for contract performance, advance payments, and warranties – of EUR 1,321.0 million (December 31, 2017: EUR 1,361.2 million) were available to GEA as of the reporting date, of which EUR 536.1 million (December 31, 2017: EUR 524.2 million) had been utilized.

In addition to the assets recognised in its consolidated balance sheet, GEA also uses non-owned assets. These are mainly assets leased or rented under operating leases. GEA uses factoring programs as off-balance-sheet financing instruments. The obligations resulting from rental and leasing obligations as well as the new lessee accounting model (IFRS 16 "Leases") are explained in sections 1.3 of the notes to the consolidated financial statements (see page 142 ff.).

Change in Working Capital (continued operations)[1]

(EUR million)



1) The first-time application of IFRS 15 "Revenue from Contracts with Customers" results in presentational changes to the balance sheet with beginning of the reporting period 2018. This results in a revised presentation of the balance sheet items included in working capital.
2) The purchase price allocation for the Pavan Group, acquired in the previous year, was finalised in the fourth quarter of 2018. This results in retrospective adjustments to the comparative figures reported as of December 31, 2017 and the quarterly figures for 2018.
3) Previously reported under trade receivables
4) Previously reported as advance payments received
5) Previously deducted from trade receivables

Working capital from continuing operations rose by EUR 72.7 million compared with the previous year, which was largely due to larger inventories at the Business Area Equipment. The ratio of average working capital to revenue increased from 15.9 percent to 16.9 percent.

The maturity structure of trade receivables is shown in the table below. Trade receivables with regard to unconsolidated subsidiaries are not stated.

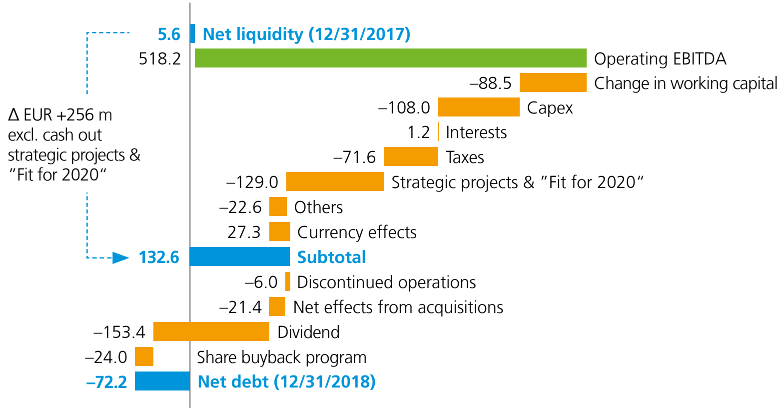
(EUR thousand)		12/31/2018	12/31/2017*
Carrying amount before impairment losses		**962,196**	**963,294**
Impairment losses		64,776	59,654
Carrying amount		**897,420**	**903,640**
thereof not overdue at the reporting date		619,225	586,090
thereof past due at the reporting date		278,195	317,550
	less than 30 days	126,222	115,573
	between 31 and 60 days	53,277	45,567
	between 61 and 90 days	27,186	24,888
	between 91 and 180 days	27,048	49,045
	between 181 and 360 days	20,422	46,207
	more than 360 days	24,040	36,270

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The key factors responsible for the change in net liquidity are shown in the following chart:

Change in net position

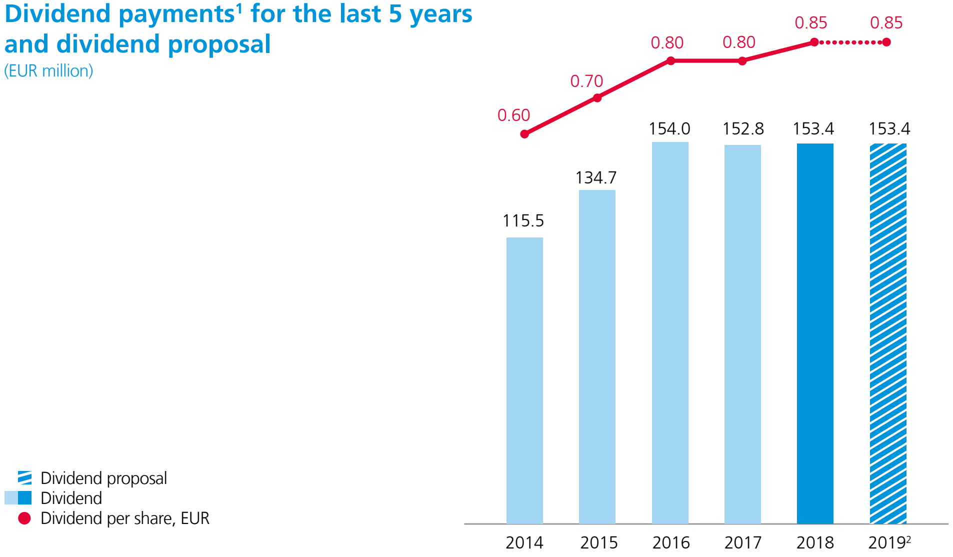
(EUR million)



GEA Group Aktiengesellschaft paid a higher dividend of EUR 0.85 per share in the 2018 fiscal year. GEA began purchasing treasury shares in March 2017 as part of its share buyback program. As a result, the dividend payout rose slightly from EUR 152.8 million in the previous year to EUR 153.4 million in 2018.

Dividend payments[1] for the last 5 years and dividend proposal

(EUR million)



1) Dividend payments respectively for the preceding fiscal year
2) On basis of dividend proposal

The consolidated cash flow statement can be summarized as follows:

Overview of cash flow statement (EUR million)	2018	2017*	Change absolute
Cash flow from operating activities	268.0	269.5	–1.5
Cash flow from investing activities	–146.4	–319.5	173.1
Free cash flow	**121.6**	**–50.0**	**171.6**
Cash flow from financing activities	–112.9	–598.2	485.3
Net cash flow from disposal group GEA Heat Exchangers	–1.1	–11.2	10.1
Net cash flow other discontinued operations	–4.9	–5.6	0.7
Change in unrestricted cash and cash equivalents	–2.0	–678.5	676.5

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Cash flow from operating activities attributable to continued operations amounted to EUR 268.0 million in the year under review, on par with the previous year. Here, the effects of lower EBITDA and the increase in working capital were almost completely offset by the development of other operating assets and liabilities.

Cash flow from investing activities attributable to continuing operations amounted to EUR –146.4 million in the reporting period (previous year: EUR –319.5 million). These figures include outflows in the reporting year of EUR 132.1 million for capital expenditures on property, plant, and equipment as well as intangible assets, and EUR 17.4 million for acquisitions (previous year: EUR 118.5 million and EUR 234.4 million, respectively).

Cash flow from financing activities attributable to continued operations reflects the dividend payout (EUR 153.4 million) and, in particular, new borrower's note loans of EUR 250 million and the EUR 50.0 million loan from the European Investment Bank (EIB). These loans allowed GEA to reduce the use of bilateral, short-term bank liabilities. The dividend payout was included in this item in the previous year, too, in addition to cash out (EUR 429.0 million) for the repurchase of treasury shares. In addition, loans from the EIB, a borrower's note loan, and several other finance credits were repaid.

Cash flow from discontinued operations amounted to EUR –6,0 million in the reporting period (previous year: EUR –16.8 million).

Cash flow drivers

GEA's overriding goal is to sustainably increase its enterprise value by growing profitably. The operating cash flow driver margin is a simplified cash flow indicator (EBITDA minus capital expenditures for property, plant, and equipment, and intangible assets (Capex) and minus the change in average working capital) and is expressed as a ratio to revenue. This indicator does not include capital expenditures in strategic projects.

Operating cash flow driver/operating cash flow driver margin (EUR million)	12/31/2018	12/31/2017*	Change in %
Operating EBITDA (last 12 months)	518.2	563.5	–8.0
Capital expenditure on property, plant and equipment (last 12 months)	–135.9	–118.5	–14.7
Adjustment of capital expenditure in strategic projects (last 12 months)	27.9	27.9	–0.2
Change in working capital (average of the last 12 months)	–83.8	–84.4	0.7
Operating cash flow driver	**326.4**	**388.5**	**–16.0**
as % of revenue (last 12 months)	**6.8**	**8.4**	**–**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The year-on-year decline of EUR 45.3 million in operating EBITDA was the principal cause of the smaller operating cash flow driver margin. The higher outlays for capital expenditures also had an impact on operating cash flow driver margin.

Net assets

Condensed balance sheet (EUR million)	12/31/2018	as % of total assets	12/31/2017*	as % of total assets	Change in %
Assets					
Non-current assets	3,115.3	54.5	3,234.3	56.3	–3.7
thereof goodwill	1,755.3	30.7	1,734.4	30.2	1.2
thereof deferred taxes	306.1	5.4	411.3	7.2	–25.6
Current assets	2,603.8	45.5	2,514.0	43.7	3.6
thereof cash and cash equivalents	247.9	4.3	250.5	4.4	–1.0
thereof assets held for sale	3.7	0.1	–	–	–
Total assets	**5,719.1**	**100.0**	**5,748.3**	**100.0**	**–0.5**
Equity and liabilities					
Equity	2,449.4	42.8	2,503.1	43.5	–2.1
Non-current liabilities	1,380.9	24.1	1,158.8	20.2	19.2
thereof financial liabilities	305.2	5.3	6.0	0.1	> 100
thereof deferred taxes	103.0	1.8	168.7	2.9	–38.9
Current liabilities	1,888.8	33.0	2,086.3	36.3	–9.5
thereof financial liabilities	28.5	0.5	256.8	4.5	–88.9
Total equity and liabilities	**5,719.1**	**100.0**	**5,748.3**	**100.0**	**–0.5**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

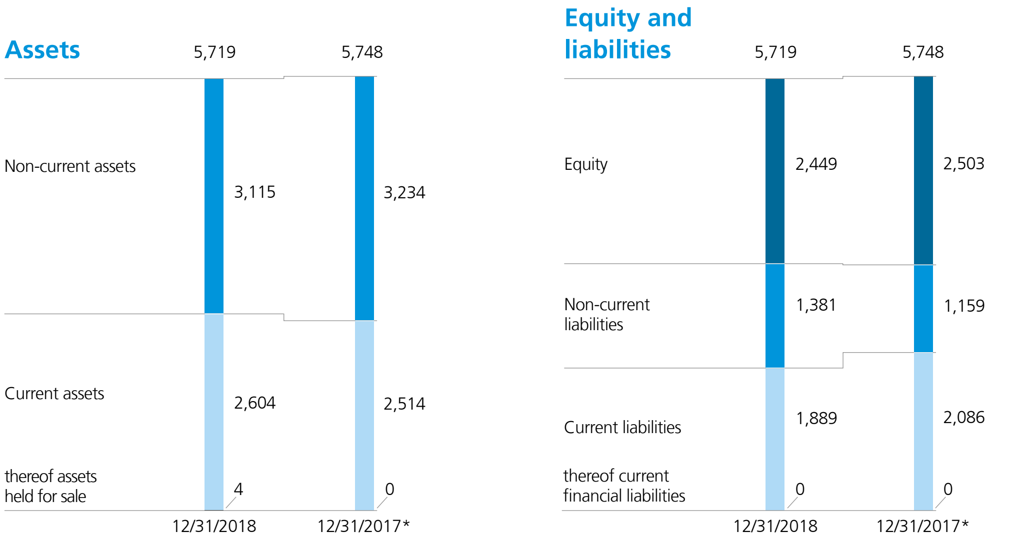
The balance sheet was slightly reduced. The values for inventories and goodwill increased, whereas deferred tax assets and intangible assets mainly due to impairment were shown at a lower level.

Equity was reduced by EUR 53.6 million. This balance sheet item was improved by the consolidated profit of EUR 113.5 million and by currency translation effects (EUR 23.9 million), while the dividend payment (EUR 153.4 million) and the acquisition of treasury shares (EUR 21.0 million) reduced equity. The equity ratio stood at 42.8 percent at the end of the financial year, compared with 43.5 percent at December 31, 2017.

GEA has increased its long-term debt by taking out new EUR 250 million borrower's note loans and a EUR 50 million loan from the EIB. This was offset by a reduction in deferred tax liabilities within non-current liabilities. The long-term loans taken out in the year under review reduced the use of short-term, bilateral bank liabilities.

Comparison of net assets (2018 vs. 2017)

(EUR million)



*) The purchase price allocation for the Pavan Group, acquired in the previous year, was finalised in the fourth quarter of 2018. This results in retrospective adjustments to the comparative figures reported as of 31 December 31, 2017 and the quarterly figures for 2018.

Performance of discontinued operations

Other companies

Once again, other companies classified as discontinued operations did not have an appreciable impact on consolidated profit in fiscal year 2018.

With regard to the former mining activities, provisions increased due to interest rate effects in the valuation of long-term liabilities. In contrast, some provisions were reduced as risks and liabilities were eliminated following the sale of GEA's Heat Exchangers Segment.

Employees

Compared to December 31, 2017, the workforce grew by 779 to a new total of 18,642 employees. Adjusted for acquisition effects (157 employees) and for effects from the sale of the separators production operations in France (minus 98 employees), the workforce increased by 720 in the period under review. Among other reasons, this was due to recruitment triggered by volumes as well as fewer temporary workers in favor of more permanent employees.

Employees* by region	12/31/2018	in %	12/31/2017	in %
DACH & Eastern Europe	6,765	36.3	6,398	35.8
Western Europe, Middle East & Africa	3,434	18.4	3,401	19.0
North and Central Europe	3,056	16.4	2,927	16.4
Asia Pacific	3,049	16.4	2,904	16.3
North America	1,821	9.8	1,763	9.9
Latin America	518	2.8	471	2.6
Total	**18,642**	**100.0**	**17,863**	**100.0**

*) Full-time equivalents (FTE) excluding vocational trainees and inactive employment contracts

Employees* by employment contract and gender	Employees total		thereof permanent		thereof temporary	
12/31/2018	Number	in %	Number	in %	Number	in %
Men	15,565	83.5	14,775	94.9	790	5.1
Women	3,077	16.5	2,870	93.3	207	6.7
Total	**18,642**	**100.0**	**17,645**	**94.6**	**998**	**5.4**

*) Full-time equivalents (FTE) excluding vocational trainees and inactive employment contracts

Employees* by employment contract and region	Employees total		thereof permanent		thereof temporary	
12/31/2018	Number	in %	Number	in %	Number	in %
DACH & Eastern Europe	6,765	36.3	6,582	97.3	183	2.7
Western Europe, Middle East & Africa	3,434	18.4	3,396	98.9	38	1.1
North and Central Europe	3,056	16.4	2,983	97.6	73	2.4
Asia Pacific	3,049	16.4	2,344	76.9	704	23.1
North America	1,821	9.8	1,821	100.0	0	0.0
Latin America	518	2.8	518	100.0	0	0.0
Total	**18,642**	**100.0**	**17,645**	**94.6**	**998**	**5.4**

*) Full-time equivalents (FTE) excluding vocational trainees and inactive employment contracts

Employees* by employment type and gender	Employees total		thereof men		thereof women	
12/31/2018	Number	in %	Number	in %	Number	in %
Full-time	17,777	95.4	15,285	86.0	2,492	14.0
Part-time	866	4.6	280	32.3	586	67.7
Total	**18,642**	**100.0**	**15,565**	**83.5**	**3,077**	**16.5**

*) Full-time equivalents (FTE) excluding vocational trainees and inactive employment contracts

Total workforce*	12/31/2018	in %
GEA employees	18,642	90.4
Contingent workers	1,972	9.6
thereof temporary staff/agency workers	1,824	92.5
thereof self-employed contractors	149	7.5
Total	**20,615**	**100.0**

*) Full-time equivalents (FTE)

In-depth information on staff issues such as learning and training, management development processes, and diversity can be found in the Sustainability Report (see page 91 ff.).

Net Assets, Financial Position, and Results of Operations of GEA Group Aktiengesellschaft

In addition to the reporting by the group, the following section describes the performance of GEA Group Aktiengesellschaft (group management). The annual financial statements are prepared in accordance with the Handelsgesetzbuch (HGB – German Commercial Code) and the Aktiengesetz (AktG – German Stock Corporation Act). They are presented here in condensed form.

GEA Group Aktiengesellschaft oversees central management functions of the group. Furthermore, it provides its subsidiaries especially with services from the Global Corporate Center and the former Shared Service Center on the basis of service agreements. Profit and loss transfer agreements exist with key domestic subsidiaries. In turn, the economic position of the GEA Group Aktiengesellschaft depends on its subsidiaries' business development, which fundamentally corresponds to the development of GEA; for more information, please see page 58 in the section "Overall Assessment of Business Development."

Net assets of GEA Group Aktiengesellschaft (HGB) (EUR million)	12/31/2018	as % of total assets	12/31/2017	as % of total assets
Assets				
Intangible fixed assets	12.8	0.3	8.4	0.2
Tangible fixed assets	1.7	0.1	2.1	0.1
Long-term financial assets	2,354.7	59.0	2,337.2	57.7
Fixed assets	**2,369.2**	**59.4**	**2,347.7**	**58.0**
Receivables and other assets	1,561.2	39.2	1,652.4	40.8
thereof Receivables from affiliated companies	1,527.6	38.3	1,636.2	40.4
thereof Other assets	33.6	0.9	16.2	0.4
Cash	48.5	1.2	47.2	1.1
Current assets	**1,609.7**	**40.4**	**1,699.6**	**41.9**
Prepaid expenses	**9.4**	**0.2**	**2.4**	**0.1**
Total	**3,988.3**	**100.0**	**4,049.7**	**100.0**
Equity and liabilities				
Subscribed capital	520.4	13.0	520.4	12.9
Own shares	–	–	–30.9	–0.8
Capital reserves	250.8	6.3	250.8	6.2
Revenue reserves	348.7	8.7	523.1	12.9
Net retained profits	154.2	3.9	154.5	3.8
Equity	**1,274.0**	**31.9**	**1,417.9**	**35.0**
Provisions	**254.9**	**6.4**	**236.3**	**5.8**
Liabilities to banks	300.0	7.5	225.0	5.6
Verbindlichkeiten aus Lieferungen und Leistungen	5.8	0.2	3.8	0.1
Liabilities to affiliated companies	2,148.1	53.9	2,161.0	53.4
Other liabilities	5.5	0.1	5.7	0.1
Liabilities	**2,459.4**	**61.7**	**2,395.5**	**59.2**
Total	**3,988.3**	**100.0**	**4,049.7**	**100.0**

Total assets of the GEA Group Aktiengesellschaft decreased by EUR 61.4 million compared with the prior-year period. The principal reason for this was a reduction of EUR 108.6 million in receivables from affiliated companies. This was offset by an increase of EUR 17.5 million in financial assets and an increase of EUR 17.4 million in other assets. This increase in financial assets was primarily due to the intragroup purchase of equity interests amounting to EUR 45.7 million, less the repayment of long-term loans of EUR 18.5 million and EUR 6.9 million in writedowns on interests in affiliated companies.

The amount of equity decreased overall by EUR 143.9 million; this item on the balance sheet improved thanks to net income for the fiscal year of EUR 32.0 million. The dividend payment of EUR 153.4 million and the purchase of treasury shares totaling EUR 22.5 million resulted in lower equity. In addition, the equity ratio fell by approximately 3 percentage points to 31.9 percent.

Greater liabilities to banks totaling EUR 75.0 million were incurred by taking out long-term borrower's note loans of EUR 250.0 million and a long-term loan of EUR 50.0 million from the European Investment Bank. GEA used this money to reduce short-term loans of EUR 225.0 million.

The increase in provisions was caused primarily by the rise in pension provisions of EUR 12.9 million and in other provisions totaling EUR 6.8 million.

There were only minor changes overall to the rest of the balance sheet items compared with the previous year.

Income statement of GEA Group Aktiengesellschaft (HGB) (EUR million)	2018	2017
Revenue	151.4	130.3
Other operating income	162.7	223.8
Cost for purchased services	–88.2	–88.3
Personnel expenses	–55.5	–37.6
Amortization amd writedowns of intangible fixed assets and depreciation and writedowns of tangible fixed assets	–9.0	–2.2
Other operating expenses	–243.4	–245.7
Investment income	138.7	277.1
Net interest income	–6.4	–2.0
Depreciation on financial assets and securities held as current assets	–10.0	–2.8
Taxes on income	–7.8	–17.9
Net income after income tax	**32.5**	**234.7**
Other tax expenses	–0.5	0.5
Net income for the fiscal year	**32.0**	**235.2**
Retained profits brought forward	1.1	2.3
Withdrawals from other revenue reservers	121.0	–
Appropriation to other revenue reserves	–	–83.0
Net retained profits	**154.2**	**154.5**

The revenues of GEA Group Aktiengesellschaft essentially comprised charges of EUR 130.0 million (previous year: EUR 113.9 million) that were allocated to subsidiaries in the 2018 fiscal year and income of EUR 21.2 million (previous year: EUR 16.2 million) from the trademark fee. To this end, services rendered by group companies were initially charged to GEA Group Aktiengesellschaft before being passed on to subsidiaries in the form of intragroup allocations.

Currency translation gains and losses from own hedges and hedges for affiliated companies were reported gross within other operating income and expenses, as in the previous year. Currency translation gains of EUR 145.0 million (previous year: EUR 161.5 million) and currency translation losses of EUR 135.2 million (previous year: EUR 158.4 million) resulted in net exchange rate gains of EUR 9.8 million (previous year: EUR 3.1 million).

In addition to currency translation gains, other operating income primarily includes income from the reversal of provisions amounting to EUR 12.5 million (previous year: EUR 37.5 million) and income from the disposal of fixed assets (incl. merger gains) totaling EUR 0.8 million (previous year: EUR 12.7 million).

Outlay for purchased services mainly comprised services provided by other group companies – totaling EUR 53.1 million (previous year: EUR 69.2 million) – required in order to execute the functions of the Global Corporate Center and the former Shared Service Center. In addition, expenditure for external service providers amounted to EUR 35.1 million (previous year: EUR 18.9 million).

Personnel expenses increased by EUR 17.9 million compared with the prior-year period, in large part due to additions to provisions totaling EUR 12.3 million. Of this amount, additions to pension provisions accounted for EUR 5.7 million.

In addition to currency translation losses, other operating expenses mainly comprised outlay for expert opinions and consulting, IT expenditure, and third-party services.

The investment income, lower on account of the weaker business development of subsidiaries, was the result of income from profit and loss transfer agreements totaling EUR 190.3 million (previous year: EUR 289.8 million), EUR 64.7 million (previous year: EUR 12.7 million) in expenditure from profit and loss transfer agreements, and income from other equity investments amounting to EUR 13.1 million (previous year: EUR 0 million). Income from profit transfer agreements mainly comprised profits transferred by GEA Mechanical Equipment GmbH, GEA Group Holding GmbH, GEA Refrigeration Germany GmbH, and GEA Farm Technologies GmbH. Expenses for loss absorption comprised assumed losses from GEA Refrigeration Technologies GmbH, GEA TDS GmbH, ZiAG Plant Engineering GmbH, and mg Altersversorgung GmbH.

Net interest income fell by EUR 4.4 million to EUR -6.4 million (previous year: EUR -2.0 million). This was mainly the result of increases in interest expenditure in connection with discount unwinding costs on non-current other provisions and lower interest income from loans to affiliated companies.

The impairments on financial assets contained unscheduled writedowns on interests in two companies totaling EUR 6.9 million (previous year: EUR 2.8 million) and unscheduled writedowns on loans to affiliated companies amounting to EUR 3.1 million.

Cash flow of GEA Group Aktiengesellschaft (HGB) (EUR million)	2018	2017
Cash flow from operating activities	149.7	–92.3
Cash flow from investing activities	–47.5	–13.4
Cash flow from financing activities	–100.9	–495.3
Liquid funds	48.5	47.2

Cash flow from financing activities attributable to the previous year was affected by the repurchase of treasury shares totaling EUR 427.5 million. Cash flow from financing activities attributable to fiscal year 2018 included the payment of EUR 22.5 million (previous year: EUR 427.5 million) for the repurchase of treasury shares, the dividend of EUR 153.4 million (previous year: EUR 152.8 million) paid out for the previous year, and cash inflows from modifications to debt financing totaling EUR 75.0 million (previous year: EUR 85.0 million).

GEA Group Aktiengesellschaft's business development is subject, in particular, to the same risks and opportunities as the GEA Group. These are presented in the report on risks and opportunities. Additionally, the relationships with subsidiaries may result in negative effects due to statutory and contractual contingent liabilities (in particular finance).

The income of the GEA Group Aktiengesellschaft depends significantly on the development of the investment income of its subsidiaries. Group income serves as the basis for net retained profits and the corresponding dividend payment. Hence, net retained profits (HGB) for the fiscal year is regarded as the most important key performance indicator for GEA Group Aktiengesellschaft. GEA Group Aktiengesellschaft expects net retained profits for fiscal year 2019 to be at the same level as in the previous year, taking into account existing revenue reserves.

Proposal on the appropriation of profits

GEA Group Aktiengesellschaft's annual financial statements in accordance with the HGB report net income for the fiscal year of EUR 32.0 million. In fiscal year 2018, an amount of EUR 121.0 million was withdrawn from the other revenue reserves. The Executive Board and Supervisory Board will propose to the Annual General Meeting to pay a dividend of EUR 0.85 per dividend-bearing share (180,492,172; previous year: likewise 180,492,172 shares) to shareholders from net retained profits of EUR 154.2 million and to carry forward the remaining net retained profits of EUR 0.8 million to new account.

The dividend will be paid from the contribution account for tax purposes (section 27 of the Körperschaftsteuergesetz (KStG – German Corporate Income Tax Act)) and therefore without deduction of investment income tax and the solidarity surcharge. In the case of shareholders in Germany, the dividend is not subject to current taxation in the year of payment. The general opinion of the German tax authorities (see also the Federal Ministry of Finance (BMF) circular dated January 18, 2016, para. 92) is that the payment of dividends from the contribution account for tax purposes constitutes a repayment of shareholder contributions, which results in a retrospective reduction in the cost of the shares. This can lead to the imposition of higher capital gains taxes if the shares are sold at a later date.

Explanatory information in accordance with sections 289(4), 289a(1), 315(4) and 315a(1) of the HGB

Composition of the subscribed capital and restrictions on rights

As of December 31, 2018, the subscribed capital of GEA Group Aktiengesellschaft was EUR 520,375,765.57 and was composed of 180,492,172 no-par value bearer shares. All the shares are ordinary shares. The rights and obligations arising from these shares are defined in the AktG

(AktG – German Stock Corporation Act). This can result in restrictions affecting voting rights. For example, section 71b AktG states that GEA Group Aktiengesellschaft is not entitled to voting rights from its own shares (treasury stock).

The Executive Board is not aware of any contractual restrictions affecting voting rights. Contractual restrictions affecting the transfer of shares arise through the share-based payment program (Share Ownership Guidelines) of the new remuneration system, which applies as of January 1, 2019, to all members of the Executive Board except for Dr. Helmut Schmale and Martine Snels. The members of the Executive Board who are subject to the new remuneration system have pledged to acquire a certain volume of shares of the GEA Group Aktiengesellschaft and not to encumber them or sell them until the end of their terms on the Executive Board. Participation in the GEA Performance Share Plan (incentive program for management) requires a personal investment by participants in GEA shares, which are subject to a holding period of three years. Participants who infringe the holding period lose their right to participate in the plan.

Interests in the share capital exceeding 10 percent of the voting rights

During the 2018 financial year, in accordance with sections 33 and 34 of the Wertpapierhandelsgesetz (WpHG – German Securities Trading Act), Massachusetts Financial Services Company, Boston, Massachusetts, USA, reported that its interests in GEA Group Aktiengesellschaft had exceeded 10 percent of the voting rights.

Provisions governing the appointment and dismissal of members of the Executive Board and amendments to the Articles of Association

The members of the Executive Board are appointed and dismissed by the Supervisory Board in accordance with sections 84 and 85 of the AktG in conjunction with section 31 of the Mitbestimmungsgesetz (MitbestG – German Codetermination Act).

Under Article 20(1) of GEA Group Aktiengesellschaft's Articles of Association, amendments to the Articles of Association may – where legally permissible – be adopted by a simple majority of the share capital represented at the vote. Under Article 21 of the Articles of Association, the Supervisory Board may resolve amendments and additions to the Articles of Association that only affect their wording. In other respects, section 179 of the AktG applies to amendments to the Articles of Association.

Powers of the Executive Board to issue and repurchase shares

In accordance with Article 4(3) of the Articles of Association, the Executive Board is authorized, with the approval of the Supervisory Board, to increase the share capital by up to EUR 77 million by issuing new no-par value shares against cash contributions until April 19, 2022 (Authorized Capital I) and, in accordance with Article 5(4) of said Articles, to define a starting date for profit rights in this case that differs from the date stipulated by law. The authorization may be exercised fully or in partial amounts, on one or several occasions.

Shareholders are generally entitled to subscribe to the new shares. The statutory subscription right may also be granted by the new shares being underwritten by one or more banks with the obligation of offering them to the shareholders for subscription (indirect subscription right). The Executive Board is authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights (i) insofar as this is necessary to eliminate fractional amounts, and/or (ii) in order to grant the creditors of convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the Company a right to subscribe to new shares to the extent to which they would be entitled after exercising the option or conversion rights or after fulfilling conversion obligations.

In accordance with Article 4(4) of the Articles of Association, the Executive Board is authorized, with the approval of the Supervisory Board, to increase the share capital, wholly or in part, by up to EUR 130 million by issuing new no-par value shares against cash and/or non-cash contributions on one or more occasions until April 15, 2020 (Authorized Capital II) and, in accordance with Article 5(4) of said Articles, to define a starting date for profit rights in this case that differs from the date stipulated by law. The statutory subscription right may also be granted by the new shares being underwritten by one or more banks with the obligation of offering them to the shareholders for subscription (indirect subscription right). Furthermore, the Executive Board is authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights in the case of capital increases against noncash contributions for the purpose of business combinations or the acquisition of companies, parts of companies, or equity interests in companies or other assets. The Executive Board is further authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights (i) in order to implement a so-called scrip dividend where the shareholders of GEA Group Aktiengesellschaft are given the option of contributing their dividend entitlement either wholly or partially to the company as a noncash contribution in return for the granting of new shares, (ii) insofar as it is necessary to eliminate fractional amounts, and (iii) in order to grant the creditors of convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the company a right to subscribe to new shares to the extent to which they would be entitled after exercising the option or conversion rights or after fulfilling conversion obligations. The total proportionate amount of GEA Group Aktiengesellschaft's share capital allocable to shares issued against cash and/or noncash contributions under disapplication of shareholders' preemptive rights must not exceed 10 percent of the company's share capital at the time when the resolution was adopted by the Annual General Meeting. Finally, the Executive Board is authorized, with the approval of the Supervisory Board, to stipulate the further details of the capital increases from Authorized Capital II and the terms and conditions of the share issue.

In accordance with Article 4(5) of the Articles of Association, the Executive Board is authorized, with the approval of the Supervisory Board, to increase the share capital by up to EUR 52 million by issuing new no-par value shares against cash contributions on one or more occasions until April 15, 2020 (Authorized Capital III) and, in accordance with Article 5(4) of the Articles of Association, to define a starting date for profit rights in this case that differs from the date stipulated by law. The statutory subscription right may also be granted by the new shares being underwritten by one or more banks with the obligation of offering them to the shareholders for subscription (indirect subscription right). The Executive Board is authorized, with the approval of the Supervisory Board, to exclude shareholders' subscription rights if the issue price of the new shares is not significantly lower than the stock exchange price for company shares of the same kind at the time of setting the issue price. In line with the modalities of this disapplication of preemptive rights, the shares issued in accordance with section 203(1) and section 186(3) no. 4 AktG may not exceed 10 percent of the share capital of the company either at the time at which this authorization takes effect or at the time at which it is exercised (upper limit). The upper limit of 10 percent shall be reduced by the proportionate amount of the share capital allocable to shares (i) issued during the term of the Authorized Capital III under disapplication of preemptive rights in accordance with section 71(1) no. 8 sentence 5, and section 186(3) sentence 4 AktG or (ii) issued to service convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the Company, as long as the convertible or option bonds have been issued during the term of the Authorized Capital III under disapplication of preemptive rights in accordance with section 186(3) sentence 4 AktG. The Executive Board is further authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights (i) insofar as it is necessary to eliminate fractional amounts, and (ii) in order to grant the creditors of convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the Company a right to subscribe to new shares to the extent to which they would be entitled after exercising the option or conversion rights or after fulfilling conversion obligations. Finally, the Executive Board is authorized, with the approval of the Supervisory Board, to stipulate the further details of the capital increases from Authorized Capital II and the terms and conditions of the share issue.

Under a resolution adopted by the Annual General Meeting on April 16, 2015, the share capital was contingently increased by up to EUR 51,903,633.82, comprising up to 19,200,000 bearer shares (Article 4(6) of the Articles of Association, Contingent Capital 2015). The contingent capital increase will be implemented only to the extent that the holders of conversion or option privileges from convertible bonds or option bonds, profit participation rights or profit participating bonds or a combination of these instruments issued against cash contributions by GEA Group Aktiengesellschaft or a subordinate group company of the company on the basis of the authorization by the Annual General Meeting resolution dated April 16, 2015, exercise their conversion or option privileges, or, if they are obliged to convert or exercise options, satisfy their obligation to convert or exercise options, and if no cash settlement is granted or own shares or shares of another listed company are used in settlement. New shares will be issued at the conversion or option price to be determined in each case in accordance with the authorizing resolution referred to above. The new shares bear dividend rights from the beginning of the fiscal year in which they were created as a result of the exercising of conversion or option privileges or the fulfillment of conversion or option obligations. The Executive Board is authorized, with the approval of the Supervisory Board, to determine the further details of the implementation of the contingent capital increase.

Under a resolution adopted by the Annual General Meeting dated April 19, 2018, GEA Group Aktiengesellschaft is authorized to purchase own shares up to a total of 10 percent of the total proportionate amount of share capital in accordance with section 71(1) no. 8 AktG. The authorization is valid until April 18, 2023. The shares may be purchased via the stock exchange or by means of a public purchase offer to all shareholders. The shares may subsequently be used for all purposes allowed by law. With the approval of the Supervisory Board, the shares may also (i) be sold in another manner than through the stock exchange or by means of a public offering addressed to all shareholders, provided that the issue price of the new shares is not significantly lower than the price for GEA Group Aktiengesellschaft shares of the same kind at the time of sale, (ii) be transferred to third parties for the purpose of business combinations or the acquisition of companies, parts of companies, or equity interests in companies or other assets, (iii) be used to service convertible or option bonds, (iv) be used to implement a scrip dividend or (v) be withdrawn. Further details on the resolutions on the share buyback adopted by the Annual General Meeting on April 19, 2018, are available in the invitation to the Annual General Meeting, which was published in the electronic Federal Gazette on March 12, 2018.

Material agreements that take effect in the event of a change of control following a takeover bid

The individual lenders of the syndicated credit line (club deal) amounting to EUR 650 million may refuse new drawdowns in the event of a change of control. The lenders may call in any amounts already drawn down and terminate the respective credit line giving 20 days' notice.

In the event of a change of control and subject to at least 30 days' notice, the lenders of the borrower's note loans in the total amount of EUR 250 million are entitled to request early repayment of their loan receivable, including interest accrued up to the date of the early repayment.

With regard to the loan agreement with the European Investment Bank (EIB) amounting to EUR 150 million, of which EUR 50 million is currently being used, the EIB is entitled to cancel the undisbursed part of the facility and call in the disbursed amount in the event of a change of control. Furthermore, the lender is entitled to request early repayment of the loan, including accrued interest. In this case, the borrower is obliged to repay the amount on the date specified by the Bank, which may not be earlier than 20 days after the repayment request.

Under a cash management credit line and master loan agreement totaling EUR 300 million, which is primarily used to issue guarantees for subsidiaries, the lender has the right in the event of an imminent change of control to negotiate the continuation of the agreement under changed terms. If no agreement is reached, the loan agreements fall due with immediate effect. In this case, the lender must be released from its obligations under guarantees furnished within two months or, at the discretion of the borrower, the latter shall make a cash deposit in the amount of the outstanding obligations under the guarantees furnished and any credit drawdowns settled.

If there is a change in company control, all the Performance Shares under the GEA Performance Share Program (incentive program for management) expire. Managers who participated in the program then receive a compensation payment for the expired Performance Shares. This payment corresponds to the allocated target value in each case. A change of control within the meaning of these agreements and the GEA Performance Share Plan is deemed to have occurred in particular if a majority of voting rights or shares of the company are transferred to a single person or group of persons.

Compensation arrangements with members of the Executive Board or employees

Executive Board members' contracts include provisions on the calculation of bonuses in the event of a change of control. Under the new remuneration system that applies as of January 1, 2019, to all members of the Executive Board except for Dr. Helmut Schmale und Martine Snels, there are no termination rights or other rights in the event of a change of control (change-of-control provision). Additional details can be found in the remuneration report starting on page 66. Further compensation arrangements with employees have been agreed with regard to the Performance Shares under the incentive program for management, the GEA Performance Share Program.

Key attributes of the internal control and risk management system relating to the financial reporting process

See the "Risk Management System" and "Internal Control System" sections on pages 116 ff. of the management report.

Overall Assessment of Business Development

GEA had to contend with a difficult market environment in 2018 which only got worse as the year progressed. Although order intake and revenue were gratifying over the year as a whole, earnings were disappointing.

At around EUR 4.9 billion, the figure for order intake was a new record – largely the result of acquisitions. This was also the result of excellent order intake figures in the second and third quarters, although momentum was lost towards the end of the year.

At EUR 4.8 billion, GEA's revenue before adjustments rose by 5 percent on the previous year, with increases recorded in virtually all product groups and application centers. By contrast, revenue was down in the APC Dairy.

Pressure on the gross profit margin was particularly noticeable in 2018: indeed, at around EUR 518 million, operating EBITDA was almost 8 percent down on the previous year. The corresponding margin stood at 10.7 percent. Unfortunately, timely price initiatives failed to produce the expected results. Pressure on prices was especially intense in the Separation and Flow Components product groups, and even dairy processing failed to live up to our earnings forecast.

The fall in operating profit, coupled with an increase in capital expenditure impacted on the cash flow driver margin, which stood at around 6.8 percent for the 2018 financial year.

Intangible assets were written down further as a result of the reduction in the earnings forecasts for the future. In addition, the future usefulness of existing tax loss carryforwards has decreased. This led to valuation adjustments for deferred taxes of EUR 46.2 million in 2018, and correspondingly reduced earnings per share to just EUR 0.63.

The defined generally envisaged target range for the dividend is between 40 and 50 percent of consolidated profit. Nevertheless, the Supervisory Board and Executive Board will propose that the Annual General Meeting approve payout of an unchanged dividend of EUR 0.85 per share for fiscal year 2018. Exceeding the target corridor reflects the continued confidence in GEA's operational strength.

In summary, we can reaffirm that the earnings forecast for 2018 (as published in the 2017 Annual Report) with respect to revenue was surpassed. By contrast, the figures for operating EBITDA and operating cash flow driver margin failed to meet our expectations.

Corporate Governance Report including Corporate Governance Statement

The disclosures to be made within the framework of the Corporate Governance Statement in accordance with sections 289f para. 2 and 5, 315d Handelsgesetzbuch (HGB – German Commercial Code) do not form part of the annual audit pursuant to section 317 para. 2 sentence 6 HGB.

Transparent, responsible corporate governance and control aimed at long-term value enhancement are given high priority by GEA Group Aktiengesellschaft. In doing so, we align our actions with the generally accepted principles of corporate governance while implementing the suggestions and recommendations of the German Corporate Governance Code as amended on February 7, 2017 (published in the Federal Gazette on April 24, 2017) to the greatest possible extent.

Declaration of Conformity

GEA Group Aktiengesellschaft complies with the recommendations of the German Corporate Governance Code (GCGC) as amended on February 7, 2017, and published by the Federal Ministry of Justice in the official section of the Federal Gazette and will continue to do so after issuing this Declaration of Conformity, in each case with the exception of the following deviations all of which relate to the remuneration of the members of the Executive Board. This Declaration of Conformity refers to November 15, 2018.

The Company has comprehensively revised its remuneration system for the members of the Executive Board in the fiscal year 2018. With effect from November 15, 2018, the company concluded a service agreement with Mr. Klebert, the newly appointed Executive Board member, which already complies with the revised remuneration system for Executive Board members (the “New Remuneration System”). In addition, the service agreements of the reappointed members of the Executive Board, Steffen Bersch and Niels Erik Olsen, which were renewed with effect from January 1, 2019, will be in line with the New Remuneration System. The other service agreements are still based on the Executive Board remuneration system approved by the Annual General Meeting held in April 2012 (the “Old Remuneration System”). All service agreements to be concluded in connection with future first-time appointments or reappointments will implement the New Remuneration System.

Regarding the Old Remuneration System, the following deviation from the GCGC is declared:

- The recommendation set forth in section 4.2.3 para. 2 sentence 3 GCGC, which provides that variable remuneration components generally have a multiple-year assessment basis that shall have essentially forward-looking characteristics, is not complied with.

  The multi-year variable remuneration granted to the members of the Executive Board under the Old Remuneration System comprises two components that are weighted and account for 20 and 40 percent of total variable remuneration, respectively. The assessment basis underlying the 40 percent component of multi-year variable remuneration takes into account the current as well as the two previous fiscal years and is, thus, not forward-looking. As a consequence, taken as a whole, the assessment bases governing multi-year variable remuneration do not have essentially forward-looking characteristics.

In addition, the following deviation from the GCGC is declared:

- For the period from November 15, 2018, to December 31, 2018, the recommendation set forth in section 4.2.3 para. 2 sentence 2 GCGC, which provides that monetary remuneration shall comprise fixed and variable components, is not complied with as regards the Executive Board service agreement concluded with Mr. Klebert.

  Mr. Klebert was appointed as a member of the Executive Board with effect from November 15, 2018. The performance targets set in relation to the variable remuneration components in line with the New Remuneration System under Mr. Klebert’s service agreement will not apply until fiscal year 2019. For the transition period from November 15, 2018, to December 31, 2018, a target achievement level of 100 percent is assumed, which solely equals a fixed remuneration for the respective period. Setting performance targets for such a brief period of time following his initial appointment was not considered to be reasonable by the Supervisory Board.

After issuing the previous Declaration of Conformity on December 15, 2017, until November 15, 2018, GEA Group Aktiengesellschaft complied with the recommendations of the GCGC as amended on February 7, 2017, and published by the Federal Ministry of Justice in the official section of the Federal Gazette, with the exception of the recommendation set forth in section 4.2.3 para 2. sentence 3 GCGC as outlined above.

Düsseldorf, December 19, 2018

For the Supervisory Board	For the Executive Board	
Dr. Helmut Perlet	Jürg Oleas	Dr. Helmut Schmale

Code of Conduct

The Code of Conduct of GEA Group Aktiengesellschaft stipulates that the group's business activities are to comply with all existing laws and high ethical standards. This Code of Conduct applies to all GEA employees and corporate bodies worldwide. It is supplemented by guidelines on individual topics, in particular anti-corruption, anti-trust and competition law as well as conflicts of interest. This Code of Conduct is supplemented by a Code of Conduct for Suppliers and Subcontractors that obliges these groups to adhere to key regulations and standards. In addition, there are general principles of social corporate responsibility ("codes of conduct") jointly agreed with the European Works Council; they lay down ethical, social and legal standards that are binding on all GEA employees. The Codes of Conduct and the general principles of social corporate responsibility constitute a globally applicable and uniform policy governing the areas of Quality, Health, Safety & Environment ("QHSE"). The Code of Conduct, the QHSE policy and further information are published on GEA's website under Investors/Corporate Governance. For further information see page 109 of this Annual Report.

Compliance

Compliance in terms of measures designed to ensure adherence to legal, statutory and internal corporate policies, as well as group companies' compliance therewith, is considered to be a key management and supervisory task at GEA. Group-wide compliance activities focus on the prevention of corruption and money-laundering, conflicts of interest, antitrust law as well as data protection. The Chief Compliance Officer coordinates and ensures the implementation of compliance measures, in particular in the aforementioned areas. In this capacity, he/she reports to both the Executive Board and the Audit Committee of the Supervisory Board. Moreover, the compliance organization is involved in processing any and all compliance incidents carrying the risk of criminal proceedings or a fine. The Chief Compliance Officer is assisted by the extended legal compliance organization and the internal audit department. Central legal compliance activities are bundled in the "Compliance & Principle Legal Matters" unit that forms part of the group's corporate legal department. Apart from that, the Business Area Compliance Officers, who also belong to corporate legal, support the compliance activities undertaken at operational business level. Each operating entity is assigned a Local Compliance Manager. In addition, further functions for the purpose of counselling and supporting the Chief Compliance Officer are involved, if need be. GEA's Compliance Management System has been audited by the auditing company KPMG regarding the suitability and implementation of its anti-corruption and anti-trust law subsections in accordance with the IDW PS 980 auditing standard. The audit was completed without any complaints.

In parallel to the compliance organization described above, GEA has a worldwide operational export control organization. Key export control activities fall within the remit of the Business Area Export Control Managers. Furthermore, each operating entity is assigned a Local Export Manager. Finally, a Quality, Health, Safety & Environmental (HSE) organization is in place to develop and implement group-wide guidelines, programs and procedures in this specific field.

The members of the compliance organization meet at regular intervals to discuss the latest developments and the potential impact of and/or need to supplement GEA's compliance program. Since December 1, 2014, GEA has in place the so-called Integrity System that was implemented on a global level. This Integrity System allows GEA employees and independent third parties to report suspected compliance infringements or violations of the GEA codes of conduct – the general principles of social responsibility – via an internet-based system. To the extent permitted by law, the individuals reporting a violation may remain anonymous, as the case may be. This anonymity is guaranteed by the technical set-up of the Integrity System. The Compliance Organization rigorously investigates all suspected cases, if necessary by involving group internal audit. Moreover, the group employees relevant for compliance regularly receive face-to-face and web-based training covering current issues and regulations relative to the law, the Code of Conduct and GEA's additional compliance guidelines. GEA's compliance program is rounded off by a close cooperation between the compliance organization and the group's internal audit department as well as on-site talks between representatives of the compliance organization and local managers for evaluating best practices within the group.

Responsible risk management

Sustainable growth can only be achieved if both the opportunities and the risks associated with business activities are identified and adequately taken into account. For this reason, an effective control and risk management system represents one of the core elements of corporate governance at GEA. For further details see page 115 ff. of this Annual Report.

Accounting and audit transparency

GEA Group Aktiengesellschaft is committed to transparent reporting. The company's consolidated financial statements and half-yearly financial reports are prepared in accordance with the International Financial Reporting Standards (IFRS) as applicable in the European Union. The single entity financial statements of GEA Group Aktiengesellschaft, which are legally required and determine dividend payout, are governed by the German Handelsgesetzbuch (HGB – German Commercial Code). The Supervisory Board engages the external auditor elected by the shareholders at the Annual General Meeting. The Audit Committee gives particular attention to the oversight of the accounting process, the effectiveness of the internal control, risk management and internal audit systems, the audit of the annual financial statements (in this context, notably the selection and independence of the auditor and the additional services provided by the auditor, auditor engagement, the determination of key audit areas as well as the audit fee) as well as compliance. While also taking into account the EU audit reform, it ensures that the auditor's work is not compromised by any conflicts of interest and that the auditor immediately reports any and all findings and events relevant to the Supervisory Board's discharge of duties that have come to the attention of the auditor in the course of the audit. Apart from the consolidated and annual financial statements, the Audit Committee also discusses the half-yearly financial and quarterly statements with the Executive Board.

Detailed reporting

GEA Group Aktiengesellschaft communicates openly, actively and extensively. It regularly and promptly informs shareholders, shareholders' associations, analysts, and interested members of the public on equal terms about the company's situation as well as any material changes to its business. In this respect, the company's website constitutes an important means of communication. It contains the annual and half-yearly reports as well as quarterly statements, press releases as well as other notifications required under the EU Market Abuse Regulation (MAR) and the Wertpapierhandelsgesetz (German Securities Trading Act), the financial calendar and other relevant information. Moreover, analyst meetings, press conferences and events for investors are regularly hosted. The presentations delivered on these occasions can also be downloaded from our website under "Investors".

Managers' Transactions and shareholdings held by members of governing bodies

Under section 19 MAR, Executive Board and Supervisory Board members or persons closely associated with them are obliged to disclose reportable transactions in shares of GEA Group Aktiengesellschaft or related financial instruments if the transactions concluded in one calendar year reach or exceed the threshold of EUR 5,000. The three transactions reported to the company in fiscal year 2018 were duly disclosed and published on the company's website. The total number of shares in GEA Group Aktiengesellschaft held by all Executive Board and Supervisory Board members amounts to less than 1 percent of the shares issued by the company.

Securities-based remuneration scheme for company executives

With effect from July 1, 2006, GEA Group Aktiengesellschaft launched a long-term, share price-based remuneration scheme called "GEA Performance Share Plan" for certain managers below Executive Board level. Details are provided in note 6.3.3 (see page 196 ff.) to the consolidated financial statements.

Corporate governance and control: Executive Board and Supervisory Board

GEA Group Aktiengesellschaft is subject to the German Stock Corporation Act and, therefore, has a two-tier board structure comprising the Executive Board and the Supervisory Board. The Executive Board constitutes the group's management body. The Supervisory Board – which is composed of twelve members, half of whom are shareholder representatives, while the other half comprises employee representatives – appoints and advises the Executive Board while overseeing its work. The Executive Board and the Supervisory Board cooperate closely for the benefit of the company, their common goal being the sustainable increase in enterprise value.

Executive Board

The Executive Board holds overall responsibility for the management of the company in accordance with statutory requirements, the Articles of Association as well as the rules of procedure and the corporate policies that are in place. In line with the Rules of Procedure of the Executive Board, each Executive Board member has overall responsibility for and independently manages the area of responsibility assigned to him/her under the schedule of responsibilities while keeping the entire Executive Board consistently informed of all essential business affairs. Decisions on matters of fundamental importance or particular magnitude must be taken by the entire Executive Board. Executive Board resolutions are adopted at regular meetings or, should no member of the Executive Board raise any objections, in writing, orally (also via telephone), via telefax or by referring to other common means of communication such as emails. Each member of the Executive Board must immediately disclose conflicts of interests to the Supervisory Board and inform the other members of the Executive Board, accordingly.

The Executive Board reports to the Supervisory Board regularly, promptly and comprehensively on all issues relating to strategy, planning, business progress, risk exposure, the risk management system as well as compliance that are relevant to the company. Should important issues or business matters that may considerably impact on the situation of the company arise, the Executive Board will notify the Chairman of the Supervisory Board without undue delay. The Articles of Association and the rules of procedure specify key transactions that require the Supervisory Board's approval. Further information on the individual members of the Executive Board can be found on pages 12 f. as well as 245 f. of this Annual Report.

Supervisory Board

The Supervisory Board advises the Executive Board on the management of the company and oversees its conduct of the company's business. Between the Supervisory Board meetings, the Chairman of the Supervisory Board maintains regular contact with the Executive Board, in particular the Chairman of the Executive Board, with whom he discusses matters of strategy, planning, business progress, risk exposure, risk management and corporate compliance. The Supervisory Board usually holds 6 meetings per calendar year that are attended by the members of the Executive Board unless the Chairman of the Supervisory Board determines otherwise. As a rule, the Supervisory Board's resolutions are adopted at these meetings. Unless the majority of the Supervisory Board members immediately object, the Chairman of the Supervisory Board may also determine that resolutions be adopted during a conference call or a video conference or outside of meetings by the members casting their votes in writing, text form or by telephone. Resolutions require a simple majority of the votes cast unless statutory law provides for a different majority. After the notice of the meeting has been given to all members, the Supervisory Board has a quorum when a minimum of half of its members vote on a resolution by attending in person, by telephone or video conference or have cast their votes in writing or text form pursuant to section 108 para. 3 Aktiengesetz (AktG – German Stock Corporation Act).

Supervisory Board Committees

The work of the Supervisory Board is supported by committees. These are primarily the Presiding Committee and the Audit Committee. Besides, there is the statutory Mediation Committee as well as the Nomination Committee recommended by the German Corporate Governance Code. The Audit Committee and the Mediation Committee each comprise four members, while the Presiding Committee is composed of 6 members; each of the above committees features equal representation of shareholder and employee representatives. The Nomination Committee consists of 3 members, who include exclusively shareholder representatives in accordance with section 5.3.3 of the German Corporate Governance Code.

In each calendar year, the Presiding Committee and the Audit Committee usually meet four or five times, respectively. During meetings, Presiding Committee and Audit Committee resolutions are adopted by a simple majority of the votes cast, while outside of meetings, they are passed by a simple majority of the members. If the vote is tied, the respective chairman has a casting vote in the event of another ballot on the same resolution. The Nomination Committee and the Mediation Committee only hold meetings when required.

The Presiding Committee focuses on Executive Board matters including succession and remuneration topics, corporate governance as well as specific transactions requiring approval. Moreover, the Presiding Committee is also responsible for jointly deliberating on corporate strategy, capital investments and funding operations together with the Executive Board. In this context, decisions on the Executive Board remuneration system, the total remuneration awarded to the individual Executive Board members, as well as their appointment and dismissal are reserved to the full Supervisory Board.

The Audit Committee, whose chairman has a sound knowledge of and experience in applying financial accounting standards as well as internal control systems, primarily focuses on overseeing the financial accounting process, the efficiency of the internal control and risk management systems, the internal audit process, compliance as well as the audit of the annual financial accounts.

The Mediation Committee performs its duties as set out in sections 27, 31 Mitbestimmungsgesetz (MitbestG – German Co-determination Act). The task of the Nomination Committee is to propose suitable candidates to the Supervisory Board based upon which the latter submits its nominations to the Annual General Meeting.

Further information on the composition of the Supervisory Board and its committees can be found on the company's website at gea.com, as well as on pages 245 and 246 of this Annual Report. In addition, the Report of the Supervisory Board starting on page 16 of this Annual Report gives further details on the activities performed by the Supervisory Board and its committees in fiscal year 2018 as well as changes in the organizational structure of the committees taking effect in 2019. It also discloses individual attendance of meetings held by the Supervisory Board and its committees. In the fiscal year just ended, all Supervisory Board members participated in well over half of the meetings of the Supervisory Board and the committees of which they are members.

Compliance with minimum quotas pursuant to section 96, para. 2 German Stock Corporation Act and commitment to promoting the participation of women in executive positions in accordance with section 76 para. 4 and section 111 para. 5 German Stock Corporation Act

As early as in 2011, GEA started to encourage the promotion of diversity at group level. A description of the diversity strategy is provided in the chapter on Sustainability at GEA (see 96 f.). Under its diversity strategy, GEA also pursues the aim of attracting more women to join the company while promoting female talent. In the long run, the company seeks to increase the share of women on all management levels. GEA will continue to support this process by means of strategic measures.

The Act on Equal Participation of Women and Men in Executive Positions in the Private and Public Sector, which took effect in April 2015, obliges certain companies in Germany to define targets in relation to the proportion of women represented on the Supervisory Board, the Executive Board and/or the Board of Directors as well as on the two management levels below, and to set target dates for achieving the respective quota of women. Since January 1, 2016, a statutory minimum quota of 30 percent has applied with regard to the underrepresented gender on the supervisory boards of listed and codetermined companies like GEA Group Aktiengesellschaft; this quota has to be observed whenever such companies seek to fill vacant supervisory board positions. Since the 2016 Supervisory Board elections, the Supervisory Board has included 5 female members (previously 4). As a result, the share of women represented on the Supervisory Board of GEA Group Aktiengesellschaft currently amounts to 42 percent.

At its meeting on June 22, 2017, the Supervisory Board of GEA Group Aktiengesellschaft set a new 20 percent target for the proportion of women represented on the Executive Board that will be applicable until December 31, 2021.

In June 2017, the Executive Board of GEA Group Aktiengesellschaft set target quotas for the two management levels below the Executive Board that are to be achieved by December 31, 2021, namely a 25 percent share of women on the first and a 30 percent proportion of women on the second management level.

Targets for the other GEA Group companies affected by this law were also set in due time in relation to the proportion of women represented on the respective Supervisory Board and/or the Board of Directors as well as the two uppermost management levels below the Board of Directors, just like the corresponding deadlines for timely target implementation.

GEA takes the corresponding measures (see page 97 f.) to ensure that the set targets are accomplished.

Diversity policy governing the composition of the Executive Board and the Supervisory Board

Together with the Executive Board, the Supervisory Board engages in long-term Executive Board succession planning. The selection process for Executive Board positions is subject to a structured standard procedure. Apart from a balance between technical qualifications and personal skills, the Supervisory Board and its committees also take into account the criterion of diversity when appointing members to the Executive Board. As GEA is an international technology group and supplier for the food processing industry and various other sectors, appointments to the Executive Board are to specifically meet the following criteria: In terms of its composition, the Executive Board shall fulfill the criterion of internationality. Its members shall include a minimum of 2 different nationalities, with the entire body covering several languages. The proportion of women represented on the Executive Board shall total a minimum of 20 percent. Overall, the Executive Board shall have a balanced age structure. The members of the Executive Board shall, as a rule, not serve office after completing the age of 65. Apart from that, the company seeks to ensure that at least half of all Executive Board members have gained many years of experience in the food sector, while a minimum of 2 Executive Board members have a technical or scientific background. In its current composition, the Executive Board meets the above criteria.

At its meeting held on December 15, 2017, the Supervisory Board revised the targets for its composition by taking into consideration the recommendations of the German Corporate Governance Code and adding a profile of skills and expertise. Accordingly, the Supervisory Board members shall collectively have the knowledge, skills and professional expertise required to properly perform their duties in consideration of the company-specific situation. This is why, aside from the integrity and commitment of its members, who must have sufficient time to exercise their respective mandate, the Supervisory Board also pays attention to a balanced profile of skills and expertise amongst its members, in particular sufficient industry and sector knowledge relevant to GEA Group Aktiengesellschaft, an adequate number of independent members, international experience as well as diversity. With a view to the benefit of the company, the decisive criterion for filling a position on the board shall in all cases be the professional and individual suitability of the male or female candidate while taking into account the skills and expertise of the other members of the Supervisory Board.

The Supervisory Board seeks to ensure a board composition that takes into consideration the following elements: In terms of the origin, the professional and cultural background as well as the age and gender of its members, the Supervisory Board is to reflect diversity. At least one quarter of the members of the Supervisory Board shall have an international background that ideally covers various regions or cultural areas. Each gender shall account for a minimum of one third of the members of the Supervisory Board. The Supervisory Board shall include – what it considers to be – an adequate number of independent members. For this reason and in consideration of the shareholder structure, the Supervisory Board seeks to ensure that a minimum of two thirds of the shareholder representatives are independent in line with the definition given under section 5.4.2 sentence 2 of the German Corporate Governance Code. At present, all shareholder representatives on the Supervisory Board are independent within the meaning of the German Corporate Governance Code. As a rule, a member's uninterrupted service on the Supervisory Board shall not to exceed three full terms of office and/or a period of 15 years. Generally, nominations shall only consider individuals who have not yet reached the age of 70 at the date of the Annual General Meeting resolving on the election of the proposed candidates. If it is foreseeable that individuals would be subject to permanent or repeated conflicts of interest in the event of their election to the Supervisory Board, such individuals shall not be considered as Supervisory Board candidates. Apart from that, the Rules of Procedure of the Supervisory Board provide for detailed rules and regulations governing the handling of conflicts of interests that may occur after a member is elected to the Board. According to these regulations, each Supervisory Board member has the obligation to disclose potential conflicts of interest to the Supervisory Board. Conflicts of interest of a material and non-temporary nature in relation to a Supervisory Board member shall result in the termination of his/her mandate.

The profile of skills and expertise the Supervisory Board seeks to establish for the entire body may be summarized as follows: All members of the Supervisory Board are to be familiar with the sector in which the company operates. At least one Supervisory Board member must have expertise in the fields of financial accounting or auditing. Furthermore, the Chair of the Audit Committee shall also have specific knowledge and expertise in applying internal control procedures. The Supervisory Board shall comprise members with a commercial or business background, individuals from the engineering profession as well as members with experience in one or several of the company's customer industries. A minimum of two Supervisory Board members shall have management experience in operational business. All members of the Supervisory Board shall be able to understand and assess the specific nature of the company's business as well as resulting risks and opportunities. They shall be familiar with the basic principles of accounting and risk management.

In its current composition, the Supervisory Board meets the target composition criteria and lives up to the profile of skills and expertise.

Remuneration Report

The Remuneration Report outlines the key principles applied to determining the total remuneration of the members of the Executive Board of GEA Group Aktiengesellschaft and sets out the structure and level of Executive Board remuneration. Furthermore, it specifies the underlying principles and the level of remuneration awarded to the members of the Supervisory Board.

The Remuneration Report comprises details of the remuneration of board members pursuant to the German Commercial Code in accordance with DRS no. 17 (German Accounting Standard 17). Since GEA complies with the corresponding recommendations of the German Corporate Governance Code (GCGC), this Remuneration Report also includes the model tables on Executive Board remuneration pursuant to the GCGC (see page 76 ff.).

Change in the Executive Board remuneration scheme

Acting on the recommendation of the Presiding Committee, the Supervisory Board determines the total remuneration of the individual Executive Board members and resolves on the remuneration system applicable to the Executive Board. The Supervisory Board reviews the appropriateness of the remuneration at regular intervals. Criteria for determining the appropriateness of the remuneration include the responsibilities of the individual Executive Board members, their respective personal performance, the business situation, the success and the future prospects of the company as well as the common level of compensation taking into account the peer companies and the compensation structure in place in other areas of the company.

As announced, the Supervisory Board conducted a review of the previous remuneration system with a view to regulatory requirements and investor expectations in fiscal year 2018, adjusting the scheme with effect from January 1, 2019. The new remuneration system will apply to all newly appointed Executive Board members as well as the members of the Executive Board that were reappointed as of January 1, 2019. As far as the other members of the Executive Board are concerned, the previous remuneration system has applied and will continue to apply until their departure or until their current service agreements expire.

On April 26, 2019, the new remuneration scheme will be submitted to the Annual General Meeting for approval; a detailed overview of the scheme is provided in the following chapter: "Overview of the 2019 Remuneration System" (see page 79 ff.).

Previous remuneration scheme

Remuneration components

In fiscal year 2018, the remuneration of the Executive Board members comprised the following elements:

Fixed components of remuneration and fringe benefits

The non-performance-related component of remuneration mainly consists of a fixed annual salary that is disbursed in twelve equal installments at the end of each calendar month.

In the year under review, the fixed annual salary awarded to Jürg Oleas amounted to EUR 1,250 thousand, Dr. Helmut Schmale was awarded EUR 700 thousand, while Steffen Bersch, Niels Erik Olsen and Martine Snels each received EUR 600 thousand. As Stefan Klebert joined the company on November 15, 2018, his fixed annual salary in the amount of EUR 1,200 thousand for 2018 was awarded on a pro rata temporis basis.

In addition, the Executive Board members receive fringe benefits. In the year under review, the latter mainly comprised the value of the use of a company car in accordance with tax regulations, accident insurance premiums, and – in individual cases - the reimbursement of costs incurred for travel, accommodation, relocation, subsistence, as well as tax advisory services.

Variable components of remuneration

In addition, each member of the Executive Board receives a variable annual remuneration (bonus) whose level depends on the achievement of specific targets set by the Supervisory Board. As for a target achievement of 100 percent, the level of variable remuneration equals that of the fixed remuneration component (target bonus). To ensure that both positive and negative developments are taken into account, the level of variable remuneration increases or decreases in the event of target over- or underachievement (even down to zero, as the case may be).

The bonus consists of 3 components. The latter comprise both one-year and multi-year bases of assessment. Each of the 3 components provides for a cap. Furthermore, taken together, all 3 bonus components applicable to a specific fiscal year are limited to 240 percent of the target bonus (overall cap). At its own dutiful discretion, the Supervisory Board takes into account extraordinary events and developments indicating that a readjustment of the respective value computed in line with the provisions set forth in the respective service agreement is appropriate.

Considering the fact that Stefan Klebert – to whom the new remuneration scheme applies - joined the company on November 15, 2018, he was not awarded any variable remuneration for the 2018 fiscal year. Instead, he received a lump sum payment in the amount of EUR 375 thousand for the period from his start date to December 31, 2018, since the Supervisory Board considered setting targets for such a brief period of time following his initial appointment to be unreasonable. Apart from the fixed remuneration (EUR 150 thousand) that was awarded on a pro rata temporis basis, this lump sum payment also included the variable target remuneration (EUR 225 thousand) for the above period, calculated pro rata temporis. As of January 1, 2019, Stefan Klebert fully falls within the new remuneration system, i.e. including all variable components.

Individual component (weighting of 40 percent)

The individual component of variable remuneration is payable with the next regular salary payment following the date of the Supervisory Board meeting convened to adopt the financial statements for the preceding fiscal year. Its amount is calculated on the basis of 3 to 5 individual annual targets determined for the respective fiscal year by the Supervisory Board. When setting these individual targets, the Supervisory Board primarily bases its decision on the sustainability of corporate governance such as revenue performance. The Supervisory Board's definition of the individual targets also includes their respective weighting.

Under variable remuneration, the individual component has a weighting of 40 percent, i.e., 40 percent of the variable remuneration (target amount) is payable if 100 percent of the target set in relation to the individual component is achieved. The overall degree of target achievement and, thus, the amount paid out under the individual component, are limited to 200 percent of this target amount (cap).

After the end of the fiscal year, the Supervisory Board decides on the degree of target achievement. For fiscal year 2018, the Supervisory Board has ascertained a 106.0 percent degree of average target achievement (previous year: 79.2 percent) for the members of the Executive Board.[1]

Multi-year component (weighting of 40 percent)

The multi-year component is payable with the next regular salary payment following the date of the Supervisory Board meeting convened to adopt the financial statements for the preceding fiscal year. Performance measurement under the multi-year component takes place retrospectively for the previous 3 fiscal years. The period of assessment covers the respective fiscal year just ended, as well as the two preceding fiscal years. The basis of assessment is tied to key performance indicators embracing a combination of cash flow aspects (the so-called "cash flow driver margin" (CFDM)) and "return on capital employed" (ROCE).

The CFDM target is a simplified cash flow indicator (EBITDA minus capital expenditure in property, plant and equipment as well as intangible assets (Capex) minus change in working capital on a 12-month average) calculated as a ratio of revenue. The CFDM actually generated is calculated on the basis of average values achieved over the previous three years. The degree of target achievement results from a comparison between the achieved CFDM and the target value and/or target achievement range defined by the Supervisory Board. As for fiscal year 2018, just like the previous year, 100 percent of the target is achieved if the group's CFDM throughout the preceding three-year period averages 8 percent. If the CFDM is lower or higher, the degree of target achievement will go up or down, with a CFDM of less than or equal to 4.5 percent being equivalent to a target

1) The overall degree of target achievement and/or the individual degrees of target achievement are rounded figures.

achievement of zero percent, while a CFDM greater than or equal to 13.25 percent represents a maximum target achievement of 250 percent.

The level of the ROCE component (ROCE: return on capital employed), which is calculated on the basis of average values attained over the previous three years, corresponds to the ratio of earnings before interest and taxes (EBIT) to the capital employed, while excluding goodwill arising on the acquisition of the former GEA AG by the former Metallgesellschaft AG back in 1999 including effects attributable to the award proceedings. The degree of target achievement depends on the actual ROCE achieved compared with the target value and/or target achievement range of +/- 5 percentage points defined by the Supervisory Board. As for 2018, just like the previous year, 100 percent of the target is achieved if the group's ROCE averages 19 percent throughout the preceding three-year period. If the actual ROCE level is greater than or less than this percentage, but within the defined range of +/- 5 percentage points, the degree of target achievement is increased or reduced by up to 50 percentage points.

The key performance indicators CFDM and ROCE are adjusted for the impact of acquisitions made in fiscal year 2014 or later. With respect to acquisitions, such adjustment is effected in the year of first-time consolidation, and in the following fiscal year, respectively. The adjustment includes all acquisitions that require the consent of the Supervisory Board or the Presiding Committee of the Supervisory Board.

For calculating the overall degree of target achievement, the respective degrees of target achievement relevant to the individual key performance indicators CFDM and ROCE are multiplied. Under the variable remuneration component, the multi-year component has a weighting of 40 percent, i.e., 40 percent of variable remuneration is payable (target amount) if 100 percent of the target set in relation to the multi-year component is achieved. The overall degree of target achievement and, thus, the amount disbursed under the multi-year component is limited to 250 percent of this target amount (cap).

Over the preceding three-year period, the CFDM key performance indicator averaged 6.2 percent as a result of a CFDM of 8.0 percent in fiscal year 2016, 6.4 percent in fiscal year 2017 and 4.1 percent in the 2018 fiscal year. Thus, in 2018, the degree of target achievement for the CFDM amounts to 47.2 percent (previous year: 68.4 percent). For the ROCE key performance indicator an average of 15.5 percent was achieved during the preceding three-year period; it is the result of a ROCE of 18.6 percent in fiscal year 2016, 16.6 percent in fiscal year 2017 and 11.2 percent in the 2018 fiscal year. Thus, for fiscal year 2018, the degree of ROCE target achievement amounts to 64.7 percent (previous year: 78.2 percent). As to the variable remuneration awarded in the 2018 fiscal year, the overall degree of target achievement under the multi-year component amounted to 30.6 percent (previous year: 53.5 percent).[2]

Share price component (weighting of 20 percent)

The long-term share price component is payable at the end of a three-year performance period with the next regular salary payment following the date of the Supervisory Board meeting convened to adopt the financial statements for the preceding fiscal year. Performance measurement relating to the long-term share price component is conducted by taking a forward-looking approach. The period of assessment covers a three-year performance period including the relevant fiscal year as well as the two subsequent fiscal years.

Under variable remuneration, the long-term share price component has a weighting of 20 percent, i.e., 20 percent of variable remuneration is payable (target amount) if 100 percent of the set target is achieved. The overall degree of target achievement and, thus, the amount paid out under the long-term share price component is limited to 300 percent of this target amount (cap).

Performance measurement for the relevant three-year period is conducted by means of a comparison between GEA's share performance (adjusted for dividends) and the performance of the STOXX® Europe TMI Industrial Engineering (TMI IE) index, in which numerous European industrial enterprises are listed. This comparison is computed on the basis of the respective arithmetic mean closing prices on the last 20 trading days preceding the start of the three-year performance period.

2) The overall degree of target achievement and/or the individual degrees of target achievement are rounded figures.

100 percent of the target is attained if the evolution of the daily arithmetic mean closing prices of GEA's share over the three-year performance period fully (i.e. 100 percent) corresponds to the relevant TMI IE performance during the three-year performance period. The degree of target achievement increases or decreases by 4 percent for each percentage point greater than or less than a performance level of 100 percent. In the event of outperformance greater than 100 percent, the amount disbursed rises to a maximum of 300 percent of the target amount. If the increase in GEA's share price over the three-year period is less than 100 percent of the growth in the TMI IE, the amount payable is reduced down to a performance level of 75 percent. Should GEA shares have dropped, the Supervisory Board may still award a payment if GEA shares have nonetheless outperformed the TMI IE. In this case, the decisions about whether to grant such payment and the level of the amount to be paid out are subject to the discretion of the Supervisory Board.

For the year under review, no payment under the long-term share price component granted for 2018 was made as the latter is forward-looking and measured over a three-year period; the respective payment will not be made until fiscal year 2021. Instead, the 2016 tranche under the long-term share price component will be disbursed together with the 2018 individual component and multi-year component in March 2019. The target achievement level computed for the 2016 tranche amounts to 22.9 percent. In the actual year under review, the 2015 tranche in the amount of EUR 318 thousand was paid out on the basis of a 63.7 percent target achievement level. Furthermore, the year under review saw the payout of the 2014, 2015 and 2016 tranches in the total amount of EUR 316 thousand to Dr. Stephan Petri, who had left the Executive Board in 2016; the above payment was made on the basis of a 133.2 percent degree of target achievement in relation to the 2014 tranche as well as the 100 percent degree of target achievement that had been contractually agreed for the 2015 and 2016 tranches at the time of his departure.

As of December 31, 2018, the target achievement levels of the tranches under the long-term share price component that were still outstanding amounted to 34.5 percent for the 2018 tranche (performance period 2018 to 2020), 30.2 percent (previous year: 61.0 percent) for the 2017 tranche (performance period 2017 to 2019) as well as 22.9 percent (previous year: 60.3 percent) for the 2016 tranche (performance period 2016 to 2018).[3]

3) The overall degree of target achievement and/or the individual degrees of target achievement are rounded figures.

Summary of the variable remuneration components

The following table summarizes the respective weightings and assessment periods applicable to the variable components:

Variable remuneration component	Target	Weighting	Cap[1]	Overall cap[1]	Assessment period				
					2016	2017	2018	2019	2020
Individual component	Individual targets	40 %	200 %	240 %			One year		
Multi-year component	Combination of cash flow driver margin and ROCE	40 %	250 %		Backward -looking (3 years)				
Long-term share price component	Share price in relation to TMI IE	20 %	300 %				Forward-looking (3 years)		

1) As a percentage of the respective variable remuneration component ("cap") or the target bonus („overall cap")

Under the previous remuneration scheme, the Supervisory Board may also grant a special bonus to all members of the Executive Board in exceptional circumstances if their activities have resulted in an extraordinary value enhancement for the benefit of the company's shareholders. Exercising its dutiful discretion, the Supervisory Board may decide to grant such special bonus and set the respective amount. Within the framework of all Executive Board service agreements based on the previous remuneration system, this special bonus, which may only be awarded in exceptional circumstances and has never been granted up to this point in time, is subject to an express cap that corresponds to a maximum of 100 percent of the target bonus.

Pension benefits and surviving dependents' benefits

Jürg Oleas

The contractual pension benefits of the Chairman of the Executive Board, Jürg Oleas, which are fully vested after 18 years of service, amount to a maximum of EUR 360 thousand per year. His pension benefits would have been fully vested in April 2019, with Jürg Oleas turning 62 in December 2019 while his service agreement would also have expired at the end of December 2019. Against this backdrop, and within the framework of Jürg Oleas's mutually agreed premature departure on February 17, 2019, the parties agreed that Jürg Oleas will be entitled to a pension in the amount of EUR 360 thousand p.a. with effect from January 1, 2020 (more details are specified in the chapter on "Agreements governing the departure of Jürg Oleas", page 73). His regular pension benefits will be adjusted annually in line with the consumer price index.

The surviving dependents' benefits defined in Jürg Oleas's service agreement basically provide for a lifelong widow's pension as well as an orphan's pension. The widow's pension specified in Jürg Oleas's service agreement totals 20 percent of his retirement pension. The orphan's pension is a specific percentage of the retirement pension and its amount depends on the number of children and on whether they are full or half orphans. In principle, entitlement to an orphan's pension expires on reaching the age of legal majority, or at the latest on reaching the age of 25 if the child in question is still in full-time education and/or completes vocational or professional training. Collectively, widow's and orphan's pensions must not exceed the level of the retirement pension.

Dr. Helmut Schmale

The contractual pension benefits of the Chief Financial Officer, Dr. Helmut Schmale, amount to a maximum of EUR 200 thousand per annum. Under this arrangement, maximum pension benefits will be paid once his service agreement ends when or after Dr. Schmale reaches the age of 62 or in the event of his permanent incapacity to work. His pension benefits are fully vested, since Dr. Helmut Schmale turned 62 in November 2018. Hence, following his departure from GEA, Dr. Helmut Schmale will be entitled to receive payment of the respective retirement pension with immediate effect. His regular pension will be adjusted annually in line with the consumer price index.

The company covers the employer's contribution to the state pension scheme payable for Dr. Helmut Schmale's voluntary enrollment in the state pension scheme.

In addition, in each fiscal year, Dr. Helmut Schmale is entitled to make a personal contribution to a deferred compensation pension scheme for Executive Board members. No employer subsidy is paid.

The surviving dependents' benefits defined in Dr. Helmut Schmale's service agreement are in line with the provisions outlined above in relation to Jürg Oleas, with Dr. Helmut Schmale's wife being entitled to a widow's pension that amounts to 60 percent of his pension.

Steffen Bersch

The contractual pension benefits of Steffen Bersch, member of the Executive Board, amount to a maximum of EUR 200 thousand p.a. Under this arrangement, maximum pension benefits will be paid once his service agreement ends when or after he reaches the age of 62 or in the event of his permanent incapacity to work. Should Steffen Bersch's service agreement end before one of the above conditions for payment of his pension is met, he will have vested rights to a pro rata annual pension that becomes payable once he reaches the age of 62. His pro rata annual pension is composed of two elements: First, the fixed amount embracing the vested benefits not resulting from deferred compensation and earned while Steffen Bersch was working for companies of GEA Group prior to his appointment to the Executive Board, plus the amount accounting for the vested pension benefits earned during his service as an Executive Board member from the date of his appointment to the day of his departure. His pro rata maximum annual pension totals EUR 200 thousand p.a. and will be fully vested after a ten-year service on the Executive Board. Should Steffen Bersch leave the Executive Board before this ten-year term has lapsed, his vested pension benefits will be subject to a pro rata reduction. His regular pension will be adjusted annually in line with the consumer price index.

The company covers the employer's contribution to the state pension scheme payable for Steffen Bersch's voluntary enrollment in the state pension scheme.

In addition, in each fiscal year, Steffen Bersch is entitled to make a personal contribution to a deferred compensation pension scheme for Executive Board members. No employer subsidy is paid. In addition, Steffen Bersch is entitled to vested benefits to the tune of EUR 23,428 p.a. from personal contributions made prior to his appointment to the Executive Board in connection with his participation in GEA's executive pension scheme.

The surviving dependents' benefits defined in Steffen Bersch's service agreement are in line with the provisions outlined above in relation to Jürg Oleas, with Steffen Bersch's wife being entitled to a widow's pension that amounts to 60 percent of his pension.

Niels Erik Olsen

Instead of pension benefits, Niels Erik Olsen receives a monthly compensation for the purpose of making private provisions for old age and surviving dependents. This monthly compensation totals a gross amount of EUR 20,751.15. Its level is in line with the regular pension benefits awarded to ordinary Executive Board members, i.e., a pension benefit totaling EUR 200 thousand p.a. payable from age 62 that is fully vested after 10 years of service as an Executive Board member. Niels Erik Olsen may use this monthly compensation as he deems fit.

Martine Snels

Each month, Martine Snels receives an amount of EUR 27,754 gross for the purpose of making private provisions for old age. Said amount is paid into a fund, its level being in line with the regular pension benefits awarded to ordinary Executive Board members, i.e., a pension benefit totaling EUR 200 thousand p.a. payable from age 62 and fully vested after 10 years of service on the Executive Board. The accrued capital will be available from age 62 onwards. It may be paid out as a lump sum or in 20 annual installments, with outstanding installments continuing to earn 1 percent interest p.a. The benefits are contractually vested with immediate effect.

Stefan Klebert

Stefan Klebert is paid a monthly amount of EUR 33,333 gross for the purpose of making provisions for old age within the framework of a contribution-oriented defined benefit pension scheme. Said amount is paid into a fund, with the accrued capital being available from the age of 62 onwards. This capital may be paid out as a lump sum or in 20 annual installments; outstanding installments continue to earn 1 percent interest p.a. The benefits are contractually vested with immediate effect.

Pension plan reinsurance and capitalization option

As the contractual pension commitments made to the members of the Executive Board were only partly protected against insolvency, namely in the amount of the sum covered by the Pensions-Sicherungs-Verein (PSV – Pension Protection Fund), the Supervisory Board decided in 2014 to take out pension plan reinsurance policies to secure the proportion of the pension commitments not covered by the PSV for the benefit of the individual Executive Board members. At the same time, the members of the Executive Board were granted a capitalization option. The level of the capitalization amount is equivalent to the pension liabilities ascertained by applying the basis of calculation used for the purpose of preparing the consolidated financial statements. Such capitalization option may be exercised upon retirement, but no earlier than age 62. It is possible to exercise this option in part or several times. Any exercise of the capitalization option entails a corresponding reduction in entitlements under the contractually guaranteed benefits for surviving dependents.

Since Niels Erik Olsen is not entitled to any contractual pension benefits, the capitalization option does not apply in his specific case. At present, neither Niels Erik Olsen, Martine Snels nor Stefan Klebert are covered by a pension plan reinsurance.

Pension scheme contributions and provisions for pension obligations

The company has set aside pension provisions to cover the future entitlements of the Executive Board members. The additions to pension provisions for active Executive Board members created by the end of the 2018 fiscal year in accordance with IFRS are listed individually in the table below. The corresponding amounts comprise service cost as well as interest cost.

(in EUR)	Pension benefits p. a. (as of 12/31/2018; annual entitlement at start of pension)	Annual pension entitlements earned as of 12/31/2018	Addition to pension provisions in fiscal year 2018	Present value of pension benefits as of 12/31/2018
Jürg Oleas	360,000	353,333	645,200	8,771,541
Dr. Helmut Schmale	200,000	200,000	280,172	6,061,519
Steffen Bersch[1)]	223,428	92,378	496,682	5,379,645
Martine Snels[2)]	166,524	20,816	416,310[3)]	2,262,648
Stefan Klebert[2)]	172,500	2,500	50,000	2,276,826
Total	**1,122.452**	**669,027**	**1,888,364**	**24,752,179**

1) Along with his pension benefits in the amount of EUR 200,000 p.a. in his capacity as a member of the Executive Board, Steffen Bersch is also entitled to vested benefits in the amount of EUR 23,428 p.a. from personal contributions made under GEA's executive pension scheme prior to his appointment to the Executive Board (calculated on the basis of a retirement age of 62).
2) The entitlements result from the aggregate contributions made by the respective point in time divided by a maximum of 20 annual installments, not including return on investment.
3) The addition comprises an amount of EUR 83,262 granted to Martine Snels in fiscal year 2017, as well as the amount of EUR 333,048 she was awarded in fiscal year 2018.

Termination rights, premature termination of an Executive Board member's appointment, change of control events and effects on remuneration

Jürg Oleas's service agreement provided for a unilateral right of termination on his part in case the Supervisory Board revoked his appointment as Chairman of the Executive Board without simultaneously declaring the effective revocation of his appointment as a member of the Executive Board in accordance with s. 84 para. 3 Aktiengesetz (AktG – German Stock Corporation Act). If he had exercised his unilateral right of termination and left the Executive Board, he would have been entitled to receive the corresponding fixed salary for the remaining months of his contractual term, but no longer than 8 months. Jürg Oleas left GEA Group by mutual agreement on February 17, 2019. Detailed information on the arrangements made in this context are outlined in the chapter on "Agreements governing the departure of Jürg Oleas", (see page 73).

If the appointment of an Executive Board member is revoked for good cause with legal effect in accordance with s. 84 para. 3 AktG or if an Executive Board member validly resigns from office pursuant to s. 84 para. 3 AktG, the Executive Board member's service agreement will end on expiry of the statutory notice period pursuant to s. 622 para. 1, 2 Bürgerliches Gesetzbuch (BGB – German Civil Code).

In the aforementioned cases involving the early termination of his or her appointment, an Executive Board member will first of all receive the bonus he or she has earned up to the date of his or her departure. For calculating this bonus, an overall degree of target achievement in relation to the individual component is ascertained on the basis of the results achieved by the Executive Board member up to the time of his or her departure. Subsequently, the corresponding pro rata bonus under the individual component is calculated by forming the ratio of this overall degree of target achievement to the target amount set for the entire fiscal year. The pro rata bonus under the multi-year component for the relevant fiscal year is computed by applying the principle of pro rata temporis. With respect to outstanding annual tranches under the long-term share price component, a distinction is made between annual tranches in relation to which the first fiscal year (one-year vesting period) of the three-year performance period has not yet passed, and annual tranches in relation to which the first fiscal year has already passed. In the latter case, the pro rata bonus is fully vested and paid out once the three-year performance period has lapsed with the corresponding performance measurement having taken place. If the first fiscal year (one-year vesting period) has not yet lapsed, the pro rata bonus is ascertained by applying the principle of pro rata temporis (ratio of the actual period of service during the one-year vesting period to the full relevant one-year vesting period), whereupon it will be disbursed after the three-year performance period and the corresponding performance measurement.

Moreover, the respective Executive Board member will receive a severance payment equivalent to the total remuneration agreed for the remaining contractual term by way of compensation for his or her premature departure from the company. For calculating the corresponding bonus entitlement, an 85 percent degree of target achievement is assumed in relation to the respective target amounts set for bonus entitlements that have not yet vested over the course of the current year or further years, as the case may be. The total remuneration for the remaining term is limited to a maximum of 2 full years of remuneration (severance payment cap). The cap on severance payment is calculated on the basis of the Executive Board member's respective total annual remuneration received during the two calendar years preceding the termination of the service agreement.

If the Executive Board service agreement is unilaterally terminated early without good cause or terminated by the company for good cause, any and all outstanding undisbursed annual tranches payable under the long-term share price component will be forfeited. Moreover, there is no entitlement to any severance payment in the event of the company exercising its right of lawful extraordinary termination of the Executive Board member's service agreement.

In the event of a change of control, Executive Board members may opt for an early payment at target value of any outstanding, fully vested tranches under the share price component in the event of a change of control. This option applies regardless of whether or not the respective Executive Board member leaves the company in connection with the change of control event. A change of control event is deemed to have occurred as soon as the company is notified that a shareholder has reached or exceeded 50 percent or 75 percent of the voting rights in the company, that an intercompany agreement is entered into with the company as a dependent company in accordance with s. 291 ff. AktG, or that an absorption under s. 319 AktG or a change of legal form of the company in accordance with the Umwandlungsgesetz (UmwG – German Reorganization Act) is resolved with legal effect. In the event of a change of control, the Executive Board members have no right to unilaterally terminate their respective service agreements.

Agreements governing the departure of Jürg Oleas

Jürg Oleas left GEA Group by mutual agreement at midnight on February 17, 2019. Within the framework of a termination agreement, both his appointment as Chairman of the Executive Board of GEA Group Aktiengesellschaft and his service agreement were terminated at that date.

Until the date of his departure, Jürg Oleas continued to receive his fixed monthly salary, which was paid on a pro rata temporis basis for the month of February 2019. Like the 2017 long-term share price component and the long-term share price component for 2016, the bonus he earned in fiscal year 2018 will be calculated and paid out in accordance with the provisions set forth in his service agreement. The pro-rata bonus for the period from January 1, 2019, to February 17, 2019, was paid out in February 2019 and computed on the basis of an assumed target achievement level of 85 percent that was consistently applied to all bonus components.

In compensation for his mutually agreed early departure, Jürg Oleas was granted a severance package in the total amount of EUR 2,030,842.88 that was also paid out in February 2019. This severance pay includes foregone remuneration as well as the fringe benefits foregone for the period from February 18, 2019, to the end of the original term of Jürg Oleas's service agreement on December 31, 2019. The nature and the amount of the severance package are based on the provisions governing the legitimate resignation or the revocation of an appointment for good cause outlined in the chapter on "Termination rights, premature termination of an Executive Board member's appointment, change of control events and effects on remuneration" (see page 72 f.). Hence, the bonus entitlement in relation to the above period was calculated on the basis of an assumed 85 percent target achievement level. Apart from this severance pay, Jürg Oleas did not receive any further payments in connection with his mutually agreed premature departure from the company.

As regards his pension benefits and surviving dependents' benefits, Jürg Oleas was treated as if he had fulfilled his service agreement. His contractual pension benefits would have been fully vested at the end of April 2019. As a consequence, Jürg Oleas will receive an annual pension in the amount of EUR 360 thousand (gross) as of January 1, 2020, since he will reach the age of 62 in December 2019. (see "Pension benefits and surviving dependents' benefits", page 70 ff.).

Remuneration of the members of the Executive Board

Total remuneration in 2018 and 2017

In the year under review, the total remuneration paid to the active Executive Board members of GEA Group Aktiengesellschaft amounted to EUR 7,234,079 and comprised both a fixed component of EUR 4,149,014 and a variable bonus of EUR 2,846,200. The bonus under the long-term share price component is based on the fair value of the entitlement at grant date (January 1, 2018). In the year under review, it amounted to EUR 201,500 for Jürg Oleas, EUR 112,840 for Dr. Helmut Schmale, EUR 96,720 for Steffen Bersch, EUR 96,720 for Niels Erik Olsen and EUR 96,720 for Martine Snels, i.e., a total of EUR 604,500.

In fiscal year 2017, the total remuneration paid to the incumbent members of the Executive Board amounted to EUR 6,569,224 and comprised both a fixed component of EUR 4,014,776 and a variable bonus of EUR 2,372,977. The bonus under the long-term share price component was based on the fair value of the entitlement at grant date (January 1, 2017). In fiscal year 2017, it amounted to EUR 244,000 for Jürg Oleas, EUR 136,640 for Dr. Helmut Schmale, EUR 111,264 for Steffen Bersch, EUR 111,264 for Niels Erik Olsen as well as EUR 55,632 for Martine Snels, i.e. a total of EUR 658,800. In the 2017 fiscal year, Martine Snels received a one-time special bonus in the amount of EUR 450,000 gross in compensation for the bonus entitlements she forfeited upon leaving her former employer and joining GEA in the course of the year.

The following table shows an individualized breakdown of fixed remuneration, variable components and other income:

(in EUR)	Fixed remuneration	Variable components			Non-cash benefits	Pension subsidies	Total
		Individual component	Multi-year component	Long-term share price component [1]			
Jürg Oleas	1,250,000	475,500	153,000	201,500	33,541	–	**2,113,541**
Previous year	1,250,000	396,500	267,500	244,000	33,172	–	**2,191,172**
Dr. Helmut Schmale	700,000	269,080	85,680	112,840	39,776	7,254	**1,214,630**
Previous year	700,000	212,800	149,800	136,640	39,418	7,125	**1,245,783**
Steffen Bersch	600,000	279,600	73,440	96,720	17,547	7,254	**1,074,561**
Previous year	570,000	211,128	121,980	111,264	36,879	7,125	**1,058,376**
Niels Erik Olsen	849,014[2]	249,600	73,440	96,720	54,834	–	**1,323,608**
Previous year	819,014[2]	156,864	121,980	111,264	50,236	–	**1,259,358**
Martine Snels	600,000	283,920	73,440	96,720	42,355	–	**1,096,435**
Previous year	675,762[3]	45,130	30,495	55,632	7,516	–	**814,535**
Stefan Klebert	150,000	225,000[4]	–	–	36,304	–	**411,304**
Previous year	–	–	–	–	–	–	**–**
Total	**4,149,014**	**1,782,700**	**459,000**	**604,500**	**224,357**	**14,508**	**7,234,079**
Previous year	**4,014,776**	**1,022,422**	**691,755**	**658,800**	**167,221**	**14,250**	**6,569,224**

1) In the year under review, no payment under the long-term share price component granted for 2018 was made as this component is computed over a three-year period between 2018 and 2020. The bonus payable under the long-term share price component is based on the fair value of the entitlement at grant date (January 1, 2018).
2) The amount of EUR 849,014 EUR and/or EUR 819,014 comprises the annual fixed remuneration of EUR 600,000 and/or EUR 570,000 as well as the annual compensation amount of EUR 249,014 Niels Erik Olsen receives instead of pension benefits.
3) The amount of EUR 675,762 comprises the annual fixed remuneration of EUR 570,000 that was granted to Martine Snels on a pro rata temporis basis in fiscal year 2017, as well as a one-off compensation amount of EUR 450,000 paid to Martine Snels in compensation for the bonus entitlements she forfeited when leaving her previous employer and joining GEA during the fiscal year. In addition, Martine Snels received an amount of EUR 83,262 instead of the regular pension commitments to provide for her old age. In 2018, this amount was transformed into a pension commitment.
4) The amount of EUR 225,000 is a one-off lump sum payment granted to Stefan Klebert for the period from his entry on November 15, 2018, to December 31, 2018; it represents the pro-rata variable target remuneration (EUR 225,000) awarded for the above period.

Supplemental disclosures relating to share-based remuneration for the period 2016 to 2018

In fiscal years 2016 to 2018, share-based remuneration for the Executive Board was granted under the long-term share price component. Detailed information on existing entitlements of Executive Board members under these remuneration components is outlined in the table below.

Long-term share price component (in EUR)	Fair value as of 12/31/2018	Fair value as of 12/31/2017
Jürg Oleas	65,475	382,325
Dr. Helmut Schmale	36,666	210,917
Steffen Bersch	30,049	101,722
Niels Erik Olsen	30,049	101,722
Martine Snels	3,883	58,516
Markus Hüllmann[1]	–	70,070
Dr. Stephan Petri[2]	–	208,549
Total	**166,122**	**1,133,821**

1) Executive Board service agreement terminated in December 2015
2) Executive Board service agreement terminated in June 2016

In fiscal year 2018, the expenditure for share-based remuneration (i.e., the sum total of the fair value of share-based remuneration awarded in the fiscal year in question as of balance sheet date and the change in fair value in relation to entitlements under share-based remuneration in the fiscal year in question) recognised in the consolidated IFRS financial statements amounted to EUR -158 thousand for Jürg Oleas (previous year: EUR 39 thousand), EUR -88 thousand for Dr. Helmut Schmale (previous year: EUR 23 thousand), EUR 0 thousand for Markus Hüllmann (previous year: EUR -18 thousand), EUR -72 thousand for Steffen Bersch (previous year: EUR 36 thousand), EUR -72 thousand for Niels Erik Olsen (previous year: EUR 36 thousand) and EUR -55 thousand for Martine Snels (previous year: EUR 59 thousand). The decline in fair value as of December 31, 2018, is due to GEA's share price performance faring worse than the performance of the STOXX Europe TMI Industrial Engineering benchmark index.

Further information on the long-term share price component is outlined in note 6.3.3 (see page 196 ff.).

Supplemental disclosures relating to recognised expenditure and disbursed remuneration

In fiscal year 2018, expenditure in the aggregate amount of EUR 10,937,985 (previous year: EUR 7,523,304) was recognised for the members of the Executive Board. Besides expenditure for fixed and variable remuneration, this amount also comprises non-cash benefits, pension subsidies, additions to pension provisions (service and interest cost) as well as changes in the value of the entitlements to share-based remuneration that were recognised as interest expense and termination benefits. In fiscal year 2018, remuneration components totaling EUR 7,156,267 (previous year: EUR 9,005,614) were paid out. Apart from non-performance-related remuneration components, the amounts paid out also include disbursements of variable remuneration for the previous year as well as amounts disbursed under multi-year variable remuneration components in the year under review. Moreover, in fiscal year 2017, these disbursements also included the special bonus paid to Ms. Snels in compensation for the bonus entitlements she forfeited upon leaving her previous employer.

(in EUR)	Recognised expenditure	Disbursements
Jürg Oleas	4,430,484	2,106,791
Previous year	2,616,369	2,474,240
Dr. Helmut Schmale	2,126,654	1,198,014
Previous year	1,441,170	1,406,880
Steffen Bersch	1,402,850	957,909
Previous year	1,481,561	1,005,252
Niels Erik Olsen	1,155,301	1,182,692
Previous year	1,184,528	1,260,498
Martine Snels	1,361,392	717,980
Previous year	817,419	600,016
Stefan Klebert	461,304	411,304
Previous year	–	–
Markus Hüllmann[1]	–	70,070
Previous year	-17,743	146,550
Dr. Stephan Petri[2]	–	511,507
Previous year	–	2,112,178[3]
Total	**10,937,985**	**7,156,267**
Previous year	**7,523,304**	**9,005,614**

1) Executive Board service agreement terminated in December 2015.
2) Executive Board service agreement terminated in June 2016.
3) In compensation for the remuneration and fringe benefits foregone on account of his premature, mutually agreed departure on June 30, 2016, Dr. Stephan Petri received a payment in the amount of EUR 2,112,177.80 in January 2017.

Executive Board remuneration in accordance with the GCGC model tables

Model table 1 referring to section 4.2.5 para. 3 (1st bullet point) GCGC “Value of the benefits granted for the year under review”

Benefits granted	Jürg Oleas Chairman of the Executive Board				Dr. Helmut Schmale Chief Financial Officer			
	2017	2018	Min. (2018)	Max. (2018)[2]	2017	2018	Min. (2018)	Max. (2018)[2]
Fixed remuneration	1,250,000	1,250,000	1,250,000	1,250,000	700,000	700,000	700,000	700,000
Fringe benefits	33,172	33,541	33,541	33,541	39,418	39,776	39,776	39,776
Pension subsidies	0	0	0	0	7,125	7,254	7,254	7,254
Total non-performance-related performance	**1,283,172**	**1,283,541**	**1,283,541**	**1,283,541**	**746,543**	**747,030**	**747,030**	**747,030**
One-year variable remuneration	**500,000**	**500,000**	**0**	**1,000,000**	**280,000**	**280,000**	**0**	**560,000**
Individual component	500,000	500,000	0	1,000,000	280,000	280,000	0	560,000
Multi-year variable remuneration	**744,000**	**701,500**	**0**	**2,000,000**	**416,640**	**392,840**	**0**	**1,120,000**
Multi-year component	500,000	500,000	0	1,250,000	280,000	280,000	0	700,000
Long-term share price component (2017 tranche)[1]	244,000	0	0	0	136,640	0	0	0
Long-term share price component (2018 tranche)[1]	0	201,500	0	750,000	0	112,840	0	420,000
Total performance-related components	**1,244,000**	**1,201,500**	**0**	**3,000,000**	**696,640**	**672,840**	**0**	**1,680,000**
Service cost	495,375	500,468	500,468	500,468	218,511	184,331	184,331	184,331
Total remuneration (GCGC)	**3,022,547**	**2,985,509**	**1,784,009**	**4,784,009**	**1,661,694**	**1,604,201**	**931,361**	**2,611,361**

1) The bonus attributable to the long-term share price component is based on the fair value of the entitlement at grant date. Grant date for the 2017 tranche was 01/01/2017, the grant date for the 2018 tranche was 01/01/2018.
2) Not taking into account the possibility of granting a special discretionary bonus.

Benefits granted	Steffen Bersch Member of the Executive Board				Niels Erik Olsen Member of the Executive Board			
	2017	2018	Min. (2018)	Max. (2018)[2]	2017	2018	Min. (2018)	Max. (2018)[2]
Fixed remuneration	570,000	600,000	600,000	600,000	819,014	849,014[3]	849,014[3]	849,014[3]
Fringe benefits	36,879	17,547	17,547	17,547	50,236	54,834	54,834	54,834
Pension subsidies	7,125	7,254	7,254	7,254	0	0	0	0
Total non-performance-related performance	**614,004**	**624,801**	**624,801**	**624,801**	**869,250**	**903,848**	**903,848**	**903,848**
One-year variable remuneration	**228,000**	**240,000**	**0**	**480,000**	**228,000**	**240,000**	**0**	**480,000**
Individual component	228,000	240,000	0	480,000	228,000	240,000	0	480,000
Multi-year variable remuneration	**339,264**	**336,720**	**0**	**960,000**	**339,264**	**336,720**	**0**	**960,000**
Multi-year component	228,000	240,000	0	600,000	228,000	240,000	0	600,000
Long-term share price component (2017 tranche)[1]	111,264	0	0	0	111,264	0	0	0
Long-term share price component (2018 tranche)[1]	0	96,720	0	360,000	0	96,720	0	360,000
Total performance-related components	**567,264**	**576,720**	**0**	**1,440,000**	**567,264**	**576,720**	**0**	**1,440,000**
Service cost	474,620	465,326	465,326	465,326	0	0	0	0
Total remuneration (GCGC)	**1,655,888**	**1,666,847**	**1,090,127**	**2,530,127**	**1,436,514**	**1,480,568**	**903,848**	**2,343,848**

1) The bonus attributable to the long-term share price component is based on the fair value of the entitlement at grant date. Grant date for the 2017 tranche was 01/01/2017, the grant date for the 2018 tranche was 01/01/2018.
2) Not taking into account the possibility of granting a special discretionary bonus.
3) The amount of EUR 849,014 EUR comprises the annual fixed salary of EUR 600,000 and the annual compensation amount of EUR 249,014 granted to Niels Erik Olsen instead of pension benefits.

Benefits granted	Martine Snels				Stefan Klebert			
	Member of the Executive Board				Member of the Executive Board			
	As of 10/01/2017				As of 11/15/2018			
	2017	2018	Min. 2018	Max. (2018)[2]	2017	2018	Min. 2018	Max. (2018)
Fixed remuneration	142,500	600,000	600,000	600,000	0	150,000	150,000	150,000
Fringe benefits	457,516[3]	42,355	42,355	42,355	0	36,304	36,304	36,304
Pension subsidies	0	0	0	0	0	0	0	0
Total non-performance-related performance	**600,016**	**642,355**	**642,355**	**642,355**	**0**	**186,304**	**186,304**	**186,304**
One-year variable remuneration	**57,000**	**240,000**	**0**	**480,000**	**0**	**225,000**	**225,000**	**225,000**
Individual component	57,000	240,000	0	480,000	0	225,000[4]	225,000[4]	225,000[4]
Multi-year variable remuneration	**112,632**	**336,720**	**0**	**960,000**	**0**	**0**	**0**	**0**
Multi-year component	57,000	240,000	0	600,000	0	0	0	0
Long-term share price component (2017 tranche)[1]	55,632	0	0	0	0	0	0	0
Long-term share price component (2018 tranche)[1]	0	96,720	0	360,000	0	0	0	0
Total performance-related components	**169,632**	**576,720**	**0**	**1,440,000**	**0**	**225,000**	**225,000**	**225,000**
Service cost	83,262	333,048	333,048	333,048	0	50,000	50,000	50,000
Total remuneration (GCGC)	**852,910**	**1,552,123**	**975,403**	**2,415,403**	**0**	**461,304**	**461,304**	**461,304**

1) The bonus attributable to the long-term share price component is based on the fair value of the entitlement at grant date. Grant date for the 2017 tranche was 01/01/2017, the grant date for the 2018 tranche was 01/01/2018.
2) Not taking into account the possibility of granting a special discretionary bonus.
3) The amount of EUR 457,516 comprises a one-off compensation amount of EUR 450,000 paid to Martine Snels in compensation for the bonus entitlements she forfeited when leaving her previous employer and joining GEA during the fiscal year.
4) The amount of EUR 225,000 is a one-off lump sum payment granted to Stefan Klebert for the period from his entry on November 15, 2018, to December 31, 2018; it represents the pro-rata variable target remuneration (EUR 225,000) awarded for the above period.

Model table 2 referring to section 4.2.5 para. 3 (2nd bullet point) GCGC "Allocation for the year under review"

Allocation	Jürg Oleas		Dr. Helmut Schmale	
	Chairman of the Executive Board		Chief Financial Officer	
	2017	2018	2017	2018
Fixed remuneration	1,250,000	1,250,000	700,000	700,000
Fringe benefits	33,172	33,541	39,418	39,776
Pension subsidies	0	0	7,125	7,254
Total non-performance-related components	**1,283,172**	**1,283,541**	**746,542**	**747,030**
One-year variable remuneration	**396,500**	**475,500**	**212,800**	**269,080**
Individual component	396,500	475,500	212,800	269,080
Multi-year variable remuneration	**600,568**	**312,250**	**329,657**	**174,064**
Multi-year component	267,500	153,000	149,800	85,680
Long-term share price component (2015 tranche)	0	159,250	0	88,384
Long-term share price component (2014 tranche)	333,068	0	179,857	0
Total performance-related components	**997,068**	**787,750**	**542,457**	**443,144**
Service cost	495,375	500,468	218,511	184,331
Total remuneration (GCGC)	**2,775,615**	**2,571,759**	**1,507,510**	**1,374,505**

Addition	Steffen Bersch		Niels Erik Olsen	
	Member of the Executive Board		Member of the Executive Board	
	2017	2018	2017	2018
Fixed remuneration	570,000	600,000	819,014	849,014*
Fringe benefits	36,879	17,547	50,236	54,834
Pension subsidies	7,125	7,254	0	0
Total non-performance-related components	**614,004**	**624,801**	**869,250**	**903,848**
One-year variable remuneration	**211,128**	**279,600**	**156,864**	**249,600**
Individual component	211,128	279,600	156,864	249,600
Multi-year variable remuneration	**121,980**	**73,440**	**121,980**	**73,440**
Multi-year component	121,980	73,440	121,980	73,440
Long-term share price component (2015 tranche)	0	0	0	0
Long-term share price component (2014 tranche)	0	0	0	0
Total performance-related components	**333,108**	**353,040**	**278,844**	**323,040**
Service cost	474,620	465,326	0	0
Total remuneration (GCGC)	**1,421,732**	**1,443,167**	**1,148,094**	**1,226,888**

*) The amount of EUR 849,014 EUR comprises the annual fixed salary of EUR 600,000 and the annual compensation amount of EUR 249,014 granted to Niels Erik Olsen instead of pension benefits.

Addition	Martine Snels		Stefan Klebert	
	Member of the Executive Board		Member of the Executive Board	
	As of 10/01/2017		As of 11/15/2018	
	2017	2018	2017	2018
Fixed remuneration	142,500	600,000	0	150,000
Fringe benefits	457,516[1]	42,355	0	36,304
Pension subsidies	0	0	0	0
Total non-performance-related components	**600,016**	**642,355**	**0**	**186,304**
One-year variable remuneration	**45,130**	**283,920**	**0**	**225,000**
Individual component	45,130	283,920	0	225,000[2]
Multi-year variable remuneration	**30,495**	**73,440**	**0**	**0**
Multi-year component	30,495	73,440	0	0
Long-term share price component (2015 tranche)	0	0	0	0
Long-term share price component (2014 tranche)	0	0	0	0
Total performance-related components	**75,625**	**357,360**	**0**	**225,000**
Service cost	83,262	333,048	0	50,000
Total remuneration (GCGC)	**758,903**	**1,332,763**	**0**	**461,304**

1) The amount of EUR 457,516 comprises a one-off compensation amount of EUR 450,000 paid to Martine Snels in compensation for the bonus entitlements vis-à-vis her previous employer which she forfeited.
2) The amount of EUR 225,000 is a one-off lump sum payment granted to Stefan Klebert for the period from his entry on November 15, 2018, to December 31, 2018; it represents the pro-rata variable target remuneration (EUR 225,000) awarded for the above period.

Addition	Dr. Stephan Petri		Markus Hüllmann	
	Member of the Executive Board		Member of the Executive Board	
	Until 06/30/2016		Until 12/31/2015	
	2017	2018	2017	2018
Fixed remuneration	0	0	0	0
Fringe benefits	0	0	0	0
Pension benefits	0	0	0	0
Total non-performance-related components	**0**	**0**	**0**	**0**
One-year variable remuneration	**0**	**0**	**0**	**0**
Individual component	0	0	0	0
Multi-year variable remuneration	**0**	**315,883**	**146,550**	**70,070**
Multi-year component	0	0	0	0
Long-term share price component (2016 tranche)	0	57,000*	0	0
Long-term share price component (2015 tranche)	0	112,333*	0	70,070
Long-term share price component (2014 tranche)	0	146,550*	146,550	0
Total performance-related components	**0**	**315,883**	**146,550**	**70,070**
Service cost	0	0	0	0
Total remuneration (GCGC)	**0**	**315,883**	**146,550**	**70,070**

*) On March 31, 2018 - as agreed - the Executive Board member Dr. Stephan Petri, who left the company on 06/30/2016, received payment of the variable remuneration components vested until the date of his departure. In relation to the long-term share price component, this includes the tranches for 2014, 2015 and 2016. While the 2014 tranche would normally have been paid out in fiscal year 2017, the 2016 tranche would normally not be disbursed until the 2019 fiscal year.

Remuneration of former Executive Board members and their surviving dependents

In fiscal year 2018, former members of the Executive Board and their surviving dependents received remunerations in the amount of EUR 4,623 thousand (previous year: EUR 4,552 thousand) from GEA. As of December 31, 2018, GEA had set up pension provisions (gross) totaling EUR 82,945 thousand (previous year: EUR 78,601 thousand) for former Executive Board members and their surviving dependents.

Overview of the 2019 remuneration system

For taking into account the changes in regulatory requirements witnessed since the introduction of the previous remuneration system while paying more attention to investor expectations, the Supervisory Board conducted a review and comprehensive overhaul of the existing remuneration system with the assistance of an independent, external remuneration expert during the year under review. Compared with the previous remuneration system, the new remuneration scheme in force since January 1, 2019, is more distinctly aligned with share price performance with a simpler structure due to the reduction in variable remuneration components down to two. Moreover, it strengthens the position of the Supervisory Board by introducing malus and clawback provisions.

The new remuneration scheme was presented to various institutional investors who were requested to assess the system and voice their opinions. Subsequently, the Supervisory Board analyzed and partly incorporated the suggestions submitted by the investors. Thus, investor feedback ensured that the key performance indicator “cash flow driver margin” (CFDM) – originally also envisaged under the new remuneration scheme – was replaced by “return on capital employed” (ROCE). Frequently, those questioned had also expressed the wish to be informed about the calibration of the performance targets prior to and/or at the beginning of the respective current fiscal year in the future. As a consequence, the targets and the upper and lower bounds of the target ranges set in relation to the financial performance targets as well as the relevant targets and assessment criteria for the current fiscal year under the modifier will be published in the Remuneration Report from next year onwards, i.e., starting with the 2019 Annual Report.

Due to the ever-changing regulatory environment – in particular the transposition of the second EU Shareholder Rights Directive into German law, as well as the revision to the German Corporate Governance Code – the Supervisory Board envisages another review of the new remuneration system followed by the respective amendments, if required.

Basic principles of the new remuneration system

The overhaul of the remuneration system was guided by the following principles:

- **Simplification**: The new remuneration system is characterized by a simplified and more comprehensible compensation structure due to the reduced number of remuneration components and performance targets.
- **Focus on shares**: The payout of the multi-year variable remuneration will be even more strongly tied to GEA's long-term (share price) performance than in the past. Furthermore, the introduction of additional share purchase and holding obligations (so-called share ownership guidelines) emphasizes the focus on shares with the remuneration awarded to our Executive Board members being explicitly aligned with the interests of our shareholders.
- **Focus on performance**: The company's performance targets are even more strongly geared towards financial and sustainable performance.
- **Transparency**: In the future, i.e., beginning with the 2019 Annual Report, the target ranges defined in relation to the performance targets as well as the corresponding degrees of target achievement will not only be transparently communicated ex post, but also ex ante as far as performance target calibration is concerned; this information will be published in the Remuneration Report.
- **Regulatory conformity**: By switching to an entirely future-oriented remuneration component in relation to multi-year variable remuneration, the company now complies with the recommendation governing the assessment of the performance targets set forth in the German Corporate Governance Code as amended on February 7, 2017.
- **Sanctioning breach of duty by means of malus and clawback provisions**: In the event of a member of the Executive Board deliberately committing gross violations of material legal or contractual obligations or fundamental principles of internal guidelines, the Supervisory Board may reduce to zero the variable remuneration components granted for the fiscal year in which the transgression occurred, if appropriate. Provided that the respective variable remuneration components have already been paid out by the time the Supervisory Board decision is taken, the Executive Board member has to return the awarded net amount in accordance with the reduction decision taken by the Supervisory Board.
- **No change of control provisions**: The new remuneration system does not provide for any termination and other rights applicable in the event of a change of control (change of control provisions).
- **No possibility of a special bonus**: The service agreements no longer provide for the possibility of the Supervisory Board granting a special bonus in addition to variable remuneration at its own discretion.

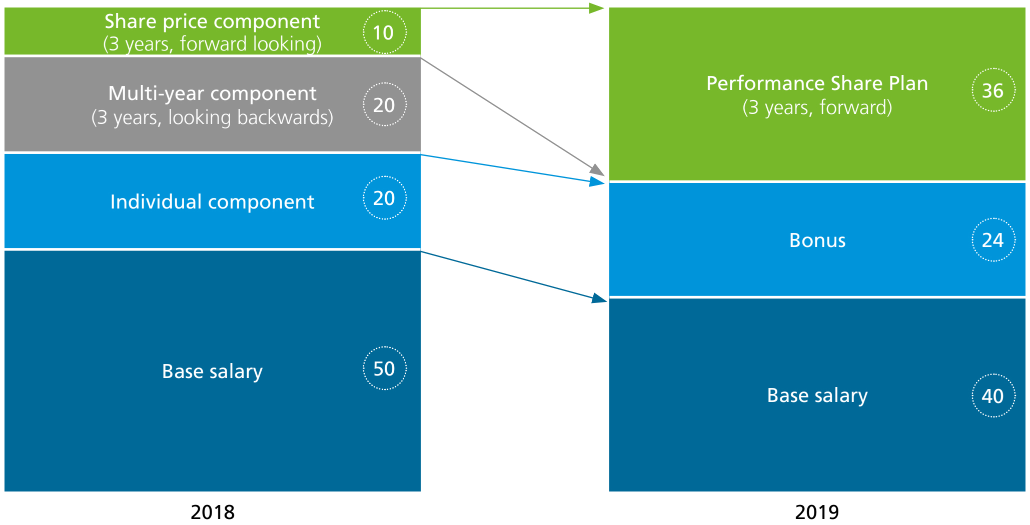
Overview of the design and the components of the new remuneration structure

The new remuneration system continues to comprise fixed and variable components. Moreover, the overall design of the scheme that includes a fixed annual remuneration, fringe benefits as well as pension benefits remains unchanged.

When new Executive Board members are appointed, the company will only make pension pledges providing for fixed monthly contributions into a fund during their respective terms of office. The level of pension benefits will depend on the performance of the respective fund, with a deposit guarantee and the possibility of participating in a deferred compensation scheme up to a certain maximum amount. At the moment, this scheme already applies to Stefan Klebert and Martine Snels.

Variable compensation was revised and will merely embrace 2 instead of previously 3 components from now on, i.e., a bonus and a performance share plan. Reducing the number of variable remuneration components to 2 simplifies the remuneration system, making it easier to understand. Moreover, the new remuneration system is more strongly aligned with the forward-looking, long-term interests of our shareholders. The variable components of the remuneration scheme are outlined below:

Comparison – remuneration components and weightings
(in %)



Bonus (annual variable remuneration)

Performance targets	
EBITDA before restructuring measures ROCE Commencing with the 2019 Annual Report, ex ante publication in the Remuneration Report of the targets as well as the lower and upper bounds of the target ranges set for the current fiscal year [for the previous fiscal year]; ex post publication of actual target achievement levels in the Remuneration Report	
Weighting	
50 percent, respectively	
Modifier	
Multiplicative link Range from 0.8 to 1.2 Commencing with the 2019 Annual Report, ex ante publication of the targets and assessment criteria set for the current fiscal year [for the previous fiscal year] in the Remuneration Report]	
Payout	
0 to 200 percent of the target value	

The members of the Executive Board receive a variable annual remuneration (bonus) the amount of which is subject to the achievement of two financial performance targets set for the previous fiscal year as well as a modifier that is to be determined by the Supervisory Board.

The key indicators EBITDA (earnings before interest, taxes, depreciation and amortization) and ROCE (return on capital employed) both have a weighting of 50 percent and are adjusted for restructuring measures. Short-term performance goals of compensatory relevance are key financial performance indicators and, as such, are integral components of the management system for the 2019 fiscal year. Please refer to the section “Key financial performance indicators in the management system in 2019” (page 28 ff.) for definitions of the individual components. Unlike the definitions of key financial performance indicators, the ratios for compensatory purposes are each adjusted in addition for the effects of company acquisitions and divestments, which require the approval of the Supervisory Board or its committees. This adjustment would only be made once in the year of the transaction.

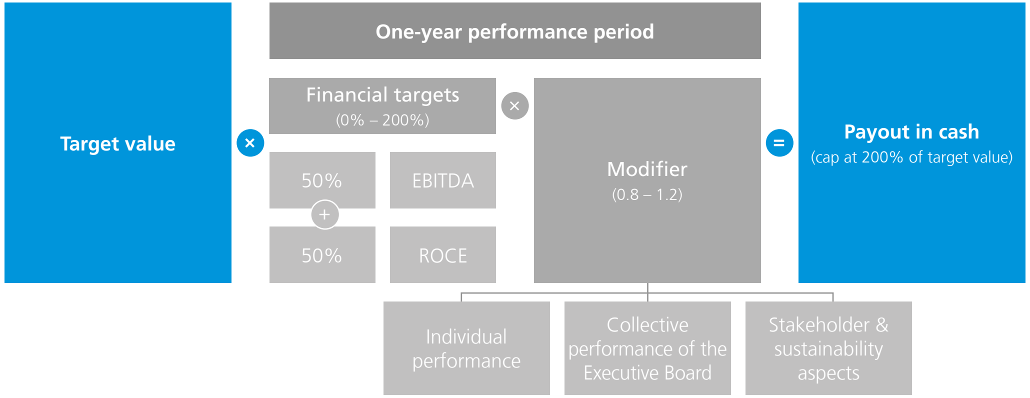
An additional modifier allows the Supervisory Board to look beyond financial target achievement and also take into account the individual achievements of the members of the Executive Board as well as the body's collective performance. In this context, assessment is based on pre-defined criteria that may include the following aspects:

- Individual performance of the respective Executive Board member (e.g., important strategic accomplishments in his/her remit, individual contributions to major cross-departmental projects, relevant financial accomplishments in his/her remit, implementation of key projects)
- Collective performance of the Executive Board (e.g., accomplishment of important strategic corporate goals including mergers & acquisitions, cooperation with the Supervisory Board, long-term strategic, technological or structural development of the company), as well as
- Stakeholder concerns and sustainability aspects (e.g., in the fields of occupational safety and health, compliance, factors of production, energy and environment, customer satisfaction, concerns of the workforce, corporate culture)

The modifier ranges between 0.8 and 1.2 and may result in an upward or downward adjustment of the bonus awarded to the members of the Executive Board (bonus-malus system).

The overall degree of target achievement in relation to the bonus is calculated as the weighted sum of the EBITDA and ROCE target achievement levels multiplied by the modifier. The resulting amount may be equivalent to 0 percent up to a maximum of 200 percent of the target amount (cap).

Bonus scheme – how it works



The modifier range severely restricts the Supervisory Board's capability to use discretionary intervention for the purpose of impacting the bonus. The catalogue of criteria governing the modifier ensures a strong alignment with performance while providing transparency in the event of a potential adjustment. The new remuneration system does no longer allow the Supervisory Board to grant a special bonus in exceptional circumstances, a possibility that was stipulated in previous service agreements.

For increasing the level of plausibility and transparency, the target levels set in relation to the individual financial performance targets, the multiplier applicable to the modifier - which is determined by the Supervisory Board - as well as the criteria governing the modifier will be published ex post in the Remuneration Report. As of 2020, i.e., beginning with the 2019 Annual Report, the company will also release ex ante and specify in the Remuneration Report the targets as well as the upper and lower bounds of the target ranges set for the current fiscal year in relation to the financial performance targets EBITDA and ROCE, as well as the targets and assessment criteria defined as regards the application of the modifier for the current fiscal year.

In the event of extraordinary termination for good cause by the company in accordance with s. 626 para. 1 German Civil Code (BGB – Bürgerliches Gesetzbuch), the bonus is forfeit. In all other cases involving the departure of an Executive Board member during the planned duration of his/her term of office, the respective Board member is entitled to the prorated bonus earned up to the date of his/her departure.

Performance Share Plan (long-term variable remuneration)

Performance targets

Earnings per share (EPS) growth:
Beginning with the 2019 Annual Report, ex ante publication in the Remuneration Report of the targets as well as the upper and lower bounds set in relation to the target ranges for the current fiscal year [for the previous fiscal year]; ex post publication of the actual target achievement levels in the Remuneration Report
Relative total shareholder return (TSR) compared with companies under the STOXX® Europe TMI Industrial Engineering index:
25th percentile = 0 percent
50th percentile = 100 percent
75th percentile = 200 percent
Ex post publication of actual target achievement in the Remuneration Report

Weighting

50 percent, respectively

Performance period

3 years

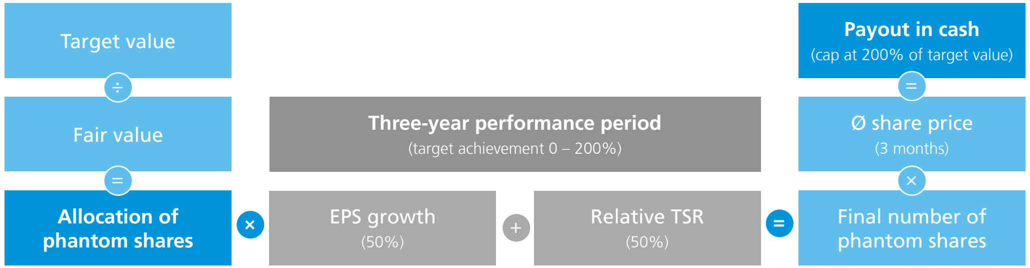
Payout

0 percent to 200 percent of target value

The second component of variable remuneration embraces a Performance Share Plan that is forward-looking and covers a three-year period in the future. This complies with the recommendation of the German Corporate Governance Code as amended on February 7, 2017, according to which the multiple-year assessment basis of variable remuneration shall have essentially forward-looking characteristics. The Performance Share Plan places a stronger focus on the development of shareholder return. As a consequence, remuneration is even more strongly aligned with the long-term and sustainable performance of the company as well as the interests of our shareholders.

At the start of each fiscal year, the members of the Executive Board are granted a certain number of phantom shares on a preliminary basis. This number is calculated by dividing the contractual target value of long-term variable remuneration by the fair value of the performance shares at grant date, with the figure being rounded to the nearest whole number. The final number of phantom shares is ascertained at the end of the three-year performance period and subject to the achievement of the equally weighted performance targets EPS growth and total shareholder return (TSR) compared with the companies under the STOXX® Europe TMI Industrial Engineering.

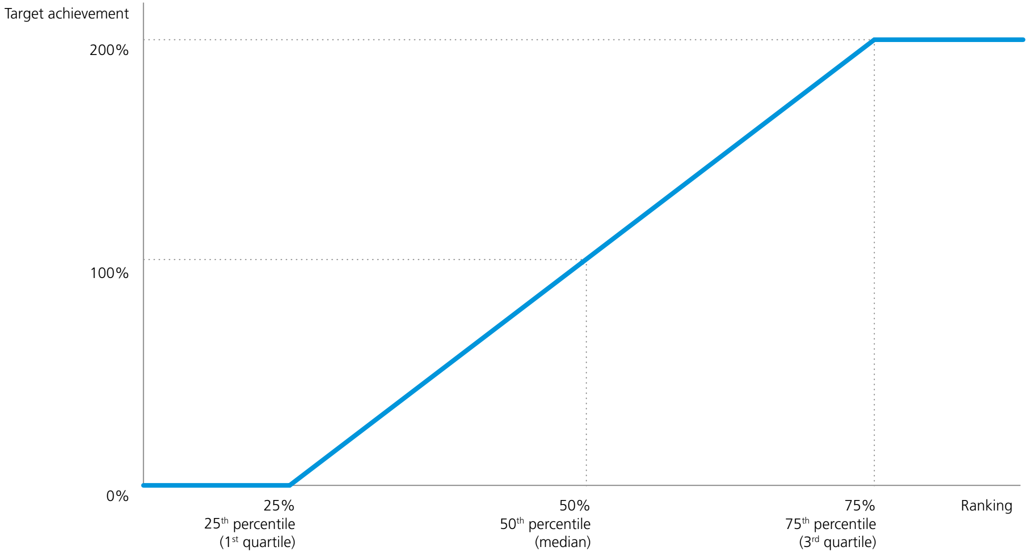
Performance Share Plan – how it works



EPS growth is computed as compound annual growth rate over the three-year performance period. Like EBITDA and ROCE, EPS is adjusted for the restructuring expenses incurred in the fiscal year in question. Target achievement within the 0 to 200 percent target achievement range is measured on a straight-line basis.

Total shareholder return (TSR) refers to share price development plus fictitious reinvestment of gross dividends over the performance period. Thus, TSR measures the level of shareholder return generated over a certain period of time. For the purpose of computing the level of target achievement, the TSR performance of GEA's share is compared with the TSR performance of the companies under the STOXX® Europe TMI Industrial Engineering index, measured on the basis of 3 months' averages, respectively. Computing the average helps even out share price fluctuations at the respective reference date. The ascertained TSR performance of all peer companies is ranked, whereupon GEA's relative position is determined by referring to GEA's ranking within this peer group. If GEA is positioned along the median (50th percentile), this equals a 100 percent level of target achievement. Should GEA's score be at the 25th percentile or below, the degree of target achievement is equivalent to 0 percent. If GEA is positioned at the 75th percentile or above, the degree of target achievement is 200 percent. The degrees of target achievement in between are measured by means of linear interpolation.

Target achievement curve relative Total Shareholder Return



The final number of phantom shares is computed by multiplying the number of provisionally granted phantom shares with the overall degree of target achievement from EPS growth while factoring in capital measures taken during the performance period as well as relative TSR. Eventually, the final payout is ascertained by multiplying the final number of performance shares with the average share price over the three months preceding the end of the performance period by taking into account dividends. The amount paid out is limited to 200 percent of the target value.

For further enhancing transparency, the final target achievement levels pertaining to EPS growth and relative TSR as well as the target range applicable to EPS growth will be published in the Remuneration Report following the end of the respective performance period. As of 2020, i.e., beginning with the 2019 Annual Report, the target level and the upper and lower bounds of the target range set for the current fiscal year in relation to the financial performance target EPS growth will be published ex ante and specified in the Remuneration Report.

In the event of extraordinary termination for good cause by the company in accordance with s. 626 para. 1 German Civil Code (BGB – Bürgerliches Gesetzbuch) or if the Executive Board service agreement is terminated following an effective revocation of the appointment for good cause that would also have warranted a termination for cause in accordance with s. 626, para. 1 BGB on the part of the company, the provisionally granted performance shares will be forfeited without compensation if the respective event occurs prior to the expiry of the performance period. In all other cases involving the departure of an Executive Board member during the tenor of a tranche, the respective Executive Board member is entitled to the performance shares earned up to the date of departure on a pro rata temporis basis; as a rule, these shares are not paid out until after the end of the performance period.

Malus & clawback

Under the new remuneration system, the Supervisory Board is given the possibility of reducing variable remuneration at its reasonable discretion if a member of the Executive Board has been found to have knowingly committed a gross violation of his or her statutory or contractual obligations or essential internal guidelines and policies. On the one hand, the target bonus and/or the number of performance shares allocated for the fiscal year in which said gross violation has taken place may be reduced to zero prior to the end of the performance period, if necessary (malus provisions). On the other hand, the amount already paid out for the respective fiscal year under the bonus and/or Performance Share Plan by the time the Supervisory Board resolves to reduce variable remuneration may be reclaimed, with the Executive Board member's repayment obligation being restricted to the net amount paid out (clawback provisions). For instance, criteria governing a reduction in variable remuneration include the severity of the violation, its impact on the company as well as the degree of fault found with the respective member of the Executive Board.

Share ownership guidelines

Under the new remuneration system, the members of the Executive Board are obliged to acquire GEA shares and hold them until the end of their period of service. These so-called share ownership guidelines (SOG) are to ensure that GEA's equity culture is further strengthened and that the Executive Board members are incentivized to sustainably increase the enterprise value of the company for the benefit of our shareholders. This way, the members of the Executive Board are directly participating in the performance of the company. In addition, this scheme sends a clear signal to our employees, our shareholders as well as our other stakeholders, emphasizing the trust our Executive Board puts in GEA's strategic orientation and sustained success.

The new Chairman of the Executive Board is obliged to hold shares in the amount of 150 percent of his fixed annual gross salary while the ordinary members of the Executive Board are required to hold stock totaling 100 percent of their respective fixed annual gross salary. Until the SOG target is fully met, 25 percent of the net amount paid out within the framework of variable remuneration (bonus and Performance Share Plan) must be invested in shares every year, beginning with the first bonus payout under the new remuneration scheme in 2020.

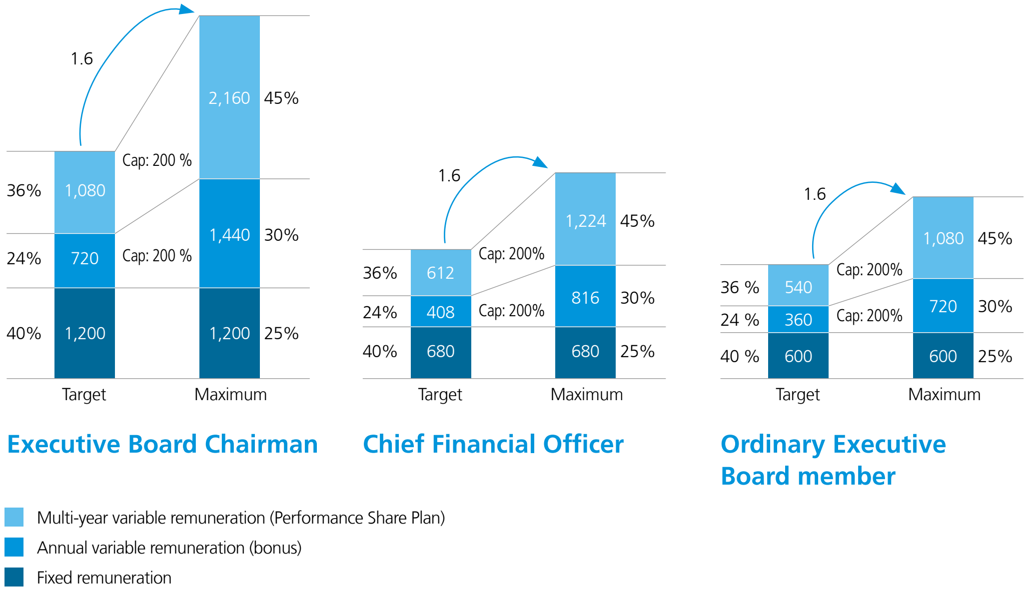
New remuneration structure and levels

For putting a stronger focus on variable remuneration and implementing a remuneration structure in line with standard market practice, more weight will be given to variable remuneration in the future, with the latter being geared to an even longer-term overall development. For this purpose, the previous 50:50 percent weighting of variable and fixed remuneration will be changed to a ratio of 60 percent to 40 percent. Against the backdrop of the transition to the new remuneration system, direct target remuneration, i.e., the sum total of basic salary, target bonus and the target value of long-term variable remuneration, was increased to the following levels: Chairman of the Executive Board EUR 3 million p.a., Chief Financial Officer EUR 1.7 million p.a. and ordinary Executive Board members EUR 1.5 million p.a. This increase in direct target remuneration has aligned the remuneration levels awarded to Executive Board members - which, in part, used to be below standard market practice - with the remuneration levels paid in GEA's relevant reference markets. The market comparison took into account the companies listed in the MDAX as well as a sectoral peer group made up of engineering companies. Following the recommendations of the GCGC, the Supervisory Board did not only take into account a horizontal comparison, but also considered a vertical comparison juxtaposing Executive Board remuneration with the compensation awarded to the senior management and the general workforce. Moreover, these raises reflect the growing complexity of duties as well as the strategic challenges in a difficult market environment while taking into consideration the changes in the profile of risks and opportunities under the new remuneration system as a result of larger variability and higher ambitions.

The following chart shows the direct target remuneration levels as well as the respective maximum direct remuneration awarded to the members of the Executive Board as of fiscal year 2019:

Target remuneration and maximum direct remuneration levels

(in kEUR)



Pension scheme

As far as the corporate pension scheme is concerned, the new remuneration system provides for a contribution-oriented defined benefit plan that serves as a standard. The respective pension contributions are paid into a pension account set up by the company for this specific purpose. Apart from that, and to a limited extent, the members of the Executive Board have the possibility of participating in a deferred compensation scheme. The available pension capital and, thus, the level of pension benefits, results from the pension contributions paid into the pension account by the time pension benefits are paid out, including the performance of the pension account during the investment period. The company guarantees a nominal return of premium, i.e., at least the aggregate amount of the company-funded pension contributions as well as the deferred contributions are available at the time of maturity of the pension capital. The accrued pension capital will be available to Executive Board members from age 62 onwards. It may be paid out as a lump sum or in 20 annual installments, with outstanding installments continuing to earn 1 percent interest per year. Deviating agreements, e.g. the continuation or takeover of existing pension commitments may be made.

Premature termination of an Executive Board member's appointment and effects on remuneration

In terms of the system employed, the rules and regulations applicable under the new remuneration scheme in the event of the premature termination of the appointment of a member of the Executive Board as well as the ensuing ramifications for remuneration are closely aligned with the corresponding provisions stipulated within the framework of the previous remuneration system (see section on "Termination rights, premature termination of an Executive Board member's appointment, change of control events and effects on remuneration", p. 72 f.). However, some aspects of the new remuneration system differ from the provisions set forth under the previous remuneration scheme:

If the appointment of an Executive Board member is revoked for good cause with legal effect in accordance with s. 84 para. 3 AktG or if an Executive Board member validly resigns from office pursuant to s. 84 para. 3 AktG, the Executive Board member's service agreement will – as a rule – end on expiry of the statutory notice period pursuant to s. 622 para. 1, 2 Bürgerliches Gesetzbuch (BGB–German Civil Code) as in the past. However, if the appointment is revoked due to an individual's inability to properly manage the company as defined in s. 84, para. 3 AktG, the notice period is 8 months to the end of the month.

In the aforementioned cases involving the early termination of the appointment of an Executive Board member, the latter will receive a severance payment equivalent to the total remuneration agreed for the remaining contractual term by way of compensation for his or her premature departure from the company. For the purpose of ascertaining the respective bonus entitlements not yet vested in the current or, if applicable, further years, computations are based on a target achievement level of 100 percent in relation to the respective target amounts set.

The service agreements concluded with the Executive Board members falling under the new remuneration system as of January 1, 2019, do not provide for termination or any other rights in the event of a change of control, nor any benefits associated therewith.

Remuneration of the Supervisory Board members

The remuneration of the Supervisory Board members comprises solely a fixed compensation. It does not include any performance-related component.

In the year under review, the expenses incurred for the Supervisory Board amounted to EUR 1,276 thousand (previous year: EUR 1,260 thousand). Pursuant to s. 15 para. 1 of the Articles of Association, each member of the Supervisory Board receives a fixed annual remuneration of EUR 50 thousand payable after the end of each fiscal year, in addition to the reimbursement of their expenses. The Chairman of the Supervisory Board receives two and a half times, his deputy one and a half times this amount. In accordance with s. 15 para. 2 of the Articles of Association, members of the Presiding Committee and the Audit Committee each receive an additional EUR 35 thousand. The chairman of each of these committees receives twice this amount. No separate remuneration is paid to members of the Mediation Committee and the Nomination Committee. Members who join or leave the Supervisory Board and/or its Committees during the year only receive a pro rata amount for the period of their membership. Pursuant to s. 15 para. 3 of the Articles of Association, after the end of the fiscal year, the Supervisory Board members also receive an attendance fee of EUR 1 thousand for each meeting of the Supervisory Board, the Presiding Committee and the Audit Committee that they have attended. In fiscal year 2018, the Supervisory Board held eight meetings, the Presiding Committee met eight times while the Audit Committee convened on five occasions.

The following table shows the individual remuneration and its respective components for the members of the Supervisory Board, the Presiding Committee and the Audit Committee in 2018 compared with the previous year:

(in EUR)	Supervisory Board remuneration	Presiding Committee remuneration	Audit Committee remuneration	Attendance fees	Total
Dr. Perlet	125,000	70,000	35,000	21,000	**251,000**
Previous year	125,000	70,000	35,000	18,000	**248,000**
Löw*	75,000	35,000	–	16,000	**126,000**
Previous year	75,000	35,000	–	13,000	**123,000**
Bastaki	50,000	35,000	–	12,000	**97,000**
Previous year	50,000	35,000	–	12,000	**97,000**
Prof. Dr. Bauer (until November 12, 2018)	43,288	30,301	–	13,000	**86,589**
Previous year	50.000	35,000	–	12,000	**97,000**
Eberlein	50,000	–	70,000	14,000	**134,000**
Previous year	50,000	–	70,000	13,000	**133,000**
Gröbel*	50,000	35,000	–	16,000	**101,000**
Previous year	50,000	35,000	–	13,000	**98,000**
Hall (since November 13, 2018)	6,712	1,247	–	3,000	**10,959**
Previous year	–	–	–	–	**–**
Hubert*	50,000	35,000	–	16,000	**101,000**
Previous year	50,000	35,000	–	12,000	**97,000**
Kämpfert	50,000	–	35,000	13,000	**98,000**
Previous year	50,000	–	35,000	13,000	**98,000**
Kerkemeier*	50,000	–	–	7,000	**57,000**
Previous year	50,000	–	–	5,000	**55,000**
Krönchen*	50,000	–	35,000	13,000	**98,000**
Previous year	50,000	–	35,000	13,000	**98,000**
Spence	50.000	–	–	8,000	**58,000**
Previous year	50,000	–	–	8,000	**58,000**
Dr. Zhang	50,000	–	–	7,000	**57,000**
Previous year	50,000	–	–	8,000	**58,000**
Total	**700,000**	**241,548**	**175,000**	**159,000**	**1,275,548**
Previous year	**700,000**	**245,000**	**175,000**	**140,000**	**1,260,000**

*) The employee representatives from the Works Council and the Union remit their respective remuneration to the Hans Böckler Foundation in accordance with applicable guidelines.

Sustainability at GEA

About non-financial reporting

NFS

Once again, GEA's sustainability report for the 2018 fiscal year is in accordance with the international standards set by the Global Reporting Initiative (GRI). The report has been prepared in accordance with the "core option" of the GRI Standards.

In 2018, GEA reviewed and rearranged the key topics to make them more palpable and comprehensible while meeting the requirements of the German Commercial Code (ss. 315b-c in conjunction with 289b-e HGB – Handelsgesetzbuch) that govern the disclosure of non-financial information. The combined "non-financial consolidated statement" forms part of this sustainability report. The subject-matters addressed in this statement are marked by a line at the edge as "NFS" (non-financial statement) in the margin. To ascertain the topics to be reported in the non-financial statement, GEA has adjusted its materiality approach. Thus it must also be taken into consideration whether a specific topic is required for understanding GEA's business progress, business results as well as the situation of the company (net assets, financial position, result of operations). Moreover, disclosures allowing people to gain an understanding of the impact of the company's activities must be provided in relation to the respective topic. The following topics are subject to these requirements:

- Occupational health and safety
- Greenhouse gas emissions
- Product quality and safety
- Sustainable product design and innovation
- Compliance management
- Protection of personal data

Under the HGB criteria, human rights are not defined as a material topic; however, GEA considers respect for human rights to be the bedrock of all business activities and an indispensable part of its corporate image. Avoidance of human rights violations is reported in line with the GRI standards.

The respective details are outlined in the materiality analysis on page 90 as well as the reporting profile on page 111 ff.

GEA's business model is described in the corresponding paragraph of the Group Management Report in the chapter on "Fundamental Information about the Group" on pages 24 ff. This also forms part of GEA's non-financial statement.

GEA is obligated to report on all known material risks associated with its own business activities, business relations as well as its products and services if there is a very high probability that the latter absolutely adversely affect non-financial aspects or will do so in the future. No such severe risks were ascertained.

Not all topics GEA regards as material in accordance with the GRI Materiality Analysis also meet the HGB materiality criteria. GEA also discusses these topics within the framework of non-financial reporting, but outside the non-financial statement, without specifically highlighting them.

NFS

Unless otherwise indicated, non-financial reporting comprises GEA's worldwide activities. Its contents are based on an analysis of the management systems and the data provided by the operational units and competent departments in the Global Corporate Center. The GRI Content Index is included at the end of the Annual Report (see page 248 ff.).

Non-financial reporting comprises the following chapters:

- Social responsibility
- Responsibility for the environment
- Product stewardship
- Responsible value creation
- Reporting profile

Materiality analysis 2018

Matters acc. to EU CSR Directive	Assignment of material topics to EU CSR Directive matters	Material topics	Non-financial statement
Social matters			
	• •	Occupational health and safety	Occupational health and safety
	• • •	Product quality and safety	Product quality and safety
	• •	Information security	
	• •	Protection of intellectual property	
Environmental matters			
	• •	Greenhouse gas emissions	Greenhouse gas emissions
	• •	Sustainable product design and innovation	Sustainable product design and innovation
	•	Product life cycle/circular economy	
	•	Customer information and support	
Respect of human rights			
	• • •	Human rights	
Employee matters			
	•	Labor and management relations and co-determination	
	• •	Data protection	Protection of personal data
	•	Labor practices incl. training and education	
Diversity policy*			
	• •	Diversity and equal opportunities	
Anti-corruption and bribery matters			
	•	Compliance	Compliance management
	• • • •	Responsible supply chain	
	• • •	Value creation	

• Environmental matters • Social matters • Respect of human rights • Employee matters • Anti-corruption and bribery matters • Board diversity policy

*) see Corporate Governance Report including Corporate Governance Statement

Social responsibility

The group's success reflects the result of the performance of almost 18,000 employees. Each and every one of them is instrumental in accomplishing the company's overall result. GEA's employees form the bedrock of the future value enhancement of the company.

Detailed headcount figures are provided in the company's financial report (see page 50 f.).

NFS

Joint management approach to quality, health protection, industrial safety and the environment

Adopting the "Quality, Health, Safety & Environment (QHSE) Policy" revised in July 2018, GEA's Executive Board has committed to continuing a clear policy regarding quality, health, industrial safety and the environment. In essence, this policy comprises the following points:

- Identification, analysis and efficient management of all quality, health, safety and environmental risks that occur within the framework of business activities
- Creation of an accident- and incident-free workspace for preventing occupational diseases for the benefit of employees, business partners and third parties while avoiding workplace accidents and occupational diseases
- Environmental protection and reduction in energy consumption, waste and emissions
- Provision and maintenance of adequate technologies, tools and processes supporting the achievement of the set goals
- Integration of QHSE into the company's business strategy and day-to-day processes
- Further development of safe, high-quality and environmentally compatible products and services to safeguard and enhance the company's presence in the market while ensuring and improving customer satisfaction
- Further development and expansion of health management and additional schemes designed to prevent occupational diseases
- Promotion of sustainable and responsible procurement while avoiding the purchase of conflict minerals from conflict regions

GEA communicates these corporate standards to all individuals acting for or on behalf of the company, actively involving them in the implementation of this policy. The latter is displayed at all sites and made publicly available on the corporate website at gea.com.

In addition to the above QHSE Policy, the company once again defined tangible targets in and for fiscal year 2018 (see gea.com):

- Integration of 14 companies into GEA's matrix certificate
- Initial certification of two companies
- Zero accidents
- Lost Day Frequency Rate ≤ 6.0
- Lost Day Severity Rate ≤ 130
- Proactive Injury Rate (PAIR) ≥ 65
- Continuous reduction in CO_2 emissions by 1.5 percent.

For more information on target achievement, see pages 92 f., 99 ff. as well as 103.

In the 2018 fiscal year, GEA further strengthened the QHSE organization, mainly due to a larger regional presence. In organizational terms, Quality & HSE (QHSE) is firmly embedded in all areas of the company and comprises three levels of responsibility.

- The central governance function directly reports to GEA's Executive Board. The QHSE governance team devises the global QHSE strategy as well as the corresponding targets while making available general policies and reports. It defines the management system, establishes and supports implementation and complies with statutory and individual requirements of investors, customers and external stakeholders.
- The excellence level reflects the various functions and is divided into production, project implementation and service. These teams support the organization by issuing functional policies and providing training.

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- On the third level of responsibility, the Regions and Countries implement policies and programs on a local level. Due to legal or cultural differences between the various sites, it is imperative to have a central QHSE contact in each region to be able to share know-how, give feedback and respond to local requirements in a timely fashion.

Health and safety at work

GEA gives top priority to occupational health and safety. Above and beyond legal requirements, GEA feels obligated to protect both its own and customer employees. As a rule, customers have developed their own sets of strict criteria that are met by GEA employees on the basis of good occupational and further training as well as regular technical training delivered in-house. Within the framework of GEA's QHSE organization, the excellence level makes sure that contracts concluded with customers and suppliers/sub-suppliers are in line with the standards set by GEA, with the governance function providing the respective standard processes.

GEA regards accidents and health hazards to the workforce as intolerable, just like absenteeism, damage to the company's image as well as potential penalties or indemnity payments arising therefrom. Thus, the company pursues a clear zero-accident strategy. The concept for handling risks includes site certification in accordance with OHSAS 18001 (see overview and number of certifications under "Product responsibility", page 103; will be switched to the new ISO 45001 standard in 2019), clear QHSE policy guidelines as well as the continuous improvement of the regional QHSE organization. A review takes place via internal HSE legal compliance audits as well as the future psychological risk assessments within the framework of health management (see page 93 f.). The QHSE targets set for 2018 include the reduction in accidents and the pilot project for the group-wide expansion of the health management scheme, to give but two examples (see gea.com).

While expanding its global QHSE organization, GEA further specified responsibilities in the year under review. In doing so, the company refined the relevant key performance indicators and enhanced data quality, allowing it for the first time to break down occupational accidents and lost days of work by accident site centrally, i.e., whether an accident occurred in one of GEA's production facilities, while performing services or while tending to projects at the site of the customer or at the office.

Compared with the previous year, the number of accidents remained constant. Yet, on account of the larger number of working hours reported, GEA's 2018 Lost Day Frequency Rate experienced a considerable decline to 5.97 accidents per million working hours (previous year: 6.18). In the year under review, a total of 243 accidents (previous year: 242) were reported, with 93 sites – i.e. two thirds of all GEA locations (previous year: 53 percent) – remaining accident free. 2018 was another year without fatal workplace accidents. The Lost Day Severity Rate also substantially decreased to 117.58 days lost after accidents per million hours worked (previous year: 172.18). This implies that the accidents entailed fewer working days lost.

This is due to the consistent implementation of the precautionary approach taken in the field of occupational safety: In line with this policy, GEA has recorded and analyzed near misses worldwide since 2017 to detect potential risks and hazards at an early stage and prevent accidents. Just like real accidents, GEA also subjects near misses to an analysis that entails a targeted follow-up process involving defined responsibilities and a specific set of actions. This approach pays off and is conducive to accomplishing the zero-accident target. As a result, GEA was able to significantly exceed its occupational safety targets set for 2018. Moreover, back in 2017, the company already defined its key safety rules, the so-called "GEA Safety Core Rules", which were translated into 14 different languages; they are designed to train the workforce accordingly while further reinforcing GEA's safety culture.

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Key figures occupational safety	2018 ✓	2017 ✓	2016
Number of workplace accidents	243	242	264
BA Equipment	151		
BA Solutions	92		
Number of days lost	4,786	6,716	6,338
BA Equipment	2,984		
BA Solutions	1,802		
Lost Day Frequency Rate[1]	5.97	6.18	6.69
BA Equipment	7.09	8.90	8.44
BA Solutions	4.86	3.37	5.18
Lost Day Severity Rate[2]	117.58	172.18	159.82
BA Equipment	140.15	229.37	195.30
BA Solutions	95.11	113.89	130.99
Near misses (Proactive Injury Rate, PAIR)[3]	145.76	97.1	
BA Equipment	243.14		
BA Solutions	39.90		
Total Injury Rate, TIR[3]	37.88	45.2	
BA Equipment	58.52		
BA Solutions	15.62		
Accident-free entities, as a percentage of all entities[4]	59.62	53.0	

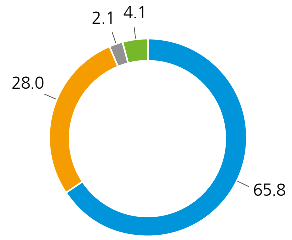
✓ Audited by KPMG

1) Frequency of accidents: lost time injuries per million working hours; since 2018, GEA counts up to 182 days of time lost pursuant to the European Statistics for Accidents at Work (ESAW); previously, it counted up to 365 days
2) Severity rate: days lost broken down by types of accident per million working hours; since 2018, GEA counts up to 182 days of time lost pursuant to ESAW; previously, it counted up to 365 days
3) per million working hours
4) out of 156 entities

Accidents at work by place of performance

(in %)

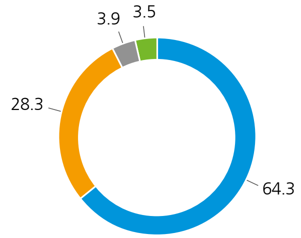
- in the field of production
- during service delivery
- project-related
- in the office



Number of lost days by place of performance

(in %)

- in the field of production
- during service delivery
- project-related
- in the office



Health management

GEA is further expanding its GEA Care health management scheme. Within the framework of a group-wide program, GEA plans to offer stress management and mindfulness training to employees exposed to particular levels of stress and strain. In the year under review, GEA rated a service provider entrusted with the above tasks. A pilot project started in December 2018.

Handling serious incidents, learning process

Serious incidents such as fatal and severe accidents, fires and explosions as well as environmental and security incidents are reported to the competent employees within the organization by means of the “Serious Events Reporting System“. This allows GEA to respond as quickly as possible to such events, minimize their impact and promptly initiate probes into the respective incidents. Afterwards, a dedicated lessons learned process is started; its findings are also used proactively to prevent risks, identify measures for improvement and communicate them to the organization (also see page 106).

Security management

GEA also fulfils its duty of care to its employees by providing a comprehensive security management. The “Major Incident Management Manual”, for instance, outlines the procedures to be taken in the event of risky incidents that may have a potential impact on GEA’s security, operations or reputation or affect the security, health and life of its employees or other stakeholder groups.

GEA’s security management provides a comprehensive and reliable service to employees who set off on worldwide business trips on behalf of GEA, even prior to their respective departure. This includes detailed travel and security information for every region around the globe. Should an employee nonetheless get caught up in an emergency while he or she is away on business, they can contact the 24/7 “GEA Security and Support Hotline”: In the event of health-related issues, the company’s “Medical Support Service Hotline” provides assistance and ensures appropriate medical care or even repatriation, if need be. Via a voluntary security app, GEA employees can also obtain medical and safety-related information about a group site at any time or directly contact the 24-hour hotline at GEA’s Security Center. If employees have booked their business trip via the “GEA Travel Center”, they can be tracked everywhere in the world by means of the so-called “travel tracker” while en route. In the event of crises like natural disasters or political unrest, GEA’s security management team may quickly respond and intervene. This way, in 2018, GEA looked after 20,415 employees travelling on business, accompanying them on 52,979 trips. The company’s security management team stepped in on 25 occasions, while the provision of information and advice regarding security relevant issues sufficed in 16 other cases.

Internal HSE audits

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Compliance with local statutory rules and regulations applicable to health, safety and the environment is regularly reviewed by means of audits that are conducted by an external service provider authorized by the Executive Board. This is a voluntary commitment made by GEA. The reports are uniform and compiled on the basis of a set of 25 criteria, with all observations and recommendations being entered into a software that is available across the group. This reveals necessary areas for improvement and those responsible on a local level may directly document their corrective action in the system. The respective organization undertakes to sustainably implement these corrective measures in the long run. The entire process is tracked and validated by the responsible QHSE officers of the country and by the excellence function. The improvement process is not completed until the QHSE governance function has given its final approval. 2018 saw 13 new audits in seven countries (2017: 0). Apart from that, a total of 307 further observations made during the preceding audits between 2013 and 2016 were finalized in 2018.

Labor/management relations and co-determination

Labor/management relations at GEA are characterized by many years of respectful dialogue and mutual interaction between the employer and employee representatives as well as parity co-determination on the company’s Supervisory Board. Half of the members of the Supervisory Board are shareholder representatives while the other half is composed of employee representatives. As the employee representatives serving on the Supervisory Board are elected by the entire German workforce, the interests of all German employees – blue collar workers, white collar workers, and executives alike – are represented by means of this kind of corporate co-determination. Apart from numerous local works councils and shared works councils, GEA also has a Group Works Council established in accordance with the German Works Constitution Act. At company level, local matters and issues are governed by works agreements.

GEA's European Works Council (EWC) has the statutory right to be informed and consulted by the management. It engages in a regular dialogue with the Executive Board and Human Resources. The activities of the European Works Council focus on transboundary effects of decisions and developments on employees in the EU member states, the countries of the European Economic Area as well as Switzerland. At the moment, the EWC and GEA's Executive Board jointly further develop and adjust the foundation of EWC work in a new EWC Agreement with the assistance of IndustriALL Global Union, the global union federation.

The "Codes of Conduct" apply worldwide (see below, "Human rights" section). A professional, certified whistleblower system for reporting potential violations of the basic principles of social responsibility is in place and globally available (see below, "integrity system").

Disclosure 102-41

Worldwide, around 48 percent of the workforce are covered by collective agreements. This disclosure is now based on data taken from the new "Workday" human resource management system.

Human rights

As early as 2007, the Executive Board and the European Works Council of GEA Group Aktiengesellschaft as well as the European and International Metalworkers' Federation developed and adopted the basic principles of social responsibility ("Codes of Conduct") that apply to all group employees worldwide. In these Codes, GEA inter alia pledges to respect human rights, equal opportunities and the principle of non-discrimination, the freedom of association for workers, the prohibition of child and forced labor as well as fair wages and working conditions.

It is planned to overhaul and extend this Code in the 2019 financial year. In its "Code of Corporate Responsibility" GEA will commit itself to fair world trade beyond the above principles. The draft includes adherence to the principles of accountability and transparency, the interests of stakeholders, the rule of law, compliance with international standards, human rights as well as ethical conduct. Moreover, GEA will align its "Code of Corporate Responsibility" with the basic principles and core topics set forth in the "Guidance on social responsibility " (ISO 26000). The new Code of Corporate Responsibility is to apply to all employees worldwide.

Integrity system (whistleblower system)

A professional whistleblower system is an effective tool for ensuring and monitoring compliance with the principles of social responsibility and compliance rules. Since 2014, GEA has offered its employees and third parties the certified Business Keeper Monitoring System (BKMS), a secure portal that may be used for reporting such violations.

The integrity system does not constitute a general platform for voicing complaints. It embraces selected reporting categories that imply particular risks to the company, its employees and any other stakeholders. These categories include corruption, fraud and breach of trust, money-laundering, violations of antitrust and competition law, export control regulations, data protection as well as accounting regulations. Breaches of the principles of social responsibility come under a distinct reporting category that also includes reports on potential human rights violations.

GEA's integrity system is available worldwide 24/7 in nine different languages and may be accessed from any PC connected to the Internet. The information technology used by the external provider ensures the protection of the whistleblower as well as confidentiality. Subject to their respective remits, only a very limited number of GEA employees from Compliance, Internal Audit and Human Resources have access to the reports submitted. For protecting both whistleblowers and accused individuals, all incoming reports are treated confidentially. Should the whistleblower prefer to submit his/her report anonymously, he or she may do so provided that this is permitted in their respective country.

The system ensures that all steps involved in processing and resolving the reported cases are properly documented. If an incident is reported under the Integrity System, this report is assigned to the competent department (e.g. HR), whereupon the respective facts of the case are investigated in order to arrive at a conclusion. Should it be impossible to ultimately clarify the circumstances without obtaining additional information that might compromise the whistleblower's anonymity, the whistleblower is contacted by one of the above departments asking whether a further probe into the matter is requested. The competent departments get to the bottom of concrete individual incidents and consider whether enhanced communication or staff management, a change of processes or the use of software may help avoid such cases in the future.

In the year under review, a total of five reports falling under the specific remit of Human Resources were filed under the BKMS. They involve four employees. The topics that were addressed include compliance, leadership behavior, style of communication, transparency or a potential need for training executives.

Diversity and equal opportunities

GEA operates in a challenging international market environment with a large number of players who influence the company in many different ways – ranging from customers, competitors and employees to the government and society in general. GEA meets the numerous challenges associated with this extremely diverse cultural environment by adhering to the principle of diversity. GEA considers diversity to be a strategic success factor. In this context, diversity is defined as the composition of the workforce in terms of origin, gender, age and qualification. Overall, GEA employs people from around 70 different nations. The age structure of GEA's workforce is as follows: 9.9 percent of the employees are younger than 30, 57.7 are aged between 30 and 50 while 32.4 percent exceed the age of 50.

In order to promote diversity on as many levels as possible and create an attractive working environment by doing so, GEA also takes into account aspects of modern work flexibilization while fostering mobility within the group.

To institutionalize and manage diversity within the company, the latter relies on a "Diversity Management Policy" as well as a corresponding guideline for executives: This policy describes the overriding goal and the steady state of diversity management at GEA. The guideline provides managers with an instrument for implementing diversity management at all group levels. It defines diversity on the basis of four personal criteria – origin, gender, age and qualification – as well as two organizational criteria, namely mobility and flexible working. The latter refers to both working time and the workplace. GEA has implemented a mixture of measures designed to promote diversity. For instance, staffing processes place emphasis on including diversity criteria as a standard practice. Despite the sector-specific challenges, GEA seeks to attract more women to join GEA while aiming at including more female talents in the company's internal career development programs. Moreover, diversity management sets the stage for a reliable identification of high potentials and talents.

Member of governing bodies and employees by gender (in %)	12/31/2018 thereof men	thereof women
Supervisory Board	58.3	41.7
Executive Board	80.0	20.0
Managers*	89.6	10.4
Total workforce	83.5	16.5

*) Number of employees in leadership positions, without inactive work relationships. At GEA, the first three management levels below Executive Board level are defined as managers.

For a number of years, the principles of diversity and equal opportunities have been taken into account with a particular emphasis on human resources. In general, GEA makes sure that a minimum proportion of female candidates are considered in the selection process when management positions at all levels need to be filled.

Since 2017, GEA has implemented its “Women Career Program” for female high potentials and executives to systematically develop women for leadership positions. In 2018, 15 female employees participated in the program. The latter is aimed at allowing candidates to evaluate themselves, further develop their personalities and specifically plan the next steps in their careers. The female participants are supported by female executives. At the same time, GEA ensures that a 25 percent minimum share of women are represented in the other talent programs.

Additional information on GEA’s diversity concept is provided in the Corporate Governance Report including Corporate Governance Statement on page 64 f.

Labor practices

Talent management and leadership development

To meet the company’s current and future demand for executives, GEA identifies high performers and potentials within the framework of a global, cross-functional and connected talent process. This process aims at specifically developing talents, retaining them for the benefit of the company while assigning them optimum positions within the company.

In 2018, GEA also conducted various talent programs for promoting young talents and executives. The target group of the “First Professional Program“ includes employees with leadership potential, while “Professionals on Stage“ is designed for executives looking back on several years of experience. Furthermore, GEA is a member of the Global Business Consortium of the London Business School together with five other renowned international enterprises. The program is open to top managers and seeks to enhance their strategic skills. All in all, in 2018, more than 90 high potentials from different nationalities, functions and business units attended the various programs. 25.8 percent of them were female.

Moreover, GEA offers training for executives. Such courses include “Leading Others”, “Leading Leaders”, “Engaging Employees” and “Leading Virtual Teams” that focus on strengthening leadership skills. Apart from that, the year under review saw the first “GEA Strategic Leadership Program“ that was conducted with senior managers with a focus on strategy, leadership, innovation, customer orientation and digitalization. In addition, since 2018, all young talents and executives have been able to avail themselves of the “GEA Leadership Toolbox”, a constantly growing collection of best practice and tried and tested management and leadership tools. These learning opportunities are rounded off by a wide range of e-learning courses that were updated and aligned with GEA’s current needs in 2018.

In 2018, GEA launched a new international graduate scheme. This program familiarizes young potentials and up-and-coming experts with various cross-divisional facets of GEA, helping them to extend their knowledge within the framework of targeted, individual development activities.

Work-life balance

GEA explicitly endorses a good reconciliation of work and family life and supports its employees in many different ways. For instance, some sites have experienced go-to persons for expectant mothers and fathers and offer flexible working arrangements. A large number of employees make use of alternating telework, part-time work as well as trust-based working hours. In the year under review, 3.2 percent of the German workforce took advantage of parental leave, 67.2 percent of them being fathers with 32.8 percent mothers. Apart from that, GEA cooperates with an international external service provider to support employees in their search for suitable facilities that provide childcare and/or look after dependents in need of care. In addition, this offering includes free social counseling.

Learning and continuous education

Since 2015, all employees worldwide may avail themselves of GEA’s Learning Center, the central learning and training provider. The latter offers management, sales and project management training as well as GEA product and user training courses; in 2018, further training modules were added. Additional e-learning programs on technical, business and product-related topics are available. These programs are open to all GEA employees and may be attended anywhere irrespective of a person’s location. They aim at supporting employees in their individual and occupational development. In the year under review, an overall number of 10,001 employees, i.e. 53.7 percent of GEA's entire workforce, made use of the learning and training opportunities offered by the company. 3,853 employees attended classroom-based training courses, 920 participated in integrated training initiatives while 1,802 attended trainer-hosted webinars. A total of 20,160 e-learning seminars were delivered; a large number of them were attributable to several compliance and data protection training initiatives. The average time per employee invested in taking part in face-to-face training modules was 1.4 days of learning.

Vocational training in Germany

	12/31/2018	12/31/2017
Apprentices	358	358
Apprentice-employee ratio (in %)	5.8	6.0

In the year under review, GEA trained 358 young people at 13 German sites in ten different commercial and industrial/technical occupations, which fall into different specialty areas depending on the product portfolio of GEA's specific sites. In this context, the company's site in Oelde serves as the center of technical training that coordinates the respective training schedule for the whole of Germany. Moreover, a total of 16 combined vocational training and degree programs were realized in cooperation with polytechnics and universities. These combined degree programs cover a period of six semesters and lead to bachelor degrees in various different fields.

For students participating in combined degree programs, GEA has organized the practical phases more internationally with projects in foreign companies.

Company pension schemes

GEA grants its employees pension benefits under defined contribution or defined benefit pension schemes. Depending on the locations and company agreements, employees can jointly design their pension plans with GEA. Supporting company pension schemes allows GEA to respond to demographic change while retaining qualified staff in the long run. GEA strives to continuously optimize existing administrative processes as well as global pension-related service structures to enhance both the transparency and the economic efficiency of such pension schemes. In doing so, the company never fails to ensure that the pension schemes fully comply with any and all legal and regulatory requirements.

Employee mobility

To meet market requirements and safeguard the sustained, long-term competitiveness of the company, it is increasingly imperative that the know-how and expertise of GEA's employees are available on a global level. For this reason, GEA established a central competence center for international employee mobility as early as 2014. This does not only ensure professionalism when it comes to the legally correct implementation of global contractual standards, but also enhances the level of efficiency in terms of the operational realization of international work assignments. The activities undertaken by the competence center allow for the equal treatment of all internationally mobile employees.

GEA Aid Commission

GEA supports its employees in need in many different ways. In a works agreement concluded with the Group Works Council, GEA has pledged to grant swift and unbureaucratic financial assistance to individuals in distress, for instance in the event of accidents or sudden, severe illness. Under such circumstances, affected employees, including their families, may turn to the GEA Aid Commission for help.

Employee engagement survey

In the year under review, GEA implemented a new approach to ascertaining employee satisfaction by conducting a pilot project. For this purpose, GEA employees from departments with potential for improvement were selected and surveyed in June and November, being asked to answer questions regarding their satisfaction with their respective line managers, personal development opportunities, trust in the management, a positive work environment as well as structural topics within the group. The first survey in June achieved a response rate of 70 percent and the November survey also attained a response rate of just under 70 percent.

The first survey revealed a need for action in various areas. While the relationship between employees and line managers was regarded as positive in structural terms, cross-team cooperation was to be improved, for instance the exchange between different corporate divisions. Following the first survey, the findings were analyzed, with measures at team level and feedback for global measures being defined. For this purpose, each executive involved received his or her own evaluation report.

Thereupon, over 200 workshops were conducted, with measures designed to improve staff satisfaction being agreed.

As a result of the two consecutive surveys, GEA mainly plans to improve IT support, the communication of GEA's strategy as well as the allocation of responsibilities. The measures agreed in this context are to be further implemented in 2019. Due to this new process designed to improve the measurement of job satisfaction, GEA is able to respond more swiftly to employee feedback while ensuring the active and continuous involvement of the workforce in the development of the company. Moreover, it is possible to better validate the efficiency of individual measures.

Corporate responsibility

By adopting the statement "Sustainable Value Creation at GEA", the Executive Board defined the group's ambitions and targets in terms of sustainability, incorporating them into GEA's values. This has given rise to a strategic vision that applies worldwide. The corresponding document is available on the company's website at gea.com.

As a global player, GEA participates in a multitude of regional and local projects and initiatives while interacting with more than 200 trade and industry associations by discussing technical and market-related topics. For instance, GEA is a member of the "Verband Deutscher Maschinen- und Anlagenbau" (VDMA – German Engineering Association) and also actively involved in the association's "Corporate Responsibility" working group that was established in 2017. A list of GEA's key memberships in organizations is available at gea.com. As a rule, membership matters are handled autonomously by the individual sites as they see fit.

GEA is a founding member of MassChallenge in Switzerland. MassChallenge is a non-governmental organization allowing startups to gain access to a global network of mentors and venture capital investors without actually acquiring any shares in these startups. Meetings with mentors, field trials and workshops also assist GEA's young entrepreneurs in mapping out their business concepts.

Apart from that, GEA is engaged in a multitude of cooperation schemes involving German schools and universities. By joining forces and working together, educational facilities and companies support students' transition into the world of work as well as career guidance and counseling to ensure that, going forward, they will find enough young talents willing to take up jobs in the fields of technology and natural sciences. Information on some of the initiatives is provided on GEA's website at gea.com.

Responsibility for the environment

Environmental management

GEA's products and services support the customers in making their business processes more efficient and environmentally compatible. Apart from that, GEA also makes sure to mitigate environmental impacts when it comes to its own business activities. The specific targets and programs are individually defined by the respective sites and in line with GEA's global QHSE targets. For further information on environmental impact management see "Joint management approach to quality, health, safety and the environment", page 91 f.

Greenhouse gas emissions

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As in the previous years, GEA took part in the 2018 survey conducted within the framework of the Carbon Disclosure Project (CDP). The CDP is an independent, not-for-profit organization that currently represents more than 800 institutional investors. Each year, it gathers information on the specific greenhouse gas emissions of the major listed corporations and their strategies to combat climate change. The results are then made available to current and potential investors. At present, the

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group of participants accounts for 50 percent of global market capitalization. In this survey, GEA also regularly provides information on the risks and opportunities related to climate change, as well as its action taken in the field of climate protection. In the year under review, GEA managed to significantly enhance the result of the CDP survey and was awarded a B- (management level).

Since 2017, GEA has disclosed the relevant data for the year under review that was audited by KPMG in accordance with ISAE 3000. In addition, GEA changed the way it presents CO_2 equivalents across regions as required by the CDP. The data series comprises the years 2017 (adjusted) and 2018. In 2018, GEA measured the CO_2 emissions released by its 74 largest sites that comprise production, service and administration.

All over the world, the key figures for energy consumption are collected via a standardized system and reported as follows:

- Scope 1 – Direct Greenhouse Gas Emissions: GEA includes fuel emissions from fuel oils, various gases, coal as well as diesel and gasoline.
- Scope 2 – Indirect Greenhouse Gas Emissions: GEA reports emissions from electricity, heat, steam and cooling.
- Scope 3 – Other Indirect Greenhouse Gas Emissions: Currently, this category merely includes reporting on business travel.

Further information on the method for calculating CO_2 emissions in 2018 is outlined on the company's website at gea.com under "Explanatory notes to environmental reporting". The figures presented are in line with the conversion factors stated in the GHG Protocol/IEA (05/2018) – IEA 2017.

Direct Greenhouse Gas Emissions (Scope 1, in tons of CO_2 equivalent)	2018 ✓	2017*✓
Asia Pacific (without China)	618	529
China	503	373
DACH & Eastern Europe	19,598	23,772
Latin America	5	9
North America	9,615	7,199
Northern and Central Europe	1,402	1,356
Western Europe, Middle East & Africa	8,242	8,595
GEA's total	**39,983**	**41,833**

Indirect Energy-Related Greenhouse Gas Emissions (Scope 2, in tons of CO_2 equivalent)	2018 ✓	2017*✓
Asia Pacific (without China)	1,561	1,340
China	4,921	4,614
DACH & Eastern Europe	18,326	19,628
Latin America	112	109
North America	6,458	5,513
Northern and Central Europe	2,550	3,472
Western Europe, Middle East & Africa	2,141	2,248
GEA's total	**36,068**	**36,925**

Other Indirect Greenhouse Gas Emissions (Scope 3, in tons of CO_2 equivalent)	2018 ✓	2017*✓
GEA's total	**17,267**	**15,958**

Total Greenhouse Gas Emissions (Scope 1, 2, 3, in tons of CO_2 equivalent)	2018 ✓	2017*✓
GEA's total	**93,319**	**94,716**
Ratio of tons CO_2 equivalent to GEA's revenue	19.32	20.59

✓ Audited by KPMG
*) Due to changes in allocation and computation, the reference base of reporting sites was adjusted in 2017.

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Compared with the prior year, GEA's operations emitted fewer greenhouse gases (Scope 1) in spite of higher revenues. Mild temperatures in Europe as well as GEA's initiatives designed to optimize energy efficiency at the various sites favorably impacted and reduced the emission of CO_2 equivalents under Scope 1. On the other hand, the company's strong order intake required more business travel, which resulted in a corresponding increase in Scope 3 emissions. All in all, in 2018, GEA was able to lower its greenhouse gas emissions both in absolute terms and in relation to sales. GEA met the target of a 1.5 percent reduction in CO2 emissions for 2018 that had been agreed with the Executive Board.

In 2018, GEA expanded and further automated the methods, systems, processes and internal controls governing data collection, for instance by introducing a deviation management system. Additional staff as well as a new generation of software ensure that GEA effectively meets its responsibilities in connection with this vital issue.

Water consumption and waste

GEA is not a water-intensive company and generates only very small amounts of hazardous waste – as a consequence, water, wastewater and water-related risks are no major issues that need to be addressed by the company. However, both our customers and our investors request environmental reporting that is as broad as possible in scope, primarily via audits and ESG analyses. For this reason, GEA started recording water consumption and waste generation levels worldwide in the third quarter of 2017 to set up its very first group-wide reporting system covering these topics while also seeking to reinforce the conservation of resources in this area.

In 2018, GEA recorded the volume of water consumed at its 70 largest sites, each of them comprising production, service and administration facilities. Thus, the company managed to establish its first reporting system in this specific area. An overall water consumption of 313,900 cubic meters reveals that GEA is not a water-intensive enterprise. The water was not taken from areas where water is in short supply.

Water	2018
Demand (in thousand cubic meters)	**313.9**
Municipal and mains water (in thousand cubic meters)	284.8
Water from wells and groundwater (in thousand cubic meters)	29.1
Consumption	
thereof industrial and process water (in thousand cubic meters)	151.6
Wastewater (in thousand cubic meters)	261.6
Share of process water in total water consumption (in %)	48
Share of wastewater in total water consumption (in %)	83
Sites reporting water consumption	70

Just like water consumption, GEA recorded the composition of waste for the very first time in the year under review. Going forward, GEA will expand reporting in this specific field. Metal, which is recycled, accounted for 82 percent of the overall amount of 24,132 tons of waste generated in 2018. Hazardous aqueous substances made up 0.7 percent of overall waste (163 tons). The individual components are shown below:

Waste	2018, in tons
Aqueous rinsing liquids containing hazardous substances	163
Machining emulsions and solutions not containing halogens	427
Packaging material: paper, cardboard	509
Packaging material: plastic	98
Packaging material: wood	1,718
Paper and cardboard	276
Domestic waste	1,157
Metals - recycling	19,784
Total	**24,132**
Sites reporting waste generation	58

GEA mainly uses metals for processing. Thus, GEA's main focus is on the recycling of metal waste. GEA closely cooperates with suppliers and customers to develop environmentally-friendly packaging while ensuring the proper disposal and recycling of the machines at the end of their lifecycle.

In 2019, GEA will continue to enhance the quality of the data underlying the environmental performance indicators with a focus on methods of disposal.

Products subject to specific requirements

GEA's portfolio embraces two relevant product groups and/or substances required for operating products that are subject to specific regulations: chemical products for farming and coolants for refrigeration systems. Undiluted chemicals for farm technology applications, such as dipping agents for milking hygiene, are processed at 11 GEA facilities worldwide. In terms of coolants for GEA refrigeration systems, ammonia has become widely accepted as the natural and carbon-neutral cooling agent of choice.

All GEA products meet the respective statutory requirements of the markets, come with the necessary certifications and/or comply with the technical specifications and any further demands made by the customers.

Product stewardship

"Engineering for a better world": this GEA tagline embodies the core value proposition of the group. Apart from responsibly shaping its own value creation processes, the company fosters sustainable business practices and makes a contribution to the protection of the natural environment by offering its customers efficient products and process solutions. As a rule, the technologies and processes they employ are highly energy-intensive, which is why energy and water savings as well as reductions in emissions or waste increasingly affect the investment decisions made by the customers. For this reason, GEA's ambition is to come up with more and more sophisticated technology solutions.

Lower consumption of resources, less floor space, extensive energy recovery potential, ease of operation – these are the criteria currently applied by customers when making their purchasing decisions. In turn, the latter have a direct and favorable impact on climate-relevant emissions and the protection of natural resources. More often than not, the economic and ecological criteria governing investment decisions made in GEA's customer industries are virtually identical since lower emissions based on enhanced efficiency also result in lower costs. Amongst other things, GEA's business success depends on products and solutions that are more efficient than previous generations while alleviating ecological impacts.

A capital goods manufacturer may only set itself apart from its peers and provide enhanced customer value by gaining technological leadership, which, in turn, requires innovation. In this respect, there is a connection between GEA's innovative strength and the positive effect of its products, solutions and services when it comes to mitigating climate change.

Management approach to product quality and safety, sustainable product design and innovation

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Even though the customer surveys conducted by GEA have revealed a high degree of satisfaction with the quality and performance of GEA's products, the impact of potential gross risks in this area would be severe (for more information see Opportunities and Risks Report, see page 117). Quality and safety issues may lead to accidents and production losses on the customer side, followed by negative consequences in terms of health protection, reputation and earnings. GEA is tackling such risks on all levels as they touch on the very foundation of its business. The innovation process is followed by a uniform and detailed product development process that applies across the entire group. It incorporates fixed design criteria such as resource efficiency or the consideration of health and safety aspects throughout the entire lifecycle of a product. Moreover, this product development process also takes into account regional or industry-specific guidelines and standards, required approvals or test certificates. Prior to market launch, the design and construction of prototypes is closely validated. Within the framework of the innovation process, the product development process is supplemented by a so-called front end at the very start.

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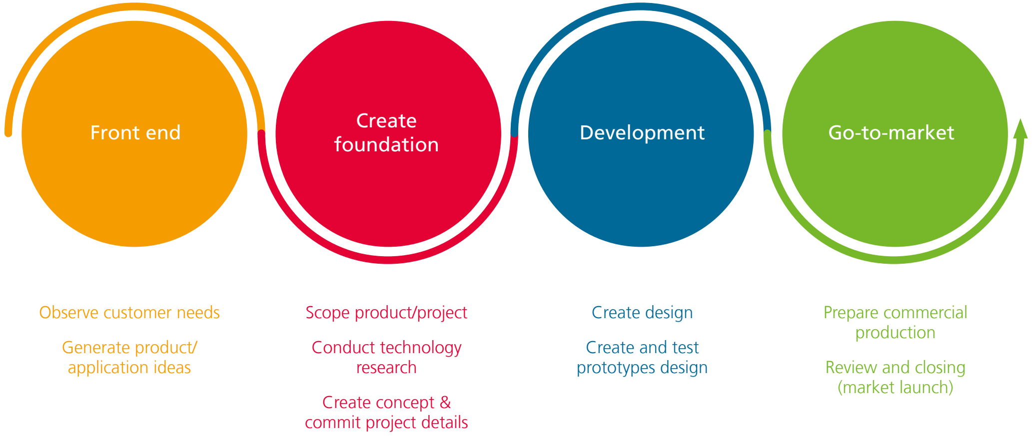
The overall process is as follows:



For instance, ideators are already quizzed about sustainability aspects during the front end phase: emissions, water consumption or the use of chemicals or filter media must be documented.

Quality management, environmental management, occupational health and safety as well as energy management are checked via certifications, their efficacy and performance being guaranteed in the process. GEA set up an internal "Product Safety Committee" for ensuring the safety of its products. GEA's service division makes sure that the products and process plants are available throughout their entire lifecycles; at the customer's request, it is also able to prolong service life by modernizing (parts of) the respective equipment. At regular intervals, the suitability and success of the management concepts are measured on the basis of key performance indicators such as quality costs, complaints, customer satisfaction or the number of certified sites.

Product quality and safety as well as sustainable product design in the supply chain are ensured under the "Code of Conduct for Suppliers and Subcontractors" (see "Responsible supply chain", page 107 f.).

Certification of the management systems

In 2016, GEA had already started clustering sites with integrated management systems under the umbrella of a unified GEA certificate. GEA Group Aktiengesellschaft, headquartered in Düsseldorf, was certified as meeting the requirements of ISO 9001:2015, ISO 14001:2015, BS OHSAS 18001:2007 as well as ISO 50001:2011 in June 2016, and, thus, heads the group of certified sites. All GEA companies in possession of one of the above management systems will be gradually integrated into the matrix certificate. Integration priority is subject to the expiry dates of the respective certificates awarded. In the year under review, two further German sites received their initial certification, respectively. GEA met its goal of incorporating 14 entities under the matrix certificate. The respective entities are based in Germany, Denmark, China, New Zealand, India, Ireland, Italy and the USA. Owing to the implementation of the OneGEA organization, the number of certificates is still declining, for instance due to the fact that sites were merged and not all sites are required to continue to hold all certificates as they did before.

The status quo of certifications within the group in 2018 was as follows:

Management system	Number of certificates 2018* ✓	Number of certificates 2017 *	Number of certificates under matrix certificate 2018	Covered by matrix certificate in 2018 (in %)
DIN EN ISO 9001:2015	105	120	86	81.9
DIN EN ISO 14001:2015	30	29	17	56.7
BS OHSAS 18001:2007	25	24	12	48
DIN EN ISO 50001:2011	17	20	5	29.4

✓ Audited by KPMG
*) comprises manufacturing sites and sales offices

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ISO 9001 defines the minimum requirements to be met by the quality management system of an organization allowing the latter to provide products and services that fulfill customer expectations and comply with regulatory requirements. At the same time, the management system is to be subject to a continuous improvement process.

The international environmental management standard **ISO 14001** stipulates the requirements to be met by an environmental management system and forms part of the family of standards applicable to environmental management.

BS OHSAS 18001 (Occupational Health and Safety Assessment Series) is an internationally accepted basis for management systems in the field of occupational health and safety. It will be switched to the new **ISO 45001** standard in 2019.

DIN EN ISO 50001 governs the establishment of a corporate energy management system for the purpose of increasing energy efficiency in the long run.

Quality and processes

The “Process Description and Procedure Platform“, the PPP for short, centrally incorporates business processes and procedural instructions governing the functioning of the GEA organization. Its objective is to ensure that GEA products and services continuously and consistently comply with the standards, specifications and customer requirements in place. Being available to all GEA employees, the online platform is fed with processes and templates by the competent organizational units across the entire group. This is where roles and responsibilities, such as internal approval processes, are clearly defined and put into practice.

GEA’s innovation process

GEA offers a wide range of components, systems and process equipment while never tiring of improving them in terms of resource efficiency, flexibility, quality and costs. GEA has defined around 200 core technologies that offer tremendous potential for optimization, also when combined with other technologies

As part of the realignment of the group’s structure, GEA adjusted its innovation process and revised the set of key performance indicators. For instance, the first steps (“front end”) of innovation management, i.e., the systematic generation of ideas as well as a feasibility check, include problem solving tools and tools for advancing the number and quality of the submitted ideas, the systematic analysis of market- and technology-driven trends and customer needs, as well as a modern idea management platform.

During the year 2018, GEA continued the rollout of the new innovation management scheme that comprises the innovation process, the state-of-the-art “InnoVate” IT system for generating ideas and letting them mature, as well as defined roles and responsibilities steering the further development of the innovation ideas brought forward.

Selected performance indicators underlying the innovation process (process efficiency and time to market) impact on the remuneration awarded to GEA’s Executive Board.

So-called ideation campaigns represent the core instrument designed to align ideas with a strategic objective. Once the theme of a campaign – such as sustainable industrial heat production – is determined, a workshop or an innovation day covering this field is held at a selected GEA site. There, the topic is presented and jointly refined by all parties involved. Subsequently, the respective campaign theme including the ideas generated during the first workshop are published on the browser-based innovation platform. This allows the experts involved to further develop the topic on an interdisciplinary level. In 2018, GEA conducted eight innovation days, five of which embraced ideation workshops, campaign kick-offs as well as general information about the innovation management framework applied. On three compact days, the focus was on imparting information without any tangible ideation campaign. In 2018, six ideation campaigns were organized in China, India, Latin America and North America, putting emphasis on the most important needs of the respective business entities.

For the purpose of agile innovation management, GEA actively connects with stakeholders from the research and science community. For instance, GEA is involved in the Business Accelerator Program of MassChallenge Switzerland for the purpose of boosting ideas and developments at an early stage. Since 2016, GEA has been one of the founding sponsors playing an active part in the start-up community that mainly focuses on topics like food, health and energy. This type of cooperation promotes product development by pursuing a holistic approach and reaches experts

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within and outside of the GEA network. In the year under review, GEA renewed its engagement for another three-year term.

This year, GEA sent a team of its own to MassChallenge in Switzerland to compete with other startups and sharpen their product idea with the assistance of experienced mentors. Young talents worked on a bag filter made from pure natural material unlike the standard polyester bags that are currently installed in dryer housings. Tested in milk spray drying processes, bag filters made from natural material could also be used in many further applications. This would allow the customer to shape their production process in a more sustainable way while reducing waste.

Digitalization, which is actively managed via innovation management, is an integral part of GEA's innovation process. Digital tools change the way ideas are generated and qualified while expediting product development as such. This way, GEA achieves the kind of agility that helps speed up the process of developing functional products. Moreover, these tools give rise to disruptive business ideas that may transfer GEA's application knowhow to previously untapped segments of the market, generating a new type of demand.

Digitalization may pave the way to innovation while simultaneously characterizing the solution. To master the digital challenge, GEA connects with strong partners: suppliers and customers, as well as market players and the science community. So-called cooperative competition aims at creating more added value for all parties involved: In this context, the company's cooperation with the MassChallenge startup MachIQ may serve as an example. This gave rise to an open and independent maintenance management tool for digital services that includes remote maintenance, spare parts distribution on the internet as well as data analysis for technologies serviced by GEA. Apart from that, the portal can be integrated into the majority of ERP systems, thus allowing for seamless digitalization – from the customer to the supplier.

For gauging the success of the resources allocated to the field of innovation across the entire company, GEA relies on key performance indictors during all stages of the innovation process. At the end of 2018, there were approx. 400 (2017: 300) active ideas or projects in the "front end" and "foundation" phase, with around 230 (2017: 240) future product innovations undergoing the "development" and "go-to-market" phase. In 2018, around 280 new ideas were submitted via the InnoVate Portal, roughly 150 of which resulted from the theme-related ideation campaigns. While approximately 130 ideas and projects were shelved or stopped, GEA was able to launch 60 concrete projects. Most of them have left the innovation process as new, marketable products. This goes to show that ideas undergo a much stricter selection process during GEA's front end phase. What is new is that ideas, which are not immediately taken up, are stored as "inactive" and no longer counted. This way, GEA seeks to make sure that highly promising ideas are evolved more swiftly and purposefully. The key performance indicators are regularly reported to the heads of development, the management bodies as well as the Group Works Council and the group IT committee.

For a detailed report on GEA's research and development activities, including expenses and the number of allocated staff, see the section on "Research and Development" (see page 32 ff.).

Product life cycle

To avert or mitigate any adverse impact on natural resources in connection with the development and planning, purchase and transport, production, shipping, operation and disposal of products (and, where applicable, process solutions), GEA has begun to record each stage of the product life cycle by taking these aspects into account. In the year under review, the so-called life cycle perspective was taken at GEA's largest German site in Oelde, considering in detail the products manufactured at this facility. In doing so, GEA seeks to make transparent and traceable any potential environmental impacts during each stage of a product's life cycle. Sites that have installed environmental management systems in accordance with ISO 14001:2015 have to produce the corresponding reviews. In the medium term, all product groups and applications are to introduce life cycle assessments.

Serious events in connection with GEA products and plants

Serious incidents such as fatal and severe accidents, fires and explosions as well as environmental and security incidents are reported by means of the “Serious Events Reporting System“(see page 94). The latter also includes all incidents involving GEA products and plants. Such incidents are always recorded and investigated, regardless of whether or not the respective incident was actually caused by a GEA product or a GEA plant. For this purpose, the company relies on a group-wide reporting platform that ensures that the dedicated reporting channels are complied with.

Quality, innovation and service in customer satisfaction surveys

In terms of customer satisfaction, GEA scores highest as regards machine quality and performance as well as technology innovations. This was one of the key findings of the second global customer satisfaction survey initiated by GEA end of 2016. In total, around 3,500 GEA customers from 41 countries participated in the survey. For the first time, the poll also included non-GEA customers in selected countries and customer industries. The results of both surveys have since been the basis for improvement processes.

In 2017, the company conducted a follow-up survey by means of almost 600 online interviews in eleven countries in which customers had been less satisfied with GEA’s service and complaints management, focusing exactly on these topics. Overall, the findings already revealed a slight improvement; apart from that, GEA was able to gain some useful insights into potential further measures.

Service, satisfaction with the services provided as well as complaints management were the key topics of a customer survey conducted in summer 2018. The findings will feed directly into the current initiatives and improvement projects of the service organization.

GEA Service

The commercial success of our customers hinges on production efficiency, in particular the availability of technologies. State-of-the-art production facilities and plants are highly automated, and even minimal downtime may have a major impact on a customer’s productivity.

Faring well at an annual growth rate of approximately five percent and following the successful rollout of several new service products and initiatives, GEA’s global service business has experienced a positive development since the launch of the OneGEA organization. GEA seeks recognition as the global leading industrial supplier of life cycle service concepts. GEA’s job is to establish, preserve and enhance the customers’ performance throughout the entire life cycle of their respective plants or facilities. The organization believes that there is still room for improvement when it comes to meeting customer expectations. Its current strategic initiatives and actions are based on the findings of the customer satisfaction surveys conducted in 2016 and 2017, the event-based customer interviews carried out in the year under review as well as the two internal surveys within the company’s own Service organization. Relying on the “Deliver” project launched in 2018, the global Service organization seeks to step up its game and enhance its own execution strength to increase customer satisfaction in the long run. In this context, particular priority is given to improved workflows.

In the year under review, the management system, which structures and handles individual skills and expertise at an organizational, team as well as an individual level, was further tweaked and refined. This “skills management system” supports the provision of adequate training and learning activities and helps identify the right service employee to be entrusted with specific service tasks. Since 2018, the system has provided insights into how the capabilities of the Service organization have evolved in each country or region, broken down by products and applications, respectively. Almost all countries covered by GEA’s Service area were assigned so-called training officers. Evaluating the results obtained from the skills management system, they derive training and development measures that are subsequently made available in the GEA Learning Center (see also page 97 f.). In this context, all GEA Service employees have been allocated dedicated learning pathways to boost their personal development.

Based on its life-cycle approach, GEA acts as a value creation partner that accompanies its customers through the entire life cycle of the product: from plant dimensioning, commissioning, spare parts supply with short response times, service level agreements, repair following failure to preventive and predictive maintenance. In this context, digital services like real-time condition monitoring play a more and more important role. For instance, the Milking & Dairy Farming product group has sold more than 1,800 milking robots that are connected to the FarmView and herd management system.

In addition, GEA is expanding its service business by adding digital solutions, since the analysis of continuously measured process parameters by means of highly sophisticated data analysis tools allows for a more stable operation of plants and processes. Thus, GEA OptiPartner comes in where conventional process control measures come up against their limits: in the event of varying or failing raw material quality or ambient conditions. GEA OptiPartner offers a state-of-the-art autopilot control system designed to make production lines more reliable and, thus, more efficient. This digital project spans the entire life cycle of a process plant - from remote services in terms of tuning to software updates and performance monitoring for the purpose of continuous process optimization.

In the year under review, the service business accounted for more than 30 percent of GEA's sales revenues.

CSR rating

For ensuring maximum transparency in the markets, GEA – inter alia - participates in the annual EcoVadis CSR performance monitoring scheme. EcoVadis represents the technical platform used for the audit program of the TfS initiative ("Together for Sustainability"), which was initiated by six multinational chemical companies back in 2011. It pursues the objective of developing and implementing a global audit program comprising audits and assessments for the purpose of evaluating and enhancing the sustainability practices in the supply chain. According to EcoVadis, more than 50,000 companies currently rely on the CSR ratings provided by the collaborative platform it operates, amongst them the buying organizations of more than 300 leading multinational corporations worldwide. In 2018, GEA continued to improve its EcoVadis CSR rating, remaining at "Silver" by scoring 59 points (2017: "Silver" with 52 points).

Responsible supply chain

Quality, efficiency, safety and appropriate behavior in the conduct of business are of importance to GEA customers, not only in relation to GEA's products and services, but across the entire supply chain. The trust required for engaging in a long-term business relationship may only be ensured by observing fundamental compliance standards and adhering to the basic principles of occupational health and safety while respecting the environment across the entire supply and value chain – which is why these areas are given highest priority. GEA practices a zero-tolerance policy with regard to unethical behavior in business dealings and transactions, in particular in connection with bribery, corruption, money laundering or child and forced labor. GEA expects all its suppliers to abide by comparable standards while exhibiting proper ethical behavior when conducting their business.

The new group structure also allowed the company to establish an optimized procurement organization. In this context, a new procurement portal was set up on GEA's website at gea.com. The registration process requires that suppliers commit themselves to the company's "Code of Conduct for Suppliers and Subcontractors", which GEA released and implemented in fiscal year 2018. It replaces the previously applicable Code of Conduct established by the German Association of Materials Management, Purchasing and Logistics. The Code of Conduct sets forth the basic principles and requirements that are to be met by all suppliers of goods and services, their subcontractors as well as the group entities of the suppliers and subcontractors with regard to their responsibility towards society, the environment and the individuals involved in the production of goods and the provision of services. These obligations encompass the recognition of the fundamental principles of social responsibility enshrined in ISO 26000, compliance with international standards, respect for human rights including the prohibition of child and forced labor as well as discrimination, the commitment to fair wages and working hours, freedom of association as well as occupational health and safety.

Furthermore, the Code of Conduct lays down the obligations to engage in environmentally sound management, dispense with the use of conflict minerals, honor the principles of fair competition and data privacy, protect intellectual property while also enshrining compliance with foreign trade acts and a ban on corruption, bribery and money-laundering. In the event of GEA becoming aware of or suspecting violations of the Code of Conduct, with GEA notifying the respective supplier accordingly, GEA expects said supplier to investigate and resolve such non-compliance issues as soon as possible and within an agreed timeframe. Should the supplier be unwilling to fix such problems, GEA reserves the right to take legal action as deemed appropriate by the company, including measures aimed at terminating the business relationship for good or any action designed to promote, follow up on and enforce corrective measures.

Key suppliers are visited on an annual basis. In the year under review, the company conducted 492 supplier screenings (previous year: 453). GEA performs its evaluations by visiting suppliers, conducting audits or requesting the voluntary disclosure of information; these activities are undertaken by the country organizations and the two Business Areas alike. During the 2019 fiscal year, the supplier audit system will be overhauled by Procurement and QHSE.

Responsible value creation

All GEA stakeholder groups expect the company to show economic strength. The latter guarantees jobs, efficient and innovative products, reasonable shareholder value, as well as sound investments, value creation – also outside of the company – and social engagement.

Being a listed company, GEA has a particular responsibility towards its investors. Its focus is placed on growth, operational efficiency as well as cash management. GEA's primary objective is to sustainably increase enterprise value by accomplishing profitable growth. For the purpose of focusing the group even on cash flow generation, the cash flow driver margin (see page 49) represents one of the 2018 key performance indicators of the group that is also taken into account in the incentive payment system. For this reason, GEA reports this key figure as an indicator of economic performance.

This aspect is inextricably linked to correct behavior. Given the company's quest for sustainable value creation, corporate governance is an essential element of business management that deeply affects each and every aspect of the group's day-to-day operations.

Supply chain topics are addressed in the chapter covering "Supply Chain Management" (see page 30) while supply chain compliance is covered in the chapter on "Product Stewardship" (see page 107 f.).

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Compliance management

Compliance represents a group-wide principle governing adherence to the law, legislation as well as internal corporate policies. All GEA employees are obliged to make sure that no compliance violations are committed in their respective areas of responsibility. A detailed outline of GEA's Compliance Management System can be found in the Corporate Governance Report (see page 60 f.) and at gea.com.

To avoid the serious consequences of potential compliance violations, GEA faces these risks by means of a compliance management system designed for analysis, information and education, control, process definition as well as monitoring purposes that was revised in the year under review. The new system was audited in the areas of anti-corruption and antitrust law as at January 1, 2019, in accordance with audit standard IDW PS 980. The audit was certified on January 29, 2019. In addition, there is a certified reporting system ("Business Keeper Monitoring System", BKMS). The management approach is examined by the group's internal audit function and external auditors by means of internal and external audits.

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New Code of Conduct

In July 2018, GEA's Executive Board resolved to enact the new "Code of Conduct" as well as Compliance Policies based thereon – including the Integrity Policy, the Third-Party Policy as well as the Competition Policy. The Code of Conduct supersedes the former "Business Conduct Policy". The corresponding provisions entered into force throughout the group on January 1, 2019. The above policies govern the fight against corruption and money-laundering, conflicts of interest as well as antitrust and competition law at GEA. They are available to all employees worldwide in 17 different languages. Further details are outlined in the Corporate Governance Report, see page 60.

Reporting system and alternative reporting channels

GEA's BKMS integrity system represents a tool designed to ensure compliance with the Code of Conduct. The whistleblower system is available to employees and third parties in nine different languages. It also provides the possibility of filing an IT-based report of potential violations of laws and provisions governing the prevention of corruption and restrictions of competition. Such reports may remain anonymous in countries where this is permitted by law. Only two dedicated employees of the "Compliance and Principle Legal Matters" department as well as one member of the internal audit team may access reports on corruption and restrictions of competition. GEA's integrity system also deals with reports on potential human rights violations (see page 95 f.).

Employees and third parties may also report alleged violations by choosing other channels. For instance, GEA receives reports that are submitted via e-mail or letters addressed to the Executive Board, members of the compliance organization or the Head of Internal Audit. It is common practice and stipulated that the recipient promptly passes such reports on to dedicated members of the compliance organization.

Preventive processes

Processes designed to prevent compliance violations figure prominently in GEA's compliance management scheme. For this reason, individuals in close contact with the customer, such as sales agents, have to undergo a strict risk vetting process for the purpose of corruption prevention prior to entering into a contract with GEA. Each contract requires prior verification and approval by the legal department. Sponsoring and donations are subject to strict internal authorization requirements.

Training and consulting

GEA has identified approximately 4,300 employees that are exposed to particular compliance risks. As far as anti-corruption and antitrust law are concerned, this group includes all executives, all employees entrusted with sales or purchasing tasks as well as other employees vested with decision-making powers and in direct contact with customers or suppliers. At least once every two years, these employees are to receive classroom-based training in the fields of anti-corruption and antitrust law.

Once again, the year under review saw the continuation of compliance training courses:

- Compliance training courses comprise extensive group training covering topics like fight against corruption and money-laundering, antitrust law as well as conflicts of interest; 2018 saw the initiation of a worldwide training program on the above topics for more than 4,300 employees; a large number of them already received training by the end of the year.
- In addition, 2018 saw the organization of further compliance e-learning courses with a focus on anti-corruption, antitrust law, money-laundering as well as data protection. All employees from the target groups at risk were invited to attend. The group included circa 6,863 attendees in the field of anti-corruption, roughly 6,360 for antitrust law, approximately 6,158 participants as regards money-laundering as well as 15,239 employees that addressed matters of data privacy.

Apart from the competent Compliance Officer, larger sites also have so-called Local Compliance Managers to ensure correct behavior in operational day-to-day business and to offer a competent point of contact at all times; at regular intervals, they receive intensive fraud prevention, anti-corruption, money-laundering and antitrust training. They serve as points of contact in relation to local compliance issues and provide assistance to the compliance department.

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Audit

Within the framework of its standard and special audits, Group Internal Audit also checks compliance aspects. 2018 saw the performance of 21 audits at GEA sites worldwide. Group Internal Audit is tasked with protecting corporate assets, verifying process efficiency and compliance, as well as checking the completeness of documentation. This also includes compliance audits in the fields of anti-corruption and export control. In the year under review, Internal Audit performed five additional audits focusing on Executive Board travel expenses as well as three audits looking into the risk management system of both Business Areas, the Global Corporate Center as well as the Shared Service Centers.

Protection of personal data

For an innovative and global enterprise like GEA, information and its use for accomplishing corporate targets is of significant importance. GEA protects the privacy of every individual whose personal data is processed by the company. This includes employees, customers, suppliers, other contracting partners as well as applicants and applies to all GEA companies and specialist departments that handle personal data. Privacy breaches may entail considerable fines and even result in fines and imprisonment in some countries. Thus, the EU General Data Protection Regulation (GDPR), which came into effect on May 25, 2018, provides that non-compliance may be punished by imposing fines of up to four percent of group revenue. Moreover, violations may lead to the exclusion from public contracts. Ultimately, privacy breaches may also damage GEA's reputation in the long run. Therefore, GEA insists on the implementation of data protection requirements and reserves the right to take action against anybody who fails to comply with data protection laws. For instance, this includes disciplinary measures, but also the enforcement of damages.

Subject to individual requirements under labor law and in relation to co-determination at country level, a new data protection policy will be launched in 2019. It specifies guidelines and recommendations for conduct applicable to all employees in order to avoid privacy incidents or privacy breaches. It forms part of GEA's global compliance principles and is supplemented by classroom-based training for employees working in sensitive areas – around 400 employees received training in 2018 – as well as e-learning measures for all employees who have a user account. The accompanying data protection management system is also to be introcuded in 2019. It covers all organizational aspects, i.e., the roles, tasks and responsibilities as regards the processing of personal data, regardless of the type of individuals affected (including employees, customers, suppliers, shareholders etc.) or the technical means for processing them. It also provides for additional reporting channels regarding risks and violations; GEA already complies with the short response times that are legally required.

Compliance with the data protection specifications and the applicable data protection laws is verified on a regular basis. These checks are performed by the respective company data protection officers and further corporate divisions vested with audit rights or assigned external auditors. Third party providers are vetted on the basis of self-declarations, audits and certificates.

Information security and protection of intellectual property

Information security refers to the confidentiality, availability and integrity of information stored and processed by the organization – irrespective of whether this is done via technical or non-technical systems. Information security includes the protection against risks and/or threats, loss avoidance as well as risk minimization. GEA relies on organizational and technical means to protect both its own and information entrusted to it against unauthorized access. Apart from the complete set of tools provided by the specialist departments for information technology and IT security, the company also avails itself of all appropriate legal instruments for the purpose of corporate governance and when concluding agreements. In addition, the protection of trade secrets is also specified in a GEA guideline on information security ("Information Security Policy").

Against the backdrop of digitalization, the transmission of production and process data from the customer to GEA becomes increasingly important, for instance for the purpose of performing predictive maintenance and repair or carrying out remote maintenance. As a rule, the protection of both data and transmission channels is contractually stipulated and ensured in close cooperation between the customer and GEA. In the year under review, GEA did not receive any well-founded complaints regarding a breach of customer privacy and the loss of customer data.

By and large, intellectual property comprises knowhow, ideas, inventions, developments, sketches, plans, results as well as data. Such confidential information, the know-how, patents as well as other intellectual property rights constitute the cornerstones of GEA's technology leadership in systems and processes. As a consequence, the company rigorously protects and defends patent and trademark rights as well as copyright. GEA know-how is only disclosed following the conclusion of written confidentiality and/or non-disclosure agreements. GEA provides patent-related information in the chapter on "Research and Development", see page 35.

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Compliance with laws and provisions in the social and economic spheres

If employees violate compliance rules, such non-compliance is punished depending on the degree of fault as well as the severity of the case. The sanctions imposed range from a reprimand to a warning letter and may ultimately lead to termination of employment. In particularly severe cases, GEA reserves the right to sue the person in question for damages and/or report the violation to the competent authority.

GEA expects all employees to report any signs of compliance violations. Managers must ensure that serious misconduct, particularly in the areas of corruption, competition law and data protection, is reported to the Global Corporate Center Legal & Compliance.

In the 2018 fiscal year, no fines were imposed on GEA.

Reporting profile

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Once again, GEA's sustainability report for the 2018 fiscal year follows the international standards of the Global Reporting Initiative (GRI). The report was prepared in accordance with the "core option" of the GRI Standards.

At the request of GEA's Supervisory Board, KPMG AG Wirtschaftsprüfungsgesellschaft reviewed GEA's combined non-financial consolidated statement for fiscal year 2018 and performed a limited assurance engagement in relation to the statutory disclosures required pursuant to ss. 315b, 315c in conjunction with 289b to 289e HGB (Handelsgesetzbuch – German Commercial Code). This review was in line with the applicable "International Standard on Assurance Engagements" (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information".

Disclosure 102-45

Unless indicated otherwise, the disclosures basically comprise the worldwide activities of the overall group, i.e., GEA Group Aktiengesellschaft including all companies over which GEA can exercise controlling or material influence. A list of the subsidiaries, associated companies and joint ventures meeting this definition can be found in the list of shareholdings included in chapter 12.4 of the Consolidated Notes.

Disclosure 102-48

No restatements were made; however, the essential topics were revised and re-defined, see disclosure 102-49.

Disclosure 102-46

In 2018, GEA thoroughly examined and re-arranged the material topics to make them more palpable and comprehensible. For this purpose, the 2016 list of all potential topics was revised and challenged on the basis of practical experience and best practice examples under the direction of the Global

Corporate Center. Prior to that, the known views of the stakeholders were allocated and incorporated. The internal materiality assessment was conducted during a full day workshop involving the Chief Financial Officer as well as experts from the following technical fields: Legal and Compliance, Human Resources, Sales, Procurement/Supply Chain, Controlling, Risk Reporting, Quality, Health, Safety and Environment, Strategy, Communication and Marketing, Research and Development as well as Innovation Management. For assessment purposes, the experts relied on the experience they had gained from their exchange with stakeholder groups closely linked to them as well as their personal knowledge of the industry and competitors. Within the framework of GEA's business-to-business model, the technical departments are the daily contacts for their respective stakeholder groups, which is why they must be regarded as primary sources. Subsequently, the results were aligned and approved with all technical departments involved as well as GEA's entire Executive Board.

To identify the topics to be reported in the non-financial statement, GEA also checked an additional prerequisite in line with ss. 315c in conjunction with 289c (3) HGB, i.e., whether a specific topic is required for understanding GEA's business progress, business results as well as the situation of the company (net assets, financial position, result of operations). Potential risks arising in connection with these topics were ascertained, allocated and assessed.

Disclosure 102-42

Internal experts represented the most important source when it came to defining and engaging external stakeholder groups.

Disclosure 102-40

As a listed company with a shareholder structure characterized by the presence of institutional investors – without a dominant major shareholder – GEA re-defined the classic stakeholder group, i.e., the "shareholders", as "investors". Apart from (potential) investors, this group also includes shareholders, analysts, investment firms as well as rating agencies. All in all, GEA identified the following stakeholder groups that were re-classified in 2018:

Previous term	Revised term
Capital market	Investors
Customers	Customers
Suppliers/contractors	Industry/peer group
Competitors	Industry/peer group
Local communities	NGOs/civil society
General public/media	NGOs/civil society
Schools/universities	Sustainability experts (scientific community, consulting)
Regulators/authorities	Public authorities/politics
Employees	Employees

Disclosure 102-43

Once again, the company analyzed various sources for the purpose of corroborating the materiality analysis; they included the findings of the 2018 staff engagement surveys, customer interviews as well as internal surveys on "Service" carried out in the year under review. In addition, the capital market's feedback (notably ratings and ESG analysts) on the company's sustainability report was once again subjected to a thorough analysis together with the QHSE experts. Taking into consideration their requirements, the company reported on water consumption and waste – only basic data - for the first time even though, overall, these topics are not material. Every year, GEA participates in the Climate Change Information Request of the Carbon Disclosure Project (CDP). The respective documentation was also taken into account. Moreover, the sustainability reports published by key customers and competitors were also included within the framework of a comparative analysis. The "CSR Directive" 2014/95/EU of the European Parliament and the Council of October 22, 2014, as well as the corresponding German law for reinforcing non-financial reporting by companies in their combined management and group management reports ("CSR Directive Implementation Act") were factored in.

Disclosure 102-47

The company's reporting in 2018 addresses the following material topics:

- Occupational health and safety
- Labor/management relations and co-determination
- Human rights
- Labor practices incl. training and education
- Emissions
- Product quality and safety
- Sustainable product design and innovation
- Product life cycle/ circular economy
- Customer information and support
- Responsible supply chain
- Value creation
- Compliance
- Data protection
- Information security
- Protection of intellectual property rights

In principle, the material topics that were defined are of group-wide relevance.

In addition, GEA reports on diversity and equal opportunities – supplementing the information on the diversity concept that is provided in the Corporate Governance Report including the Corporate Governance Statement.

Disclosure 102-49

The following topics have changed and/or were re-defined:

2017 topic	2018 topic	Reasons for change
Economic performance	Value creation	Merely editorial change
Procurement practices; environmental assessment/ social assessment of suppliers	Responsible supply chain	Edited summary; proportion of local procurement still reported in the chapter on "Supply chain management"
Socio-economic compliance; anti-corruption	Compliance	Edited summary
-	Data protection; information security; protection of intellectual property rights	Now regarded as material due to significantly higher risks on account of the EU General Data Protection Regulation, increasing digitalization of business processes, products and processes, and due to the growing importance of intellectual property as a distinguishing feature as regards competition
Training	Labor practices	Edited summary of several employee-related topics that were already reported, under a new heading
Impact of climate change	Product quality and safety; sustainable product design and innovation; product life cycle/ circular economy; customer information and support	As a rule, evidence for enhanced efficiency vis-à-vis the customer represents a decisive purchasing argument. Due to the multitude of components and processes, and notably due to the necessity to collect comprehensive operational data outside the company's own sphere of influence, it is impossible to provide global evidence for assessing the impact of climate change in relation to the entire portfolio of products and services. For this reason, the information on product stewardship provided in this report was re-arranged and expanded.

Disclosure 102-44

This overview outlines the aspects that were given particularly high priority by specific stakeholder groups:

Key topics raised by stakeholders	Investors	Customers	Industry/peer group	NGOs/civil society	Sustainability experts (scientific community, consulting)	Public authorities, politics	Employees
Occupational health and safety	•	•	•	•		•	•
Labor and management relations and co-determination	•			•			•
Human rights	•	•		•	•	•	•
Labor practices incl. training and education							•
Emissions	•	•		•	•	•	•
Product quality and safety	•	•	•			•	
Sustainable product design and innovation	•	•			•	•	•
Product life cycle/circular economy	•	•			•	•	
Customer information and support		•				•	
Responsible supply chain	•	•		•	•	•	
Value creation	•	•					•
Compliance	•	•	•	•	•	•	•
Data protection	•				•	•	•
Information security	•	•					•
Protection of intellectual property	•	•					•

Report on Risks and Opportunities

Risk and opportunity management targets

GEA's ability to leverage its growth and earnings potential depends on its ability to exploit the opportunities that present themselves. Fundamentally, however, this does give rise to entrepreneurial risks. Taking calculated risks is therefore part of GEA's corporate strategy. To meet the objective of steadily increasing enterprise value, it is necessary, as far as possible, to enter into only those risks that are calculable and matched by greater opportunities. This requires active risk and opportunity management, which avoids inappropriate risks, monitors and manages risks entered into, and ensures that opportunities are identified and utilized in good time.

GEA's strategic and medium-term planning are key components of the way in which it manages opportunities and risks. These processes are used to prepare decisions on core technologies and markets, along with the corresponding allocation of resources. The objective is to ensure stability by diversifying and by concentrating on markets of the future. At the same time, developments that may jeopardize GEA's continuing existence can be identified at an early stage.

Opportunities and risks arising from significant operating decisions – for example by accepting certain orders or implementing capital expenditure projects – are assessed and hence actively managed by the relevant departments and decision-makers at all group levels and in all functional units in a decision-making process that takes materiality criteria into account.

Overall assessment of the risk position and changes compared with the previous year

The identified risks from operating activities and the negative impact on earnings that could result may well be weightier than last year owing to the potential intensification of macroeconomic risks. Chief among these macroeconomic risks are the escalation of the trade dispute between the USA and China and the ongoing lack of clarity regarding the effects of Brexit.

As in previous years, the structure of GEA with its regional and industry diversification offers protection to a large extent against individual risks clustering into a single risk that could threaten the group's continued existence as a going concern. In addition, GEA is not dependent on individual business partners, be they either suppliers or customers.

The sale of the GEA Heat Exchangers segment resulted in risks in the form of financial obligations towards the purchaser arising within discontinued operations.

Overall, no risks to GEA or GEA Group Aktiengesellschaft were identified that, alone or in combination with other risks, could endanger the company's continued existence as a going concern.

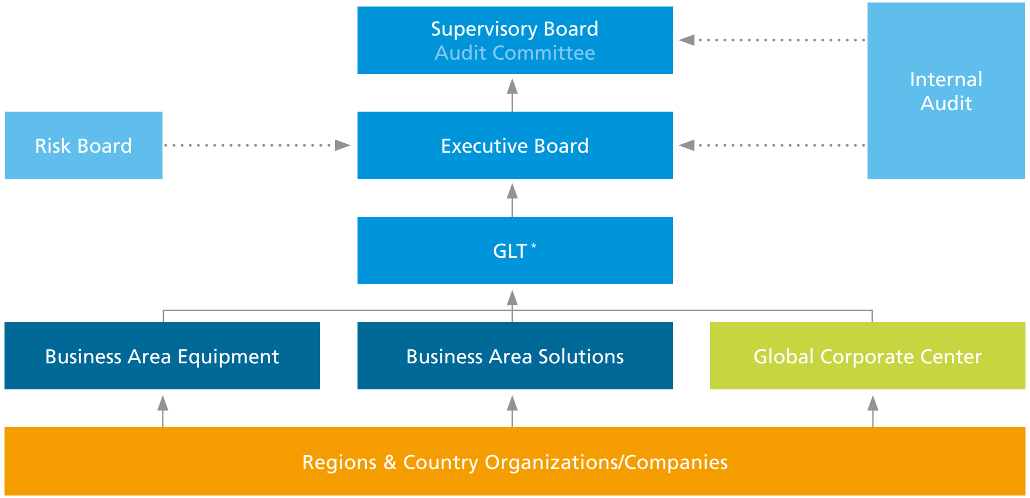
Risk and opportunity management system

All group companies are integrated into GEA's risk management system. Quarterly risk reports and size-related ad hoc risk reports aim to ensure that decision-makers at all levels are informed promptly about material existing risks and potential risks affecting future development.

The fundamental principles and procedures underpinning an effective risk management system are set out in risk guidelines that apply to the entire group. These guidelines also document mandatory risk reporting and management requirements. Compliance with these requirements is monitored regularly by the Internal Audit function.

Risk management instruments such as the Risk Assessment and Advisory Committees (RAACs) are supplemented by a reporting system encompassing evaluated risk reports, consolidated financial projections, monthly consolidated financial statements, and regular meetings of the Global Leadership Team (consisting of members of the Executive Board and heads of the Business Areas, the regions, and the Global Corporate Center) enable the various risks to be identified and analyzed.

Risk management organization



*) Global Leadership Team

GEA's risk management system is based on the management hierarchy. Risks are reported to the next higher management level using predefined thresholds.

The specific requirements of the group's project business are addressed by risk boards at business area and group management level. Before a binding quotation is submitted or an agreement signed, the commercial and contractual terms of potential orders are examined in detail by specialists from various departments so that risks that cannot be controlled are avoided. The risk management system therefore already comes into play before risks arise, in the form of a critical examination of the opportunity and risk profile of quotations. No agreement may be signed if the opportunity and profile is inappropriate.

The risk management system not only serves the statutory purpose of identifying existential risks as early as possible, it also covers all risks that might have a material impact on the financial position and results of operations of a business area or of the group as a whole.

To identify risks that could endanger the existence of GEA as a going concern, all issues are assessed for their financial materiality and probability of occurrence. This is done on a gross basis, i.e. excluding any risk-mitigating measures. In addition, the timing (less than or more than one year) of each risk is individually assessed. The risks were assessed over a defined period of one year. This period is also the forecast horizon.

The following criteria are used to determine materiality:

Risks

	Probability		
	< 33%	33–66%	> 66%
Insignificant	L	L	M
Moderate	L	M	H
Considerable	M	H	H

Low
Middle
High

Moderate	Impact on financial and earnings position between EUR 10 – 50 million
Considerable	Impact on financial and earnings position > EUR 50 million

This makes it possible to classify risks in accordance with their impact on GEA. Issues with short-term relevance that have a high ("H") materiality and probability rating are initially classified as a significant risk. Opportunities are not quantified.

The "GEA Business Climate" (GBC) is used to collate estimates by GEA's market experts of current and short-term market developments. The questionnaire makes it possible to obtain an early indication of positive or negative market trends in the industries and regions that are relevant for GEA.

Adequate provisions have been recognised for all identifiable risks arising from the group's operating activities provided that the recognition criteria for liabilities have been met. The following section provides details of existing risks. Risks that are not yet known or currently regarded as insignificant may also have an adverse effect on business activities.

Internal control system

GEA's internal control system (ICS) is based on the COSO framework and comprises the risk management system (RMS) as well as other principles, measures, and rules (other components of the ICS). While the RMS aims at identifying and classifying risks, the components comprising the rest of the ICS serve primarily to prevent or mitigate risk using control measures. The Internal Audit function is another component of the ICS.

The RMS comprises principles, measures, and rules relating to the early risk recognition system in accordance with section 91(2) of the Aktiengesetz (AktG – German Stock Corporation Act), as well as those relating to other components of the risk management system. In the other components of the ICS, a distinction is made between principles, measures, and rules that are related or unrelated to financial reporting.

GEA's ICS relevant for financial reporting encompasses all principles, measures, and rules that ensure the proper approval and recording of business transactions for monthly, quarterly, and annual financial statements. The goal of the implemented ICS is to ensure reliable financial reporting, compliance with the relevant laws and standards, and the cost-effectiveness of business workflows.

In addition to GEA Group Aktiengesellschaft, all group companies are integrated into the ICS.

The following key principles of GEA's ICS must be applied in all business functions: clearly defined areas of responsibility, the separation of functions in all areas of activity, dual signature policies, compliance with guidelines, instructions, and procedural requirements (manuals), the obligation to obtain comparative offers before awarding contracts, protection of data from unauthorized access, and the holding of training sessions to ensure uniform procedures within the group.

Key measures and rules that are relevant for financial reporting and are designed to ensure uniform accounting at all subsidiaries are: accounting and account allocation manuals, a uniform chart of accounts, consolidation and calculation manuals, the approval of entries using the dual control principle, and the fact that certain entries can only be made by selected persons. Guidelines and IT systems are updated on a continuous basis to reflect legal and business requirements. The IT Security Officer is responsible for implementing appropriate IT guidelines throughout the group based on regulatory and substantive requirements.

Compliance with the principles, measures, and rules set out in the ICS as described above is monitored systematically; this takes the form of regular reviews by GEA's Internal Audit function, which reports directly to the Executive Board and regularly submits reports to the Audit Committee. The results enable the elimination of defects identified at the companies reviewed and the ongoing enhancement of the ICS in the group.

Overall, the ICS aims to ensure the early identification, assessment, and management of those risks and opportunities that could materially influence the company's ability to achieve its strategic, operating, financial, and compliance-related objectives.

Risks

Legal risks

Legal risks are not quantified in detail since disclosing the specific probability of occurrence could have a material effect on the group's position in current litigation or other legal disputes.

Dörries Scharmann AG insolvency proceedings

An action brought by the insolvency administrator of Dörries Scharmann AG against GEA Group Aktiengesellschaft is pending before the Higher Regional Appeal Court of Düsseldorf. The former Metallgesellschaft AG, the legal predecessor to GEA Group Aktiengesellschaft, held an interest in Schiess AG, which later became Dörries Scharmann AG. On the basis of that interest, the insolvency administrator has asserted various claims under company law, in particular for equity substitution, amounting to approximately EUR 18 million plus interest in the first instance. The District Court of Düsseldorf threw out the initial action brought by the insolvency administrator, who is now appealing that judgment. GEA Group Aktiengesellschaft considers the claims that have been asserted to be unfounded.

General

Further claims or official investigations have been or may be instituted against GEA companies as a result of earlier business disposals and operating activities.

Adequate provisions have been recognised for all risks arising from both the legal disputes described above and other legal disputes being pursued by GEA in the course of its ordinary operating activities. However, the outcome of these proceedings cannot be predicted with any degree of certainty. It is therefore possible that the conclusion of the proceedings may result in income or expenses if the amounts that have been set aside for them are higher or lower than required.

Performance risks

The performance risks presented below can take different forms. The elements of the GEA risk management system are designed to help identify emerging risks before they materialize, so that appropriate measures can be implemented on a case-by-case basis to avoid negative effects on the group's financial position and results of operations. As a rule, potential business performance risks are minimized by avoiding significant dependencies and ensuring a balanced mix of fixed and flexible capacities.

GEA's sales markets have a diverse product and customer structure. This diversification moderates the impact on total demand of fluctuations in demand in specific submarkets. However, the food industry is the main focus of the business. A significant decline in demand for food and beverages would have a material impact on GEA's financial position and results of operations. GEA considers the probability of a global decline in demand to be low. This risk is rated as medium overall.

A significant proportion of GEA's business consists of projects that depend on the financing options of GEA's customers. A general decline in demand, shifts in currency parities, or a credit squeeze could make it more difficult to implement such projects. For the same reason, existing orders could be deferred or even canceled. If such risks were to occur on a global level, they would have a material impact on GEA's financial position and results of operations. The probability of such risks occurring globally is considered to be low. This risk is classified as medium overall due to GEA's diversified positioning in particular.

Country-specific conflict situations that could give rise to risks for the group are continually observed as part of risk management. However, the potential risks arising from such situations are difficult to quantify. However, no material impact on the group's results of operations is anticipated. What is more, elections in key sales markets can significantly affect a future political climate and thus negatively impact GEA's business operations. This risk is rated as medium overall.

On the sales side, future prices will depend to a considerable extent on general economic trends. Any fall in capacity utilization in the industry could also have a significant negative impact on price levels and therefore on the financial position and results of operations of GEA. Thanks to the group's regional and industrial diversification, the probability of such a risk is considered to be low. This issue is rated as a medium risk overall.

GEA utilizes a number of materials, such as stainless steel, especially as part of processed products. Purchase prices for these metals may fluctuate significantly depending on market conditions. Long-term supply agreements are entered into with selected suppliers in order to lock in the procurement prices used as the basis for costing orders. However, the potential risks arising from such situations are difficult to quantify. With respect to procurement, current expectations are that prices for key materials will not increase significantly. The risk is rated as medium overall.

Long-term engineering orders are a significant element of GEA's business. Some of these contracts entail particular risks, as they involve assuming a significant portion of the risk associated with the project's completion. The high percentage of innovative products in the GEA range can also harbor technological risk. This is particularly the case with the complex solutions, plant and equipment produced by the Business Area Solutions which, on account of their size and/or customized design, cannot always be fully tested prior to rollout. In addition, they may provide for warranty obligations that remain in force for several years after the project's acceptance. Technical problems, quality problems at subcontractors, and missed deadlines may lead to cost overruns. There is therefore an extensive risk management system in place at group management and business area level to closely monitor order-related risks. This comes into play before binding quotations are submitted.

Adequate provisions have been recognised for all foreseeable risks in this area. This could give rise to both risks and opportunities in relation to the financial position and results of operations. As a whole, these issues are rated as a medium risk.

GEA's business processes are highly dependent on information technology. The failure or malfunction of critical systems can give rise to risks relating to confidentiality, availability, and integrity, and key business processes could be compromised. GEA protects its IT systems against unauthorized access to the extent that this is economically feasible. The relevant security systems are updated on an ongoing basis. This issue is classified as a medium risk overall.

On March 29, 2017, the UK government formally triggered Article 50 of the Treaty of Lisbon and notified the European Council that the UK intended to leave the European Union (EU). If a withdrawal agreement is approved, then the United Kingdom and the EU will need – during a two-year transitional period that can be extended – to reach agreement on the British exit, or Brexit, from the EU as well as define future relations between the United Kingdom and the EU. There is currently considerable uncertainty about the withdrawal process, its time frame and the outcome of negotiations on future relations between the United Kingdom and the EU. As a consequence, there is likewise great uncertainty with regard to the period of time during which current EU legislation of Member States will continue to apply to the United Kingdom, and which laws will remain valid for the United Kingdom after its withdrawal. Following the negotiations between the United Kingdom and the EU, the United Kingdom's tax status may change, and this could affect GEA. It is not currently possible, however, to determine whether or not the UK's tax status will change – and if so, how and when. At the present time, we do not foresee any specific substantial increase in taxes due to the exit process, since existing bilateral tax treaties (such as double taxation treaties) are expected to remain in place and there have been no changes to taxation policies in the United Kingdom. The UK's exit could, however, lead to significant changes in legal formalities. Corresponding risks could arise for GEA as well, depending on the ultimate structure of Brexit, but the company has been working on appropriate countermeasures. Inventories are being increased to mitigate the effects of delays in customs clearance, for example, and IT systems are being adapted to meet the new requirements. From an operational perspective, it is uncertain how UK customers will behave. It is particularly unclear just how much sales revenue could decline in the United Kingdom and how costs could increase for exporting goods to British customers. At present, the group‘s activities between the United Kingdom and the EU, which are relevant to Brexit, are of minor importance.

The ongoing trade dispute between China, the United States and the European Union affects the most important markets for European suppliers. Only a few of GEA's product categories are affected by additional customs duties, thus the financial effects of additional duties have not impaired reciprocal trade to date. A further escalation of the trade dispute could have financial effects on European industry and Chinese production sites.

Furthermore, macroeconomic trends are deemed to pose a risk to the Company. If a downturn in the economy leads to a reduction in order intake to below the level of the previous fiscal year, this could have a negative impact on earnings due to capacity underutilization and capacity adjustment measures. Thanks to the group's regional and industry diversification, and the fact that it is structured for flexibility, the probability of this significant risk occurring is considered to be low. This issue is classified as a medium risk overall.

The sale of the GEA Heat Exchangers segment resulted in risks in the form of financial obligations towards the purchaser. These relate to contractual warranties and indemnifications, as well as risk sharing for major projects. This issue is assessed as a medium risk overall, with a low probability of occurrence.

Dedicated and qualified employees are a critical success factor for GEA. GEA has various staff policy measures in place to counter the risk that it will be unable to fill vacant positions adequately or that it will lose skilled employees. The measures aim to position GEA as an attractive employer and foster employees' long-term loyalty to the group (see page 91 ff.). The probability of this significant risk occurring is considered to be low. This issue is rated as a medium risk overall.

Acquisition and integration risks

Acquisitions and internal company reorganizations entail risks resulting from the integration of employees, processes, technologies, and products. It is possible, therefore, that the aims of the measures in question will not be achieved at all or within the timeframe envisaged. Moreover, such transactions may give rise to substantial administrative and other expenses. Portfolio measures may also result in the need for additional finance and may impact negatively on financing requirements and the financing structure. These risks are countered by a structured integration concept and close supervision by internal experts, as well as specific training measures. This issue is rated as a medium risk overall.

Environmental risk

Several of GEA's properties entail risks relating to historic environmental contamination and mining damage, primarily as a result of earlier business activities. These risks are countered through appropriate measures and supervision by internal and external specialists. Adequate provisions were recognised for the measures in 2018. This could give rise to both risks and opportunities in relation to the financial position and results of operations. Their probability is regarded as medium and their materiality as moderate.

Financial risks

Because it operates worldwide, GEA is continuously exposed to financial risks in the course of its ordinary activities. The Executive Board has implemented an effective set of guidelines with which to monitor and thus largely limit or hedge these financial risks throughout the group. The objectives with regard to protecting assets, eliminating security shortfalls and enhancing efficiency when identifying and analyzing risks are clearly defined, as are the relevant organizational structures, powers, and responsibilities. The guidelines are based on the principles of system security, separation of functions, transparency, and immediate documentation.

The material financial risks include currency, interest rate, commodity price, credit, and liquidity risk. Financial risk management aims to reduce this risk through the appropriate use of derivative and nonderivative hedging instruments. The group's financial risks are quantified in section 3 (see pages 164 ff.) of the notes to the consolidated financial statements.

Based on a gross assessment of the situation, the financial risks described there are generally considered to be significant for GEA in terms of scale and likelihood of occurrence. These risks are therefore rated as high overall.

Tax risks

GEA's Tax department has issued guidelines to ensure that fiscal risks are identified and minimized in good time. These risks are examined and evaluated regularly and systematically.

The applicable national tax legislation may affect the use of loss carryforwards and thus the recoverability of the deferred taxes recognised in the consolidated financial statements and current taxation. Furthermore, future changes to the ownership structure could significantly reduce or even render impossible the use of German loss carryforwards (section 8c of the Körperschaftsteuergesetz (KStG – German Corporate Income Tax Act)). The ability to use U.S. loss carryforwards could also be restricted in the case of certain changes to the ownership structure of GEA Group Aktiengesellschaft under IRC section 382 (limitation on net operating loss carryforwards following an ownership change).

Moreover, in Germany and abroad, there is considerable uncertainty regarding future changes to, and the application of, tax legislation as a result of tighter public sector finances, the resulting pressure for reform, and tangibly greater scrutiny by the tax authorities.

The tax risks presented could have a material effect on GEA's financial position and results of operations. The occurrence of further material negative effects is considered to be relatively unlikely.

Opportunities

Overall assessment of opportunities and changes compared with the previous year

GEA's end markets offer a variety of opportunities for positive business performance over the long term. A key task of the opportunity and risk management system is to systematically evaluate both internal and external information in order to identify opportunities at an early stage and appropriately assess the potential they offer (see page 116 f.). With this in mind, GEA is working on a fixed raft of measures aimed at transforming opportunities into specific economic successes.

The identified opportunities from operating activities and the additional positive impact on earnings that could result have not changed significantly as against the previous year.

Planning of the group's economic development is based on certain assumptions regarding the development of the performance parameters described below. If these parameters develop more positively than expected overall, this could have a corresponding effect on GEA's financial position and results of operations.

Performance opportunities

GEA is entering fiscal year 2019 with an unchanged high order backlog. Once again, GEA is expecting growth in the emerging markets of Brazil, Mexico, India and South-East Asia, in particular. In order to exploit this market potential, the company intends to expand its presence in these countries.

In the area of process technology for food and beverages, GEA is expecting the trend toward high-quality end products to continue, largely fueled by a burgeoning middle-class population. The expected rise in production and quality standards coupled with innovative process enhancements and new process developments are also set to nurture growth at GEA. In the areas of dairy processing, food and beverages, we are focusing our efforts on upgrade business. Here, we want to enable customers to continuously adapt their plant and equipment to the latest production requirements so that this process technology remains optimized and operates at top efficiency. We are also expecting demand for health foods to increase in line with burgeoning consumer demand for sustainable food.

In addition, increased demand for health food can be expected, which is accompanied by an increased consumer need for sustainable nutrition. Further opportunities are in the offing from diversification in the beverages industry, growing consumption of poultry, and interest in new sources of protein. GEA therefore expects opportunities to materialize from investments in poultry processing equipment. Investments in equipment for the manufacture of healthy beverage alternatives and specialized proteins will give rise to opportunities, especially in North America. In the pharmaceuticals segment, GEA is anticipating market growth in the liquid pharmaceutical and biopharmaceutical markets, in particular.

Through these measures, GEA expects to acquire a higher share of service business and further improve its market coverage in developed markets. Proactively tendering services for major projects in the form of comprehensive, tailor-made solutions in line with the “One Project, One Service Offer” (OPOSO) approach is intended to have a positive effect on service business. The acquisition of the Pavan Group will generate opportunities through additional business in the service sector – for example, in sales of spare parts or customer support. Ongoing digitalization will make it possible to develop new products and business models. GEA wants to deploy cloud-based machine learning to fulfill the technical needs of its customers in an effort to enhance efficiency and garner a competitive edge in its service business.

Thanks to the OneGEA structure, the group now boasts much flatter hierarchies and is also much closer to its customers thanks to the uniformity of its national organizations. The implementation of harmonized customer relationship management (CRM) will enable GEA to provide its customers with even better service and optimized group-wide transparency in sales and marketing processes. This more prominent positioning of the entire portfolio will promote greater growth and nurture customer loyalty. In turn, this will continue to further strengthen and expand GEA’s competitiveness going forward.

GEA’s in-depth understanding of its customers’ production processes is a cornerstone of its success. Increasing scarcity of resources means that ever more efficient use needs to be made of raw materials and energy. In addition, end consumers’ rising expectations entail the implementation of higher quality standards in production processes. Increased awareness of the environment means we must meet more stringent standards on CO_2 emissions and sustainability, for example. This creates additional opportunities for GEA: Research and development activities that target environmentally friendly technologies and production processes will enable us to develop and offer specialized solutions. For this reason, GEA intends to focus increasingly on holistic, energy-efficient process solutions.

By harmonizing our engineering platform in the field of software solutions and in our systems environment, we hope to engender even more efficient working practices when individual GEA sectors collaborate on inhouse projects. The standardization of engineering formats throughout GEA also harbors considerable potential when it comes to managing technical projects more efficiently.

GEA considers the probability of the performance opportunities exceeding the planning assumptions and therefore having a material positive impact on net assets, financial position, and results of operations to be low overall.

Report on Expected Developments

GEA's Report on Expected Developments takes into account relevant facts and events that were known at the date of preparation of these consolidated financial statements and that could influence the future development of its business.

Economic environment in 2019

As described in the section on the macroeconomic environment in the report on the economic position (see page 37), GEA, as a global technology company, considers global growth in gross domestic product (GDP) and the corresponding forecasts made by the IMF, the World Bank Group and the UN to be indicators in terms of its own performance.

World Economic Outlook IMF (January 2018)	Outlook (percentage change)	
	2019	2018
Worldwide	3.5%	3.7%
Advanced economies	2.0%	2.3%
Emerging market and developing economies	4.5%	4.6%

In the January update of its "World Economic Outlook", the IMF stated that it was expecting global expansion to weaken. Although the experts were still looking at global growth of 3.7 percent in 2018, the performance of certain economies, especially in Europe and Asia, had been weaker than predicted. As such, the IMF opted to downgrade its forecasts for this year and next, the global economy now predicted to grow by 3.5 percent in 2019 and 3.6 percent in 2020, i.e. 0.2 and 0.1 percentage points respectively lower than the October 2018 forecast. Indeed, the prognosis for global growth for the years 2019 and 2020 had already been reduced on one occasion last year. Trade conflicts and weak growth in some countries were still impacting on the global economy. What is more, the general financial climate had become more turbulent in recent months. Although talk of a global recession was still premature, the risk of a substantial global slowdown in growth had risen significantly.

According to United Nations estimates, global economic growth had now peaked (World Economic Situation and Prospects, January 2019). Although the global economy would continue to grow by around 3.0 percent in 2019 and 2020 respectively, the UN experts believed that a combination of political and economic challenges could well further inhibit growth. Burgeoning financial, social and ecological challenges could have a negative impact on the sustainability of global economic growth. In the USA, economic growth would probably continue to slow as the momentum from the 2018 economic stimulus programs waned. A slowdown in economic growth in China would also become increasingly apparent in the future. As far as the European Union was concerned, the United Nations did predict continuous growth of 2.0 percent – albeit with the risk of a downward trend and the potential for repercussions in the aftermath of a Brexit. A reduced appetite for multilateral initiatives, escalating trade disputes, financial instability due to increased debt, and climate change were additional global economic risks to be reckoned with.

In the most recent issue of its "Global Economic Prospects", the World Bank Group predicted that global economic growth was probably going to slump from 3.0 percent in 2018 to 2.9 percent in 2019. With the downside risks for the economic outlook further increasing, the World Bank's latest economic report of January 2019 carried the worrying sub-title "Darkening Skies". International trade and manufacturing activity had weakened, tension between trading nations remained high, and the financial markets in several major emerging economies were coming under severe pressure. Growth in the industrialized nations would, therefore, probably fall to 2.0 percent in 2019. Weaker demand from abroad, the rising cost of loans, and ongoing political uncertainties were casting a shadow over the outlook for the emerging and developing countries. As a result, at 4.2 percent, growth in these countries in 2019 was weaker than expected. At the same time, the economic and financial headwind facing the emerging and developing countries was even stiffening.

Economic environment for GEA

In spite of worldwide megatrends that continue to be positive, we assume that demand in GEA's sales markets during the current 2019 fiscal year will decline moderately owing to the deteriorating economic environment.

The United Nations believe that the world's population, which currently stands at more than 7.6 billion, is set to rise by more than 80 million people per year in the coming years (see World Population Prospects: The 2017 Revision). Since 2005, therefore, the world's population has grown by around a further 1 billion people, and by around 2 billion compared with 1993. The number of people on the globe is set to rise to between 8.4 and 8.7 billion by 2030. This means that, in future, significantly more food will have to be produced on more or less the same cultivation area. For this reason, the methods and production processes used must become much more efficient – which is why innovative process technology is needed.

At the same time, urbanization continues unabated. Whereas in 1950, only 30 percent of the world's population lived in urban areas, the figure had risen to 55 percent by 2018 (see 2018 Revision of World Urbanization Prospects). The number of people living in cities with more than a million inhabitants rose from 746 million in 1950 to 4.0 billion in 2016 (see The World's Cities in 2016). This means that more than half of the world's population now lives in urban areas. This figure is set to expand by a further 2.5 billion people by 2050, particularly in Asia and Africa. In addition, more and more foods must be preserved for longer and be easier to transport in order to secure the necessary supplies for metropolitan areas and to maintain world trade. Here, as well, only state-of-the-art technologies can provide the capacity needed to cope with rising demand.

What is more, as the middle class grows, so will the number of people who will be able to afford processed foods, beverages, and dairy products. This is equally true for pharmaceutical products, which must meet the needs of an increasingly health-conscious population.

Against the backdrop of the trends in the global economy and the food industry presented in this chapter, and the impact of the various megatrends on its direct sales markets, medium to long term GEA is expecting demand for high-quality foods to rise and, linked to this, investment in the food industry to remain stable. Additionally, GEA is anticipating sustained customer interest in process optimization for improving efficiency, productivity, energy usage, and plant availability, which its technologies are able to provide. In the short term, however, GEA expects its customers' willingness to invest to decline in 2019 as global economic growth tends to weaken in the current year.

With regard to commodity prices, the World Bank (see Commodity Markets Outlook, October 2018) expects the price of energy to stabilize in 2019 in the wake of an average predicted increase of some 33 percent in 2018. The prices for the remaining commodities, which increased by less than 2 percent in 2018, are also expected to stay at the current level. According to the World Bank, commodity price trends are exposed to political risks, particularly in the short term. It is, however, likely that the effect of any additional duties or sanctions will diminish in the medium term as producers and consumers develop new sales channels and export markets.

The group's enduring success is founded on a number of major global trends:

1. Continuous growth in the global population
2. Growing middle class
3. Growing demand for high-quality foods and beverages
4. Increasing demand for production methods that are efficient and conserve valuable resources.

The proportion of GEA's revenue accounted for by the food industry in 2019 is expected to remain at its current high level. From a regional perspective, too, GEA is not anticipating any significant change in the breakdown of revenue in 2019 as against the past fiscal year.

Growth in the customer industries

Based on its own latest estimates, external reports, and analyses conducted by industry associations, the following trends are expected for GEA's main customer industries:

Dairy Farming

The first half of 2018 saw global milk prices increase substantially as a result of a major contraction in milk production driven largely by a mixed dairy season in New Zealand. However, global milk prices did fall again in the second half of the year as growth in production stabilized again. However, with growth in consumption now outpacing productive expansion, we are predicting a slight recovery in milk prices in the first half of 2019.

The drought during the long, hot summer of 2018 not only led to a fall in milk yields from livestock, it also impacted on the availability of hay and silage leading to a rise in the cost of feed. Although state financial aid to farmers did offset some of the losses, and a recovery in milk prices is now in the offing, the propensity of agricultural enterprises to invest in the short term may well be impacted, especially in the first half of 2019.

In the mid to long term, GEA still sees the global milk market remaining on a stable footing, with the consumption of dairy products generally set to rise in the long term thanks to growth in the global middle-class population. That said, regional influences such as poor harvests due to bad weather can always trigger volatility around the globe, especially with regard to milk prices and, therefore, also to the willingness of farmers to make short-term investments.

Dairy Processing

Global demand for dairy products is set to rise further over the next few years, driven largely by the markets of Asia, Eastern Europe, the Middle East and Africa. This will manifest itself in a corresponding rise in exports, above all to Asia. In contrast, the consumption of dairy products in North America and Western Europe will remain stable. Dairies are increasingly concentrating on higher-margin products such as such as yogurt and curd cheese, butter, cheese and baby food, along with corresponding product innovations, in order to better offset the volatile milk prices. Further stronger focus on small and mid-sized investments is, therefore, to be anticipated.

Food

Global consumption of packaged foodstuffs is set to increase further on the back of growing demand from the emerging economies in whose burgeoning populations a rise in per-capita consumption has been identified, with global consumption of pasta, baked goods and cooking oils expected to lead the way. A change in consumer preferences is also driving growth, particularly in the developed markets, and this will boost demand for health-promoting and regional products.

Beverages

Global beverage consumption is probably set to grow faster over the next few years than in the recent past, driven by increased demand for non-alcoholic beverages. By comparison, demand for alcoholic beverages is set to grow at a slower pace. In regional terms, demand for beverages in the emerging economies is on the increase, while consumption in the developed markets remains stable. Together with an expanding global middle-class population, product innovations such as sports drinks, non-alcoholic beer and ready-to-drink coffee and tea products, which place a greater emphasis on health and functionality, are the key motors of growth. Stronger focus on small and mid-sized investments is, therefore, to be anticipated.

Pharma

Especially in the developed economies, the expansion of the global middle classes, together with an aging population are set to hike demand for drugs still further. The continuous rise in the number of drugs at various stages of clinical trials will inevitably lead to the emergence of new, patented medicinal products, with so-called biological drugs and drugs for combating rare diseases leading the way. Another factor to be considered in the future is patent expiry, which will lead to an increase in the manufacture of generic products. All told, therefore, we are predicting stable growth in investment outlay in the medium term for the pharmaceuticals segment, with the "pharmerging" markets of e.g. China, India, Indonesia, South Korea and Turkey posting corresponding increases.

Chemical

The rise in the world's population, ongoing urbanization, and the reclassification of rural land are set to fuel demand for special-purpose chemicals such as fertilizers. Additional growth can be expected to come from increasing demand for lithium-based products and biodegradable polymers. A further increase in investments is therefore to be expected, with growth driven largely by regional and mid-sized chemical companies rather than the major global groups. Asia, which now accounts for around a half of global chemical sales, will continue to post the strongest growth data.

Business outlook

This forecast is based on the above assumptions and takes into account, among other things, the assumption that there will be no significant slowdown in global economic growth. Potential acquisitions and divestments in 2019 have not been factored into the calculation. A definition of the key financial performance indicators can be found in the chapter "Control system" (see page 28 ff.).

With regard to the 2019 fiscal year, GEA is expecting

- revenue moderately below the previous year's level (EUR 4,828 million),
- an EBITDA before restructuring measures of between EUR 450 and 490 million (previous year: pro-forma figure incl. IFRS 16 effects from 2019: approx. EUR 535 million;),
- a ROCE of between 8.5 and 10.5 percent (previous year: pro-forma figure incl. IFRS 16 effects from 2019: approx. 11.5 percent).

The decline in the EBITDA before restructuring measures from the previous year's pro-forma figure including IFRS 16 effects is attributable in particular to the Business Area Solutions and the Global Corporate Center.

The table below is a reconciliation of operating EBITDA (as per the ad-hoc disclosure of February 6, 2019) to EBITDA before restructuring measures in accordance with the current outlook:

Reconciliation of operating EBITDA to EBITDA before restructuring measures (in EUR million)	2019	2018
Outlook 2019: operating EBITDA (ad-hoc disclosure of February 6, 2019)	**440 – 480**	**518**
plus effects from the initial application of IFRS 16 ("Leases")	+59	+59
minus strategic projects that have not yet been taken into account (not including restructuring projects)	–49	–42
Outlook 2019: EBITDA before restructuring measures	**450 – 490**	**535**

The initial application of IFRS 16 (“Leases”) will lead to a significant increase of approximately EUR 186 million in capital employed. In addition to leases that will continue beyond the initial application on January 1, 2019, the estimate includes leases that have already been scheduled to begin in fiscal year 2019. In this context, EBIT will increase only slightly by EUR 3 million. In terms of ROCE, we therefore expect a negative effect from the initial application of IFRS 16 when this indicator is considered in isolation. Detailed information on IFRS 16 can be found in the notes to the consolidated financial statements (see page 142 ff.).

Further expectations

Portfolio

The strategy of acquiring companies to open up new markets for GEA or specifically expand GEA’s product portfolio in existing markets remains in place. This will enable us to provide our customers with an ever-broader range of services from a single source. In addition, we subject our current portfolio of products and services to regular reviews. GEA will make no noteworthy acquisitions in 2019.

Dividend

The Executive Board and Supervisory Board will propose to the Annual General Meeting an unchanged dividend of EUR 0.85 per share for 2018. This means that the total dividend payout will again amount to some EUR 153.4 million based on the number of dividend-bearing shares in circulation as of March 12, 2019. This dividend payment would exceed our declared target of distributing between 40 and 50 percent of net income to shareholders.

Summary

All told, GEA is expecting consolidated revenues to decline against a deteriorating economic backdrop. Non-recurring other operating income is set to fall significantly compared with 2018. At the same time, payroll and IT infrastructure costs are set to rise. The challenging market environment will make it increasingly difficult to push through price increases. Together with the volume effect, these trends will conspire to produce a drop in earnings in the current fiscal year. The return on capital will also be lower. With regard to the distribution ratio, our objective is still to distribute between 40 and 50 percent of net income to our shareholders.

Düsseldorf, March 12, 2019

Stefan Klebert | Steffen Bersch | Niels Erik Olsen | Dr. Helmut Schmale | Martine Snels

CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Balance Sheet

as of December 31, 2018

Assets (EUR thousand)	Section	12/31/2018	12/31/2017[1]
Property, plant and equipment	5.1	518,706	504,873
Investment property	5.2	2,354	2,415
Goodwill	5.3	1,755,290	1,734,406
Other intangible assets	5.4	482,672	528,152
Equity-accounted investments	5.5	11,883	14,414
Other non-current financial assets	5.6	38,283	38,723
Deferred taxes	7.7	306,082	411,290
Non-current assets		**3,115,270**	**3,234,273**
Inventories	5.7	741,344	661,364
Contract assets[2]	5.9	462,787	–
Trade receivables	5.8	923,884	1,390,747
Income tax receivables	5.10	40,214	30,738
Other current financial assets	5.6	183,968	180,642
Cash and cash equivalents	5.11	247,900	250,507
Assets held for sale	5.12	3,700	–
Current assets		**2,603,797**	**2,513,998**
Total assets		**5,719,067**	**5,748,271**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) GEA applied IFRS 15 for the first time as of January 1, 2018. For more details please refer to section „Reporting Principles" in the Notes to the Consolidated Financial Statements of the Annual Report 2018.

Equity and liabilities (EUR thousand)	Section	12/31/2018	12/31/2017[1]
Subscribed capital[2]		520,376	489,372
Capital reserve		1,217,861	1,217,861
Retained earnings		647,950	756,412
Accumulated other comprehensive income		62,681	38,247
Equity attributable to shareholders of GEA Group AG		**2,448,868**	**2,501,892**
Non-controlling interests		568	1,191
Equity	6.1	**2,449,436**	**2,503,083**
Non-current provisions	6.2	157,235	153,132
Non-current employee benefit obligations	6.3	791,262	794,716
Non-current financial liabilities	6.4	305,246	6,008
Non-current contract liabilities[3]	6.6	364	–
Other non-current liabilities	6.8	23,744	36,301
Deferred taxes	7.7	103,008	168,689
Non-current liabilities		**1,380,859**	**1,158,846**
Current provisions	6.2	160,770	127,920
Current employee benefit obligations	6.3	164,245	147,071
Current financial liabilities	6.4	28,472	256,809
Trade payables	6.5	723,334	736,906
Current contract liabilities[3]	6.6	622,948	–
Income tax liabilities	6.7	31,152	28,489
Other current liabilities	6.8	157,851	789,147
Current liabilities		**1,888,772**	**2,086,342**
Total equity and liabilities		**5,719,067**	**5,748,271**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) As of 12/31/2017 issued capital
3) GEA applied IFRS 15 for the first time as of January 1, 2018. For more details please refer to section „Reporting Principles" in the Notes to the Consolidated Financial Statements of the Annual Report 2018.

Consolidated Income Statement

for the period January 1 – December 31, 2018

(EUR thousand)	Section	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017[1]
Revenue	7.1	4,828,210	4,604,514
Cost of sales		3,421,713	3,171,367
Gross margin		**1,406,497**	**1,433,147**
Selling expenses		556,636	518,786
Research and development expenses		79,914	65,259
General and administrative expenses		497,641	503,359
Other income	7.2	336,395	379,618
Other expenses	7.3	332,742	346,557
Net result from impairment and reversal of impairment on financial assets and contract assets[2]		–17,235	–
Share of profit or loss of equity-accounted investments		1,744	1,765
Other financial income	7.5	1,860	803
Other financial expenses	7.6	2,547	1,176
Earnings before interest and tax (EBIT)		**259,781**	**380,196**
Interest income	7.5	4,658	7,897
Interest expense	7.6	33,747	30,127
Profit before tax from continuing operations		**230,692**	**357,966**
Income taxes	7.7	115,541	130,409
thereof current taxes		64,203	64,347
thereof deferred taxes		51,338	66,062
Profit after tax from continuing operations		**115,151**	**227,557**
Profit or loss after tax from discontinued operations	7.8	**–1,618**	**15,246**
Profit for the period		**113,533**	**242,803**
thereof attributable to shareholders of GEA Group AG		113,435	242,763
thereof attributable to non-controlling interests		98	40

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) presentated separately due to initial application of IFRS 9

(EUR)	Section	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017*
Basic and diluted earnings per share from continuing operations		0.64	1.22
Basic and diluted earnings per share from discontinued operations		–0.01	0.08
Basic and diluted earnings per share	7.9	**0.63**	**1.30**
Weighted average number of ordinary shares used to calculate basic and diluted earnings per share (million)		**180.5**	**186.3**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Consolidated Statement of Comprehensive Income

for the period January 1 – December 31, 2018

(EUR thousand)	Section	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017*
Profit for the period		**113,533**	**242,803**
Items, that will not be reclassified to profit or loss in the future:			
Actuarial gains/losses on pension and other post-employment benefit obligations	6.3.1	–13,045	–4,257
thereof changes in actuarial gains and losses		–17,001	955
thereof tax effect		3,956	–5,212
Items, that will be reclassified subsequently to profit or loss when specific conditions are met:			
Exchange differences on translating foreign operations		23,932	–151,213
thereof changes in unrealized gains and losses		23,932	–151,213
Result from fair value measurement of financial instruments	6.9	–	–35
thereof changes in unrealized gains and losses		–	–53
thereof tax effect		–	18
Result of cash flow hedges		–	518
thereof changes in unrealized gains and losses		–	740
thereof tax effect		–	–222
Other comprehensive income		**10,887**	**–154,987**
Total comprehensive income		**124,420**	**87,816**
thereof attributable to GEA Group AG shareholders		124,322	87,776
thereof attributable to non-controlling interests		98	40

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Consolidated Cash Flow Statement

for the period January 1 – December 31, 2018

(EUR thousand)	Section	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017[1]
Profit for the period		113,533	242,803
plus income taxes		115,541	130,409
minus profit or loss after tax from discontinued operations		1,618	–15,246
Profit before tax from continuing operations		230,692	357,966
Net interest income		29,089	22,230
Earnings before interest and tax (EBIT)		**259,781**	**380,196**
Depreciation, amortization, impairment losses, and reversal of impairment losses on non-current assets		171,416	118,141
Other non-cash income and expenses		28,277	11,114
Employee benefit obligations from defined benefit pension plans		–41,472	–41,294
Change in provisions and other employee benefit obligations		1,320	–44,046
Losses and disposal of non-current assets		–4,010	–16,776
Change in inventories including unbilled construction contracts[2]		–79,463	–47,715
Change in trade receivables		–9,148	–24,616
Change in trade payables		65	113,303
Change in other operating assets and liabilities		12,866	–106,934
Tax payments		–71,643	–71,841
Cash flow from operating activities of continued operations		**267,989**	**269,532**
Cash flow from operating activities of discontinued operations		–5,333	–7,535
Cash flow from operating activities		**262,656**	**261,997**
Proceeds from disposal of non-current assets		9,575	24,373
Payments to acquire property, plant and equipment, and intangible assets		–132,067	–118,537
Payments from non-current financial assets		–271	–86
Interest income		2,958	5,226
Dividend income		6,020	2,969
Payments to acquire subsidiaries and other businesses	4.0	–17,401	–234,401
Proceeds from sale of subsidiaries and other businesses		–15,165	941
Cash flow from investing activities of continued operations		**–146,351**	**–319,515**

(EUR thousand)	Section	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017[1]
Cash flow from investing activities of discontinued operations		–536	–9,196
Cash flow from investing activities		**–146,887**	**–328,711**
Dividend payments		–153,418	–152,812
Payments for acquisition of treasury shares		–24,022	–429,048
Payments from finance leases		–4,277	–3,992
Proceeds from finance loans		319,126	245,683
Proceeds from bond issue	6.4	249,500	–
Repayments of borrower's note loans	6.4	–	–90,000
Repayments of finance loans		–492,015	–152,840
Interest payments		–7,775	–15,188
Cash flow from financing activities of continued operations		**–112,881**	**–598,197**
Cash flow from financing activities of discontinued operations		–109	–76
Cash flow from financing activities		**–112,990**	**–598,273**
Effect of exchange rate changes on cash and cash equivalents		–4,797	–13,524
Change in unrestricted cash and cash equivalents		**–2,018**	**–678,511**
Unrestricted cash and cash equivalents at beginning of period		249,493	928,004
Unrestricted cash and cash equivalents at end of period	5.11	247,475	249,493
Restricted cash and cash equivalents	5.11	425	1,014
Cash and cash equivalents total		**247,900**	**250,507**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Including advanced payments received

Consolidated Statement of Changes in Equity

as of December 31, 2018

				Accumulated other comprehensive income					
(EUR thousand)	Subscribed capital[1]	Capital reserves	Retained earnings[2]	Translation of foreign operations	Result from fair value measurement of financial instruments	Result of cash flow hedges	**Equity attributable to shareholders of GEA Group AG**	Non-controlling interests	**Total**
Balance at Jan. 1, 2017 (192,495,476 shares)	**520,376**	**1,217,861**	**1,067,812**	**189,962**	**–467**	**–518**	**2,995,026**	**578**	**2,995,604**
Profit for the period	–	–	242,763	–	–	–	**242,763**	40	**242,803**
Other comprehensive income	–	–	–4,257	–151,213	–35	518	**–154,987**	–	**–154,987**
Total comprehensive income	–	–	238,506	–151,213	–35	518	**87,776**	40	**87,816**
Purchase of treasury shares	–31,004	–	–400,193	–	–	–	**–431,197**	–	**–431,197**
Redemption of shares	–	–	–	–	–	–	**–**	–	**–**
Dividend payment by GEA Group Aktiengesellschaft	–	–	–152,812	–	–	–	**–152,812**	–	**–152,812**
Changes in combined Group	–	–	3,099	–	–	–	**3,099**	–	**3,099**
Change in non-controlling interests	–	–	–	–	–	–	**–**	573	**573**
Balance at Dec. 31, 2017 (181,026,744 shares)	**489,372**	**1,217,861**	**756,412**	**38,749**	**–502**	**–**	**2,501,892**	**1,191**	**2,503,083**
Adjustments IFRS 9	–	–	–1,032	–	502	–	**–530**	–	**–530**
Adjustments IFRS 15	–	–	–2,842	–	–	–	**–2,842**	–	**–2,842**
Adjustment Hyperinflation[3]	–	–	77	–	–	–	**77**	–	**77**
Adjusted balance at Jan. 1,	**489,372**	**1,217,861**	**752,615**	**38,749**	**–**	**–**	**2,498,597**	**1,191**	**2,499,788**
Profit for the period	–	–	113,435	–	–	–	**113,435**	98	**113,533**
Other comprehensive income	–	–	–13,045	23,932	–	–	**10,887**	–	**10,887**
Total comprehensive income	–	–	100,390	23,932	–	–	**124,322**	98	**124,420**
Purchase of treasury shares	–1,445	–	–19,508	–	–	–	**–20,953**	–	**–20,953**
Redemption of shares	32,449	–	–32,449	–	–	–	**–**	–	**–**
Dividend payment by GEA Group Aktiengesellschaft	–	–	–153,418	–	–	–	**–153,418**	–	**–153,418**
Adjustment Hyperinflation[3]	–	–	320	–	–	–	**320**	–	**320**
Changes in combined Group	–	–	–	–	–	–	**–**	–	**–**
Change in non-controlling interests	–	–	–	–	–	–	**–**	–721	**–721**
Balance at Dec. 31, 2018 (180,492,172 shares)	**520,376**	**1,217,861**	**647,950**	**62,681**	**–**	**–**	**2,448,868**	**568**	**2,449,436**

1) As of 12/31/2017 and 01/01/2018 issued capital
2) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
3) Effect of accounting for Hyperinflation in Argentina according to IAS 29

Notes to the Consolidated Financial Statements

1. Reporting Principles

1.1 Basis of presentation

The accompanying consolidated financial statements include GEA Group Aktiengesellschaft, Düsseldorf/Germany (entry HRB 65691 in the commercial register of the Local Court of Düsseldorf) and its subsidiaries, which together make up the GEA Group ("GEA" in short). GEA Group Aktiengesellschaft is a listed corporation. The consolidated financial statements were prepared in accordance with the International Financial Reporting Standards (IFRSs) and related Interpretations issued by the International Accounting Standards Board (IASB), as adopted by the EU in compliance with Regulation (EC) No. 1606/2002 of the European Parliament and the Council on the application of international accounting standards. The disclosures pursuant to § 315 e HGB are included in the notes to the consolidated financial statements.

The accompanying consolidated financial statements have been prepared in euros (EUR). All amounts, including the prior-year figures, are presented in thousands of euros (EUR thousand) except for the segment reporting. All amounts have been rounded using standard rounding rules. Adding together individual amounts may therefore result in differences in the order of EUR 1 thousand in certain cases.

To improve the clarity of presentation, various items in the consolidated balance sheet and income statement have been aggregated and are explained accordingly in the notes. Assets and liabilities are classified into current and non-current items. The income statement is prepared using the cost of sales method.

The cash flow statement is prepared using the indirect method for cash flow from operating activities and the direct method for cash flow from investing and financing activities.

The Executive Board of GEA Group Aktiengesellschaft prepared these consolidated financial statements on March 12, 2019 and released them for publication.

1.2 Accounting pronouncements applied for the first time

The accounting standards presented below were applied by GEA for the first time in the year under review:

IFRS 9 "Financial Instruments" – issued by the IASB in July 2014

In July 2014, the IASB issued the fourth and final version of IFRS 9 "Financial Instruments". Initially applicable as of January 1, 2018, IFRS 9 sets out the requirements governing the recognition and measurement of financial assets and liabilities. IAS 39 "Financial Instruments: Recognition and Measurement" will be superseded by IFRS 9, essentially with effect from the time of initial application.

As far as GEA is concerned, the latest IFRS 9 gives rise to new provisions on the classification of financial assets which, in some cases, can result in changes in presentation, as well as to new provisions on impairment based on future expected losses. The changes to the accounting policies are explained in chapter 2.1.

In response to the introduction of IFRS 9, GEA has implemented consequential amendments to IAS 1 "Presentation of Financial Statements", according to which the result of impairment losses and reversals of such losses affecting trade receivables and contract assets has to be disclosed in a separate line item of the consolidated income statement. Prior to this, GEA reported such impairments under other expenses, while reversals were disclosed in other income. For reasons of materiality – and identical to the mode of presentation under IAS 39 – impairments on other financial assets are reported in the financial result rather than separately in the consolidated income statement.

In accordance with the transitional provisions under IFRS 9, GEA applied the “modified retrospective” method and elected not to restate its prior-period figures upon initial application. Differences in the carrying amounts of the financial assets and liabilities arising from the initial application of IFRS 9 are presented in retained earnings as of January 1, 2018. The effect of initial application on the opening balance of retained earnings and on accumulated other comprehensive income as of January 1, 2018 is as follows:

(EUR thousand)	Retained earnings	Accumulated other comprehensive income / Result from fair value measurment of financial instruments
Increase of expected credit losses from trade receivables and other financial assets	–561	–
Increase of expected credit losses from contract assets	–148	–
Reclassification of financial instruments „available-for-sale“ to „measured at fair value through profit or loss“	–722	722
Deferred tax	399	-220
Adjustemnt IFRS 9 as of January 1, 2018	**–1,032**	**502**

In addition, GEA applied consequential amendments relating to IFRS 7 “Financial Instruments: Disclosures” to the disclosures in its notes to the consolidated financial statements for fiscal year 2018.

Classification and measurement

IFRS 9 provides three categories for classifying and measuring financial assets: at amortised cost, at fair value through other comprehensive income, and at fair value through profit or loss. Classification is based on the company’s business model for managing financial assets and on the assets’ contractual cash flow characteristics. Hybrid contracts where the host contract is a financial asset pursuant to IFRS 9 no longer have to be separated. Instead, the hybrid financial instrument as a whole is assessed to determine its classification category.

For the most part, IFRS 9 retains the existing requirements of IAS 39 with regard to the classification of financial liabilities and, for this reason, has no material effect on the corresponding accounting methods. The initial application of IFRS 9 has no significant effect on the treatment of derivative financial instruments, either.

On January 1, 2018, GEA ran an analysis to determine which business models were applicable to the financial assets it holds, and then assigned these to the corresponding measurement categories according to IFRS 9. The table below shows a breakdown of financial instruments according to the original measurement categories under IAS 39 and a breakdown of the same instruments under IFRS 9, together with the corresponding carrying amounts at the time of initial application.

(EUR thousand)	IAS 39 measurement category	IFRS 9 measurement category	Carrying amount in accordance with IAS 39 as of 12/31/2017	Carrying amount in accordance with IFRS 9 as of 01/01/2018
Trade receivables*	Loans and receivables	Measured at amortised cost	833,697	833,210
Trade receivables	Loans and receivables	Measured at fair value recognised in other comprehensive income	91,807	91,733
Cash and cash equivalents	Loans and receivables	Measured at amortised cost	250,507	250,507
Other financial assets	Loans and receivables	Measured at amortised cost	93,783	93,783
Other financial assets	Available-for-sale	Measured at fair value recognised in other comprehensive income	295	295
Other financial assets	Available-for-sale	Measured at fair value through profit or loss	8,525	8,525
Other financial assets	Measured at fair value through profit or loss	Measured at fair value through profit or loss	3,952	3,952
Total financial assets			**1,282,566**	**1,282,005**
Trade payables	Measured at amortised cost	Measured at amortised cost	736,906	736,906
Financial liabilities	Measured at amortised cost	Measured at amortised cost	245,149	245,149
Financial liabilities	Measured at fair value through profit or loss	Measured at fair value through profit or loss	11,107	11,107
Other liabilities*	Measured at amortised cost	Measured at amortised cost	111,646	111,646
Other liabilities	Measured at fair value through profit or loss	Measured at fair value through profit or loss	594	594
Total financial liabilities			**1,105,402**	**1,105,402**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Due to existing factoring arrangements, certain trade receivables used to be classified and measured “at fair value through other comprehensive income” at the time of initial application. Under IAS 39, assets such as these are classified as “loans and receivables” and measured at amortised cost.

A receivable from the former raw materials activities of Metallgesellschaft AG, which is part of GEA’s financial assets, had to be classified as “measured at fair value through profit or loss” due to the nature of its contractual cash flows. Under IAS 39, this financial asset would be classified as “available-for-sale” and measured at fair value through other comprehensive income”. The losses recognised in accumulated other comprehensive income were reclassified to retained earnings as of January 1, 2018.

In the case of equity instruments not held for sale, GEA decided to recognize changes in fair value in other comprehensive income. Under IAS 39, financial instruments such as these would be classified as “available-for-sale”.

The table below shows how the classification and measurement of financial assets has been affected by the initial application of IFRS 9.

(EUR thousand)	Carrying amount in accordance with IAS 39 as of 12/31/2017	Reclassification	Remeasurement	Carrying amount in accordance with IFRS 9 as of 01/01/2018
Financial assets measured at amortised cost				
Loans and receivables (IAS 39)*	1,269,794	–91,807	–487	1,177,500
thereof trade receivables*	925,504	–91,807	–487	833,210
thereof cash and cash equivalents	250,507	–	–	250,507
thereof other financial assets	93,783	–	–	93,783
Available-for-sale (IAS 39)	295	–295	–	–
thereof other financial assets	295	–295	–	–
Total financial assets measured at amortised cost	**1,270,089**	**–92,102**	**–487**	**1,177,500**
Financial assets measured at fair value recognised in other comprehensive income				
Loans and receivables (IAS 39)	–	91,807	–74	91,733
thereof trade receivables	–	91,807	–74	91,733
Available-for-sale (IAS 39)	8,525	–8,230	–	295
thereof other financial assets	8,525	–8,230	–	295
Total financial assets measured at fair value recognised in other comprehensive income	**8,525**	**83,577**	**–74**	**92,028**
Financial assets measured at fair value through profit or loss				
Available-for-sale (IAS 39)	–	8,525	–	8,525
thereof other financial assets	–	8,525	–	8,525
Measured at fair value through profit or loss (IAS 39)	3,952	–	–	3,952
thereof other financial assets	3,952	–	–	3,952
Total financial assets measured at fair value through profit or loss	**3,952**	**8,525**	**–**	**12,477**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The remeasurement of financial assets was a result of the application of the new impairment model under IFRS 9.

New impairment model

Under the new model for determining impairment losses, not only incurred losses but also expected credit losses are recognised. The new impairment model is applicable to financial assets measured at amortised cost, to contract assets, and to debt instruments measured at fair value through other comprehensive income. Equity investments are not subject to the impairment model under IFRS 9.

The table below reconciles the impairments on financial assets and contract assets as of December 31, 2017, with the opening balance of the impairments under IFRS 9 as of January 1, 2018.

(EUR thousand)	Impairment losses in accordance with IAS 39 as of 12/31/2017	Retrospective adjustment of retained earnings over the opening balance	Impairment losses in accordance with IFRS 9 as of 01/01/2018
Financial assets measured at amortised cost*	54,366	487	54,853
Financial assets measured at fair value through other comprehensive income	8,514	74	8,588
Contract assets	–	148	148
Total	**62,880**	**709**	**63,589**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The implications for retained earnings from the initial application of the new impairment model are presented in the text segment at the top.

Cash and cash equivalents, along with other financial assets that are not measured at fair value through profit and loss are also subject to the impairment model applicable under IFRS 9. The impairment requirement identified at initial application is, however, negligible.

Please see chapter 3 for additional information on calculating the allowance.

IFRS 15 "Revenue from Contracts with Customers" – issued by the IASB in May 2014

GEA applied IFRS 15 and its clarifications for the first time on January 1, 2018. The new standard pools the existing revenue recognition requirements pursuant to IAS 18 "Revenue" and IAS 11 "Construction Contracts", and establishes a single model applicable to all contracts with customers for the provision of services and the sale of goods. On this basis, the amount of revenue is determined according to the consideration paid, and the income attributable to the service is realized at the point when control is transferred to the customer.

The standard is being introduced in line with the "modified retrospective" method, according to which cumulative adjustments from the initial application of IFRS 15 amounting to EUR 2,842 thousand (after tax) will be reported as a reduction in the opening balance of the retained earnings. In this context, GEA availed itself of the practical expedients provided, applying IFRS 15 only to contracts that have yet to be fulfilled at the time of initial application. In accordance with the method applied on transition, GEA has elected not to restate its prior-period figures, i.e. these figures will be presented in accordance with the previous regulations under IAS 18, IAS 11 and corresponding interpretations thereof.

Aside from the effect described above, application of the new standard will have the following implications for GEA:

- According to IFRS 15, transfer of control is the key criterion for revenue recognition. The accounting treatment differs depending on whether control passes at a specific point in time or over time.

  Business Area Solutions: Here, GEA generates revenue largely on the basis of construction contracts with just one performance obligation. Revenues from what are essentially customer-specific project contracts will continue to be recognised "over time" rather than at a point in time, as GEA will generally be creating an asset that has no alternative use and will be legally entitled to "remuneration plus margin" for good/services already provided. In the case of the generally immaterial customer-specific production orders for which revenue recognition "over time" pursuant to IFRS 15 is no longer admissible, revenue recognition will be deferred at the time of acceptance.
  As of January 1, 2018, the change led to a fall in retained earnings of EUR 397 thousand, taking deferred taxes into account. As of January 1, 2018, the change also resulted in a fall in trade receivables to the benefit of inventory assets. As regards the Business Area Solutions, the application of IFRS 15 produced a rise in sales revenue in the consolidated financial statements in 2018 of EUR 2,202 thousand compared to IAS 11.

  Business Area Equipment: Here, GEA generates revenue principally from the sale of standardized, modularized machines and accessories, which generally – as in the past – occur at a specific point in time, i.e. when the goods are delivered.
  Apart from the sale of standardized, modularized machines and accessories, this BA generates income on a lesser scale from construction contracts with just one performance obligation. Revenues from these customer contracts will continue to be recognised "over time" rather than at a point in time insofar as GEA is creating an asset that has no alternative use and is legally entitled to "remuneration plus margin" for good/services already provided. As of January 1, 2018, the change led to a fall in retained earnings of EUR 2,376 thousand, taking deferred taxes into account. As of January 1, 2018, the change also resulted in a fall of trade receivables to the benefit of inventory assets. As regards the Business Area Equipment, the application of IFRS 15 produced a rise in sales revenue compared to IAS 11 of EUR 15,342 thousand in the consolidated financial statements.
- Under IFRS 15, revenue recognition is no longer dependent solely on the timing of the transfer of the principal risks and rewards to the customer, but also on the point at which control is transferred. Depending on the terms and conditions of supply, transfer of control sometimes occurs after the transfer of the principal risks and rewards. This deferred realization of revenue is reflected in the consolidated financial statements as a EUR 611 thousand decrease in sales revenues.

- IFRS 15 stipulates that costs arising from the acquisition of customer-specific project contracts have to be capitalized separately and must be amortised as scheduled over the lease term. Such costs will, therefore, not be taken into account when measuring the progress of a contract (stage of completion). They are reported under inventory assets. All told, this change will not materially affect how the company's net assets and results of operations are presented.
- Under IFRS 15 regulations on balance sheet presentation, advance payments received must also be included when determining the contract balance on a contract-to-contract basis. Under IAS 11 and IAS 18, advance payments received are disclosed separately on the balance sheet. The particular implications for GEA in the consolidated financial statements in this regard concern the need to include advance payments on construction contracts in the amount of EUR 119,070 thousand, which, in accordance with IAS 11, were not included in the account balances of construction contracts.
- IFRS 15 explicitly requires that due but as yet unreceived advance payments from customers are carried on the balance sheet, and this will result in an increase in total assets and liabilities. All told, however, this change will not have a material effect on how the company's net assets are presented.
- Impending losses resulting from customer contracts for which revenue is being recognised "over time" must be reported as provisions and carried as liabilities in accordance with the provisions of IAS 37 (gross representation). Up to now, impending losses from construction contracts have been recognised immediately as an expense in accordance with IAS 11 and netted against the gross amount due from the customer (net representation under trade receivables). This gave rise to a change in presentation which, as of January 1, 2018, led to an increase in contract assets as well as provisions each amounting to EUR 26,901 thousand. As for the consolidated financial statements, the application of IFRS 15 has produced an increase in total assets and liabilities of EUR 35,044 thousand compared with the previous regulations under IAS 11.
- Up to now, account balances from construction contracts have been reported as a component of the trade receivables or other current liabilities. The application of IFRS 15 means that such balances must now be disclosed as a component of the contract assets or liabilities. Advance payments in respect of orders, too, must now be carried as contract liabilities rather than other current liabilities. This gave rise to a change in presentation which, as of January 1, 2018, led to an increase in contract assets in the amount of EUR 465,243 thousand as well as an increase in contract liabilities totaling EUR 641,469 thousand. In the consolidated financial statements, the change in presentation led to an increase in contract assets totaling EUR 546,813 thousand as well as an increase in contract liabilities of EUR 623,312 thousand.

GEA makes use of the following practical expedients provided for by IFRS 15:

- Incremental costs of obtaining a contract are expensed immediately if the amortization period would be one year or less.
- The effects of significant financing components can be ignored if the vendor expects, at contract inception, that the period between the transfer of a promised good or service to the customer and the date of payment will be one year or less.

The table below shows the effect of applying the "modified retrospective" method to the items of the opening balance sheet as of January 1, 2018. The following table shows only those balance sheet items that have been adjusted.

Assets (EUR thousand)	12/31/2017 Before accounting changes (IAS 11/IAS 18)	Presentational changes	Changes in timing of recognition	01/01/2018 After accounting changes (IFRS 15)
Inventories	661,364	460	17,094	678,918
Trade receivables	1,390,747	–465,353	–20,880	904,514
Contract assets	–	492,144	–	492,144
Current assets	**2,513,998**	**27,251**	**–3,786**	**2,537,463**

Equity and liabilities (EUR thousand)				
Retained earnings	756,412	–17	–2,825	753,570
Equity	**2,503,083**	**–17**	**–2,825**	**2,500,241**
Deferred taxes	168,689	–6	–961	167,722
Non-current liabilities	**1,158,846**	**–6**	**–961**	**1,157,879**
Current provisions	127,920	27,274	–	155,194
Current contract liabilities	–	641,469	–	641,469
Other current liabilities	789,147	–641,469	–	147,678
Current liabilities	**2,086,342**	**27,274**	**–**	**2,113,616**

The two tables below show the effects of IFRS 15 on the consolidated balance sheet and the consolidated income statement as of December 31, 2018 compared with the situation that would have arisen had IAS 11 and IAS 18 been preserved. The following two tables show only those items on the financial statement that have been adjusted.

Assets (EUR thousand)	12/31/2018 Before accounting changes (IAS 11/IAS 18)	Presentational changes	Changes in timing of recognition	12/31/2018 After accounting changes (IFRS 15)
Inventories	737,134	247	3,963	741,344
Trade receivables	1,476,421	–547,046	–5,492	923,884
Contract assets	–	462,787	–	462,787
Current assets	**2,689,338**	**–84,012**	**–1,529**	**2,603,797**

Equity and liabilities (EUR thousand)				
Retained earnings	648,706	7	–763	647,950
Equity	**2,450,192**	**7**	**–763**	**2,449,436**
Non-current provisions	156,848	387	–	157,235
Non-current contract liabilities	–	364	–	364
Other non-current liabilities	24,108	–364	–	23,744
Non-current liabilities	**1,380,472**	**387**	**–**	**1,380,859**
Current provisions	126,113	34,657	–	160,770
Current contract liabilities	–	622,948	–	622,948
Other current liabilities	900,644	–742,011	–766	157,851
Current liabilities	**1,973,944**	**–84,406**	**–766**	**1,888,772**

(EUR thousand)	01/01/2018 - 12/31/2018 Before accounting changes (IAS 11/IAS 18)	Change	01/01/2018 - 12/31/2018 After accounting changes (IFRS 15)
Revenue	4,811,047	17,163	4,828,210
Cost of Sales	3,407,165	14,548	3,421,713
Gross margin	**1,403,882**	**2,615**	**1,406,497**
Earnings before interest and tax (EBIT)	**257,166**	**2,615**	**259,781**
Profit before tax from continuing operations	**228,077**	**2,615**	**230,692**
Income taxes	114,231	1,310	115,541
Profit after tax from continuing operations	**113,846**	**1,305**	**115,151**
Profit after tax from discontinuing operations	**–1,618**	**–**	**–1,618**
Profit for the period	**112,228**	**1,305**	**113,533**
Basic and diluted earnings per share	**0.62**	**0.01**	**0.63**

Amendments to IFRS 2 "Share-based Payment" – Classification and measurement of share-based payment transactions – published by the IASB in June 2016

The amendments to IFRS 2 serve to clarify the classification and measurement of share-based payment transactions. The clarifications address the issue of how vesting conditions affect the measurement of cash-settled, share-based payments, and how changes in the classification of certain share-based payment transactions should be accounted for on the balance sheet.

The initial application had no effect on the consolidated financial statements.

Amendments to IAS 40 "Investment property" – Classification of property under construction – issued by the IASB in December 2016

The amendment to IAS 40 serves to clarify the cases in which property under construction or development begins or ceases to be classified as "investment property". Up to now, the classification of property under construction or development as investment property was not clearly regulated owing to the exhaustive nature of the list of standard cases giving rise to a change in use of a property. As this list is no longer explicitly exhaustive, property under construction can also fall under the corresponding classification regulation in the future.

The initial application of the amendments to IAS 40 had no material effect.

IFRIC 22 "Foreign Currency Transactions and Advance Consideration" – issued by the IASB in December 2016

IFRIC 22 addresses an issue with regard to the application of IAS 21 "Effects of Changes in Foreign Exchange Rates". The interpretation clarifies the date that is to be used for determining the exchange rate for transactions that include the receipt or payment of advance consideration in a foreign currency. As such, the date of the transaction for the purpose of determining the exchange rate is the date of initial recognition of the asset or liability arising from the advance payment.

The initial application of IFRIC 22 has not materially affected its financial reporting.

Improvements to IFRSs 2014-2016 Cycle – amendments under the IASB's annual improvements project – published by the IASB in December 2016

The improvements result from the IASB's annual improvements process, which is designed to make minor amendments to standards and interpretations. They comprise minor amendments to three standards in total (IFRS 1, IFRS 12 and IAS 28).

Initial application of the changes has not had any significant consequences for GEA.

1.3 Accounting pronouncements not yet applied

The accounting standards and interpretations, as well as amendments to existing standards and interpretations presented below, were issued but not yet required to be applied to the preparation of the IFRS consolidated financial statements as of December 31, 2018.

Unless otherwise stated, the new standards and interpretations have been endorsed by the EU. GEA will not be applying the new standards and interpretations prematurely.

GEA is currently examining the consequences of the revised accounting standards on the consolidated financial statements and will determine the date of initial application.

IFRS 16 "Leases" – issued by the IASB in January 2016

The new lease accounting standard has introduced a single lessee accounting model in which all leases and the associated contractual rights and obligations are recorded on the balance sheet. This has eliminated the classification of leases as either operating leases or finance leases for a lessee, as so far required under IAS 17.

For every lease agreement, a liability corresponding to the present value of the future lease payments must be recognised by the lessee, and a right-of-use asset capitalized at the present value of future lease payments, plus directly attributable costs. The lease payments include fixed payments, variable payments that depend on an index or rate, expected payments based on residual value guarantees, and, where applicable, the exercise price of purchase options and penalties for the premature termination of lease agreements. During the term of the lease agreement, the lease liability is amortised using financial valuation methods in a similar way to that stipulated in the IAS 17 regulations governing finance leases. The right-of-use asset, however, is depreciated, resulting in higher expenses at the beginning of the term of a lease agreement compared with the previous regulations. Accounting for short-term leases and leased assets of low value is subject to recognition exemptions.

For lessors, on the other hand, the regulations of the new standard resemble those of the previous standard IAS 17. Leases continue to be classified either as finance or operating leases. Leases which essentially transfer all risks and rewards associated with ownership of the asset are classified as finance leases, while all other leases are classified as operating leases. The IAS 17 criteria have been adopted by IFRS 16 for classification purposes.

In addition, IFRS 16 contains a series of additional regulations regarding reporting and disclosures in the notes, as well as sale and leaseback transactions.

IFRS 16 replaces the current rules of IAS 17 “Leases” and the associated interpretations in IFRIC 4 “Determining whether an Arrangement contains a Lease, SIC 15 Operating Leases – Incentives”, and SIC 27 “Evaluating the Substance of Transactions Involving the Legal Form of a Lease”.

The new regulations must be applied for fiscal years beginning on or after January 1, 2019.

Transition method and exercising of recogniton exemption

GEA will apply the new IFRS 16 for the first time as of the beginning of fiscal year 2019. As the modified retrospective method will be used on initial application, GEA – in compliance with IFRS 16 – has elected not to restate its prior-period figures. Further, GEA has decided against voluntarily applying IFRS 16 to selected intangible assets. GEA intends to apply the relevant recognition exemptions for leased assets of low value and short-term leases (agreements of 12 months and less). The exemption which allows for leasing agreements with a residual term of under 12 months to be classified as short-term leases as of the time of initial application will not be used.

Project status and foreseeable effects of initial application on the consolidated financial statements

Throughout the reporting period, GEA pushed ahead with its group-wide project to implement IFRS 16. Based on various approaches to the issue of impact analysis, an appropriate software solution (“lease engine”) has now been implemented for recognizing, classifying and measuring leasing agreements. GEA has identified and introduced measures to implement the necessary adjustments to its existing accounting processes and IT systems, and has also produced a standardized technical guideline that has been rolled out in project training courses. In the further course of fiscal year 2018, the affected agreements were identified at group company level and the corresponding measurement-related data entered into the lease engine.

Based on current findings with regard to existing leasing agreements, GEA expects the requirements under the new IFRS 16 to have the following fundamental repercussions in respect of the group's net assets, financial position and results of operations:

GEA expects the application of IFRS 16 and the associated recognition of right-of-use assets to leased objects and of lease liabilities to result in an increase in both financial liabilities and property, plant, and equipment of between EUR 173.0 million and EUR 183.0 million as of January 1, 2019. The material leasing agreements exist primarily in the areas of real estate and vehicles.

As of January 1, 2019, a right-of-use asset in the amount of the lease liability will be recognised for all lease agreements hitherto classified as operating leases under IAS 17. Basically, the lease liabilities will be recognised in the present value of remaining lease payments which will include both leasing and non-leasing components. Leases previously classified as finance leases in accordance with IAS 17 are assumed at their carrying amount as right-of-use assets.

Compared with the prior approach to lease accounting under IAS 17, the discontinuation of operating leasing expenses will result in correspondingly higher EBITDA. Based on the leasing agreements in force as of January 1, 2019, consolidated EBITDA is likely to rise by around EUR 54.0 million to EUR 64.0 million. The effect on EBIT is less pronounced due to the depreciation on right-of-use assets introduced in IFRS 16. The figure for consolidated EBIT is set to rise by about EUR 2.8 million to EUR 3.6 million as a result of the initial application of IFRS 16. If the interest expenses recognizable under IFRS 16 for the subsequent measurement of lease liabilities are included, initial application of the new IFRS 16 leasing standard will probably produce a negative effect on EBT of around EUR 0.8 million to EUR 1.2 million.

Due to the new method of reporting expenses from operating leases, GEA is expecting an increase in cash flow from operating activities of around EUR 54.0 million to EUR 64.0 million, while cash flow from financing activities will contract by a corresponding amount.

The above predictions with regard to the quantitative impact of the initial application of IFRS 16 may need to be adjusted in light of ongoing quality assurance measures during preparation of the consolidated financial statements or in response to possible changes in the exercising of recognition exemption. It is could be that the actual impact of IFRS 16 on GEA's financial and earnings position for fiscal year 2019 as a whole will diverge from the projected effects as a result of new and/or renewed leasing agreements or the unscheduled cancellation of other.

Amendments to IFRS 10 and IAS 28 – Sale or Contribution of Assets between an Investor and its Associate or Joint Venture – issued by the IASB in September 2014

The amendments address a known inconsistency between the requirements of IFRS 10 and those of IAS 28 (2011) in cases where assets are sold to or contributed by an associate or a joint venture. In the future, the gain or loss resulting from such a transaction will only be recognised in full if the asset sold or contributed is a business within the meaning of IFRS 3, regardless of whether the transaction is structured as a share deal or an asset deal. However, if the assets do not constitute a business, any gain or loss is recognised only in proportion to the investor's interest in the associate or joint venture.

GEA does not expect the implementation of the amendments to IFRS 10 and IAS 28 to materially affect its financial reporting.

In December 2015, the IASB issued an amendment to IFRS 15 deferring the timing of initial application. The reason for the postponement is that the IASB wants to take another look at certain transactions in the context of a research project on the equity method of accounting. Notwithstanding this deferral, early application of the amendments will be permitted once they have been endorsed by the EU, which is still outstanding.

IFRIC 23 “Uncertainty over Income Tax Treatments” – issued by the IASB in June 2017

How certain circumstances and transactions are ultimately treated for tax can depend on whether the relevant financial authority accepts the treatments an entity has used or plans to use in its income tax filing. IFRIC 23 supplements the provisions set out in IAS 12 “Income Taxes” by clarifying the accounting for uncertainties in income taxes with regard to certain circumstances and transactions.

GEA does not expect the initial application of IFRIC 23 to materially affect its financial reporting. The interpretation must be applied for fiscal years beginning on or after January 1, 2019. Earlier application is permitted.

Amendments to IFRS 9 “Financial Instruments: Prepayment Features with Negative Compensation – issued by the IASB in October 2017

The IASB has published amendments to IFRS 9 in order to address concerns about how IFRS 9 classifies particular prepayable financial assets.

The existing IFRS 9 provisions on termination rights will be modified to allow such financial assets to be measured at amortised cost (or, depending on the business model, at fair value through equity) even in the case of negative compensation.

The amendment also serves to clarify an aspect of accounting for financial liabilities: in cases where a financial liability is restructured but not derecognised, its carrying amount must be adjusted immediately through profit and loss. Therefore, accounts may need to be amended retroactively if, in the past, the effective interest rate – rather than the amortised costs – was adjusted subsequent to a modification.

GEA does not expect the amendments to IFRS 9 to materially affect its financial reporting.

The changes to IFRS 9 are to be applied retrospectively to fiscal years beginning on or after January 1, 2019. Earlier application is permitted. Additional transitional requirements and corresponding disclosure obligations must be observed when the amendments are applied for the first time.

Amendments to IAS 28 “Investments in Associates and Joint Ventures”– Long-term Interests in Associates and Joint Ventures – issued by the IASB in October 2017

The amendment to IAS 28 clarifies an issue whereby IFRS 9 is applied to long-term interests in associates and joint ventures that form part of the net investment in that associate or joint venture, but are not equity-accounted.

GEA does not expect the amendments to IAS 28 to affect its financial reporting.

The changes are applicable retroactively to reporting periods beginning on or after January 1, 2019. Earlier application is permitted. Furthermore, the practical expedients for the transitional phase permit the adoption of the changes after the initial application of IFRS 9. In addition, expedients on the presentation of prior periods are available for companies that opt not to apply IFRS 9 in accordance with IFRS 4. Fully retroactive application is permitted if this is possible without the use of later findings.

Improvements to IFRSs 2015-2017 Cycle – amendments under the IASB’s annual improvements project – issued by the IASB in December 2017

The improvements result from the IASB’s annual improvements process, which is designed to make minor amendments to standards and interpretations. They comprise minor amendments to four standards in all (IFRS 3, IFRS 11, IAS 12 and IAS 23).

The amendments to IFRS 3 and IFRS 11 clarify the accounting procedure that must be applied when an entity obtains control of a business that is a joint operation in which it previously held interests.

The amendments to IAS 12 clarify that all income tax consequences of dividends (i.e. distribution of profits) should be recognised in profit or loss.

The amendments to IAS 23 clarify that if any specific borrowing remains outstanding after the related asset is ready for its intended use or sale, that borrowing becomes part of the funds that an entity borrows generally. Thus, these borrowing costs become available again as "general borrowing" for determining the borrowing costs to be capitalized for another qualifying asset on the basis of the weighted average of all borrowing costs.

The improvements are not expected to have any material effect on the consolidated financial statements and are yet to be endorsed by the EU. Subject to this endorsement, the amendments will be required to be applied for fiscal years beginning on or after January 1, 2019. Earlier application is permitted.

Amendments to IAS 19 "Employee Benefits" – Plan Amendment, Curtailment or Settlement – issued by the IASB in February 2018

The amendments concern the regulations governing amendments, curtailments and settlements of plans. According to IAS 19, if a plan amendment, curtailment or settlement occurs, it is now mandatory that the net liability arising from defined benefit pension plans be remeasured using the latest actuarial assumptions. The amendments further clarify that in such an event, it is mandatory that the current service cost and the net interest for the period after remeasurement are also determined using the latest assumptions used for the remeasurement.

GEA does not expect the implementation of the amendments to IFRS 19 to materially affect its financial reporting.

Subject to endorsement by the EU, these new regulations are to be applied for fiscal years beginning on or after January 1, 2019. Earlier application is permitted.

Amendments to references to the conceptual framework in IFRS standards – issued by the IASB in March 2018

The IASB has published its revised conceptual framework for financial reporting together with supporting material. The aim of the conceptual framework is to assist the IASB in developing standards, to help preparers develop consistent accounting policies, and to assist all parties in their understanding and interpretation of IFRS.

The revised conceptual framework now contains eight full chapters, with new sections on measurement, presentation and disclosure, and recognition and derecognition. In addition, the sections on defining terms such as "asset" and "liability" and reporting assets and liabilities in financial statements have also been revised. The terms "prudence", "management responsibility", "measurement uncertainty" and "economic perspective" were also redefined in the interest of clarity.

GEA does not expect the initial application of the revised conceptual framework to materially affect its financial reporting.

The revised conceptual framework is effective for preparers in annual periods beginning on or after January 1, 2020, subject to endorsement by the EU. Insofar as all updated cross-references are applied simultaneously, earlier adoption is permitted.

Amendments to IFRS 3 "Business Combinations" – issued by the IASB in October 2018

The amendments to IFRS 3 concern the definition of a business and address the difficulties that arise when an entity determines whether it has acquired a business or a group of assets.

Essentially, the amendments state that to be considered a business, an acquired set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create results (outputs). The amendments also narrow the definitions of a business and of outputs by focusing on goods and services provided to customers and by removing the reference to an ability to reduce costs. The condition of assessing whether market participants are capable of replacing any missing inputs or processes and continuing to produce outputs has been removed. Finally, an optional concentration test has been added that permits a simplified assessment of whether an acquired set of activities and assets is not a business.

GEA does not expect the implementation of the amendments to IFRS 3 to materially affect its financial reporting. Subject to endorsement by the EU, the amendments are effective for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after 1 January 2020, as well as for acquisitions of groups of assets taking place on or after the start of this period. Earlier application is permitted.

Amendments to IAS 1 "Presentation of Financial Statements" and to IAS 8 "Accounting Policies, Changes in Accounting Estimates and Errors" concerning the definition of materiality – issued by the IASB in October 2018

The changes aim to narrow the definition of "material" and to align the definition used in the conceptual framework and the standards themselves, while making it easier for preparers to assess materiality without the existing regulations being changed to a substantial degree.

The current definition of "material" focuses on the criteria by which omissions or misstatements could be regarded as "material", whereas the revised definition alludes to the materiality of information. A shift of emphasis has therefore taken place. The amendments aim to assert that obscuring material information with information that can be omitted can have a similar effect as omitting or misstating the original information, the term "obscuring" being a novel element in the definition of materiality. It was also emphasized that information must be regarded as material if it "could reasonably be expected to influence the decisions of users". Also, the existing definition of "users" was narrowed to "primary users" of the information disclosed in financial statements.

GEA does not expect the implementation of the amendments to IAS 1 and IAS 8 to materially affect its financial reporting. Subject to endorsement by the EU, these new regulations are to be applied for fiscal years beginning on or after January 1, 2020. Earlier application is permitted.

2. Accounting Policies

2.1 Description of accounting policies

Basis of consolidation

GEA's consolidated financial statements include all significant companies that GEA Group Aktiengesellschaft directly or indirectly holds the majority of voting rights or otherwise directly or indirectly controls by holding, for example based on contractual arrangements. Control exists when GEA is exposed, or has rights, to variable returns from involvement with the investee on the one hand, and has the ability to affect those returns through its power over the investee on the other. Subsidiaries are consolidated from the date on which the group obtains control over them. They are deconsolidated from the date on which control is lost.

Acquired subsidiaries are accounted for using the purchase method. The consideration paid is measured on the basis of the fair value of the assets received, the liabilities assumed to the seller, and the equity instruments issued at the transaction date. The identifiable assets acquired, and liabilities and contingent liabilities assumed in the business combination are recognised at their fair value at the transaction date, irrespective of any non-controlling interests. Any contingent consideration agreed is recognised at fair value at the acquisition date. Subsequent changes in fair value are recognised in profit or loss.

The excess of cost over the share of the fair value of the subsidiary's net assets acquired is recognised as goodwill. If, after a further examination, cost is lower than the share of the fair value of the subsidiary's acquired net assets measured at fair value, the difference is recognised as a gain in profit or loss.

Investments in subsidiaries, intragroup receivables, liabilities, and income and expenses are eliminated, as are profits and losses from intragroup transactions.

If consolidated subsidiaries have a different reporting date to the parent, they are included on the basis of interim financial statements as of December 31, 2018.

The consolidated group changed as follows in fiscal year 2018:

Number of companies	2018	2017
Consolidated group as of January 1	**215**	**219**
German companies (including GEA Group AG)	32	36
Foreign companies	183	183
Initial consolidation	4	9
Merger	-10	-9
Liquidation	-1	-2
Sale	-1	0
Deconsolidation	-1	-2
Consolidated group as of December 31	**206**	**215**
German companies (including GEA Group AG)	29	32
Foreign companies	177	183

A total of 50 subsidiaries (previous year: 48) were not consolidated since their effect on the group's net assets, financial position, and results of operations is not material even when viewed in the aggregate. Their consolidated revenue amounts to 0.1 percent (previous year: 0.1 percent) of the group's aggregate consolidated revenue, while their earnings account for 0.4 percent (previous year: 0.3 percent) of recognised earnings before tax of the complete group, and their equity accounts for 0.6 percent (previous year: 0.8 percent) of consolidated equity. The subsidiaries are measured at cost and recognised as other non-current financial assets, as their fair value cannot be determined with sufficient certainty.

A complete list of all subsidiaries, associates, and joint ventures can be found in section 12.4.

Changes in ownership interest

Changes in GEA's ownership interest in a subsidiary that do not result in obtaining or losing control are equity transactions. The carrying amounts of controlling and noncontrolling interests must be adjusted in such way that they reflect the changes in ownership interests in the subsidiaries. Any difference between the amount by which the noncontrolling interests are adjusted and the fair value of the consideration paid or received must be recognised directly in equity, and attributed to the owners of GEA.

Investments in associates and joint ventures

Entities over which a group company can exercise significant influence, i.e. it can participate in the investee's financial and operating policy decisions, are accounted for as associates. This generally relates to companies in which GEA directly or indirectly holds 20 to 50 percent of the voting rights.

Joint ventures are joint arrangements whereby the parties involved have joint control over the arrangement and rights to its net assets. Joint control exists when decisions about the relevant activities of the joint arrangement require the unanimous consent of GEA and the other parties that collectively control the arrangement.

Associates and joint ventures are accounted for using the equity method at the group's share of adjusted equity. They are initially recognised at cost. Any goodwill arising on acquisition is included in the carrying amount of the investment.

The group's share of the profit or loss of equity-accounted investments is recognised and presented separately at the EBIT in the income statement. The group's share of income and expenses recognised outside profit or loss is reported directly in other comprehensive income. If the group's share of an associate's or joint venture's loss exceeds the carrying amount of the net investment in the associate or joint venture, no further losses are recognised.

Where necessary, the accounting policies of associates and joint ventures are adjusted to comply with uniform group accounting principles.

As of the reporting date, one investment in associates (previous year: 1) and 4 investments in joint ventures (previous year: 5) were accounted for using the equity method.

Joint operations

Joint operations are joint arrangements whereby the parties involved have joint control over the arrangement and rights to the assets, and obligations for the liabilities, relating to the arrangement. Joint control exists when decisions about the relevant activities of the joint arrangement require the unanimous consent of GEA and the other parties that collectively control the arrangement.

The assets, liabilities, income, and expenses of joint operations are accounted for in proportion to GEA's interest in them in accordance with the relevant IFRSs. As of December 31, 2018, there were no joint operations in the consolidated financial statements.

Currency translation

The group companies prepare their annual financial statements on the basis of their respective functional currencies.

Foreign currency transactions entered into by companies included in the consolidated financial statements are translated into the functional currency at the exchange rate prevailing at the transaction date. Monetary assets and liabilities are translated at the applicable exchange rate at each reporting date. The exchange rate gains and losses resulting from these items are generally reported in the income statement under other income or expenses.

All financial statements of companies whose functional currencies differ from the reporting currency are translated into the reporting currency used in GEA's consolidated financial statements. The assets and liabilities of the companies included in the consolidated financial statements are translated at the middle rates prevailing at the reporting date. The income statements of these companies are translated at the average rates for the period under review. If these average rates are not a reasonable approximation of the actual transaction rates, the income statements are translated at the relevant transaction rates. Any translation differences are reported in equity under other comprehensive income and adjusted.

Goodwill from the acquisition of foreign subsidiaries is translated at the closing rate as an asset attributable to these companies.

Property, plant and equipment

Items of property, plant and equipment are carried at cost less cumulative depreciation and impairment losses, plus reversals of impairment losses.

Expenses for major regular maintenance are amortised over the remaining useful life of the asset concerned or over the period to the next maintenance date.

The carrying amount of items of property, plant, and equipment is reviewed if it is likely to have been impaired by events or changes in circumstances. An impairment test is performed by comparing the asset's carrying amount with its recoverable amount. The recoverable amount is defined as the higher of internal value in use and fair value less costs of disposal (net realizable value). Fair value is primarily determined on the basis of the current local market price for used machinery or commercial real estate. If the carrying amount exceeds the recoverable amount, an impairment loss is recognised. To assess impairment, assets are grouped at the lowest level for which separate cash flows can be identified. If the reason for the impairment subsequently ceases to apply, the impairment loss is reversed up to a maximum of historical cost, net of accumulated depreciation.

Leases

Leases are agreements that grant the right to use an asset for a defined period in return for a payment. Leases are accounted for as finance leases if substantially all the risks and rewards incidental to using the leased asset, and therefore beneficial ownership, are attributable to the lessee. As a result, the GEA companies that, as lessees, bear substantially all the risks and rewards associated with the leased asset, recognize the asset at the lower of fair value or the present value of minimum lease payments, and depreciate the asset in subsequent periods over the shorter of the lease term or the asset's estimated useful life. A corresponding liability is recognised, which is amortised in the following periods using the effective interest method. Payments to the lessor are divided into an interest and a principal repayment element, with the interest element being recognised in profit or loss over the lease term as a continuous interest payment on the residual lease liability. All other leases under which GEA is a lessee are treated as operating leases. In these cases, the lease payments are recognised as an expense using the straight-line method.

Lease transactions under which GEA companies are the lessor and substantially all the risks and rewards associated with the leased asset are transferred to the lessee are accounted for as sales and financing business. A receivable is reported in the amount of the net investment under the lease. The interest income subsequently generated is recognised in profit or loss. All other lease transactions under which the group is the lessor are treated as operating leases. In this case, the asset leased for use remains on the balance sheet and is depreciated. The lease payments are recognised as income using the straight-line method over the term of the lease.

Various companies included in the consolidated financial statements have sold and leased back items of property, plant and equipment in the past. Depending on the allocation of risk, these sale and leaseback transactions resulted in a finance lease or an operating lease. In the case of operating leases, the entire gain was recognised immediately if the asset was sold at fair value. If the asset was sold above its fair value, the difference between the selling price and fair value was deferred and recognised over the lease term.

Investment property

Property that is held to earn rentals or for capital appreciation is reported as investment property. In the case of property that is held partly to earn rentals and partly to produce or supply goods or services or for administrative purposes, the entire property is classified as investment property if the own use proportion is insignificant. This is assumed to be the case if the proportion is below 10 percent.

Cost is depreciated using the straight-line method over a period of between 10 and 50 years. The same measurement method is applied as for property, plant, and equipment.

Goodwill

Goodwill arising from business combinations is recognised as an intangible asset.

Goodwill is tested for impairment at segment level at least once a year at the end of the fiscal year, and if any of the cash-generating units with goodwill are showing signs of impairment. Operating segments in the form of the Business Areas were identified as cash-generating units with goodwill. For the purpose of impairment testing, the recoverable amount of a Business Area is compared with its carrying amount including the goodwill. The recoverable amount corresponds to the higher of internal value in use and fair value less costs of disposal. Fair value less costs to sell is the measure for the impairment of business units classified as “held for sale.” If the carrying amount of the Business Area’s assets exceeds the recoverable amount, an impairment loss in the amount of the difference is recognised in profit or loss.

An impairment loss initially reduces the carrying amount of goodwill. Any amount exceeding goodwill is allocated proportionately to the carrying amounts of non-current non-financial assets.

The value in use of the business units classified as continuing operations is calculated annually at the end of the fiscal year using the discounted cash flow method. It is only necessary to estimate a selling price for the business units classified as continuing operations if the value in use is less than the carrying amount.

Other intangible assets

Other intangible assets include both internally generated and purchased assets. Internally generated intangible assets comprise capitalized development costs and internally developed software. In addition to contract-based rights, purchased intangible assets mainly contain technologies, brand names, and customer relationships. Technologies, brand names, and customer relationships are usually acquired in connection with takeovers. Internally generated and purchased intangible assets are recognised at cost.

If the useful life of an intangible asset can be determined, the asset is amortised on a straight-line basis over its useful life. Intangible assets whose useful life cannot be determined are recognised at cost.

The carrying amount of an intangible asset is reviewed if it is likely to have been impaired by events or changes in circumstances. Intangible assets with an indefinite useful life are tested for impairment at least once a year. This requires the recoverable amount of the assets to be determined. The recoverable amount corresponds to the higher of internal value in use and fair value less costs to sell. If the carrying amount is higher than the recoverable amount, the asset is written down to the recoverable amount. Previously recognised impairment losses are reversed if the reasons for the impairment no longer apply. Impairment losses are reversed up to a maximum of the amortised historical cost.

Indefinite-lived intangible assets are also examined each year to determine whether the classification of the asset as indefinite-lived can be retained. Any change to a finite useful life is applied prospectively.

Other financial assets

Fiscal year as of January 1, 2018

Other financial assets include investments in unconsolidated subsidiaries and other equity investments, other securities, financial receivables (except trade receivables), and derivative financial instruments.

Financial assets are recognised as soon as GEA receives a cash payment or is entitled to receive cash flows. In the case of regular way purchases of nonderivative financial assets, the settlement date, i.e. the delivery date of the financial assets, is decisive. Assets are derecognised as soon as the right to receive cash payments or other financial assets expires as a result of payment, waiver, statutory limitation, offsetting, or any other factor, or the right is transferred to another person, with the risks passing in full to the purchaser. In the case of regular way sales of non-derivative financial assets, the settlement date is taken to be the date of derecognition, in line with the principle used for recognition.

Items are originally recognised at fair value or, in the case of financial assets not measured at fair value, including directly attributable transaction costs.

Other equity investments not held for sale are allocated to the “at fair value through other comprehensive income” (FVOCI) measurement category. In some cases, the acquisition costs can be an appropriate estimate of the fair value. This can be the case if there is not enough current information available to measure fair value, or if there is a wide range of potential measurements for the fair value and the acquisition costs correspond to the best estimate of the fair value within that range.

Securitized debt instruments and other financial assets are to be classified on the basis of the company's business model for managing these assets and on the assets' contractual cash flow characteristics, and measured at amortised cost or at fair value. Any fluctuation in values during fair-value measurement are carried either through profit or loss or through other comprehensive income.

Financial assets measured at amortised cost are measured using the effective interest method in subsequent periods, and are to be checked for impairments. Gains and losses are recognised in profit or loss if the asset is derecognised, modified, or impaired.

In the case of debt instruments measured at fair value through other comprehensive income, any interest income, remeasurements of currency translation gains/losses, and impairment losses/reversals of impairment losses are carried in the income statement and calculated in the same way as financial assets measured at amortised cost. The remaining changes in fair value are recognised in other comprehensive income. When the asset is derecognised, the accumulated gain or loss resulting from changes in fair value are reclassified to the income statement.

Derivative financial instruments are used exclusively for hedging purposes, in particular to hedge currency risk and to mitigate the risk of interest rate fluctuations resulting from financing transactions. They are always carried at fair value. If derivative financial instruments are not included in a designated hedging relationship, they are allocated to the "financial assets at fair value through profit or loss" (FVTPL) measurement category, and their fair value changes are recognised through profit or loss.

Fiscal year prior to January 1, 2018

Other financial assets include investments in unconsolidated subsidiaries and other equity investments, other securities, financial receivables (except trade receivables), and derivative financial instruments.

Other equity investments are allocated to the "available-for-sale financial assets" measurement category. They are measured at cost because the shares in these corporations are not traded in an active market and their fair value cannot be reliably measured. This is due to the significant margin of fluctuation for fair value measurement; the probabilities of the various estimates cannot be reliably determined within the margin of fluctuation. A reliable fair value can only be determined during sale negotiations. The group does not intend to sell these financial assets.

Securitized debt instruments that are intended to be held to maturity are allocated to the "held-to-maturity investments" measurement category and measured accordingly at amortised cost using the effective interest method. All other securities are measured at fair value and any fluctuations in value are recognised directly in other comprehensive income.

Financial receivables are allocated to the "loans and receivables" measurement category and measured at amortised cost using the effective interest method.

Derivative financial instruments are used exclusively for hedging purposes, in particular to hedge currency risk and to mitigate the risk of interest rate fluctuations resulting from financing transactions. They are always carried at fair value. If derivative financial instruments are not included in a designated hedging relationship, they are allocated to the "financial assets at fair value through profit or loss" measurement category, and their fair value changes are recognised through profit or loss. If the derivative financial instruments included in a recognised hedging relationship are used to hedge future cash flows, the fair value fluctuations are recognised in other comprehensive income.

Embedded financial derivatives are separated from their host contracts if certain qualifying criteria relating to their recognition and measurement are met.

Financial assets are recognised as soon as GEA receives a cash payment or is entitled to receive cash flows. In the case of regular way purchases of nonderivative financial assets, the settlement date, i.e. the delivery date of the financial assets, is decisive. Assets are derecognised as soon as the right to receive cash payments or other financial assets expires as a result of payment, waiver, statutory limitation, offsetting, or any other factor, or the right is transferred to another person, with the risks passing in full to the purchaser. In the case of regular way sales of non-derivative financial assets, the settlement date is taken to be the date of derecognition, in line with the principle used for recognition.

Items are originally recognised at fair value or, in the case of financial assets not measured at fair value, including directly attributable transaction costs.

Financial assets or groups of financial assets are tested for indications of impairment at each reporting date. Impairment losses are recognised in profit or loss. Financial assets are impaired if, following one or more events that occurred after initial recognition of the asset, there is objective evidence that the expected future cash flows have declined. Objective evidence of impairment may be, for example, significant financial difficulties of the debtor or payment default. In the case of financial assets measured at amortised cost (e.g., unquoted equity instruments), the impairment loss corresponds to the difference between the carrying amount of the financial instrument and the present value of the future cash flows discounted at the original effective interest rate.

If the reasons for impairment no longer apply, impairment losses on financial assets – with the exception of equity instruments – are reversed to income up to the amount of the amortised cost that would have applied if no impairment loss had been charged.

Recognised hedging relationships (hedge accounting)

At the time they are entered into, derivative financial instruments that are included in a recognised hedging relationship are designated either as a hedge against changes in the fair value of assets, liabilities, or firm commitments (fair value hedge) or as a hedge of future cash flows in connection with assets and liabilities (cash flow hedge).

In the case of an effective hedge of the risk of a change in fair value, the change in the fair value of both the derivative and the hedged item is recognised in the income statement. Changes in fair value offset each other in a perfect hedge. GEA does not currently apply hedge accounting for fair value hedges.

If derivatives are used to hedge future cash flows, the effective portion of the change in the derivative's fair value is recognised in other comprehensive income. The ineffective portion of the change in fair value is reported as a gain or loss. The item recognised in other comprehensive income arising from the effective portion of the change in fair value is recognised in the income statement as soon as the hedged item is settled. If settlement of the hedged item leads to the recognition of a non-financial asset, the changes in value previously recognised in other comprehensive income are offset against the cost of the non-financial asset. If, contrary to previous assumptions, the hedged transaction is not executed, the changes in value previously recognised in equity are reversed directly to profit or loss.

Where required, GEA uses cash flow hedges to hedge interest rate risk. Especially with regard to currency translation risk, GEA also enters into hedging transactions in accordance with its risk management principles that offer economic hedges of existing risks, but do not meet the strict hedge accounting requirements of IFRS 9. Currency forwards that are used to hedge currency risk arising from monetary assets and liabilities are not aggregated into a recognised hedging relationship. Effects arising from the translation of balance sheet items that are recognised in the income statement are largely offset by changes in the fair values of currency forwards that are also recognised in the income statement.

Deferred taxes

Deferred tax assets and liabilities are recognised for all temporary differences between the carrying amounts in the respective national tax accounts and those in the IFRS financial statements that are included in the consolidated financial statements. Deferred tax assets are also recognised for tax loss carryforwards. Deferred tax assets arising from deductible temporary differences and tax loss carryforwards are recognised only to the extent that there is likely to be sufficient taxable income available in future.

Deferred tax liabilities are not recognised on taxable temporary differences arising from investments in subsidiaries, associates, or joint ventures as long as the reversal of temporary differences is unlikely in the foreseeable future.

Inventories

Inventories are recognised at the lower of cost and net realizable value. Acquisition cost is calculated at average cost or using the first-in, first-out (FIFO) method. Production cost includes direct costs plus materials and production overheads, depreciation, and production-related administrative costs. Net realizable value is calculated as the estimated sale proceeds less costs incurred until completion, and selling expenses. Previously recognised impairment losses must be reversed if the reasons for the impairment no longer apply. Impairment losses are reversed up to a maximum of the amortised historical cost.

Trade receivables

Trade receivables include no interest component and are recognised in the balance sheet at their principal amount less appropriate impairments.

Trade receivables that are sold to financial services companies under factoring agreements are derecognised once substantially all the risks and rewards have been transferred to the financial services company.

The classification and measurement of trade receivables are subject to the same criteria used for the other financial assets. Due to existing factoring arrangements, certain trade receivables are classified as “measured at fair value through other comprehensive income” (FVOCI).

Details of bad debt allowances on trade receivables are presented in Chapter 3 of the notes to the consolidated financial statements.

Construction contracts

Fiscal year as of January 1, 2018

Revenues from construction contracts are recognised over time pursuant to IFRS 15. This is so because customers can oversee such contracts per their specifications as contracted work progresses and because GEA is entitled to reimbursement of the costs incurred so far, plus an appropriate margin, if a customer cancels a contract. The percentage of completion is determined using the cost-to-cost method, which is derived from the ratio of contract costs incurred to the total estimated contract costs. Contracts are measured at production cost plus a profit in proportion to the stage of completion. Losses on construction contracts are immediately recognised in full in the fiscal year in which they are identified, regardless of the stage of completion. Provisions are set up for expected losses. If the contract costs incurred and the gains recognised exceed the progress billings and advance payments received or due, the excess amount is capitalized and reported under “contract assets”. If the advance payments received or due exceed the capitalized costs and recognised gains, less the progress billings at the reporting date, they are reported as a liability under “contract liabilities”.

If, when a performance obligation is being satisfied, the contract costs incurred are not proportionate to the progress of the performance of said contract, revenues will be recognised only in the amount of the contract costs incurred ("zero-profit method"). A profit is only recognised when the contract costs incurred are matched by corresponding progress of the performance of the contract.

Payments for differences in the overall contract, claims, and premiums are included in the contract revenue as variable components. The size of such payments is prudently calculated at contract inception using either the "expected-value" or the "most probable amount" method, depending on which of these is the more reliable for estimating the income ("constraint").

Fiscal year prior to January 1, 2018

Receivables and revenues from construction contracts are recognised using the percentage of completion (PoC) method.

The percentage of completion is determined using the cost-to-cost method, which is derived from the ratio of contract costs incurred to the total estimated contract costs. Contracts are measured at production cost plus a profit in proportion to the stage of completion. Losses on construction contracts are immediately recognised in full in the fiscal year in which they are identified, regardless of the stage of completion. If the contract costs incurred and the gains or losses recognised exceed the progress billings, the excess amount is capitalized and reported under "trade receivables". If the progress payments received exceed the capitalized costs and recognised gains or losses at the reporting date, they are reported as a liability under "other liabilities." Advance payments received on construction contracts are reported as a liability under the same item.

If the contract margin cannot be estimated reliably, revenue is recognised only in the amount of the contract costs incurred (zero-profit method). A profit is only recognised once the contract margin can be estimated reliably.

Payments for differences in the overall contract, claims, and premiums are included in the contract revenue insofar as these will probably result in revenue that is capable of being estimated reliably.

Cash and cash equivalents

Fiscal year as of January 1, 2018

Cash and cash equivalents comprise cash, demand deposits, and financial assets that can be converted into cash at any time and that are subject to only slight fluctuations in value. Depending on the company's business model for managing these financial assets and on the assets' contractual cash flow characteristics, cash equivalents are recognised using the effective interest method, either at amortised cost or at fair value. Any fluctuation in values during fair-value measurement are carried either through profit or loss or through other comprehensive income.

Fiscal year prior to January 1, 2018

Cash and cash equivalents comprise cash, demand deposits, and financial assets that can be converted into cash at any time and that are subject to only slight fluctuations in value. They are recognised at fair value.

Assets held for sale, liabilities held for sale, and discontinued operations

Non-current assets or groups of assets classified as "held for sale" within the meaning of IFRS 5 are recognised at the lower of carrying amount and fair value less costs to sell. Classification as "held for sale" is made when the carrying amount of a non-current asset or disposal group will be recovered principally through a sale transaction rather than through continuing use, and the criteria defined in IFRS 5 have been met overall. The corresponding assets as well as the liabilities of a disposal group are reported separately in the balance sheet as "assets held for sale" and "liabilities held for sale". On initial classification as held for sale, non-current assets or assets and liabilities of disposal groups are first measured in accordance with the applicable IFRSs. They are measured at the lower of their carrying amount and fair value less costs to sell, with disposal groups being measured as a whole. As the carrying amount of held-for-sale depreciable assets is principally realized by the disposal rather than the use of these assets, they are no longer depreciated once they have been reclassified.

If a disposal group represents a separate major line of business or geographical area of operation, it qualifies as a discontinued operation. The results of discontinued operations are reported separately in the income statement as profit or loss after tax from discontinued operations. In addition, the prior-year comparatives are adjusted in the income statement so that the results of these operations are also reported under discontinued operations. Cash flows from discontinued operations are reported separately in the cash flow statement; in this case as well the prior-year comparatives are adjusted accordingly. Revenue and expenditures from intragroup transactions are taken into account when presenting results from discontinued operations if they will continue to arise after the disposal of a discontinued operation.

As a general principle, the disclosures in the notes to the consolidated financial statements relate to the assets or liabilities recognised in the corresponding line items and to continuing operations. Where disclosures relate to GEA including assets held for sale, as well as the associated liabilities, and discontinued operations, this is indicated either by a statement that the disclosures refer to the complete group, or by another comment.

Subscribed capital

Ordinary shares are classified as equity. Treasury shares are deducted from the equity attributable to the shareholders of GEA Group Aktiengesellschaft.

Obligations under pension plans

Obligations under pension plans relate to post-employment benefit obligations. Defined benefit obligations are calculated using the projected unit credit method. The present value of these obligations reflects expected future salary and pension trends, since the entitlements earnable in the period up to the retirement age depend on these. Claims under supplementary healthcare benefit insurance are included in the actuarial measurement of assumptions made in respect of healthcare cost trends. The pension obligations are measured on the basis of actuarial reports by independent actuaries.

In order to provide these pension benefits, the company in some cases holds financial assets in long-term funds outside GEA and qualifying insurance policies. Insofar as the entitlements are funded by such external assets (plan assets), their fair value is offset against the present value of the defined benefit obligation. The resulting balance is reported under non-current employee benefit obligations or other non-current financial assets (net carrying amount).

Actuarial gains and losses from the remeasurement of the net carrying amount are recognised in other comprehensive income in the year in which they arise and reported in retained earnings after adjustment for tax effects. This also applies to the recognition of the difference between the actual returns on plan assets and the returns calculated using the discount factor. Costs from unwinding the discount on the net carrying amount are recognised in interest expenses; income is recognised in interest income. Current and past service cost for the period, as well as gains and losses from settlements, are recognised in the relevant function costs.

Other employee benefit obligations

Other employee benefit obligations comprise other long-term benefits and all short-term benefits. Short-term employee benefit obligations are expected to be settled in full no more than 12 months after completion of the service rendered. They include wages, salaries, social insurance contributions, paid vacation, and profit-sharing arrangements. They are recognised as an expense at the same time as the remunerated work or service is discharged. Any expenditure in excess of the payments already made is reported as a deferred liability at the reporting date. Other long-term employee benefits, such as jubilee payments or partial retirement arrangements, are recognised at the actuarial present value of the obligation at the reporting date. Securities are pledged to the beneficiaries to protect vested partial retirement credits against the employer's insolvency. The fair value of these securities is offset against the corresponding liability.

Also reported under other employee benefit obligations are liabilities in respect of severance payments and redundancy plans resulting from, among other things, obligations in connection with restructuring provisions.

Provisions

Provisions for uncertain liabilities are recognised where there is a legal or constructive obligation to a third party, a future outflow of resources is likely, and the expected settlement value can be estimated reliably. The present value of the settlement amount is recognised if the time value of money is material. Amounts are discounted at the market rates for the appropriate maturity and currency. Discount unwinding costs are reported in interest expense.

The cost at the time when reserve is recognised is reported in cost of sales when warranty of provisions are recognised. In all other cases, provisions are recognised when the product is accepted. The provision is measured on the basis of both the warranty cost actually incurred in the past and on the evaluated overall risk inherent in the system or product. Provisions are also recognised if a claim is made under a warranty and a loss is likely. Recourse claims against suppliers are capitalized if their services are subject to a warranty and it is highly likely that the claim can be enforced.

Provisions for expected losses from onerous contracts are recognised if the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it. The unavoidable costs also include the unavoidable overheads needed to meet the contractual obligations.

Financial liabilities

Financial liabilities comprise bonds, bank loans, and liabilities under finance leases. Initial recognition is at fair value, less transaction costs incurred. They are subsequently measured at amortised cost using the effective interest method. Liabilities under finance leases are initially measured at the lower of the fair value of the leased asset and the present value of minimum lease payments. The financial liabilities also include derivative financial instruments that are measured at fair value.

Other liabilities

Fiscal year as of January 1, 2018

The recognition and subsequent measurement of other liabilities is the same as for financial liabilities. Advance payments on orders, and the gross amount due to customers for contract work are now carried under "contract liabilities".

Fiscal year prior to January 1, 2018

The recognition and subsequent measurement of other liabilities is the same as for financial liabilities, with the exception of advance payments and the gross amount due to customers for contract work. Advance payments are stated at their principal amount. Please see the information provided on the recognition of construction contracts for the measurement of the gross amount due to customers for contract work.

Contract liabilities

Fiscal year as of January 1, 2018

Advance payments on orders and the gross amount due to customers for contract work are carried under "contract liabilities". Advance payments on orders are stated at their principal amount. Please see the information provided on the recognition of construction contracts for the measurement of the gross amount due to customers for contract work.

Trade payables

Trade payables also include liabilities for goods received or services rendered that have not yet been invoiced, as there is only slight uncertainty as to the amount of the liability. Trade payables are recognised at fair value. This corresponds to the settlement amount in the case of liabilities due within one year.

Revenue recognition

Fiscal year as of January 1, 2018

Revenues from the sale of goods are recognised according to the stage of completion. Contractual obligations are deemed to have been as soon as the customer assumes effective control over the sold goods, i.e. can determine how they are put to use and essentially make use of the remaining benefit of the goods. This normally occurs when the goods are handed over to the customer. Revenue from services is recognised when the service is rendered. Revenue is measured at the fair value of the consideration received or to be received. Customer bonuses, discounts, or rebates reduce the amount of revenue recognised.

Revenue from construction contracts is generally recognised using the percentage-of-completion method under which revenue is recognised in accordance with the stage of completion. The percentage of completion is determined using the cost-to-cost method, which is derived from the ratio of contract costs incurred to the total estimated contract costs. Contract costs include direct costs plus materials and construction overheads, depreciation, production-related administrative costs, and such other costs that are specifically chargeable to the customer under the terms of the contract. Adjustments are made for variations in contract work, claims, and incentive payments insofar as these will probably result in revenue that is capable of being reliably estimated. In addition, estimation limits must be observed.

Accordingly, construction contracts are measured as of the balance sheet date at the amount of the contract costs incurred plus the prorated profit resulting from the stage of completion achieved. Recognised revenue is reported under contract assets, less progress billings and advance payments received or due.

If, when a performance obligation is being satisfied, the contract costs incurred are not proportionate to the progress of the performance of said contract, revenues will be recognised only in the amount of the contract costs incurred. Contract costs are recognised as an expense in the period in which they are incurred. If it is foreseeable that total contract costs will exceed contract revenue, the expected loss is expensed as an impending loss according to IAS 37.

Fiscal year prior to January 1, 2018

Trade receivables that are sold to financial services companies under factoring agreements are derecognised once substantially all the risks and rewards have been transferred to the financial services company. This normally occurs when the goods are handed over to the customer. Revenue from services is recognised when the service is rendered. Revenue is measured at the fair value of the consideration received or to be received. Customer bonuses, discounts, or rebates reduce the amount of revenue recognised.

Revenue from construction contracts is generally recognised using the percentage-of-completion method under which revenue is recognised in accordance with the stage of completion. The percentage of completion is determined using the cost-to-cost method, which is derived from the ratio of contract costs incurred to the total estimated contract costs. Contract costs include direct costs plus materials and construction overheads, depreciation, production-related administrative costs, and such other costs that are specifically chargeable to the customer under the terms of the contract. Where a construction contract is performed over a long period and where the contract is largely financed by GEA, contract costs also include directly attributable borrowing costs. Conversely, income from the investment of advance payments received is offset against contract costs where this has a material influence on the contract margin. Adjustments are made for variations in contract work, claims, and incentive payments insofar as these will probably result in revenue that is capable of being reliably estimated.

In line with the percentage of completion method, construction contracts are measured as the contract costs incurred as of the reporting date plus the profit attributable to the proportion of work completed. Revenue recognised is reported under trade receivables, less progress billings. If the outcome of a construction contract cannot be reliably estimated, the probable recoverable revenue is recognised up to the amount of the costs incurred. Contract costs are recognised as an expense in the period in which they are incurred. If it is foreseeable that the total contract costs will exceed the contract revenue, the expected loss is recognised immediately as an expense.

Share-based payment

GEA has a share-based payment program under which selected managers are granted performance shares. The fair value of these rights is calculated at the grant date and allocated as an expense over the vesting period using the straight-line method; a corresponding provision is recognised. The provision is remeasured at each reporting date and at the payment date. Another share-based payment program is the long-term share price component anchored in the remuneration system for Executive Board members. Payment from this remuneration component is dependent on the performance of GEA shares compared with a benchmark index. The entitlement from the long-term share price component is measured at fair value at the reporting date. Changes in the fair value of the provision for share-based payment programs are recognised as interest expense or income (see section 6.3.3).

Research and development

Research expenditures are recognised immediately as an expense. Development costs that are designed to significantly enhance a product or process are capitalized if completion of the product or process is technically and economically feasible, the development is marketable, the expenditures can be measured reliably, and adequate resources are available to complete the development project. All other development expenditures are recognised immediately as expenses. Capitalized development expenditures for completed projects are reported at cost less cumulative amortization and impairment losses. Capitalized development costs for intangible assets not yet available for use are tested for impairment once a year.

Development costs that are required under construction contracts are capitalized as part of the cost of the asset.

Government grants

Government grants are recognised at fair value, provided that the group meets the conditions necessary to receive the grant. Government grants to cover expenses are recognised over the period in which the costs for which the grants were awarded are incurred. Government grants for capital expenditure are deducted from the cost of purchasing the corresponding asset.

Accounting in high-inflation economies

Financial statements are adjusted on the basis of historical costs of acquisition and sales, whereby line items in the balance sheet that are not yet expressed in a monetary unit must be translated using a general price index. The same applies to income and expenses. Monetary assets and liabilities do not need to be translated if they are subject to changes in price per contractual arrangements or are expressed as current values.

2.2 Estimates and management judgment

Preparation of financial statements requires management to make certain estimates and exercise judgment that may affect the company's assets, liabilities, provisions, and deferred tax assets and liabilities, as well as its income and expenses and contingent liabilities.

Factors that may cause amounts to fall below estimates might include a deterioration in the global economy, a substantial drop in demand from relevant customer industries, shifts between these industries with a negative impact on margins, movements in exchange rates and interest rates, as well as material litigation and changes in environmental or other legislation. Production errors, the loss of key customers, and rising borrowing costs may also adversely affect the group's future performance.

The recognition and measurement of the following assets and liabilities are in some cases based on management judgment. All assumptions represent the best of management's knowledge and belief in order to convey a true and fair view of the company's net assets, financial position, and results of operations. If actual circumstances subsequently differ from those forecast, this will affect the recognition and measurement of assets and liabilities. Depending on the item concerned, earnings may also be affected.

Acquisitions

Goodwill is reported in the balance sheet as a result of acquisitions (see section 4). When an acquired company is initially consolidated, all its identifiable assets, liabilities, and contingent liabilities are recognised at their acquisition-date fair value. A basic problem is estimating these fair values. As a rule, land and buildings are measured on the basis of independent appraisals. If intangible assets are identified, their fair values are calculated using an appropriate measurement method. These measurements are made on the basis of assumptions by management with respect to the future value of the relevant assets and the discount rate. Obligations for contingent consideration are recognised on the basis of the current planning.

Goodwill and other intangible assets

The group tests goodwill for impairment annually. The recoverable amounts calculated for this purpose for segments classified as continuing operations are determined based on value in use. Value in use is calculated using assumptions by management (see section 5.3). In turn, assumptions by management are based on the recognition and measurement of other intangible assets.

Taxes

GEA operates in a large number of countries and is therefore subject to different tax jurisdictions. Calculating tax liabilities requires management to make various estimates. Management believes that it has made a reasonable estimate of tax uncertainties. However, no assurance can be given that the actual outcome of these uncertainties will correspond to the estimates made. Any deviations may have an impact on the level of tax liabilities or deferred taxes in the year of the decision.

When assessing the recoverability of deferred tax assets, management judges the extent to which realization of the deferred tax assets is sufficiently likely. The question of whether the deferred tax assets can actually be realized depends on whether sufficient future taxable income can be generated against which the temporary differences or tax loss carryforwards can be offset. Management therefore analyzes the times at which the deferred tax liabilities reverse, and expected future taxable income. Management forecasts whether deferred tax assets can be realized on the basis of expected future taxable income. Deferred tax assets decline if the estimate of planned taxable income decreases, if tax benefits available as a result of tax strategies are reduced, or if the amount or timing of future tax benefits is restricted by changes in the law (see section 7.7).

Provisions and contingent liabilities

Changes in estimates of the probability of a present obligation or of an outflow of resources embodying economic benefits could mean that items previously classified as contingent liabilities must be reported as provisions, or that the amount of provisions must be adjusted (see section 6.2). This also applies in particular to environmental obligations.

Obligations under pension plans

The present value of pension obligations depends on actuarial assumptions. These assumptions comprise discount rates, expected wage and salary increases, as well as the pension increase rate and mortality rates. These assumptions could differ significantly from actual future outcomes as a result of changes in market and economic conditions, and could therefore have a material effect on the level of the obligation and the related expenses.

The discount rate used to measure the net carrying amount is calculated at the end of each year. This is the rate used to calculate the present value of future cash outflows expected to be required to settle the obligation. In order to calculate the discount rate, the group uses the interest rate on high-quality corporate bonds denominated in the same currency in which the benefits are paid and whose terms to maturity correspond to those of the pension obligations.

Other significant assumptions relating to pension obligations are partly based on market conditions (see section 6.3.1).

Trade receivables

Individual trade receivables are tested for indications of impairment at each reporting date. Impairment losses are recognised in profit or loss. An impairment is recognised in the amount of the expected lifetime credit defaults. More information on credit risks in connection with trade receivables can be found in chapter 3.

Construction contracts

Due to the regulations in IFRS 15, discretion must be applied when judging whether revenues are to be recognised "over time" or not. GEA has come to the conclusion that revenue from construction contracts is to be recognised as contracted work progresses, since customers regularly derive benefit from services if they oversee them as per their specifications as contracted work progresses and because GEA is entitled to reimbursement of the costs incurred so far, plus an appropriate margin, if a customer cancels a contract. GEA has determined that the input-based method is the most suitable for measuring service performance, since there is a direct connection between the construction work and the transfer of the service to the customer. GEA recognizes revenues on the basis of the contract costs incurred in relation to the total expected contract costs for the completion of the contract (cost-to-cost method). The recognition of construction contracts is also based on management's estimates of the cost of such contracts. Changes in estimates or differences between the estimated cost and the actual cost have a direct effect on recognised earnings from construction contracts. The operating units continuously review the estimates and adjust them if required.

Litigation

In some cases, GEA companies are parties to litigation. The outcome of this litigation could have a material effect on the group's net assets, financial position, and results of operations. Management regularly analyzes current information on these legal disputes and recognizes provisions for probable obligations, including estimated legal costs. Both internal counsel and external lawyers are used to make this assessment. When deciding on the need to recognize provisions, management takes into account the probability of an unfavorable outcome and its ability to estimate the amount of the obligation with sufficient reliability. The filing of a suit or the formal assertion of a claim against a GEA company does not necessarily mean that a provision must be recognised for the related risk (see section 8.3).

3. Financial Risk Management

The Executive Board has put in place an effective set of guidelines to manage and hence largely limit or hedge financial risks throughout the group. The objectives with regard to protecting assets, eliminating gaps in security, and improving efficiency in identifying and analyzing risks are clearly defined, as are the relevant organizational structures, powers, and responsibilities. The guidelines are based on the principles of system security, the separation of functions, transparency, and immediate documentation. For further information, please see the discussion of the risk management system in the management report.

GEA is exposed to currency, interest rate, commodity price, credit, and liquidity risk in the course of its ordinary activities because it operates worldwide. Financial risk management aims to reduce this risk through the appropriate use of derivative and nonderivative hedging instruments.

Currency risk

Because GEA operates internationally, its cash flows are denominated not only in euros, but also in a number of other currencies, particularly U.S. dollars. Hedging the resulting currency risk is a key element of risk management.

The group guideline requires all group companies to hedge foreign currency items as they arise in order to fix prices on the basis of hedging rates. Currency risks are hedged for recognised hedged items, unrecognised firm commitments, and highly probable transactions. The hedging periods are determined by the maturity of the hedged items and are usually up to 12 months, but in exceptional cases may exceed that period significantly. Despite the hedging requirement, changes in exchange rates may affect sales opportunities outside the eurozone.

As a general rule, affiliated group companies are obliged to tender to GEA's central Treasury and Corporate Finance unit all outstanding exposures relating to transactions in goods and services in major transaction currencies. Most of these exposures are passed on directly to banks at matching maturities, depending on the hedging objective of the derivatives and the related accounting treatment. They may also be hedged as part of a portfolio. In addition, most intra-group borrowing arrangements in foreign currencies managed via the central Treasury & Corporate Finance unit are hedged directly to banks.

The hedging of financial transactions and transactions conducted by subsidiaries outside the eurozone is also coordinated with the central Treasury and Corporate Finance unit.

Interest rate risk

Because GEA operates worldwide, liquidity is raised and invested in the international money and capital markets in different currencies (but mainly in euros) and at different maturities. The resulting financial liabilities and investments are exposed to interest rate risk, which must be assessed and managed by central financial management. Derivative financial instruments may be used on a case-by-case basis to hedge interest rate risk and reduce the interest rate volatility and financing costs of the hedged items. Only the central Treasury and Corporate Finance unit is permitted to enter into such interest rate hedges.

Commodity price risk

GEA requires various metals such as aluminum, copper, and steel, whose purchase prices can be subject to substantial fluctuations depending on the market situation. Long-term supply agreements have been entered into with various suppliers in order to hedge commodity price risk.

Credit risk

Credit risk is the risk of financial loss to GEA if a customer or counterparty to a financial instrument fails to meet its contractual obligations. The Group is exposed to default risk from both its operative business (especially in the case of trade receivables and contract assets) and its financing operations (including bank deposits, foreign exchange transactions and other financial instruments).

The maximum default risk is limited to the carrying amount of the financial instruments and the contract assets.

Impairments on financial instruments measured at fair value through other comprehensive income amounted to EUR 8,364 thousand as of the reporting date.

Trade receivables and contract assets

The financial standing of potential customers is ascertained via an internal risk board procedure before orders are accepted. Active receivables management, including nonrecourse factoring and credit insurance, is also performed. In the case of export transactions, confirmed and unconfirmed letters of credit are used alongside sureties, guarantees, and cover notes, including from export credit agencies such as Euler Hermes. An addition to local monitoring by the subsidiary, GEA oversees the main credit risks at group management level so that any accumulation of risk can be better managed.

Since trade receivables are usually due from a large number of customers in different sectors and regions, there is no concentration of risk.

GEA applies the “simplified approach” to trade receivables and contractual assets, and recognises lifetime credit losses as soon as they accrue. In the context of this simplified approach, GEA calculates expected credit losses according to risk category, while taking historic default rates into account. Assignment to a specific risk category is based on common credit risk attributes. For GEA, these are the customer’s geographical location and whether the related assets are overdue or not. In order to take forward-looking information into account, historic default rates were adjusted using scaling factors based on predictions of the gross domestic product (GDP) of the corresponding regions.

Contract assets relate to ongoing work that has yet to be invoiced. Essentially, they exhibit the same risk characteristics as trade receivables for the same types of contract. GEA has thus concluded that the predicted loss rates for trade receivables that are not overdue constitute a “best estimate” with which to represent the loss rates pertaining to contract assets.

A specific allowance is made when one or more events have occurred that adversely affect the debtor’s financial standing. These events include delays in payment, threat of insolvency, and concessions made by the debtor due to payment difficulties.

Trade receivables and contract assets are derecognised immediately when there is reasonable doubt as to their realizability, for instance, if the debtor is found to be insolvent.

The table below shows the expected credit losses on trade receivables and contract assets not credit-impaired as of December 31, 2018:

(EUR thousand)	Gross carrying amount	Weighted average loss rate	Range of loss rates	Loss allowance
Not overdue	1,066,227	0.06%	0.02% - 0.13%	658
thereof contract assets	461,278	0.03%	0.02% - 0.13%	139
thereof trade receivables	604,949	0.09%	0.02% - 0.13%	519
Overdue (trade receivables)	247,270	0.30%	0.05% - 0.34%	751
Total	**1,313,497**			**1,409**

The table below reconciles the impairments on trade receivables and contract assets as of January 1 with the impairments as of December 31:

	2018	2017
Impairments as of January 1 according to IAS 39	**59,654**	**49,371**
adjustment initial application of IFRS 9	709	–
Impairments as of January 1 aoccording to IFRS 9	**60,363**	**–**
Derecognition	–11,369	–4,308
Expenses from remeasurement of loss allowance (Reversal)	–1,844	–2,309
Income from remeasurement of loss allowance (Additions)	19,079	15,745
Exchange rate effects	–523	–1,559
Other changes*	718	2,714
Impairments as of December 31*	**66,424**	**59,654**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The previous year's values show the impairments under IAS 39. The other changes concern effects from initial consolidations.

The change in the impairments is essentially related to credit-impaired trade receivables and contract assets. Impairments in the North America region rose by EUR 3,514 thousand. In the remaining regions, impairments rose by EUR 2,547 thousand.

Trade receivables with a contractual amount of EUR 3,734 thousand written off during 2018 are still subject to enforcement activity.

Any collateral for trade receivables or contract assets had no material effect on the scale of the impairments calculated.

Cash and cash equivalents

The counterparty limit system for cash and cash equivalents used by GEA for financial management aims to continuously assess and manage counterparty default risk. A maximum risk limit has been defined for each counterparty, which in most cases is derived from the ratings from recognised credit rating agencies and credit default swaps. Appropriate action is taken if the individual limit is exceeded. These measures serve to avoid a concentration of risks.

Cash and cash equivalents are deposited with banks and financial institutions rated BB- through AA- by Standard and Poor's (S&P) as of the reporting date.

Impairment on cash and cash equivalents has been measured on a 12-month expected loss basis and reflects the short maturities of the exposures. GEA considers that its cash and cash equivalents have low credit risk based on the external credit ratings of the counterparties. No significant impairments on cash and cash equivalents were identified in fiscal year 2018.

Other financial assets

GEA calculates expected credit defaults on its other financial assets according to risk category, while taking published credit ratings and credit default swaps into account. Assignment to a specific risk category is based on the geographical location of the counterparty. Impairments on other financial assets have been measured on a 12-month expected loss basis. GEA assumes that the credit risk has increased significantly if the credit rating increases by two rating levels within the fiscal year. In that case, the expected credit losses over the entire remaining maturity are recorded.

The procedures for making specific allowances and derecognizing other financial assets are comparable with those applied to trade receivables and contract assets.

So as to reduce the credit risk involved, derivative financial instruments are only entered into with reputable financial institutions.

As of December 31, 2018, the allowance on other financial assets totaled EUR 1,881 thousand (previous year: EUR 3,226 thousand). The decrease of EUR 1,345 thousand in this allowance was mainly due to the derecognition of credit impaired financial assets. In the previous year, the allowance rose by EUR 1,213 thousand.

Liquidity risk

GEA is exposed to liquidity risk in that it may be unable to meet payment obligations because it has insufficient cash funds at its disposal. GEA is responsible for managing this risk. The funds are made available to the companies by group management. Cash flow from operating activities is the most important source of liquidity. Cash pools have been established in 17 countries in order to optimize borrowing and the use of cash funds within GEA. To achieve this, the cash pools automatically balance the accounts of the participating group companies every day by crediting or debiting a target account at GEA Group Aktiengesellschaft. This prevents separate cash investments and borrowings by these companies to a large extent. Any additional liquidity requirements are generally borrowed by the GEA Group Aktiengesellschaft, which also invests surplus liquidity.

The following tables show the undiscounted contractually agreed interest and principal payments for financial liabilities, including derivative financial instruments with negative fair values:

		Cash flows					
(EUR thousand)	Carrying amount	< 1 year	1-2 years	2-3 years	3-4 years	4-5 years	> 5 years
2018							
Trade payables	723,334	722,702	632	–	–	–	–
Borrower's note loan	251,712	2,700	2,700	2,700	2,700	130,629	125,086
Liabilities to banks	68,391	18,730	983	301	47	47	50,093
Liabilities under finance leases	6,395	2,413	1,346	2,166	887	122	–
Liabilities to investees	426	226	200	–	–	–	–
Currency derivatives not included in a recognised hedging relationship	6,794	560,099	7,182	–	–	–	–
Other financial liabilities	97,139	73,675	19,648	126	128	131	6,307
2017							
Trade payables	736,906	736,312	594	–	–	–	–
Borrower's note loan	–	–	–	–	–	–	–
Liabilities to banks	244,922	243,170	1,584	1,331	–	–	–
Liabilities under finance leases	6,561	3,906	1,157	729	1,356	–	–
Liabilities to investees	227	227	–	–	–	–	–
Currency derivatives not included in a recognised hedging relationship	11,107	656,431	6,263	–	–	–	–
Other financial liabilities*	112,240	77,693	30,851	8,966	120	120	5,197

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

All financial liabilities outstanding as of December 31, 2018, are included in the table above on the basis of expected contractual cash flows. Projected figures for future new liabilities are not taken into account. Foreign currency amounts are translated at the closing rates. In the case of financial liabilities that can be repaid at any time, it is assumed that they will be repaid within one year.

Payments for derivative financial instruments totaling EUR 567,281 thousand (previous year: EUR 662,694 thousand) were partially offset by payments received from these instruments of EUR 563,764 thousand (previous year: EUR 654,059 thousand).

As of December 31, 2018, the group held cash credit lines of EUR 1,123,694 thousand (previous year: EUR 949,155 thousand), of which EUR 318,207 thousand had been utilized (previous year: EUR 244,922 thousand). The cash credit lines are composed of the following items:

(EUR thousand)	Maturity	12/31/2018 approved	12/31/2018 utilized	12/31/2017 approved	12/31/2017 utilized
Borrower's note loan (2023)	February 2023	128,000	128,000	–	–
Borrower's note loan (2025)	February 2025	122,000	122,000	–	–
European Investment Bank	December 2025	150,000	50,000	–	–
Other bilateral credit lines	until further notice	73,694	18,207	299,155	244,922
Syndicated credit line („Club Deal")	August 2022	650,000	–	650,000	–
Total		**1,123,694**	**318,207**	**949,155**	**244,922**

Section 6.4 contains more information on GEA's financial liabilities.

As of December 31, 2018, guarantee lines for the performance of contracts, advance payments, and warranty obligations of EUR 1,321,007 thousand were available to the group as a whole (previous year: EUR 1,361,235 thousand), EUR 536,053 thousand of which has been utilized (previous year: EUR 524,185 thousand). The guarantees are generally payable at first demand. As is generally the case for this type of order collateral and financing instrument, GEA Group Aktiengesellschaft drew on guarantees only in extremely rare cases in recent years.

As of December 31, 2018, EUR 11,211 thousand (previous year: 16,054 thousand) of bank guarantees under GEA Group Aktiengesellschaft credit lines were granted to customers of the GEA Heat Exchangers Segment (HX), which was sold as of October 31, 2014, to collateralize the segment's contractual obligations. The purchaser of the GEA HX segment has granted bank guarantees of EUR 3,363 thousand (previous year: EUR 4,816 thousand) in favor of GEA Group Aktiengesellschaft to cover the unlikely event of default.

In addition, GEA Group Aktiengesellschaft has issued group guarantees of EUR 46,235 thousand (previous year: EUR 49,082 thousand) to collateralize the GEA HX segment's contractual obligations. To hedge the risk of claims being made under the guarantees, GEA Group Aktiengesellschaft has received bank guarantees from the purchaser of the GEA HX segment in the amount of EUR 14,189 thousand (previous year: EUR 15,001 thousand).

As of the year-end, EUR 0 thousand (previous year: EUR 84 thousand) of bank guarantees under GEA Group Aktiengesellschaft credit lines and EUR 94,483 thousand (previous year: EUR 90,205 thousand) of group guarantees were granted to Lurgi AG's customers to collateralize that company's contractual obligations in the unlikely event of default.

Future payments from operating leases are reported separately under other financial liabilities (see section 8.2).

Foreign currency sensitivity analysis

GEA companies are always exposed to foreign currency risk if their cash flows are denominated in a currency other than their own functional currency. As a general principle, foreign currency risks must be hedged using appropriate financial instruments so that fluctuations arising from the hedged item (underlying) and the hedging transaction are neutralized over their duration.

The foreign currency risk presented in the sensitivity analysis results from the following transactions:

From currency derivatives used to hedge previously unrecognised hedged items, i.e. for contractually agreed or expected transactions:

- If the hedge has been effected for economic reasons and is not included in a documented hedging relationship, a corresponding currency risk exposure will have a direct effect on earnings. Where foreign currency derivatives are included in a hedging relationship in the form of cash flow hedges, they are subject to equity-related interest rate risk. No foreign currency derivatives were designated as cash flow hedges as of December 31, 2018.

- From unhedged foreign currency transactions:
  The translation of foreign currency receivables or liabilities at the closing rate has a direct effect on earnings.

The currency pairs in which the major part of the foreign currency cash flows is settled are included as relevant risk variables in the foreign currency sensitivity analysis. The following table shows the sensitivity of a 10 percent increase or decrease in the euro from the perspective of the group:

(EUR thousand)		net risk exposure	Profit/loss for the year	
Base currency	Foreign currency		2018	
			+ 10 %	- 10 %
EUR	USD	–67,147	6,692	–8,179
EUR	DKK	–72,870	6,637	–8,112
EUR	CNY	49,977	–4,519	5,524
EUR	GBP	39,260	–3,548	4,337
EUR	HKD	–24,591	2,237	–2,734
EUR	INR	14,765	–1,343	1,642

(EUR thousand)		net risk exposure	Profit/loss for the year	
Base currency	Foreign currency		2017	
			+ 10%	- 10%
EUR	USD	10,945	–999	1,247
EUR	SGD	17,271	–1,557	1,903
EUR	GBP	22,909	–2,080	2,542
EUR	INR	18,248	–1,659	2,028
EUR	ZAR	–20,020	1,820	–2,224
EUR	ARS	8,377	–760	928

Compared to the 2017 Annual Report, which disclosed the nominal volume of foreign currency transactions, the corresponding net risk exposure is given here.

The net risk relates to all contractually agreed foreign currency cash flows, collated into a single net item, and translated into euros at the closing rate. Net positions with a positive sign represent future cash inflows in foreign currency. Net positions with a negative sign represent future cash outflows.

Interest rate sensitivity analysis

The interest rate sensitivity analysis presents the effects of changes in market interest rates on interest income and expenses, and equity. The sensitivity analyses are based on the following assumptions:

- Nonderivative fixed-rate financial instruments are only subject to on-balance-sheet interest rate risk if they are measured at fair value. GEA measures such financial instruments at amortised cost.
- Nonderivative variable-rate financial instruments whose interest payments are not included as hedged items in a hedging relationship that is recognised as a cash flow hedge are subject to interest rate risk in the income statement.
- Interest rate derivatives included in a hedging relationship that is recognised as a cash flow hedge are subject to equity-related interest rate risk in the amount of the effective portion of the hedging relationship.
- Interest rate derivatives not included in a hedging relationship that is recognised as a cash flow hedge are subject to interest rate risk in the income statement.
- Currency derivatives are not subject to material interest rate risk and therefore have no effect on interest rate sensitivity.

The sensitivity analysis assumes a linear shift in the yield curves for all currencies of +100 or -100 basis points as of the reporting date. This results in the following effects for the simulated scenarios:

	12/31/2018		12/31/2017	
(EUR thousand)	+ 100 basis points	- 100 basis points	+ 100 basis points	- 100 basis points
Interest rate risk recognised in profit or loss	–952	117	–45	45

The calculation is based on a net volume of EUR 106,999 thousand (previous year: EUR 7,020 thousand).

Capital management

GEA Group Aktiengesellschaft's key financial objective is to sustainably increase its enterprise value in the interests of investors, employees, customers, and suppliers, while safeguarding and securing the group's solvency at all times.

Improving profitability and, as a result, increasing the return on capital employed therefore takes priority in all business decisions. Our strict focus on contract margin quality is also derived from this. Equally, external growth through potential acquisitions is viewed from the perspective of this goal.

Capital management, in the form of generating sufficient liquidity reserves, plays a crucial role in the pursuit of these enterprise goals. Not only does it ensure GEA's long-term existence, it also creates the entrepreneurial flexibility needed to enhance and update current business activities and to take advantage of strategic opportunities. It is achieved by managing liquidity reserves and available credit lines on an ongoing basis using short- and medium-term forecasts of future liquidity trends and borrowing requirements.

The group's financial management encompasses liquidity management, group financing, and the management of interest rate and exchange rate risks. The central financial management operations within GEA Group Aktiengesellschaft are responsible for reducing financing costs as far as possible, optimizing interest rates for financial investments, minimizing counterparty credit risk, leveraging economies of scale, hedging interest rate and exchange rate risk exposures as effectively as possible, and ensuring that loan covenants are complied with. The goal of GEA's financing strategy is not only to be able to meet its payment obligations whenever they fall due, but also to ensure that sufficient cash reserves are always available in the form of credit lines, in addition to maintaining a strategic cash position. The centralized liquidity portfolio is managed mainly for capital preservation and risk reduction by diversifying the cash investments.

The capital structure is monitored regularly using various key financial indicators so as to optimize capital costs. Core indicators include the equity ratio and the net debt to equity ratio (gearing). Net debt for the complete group is calculated as follows:

(EUR thousand)	12/31/2018	12/31/2017
Liabilities to banks	–68,391	–244,922
Borrower's note loan	–251,712	–
Cash and cash equivalents	247,900	250,507
Net liquidity (+)/Net debt (-)	**–72,203**	**5,585**
Equity	**2,449,436**	**2,503,083**
Equity ratio	**42.8%**	**43.5%**
Gearing	2.9%	–0.2%

Net debt fell by EUR 77,788 thousand in the course of the financial year, closing the year at EUR –72,203 thousand on December 31, 2018.

Two international rating agencies, Moody's and Fitch, again rated GEA Group Aktiengesellschaft's ability to meet its financial obligations. The ratings for GEA are as follows:

	2018		2017	
Agency	Rating	Outlook	Rating	Outlook
Moody's	Baa2	stable	Baa2	stable
Fitch	BBB	negative	BBB	stable

GEA's investment grade rating in the "BBB" range ensures that it has good financing opportunities both with banks and directly on the capital markets. The current ratings reflect GEA's strong solvency and ensure access to the international financial markets.

4. Acquisitions

4.1 Companies acquired

In 2018, GEA acquired the following company by way of a share deal:

Business	Head office	Acquisition Date	Percentage of voting interest (%)	Consideration transferred (EUR thousand)
VIPOLL d.o.o.	Križevci pri Ljutomeru (Slovenia)	January 3, 2018	100.0	14,932

On January 3, 2018, GEA completed the purchase of shares in the Slovenian corporate group VIPOLL and, in the process, acquired all the shares of VIPOLL's parent company, VIPOLL d.o.o.

VIPOLL specializes in the production and supply of filling equipment for carbonated soft drinks, beer, and dairy products, and will be assigned to the Business Area Solutions. The VIPOLL takeover will strengthen GEA's "Beverages Application Center". The takeover will see GEA strengthen its market position as a full solution provider for the beverages industry, while expanding its portfolio of equipment for filling glass bottles, cans, as well as PET bottles for non-sensitive products.

The transaction costs for the acquisition amounted to EUR 271 thousand. The transaction costs associated with the acquisition are reported in other expenses.

In addition, in January 2018, GEA fully acquired another business which, viewed individually, was relatively insignificant. The acquisition will, however, strengthen the Business Area Equipment's competitive position in its existing fields of business.

4.2 Consideration paid

The consideration paid is composed as follows:

Business (EUR thousand)	Cash	Contingent consideration	Total
VIPOLL d.o.o.	14,932	–	**14,932**

Due to a price adjustment clause, the actual consideration paid for VIPOLL of EUR 19,924 thousand was EUR 4,992 thousand less than the amount given in the consolidated financial statement of December 31, 2017.

4.3 Assets acquired and liabilities assumed

Allocation of the purchase price for VIPOLL was finalized in the fourth quarter with a few minor adjustments. In accordance with IFRS 3, the changes had to be retroactively accounted for as of the acquisition date of February 3, 2018 and led to an increase in goodwill for VIPOLL of EUR 819 thousand to now EUR 15,197 thousand.

At the time of the acquisition, the following assets were acquired and liabilities assumed:

Fair value (EUR thousand)	VIPOLL d.o.o.
Property, plant and equipment	2,114
Intangible assets	5,260
Deferred taxes	969
Non-current assets	**8,343**
Inventories	1,105
Trade receivables	3,041
Contract assets	808
Income tax assets	172
Other current assets	**1,636**
Cash and cash equivalents	**51**
Current assets	6,813
Total assets	15,156
Other non-current liabilities	**776**
Deferred taxes	1,002
Non-current liabilities	1,778
Current provisions	575
Current obligations to employees	**811**
Current financial liabilities	**2,974**
Trade payables	**3,922**
Current contract liabilities	4,351
Income tax liabilities	–
Other current liabilities	1,010
Current liabilities	13,643
Net assets acquired	–265
thereof attributable to GEA Group AG	–265
thereof attributable to non-controlling interests	–
Acquisition cost	14,932
Goodwill of GEA Group AG	15,197

The fair value and gross amount of the receivables acquired comprise the following elements:

Trade receivables (EUR thousand)	Gross amount	Contractual Cashflows not expected to be collectable	Fair value
VIPOLL d.o.o.	3,041	–	3,041

The goodwill arising from the acquisition of EUR 15,197 thousand is attributable to the strengthening of GEA's general competitive position, advantages from expected synergies and future market developments, and the expertise of the workforce. This was allocated to the Business Area Solutions. It is not expected that any of the goodwill arising on acquisition will be tax deductible.

4.4 Impact on consolidated revenue and consolidated profit

Since its acquisition, the VIPOLL corporate group has contributed to consolidated revenue and consolidated profit after tax as follows:

(EUR thousand)	Sales	Profit for the period
VIPOLL d.o.o.	29,327	2,182
Total	**29,327**	**2,182**

The figure provided for consolidated revenue and consolidated profit after tax is the amount that would have resulted had the corporate group been purchased on January 1, 2018.

4.5 Cash outflows

The acquisition of the VIPOLL corporate group resulted in the following cash outflows in 2018:

(EUR thousand)	2018
Consideration transferred	14,932
less contingent consideration	–
Purchase price paid	**14,932**
less cash acquired	–51
Net cash used in acquisition	**14,881**

Outflows of EUR 17,401 thousand from acquisitions were recognised in the cash flow statement for the fiscal year 2018.

4.6 Acquisitions in the previous year

Allocation of the purchase price for the Pavan corporate group purchased in the previous year was finalized in the fourth quarter of 2018 with amendments. In accordance with IFRS 3, the amendments had to be stated retrospectively to the acquisition date of November 30, 2017; the assets acquired and liabilities assumed through the acquisition are as follows:

The definitive measurement of the intangible assets resulted in a reduction in fair value of EUR 11,310 thousand. In addition, the fair value of the inventories increased by EUR 2,118 thousand. Both changes are primarily due to modified measurement presumptions that take into account the specific characteristics of the Pavan companies with respect to the amount and duration of the anticipated cash operating surpluses.

The measurement of property, plant, and equipment resulted in fair value higher by EUR 3,418 thousand, indicative of prevailing replacement cost.

In addition, the measurement of trade receivables led to a drop in fair value of EUR 1,246 thousand.

The provisions include an increase in obligations amounting to EUR 601 thousand, largely owing to possible warranty claims from customers.

In the scope of the acquisition, contingent liabilities amounting to EUR 3,260 thousand were stated. These liabilities primarily concern pending lawsuits regarding warranty claims from customers and other risks. If GEA must assume obligations, then the future, not discounted payments can range from EUR 2,785 thousand to EUR 3,735 thousand.

The aforementioned changes reduced deferred tax liabilities by EUR 2,283 thousand. In total, the goodwill for Pavan rose by EUR 8,599 thousand to EUR 247,589 thousand.

5. Consolidated Balance Sheet Disclosures: Assets

5.1 Property, plant and equipment

Property, plant and equipment changed as follows:

(EUR thousand)	Land and buildings (owner-occupied)	Technical equipment and machinery	Other equipment, operating and office equipment	Assets under construction	Total
Jan. 1, 2017					
Cost	525,064	442,452	353,075	39,602	**1,360,193**
Cumulative depreciation and impairment losses	–255,834	–338,608	–277,095	–3,610	**–875,147**
Carrying amount	**269,230**	**103,844**	**75,980**	**35,992**	**485,046**
Changes in 2017					
Additions	5,957	16,896	16,548	21,535	**60,936**
Disposals	–5,847	–996	–1,593	–2,378	**–10,814**
Depreciation*	–15,526	–21,084	–20,103	–80	**–56,793**
Impairment losses	–452	–235	–159	–	**–846**
Reclassification as held for sale	–	–	–	–	**–**
Acquisitions through business combinations*	26,694	16,179	605	–	**43,478**
Currency translation	–5,450	–3,129	–1,416	–296	**–10,291**
Other changes	4,731	10,977	1,055	–22,606	**–5,843**
Carrying amount at Dec. 31, 2017*	**279,337**	**122,452**	**70,917**	**32,167**	**504,873**
Jan. 1, 2018					
Cost	553,908	499,138	343,215	35,858	**1,432,119**
Cumulative depreciation and impairment losses	–274,571	–376,686	–272,298	–3,691	**–927,246**
Carrying amount	**279,337**	**122,452**	**70,917**	**32,167**	**504,873**
Changes in 2018					
Additions	5,586	21,921	28,322	35,254	**91,083**
Disposals	–5,273	–2,850	–1,516	–299	**–9,938**
Depreciation	–15,657	–23,460	–21,845	–45	**–61,007**
Impairment losses	–101	–162	–34	–	**–297**
Reclassification as held for sale	–	–	–	–	**–**
Acquisitions through business combinations	1,381	408	916	1	**2,706**
Currency translation	–499	–81	–425	–360	**–1,365**
Other changes	4,729	7,615	835	–20,528	**–7,349**
Carrying amount at Dec. 31, 2018	**269,503**	**125,843**	**77,170**	**46,190**	**518,706**
Dec. 31, 2018					
Cost	551,382	506,920	355,740	47,826	**1,461,868**
Cumulative depreciation and impairment losses	–281,879	–381,077	–278,570	–1,636	**–943,162**
Carrying amount	**269,503**	**125,843**	**77,170**	**46,190**	**518,706**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

As in the previous year, items of property, plant, and equipment are depreciated on a straight-line basis using the relevant residual values and the following useful lives:

	Useful life in years
Buildings and parts of buildings	2 to 50
Technical equipment and machinery, other equipment	2 to 25
Operating and office equipment	2 to 40

The underlying residual values and useful lives are reviewed at each reporting date and adjusted if necessary.

Property, plant and equipment includes land and buildings and office and operating equipment leased under finance leases:

(EUR thousand)	2018	2017
Cost - capitalized leased assets under finance leases	26,291	22,147
Cumulative depreciation and impairment losses	–15,847	–11,752
Carrying amount	**10,444**	**10,395**

EUR 6,830 thousand (previous year: EUR 10,159 thousand) of the carrying amount of the leased items of property, plant, and equipment relates to buildings. The leases for the buildings extend beyond 2020. In some cases, the lease contracts include a renewal option, an indexation clause or a purchase option.

The corresponding lease liabilities are explained under financial liabilities (see section 6.4).

The carrying amount of property, plant, and equipment that serves as collateral for credit lines amounted to EUR 0 thousand as of the reporting date (previous year: EUR 509 thousand).

5.2 Investment property

The following table shows the changes in investment property:

(EUR thousand)	Land	Buildings	Total
Jan. 1, 2017			
Cost	6,672	6,707	**13,379**
Cumulative depreciation and impairment losses	–3,979	–5,738	**–9,717**
Carrying amount	**2,693**	**969**	**3,662**
Changes in 2017			
Additions	141	–	**141**
Disposals	–815	–502	**–1,317**
Depreciation	–	–72	**–72**
Currency translation	1	–	**1**
Other changes	–	–	**–**
Carrying amount at Dec. 31, 2017	**2,020**	**395**	**2,415**
Jan. 1, 2018			
Cost	5,708	6,028	**11,736**
Cumulative depreciation and impairment losses	–3,688	–5,633	**–9,321**
Carrying amount	**2,020**	**395**	**2,415**
Changes in 2018			
Additions	–	–	**–**
Disposals	–	–	**–**
Depreciation	–	–54	**–54**
Currency translation	–	–	**–**
Other changes	–7	–	**–7**
Carrying amount at Dec. 31, 2018	**2,013**	**341**	**2,354**
Dec. 31, 2018			
Cost	5,701	6,028	**11,729**
Cumulative depreciation and impairment losses	–3,688	–5,687	**–9,375**
Carrying amount	**2,013**	**341**	**2,354**

The fair value of investment property is EUR 4,700 thousand (previous year: EUR 4,500 thousand). Since these fair values are calculated on the basis of comparable market-based prices that are determined internally, they are categorized within Level 2 of the fair value hierarchy.

The following amounts are reported in the income statement in connection with investment property:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Rental income	733	765
Operating expenses	260	257
thereof: properties used to generate rental income	260	257
Total	**473**	**508**

5.3 Goodwill

The following table provides a breakdown of goodwill by Business Area (the group's operating segments) and changes in goodwill over time:

(EUR thousand)	BA Equipment	BA Solutions	Total
Carrying amount at Dec. 31, 2016	**883,625**	**622,004**	**1,505,629**
Additions*	247,936	–	**247,936**
Disposals	–	–657	**–657**
Currency translation	–11,473	–7,029	**–18,502**
Reclassification	–	–	**–**
Carrying amount at Dec. 31, 2017*	**1,120,088**	**614,318**	**1,734,406**
Additions	2,637	15,197	**17,834**
Disposals	–534	–	**–534**
Currency translation	3,248	336	**3,584**
Reclassification	1,244	–1,244	**–**
Carrying amount at Dec. 31, 2018	**1,126,683**	**628,607**	**1,755,290**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The addition in financial year 2018 was mainly attributable to the acquisition of the Slovenian corporate group Vipoll in the Business Area Solutions.

Impairment test

Goodwill recoverability was tested at the end of fiscal year 2018. The operating segments in the form of Business Areas were identified as cash-generating units with goodwill for the purpose of the year-end impairment test. The recoverable amounts for the Business Areas were compared with their carrying amounts, which included any goodwill allocated to them.

The recoverable amount of an operating segment is determined by calculating value in use using the discounted cash flow method. The cash flows used are the after-tax operating cash flows from the consolidated medium-term planning prepared by the Executive Board. Besides the budget for 2019, this covers a further two planning years. The corresponding planning values were extrapolated using a top-down approach. The Supervisory Board has taken note of the corresponding plans. Assumptions for the period beyond the planning horizon are based on the cash flows in the previous planning year, extrapolated using a uniform growth rate of 1.5 percent (previous year: 1.5 percent). The underlying growth rates do not exceed the average long-term growth rates for the markets in which the segments operate.

In the medium to long term, the planning assumes continued stable growth in the food and beverage sales markets. This assumption is based on an expectation of growing demand for processed foods. Both GEA's Business Areas will profit from these underlying trends. Growth is also assumed for the other customer industries. These trends will also affect both Business Areas. In addition, planned growth for the individual Business Areas also takes account of actual past growth rates.

With regard to raw material prices, medium to long term it is assumed that any increase can be offset by increased selling prices. Future acquisitions and restructuring measures are not included in the planning process.

Overall, in the medium to long term a moderate increase in earnings is assumed.

The total cost of capital assumed for discounting is based on a risk-free interest rate of 1.00 percent (previous year: 1.25 percent) and a market risk premium of 6.75 percent (previous year: 6.50 percent). In addition, beta factors derived from the respective peer group, a borrowing risk premium, as well as capital structure were taken into account for each segment. Segment-specific tax rates were also applied.

Cash flows for the individual segments are discounted using the following after-tax rates:

Discount rate (%)	12/31/2018	12/31/2017
BA Equipment	7.27[1]	7.33[1]
BA Solutions	6.96[2]	6.54[2]

1) The pre-tax interest rate relevant for BA Equipment is 9.71 percent (previous year: 9.94 percent).
2) The pre-tax interest rate relevant for BA Solutions is 8.67 percent (previous year: 8.48 percent).

The impairment tests conducted for the goodwill confirm its recoverability. Even if the above parameters were to be changed, none of the cash-generating units listed above would be impaired.

5.4 Other intangible assets

The carrying amount of intangible assets changed as follows:

(EUR thousand)	Market-related intangible assets	Customer-related intangible assets	Contract-based intangible assets	Technology-based intangible assets	Internally generated intangible assets	Total
Jan. 1, 2017						
Cost	120,194	223,133	111,900	170,431	179,387	**805,045**
Cumulative amortization and impairment losses	–14,913	–118,943	–84,579	–88,714	–69,095	**–376,244**
Carrying amount	**105,281**	**104,190**	**27,321**	**81,717**	**110,292**	**428,801**
Changes in 2017						
Additions	–	–	15,648	2,144	43,922	**61,714**
Disposals	–	–	–174	–7	–773	**–954**
Amortization*	–324	–21,801	–9,254	–8,792	–19,532	**–59,703**
Impairment losses	–370	–	–9	–476	–	**–855**
Acquisitions through business combinations*	8,827	76,419	125	12,848	–	**98,219**
Currency translation	–1,960	–693	–321	–1,505	–386	**–4,865**
Other changes	25	5	542	–4,426	9,649	**5,795**
Carrying amount at Dec. 31, 2017*	**111,479**	**158,120**	**33,878**	**81,503**	**143,172**	**528,152**
Jan. 1, 2018						
Cost	126,842	296,632	123,566	162,590	240,949	**950,579**
Cumulative amortization and impairment losses	–15,363	–138,512	–89,688	–81,087	–97,777	**–422,427**
Carrying amount	**111,479**	**158,120**	**33,878**	**81,503**	**143,172**	**528,152**
Changes in 2018						
Additions	–	–	5,391	3,252	41,156	**49,799**
Disposals	–	–	–13	–129	–489	**–631**
Amortization	–946	–35,961	–11,017	–10,869	–25,859	**–84,652**
Impairment losses	–5,674	–8,977	–4,485	–2,367	–3,058	**–24,561**
Acquisitions through business combinations	1,701	3,750	66	1,361	–	**6,878**
Currency translation	105	–72	7	194	37	**271**
Other changes	–	–	753	583	6,080	**7,416**
Carrying amount at Dec. 31, 2018	**106,665**	**116,860**	**24,580**	**73,528**	**161,039**	**482,672**
Dec. 31, 2018						
Cost	128,691	299,897	124,500	166,760	286,902	**1,006,750**
Cumulative amortization and impairment losses	–22,026	–183,037	–99,920	–93,232	–125,863	**–524,078**
Carrying amount	**106,665**	**116,860**	**24,580**	**73,528**	**161,039**	**482,672**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The additions to internally generated intangible assets are primarily attributable to the Business Area Equipment and to the Global Corporate Center. In the former, costs relating to developments in automated milking and in the field of slicers, in particular, were capitalized. The additions in the Global Corporate Center are largely the result of the Customer Relationship Management System (OneGEA CRM) launched in mid-2017 and of capitalized expenses in connection with the "One ERP" project.

In 2018, expenditure on research and development amounted to EUR 119,889 thousand. These figures include refunded expenses totaling EUR 18,151 thousand that are recorded in the cost of sales. Please see the section "Research and Development" in the combined group management report for more information.

The impairment on market-related intangible assets of EUR 5,674 thousand is fully attributable to brands with an indeterminate useful life and is explained in more detail later on in this chapter.

Impairments on customer-related intangible assets are attributable to unscheduled writedowns from the customer base.

The impairment on contract-based assets was mainly due to the full amortization of the license to a certain technology which, due to a strategic decision, would no longer be generating revenue.

Intangible assets with finite useful lives are amortised on a straight-line basis using the following useful lives:

	Useful life in years
Market-related intangible assets	2 to 20
Customer-related intangible assets	2 to 15
Contract-based intangible assets	2 to 20
Technology-based intangible assets	2 to 25

Amortization of intangible assets attributable to the complete group in the amount of EUR 84,652 thousand in fiscal year 2018 (previous year: EUR 59,703* thousand) is reported in cost of sales and, where this relates to discontinued operations, in profit or loss from discontinued operations.

An indefinite useful life is assumed for market-related intangible assets of EUR 95,244 thousand (previous year: EUR 109,405 thousand). These assets are company and product names of the acquired companies. These are established brands in their respective sectors and will continue to be used indefinitely after the company in question has been acquired, which is why there are no indications of a limited useful life.

The carrying amount of intangible assets with indefinite useful lives is broken down as follows:

	12/31/2018		12/31/2017	
Segment	Carrying amount (EUR thousand)	Proportion of total carrying amount (%)	Carrying amount (EUR thousand)	Proportion of total carrying amount (%)
BA Equipment	39,259	41.2	49,982	45.7
BA Solutions	55,985	58.8	59,423	54.3
Total	**95,244**	**100.0**	**109,405**	**100.0**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

In the previous year, the Pavan brand still accounted for EUR 8,776 thousand of the total carrying amount of intangible assets with indefinite useful lives (EUR 109,405 thousand). Allocation of the purchase price of Pavan has now been finalized. Since the brand as a result of which is to be subject to scheduled amortization, it is not included in the carrying amount (EUR 95,244 thousand) of intangible assets with indefinite useful lives.

These brands are tested for impairment at least once a year. For this purpose, their fair value less costs to sell is first determined using the relief from royalty method. Under this approach, the value of a brand is calculated on the basis of the future royalties that GEA would have to pay if it had to license the brands from third parties. The brand-related revenue is multiplied by the estimated license fee installments. The brand-related revenue is derived from the medium-term planning prepared by the Executive Board. The Supervisory Board has taken note of the corresponding plans for 2019. The assumed license fee installments generally correspond to those of the initial measurement. The savings calculated in this way are then discounted using a brand-specific after-tax discount rate. Valuation is based on the following assumptions:

(%)	12/31/2018	12/31/2017
Discount rate	6.48 - 8.30	6.55 - 7.87
Royalty rate	0.50 - 3.00	0.50 - 3.00

If a brand's fair value less costs of disposal is less than its carrying amount, the brand is tested for impairment on the basis of the recoverable amount of the cash-generating unit to which it belongs. The recoverable amount of the cash-generating unit is calculated by determining its value in use. With regard to the procedure and key assumptions for determining the value in use, reference is made to the assumptions on goodwill impairment testing (see section 5.3).

The impairment test performed at the end of the year produced a writedown in the amount of EUR 5,674 thousand (previous year: EUR 370 thousand), of which EUR 2,280 thousand was attributable to the Business Area Equipment and EUR 3,394 thousand to the Business Area Solutions (previous year: attributable only to the Business Area Solutions).

5.5 Equity-accounted investments

The relevant figures for equity-accounted investments are based on the most recently available annual financial statements.

The respective carrying amounts and the share of the profit of equity-accounted investments are insignificant in relation to the group's total assets and profit.

Associates

Equity-accounted associates are reported at a carrying amount of EUR 70 thousand as of December 31, 2018 (previous year: EUR 67 thousand).

The share of the profit or loss of equity-accounted associates is as follows:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Profit/loss from continuing operations	16	56
Total result	**16**	**56**

Joint ventures

Equity-accounted joint ventures are reported at a carrying amount of EUR 11,813 thousand as of December 31, 2018 (previous year: EUR 14,347 thousand).

The share of the profit or loss of equity-accounted joint ventures is as follows:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Profit/loss from continuing operations	1,675	2,042
Total result	**1,675**	**2,042**

5.6 Other financial assets

Other financial assets are composed of the following items:

(EUR thousand)	12/31/2018	12/31/2017
Investments in unconsolidated subsidiaries and other equity investments	20,618	21,175
Other securities	8,146	8,525
Derivative financial instruments	46	37
Miscellaneous other financial assets	9,473	8,986
Other noncurrent financial assets	**38,283**	**38,723**
Derivative financial instruments	4,456	3,915
Miscellaneous other financial assets	179,512	176,727
Other current financial assets	**183,968**	**180,642**
Total	**222,251**	**219,365**

Derivative financial instruments

Derivative financial instruments are explained in section 6.9.

Miscellaneous other financial assets

Miscellaneous other financial assets with a carrying amount of EUR 188.985 thousand (previous year: EUR 185.713 thousand) were recognised as of the reporting date. They are broken down into noncurrent and current assets as follows:

(EUR thousand)	12/31/2018	12/31/2017
Other receivables from unconsolidated subsidiaries	–	200
Other receivables from equity investments	700	729
Receivables from tax authorities	424	883
Sundry miscellaneous other financial assets	8,349	7,174
Other noncurrent financial assets	**9,473**	**8,986**
Other receivables from unconsolidated subsidiaries	4,838	4,263
Other receivables from equity investments	8,110	8,407
Other receivables from tax authorities	61,903	58,312
Sundry miscellaneous other financial assets	104,661	105,745
Other current financial assets	**179,512**	**176,727**
Total	**188,985**	**185,713**

Other receivables from tax authorities primarily comprise VAT receivables.

Miscellaneous other financial assets include prepaid expenses totaling EUR 31,191 thousand (previous year: EUR 32,735 thousand).

The maturity structure of miscellaneous other financial assets in the previous year is as follows:

(EUR thousand)		12/31/2017
Carrying amount before impairment losses		**116,145**
Impairment losses		3,226
Carrying amount		**112,919**
thereof not overdue at the reporting date		111,482
thereof past due at reporting date		1,437
	less than 30 days	1,262
	between 31 and 60 days	16
	between 61 and 90 days	26
	between 91 and 180 days	–
	between 181 and 360 days	–
	more than 360 days	133

More information on credit risks in connection with other financial assets can be found in chapter 3.

5.7 Inventories

Inventories are composed of the following items:

(EUR thousand)	12/31/2018	12/31/2017[1]
Raw materials, consumables, and supplies	172,861	145,872
Work in progress	168,631	124,098
Assets for third parties under construction	14,799	18,914
Finished goods and merchandise	312,022	294,384
Advance payments	72,383	78,096
Cost to obtain a contract[2]	648	–
Total	**741,344**	**661,364**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Presentational changes compared to the previous period result from the application of IFRS 15. For more details please refer to section 1.2 "Reporting Principles" in the Notes to the Annual Report 2018.

Inventories of EUR 3,089 million were recognised as an expense in fiscal year 2018 (previous year: EUR 2,816 million). Impairment losses on inventories totaled up to EUR 17,822 thousand in the reporting period (previous year: EUR 20,262 thousand). In the current reporting period, prior-year impairment losses on inventories amounting to EUR 3,496 thousand (previous year: EUR 3,879 thousand) were reversed. The reversals were recognised in cost of sales. The incremental costs of obtaining a contract included in the cost of sales amounted to EUR 216 thousand in the year under review.

5.8 Trade receivables

Trade receivables are composed of the following items:

(EUR thousand)	12/31/2018	12/31/2017[1]
Trade receivables	923,884	925,504
thereof from third parties	897,420	903,640
thereof from unconsolidated subsidiaries	26,464	21,864
Gross amount due from customers for contract work[2]	–	465,243
Total	**923,884**	**1,390,747**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Presentational changes compared to the previous period result from the application of IFRS 15. For more details please refer to section 1.2 "Reporting Principles" in the Notes to the Annual Report 2018.

Trade receivables include receivables of EUR 15,579 thousand (previous year: EUR 6,519 thousand) that will not be realized until more than one year after the reporting date. Bad debt allowances on trade receivables totaled EUR 64,776 thousand (previous year: EUR 59,654 thousand).

The maturity structure of prior-year trade receivables – with the exception of receivables from unconsolidated subsidiaries – is as follows:

(EUR thousand)		12/31/2017*
Carrying amount before impairment losses		**963,294**
Impairment losses		59,654
Carrying amount		**903,640**
thereof not overdue at the reporting date		586,090
thereof past due at reporting date		317,550
	less than 30 days	115,573
	between 31 and 60 days	45,567
	between 61 and 90 days	24,888
	between 91 and 180 days	49,045
	between 181 and 360 days	46,207
	more than 360 days	36,270

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

In accordance with IFRS 7, the disclosure of the maturity structure for financial instruments is no longer required from the 2018 financial year onwards. Further details on the maturity structure of trade receivables can now be found in the section Financial position of the Report on Economic Position (see page 47). More information on credit risks in connection with trade receivables can be found in chapter 3.

5.9 Contract assets

The contract assets are composed of the following items:

(EUR thousand)	12/31/2018
Capitalized production cost of construction contracts	3,046,108
plus net gain from construction contracts	547,497
plus capitalized borrowing costs allocated to construction contracts	620
less progress billings	3,417,588
less advance payments received and invoiced on construction contracts	119,070
less impairment	1,648
Reclassification credit balance	406,868
Total contract assets	**462,787**

In the reporting year, impairment losses of EUR 1,537 thousand were recognised for contract assets. In the current reporting period, prior-year impairment losses on contract assets amounting to EUR 13 thousand were reversed.

Please see section 7.1 for a more extensive description of the contract assets.

Construction contracts

In the previous year, the gross amount due from and to customers for contract work was composed of the following items:

(EUR thousand)	12/31/2017
Capitalized production cost of construction contracts	3,200,714
plus net gain from construction contracts	538,854
less anticipated losses	26,901
less progress billings	3,617,473
Total	**95,194**
Gross amount due from customers for contract work (included in trade receivables)	465,243
Gross amount due to customers for contract work (included in other liabilities)	–370,049
Total	**95,194**

5.10 Income tax receivables

At the reporting date, income tax receivables amounted to EUR 40.214 thousand (previous year: EUR 30.738 thousand). As in the previous year, the full amount is due within one year.

5.11 Cash and cash equivalents

Cash and cash equivalents were composed of the following items at the reporting date:

(EUR thousand)	12/31/2018	12/31/2017
Unrestricted cash	247,475	249,493
Restricted Cash	425	1,014
Total	**247,900**	**250,507**

Cash and cash equivalents comprise cash funds and overnight deposits. Restricted cash mainly consists of bank deposits.

During the year, the standard market interest rate for short-term bank deposits in the eurozone was 0.0 percent (previous year: between 0.0 and 0.1 percent). The average interest rate as of the end of the year is 0.0 percent (previous year: 0.0 percent).

5.12 Assets held for sale

Assets held for sale are reported at a carrying amount of EUR 3.700 thousand (previous year: EUR 0 thousand) as of December 31, 2018. These assets are the associated company Merton Wohnprojekt GmbH and a property in Canada, both of which belong to the Global Corporate Center. GEA expects to sell these assets within the financial year 2019.

6. Consolidated Balance Sheet Disclosures: Equity and Liabilities

6.1 Equity

Subscribed capital

The subscribed capital of GEA Group Aktiengesellschaft amounted to EUR 520,376 thousand as of December 31, 2018. In the previous year, the subscribed capital less treasury shares was disclosed as issued capital of EUR 489,372 thousand. The shares are bearer shares and are divided into 180,492,172 (previous year: 192,495,476) no-par value shares. All the shares are fully paid up.

The shares have a rounded notional value of EUR 2.88 each (previous year: EUR 2.70).

All shares convey the same rights. Shareholders are entitled to receive dividends as declared and are entitled to one vote per share at the Annual General Meeting. Treasury shares held by the company on the day of the Annual General Meeting do not carry voting rights and are not eligible for dividends.

Treasury shares

On June 21, 2018, with the consent of the Supervisory Board, GEA Group Aktiengesellschaft withdrew all the treasury shares it had purchased as part of the share buyback program. In total, 12,003,304 treasury shares were retired. This corresponds to a reduction of around 6.24 percent. The total number of GEA shares in circulation now stands at 180,492,172. GEA Group Aktiengesellschaft no longer holds any treasury shares.

Authorized capital

(EUR thousand)	Annual General Meeting resolution	Expiring on	Amount (EUR thousand)
Authorized Capital I	April 20, 2017	April 19, 2022	77,000
Authorized Capital II	April 16, 2015	April 15, 2020	130,000
Authorized Capital III	April 16, 2015	April 15, 2020	52,000
Total			**259,000**

In the case of the **Authorized Capital I** and in accordance with Article 4(3) of the Articles of Association, the Executive Board is authorized, with the approval of the Supervisory Board, to increase the share capital by up to EUR 77 million by issuing new no-par value shares against cash contributions until April 19, 2022 (Authorized Capital I) and, in accordance with Article 5(4) of the Articles of Association, to define a starting date for profit rights in this case that differs from the date stipulated by law. The authorization may be exercised fully or in partial amounts, on one or several occasions. Shareholders are generally entitled to subscribe to the new shares. The statutory subscription right may also be granted by the new shares being underwritten by one or more banks with the obligation of offering them to the shareholders for subscription (indirect subscription right). The Executive Board is authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights (i) insofar as this is necessary to eliminate fractional amounts, and/or (ii) in order to grant the creditors of convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the Company a right to subscribe to new shares to the extent to which they would be entitled after exercising the option or conversion rights or after fulfilling conversion obligations. Furthermore, the Executive Board is authorized, with the approval of the Supervisory Board, to stipulate the further details of capital increases from Authorized Capital I and the terms and conditions of the share issue.

In the case of the **Authorized Capital II** and in accordance with Article 4(4) of the Articles of Association, the Executive Board is authorized, with the approval of the Supervisory Board, to increase the share capital, wholly or in part, by up to EUR 130 million by issuing new no-par value shares against cash and/or non-cash contributions on one or more occasions until April 15, 2020 (Authorized Capital II) and, in accordance with Article 5(4) of the Articles of Association, to define a starting date for profit rights in this case that differs from the date stipulated by law. The statutory subscription right may also be granted by the new shares being underwritten by one or more banks with the obligation of offering them to the shareholders for subscription (indirect subscription right). Furthermore, the Executive Board is authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights in the case of capital increases against noncash contributions for the purpose of business combinations or the acquisition of companies, parts of companies, or equity interests in companies or other assets. The Executive Board is further authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights (i) in order to implement a so-called scrip dividend where the shareholders of GEA Group Aktiengesellschaft are given the option of contributing their dividend entitlement either wholly or partially to the company as a noncash contribution in return for the granting of new shares, (ii) insofar as it is necessary to eliminate fractional amounts, and (iii) in order to grant the creditors of convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the company a right to subscribe to new shares to the extent to which they would be entitled after exercising the option or conversion rights or after fulfilling conversion obligations. The total proportionate amount of GEA Group Aktiengesellschaft's share capital allocable to shares issued against cash and/or noncash contributions under disapplication of shareholders' preemptive rights must not exceed 10 percent of the company's share capital at the time when the resolution was adopted by the Annual General Meeting. Finally, the Executive Board is authorized, with the approval of the Supervisory Board, to stipulate the further details of the capital increases from Authorized Capital II and the terms and conditions of the share issue.

In the case of the **Authorized Capital III** and in accordance with Article 4(5) of the Articles of Association, the Executive Board is authorized, with the approval of the Supervisory Board, to increase the share capital by up to EUR 52 million by issuing new no-par value shares against cash contributions on one or more occasions until April 15, 2020 (Authorized Capital III) and, in accordance with Article 5(4) of the Articles of Association, to define a starting date for profit rights in this case that differs from the date stipulated by law. The statutory subscription right may also be granted by the new shares being underwritten by one or more banks with the obligation of offering them to the shareholders for subscription (indirect subscription right). The Executive Board is authorized, with the approval of the Supervisory Board, to exclude shareholders' subscription rights if the issue price of the new shares is not significantly lower than the stock exchange price for company shares of the same kind at the time of setting the issue price. In line with the modalities of this disapplication of preemptive rights, the shares issued in accordance with section 203(1) and section 186(3) no. 4 of the AktG (German Stock Corporation Act) may not exceed 10 percent of the share capital of the company either at the time at which this authorization takes effect or at the time at which it is exercised (upper limit). The upper limit of 10 percent shall be reduced by the proportionate amount of the share capital allocable to shares (i) issued during the term of the Authorized Capital III under disapplication of preemptive rights in accordance with section 71(1) no. 8 sentence 5, and Section 186(3) sentence 4 of the AktG (German Stock Corporation Act) or (ii) issued to service convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the company, as long as the convertible or option bonds have been issued during the term of the Authorized Capital III under disapplication of preemptive rights in accordance with section 186(3) sentence of the 4 AktG. The Executive Board is further authorized, with the approval of the Supervisory Board, to disapply shareholders' preemptive rights (i) insofar as it is necessary to eliminate fractional amounts, and (ii) in order to grant the creditors of convertible or option bonds with option or conversion privileges or obligations issued by GEA Group Aktiengesellschaft or a subordinate group company of the Company a right to subscribe to new shares to the extent to which they would be entitled after exercising the option or conversion rights or after fulfilling conversion obligations. Finally, the Executive Board is authorized, with the approval of the Supervisory Board, to stipulate the further details of the capital increases from Authorized Capital III and the terms and conditions of the share issue.

Contingent capital

(EUR thousand)	12/31/2018	12/31/2017
Bonds with warrants and convertible bonds according Annual General Meeting resolution 16. April 2015	51,904	51,904
Total	**51,904**	**51,904**

Under a resolution adopted by the Annual General Meeting on April 16, 2015, the share capital was contingently increased by up to EUR 51,903,633.82, comprising up to 19,200,000 bearer shares (Article 4(6) of the Articles of Association, Contingent Capital 2015). The contingent capital increase will only be implemented to the extent that the holders of conversion or option privileges from convertible bonds or option bonds, profit participation rights or profit participating bonds or a combination of these instruments issued against cash contributions by GEA Group Aktiengesellschaft or a subordinate group company of the Company on the basis of the authorization by the Annual General Meeting resolution dated April 16, 2015 exercise their conversion or option privileges, or, if they are obliged to convert or exercise options, satisfy their obligation to convert or exercise options, and if no cash settlement is granted or own shares or shares of another listed company are used in settlement. New shares will be issued at the conversion or option price to be determined in each case in accordance with the authorizing resolution referred to above. The new shares bear dividend rights from the beginning of the fiscal year in which they were created as a result of the exercising of conversion or option privileges or the fulfillment of conversion or option obligations. The Executive Board is authorized, with the approval of the Supervisory Board, to determine the further details of the implementation of the contingent capital increase.

As in the previous year, no bonds with warrants or convertible bonds were issued in fiscal year 2018.

Capital reserves

Capital reserves primarily reflect the effects from the business combination of the former Metallgesellschaft Aktiengesellschaft and the former GEA AG as well as premiums from issuing shares of the former Metallgesellschaft AG.

Capital reserves were unchanged compared with the previous year at EUR 1,217,861 thousand.

Retained earnings

The changes in retained earnings and net retained profits are reported in the statement of changes in equity. Actuarial gains and losses on the measurement of noncurrent employee benefit obligations are included in retained earnings. Moreover, netting of the treasury shares purchased for future withdrawal will result in a drop in retained earnings.

The distribution of profits is based on the annual financial statements of GEA Group Aktiengesellschaft prepared in accordance with the HGB.

Accumulated other comprehensive income

Changes in equity outside profit or loss are reported in accumulated other comprehensive income if they do not relate to capital transactions with shareholders. Other comprehensive income comprises the gains or losses on financial assets measured at fair value and recognised directly in equity, the effective portion of the change in fair value of derivatives designated as cash flow hedges, and exchange rate gains or losses from the translation of the financial statements of foreign subsidiaries.

Noncontrolling interests

Noncontrolling interests in GEA companies amounted to EUR 568 thousand (previous year: EUR 1.191 thousand). EUR 593 thousand of this swing is attributable to trends in the shares of noncontrolling interest of the Pavan corporate group.

6.2 Provisions

The following table shows the composition of and changes in provisions in 2018:

(EUR thousand)	Guarantees, warranties	Financial guarantee contracts	Litigation risks	Follow-up costs	Environmental protection, mining	Impending Losses	Other provisions	Provisions
Balance at Jan. 1, 2018 [1) 2)]	**61,772**	**2,917**	**11,036**	**17,826**	**110,193**	**36,638**	**67,571**	**307,953**
thereof non-current	7,137	–	7,086	3,199	110,121	27	25,581	153,151
thereof current	54,635	2,917	3,950	14,627	72	36,611	41,990	154,802
Additions	60,416	–	5,698	23,009	900	9,579	43,478	143,080
Utilization	–41,606	–119	–4,611	–9,191	–2,184	–845	–31,034	–89,590
Reversal	–21,831	–	–1	–4,318	–23,959	–9,692	–9,162	–68,963
Changes in consolidated group	351	–	–	–	–	–	226	577
Compounding and change in interest rate	–	–	1,026	–	24,597	–	9	25,632
Exchange differences	–75	–	–96	65	2	–32	–548	–684
Balance at Dec. 31, 2018	**59,027**	**2,798**	**13,052**	**27,391**	**109,549**	**35,648**	**70,540**	**318,005**
thereof non-current	6,329	–	8,495	3,354	109,483	398	29,176	157,235
thereof current	52,698	2,798	4,557	24,037	66	35,250	41,364	160,770

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) GEA applied IFRS 15 for the first time as of January 1, 2018. For more details please refer to section „Reporting Principles" in the Notes to the Consolidated Financial Statements of the Annual Report 2018.

Provisions for guarantees and warranties

Provisions for guarantees and warranties relate to warranty commitments for products and equipment. As is customary in the industry, the guarantees and warranties on which they are based are granted in connection with certain performance criteria relating to products or equipment (e.g., guaranteed output volume, quality of product manufactured). Warranties usually have a contractual term of between one and two years from the date on which the products or equipment are accepted. In addition to warranties explicitly agreed under contract, product liability rules apply in many sales countries and may also stipulate that the manufacturer is liable beyond the contractually defined term of the warranty. In some cases, recourse claims exist in the form of insurance refunds or subcontractor guarantees. The level of provisions is based on management's best estimate. GEA expects to settle most of the provisions for guarantees and warranties in the coming year.

Provisions for financial guarantee contracts

Provisions for financial guarantee contracts comprise obligations under indemnification agreements as well as warranties and undertakings relating to the sale of business activities. The changes in these provisions in fiscal year 2018 are due to utilization. An outflow of all provisions set up for financial guarantee contracts is expected in fiscal year 2019.

Litigation risks

Provisions are recognised for risks arising from expected or pending litigation against GEA companies, if an unfavorable outcome of the proceedings is believed to be likely. Assessments by lawyers and legal experts representing the company were used to determine the likelihood of such litigation. The probable damages or sanctions have been recognised as a liability. The timing of cash outflows relating to provisions for litigation risks often cannot be reliably determined.

Follow-up costs

This item comprises the cost of residual work that is incurred after a contract has already been invoiced and the profit from the contract has been recognised. The amount of the expected cost is stated. Payments are made almost in their entirety in the following year.

Environmental protection, mining

This item mainly comprises provisions for the clean-up of pit water from past mining activities and for the clean-up of other instances of groundwater contamination. Improved findings in the 2018 financial year prompted GEA to modify its predictions with regard to future cash outflows for commitments stemming from environmental protection and mining. This resulted in the reversal of provisions of EUR 23,959 thousand as of December 31, 2018 with an effect on income. Countering this development was an increase of EUR 24,597 thousand in provisions due to interest rate changes, and this had a corresponding effect on net interest income. The law is still unclear as to the amount and duration of the company's obligation to clean up pit and ground water. These obligations are expected to extend to well beyond 2035.

Provisions for impending losses

This item mainly comprises impending losses resulting from customer contracts for which revenue is recognised over time pursuant to IFRS 15. As soon as an impending loss becomes known, its expected amount is reported immediately.

Other provisions

Other provisions comprise provisions for a range of individual items. Around 59 percent of other provisions are expected to be settled in fiscal year 2019.

6.3 Employee benefit obligations

Employee benefit obligations comprise the following items:

(EUR thousand)	12/31/2018	12/31/2017
Obligations under pension plans and supplementary healthcare benefits	766,213	762,415
thereof defined benefit pension plans	751,824	746,245
thereof obligations under supplementary healthcare benefits	14,320	16,089
thereof defined contribution pension plans	69	81
Other employee benefit obligations	3,056	3,806
Partial retirement	10,345	13,569
Jubilee benefits	9,360	9,033
Redundancy plan and severance payments	607	866
Other non-current obligations to employees	1,681	5,027
Non-current employee benefit obligations	**791,262**	**794,716**
Redundancy plan and severance payments	8,985	14,501
Outstanding vacation, flexitime/overtime credits	60,549	58,224
Bonuses	77,284	58,594
Other current obligations to employees	17,427	15,752
Current employee benefit obligations	**164,245**	**147,071**
Total employee benefit obligations	**955,507**	**941,787**

The rise in current employee benefit obligations is largely due to bonus payments.

6.3.1 Obligations under defined benefit pension plans and supplementary healthcare benefits

Wherever possible, defined benefit pension obligations and obligations under supplementary healthcare benefits are disclosed below in the aggregate and explained together.

All obligations were actuarially valued as of December 31, 2018, and as of December 31, 2017.

Defined benefit pension plans

GEA employees are offered various benefit options, mainly in the form of defined benefit and defined contribution pension plans.

Defined benefit pension plan obligations exist in Germany and, outside of Germany, mainly in the U.S.A. and the United Kingdom. In addition, other foreign companies have typical country-specific pension plans that are funded in part by plan assets. Benefits and investments correspond to the country-specific economic environment and requirements.

GEA views granting pension benefits as an opportunity to foster employee loyalty and engagement. It is therefore a standard feature of the remuneration concept and has an employee contribution component, where this is appropriate. In connection with this, GEA monitors developments on the human resources market and regularly checks that the benefits it grants are appropriate and in line with the market.

GEA does not believe that the pension obligations pose any risks over and above the customary extent and the general risks described.

Pension benefits in Germany

In Germany, GEA grants old-age, disability, and survivors' benefits to many of its employees. New employees are generally only granted benefits that are partly funded by employee contributions.

As part of the general benefits provided, all employees have the opportunity to voluntarily defer part of their compensation. Under this arrangement, an agreed amount of their salary plus an employer contribution of up to 100 percent of the deferred amount is converted into a pension benefit. A corresponding collective bargaining agreement was entered into in 2002 and revised in 2008. In this case, the post-retirement benefits are adjusted by 1 percent each year.

According to GEA's new executive pension scheme, executives are granted benefits in the form of an asset-backed defined benefit plan. The plan assets are managed under a Contractual Trust Arrangement (CTA) and invested in mixed funds. The size of the employer's contributions to the plan assets depends on the size of the fixed salaries of the beneficiaries. Beneficiaries can also contribute from their own income by means of deferred compensation. The beneficiaries are then entitled to the net earnings generated by the plan assets. There is also a notional premium guarantee.

In addition to the currently open benefit plans, there are a number of historical pension plans in the company. These plans are generally closed to new employees, but are maintained unchanged for employees who were members at the time the plan was closed. These include obligations under "Bochumer Verband" and "Essener Verband" as well as obligations established independently by their predecessors. Entitlements also exist from the earlier executive pension scheme, which has been closed to new members since the end of the fiscal year 2014. Post-retirement benefits from the earlier executive pension scheme are adjusted by 1 percent each year.

The pension obligations are partly funded by pension liability insurances.

Pension benefits outside Germany

Pension benefits outside Germany mainly exist in the U.S.A and the United Kingdom.

In the U.S.A., there are pension obligations from various pension plans that were closed in succession up to December 31, 2000. No further benefits are earned from a defined benefit pension plan for periods of service after the respective closure date. Old-age and survivors' benefits accrued at the closure date of the respective plan were fixed on the basis of pensionable income at the closure date. Benefits may be paid out in the form of annuities or lump-sum payments. Existing pension obligations are partly funded by plan assets. The assets are held separately from the company in an external trust. The companies have appointed independent trustees in accordance with statutory provisions to manage the funding of obligations and the investment of assets according to the company's specifications. Any funding deficit is established annually in accordance with legal requirements and spread over a fixed time period if required. The statutory basis for minimum funding was last amended in 2012 by the Moving Ahead for Progress in the 21st Century Act (MAP–21).

In the United Kingdom, there are pension obligations from two UK pension plans, one of which has been closed for a number of years and applies exclusively to former employees. The second plan is closed to new employees, but continues to provide old-age and survivors' benefits to the currently active participants based on pensionable income in the year before the employment relationship ends; these benefits are funded by salary-dependent employee contributions to plan assets. The accrued entitlements and current benefits in the United Kingdom are adjusted in accordance with statutory requirements on the basis of inflation. Pension obligations from both plans are partly funded by plan assets. The companies appointed independent trustees in accordance with statutory provisions to manage the funding of obligations and the investment of assets according to the company's specifications. Company pension plans are valued every three years in accordance with legal requirements, and any deficit is established. If the plan is underfunded, the trustee prepares a funding plan to regulate the funding of the deficit, taking account of the actuary's recommendation and the type and circumstances of the respective plan.

Supplementary healthcare benefits

In addition to occupational pension benefits, certain retired employees are granted health insurance subsidies. New entitlements to health insurance subsidies are no longer granted in Germany. There are now only a few employees with such benefits in active employment. Existing obligations from supplementary healthcare plans are not funded by plan assets. GEA does not see these benefits posing a particular risk due to the low level of the obligations.

Obligations under supplementary healthcare benefits relate mainly to Germany.

Provisions and funded status

The changes in the present value of the defined benefit obligation, the plan assets, and the provisions were as follows:

(EUR thousand)	12/31/2018 Germany	12/31/2018 Other countries	12/31/2017 Germany	12/31/2017 Other countries
Present value of defined benefit obligation at beginning of fiscal year	**732,799**	**155,673**	**740,509**	**174,644**
Current service cost	10,965	2,888	10,917	3,073
Interest Cost from discounting unwinding on obligations	12,064	3,978	12,271	4,443
Employee contributions	–	407	–	445
Remeasurement of present value of obligation	20,203	–6,656	–693	1,984
Actuarial gains/losses from changes in demographic assumptions	5,271	–1,226	–	–2,051
Actuarial gains/losses resulting from changes in financial assumptions	6,728	–6,028	–	4,545
Actuarial gains/losses resulting from experience adjustments	8,204	598	–693	–510
Past service cost	–	562	1,382	–265
Gains and losses from settlements	–	–	–	–270
Payments without settlements	–31,179	–9,875	–31,659	–7,896
Payments in respect of any settlements	–	–	–	–15,817
Transfer of assets	–	–	–166	–
Changes in combined group due to acquisitions	–	–970	–	8,071
Other changes in combined group	–	502	238	–516
Currency translation	–	3,008	–	–12,223
Present value of defined benefit obligation at end of fiscal year	**744,852**	**149,517**	**732,799**	**155,673**
Fair value of plan assets at beginning of the fiscal year	**31,258**	**96,113**	**27,080**	**116,754**
Interest income on plan assets	416	2,506	403	2,891
Employer contributions	5,077	4,617	4,742	4,552
Employee contributions	–	407	–	445
Remeasurement: return from plan assets in excess/ shortage of interest income	176	–3,730	58	2,188
Payments without settlements	–874	–8,403	–1,025	–6,529
Payments in respect of any settlements	–	–	–	–15,817
Changes in combined group due to acquisitions	–	–	–	532
Other changes in combined group	–	–	–	–676
Currency translation	–	1,969	–	–8,227
Fair value of plan assets at the end of fiscal year	**36,053**	**93,479**	**31,258**	**96,113**
Net carrying amount	**708,799**	**56,038**	**701,541**	**59,560**
thereof net asset	–	1,314	–	1,280
thereof net liability	708,799	57,352	701,541	60,840

The net carrying amount of obligations under defined benefit pension plans and supplementary healthcare benefits changed as follows in fiscal years 2018 and 2017:

(EUR thousand)	12/31/2018 Germany	12/31/2018 Other countries	12/31/2017 Germany	12/31/2017 Other countries
Net carrying amount at beginning of fiscal year	701,541	59,560	713,429	57,890
Changes through profit or loss	22,613	4,922	24,167	4,090
Current service cost	10,965	2,888	10,917	3,073
Past service cost	–	562	1,382	–265
Gains and losses on settlements	–	–	–	–270
Net interest on net defined benefit liability	11,648	1,472	11,868	1,552
Changes through OCI	20,027	–2,926	–751	–204
Return from plan assets in excess interest income	–176	3,730	–58	–2,188
Actuarial gains/losses from changes in demographic assumptions	5,271	–1,226	–	–2,051
Actuarial gains/losses resulting from changes in financial assumptions	6,728	–6,028	–	4,545
Actuarial gains/losses resulting from experience adjustments	8,204	598	–693	–510
Cash-effective changes	–35,382	–6,089	–35,376	–5,919
Employer contributions	–5,077	–4,617	–4,742	–4,552
Payments without settlements	–30,305	–1,472	–30,634	–1,367
Other changes	–	571	72	3,703
Transfer of assets	–	–	–166	–
Changes in combined group due to acquisitions	–	–970	–	7,539
Other changes in combined group	–	502	238	160
Currency translation	–	1,039	–	–3,996
Funded status/ Net carrying amount	**708,799**	**56,038**	**701,541**	**59,560**

The following overview shows the net carrying amount broken down into plans with and without plan assets:

	12/31/2018		12/31/2017	
(EUR thousand)	Germany	Other countries	Germany	Other countries
Present value of funded obligations	180,873	131,701	167,270	136,569
Fair value of plan assets	36,053	93,479	31,258	96,113
Funded status/ Net carrying amount of funded obligations	**144,820**	**38,222**	**136,012**	**40,456**
Present value of unfunded obligations	563,979	17,816	565,529	19,104
Funded status/ Net carrying amount of unfunded obligations	**563,979**	**17,816**	**565,529**	**19,104**
Funded status/ Net carrying amount	**708,799**	**56,038**	**701,541**	**59,560**

As in the previous year, no asset ceiling in accordance with IAS 19.64 (b) applies. In addition, there are no reimbursement claims within the meaning of IAS 19.116.

The following overview shows the present value of the defined benefit obligation broken down into active employees, former employees with terminated vested benefits, and benefit recipients:

	12/31/2018		12/31/2017	
(EUR thousand)	Germany	Other countries	Germany	Other countries
Active employees	232,205	66,977	227,596	70,090
Vested terminated employees	119,730	29,061	115,559	32,761
Pensioners	392,917	53,479	389,644	52,822
Total	**744,852**	**149,517**	**732,799**	**155,673**

Plan assets

The plan assets used to cover the pension obligations were as follows at the respective reporting dates:

	12/31/2018		12/31/2017	
(Percent)	Germany	Other countries	Germany	Other countries
Quoted prices in active marktes	28.3	75.8	26.0	76.7
Equity instruments	–	27.9	0.7	30.8
Debt instruments	28.3	41.6	1.5	39.7
Real estate	–	–	–	0.1
Other	–	6.3	23.8	6.1
No quoted prices in active marktes	71.7	24.2	74.0	23.3
Equity instruments	–	0.9	–	1.0
Debt instruments	1.3	0.7	–	0.7
Real estate	–	0.1	–	–
Insurance	68.3	22.4	73.9	21.5
Other	2.1	0.1	0.1	0.1
Total	**100.0**	**100.0**	**100.0**	**100.0**

Particularly in Germany, GEA has decided to utilize the internal financing effect of the pension provisions and supplementary healthcare benefits and only to fund a relatively small proportion of the pension obligations using plan assets.

In the U.S.A. and the United Kingdom, a large proportion of the pension obligations is funded by plan assets in accordance with the legal framework. The above table shows how the plan assets have been invested. A proportion of both the German and foreign plan assets is managed by insurance companies in accordance with their specific investment guidelines. In Germany, this is the predominant form of investment for plan assets. Part of the plan assets of German pension plans is also managed by pension funds and an endowment fund, and is mainly invested in fixed-income securities and term deposits, with only a relatively small proportion invested in equities. The objective of these external investments is to ensure secure returns and preserve the value of the underlying assets in order to fund current and future pension benefits. There are currently no plans to change this investment strategy.

Assets invested in the capital markets are exposed to general capital market and investment risk. GEA continually monitors market trends and has developed corresponding investment policies that adequately balance risk and income expectations, while taking the respective statutory and regulatory frameworks into account.

In fiscal year 2019, EUR 5.075 thousand is expected to be added to the plan assets of German pension plans and EUR 4.420 thousand to plans outside Germany.

The actual return on plan assets in 2018 was EUR –631 thousand (previous year: EUR 5.540 thousand).

Actuarial assumptions

As of the relevant reporting date, the following weighted actuarial assumptions were used to calculate the present value of the defined benefit obligations. These assumptions are used to calculate net pension expenses in the following year.

	12/31/2018		12/31/2017	
(Percent)	Germany	Other countries	Germany	Other countries
Discount factor	1.70	2.93	1.70	2.43
Inflation	1.80	1.26	1.70	1.19
derived: wage and salary growth rate	2.80	1.33	2.70	1.31
derived: pension growth rate	1.33	0.31	1.40	0.39
derived: growth rate in cost of health care benefits	3.55	7.12	3.45	–

The actuarial measurement factors for German plans are established by GEA in consultation with actuarial experts. The corresponding assumptions for plans outside Germany are determined taking into account country-specific conditions with the help of local experts in consultation with the global experts and GEA. The discount rate is established using a recognised method based on the return on high quality corporate bonds determined as of the reporting date, taking into account the currency and maturities of the underlying liabilities. For countries that do not have a liquid market in corporate bonds that are suitable for setting the discount rate, interest rates on government bonds are referred to instead to define the rate.

All other assumptions correspond to the long-term expectations of GEA. The nominal rate of wage and salary increases is calculated based on expected inflation and a real rate of increase. The rate of pension increases in Germany is also determined based on inflation, provided that the pension adjustments are determined in accordance with the rise in the cost of living. In addition, the financial position of the relevant company is also taken into account. If a firm pension adjustment commitment has been made, this is taken into account accordingly. Outside of Germany, the pension adjustment is also generally determined on the basis of inflation. The growth rate assumed for the costs of supplementary healthcare benefits in Germany equates to forecast inflation plus a growth rate based on historical data. Based on this data, the growth rate is not expected to change in the future.

In 2018, the procedure used to calculate discount rates was refined and this adjustment produced a non-recurring effect on the figure for the present value of the defined benefit obligation. Had this adjustment not taken place, the present value of the defined benefit obligation disclosed at the end of the fiscal year would have been around EUR 11,100 thousand lower while the other result would have been higher.

On October 4, 2018, Heubeck AG published its new mortality tables (Heubeck 2018G Mortality Tables). As of December 31, 2018, these tables are used as the basis for measuring all domestic pension plans, as they provide more accurate estimates than the 2005G tables used previously. The non-recurring effect (actuarial loss) arising from the use of the new mortality tables is recognised directly in other comprehensive income (OCI) and amounts to EUR 5,271 thousand. On this basis, the life expectancy of a 65-year-old pensioner as of December 31, 2018, was 20.22 years for men and 23.73 years for women. Klaus Heubeck's 2005G mortality tables were used as a basis for measuring all German plans as of December 31, 2017. On this basis, the life expectancy of a 65-year-old pensioner as of December 31, 2017, was 19.44 years for men and 23.49 years for women. Country-specific measurement bases were used for pension liabilities outside Germany.

The sensitivities presented below apply to the discount rate and inflation, which have been identified as actuarial assumptions that have a significant influence on GEA's benefit obligations. Since the wage and salary increase rate, the pension increase rate, and the growth rate in the cost of supplementary health benefits are derived from inflation, sensitivity to inflation was used to measure the sensitivity of these assumptions together. The same calculation methods were used for sensitivities as for the recognised provisions. The ranges used to compute the sensitivities of the assumptions are based on the changes that are deemed possible until the next reporting date, given historical experience. The meaningfulness of historical experience for forecasts of future outcomes and neglecting to update a number of assumptions simultaneously may represent limitations of these methods.

(EUR thousand)	12/31/2018	
Increase (+)/ Decrease (-) of DBO	Germany	Other countries
Increase of discount factor by 50 basis points	–53,096	–9,182
Decrease of inflation by 25 basis points	–16,085	–1,524

A one-year increase in life expectancy results in an increase of around 4.35 percent in the present value of the defined benefit obligations, on average.

Future cash flows

The following benefit payments are expected to be made under the German and foreign plans in the coming years:

(EUR thousand)	2019	2020	2021	2022	2023	2024 - 2028
German plans	33,249	32,975	33,159	33,004	32,666	165,493
Foreign plans	8,761	7,741	8,126	8,250	7,629	38,980

The average weighted duration of pension obligations and supplementary healthcare benefits is:

	12/31/2018		12/31/2017	
(Years)	Germany	Other countries	Germany	Other countries
Duration	15.0	13.3	15.7	13.4

6.3.2 Defined contribution pension plans

Various companies – especially in the U.S.A. and Scandinavia – operate defined contribution pension plans. Under these plans, the obligation does not lie with GEA, but with the respective pension funds. Contributions totaling EUR 15,450 thousand were made in fiscal year 2018 (previous year: EUR 13,638 thousand). Contributions of EUR 59,382 thousand were made to state pension insurance systems (previous year: EUR 45,597 thousand). These contributions are recognised as personnel expenses at the same time as the relevant service is rendered.

Two nationwide, joint pension plans operated by several employers in the Netherlands were recognised as defined contribution pension plans since the obligation on the part of the employers is limited to the payment of contributions, as set out in the terms and conditions of the pension plans. The employers are neither liable for any underfunding, nor do they participate in any plan overfunding.

The terms and conditions of both plans require a minimum funding level to be maintained. If this level is not met, a recovery plan must be submitted to the Dutch National Bank. Neither a surplus nor a deficit would result in additional payments from or into the plan for the participating companies. However, if the minimum funding level is not met, pension benefits may be reduced or future contributions payable by the participating companies may be increased.

The first multi-employer pension plan has around 600,000 beneficiaries, of whom around 400 belong to GEA. Contributions amounting to EUR 2,329 thousand (previous year: EUR 2,294 thousand) were made to this multi-employer pension plan in fiscal year 2018.

The second multi-employer pension plan has around 1.2 million beneficiaries, of whom around 500 belong to GEA. Contributions amounting to EUR 3,217 thousand (previous year: EUR 3,292 thousand) were made to this plan in fiscal year 2018.

6.3.3 Share-based payment

Income from share-based payments in fiscal year 2018 for the group as a whole totaled EUR 484 thousand (previous year: EUR 2,469 thousand). The carrying amount of liabilities arising from share-based payment transactions in the group as a whole amounted to EUR 166 thousand as of December 31, 2018 (previous year: EUR 1,280 thousand).

Performance Share Program

Effective July 1, 2006, GEA Group Aktiengesellschaft launched a long-term remuneration program entitled “GEA Performance Share Program”, a cash-settled share-based payment plan for all first- and second-level managers below the Executive Board. Third-level managers were also eligible to participate starting with the third tranche of the program as of July 1, 2008. The goal of the GEA Performance Share Program is to link managers’ remuneration with the long-term success of the company and to align their interests with those of the shareholders.

Under the program, participants are granted a defined number of Performance Shares at the beginning of the performance period. The number of Performance Shares allotted is determined by the participants’ management level. To participate in the plan, managers must invest 20 percent of the amount of the allotted Performance Shares in shares of GEA Group Aktiengesellschaft. The personal investment must then be held for three years (performance period).

The performance of GEA Group Aktiengesellschaft’s shares relative to the companies included in a benchmark index over the three-year performance period is measured on the basis of their total shareholder return (TSR). The benchmark for the tranches issued since 2014 is the STOXX® Europe TMI Industrial Engineering (TMI IE). This change in the benchmark index has harmonized the plan with the share-based payments for Executive Board members. TSR is a suitable indicator for investors to compare the performance and appeal of different companies. It measures the total percentage return that an investor earns from a share over a certain period. In addition to share price performance, dividends and adjustments such as share splits are included in the calculation of TSR. This method of comparison eliminates share price performance that is due to general market volatility and enables the effects of different profit retention strategies to be compared. The relative performance of GEA Group Aktiengesellschaft’s shares determines the number of Performance Shares finally paid out (between 0 percent and 300 percent).

The Performance Shares are paid out once the three-year performance period has expired. At that time, the performance of GEA Group Aktiengesellschaft’s shares relative to the benchmark determines how many Performance Shares are paid out: If the performance of the company’s shares equals the median in the TSR comparison, 50 percent of the Performance Shares are issued; if it reaches the third quartile, 100 percent of the Performance Shares are paid out. If GEA Group Aktiengesellschaft’s shares outperform the benchmark index companies, 300 percent of the Performance Shares are issued. Other performance figures are interpolated between these values. The total amount paid out corresponds to the number of Performance Shares allotted to a participant multiplied by the average share price over the last quarter of the three-year performance period. Once the performance period has expired, participants may freely dispose of their personal investment in GEA Group Aktiengesellschaft shares.

The 2015 tranche expired on June 30, 2018. The TSR comparison over the three-year performance period resulted in a payout ratio of 0 percent (previous year: Tranche 2014 0 percent), meaning that there was a payment of EUR 0 thousand (previous year: EUR 0 thousand) in the year under review.

The number of Performance Shares changed as follows in fiscal year 2018:

(Number of shares)	12/31/ 2017	Additions	Expired	Paid Out	Changes in consolidated group	12/31/2018
2015 tranche	82,952	–	82,952	–	–	–
2016 tranche	95,147	–	5,654	–	–	89,493
Total	**178,099**	**–**	**88,606**	**–**	**–**	**89,493**

The total income for the group as a whole for fiscal year 2018 amounted to EUR 41 thousand (previous year: EUR 2,644 thousand), taking into account the fair value as of December 31, 2018, of EUR 0 (previous year: EUR 0.85) for the 2016 tranche and EUR 0 (previous year: EUR 0.01) for the 2015 tranche (previous year: 2014 tranche) at the payment date.

The fair value of the Performance Shares is determined using a Monte Carlo simulation. The following valuation assumptions are applied:

	2018	2017	
Tranche	2016	2015	2016
Share price (EUR)	23.55	41.62	50.85
Dividend yield (%)	4.00	2.12	2.12
Risk-free interest rate (%)	–0.800	–0.742	–0.686
Volatility GEA shares (%)	34.71	21.94	21.94

As the payout ratio of GEA Group Aktiengesellschaft's Performance Shares is linked to the MDAX or TMI IE, the volatilities of all MDAX or TMI IE shares and their correlations to GEA Group Aktiengesellschaft shares are also calculated. The calculation of volatilities and correlations is based on historical market data. Risk-free interest rates were determined from German government bond yields.

Long-term share price component

The long-term share price component was introduced as part of the revision of the variable remuneration system for Executive Board members in fiscal year 2012. The payout from the long-term share price component is measured over a three-year performance period that includes the relevant fiscal year and the two subsequent years.

Performance is measured by comparing the performance of the GEA share price, adjusted for dividends, with the performance of the STOXX® Europe TMI Industrial Engineering (TMI IE) index over a three-year performance period. This comparison is computed on the basis of the respective arithmetic mean closing prices on the last 20 trading days preceding the start of the three-year performance period. 100 percent of the target is achieved if the performance of the arithmetic mean of the GEA share daily closing prices is equal to 100 percent of the corresponding TMI performance over the three-year performance period. In the event of outperformance greater than 100 percent, the amount paid out rises to a maximum of 300 percent of the target amount. If the increase in GEA's share price over the three-year period is less than 100 percent of the growth in the TMI IE, the amount payable is reduced accordingly down to a performance level of 75 percent. The degree of target achievement increases or decreases by 4 percent for each percentage point greater than or less than a performance level of 100 percent. The total degree of target achievement and thus the payout level for the long-term share price component is limited to 300 percent of this target amount (cap).

Starting from a target amount of EUR 2,015 thousand (previous year: EUR 2,012 thousand), the fair value of claims arising from the long-term share price component amounted to EUR 166 thousand (previous year: EUR 1,239 thousand) as of the reporting date. There was a payment of EUR 670 thousand (previous year: EUR 659 thousand) in fiscal year 2018. In addition to the payouts from the 2015 tranche, this sum includes payouts from the 2014 and 2016 tranches agreed as of March 31, 2018, for Dr. Stephan Petri, who left the Executive Board during the 2016 business year.

The fair value of the claims arising from the long-term share price component is determined using a Monte Carlo simulation. The following valuation assumptions are applied:

	2018		2017	
	2018 tranche	2017 tranche	2017 tranche	2016 tranche
Share price (arithmetic mean) (EUR)	32.32	36.00	39.01	40.99
STOXX TMI IE (arithmetic mean) (index points)	494.17	489.57	484.96	429.34
Risk-free interest (percent)	–0.652	–0.698	–0.639	–0.717
Volatility GEA share (percent)	34.71	34.71	21.94	21.94
Volatility STOXX TMI IE (percent)	20.94	20.94	12.06	12.06
Correlation between GEA share and STOXX TMI IE (percent)	58.94	58.94	48.35	48.35

The calculation of volatilities and correlation is based on historical market data. Risk-free interest rates were determined from German government bond yields.

6.4 Financial liabilities

Financial liabilities as of December 31, 2018, were composed of the following items:

(EUR thousand)	12/31/2018	12/31/2017
Borrower's note loan	249,569	–
Liabilities to banks	51,094	2,908
Liabilities under finance leases	4,160	2,990
Liabilities from derivatives	223	110
Liabilities to equity investments	200	–
Noncurrent financial liabilities	305,246	6,008
Borrower's note loan	2,143	–
Liabilities to banks	17,297	242,014
Liabilities under finance leases	2,235	3,571
Liabilities from derivatives	6,571	10,997
Liabilities to equity investments	226	227
Current financial liabilities	**28,472**	**256,809**
Total financial liabilities	**333,718**	**262,817**

The financing of GEA as of December 31, 2018 consisted mainly of the following items:

(EUR thousand)	Carrying amount 12/31/2018	Carrying amount 12/31/2017	Notional value 12/31/2018	Fair value 12/31/2018	Interest basis	Maturity
Borrower's note loan - tranche I	100,661	-	100,000	98,682	fix	26. Februar 2023
Borrower's note loan - tranche II	101,036	-	100,000	97,588	fix	26. Februar 2025
Borrower's note loan - tranche III	28,003	-	28,000	28,553	variabel	26. Februar 2023
Borrower's note loan - tranche IV	22,012	-	22,000	22,772	variabel	26. Februar 2025
European Investment Bank	50,000	–	50,000	50,691	variabel	17. Dezember 2025
Other bilateral credit lines	18,391	244,922	18,207	18,391	fix / variabel	bis auf Weiteres

Borrower's note loan

In February 2018, GEA Group Aktiengesellschaft issued a borrower's note loan with a volume of EUR 250,000 thousand. The borrower's note loan comprises four separate tranches with maturities of five and seven years, each divided into a fixed and a variable-interest part. The borrower's note loan was placed with institutional investors both at home and abroad.

Liabilities to banks

The maturities of liabilities to banks are as follows:

(EUR thousand)	12/31/2018	12/31/2017
< 1 year	17,297	242,014
1 - 2 years	888	1,578
2 - 3 years	206	1,330
3 - 4 years	–	–
4 - 5 years	–	–
> 5 years	50,000	–
Total	**68,391**	**244,922**

Liabilities to banks mainly comprise the EUR 50,000 thousand loan from the European Investment Bank (EIB) drawn in December 2018. The loan is scheduled for repayment in 2025.

Transaction costs for the unused syndicated credit line (club deal) as of the end of the year are allocated on a straight-line basis over the term.

GEA has undertaken in the loan agreements to comply with a certain covenant. Compliance with the covenant must be reviewed at the end of each quarter. The covenant was met as of December 31, 2018.

Liabilities to banks totaling EUR 1,415 thousand (previous year: EUR 2,825 thousand) were secured.

Cash credit and guarantee credit lines

Including the syndicated credit line, the group as a whole had cash credit lines of EUR 1,123,694 thousand as of December 31, 2018 (previous year: EUR 949,155 thousand). Of this amount, cash credit lines of EUR 805,487 thousand (previous year: EUR 704,233 thousand) are unutilized (see section 3). In addition, guarantee credit lines for the performance of contracts, advance payments, and warranty obligations of EUR 1,321,007 thousand (previous year: EUR 1,361,235 thousand) were available to the group as a whole, of which EUR 784,954 thousand (previous year: EUR 837,050 thousand) has not been utilized.

Liabilities under finance leases

The following table shows a breakdown of future payments under finance leases:

	Minimum lease payments		Interest		Present value of minimum lease payments	
(EUR thousand)	12/31/2018	12/31/2017	12/31/2018	12/31/2017	12/31/2018	12/31/2017
Not later than one year	2,413	3,906	178	335	2,235	3,571
Between one and five years	4,521	3,242	361	252	4,160	2,990
Total future payments under finance leases	**6,934**	**7,148**	**539**	**587**	**6,395**	**6,561**

Liabilities under finance leases relate to land, buildings, and vehicles. The present value of minimum lease payments as of December 31, 2018, relating to leases for land and buildings amounted to EUR 2,874 thousand (previous year: EUR 6,445 thousand), with EUR 3,521 thousand (previous year: EUR 0 thousand) relating to vehicles.

As the interest rates used in leases are constant, the fair value of lease liabilities may be exposed to interest rate risk.

Liabilities under finance leases are effectively secured because the rights to the leased asset revert to the lessor if the terms and conditions of the lease are breached.

Derivative financial instruments

Derivative financial instruments are explained in section 6.9.

6.5 Trade payables

Trade payables were as follows as of December 31, 2018:

(EUR thousand)	12/31/2018	12/31/2017
Trade payables	723,334	736,906
thereof to unconsolidated companies	2,064	6,194

Trade payables of EUR 722,702 thousand (previous year: EUR 736,312 thousand) are due within one year. The balance of EUR 632 thousand (previous year: EUR 594 thousand) is due after more than one year.

Trade payables in the amount of EUR 12,134 thousand (previous year: EUR 16,837 thousand) are secured.

6.6 Contract liabilities

Liabilities arising from contracts with customers were composed of the following items as of December 31, 2018:

(EUR thousand)	12/31/2018
Advance payments for orders	364
Non-current contract liabilities	**364**
Advance payments for orders	216,080
Gross amount due to customers for contract work	406,868
Current contract liabilities	**622,948**
Total contract liabilities	**623,312**

Please see section 7.1 for a more extensive description of the contract liabilities.

6.7 Income tax liabilities

Income tax liabilities relate to current taxes and amounted to EUR 31,152 thousand (previous year: EUR 28,489 thousand) at the reporting date.

6.8 Other liabilities

Other liabilities as of December 31, 2018, comprised the following items:

(EUR thousand)	12/31/2018	12/31/2017[1]
Other noncurrent liabilities	**23,744**	**36,301**
Payments on account received in respect of orders and construction contracts[2]	–	271,420
Gross amount due to customers for contract work[2]	–	370,049
Other liabilities to unconsolidated subsidiaries	29,218	23,623
Liabilities from other taxes	43,832	37,016
Other liabilities	84,801	87,039
thereof social security	15,760	16,291
thereof other liabilities to employees	18,471	14,503
Other current liabilities	**157,851**	**789,147**
Total other liabilities	**181,595**	**825,448**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) The application of IFRS 15 resulted in changes in presentation compared with the previous year. See the explanatory notes in section 1.2 of the notes to the consolidated financial statements.

Payments on account received in respect of orders amounting to EUR 10,642 thousand (previous year: EUR 20,259 thousand) and other liabilities amounting to EUR 3,191 thousand (previous year: EUR 3,939 thousand) are secured.

6.9 Financial instruments

The following tables provide an overview of the composition of financial instruments as of December 31, 2018, by class within the meaning of IFRS 7 as well as by measurement category.

		Measurement in accordance with IFRS 9				
(EUR thousand)	Carrying amount 12/31/2018	Amortised cost	Fair value through profit or loss	Fair value recognised in other comprehensive income	Measurement in accordance with other IFRSs	Fair value 12/31/2018
Assets						
Trade receivables	923,884	827,050	–	96,834	–	923,884
Cash and cash equivalents	247,900	247,900	–	–	–	247,900
Other financial assets	222,251	95,000	13,115	245	113,891	222,251
By IFRS 9 measurement category						
Financial assets measured at amortised cost	1,169,950	1,169,950	–	–	–	1,169,950
thereof trade receivables	827,050	827,050	–	–	–	827,050
thereof cash and cash equivalents	247,900	247,900	–	–	–	247,900
thereof other financial assets	95,000	95,000	–	–	–	95,000
Financial assets measured at fair value recognised in other comprehensive income	97,079	–	–	97,079	–	97,079
thereof trade receivables	96,834	–	–	96,834	–	96,834
thereof other financial assets	245	–	–	245	–	245
Financial assets measured at fair value through profit or loss	13,115	–	13,115	–	–	13,115
thereof other financial assets	8,613	–	8,613	–	–	8,613
thereof derivatives not included in hedging relationships	4,502	–	4,502	–	–	4,502
Liabilities						
Trade payables	723,334	723,334	–	–	–	723,334
Financial liabilities	333,718	320,529	6,794	–	6,395	330,292
thereof liabilities under finance leases	6,395	–	–	–	6,395	6,395
Other liabilities	181,595	96,545	594	–	84,456	187,108
By IFRS 9 measurement category						
Financial liabilities measured at amortised cost	1,140,408	1,140,408	–	–	–	1,142,495
thereof trade payables	723,334	723,334	–	–	–	723,334
thereof bonds and other securitized liabilities	251,712	251,712	–	–	–	247,595
thereof liabilities to banks	68,391	68,391	–	–	–	69,082
thereof loan liabilities to unconsolidated subsidiaries	426	426	–	–	–	426
thereof other liabilities to affiliated companies	29,218	29,218	–	–	–	29,218
thereof other liabilities	67,327	67,327	–	–	–	72,840
Financial liabilities at fair value through profit or loss (derivatives not included in a hedging relationship and contingent consideration)	7,388	–	7,388	–	–	7,388

		Measurement in accordance with IAS 39				
(EUR thousand)	Carrying amount 12/31/2017	Amortised cost	Fair value through profit or loss	Fair value recognised in other comprehensive income	Measurement in accordance with other IFRSs	Fair value 12/31/2017
Assets						
Trade receivables*	1,390,747	925,504	–	–	465,243	1,390,747
thereof PoC receivables	465,243	–	–	–	465,243	465,243
Cash and cash equivalents	250,507	250,507	–	–	–	250,507
Sonstige finanzielle Vermögenswerte	219,365	114,958	3,952	8,525	91,930	219,365
By IAS 39 measurement category						
Loans and receivables	1,269,794	1,269,794	–	–	–	1,269,794
thereof cash and cash equivalents	250,507	250,507	–	–	–	250,507
thereof trade receivables*	925,504	925,504	–	–	–	925,504
thereof other financial assets	93,783	93,783	–	–	–	93,783
Available-for-sale investments	29,700	21,175	–	8,525	–	29,700
Financial assets at fair value through profit or loss (derivatives not included in a recognised hedging relationship)	3,952	–	3,952	–	–	3,952
Liabilities						
Trade payables	736,906	736,906	–	–	–	736,906
Financial liabilities	262,817	245,149	11,107	–	6,561	262,817
thereof liabilities under finance leases	6,561	–	–	–	6,561	6,561
Other liabilities*	825,448	111,646	594	–	713,208	829,723
By IAS 39 measurement category						
Financial liabilities at amortised cost	1,093,701	1,093,701	–	–	–	1,097,976
thereof trade payables	736,906	736,906	–	–	–	736,906
thereof liabilities to banks	244,922	244,922	–	–	–	244,922
thereof loan liabilities to unconsolidated subsidiaries	227	227	–	–	–	227
thereof other liabilities to affiliated companies	23,623	23,623	–	–	–	23,623
thereof other liabilities*	88,023	88,023	–	–	–	92,298
Financial liabilities at fair value through profit or loss (derivatives not included in a hedging relationship and contingent consideration)	11,701	–	11,701	–	–	11,701

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Financial assets and liabilities that are measured at fair value, or for which a fair value is disclosed in the notes to the consolidated financial statements, are required to be categorized according to the fair value hierarchy described in the following. Categorization within the levels of the fair value hierarchy is based on the measurement of the underlying inputs:

Level 1 inputs: quoted prices (unadjusted) in active markets for identical financial assets and liabilities.

Level 2 inputs: quoted market prices that are observable as direct (prices) or indirect (derived from prices) inputs used to measure fair value and that are not quoted prices as defined by Level 1.

Level 3 inputs: inputs that are not based on observable market data.

The following table shows the categorization of financial assets and financial liabilities into the three-level fair value hierarchy:

Recurring fair value measurements	12/31/2018			
		Fair value		
(EUR thousand)	Carrying amount	Level 1	Level 2	Level 3
Financial assets measured at fair value				
Trade receivables	96,834	–	96,834	–
Derivatives not included in hedging relationships	4,502	–	4,502	–
Other securities	8,146	–	–	8,146
Other financial assets	712	–	–	712
Financial liabilities measured at fair value				
Derivatives not included in hedging relationships	6,794	–	6,794	–
Contingent consideration	594	–	–	594
Financial liabilities not measured at fair value				
Promissory note bonds	251,712	–	247,595	–
Liabilities to banks	68,391	–	69,082	–
Other financial liabilities	28,685	–	11,331	22,867

Recurring fair value measurements	12/31/2017			
		Fair value		
(EUR thousand)	Carrying amount	Level 1	Level 2	Level 3
Financial assets measured at fair value				
Derivatives not included in hedging relationships	3,952	–	3,952	–
Available-for-sale financial assets valued at fair value	8,525	–	–	8,525
Financial liabilities measured at fair value				
Derivatives not included in hedging relationships	11,107	–	11,107	–
Contingent consideration	594	–	–	594
Financial liabilities not measured at fair value				
Liabilities to banks	244,922	–	244,922	–
Other financial liabilities	39,736	–	10,016	33,995

There were no transfers into or out of the levels of the fair value hierarchy in fiscal year 2018.

The fair values of trade receivables, cash and cash equivalents, term deposits, and other financial receivables essentially correspond to the carrying amounts; this is due to the predominantly short remaining maturities.

In the case of certain trade receivables measured at fair value due to existing factoring arrangements, that fair value is calculated on the basis of yield curves observable in the market. These are categorized within Level 2 of the fair value hierarchy.

The fair value of derivatives is determined using quoted exchange rates and yield curves observable in the market. Accordingly, these are categorized within Level 2 of the fair value hierarchy.

A receivable relating to the former raw material activities of Metallgesellschaft AG that had previously been written off was allocated to Level 3 financial instruments; its fair value is determined by means of a present value calculation on the basis of the debtor's payment plan. As the debtor operates a copper mine, its payment plan is influenced by the price of copper. Gains and losses from the subsequent measurement of the receivable are carried in profit or loss from discontinued operations.

The following table shows the changes in fair value in fiscal year 2018:

(EUR thousand)	
Fair value 12/31/2017	**8,525**
Redemption	–1,119
Interest income	589
Currency translation	–306
Revaluation	457
Fair value 12/31/2018	**8,146**

Unrealized losses carried in other comprehensive income for this financial instrument amounted to EUR 0 thousand as of the reporting date (previous year: EUR -722 thousand).

GEA's other equity investments, along with certain other financial assets, are also categorized within Level 3 of the hierarchy. The fair value is determined using inputs that are not based on observable market data.

Financial liabilities resulting from contingent purchase price considerations are assigned to Level 3 of the fair value hierarchy. The fair value of these liabilities is determined by means of present value calculations, taking into account various inputs that are not observable in the market, and that are based in particular on corporate planning, as specified in the respective purchase price clauses.

The fair value of borrower's note loans and liabilities to banks is measured on the basis of the yield curve, taking into account credit spreads. They are therefore categorized within Level 2 of the fair value hierarchy. The interest deferred as of the reporting date is included in the fair values.

Included in other financial liabilities is a contractual obligation undertaken in the context of a company acquisition. The fair value of this instrument is measured using contractual cashflows on the basis of the yield curve, taking into account credit spreads. Accordingly, these were categorized within Level 2 of the fair value hierarchy.

Certain other financial liabilities resulting from the sale of the GEA HX segment are categorized within Level 3 of the fair value hierarchy, since their fair value is measured on the basis of the present value of future cash outflows expected on the basis of contractual obligations associated with the sale.

GEA Group Aktiengesellschaft has entered into netting agreements with banks under the German Master Agreement for Financial Derivatives Transactions. As a general rule, the amounts owed under such agreements by each counterparty from all outstanding transactions in the same currency on a single day are aggregated to a single net amount payable by one party to the other. In the event of a credit event, such as late payment, all outstanding transactions under the agreement will be terminated, the value on termination calculated, and one single net amount paid to settle all transactions.

The following table shows the financial assets and liabilities for which the group as a whole has entered into netting agreements:

(EUR thousand)	Gross amounts of financial assets/liabilties	Net amounts of financial assets/liabilties, presented in the balance sheet	Respective amounts not netted in the balance sheet	Net amounts
12/31/2018				
Receivables from derivatives	4,324	4,324	3,345	979
Liabilities from derivatives	6,283	6,283	3,345	2,938
12/31/2017				
Receivables from derivatives	3,769	3,769	2,518	1,251
Liabilities from derivatives	10,755	10,755	2,518	8,237

Nonderivative financial assets

The carrying amount of the trade receivables and other financial assets that are subject to the IFRS 9 measurement requirements corresponds largely to their fair value.

Nonderivative financial liabilities

The carrying amount of the trade payables and other current liabilities that are subject to the measurement rules of IFRS 9 corresponds to their fair value. The fair value of non-current liabilities is the present value of their expected future cash flows. They are discounted at the rates prevailing at the reporting date.

Derivative financial instruments

The fair value of currency forwards at the reporting date is calculated on the basis of the spot exchange rate, taking into account forward premiums and discounts corresponding to the relevant remaining maturities. Forward premiums and discounts are derived from yield curves observable at the reporting date. The fair value of currency options is calculated on the basis of recognised valuation models. Fair value is affected by the remaining term of the option, the current exchange rate, the volatility of the exchange rate, and the underlying yield curves.

The fair value of interest rate swaps and options is determined on the basis of discounted expected future cash flows. Market interest rates applicable to the remaining maturities of these financial instruments are used. Cross-currency swaps also include the exchange rates of the relevant foreign currencies in which the cash flows are generated.

GEA uses derivative financial instruments, including currency forwards, interest rate swaps, and cross-currency swaps. Derivative financial instruments serve to hedge foreign currency risk and interest rate risk for existing or planned underlying transactions.

The following table presents the notional values and fair values of the derivative financial instruments in use as of the reporting date. The notional value in foreign currency is translated at the closing rate.

	12/31/2018		12/31/2017	
(EUR thousand)	Notional value	Fair value	Notional value	Fair value
Assets				
Currency derivatives not included in a hedging relationship	535,672	4,502	436,734	3,952
Total	**535,672**	**4,502**	**436,734**	**3,952**
Equity and liabilities				
Currency derivatives not included in a hedging relationship	570,005	6,794	655,983	11,107
Total	**570,005**	**6,794**	**655,983**	**11,107**

Derivative financial instruments included in recognised hedging relationships

As of December 31, 2018, the group as a whole had designated derivatives neither as cash flow hedges nor or as fair-value hedges. The same applies to the previous year.

Derivative financial instruments not included in recognised hedging relationships

If the criteria for recognizing a hedging relationship are not met, any change in fair value is recognised in the income statement.

Income and expenses

The measurement effects from financial instruments have largely been recognised in profit or loss. The following table shows net income from financial instruments, broken down by the IFRS 9 measurement categories:

	12/31/2018		
(EUR thousand)	Net income	thereof interest income/ expense	thereof impairment losses/ reversals of impairment losses
Financial assets measured at amortised cost	39,906	2,524	–14,315
Financial assets measured at fair value recognised in other comprehensive income	–1,388	–	–1,396
Equity instruments measured at fair value recognised in other comprehensive income	17	–	–
Financial assets / liabilities measured at fair value through profit or loss	22,207	–	–
Financial liabilities measured at amortised cost	–37,634	–7,644	–
Total	**23,108**	**–5,120**	**–15,711**

The previous year's figures in accordance with IAS 39 are shown in the following table:

	12/31/2017		
(EUR thousand)	Net income	thereof interest income/ expense	thereof impairment losses/ reversals of impairment losses
Loans and receivables	95,223	6,665	–6,134
Available-for-sale investments	10	–	–
Financial assets/liabilities at fair value through profit or loss	–46,685	928	–
Financial liabilities at amortised cost	–54,899	–7,820	–
Total	**–6,351**	**–227**	**–6,134**

7. Consolidated Income Statement Disclosures

7.1 Revenue

Revenue is composed of the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
From construction contracts	2,040,228	2,252,316
From sale of goods and services	1,297,616	929,331
From service agreements	1,490,366	1,422,867
Total	**4,828,210**	**4,604,514**

Classification of sales revenues

GEA is reclassifying its sales revenues from contracts with customers according to revenue elements as well as geographical regions. The reclassification of the sales revenues corresponds with the description in segment reporting (see section 9.1).

Initial application of IFRS 15

The effect of the initial application of IFRS 15 on GEA's revenues is described in section 1.2. As part of the transition method chosen by GEA in compliance with the new standard, comparative information was not adjusted to reflect the new provisions. The tables below relate to the reporting year in which IFRS 15 is initially applied and, therefore, do not contain comparative information.

Account balances

The table below provides information on receivables and contract assets/liabilities arising from contracts with customers.

(EUR thousand)	12/31/2018	01/01/2018
Trade receivables	923,884	904,514
Trade receivables included in assets held for sale	–	3
Contract assets	462,787	492,144
Contract liabilities	623,312	641,469

Trade receivables are unconditional claims for payment asserted by the group in respect of services rendered and invoiced. Trade receivables do not generally have an interest component and are due within 30 days as a rule.

Contract assets are claims for consideration asserted by the group in respect of services arising from production orders that had not been invoiced as of the reporting date. The amounts recognised as contract assets are reclassified to trade receivables as soon as the Group has an enforceable right to payment.

Contract liabilities are essentially advance payments from customers for the construction of customer-specific plant and equipment for which revenues are realized over time.

The following material changes occurred with regard to our contract assets and liabilities in the reporting period:

	01/01 - 12/31/2018	
(EUR thousand)	Contract assets	Contract liabilities
Revenue recognised that was included in contract liability balance at the beginning of the period	–	–507,950
Transfer from contract assets recognised at the beginning of the period to trade receivables	–394,228	–
Due to business combinations	808	4,351
Due to impairment	–1,537	–

In the 2018 fiscal year, revenues in connection with performance obligations satisfied either fully or in part in earlier reporting periods amounted to EUR 8,493 thousand. This was mainly due to changes in estimates of the percentage of completion of plant and equipment, and to contractual amendments.

Contract assets comprise services in the amount of EUR 1,318 thousand, the invoicing of which had been subject to contractual delays as of December 31, 2018.

The following revenue expectations for subsequent periods are connected with existing performance obligations from contracts with customers that had either not been processed at all or only in part as of December 31, 2018:

(EUR thousand)	01/01/2018 - 12/31/2018
Revenue recognition < 1 year	2,208,195
Revenue recognition > 1 year	185,137
Total	**2,393,332**

Performance obligations

The group's revenues are founded on the performance obligations summarized below:

Construction contracts

GEA Group manufactures customized turnkey production lines and engineering components for the food processing industry and a wide range of other processing industries for integration in complex production processes on the customer's premises. Performance obligations arising from production orders are satisfied as the order progresses, and the underlying revenues recognised over time.

As a rule, an order is commenced upon receipt of an initial advance payment by the customer. Thereafter, work is billed according to the contractual arrangements, these progress billings normally being payable within 30 days. Advance payments received are recognised as contract liabilities if they are not matched by a corresponding service. Services that have not been invoiced are recognised as contract assets. If a customer cancels a contract, the group is entitled to reimbursement of the costs incurred so far, plus an appropriate margin.

The duration of the order depends on the size of the plant or equipment and the complexity of the design. Application areas vary from industry to industry and although orders can run over several months, the time to completion is rarely more than twelve months. In project business, which comprises the development and construction of process solutions, the time taken to complete plant and equipment is typically more than twelve months.

Obligations arising from guarantees and warranty assurances are reflected in provisions and do not normally constitute distinct performance obligations (see section 6.2).

Components business

The group's components business comprises the sale of both standardized and modular equipment for a large number of process industries. Depending on the terms of delivery, customers normally gain control over the individual machines and components when they take delivery of and accept the items at the point of destination, or earlier if the goods are transferred to a shipping agent.

It is at this point that invoices are generated and revenues realized. The invoices are normally payable within 30 days. In components business, discounts are granted that are deducted from the consideration payable.

Obligations arising from guarantees and warranty assurances are reflected in the provisions and do not normally constitute distinct performance obligations (see section 6.2).

Services

The group's service portfolio comprises services spanning the entire lifecycle of customer plant and equipment. Performance obligations such as assembly, commissioning, maintenance, and plant modernization are satisfied in line with the performance completed to date.

Work such as this is normally invoiced when the service is completed and has been accepted by the customer, with payment due within 30 days. In service business, discounts are granted that are deducted from the consideration payable.

Obligations arising from guarantees and warranty assurances are reflected in the provisions and do not normally constitute distinct performance obligations (see section 6.2).

7.2 Other income

Other income is composed of the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Exchange rate gains	195,236	263,147
Gains on the measurement of foreign currency derivatives	82,027	48,320
Income from the release of provisions	26,272	5,878
Rental and lease income	1,114	3,314
Income from payments received on reversals previously written off*	–	3,812
Income from disposal of non-current assets	5,466	18,716
Income from compensation payments and cost reimbursements	1,904	1,623
Miscellaneous other income	24,376	34,808
Total	**336,395**	**379,618**

*) Changed recognition due to initial application of IFRS 9 in 2018

7.3 Other expenses

Other expenses are composed of the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Exchange rate losses	217,912	215,690
Losses on the measurement of foreign currency derivatives	59,697	95,933
Losses on the disposal of consolidated subsidiaries	21,150	–
Bad debt allowances on trade receivables*	–	9,946
Restructuring expenses	1,054	46
Cost of money transfers and payment transactions	1,066	1,025
Losses on the disposal of non-current assets	1,422	1,033
Miscellaneous other expenses	30,441	22,884
Total	**332,742**	**346,557**

*) Changed recognition due to initial application of IFRS 9 in 2018

The losses recognised in the reporting year from the disposal of consolidated companies refer to GEA Westfalia Separator Production France SAS, which was sold on October 1, 2018.

7.4 Presentation of selected income and expenses by cost type

Cost of materials

The cost of materials included in cost of sales increased by EUR 153,734 thousand in the reporting period to EUR 2,400,015 thousand (previous year: EUR 2,246,281* thousand). Cost of materials was 49.2 percent of gross revenue and was therefore higher than the previous year's figure of 48.7 percent.

Personnel expenses

Personnel expenses increased by EUR 84,436 thousand in 2018 to EUR 1,379,963 thousand (previous year: EUR 1,295,527 thousand). The cost of unwinding the discount on expected pension obligations is not recognised under personnel expenses, but under financial and interest expenses. Personnel expenses include wages and salaries in the amount of EUR 1,125,061 thousand (previous year: EUR 1,058,663 thousand) as well as social security contributions and expenses for post-employment benefits of EUR 254,902 thousand (previous year: EUR 236,869 thousand). The ratio of personnel expenses to gross revenue thus fell to 28.3 percent (previous year: 28.1 percent)

Depreciation, amortization, and impairment losses

Depreciation, amortization, and impairment losses totaling EUR 170,571 thousand (previous year: EUR 118,269* thousand) were charged on property, plant, and equipment, investment property, and intangible assets in the reporting period. Depreciation, amortization, and impairment losses are largely included in cost of sales.

Impairments on nonderivative financial assets excluding trade receivables amounted to EUR 845 thousand in the reporting period (previous year: EUR 0 thousand). Of this amount, EUR 845 thousand (previous year: EUR 0 thousand) was attributable to noncurrent financial assets. Impairment losses on equity investments and marketable securities are contained in the financial expenses item. Inventories were adjusted to the tune of EUR 17,822 thousand (previous year: EUR 20,262 thousand). These impairment losses and the remaining impairment losses were recognised in cost of sales.

7.5 Financial and interest income

Financial income

Financial income is composed of income from profit transfers and investment income from other equity investments:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Income from profit transfer agreements from non-consolidated subsidiaries	249	–
Income from other equity investments	1,611	803
thereof from unconsolidated subsidiaries	1,594	786
Total	**1,860**	**803**

Interest income

Interest and similar income is composed of the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Interest income on receivables, cash investments, and marketable securities	2,524	6,603
thereof from unconsolidated subsidiaries	155	153
Other interest income	2,134	1,294
Total	**4,658**	**7,897**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The following table shows the interest income on financial instruments broken down by the IFRS 9 measurement categories, along with the interest income on assets measured in accordance with other pronouncements:

(EUR thousand)	01/01/2018 - 12/31/2018
Financial assets measured at amortised cost	2,524
Financial assets not measured in accordance with IFRS 9	2,134
Total	**4,658**

The following table shows the prior-year figures for interest income from financial instruments, broken down by the IAS 39 measurement categories:

(EUR thousand)	01/01/2017 - 12/31/2017
Loans and receivables	6,665
Financial assets at fair value through profit or loss	1,224
Financial assets not measured in accordance with IAS 39	8
Total	**7,897**

7.6 Financial and interest expenses

Financial expenses

Financial expenses are composed of the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Impairment loss on equity investments in unconsolidated companies	845	–
Losses transferred under profit and loss transfer agreements	1,415	1,176
Other remaining financial expense	287	–
Total	**2,547**	**1,176**

Interest expense

Interest and similar expenses comprised the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Interest expenses on liabilities to banks	5,007	4,029
Interest cost from discount unwinding on pension and medical care obligations	12,954	13,235
Interest cost from discount unwinding on discounted provisions and other employee benefit obligations	12,209	8,179
Other interest expenses	3,577	4,684
thereof to unconsolidated subsidiaries	14	3
Total interest expenses	**33,747**	**30,127**

The following table shows the interest expenses on financial instruments broken down by the IFRS 9 measurement categories, along with the interest expenses on liabilities measured in accordance with other pronouncements:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017
Financial liabilities at amortised cost	7,644	7,820
Financial liabilities at fair value through profit or loss	–	296
Financial liabilities not measured in accordance with IAS 39	26,103	22,011
Total	**33,747**	**30,127**

The previous year's values show the interest expenses from financial instruments, broken down by the IAS 39 measurement categories.

If finance can be allocated to a specific investment, the actual borrowing costs are capitalized as part of the cost of the investment. Where no direct relationship can be established, the average interest rate for group borrowings in the current period is used as the capitalization rate due to GEA's central financing function. This amounted to 0.8 percent in 2018 (previous year: 2.8 percent). Interest income generated on advance payments and progress payments received reduces the cost of the asset. No material borrowing costs were capitalized in fiscal year 2018 or in the previous year.

In fiscal year 2018, expenses totaling EUR 1,066 thousand (previous year: EUR 1,025 thousand) were incurred for fees that were not included in the calculation of the effective interest rate.

7.7 Taxes on income

Income taxes for continuing operations are composed of the following items:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017*
Current taxes	64,203	64,347
Germany	9,105	20,518
Other countries	55,098	43,829
Deferred taxes	51,338	66,062
thereof related to temporary dfferences	–6,059	5,156
Total	**115,541**	**130,409**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The expected tax expense is calculated using the tax rate of 30.00 percent (previous year: 30.00 percent) applicable to German group companies. This includes an average trade tax rate of 14.17 percent (previous year: 14.17 percent) in addition to the uniform corporate income tax rate of 15.00 percent (previous year: 15.00 percent) and the solidarity surcharge of 0.825 percent (previous year: 0.825 percent). The following table shows a reconciliation of the expected tax rate to the effective tax rate of 50.08 percent (previous year: 36.43 percent):

	01/01/2018 - 12/31/2018		01/01/2017 - 12/31/2017*	
	(EUR thousand)	(%)	(EUR thousand)	(%)
Profit before tax	**230,692**		**357,966**	
Expected tax expense	69,208	30.00	107,390	30.00
Non-tax deductible expense	11,104	4.81	6,720	1.88
Tax-exempt income	–1,068	–0.46	–2,829	–0.79
Change in valuation allowances	46,236	20.04	–20,269	–5.66
Change in tax rates	–1,161	–0.50	44,498	12.43
Foreign tax rate differences	–10,520	–4.56	–8,937	–2.50
Other	1,742	0.75	3,836	1.07
Income tax and effective tax rate	**115,541**	**50.08**	**130,409**	**36.43**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Non-deductible expenses of EUR 11,104 thousand include an effect of EUR 5,270 thousand from a non-deductible disposal loss. This is also a primary reason for this item's year-on-year increase.

Owing to the subdued provisional outlook for business development, GEA assumes that there will be fewer options in some tax jurisdictions for carrying losses forward. The resulting expense from changes in valuation allowances amounts to EUR 46,236 thousand (previous year: EUR -20,269 thousand). For the most part, these are valuation allowances for deferred tax assets on tax loss carryforwards in the USA and Germany.

The foreign tax rate differences are due to different tax rates outside Germany in comparison to the German tax rate of 30.00 percent. The tax rates for foreign companies vary between 0.00 percent (UAE) and 34.00 percent (Brazil).

In the previous year, changes in the deferred taxes recognized in profit or loss, which were primarily a consequence of amendments to U.S. corporate tax legislation (Tax Cuts and Jobs Act) passed in December 2017, led to higher tax expenses from changes in tax rates. On January 1, 2018, the corporate tax rate in the USA dropped from 35.00 percent to 21.00 percent. This tax rate reduction in particular gave rise to expenditure of EUR 44,724 thousand from the measurement of deferred tax assets and liabilities in connection with GEA's U.S. subsidiaries.

Other reconciliation effects essentially include income of EUR 7,038 thousand from taxes unrelated to the accounting period and offsetting expenses of EUR 7,660 thousand from withholding taxes and other income taxes.

Deferred tax assets and liabilities as of the reporting date can be broken down by maturity as follows:

(EUR thousand)	12/31/2018	12/31/2017*
Current deferred tax assets	69,035	59,846
Non-current deferred tax assets	237,047	351,444
Total deferred tax assets	**306,082**	**411,290**
Current deferred tax liabilities	37,080	52,361
Non-current deferred tax liabilities	65,928	116,328
Total deferred tax liabilities	**103,008**	**168,689**
Net deferred tax assets	**203,074**	**242,601**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Deferred tax assets and liabilities as of December 31, 2018, and 2017, are composed of the following items:

	Deferred tax assets		Deferred tax liabilities	
(EUR thousand)	2018	2017	2018	2017*
Property, plant and equipment	5,207	4,640	23,186	24,470
Goodwill	4,628	5,071	31,733	32,622
Other intangible assets	211	251	102,891	118,263
Other non-current financial assets	1,890	821	3,889	5,692
Non-current assets	**11,936**	**10,783**	**161,699**	**181,047**
Inventories	31,849	25,597	6,218	3,120
Trade receivables	15,355	5,055	67,168	54,275
Other current financial assets	14,253	4,278	14,897	10,795
Cash and cash equivalents	97	–	1	34
Current assets	**61,554**	**34,930**	**88,284**	**68,224**
Total assets	**73,490**	**45,713**	**249,983**	**249,271**
Non-current provisions	27,461	27,439	754	–
Non-current employee benefit obligations	115,217	122,519	592	776
Non-current financial liabilities	157	1,345	133	2,371
Other non-current liabilities	485	284	1,200	1,439
Non-current liabilities	**143,320**	**151,587**	**2,679**	**4,586**
Current provisions	23,930	21,164	3,366	2,200
Current employee benefit obligations	9,303	6,635	92	409
Current financial liabilities	1,009	7,823	117	847
Trade payables	15,974	5,424	7,427	519
Other current liabilities	5,494	8,542	6,576	1,694
Current liabilities	**55,710**	**49,588**	**17,578**	**5,669**
Total equity and liabilities	**199,030**	**201,175**	**20,257**	**10,255**
Valuation allowances on temporary differences	–1,711	–1,621	–	–
Deferred taxes on temporary differences	**270,809**	**245,267**	**270,240**	**259,526**
Tax loss carryforwards	712,435	731,335	–	–
Valuation allowances on tax loss carryforwards	–509,930	–474,475	–	–
Offsetting of deferred taxes	–167,232	–90,837	–167,232	–90,837
Recognised deferred taxes	**306,082**	**411,290**	**103,008**	**168,689**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

During the reporting year, the comparative figures for deferred tax liabilities were adjusted by EUR -2,481 thousand due to the finalization of the purchase price allocation for the Pavan corporate group purchased in the previous year.

In addition to changes of EUR -51,338 thousand recognised in profit or loss (previous year: EUR -66,062 thousand), changes in deferred taxes resulted mainly from changes of EUR 9,159 thousand (previous year: EUR -24,703 thousand) recognised in other comprehensive income, including currency translation effects of foreign operations. Furthermore, EUR 4,642 thousand was recognised in the tax result from discontinued operations. Moreover, initial consolidations and deconsolidations during the reporting year led to changes in deferred taxes in the amount of EUR -875 thousand (previous year: EUR -28,879 thousand), that were directly recorded in equity. The first-time application of IFRS 9 and IFRS 15 resulted in a change in deferred taxes of EUR 1,366 thousand recognised directly in equity as of January 1, 2018.

Deferred tax liabilities of EUR 1,696 thousand (previous year: EUR 1,398 thousand) were recognised as of December 31, 2018, for expected dividend payments from subsidiaries. In this context, as of December 31, 2018, deferred tax liabilities of EUR 1,510 thousand (previous year: EUR 964 thousand) were recognised for withholding taxes likely to be incurred.

No deferred taxes were recognised for taxable temporary differences arising from investments in subsidiaries in the amount of EUR 497,216 thousand (previous year: EUR 437,244 thousand) as of December 31, 2018, since the company is able to control their reversal and no reversals will be made in the foreseeable future.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to set off current tax assets against current tax liabilities and if the deferred taxes relate to income taxes levied by the same taxation authority.

As of December 31, 2018, GEA recognised deferred tax assets in the amount of EUR 202,505 thousand (previous year: EUR 256,860 thousand) on tax loss carryforwards:

(EUR thousand)	12/31/2018	12/31/2017
Deferred tax assets on domestic tax loss carryforwards		
Corporate income tax	54,955	57,837
Trade tax	61,248	82,000
Deferred tax assets on foreign tax loss carryforwards	86,302	117,023
Total	**202,505**	**256,860**

The total amount of the deferred tax assets on tax loss carryforwards largely relates to the consolidated tax groups in Germany and the U.S.A.

No deferred tax assets were recognised for corporate income tax loss carryforwards in the amount of EUR 1,305,094 thousand (previous year: EUR 1,293,289 thousand) and trade tax loss carryforwards in the amount of EUR 888,821 thousand (previous year: EUR 788,905 thousand) as their utilization is not sufficiently certain. In the case of corporation tax loss carryforwards, there was clearer and more specific recognition of pre-consolidation loss carryforwards during the reporting year than during the year before, resulting in a reduction of EUR 85,657 thousand; the remaining difference will affect developments in the current year. The tax loss carryforwards of the German companies can be carried forward for an indefinite period. Foreign tax loss carryforwards can generally only be utilized for a limited period. The significant tax loss carryforwards of the foreign companies are expected to expire in 2029.

7.8 Income on discontinued operations

Discontinued operations comprise the remaining risks from the 2014 sale of GEA Heat Exchangers and of the plant engineering activities in previous years, especially Lurgi and Lentjes, and the continued process of winding-up past discontinued operations, including individual legal disputes arising from them.

Earnings from discontinued operations in fiscal year 2018 amounted to EUR 13.8 million (previous year: EUR 32.2 million), EUR 8.1 million of which was attributable to the release of a provision for expenses in connection with a legal dispute. Expenses totaled EUR 20.0 million (previous year: EUR 22.0 million). The pre-tax profit from discontinued operations thus amounted to EUR -6.3 million (previous year: EUR 10.2 million). This mainly resulted from the development of residual risks in connection with businesses sold by GEA in previous years.

All told, profit after tax from these discontinued operations of EUR -1,618 thousand (previous year: EUR 15,246 thousand) had an impact on consolidated profit. This profit will be allocated in full to the shareholders of GEA Group Aktiengesellschaft. Tax income attributable to discontinued operations amounted to EUR 4,642 thousand (previous year: EUR 5,058 thousand).

7.9 Earnings per share

Earnings per share are calculated as follows:

(EUR thousand)	01/01/2018 - 12/31/2018	01/01/2017 - 12/31/2017*
Profit for the period attributable to shareholders of GEA Group Aktiengesellschaft	113,435	242,763
thereof from continuing operations	115,053	227,517
thereof from discontinued operations	–1,618	15,246
Weighted average number of shares outstanding (thousand)	180,528	186,337
Basic and diluted earnings per share (EUR)		
from profit for the period	0.63	1.30
thereof attributable to continuing operations	0.64	1.22
thereof attributable to discontinued operations	–0.01	0.08

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

7.10 Appropriation of net profit

GEA Group Aktiengesellschaft reported net income for the fiscal year of EUR 32,035 thousand in accordance with the HGB (previous year: EUR 235,259 thousand). The Executive Board and the Supervisory Board of GEA Group Aktiengesellschaft withdrew EUR 121,000 thousand from the other revenue reserves (previous year: allocation of EUR 83,000 thousand). Including the profit brought forward of EUR 1,135 thousand (previous year: EUR 2,293 thousand), the net retained profits amounted to EUR 154,170 thousand (previous year: EUR 154,553 thousand).

The Executive Board and Supervisory Board will propose to the Annual General Meeting that the net retained profits be appropriated as follows:

Appropriation (EUR thousand)	2018	2017
Dividend payment to shareholders	153,418	153,418
Profit carried forward	752	1,135
Total	**154,170**	**154,553**

The dividend payment corresponds to the payment of a dividend of EUR 0.85 per share for a total of 180,492,172 shares (previous year: 180,492,172 shares). The dividend will be paid from the contribution account for tax purposes (section 27 of the Körperschaftsteuergesetz (KStG – German Corporate Income Tax Act)) and therefore without deduction of investment income tax and the solidarity surcharge. In the case of shareholders in Germany, the dividend is not subject to current taxation in the year of payment. The opinion of the German tax authorities (see also the Federal Ministry of Finance (BMF) circular dated 1/18/2016, para. 92) is that the payment of dividends from the contribution account for tax purposes constitutes a repayment of shareholder contributions, which results in a retrospective reduction in the cost of the shares. This can lead to the imposition of higher capital gains taxes if the shares are sold at a later date.

8. Contingent Liabilities, other Financial Obligations, Contingent Assets, and Litigation

8.1 Contingent liabilities

GEA has issued or instructed the issue of both bank and group guarantees in favor of customers or lenders. The obligations presented in the following table relate to contingent liabilities for which the primary debtor is not a consolidated company of the group as a whole.

	Bank guarantees		Group guarantees	
(EUR thousand)	2018	2017	2018	2017
Guarantees for prepayments	5,539	9,680	561	–
Warranties	309	1,516	350	382
Performance guarantees	11,314	15,969	139,615	135,356
Other declarations of liability	2,671	2,309	6,133	9,760
Total	**19,834**	**29,474**	**146,659**	**145,498**
thereof attributable to GEA Heat Exchangers	11,211	16,054	46,235	49,082
thereof attributable to Lurgi	–	84	94,483	90,205

A significant proportion of the bank guarantees and most of the group guarantees are attributable to the GEA Heat Exchangers segment which was sold on October 31, 2014, as well as to the operating activities of Lurgi which were disposed of in previous years (see section 3).

The other guarantees relate mainly to customers of unconsolidated companies and to banks. The beneficiaries are entitled to asset claims under the guarantees if the primary debtor fails to meet its contractual obligations, for example, in the case of late or defective delivery, noncompliance with warranted performance parameters, or failure to repay loans in accordance with the contractual requirements.

The guarantees include contingent liabilities of EUR 7,391 thousand resulting from joint ventures (previous year: EUR 7,882 thousand); there is no further liability above and beyond this.

All guarantees issued by or on the instructions of GEA Group Aktiengesellschaft are issued on behalf of and with recourse against the relevant primary debtor.

In addition to the liability risks resulting from bank and group guarantees, there are risks in particular from court, arbitration, or out-of-court disputes (see section 8.3) that could result in cash outflows.

8.2 Other financial obligations

The other financial obligations of the group as a whole as of December 31, 2018, are composed of the following items:

(EUR thousand)	12/31/2018	12/31/2017
Rental and lease obligations	188,251	180,478
Purchase commitments	154,401	173,687
Total	**342,652**	**354,165**

Rental and lease agreements

The obligations under rental and lease agreements of the group as a whole amount to EUR 188,251 thousand (previous year: EUR 180,478 thousand) and relate primarily to land and buildings, and to a lesser extent operating and office equipment and technical equipment and machinery. The leases run until no later than 2032 (previous year: 2031). Payments are spread over future fiscal years as follows:

(EUR thousand)	12/31/2018	12/31/2017
Not later than one year	57,424	57,938
Between one and five years	100,962	99,300
Later than five years	29,865	23,240
Total	**188,251**	**180,478**

In contrast to previous years, obligations under rental and lease agreements largely reflect all obligations, including economically insignificant transactions. Previous-year values were adjusted accordingly.

The expenses related to rental and lease agreements of the group as a whole in fiscal year 2018 amounted to EUR 66,941 thousand (previous year: EUR 57,255 thousand). Of this amount, EUR 5,858 thousand (previous year: EUR 9,591 thousand) was attributable to variable rents, which are primarily adjusted based on consumer price indexes. In some cases, the agreements include the options of lease renewal, termination, and purchase.

Sale and leaseback transactions relating to buildings resulted in future payments for the group as a whole of EUR 16,661 thousand at the reporting date (previous year: EUR 23,335 thousand).

Purchase commitments

EUR 140,426 thousand (previous year: EUR 162,950 thousand) of the purchase commitments is attributable to inventories.

8.3 Litigation

Dörries Scharmann AG insolvency proceedings

An action brought by the insolvency administrator of Dörries Scharmann AG against GEA Group Aktiengesellschaft is pending before the Higher Regional Appeal Court of Düsseldorf. The former Metallgesellschaft AG, the legal predecessor to GEA Group Aktiengesellschaft, held an interest in Schiess AG, which later became Dörries Scharmann AG. On the basis of that interest, the insolvency administrator has asserted various claims under company law, in particular for equity substitution, amounting to approximately EUR 18 million plus interest in the first instance. The District Court of Düsseldorf threw out the initial action brought by the insolvency administrator, who is now appealing that judgment. Last year, there were no significant developments in the appeal proceedings. GEA Group Aktiengesellschaft considers the claims that have been asserted to be unfounded.

General

Further legal proceedings or official investigations have been or may be instituted against GEA as a result of earlier business disposals and operating activities.

Adequate accounting provisions have been recognised for all risks arising from both the legal disputes described above and other legal disputes being pursued by GEA in the course of its ordinary operating activities. However, the outcome of these proceedings cannot be predicted with any degree of certainty. It is therefore possible that the conclusion of the proceedings may result in income or expenses if the amounts that have been set aside for them are higher or lower than required.

9. Segment Reporting

9.1 Operating segments

GEA's business activities are divided into the following two business areas:

Business Area Equipment

The Business Area Equipment brings together all activities ranging from largely standardized to customer-specific equipment offerings. The products are primarily manufactured as part of series production on a standardized and modular basis. Typical products of this business area include separators, valves, pumps, homogenizers and refrigeration equipment such as compressors. The equipment portfolio also includes process technology for food processing and packaging, for example extrusion and milling equipment. The product range also extends to dairy equipment, feeding systems and slurry engineering as well as an entire service portfolio.

Business Area Solutions

The Business Area Solutions encompasses all group activities related to customer-specific products, projects, after-sales and services. These cover scopes ranging from small to complete plants tailored to specific applications and customer requirements. The offering primarily includes the engineering, design and delivery of customized process solutions for the dairy, food, beverage, pharma and chemical industries. This business area also provides process-critical, industrial refrigeration and sustainable energy solutions across all markets served.

A Global Corporate Center provides centralized support to all management and administrative functions and performs the essential management functions for the entire group. This includes the groupwide management of strategy, human resources, legal and tax matters, mergers & acquisitions, the central financial organization, internal auditing, marketing & communication and IT. As of November 1, 2018, all functions previously combined under the independent Shared Service Center (SSC) have been integrated into the Global Corporate Center. The control and administrative functions bundled in the Global Corporate Center do not represent independent operating segments. The operating expenses of the Global Corporate Center are allocated, where possible to the business areas.

Activities that are not part of core business are not disclosed in the data of the business areas. This includes investment property held for sale, pension obligations, and liabilities related to discontinued operations.

(EUR million)	BA-E	BA-S	Others	Consolidation	GEA
01/01/2018 - 12/31/2018					
Order intake[1]	2,662.4	2,499.1	–	–243.7	**4,917.7**
External revenue	2,442.0	2,386.2	–	–	**4,828.2**
Intersegment revenue	185.6	54.8	–	–240.4	**–**
Total revenue	2,627.6	2,441.1	–	–240.4	**4,828.2**
Share of profit or loss of equity-accounted investments	1.3	0.4	–	–	**1.7**
Operating EBITDA[2]	393.1	122.6	10.2	–7.8	**518.2**
as % of revenue	15.0	5.0	–	–	**10.7**
EBITDA	360.8	119.0	–40.9	–7.8	**431.2**
Operating EBIT[2]	328.6	95.8	0.9	–7.7	**417.6**
as % of revenue	12.5	3.9	–	–	**8.6**
EBIT	242.3	75.3	–50.2	–7.6	**259.8**
as % of revenue	9.2	3.1	–	–	**5.4**
ROCE in %[3]	12.4	9.4	–	–	**9.2**
Interest income	4.8	6.6	16.0	–22.8	**4.7**
Interest expense	21.2	9.2	26.2	–22.8	**33.7**
Income taxes	18.7	26.2	65.9	4.7	**115.5**
Profit or loss from discontinued operations	–	–	–1.6	–	**–1.6**
Segment assets	4,221.7	2,959.1	3,169.0	–4,630.8	**5,719.1**
Segment liabilities	1,954.7	1,695.5	2,394.7	–2,775.2	**3,269.6**
Carrying amount of equity-accounted investments	9.3	2.6	–	–	**11.9**
Working capital (reporting date)[4]	620.7	111.1	22.8	–7.6	**747.0**
Additions in property, plant, and equipment, intangible assets, and goodwill	99.9	57.9	10.6	–0.0	**168.3**
Depreciation and amortization	101.5	35.0	9.3	–0.1	**145.7**
Impairment losses	17.0	8.7	–	–	**25.7**
Additions to provisions	113.9	167.8	57.4	–15.6	**323.4**

(EUR million)	BA-E	BA-S	Others	Consolidation	GEA
01/01/2017 - 12/31/2017[6]					
Order intake[1]	2,491.5	2,484.0	–	–224.7	**4,750.8**
External revenue	2,196.6	2,408.0	–	–	**4,604.5**
Intersegment revenue	174.5	33.6	–	–208.1	**–**
Total revenue	2,371.0	2,441.6	–	–208.1	**4,604.5**
Share of profit or loss of equity-accounted investments	1.2	0.4	0.2	–	**1.8**
Operating EBITDA[2]	389.3	161.3	12.5	0.5	**563.5**
as % of revenue	16.4	6.6	–	–	**12.2**
EBITDA	369.3	151.7	–23.0	0.5	**498.5**
Operating EBIT[2]	330.8	141.3	5.2	0.5	**477.8**
as % of revenue	14.0	5.8	–	–	**10.4**
EBIT	289.8	120.2	–30.4	0.6	**380.2**
as % of revenue	12.2	4.9	–	–	**8.3**
ROCE in %[3]	17.8	16.3	–	–	**15.6**
Interest income	3.3	7.8	16.5	–19.7	**7.9**
Interest expense	19.2	8.1	22.5	–19.7	**30.1**
Income taxes	52.7	19.2	59.7	–1.3	**130.4**
Profit or loss from discontinued operations	–	–	15.2	–	**15.2**
Segment assets	4,176.8	2,901.2	3,312.2	–4,641.8	**5,748.3**
Segment liabilities	1,989.7	1,677.0	2,361.2	–2,782.8	**3,245.2**
Carrying amount of equity-accounted investments	7.3	2.7	4.4	–	**14.4**
Working capital (reporting date)[5]	559.4	112.4	10.6	–8.1	**674.3**
Additions in property, plant, and equipment, intangible assets, and goodwill	453.6	31.7	27.2	–0.2	**512.4**
Depreciation and amortization	79.3	29.7	7.4	0.2	**116.6**
Impairment losses	–	1.7	–	–	**1.7**
Additions to provisions	139.1	122.8	47.0	3.0	**311.9**

1) Unaudited supplemental information
2) Before effects of purchase price allocations and adjustments (see page 220 f.)
3) ROCE = EBIT/capital employed; EBIT and capital employed both calculated as the average for the last 12 months and before effects relating to goodwill from the acquisition of the former GEA AG by the former Metallgesellschaft AG in 1999; capital employed = non-current assets + working capital
4) Working capital = inventories + trade receivables + contract assets – trade payables - contract liabilities – provisions for anticipated losses (PoC)
5) Working capital = inventories + trade receivables – trade payables – advance payments received
6) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

Consolidation primarily comprises the elimination of investments in subsidiaries, intragroup receivables, liabilities, revenue, and income and expenses. Intersegment revenue is calculated using standard market prices.

In the presentation of segment disclosures by geographic region, revenue is allocated by the destination of the goods or place of performance of the services, or by customer domicile.

(EUR million)	BA Equipment	BA Solutions	Consolidation	GEA
01/01/2018 - 12/31/2018				
Revenue by revenue element				
From construction contracts	324.8	1,767.7	–52.3	**2,040.2**
From sale of goods and services	1,330.5	104.1	–136.9	**1,297.6**
From service agreements	972.3	569.3	–51.2	**1,490.4**
Total	2,627.6	2,441.1	–240.4	**4,828.2**
Revenue by geografical region				
Germany	305.5	159.9	–27.9	**437.6**
Asia Pacific	479.4	638.9	–37.5	**1,080.8**
ACH & Eastern Europe	300.5	330.1	–29.4	**601.2**
Western Europe, Middle East & Africa	468.0	427.6	–43.1	**852.5**
North- and Central Europe	354.3	356.5	–67.7	**643.2**
Latin America	173.0	187.9	–14.3	**346.6**
North America	546.8	340.0	–20.5	**866.4**
Total	**2,627.6**	**2,441.1**	**–240.4**	**4,828.2**

In the reporting period, revenue of EUR 734.7 million (previous year: EUR 739.8 million) was attributable to the United States of America and EUR 379.7 million (previous year: EUR 315.3 million) was attributable to the People's Republic of China. There are no relationships with individual customers whose revenue can be considered material in comparison to total group revenue.

(EUR million)	BA Equipment	BA Solutions	Consolidation	GEA
01/01/2017 - 12/31/2017				
Revenue by revenue element				
From construction contracts	433.6	1,841.9	–23.1	**2,252.3**
From sale of goods and services	1,012.4	52.4	–135.4	**929.3**
From service agreements	925.1	547.3	–49.5	**1,422.9**
Total	**2,371.0**	**2,441.6**	**–208.1**	**4,604.5**
Revenue by geografical region				
Germany	294.5	156.2	–28.1	**422.5**
Asia Pacific	468.6	598.9	–40.6	**1,026.9**
ACH & Eastern Europe	248.8	297.3	–24.4	**521.6**
Western Europe, Middle East & Africa	378.7	547.9	–37.8	**888.9**
North- and Central Europe	293.8	338.1	–49.3	**582.6**
Latin America	161.1	168.7	–13.4	**316.5**
North America	525.5	334.5	–14.5	**845.5**
Total	**2,371.0**	**2,441.6**	**–208.1**	**4,604.5**

The definition of the key operating performance indicators used by management for management purposes was clarified as follows in the 2016 financial year against the background of the guidelines on alternative performance indicators issued by the European Securities and Markets Authority (ESMA): When calculating operating EBITDA and operating EBIT, earnings effects are adjusted as before which, in the opinion of management, do not match the economic success of reflect GEA. This relates, on the one hand, to adjustments for purchase price allocation effects that were determined for all significant past acquisitions, and, on the other, to the adjustment of expenses for strategy projects. These include restructuring costs, expenses for external consultants, outlay on scheduled and completed company acquisitions, together with other expenses directly attributable to the projects.

The following strategic projects were underway in the period under review:

- “Restructuring/Footprint”: measures to optimize the production network, including ongoing expenses in respect of the “Fit for 2020” program
- “IT Transformation”: to standardize and outsource the IT platform as the basis for digital transformation, and to roll out a uniform ERP system
- “Steering Systems”: to align the financial information and management systems to the new fully functional OneGEA organization

In accordance with this definition, operating EBIT for 2018 was adjusted for expenses for strategy projects totaling EUR 88.9 million (previous year: EUR 63.4 million). EUR 47.0 million (previous year: EUR 24.8 million) of this total was attributable to “Restructuring/Footprint”. Furthermore, expenses for “IT Transformation” and “Steering Systems” in the amounts of EUR 8.3 million and EUR 28.1 million have been considered in the period under review (previous year: EUR 11.5 million and EUR 15.8 million). The other expenses for strategy projects amounting to EUR 5.5 million are attributable to miscellaneous projects and completed company acquisitions (previous year: EUR 11.2 million).

In accordance with the internal management system, the profitability of the two business areas is measured using earnings before interest, tax, depreciation and impairment losses/reversals of impairment (EBITDA), along with earnings before interest and tax (EBIT). These indicators correspond to the values shown in the income statement.
Impairment losses include all impairment losses on property, plant, and equipment, intangible assets, and investment property.

Reconciliation of operating EBITDA to EBIT (EUR million)	2018	2017[1]	Change in %
Operating EBITDA[2]	**518.2**	**563.5**	**–8.0**
Depreciation of property, plant, and equipment, investment property, and amortization of intangible assets	–98.2	–85.4	–
Impairment losses and reversals of impairment losses on property, plant, and equipment, investment property, intangible assets, and goodwill	–1.6	–0.4	–
Other impairment losses and reversals of impairment losses	–0.8	–	–
Operating EBIT[2]	**417.6**	**477.8**	**–12.6**
Depreciation and amortization on capitalization of purchase price allocation	–47.5	–31.2	–
Impairment losses and reversals on capitalization of purchase price allocation	–16.8	–0.8	–
Realization of step-up amounts on inventories	–4.6	–2.1	–
Adjustments	–88.9	–63.4	–
EBIT	**259.8**	**380.2**	**–31.7**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Before effects of purchase price allocations and adjustments (see page 220 f.)

The following table shows the reconciliation of EBITDA to EBIT:

Reconciliation of EBITDA to EBIT (EUR million)	2018	2017*
EBITDA	**431.2**	**498.5**
Depreciation of property, plant, and equipment, investment property, and amortization of intangible assets (see notes 5.1, 5.2, 5.4)	–145.7	–116.6
Impairment losses and reversals of impairment losses on property, plant, and equipment, investment property, intangible assets, and goodwill (see notes 5.1, 5.2, 5.3, 5.4)	–24.9	–1.7
Impairment losses and reversals of impairment losses on non-current financial assets	–0.8	–
EBIT	**259.8**	**380.2**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

The following table shows the reconciliation of working capital to total assets:

Reconciliation of working capital to total assets (EUR million)	12/31/2018	12/31/2017*
Working capital (reporting date)	**747.0**	**674.3**
Working capital (reporting date) of Ruhr-Zink	–0.6	–0.6
Non-current assets	3,115.3	3,234.3
Income tax receivables	40.2	30.7
Other current financial assets	184.0	180.6
Cash and cash equivalents	247.9	250.5
Assets held for sale	3.7	–
plus trade payables	723.3	736.9
plus contract liabilities	623.3	–
plus anticipated losses from construction contracts	35.0	–
plus advance payments in respect of orders and construction contracts	–	271.4
plus gross amount due to customers for contract work	–	370.0
Total assets	**5,719.1**	**5,748.3**

*) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.

9.2 Disclosures by geographic region

Assets are allocated by their location. The figures quoted relate to the group as a whole.

(EUR millions)	Germany	Asia Pacific	ACH & Eastern Europe	Western Europe, Middle East & Africa	North- and Central Eruope	Latin America	North America	**Total**
01/01/2018 - 12/31/2018								
Non-current assets (property, plant and equipment, intangible assets, and investment property)	960.5	134.2	69.1	693.1	720.3	4.1	177.7	**2,759.0**
01/01/2017 - 12/31/2017								
Non-current assets (property, plant and equipment, intangible assets, and investment property)	961.6	124.2	43.8	725.6	737.5	4.3	172.8	**2,769.8**

The carrying amounts of non-current assets (property, plant, and equipment, intangible assets, and investment property) in the Netherlands amounted to EUR 382.9 million (previous year: EUR 402.8 million) as of the reporting date, and in Italy to EUR 665.5 million (previous year: EUR 693.9 million).

10. Other Disclosures

10.1 Cash flow disclosures

Cash flow from operating activities in fiscal year 2018 included outflows of EUR 5,333 thousand (previous year: EUR 7,535 thousand) from other discontinued operations. Cash flow from investing activities of discontinued operations comprises cash flows in connection with operations sold in previous years.

The change in other operating assets and liabilities includes currency effects of EUR 32,120 thousand (previous year: EUR -57,937 thousand) arising from the financing of the cash flow from the operating activities of foreign subsidiaries.

Financial liabilities, the inflows and outflows of which appear in the cash flow statement under cash flow from financing activities, changed as follows in fiscal year 2018:

(EUR thousand)	Balance at 1/1/2018	Cash flow from financing activities	Changes in consolidated group	Exchange rate differences	Changes in fair value	Other changes	Balance at 12/31/2018
Bonds and debentures issued	–	249,500	–	–	–	69	249,569
Finance loans	2,908	48,791	–	–605	–	200	51,294
Liabilities from finance leases	2,990	–2,912	–	45	–	4,037	4,160
Noncurrent financial liabilities	**5,898**	**295,379**	**–**	**–560**	**–**	**4,306**	**305,023**
Bonds and debentures issued	–	–	–	–	–	2,143	2,143
Finance loans	242,241	–221,680	121	–825	–	–2,334	17,523
Liabilities from finance leases	3,571	–1,365	–	29	–	–	2,235
Current financial liabilities	**245,812**	**–223,045**	**121**	**–796**	**–**	**–191**	**21,901**
Interest rate swap and forward exchange contracts used for hedging – liabilities	–	–	–	–	–	–	–
Total	**251,710**	**72,334**	**121**	**–1,356**	**–**	**4,115**	**326,924**

(EUR thousand)	Balance at 1/1/2017	Cash flow from financing activities	Changes in consolidated group	Exchange rate differences	Changes in fair value	Other changes	Balance at 12/31/2017
Bonds and debentures issued	–	–	–	–	–	–	–
Finance loans	3,439	–445	–	–86	–	–	2,908
Liabilities from finance leases	6,542	–4,124	–	–25	–	597	2,990
Noncurrent financial liabilities	**9,981**	**–4,569**	**–**	**–111**	**–**	**597**	**5,898**
Bonds and debentures issued	90,651	–90,000	–	–	–	–651	–
Finance loans	52,536	93,288	102,840	–417		–6,006	242,241
Liabilities from finance leases	3,440	132	–	–1	–	–	3,571
Current financial liabilities	**146,627**	**3,420**	**102,840**	**–418**	**–**	**–6,657**	**245,812**
Interest rate swap and forward exchange contracts used for hedging – liabilities	1,042	–	–	–	–1,042	–	–
Total	**157,650**	**–1,149**	**102,840**	**–529**	**–1,042**	**–6,060**	**251,710**

The table does not include liabilities from derivatives of EUR 6,793 thousand (previous year: EUR 11,107 thousand) as financial liabilities, as the resulting cash flows are allocated to cash flow from operating activities.

10.2 Government grants

Government grants related to income amounting to EUR 1,370 thousand were received in fiscal year 2018 (previous year: EUR 931 thousand). Grants related to assets of EUR 586 thousand (previous year: EUR 263 thousand) were deducted from the carrying amounts of the assets concerned. In fiscal year 2018, expenses of EUR 405 thousand (previous year: EUR 405 thousand) were incurred for the potential repayment of grants received.

10.3 Related party disclosures

10.3.1 Related party transactions

Transactions between GEA Group Aktiengesellschaft and its consolidated subsidiaries have been eliminated in the course of consolidation. Revenue and expenses from transactions between continuing and discontinued operations were not eliminated if they will continue to be incurred following the disposal of the discontinued operation.

Transactions with unconsolidated subsidiaries and joint ventures mainly relate to regular deliveries of goods and services. Income and expenses from transactions between the group as a whole and these companies are composed of the following items:

(EUR thousand)	Revenue	Other income	Other expenses
01/01/2018 - 12/31/2018			
Unconsolidated subsidiaries	43,152	1,489	8,090
Joint ventures	17,354	–	–
Total	**60,506**	**1,489**	**8,090**
01/01/2017 - 12/31/2017			
Unconsolidated subsidiaries	37,360	2,058	7,875
Joint ventures	13,733	–	–
Total	**51,093**	**2,058**	**7,875**

Related party transactions resulted in the following outstanding items in the group as a whole as of December 31, 2018:

(EUR thousand)	Trade receivables	Trade payables	Other receivables	Other liabilities
12/31/2018				
Unconsolidated subsidiaries	20,925	2,064	13,639	29,644
Joint ventures	5,539	–	–	–
Total	**26,464**	**2,064**	**13,639**	**29,644**
thereof current	26,464	2,064	12,939	29,444
12/31/2017				
Unconsolidated subsidiaries	17,778	6,184	10,583	23,208
Joint ventures	4,086	10	–	415
Total	**21,864**	**6,194**	**10,583**	**23,623**
thereof current	21,864	6,194	9,683	23,623

The outstanding amounts will be settled by bank transfer and are unsecured.

10.3.2 Remuneration of the Executive Board and the Supervisory Board

The Executive Board and Supervisory Board of GEA Group Aktiengesellschaft received total remunerations of EUR 11,940 thousand (previous year: EUR 8,800 thousand). This amount comprised the following elements:

(EUR thousand)	2018	2017
Short-term employee benefits	7,906	7,156
Post-employment benefits	1,615	1,451
Termination benefits	2,864	–
Share-based payments	–445	193
Total	**11,940**	**8,800**

Former Executive Board members and their surviving dependents received remuneration from GEA amounting to EUR 4,623 thousand (previous year: EUR 4,552 thousand). Pension provisions (gross) were recognised for former Executive Board members and their surviving dependents in accordance with IFRSs totaling EUR 82,945 thousand (previous year: EUR 78,601 thousand).

During the year under review, the expenses incurred for the Supervisory Board amounted to EUR 1,276 thousand (previous year: EUR 1,260 thousand).

Other information on the remuneration of the Executive Board and the Supervisory Board can be found in the remuneration report.

There were no other transactions by members of the Executive Board or Supervisory Board or their related parties in either the reporting or the comparative period.

11. Events after the End of the Reporting Period

On February 12, 2019, GEA announced that the Supervisory Board of GEA Group Aktiengesellschaft has appointed Marcus A. Ketter (50) to the company's Executive Board with effect from May 20, 2019. He is set to succeed the long-standing Chief Financial Officer, Dr. Helmut Schmale (62), who will leave the company as of May 17, 2019. Marcus A. Ketter will join GEA following his stint with Klöckner & Co SE, the steel and metal distributor, where he has been instrumental in shaping the company's performance management in his capacity as CFO over the previous six years.

12. Supplemental Disclosures in Accordance with Section 315e of the HGB

12.1 Declaration on the Corporate Governance Code

The Executive Board and the Supervisory Board issued an updated declaration of conformity in accordance with section 161 of the Aktiengesetz (AktG – German Stock Corporation Act) on December 19, 2018, and made it permanently available to the shareholders on the company's website.

12.2 Number of employees

The average number of employees during the year was as follows:

Average number of employees during the year*	2018	2017
DACH & Eastern Europe	6,646	6,352
North & Central Europe	3,009	2,936
Asia Pacific	2,987	2,906
Western Europe, Middle East & Africa	3,442	2,917
North America	1,801	1,746
Latin America	500	432
Continuing operations	**18,385**	**17,289**
DACH & Eastern Europe	1	1
Discontinued operations	**1**	**1**
Total	**18,386**	**17,290**

* Full-time equivalents (FTEs) excluding vocational trainees and inactive employment contracts

The number of employees at the reporting date was as follows:

Employees at reporting date*	2018	2017
DACH & Eastern Europe	6,765	6,398
North & Central Europe	3,056	2,927
Asia Pacific	3,049	2,904
Western Europe, Middle East & Africa	3,434	3,401
North America	1,821	1,763
Latin America	518	471
Continuing operations	**18,642**	**17,863**
DACH & Eastern Europe	1	1
Discontinued operations	**1**	**1**
Total	**18,643**	**17,864**

* Full-time equivalents (FTEs) excluding vocational trainees and inactive employment contracts

12.3 Audit and consulting fees

The fees charged worldwide by the auditors of the consolidated financial statements, KPMG AG Wirtschaftsprüfungsgesellschaft, for fiscal year 2018 are broken down as follows:

(EUR thousand)	2018	2017
Audit	6,491	5,441
thereof KPMG Wirtschaftsprüfungsgesellschaft AG	3,309	2,543
Other audit related services	37	179
thereof KPMG Wirtschaftsprüfungsgesellschaft AG	37	170
Tax consulting services	790	830
thereof KPMG Wirtschaftsprüfungsgesellschaft AG	144	–
Other services	50	382
thereof KPMG Wirtschaftsprüfungsgesellschaft AG	50	188
Total	**7,368**	**6,832**
thereof KPMG Wirtschaftsprüfungsgesellschaft AG	**3,540**	**2,901**

KPMG AG's audit fee mainly covers the auditing mandate in respect of GEA Group Aktiengesellschaft's consolidated financial statements and annual financial statements, including statutory extensions to the mandate and key audit areas agreed with the Supervisory Board, insofar as they form part of the annual audit.

Other assurance services relate to, for example, audits required by law or by contract such as EMIR audits pursuant to section 20 Wertpapierhandelsgesetz (WpHG – German Securities Trading Act) and covenant certification.

The other services relate to a conceptual review of the principles and measures for export control as well as the audit of the separate non-financial report of the GEA Group Aktiengesellschaft.

12.4 Investments

The following list shows all subsidiaries, associates, and joint ventures. With the exception of other equity investments within the meaning of section 313(2) No. 4 of the HGB, it does not contain investments in companies that GEA neither controls nor over which it can exercise significant influence.

Subsidiaries

	Head Office	Shares %
Argentina		
GEA Farm Technologies Argentina S.R.L.	Buenos Aires	100.00
GEA Process Engineering S.A.	Buenos Aires	100.00
GEA Westfalia Separator Argentina S.A.	Buenos Aires	100.00
Australia		
Bock Australia Pty. Ltd.	Banksmeadow	100.00
Dairy Technology Services Pty. Ltd.	Kyabram	100.00
GEA Farm Technologies Australia Pty. Ltd.	Tullamarine	100.00
GEA Nu-Con Pty. Ltd.	Sutherland	100.00
GEA Process Engineering Pty. Ltd.	Blackburn	100.00
GEA Westfalia Separator Australia Pty. Ltd.	Thomastown	100.00
Austria		
GEA Austria GmbH	Plainfeld	100.00
GEA CEE GmbH	Vienna	100.00
Belgium		
GEA Farm Technologies Belgium N.V.	Kontich	100.00
GEA Process Engineering N.V.	Halle	100.00
GEA Westfalia Separator Belgium N.V.	Kontich	100.00
Brazil		
GEA Equipamentos e Soluções Ltda.	Jaguariúna	100.00
Bulgaria		
GEA EEC Bulgaria EOOD	Sofia	100.00
Canada		
GEA Farm Technologies Canada Inc.	Drummondville	100.00
GEA Canada Inc.	Saint John	100.00
GEA Refrigeration Canada Inc.	Richmond	100.00
Chile		
GEA Farm Technologies Chile SpA	Osorno	100.00
GEA Food Solutions Chile Comercializadora Ltda.	Santiago de Chile	100.00
GEA Process Engineering Chile S.A.	Santiago de Chile	100.00
GEA Westfalia Separator Chile S.A.	Santiago de Chile	100.00
Tecno-Leche S.A.	Osorno	100.00

	Head Office	Shares %
China		
Beijing Tetra Laval Food Machinery Co., Ltd. i.L.	Beijing	90.00
BOS (Shanghai) Flow Equipment Co., Ltd.	Shanghai	100.00
Gbs Grain Machinery Manufacturing (Beijing) Co., Ltd.	Beijing	100.00
GEA (Shanghai) Farm Technologies Co., Ltd.	Shanghai	100.00
GEA Food Solutions (Beijing) Co., Ltd.	Beijing	100.00
GEA Food Solutions Asia Co., Ltd.	Hong Kong	100.00
GEA Hong Kong Trading Ltd.	Hong Kong	100.00
GEA Lyophil (Beijing) Ltd.	Beijing	100.00
GEA Mechanical Equipment (Tianjin) Co., Ltd.	Wuqing	100.00
GEA Process Engineering China Limited	Shanghai	100.00
GEA Process Engineering China Ltd.	Shanghai	100.00
GEA Process Engineering Trading (Shanghai) Ltd.	Shanghai	100.00
GEA Refrigeration Hong Kong Ltd.	Hong Kong	100.00
GEA Refrigeration Technology (Suzhou) Co., Ltd.	Suzhou	100.00
GEA Westfalia Separator (China) Ltd.	Hong Kong	100.00
GEA Westfalia Separator (Tianjin) Co., Ltd.	Tianjin	100.00
Nu-Con (Shanghai) Trading Co., Ltd.	Shanghai	100.00
Shijiazhuang GEA Farm Technologies Co., Ltd.	Shijiazhuang	100.00
Colombia		
GEA Andina S.A.S.	Medellin	100.00
Croatia		
GEA Farm Technologies Croatia d.o.o.	Zagreb	100.00
Czech Republic		
GEA Bock Czech s.r.o.	Stribro	100.00
GEA Czech Republic s.r.o.	Prague	100.00
GEA Farm Technologies CZ, spol. s.r.o.	Napajedla	100.00
GEA Food Solutions Czech s.r.o.	Prague	100.00
GEA Westfalia Separator CZ s.r.o.	Prague	100.00
Denmark		
GEA Farm Technologies Mullerup A/S	Ullerslev	100.00
GEA Food Solutions Denmark A/S	Slagelse	100.00
GEA Food Solutions International A/S	Slagelse	100.00
GEA Food Solutions Nordic A/S	Slagelse	100.00

	Head Office	Shares %
GEA Process Engineering A/S	Soeborg	100.00
GEA Refrigeration Components (Nordic) A/S	Skanderborg	100.00
GEA Scan-Vibro A/S	Svendborg	100.00
GEA Westfalia Separator DK A/S	Skanderborg	100.00
Finland		
GEA Finland Oy	Helsinki	100.00
France		
GEA Farm Technologies France SAS	Château-Thierry	100.00
GEA Farm Technologies Japy SAS	Saint-Apollinaire	100.00
GEA Food Solutions France SAS	Beaucouzé	100.00
GEA Group Holding France SAS	Montigny le Bretonneux	100.00
GEA Process Engineering SAS	Saint-Quentin en Yvelines Cedex	100.00
GEA Refrigeration France SAS	Les Sorinières	100.00
GEA Tuchenhagen France	Hoenheim	100.00
GEA Westfalia Separator France	Château-Thierry	100.00
Germany		
„SEMENOWSKY VAL“ Immobilien- Verwaltungs-GmbH	Düsseldorf	100.00
Brückenbau Plauen GmbH	Frankfurt/Main	100.00
GEA AWP GmbH	Prenzlau	100.00
GEA Beteiligungsgesellschaft I mbH	Düsseldorf	100.00
GEA Beteiligungsgesellschaft III mbH	Düsseldorf	100.00
GEA Bischoff GmbH	Essen	100.00
GEA Bock GmbH	Frickenhausen	100.00
GEA Brewery Systems GmbH	Kitzingen	100.00
GEA Diessel GmbH	Hildesheim	100.00
GEA Erste Kapitalbeteiligungen GmbH & Co. KG	Düsseldorf	100.00
GEA Farm Technologies GmbH	Bönen	100.00
GEA Food Solutions Germany GmbH	Biedenkopf-Wallau	100.00
GEA Germany GmbH	Oelde	100.00
GEA Group Holding GmbH	Düsseldorf	100.00
GEA Lyophil GmbH	Hürth	100.00
GEA Mechanical Equipment GmbH	Oelde	100.00
GEA Messo GmbH	Duisburg	100.00
GEA Real Estate GmbH	Frankfurt/Main	100.00

	Head Office	Shares %
GEA Refrigeration Germany GmbH	Berlin	100.00
GEA Refrigeration Technologies GmbH	Düsseldorf	100.00
GEA Segment Management Holding GmbH	Düsseldorf	100.00
GEA TDS GmbH	Sarstedt	100.00
GEA Tuchenhagen GmbH	Büchen	100.00
GEA Verwaltungs AG	Düsseldorf	100.00
GEA Westfalia Separator Group GmbH	Oelde	100.00
GEA Wiegand GmbH	Ettlingen	100.00
Kupferbergbau Stadtberge zu Niedermarsberg GmbH i.L.	Lennestadt	100.00
LL Plant Engineering AG	Lennestadt	100.00
mg Altersversorgung GmbH	Düsseldorf	100.00
mg capital gmbh	Düsseldorf	100.00
MG Stahlhandel GmbH	Düsseldorf	100.00
Paul Pollrich GmbH	Düsseldorf	100.00
Ruhr-Zink GmbH	Frankfurt/Main	100.00
Sachtleben Bergbau Verwaltungsgesellschaft mit beschränkter Haftung	Lennestadt	100.00
Trennschmelz Altersversorgung GmbH	Düsseldorf	100.00
Twiste Copper GmbH	Lennestadt	100.00
VDM-Hilfe GmbH	Frankfurt/Main	100.00
Vipoll Deutschland GmbH	Kitzingen	100.00
ZiAG Plant Engineering GmbH	Frankfurt/Main	100.00
Great Britain		
Breconcherry Ltd.	Bromyard	100.00
Dixie-Union (UK) Ltd.	Milton Keynes	100.00
GEA Barr-Rosin Ltd.	Maidenhead	100.00
GEA Eurotek Ltd.	Aylsham	100.00
GEA Farm Technologies (UK) Ltd.	Warminster	100.00
GEA Food Solutions UK & Ireland Ltd.	Milton Keynes	100.00
GEA Grenco Ltd.	Sittingbourne	100.00
GEA Group Holdings (UK) Ltd.	Eastleigh, Hampshire	100.00
GEA Mechanical Equipment UK Ltd.	Milton Keynes	100.00
GEA Pharma Systems Ltd.	Eastleigh Hampshire	100.00
GEA Process Engineering Ltd.	Birchwood,Cheshire	100.00
GEA Refrigeration Components (UK) Ltd.	Ross-on-Wye	100.00
GEA Refrigeration UK Ltd.	London	100.00

	Head Office	Shares %
Milfos UK Ltd.	Droitwich	100.00
Wolfking Ltd.	Milton Keynes	100.00
Greece		
GEA Westfalia Separator Hellas A.E.	Athens	100.00
Hungary		
GEA Process Engineering CEE Kft.	Budaörs	100.00
Iceland		
GEA Iceland ehf.	Reykjavik	100.00
India		
GEA Process Engineering (India) Pvt. Ltd.	Vadodara	100.00
GEA Refrigeration India Pvt. Ltd.	Vadodara	100.00
GEA Westfalia Separator India Pvt. Ltd.	Vadodara	100.00
LL Plant Engineering (India) Pvt. Ltd.	Mumbai Maharashtra	100.00
Indonesia		
GEA Westfalia Separator Indonesia, PT	Jakarta	100.00
PT. GEA Refrigeration Indonesia	Jakarta	100.00
Ireland		
GEA Farm Technologies (Ireland) Ltd.	Carrigtwohill	100.00
GEA Ireland Ltd.	Kildare	100.00
GEA Process Technologies Ireland Ltd.	Kildare	100.00
GEA Refrigeration Ireland Ltd.	Cavan	100.00
GEA Westfalia Separator Ireland Ltd.	Ballincollig, Cork	100.00
Italy		
CMT Costruzioni Meccaniche e Tecnologia S.p.A	Peveragno	100.00
Duecento S.r.l. i.L.	Galliera Veneta	100.00
GEA COMAS S.p.A.	Torrebelvicino	100.00
GEA Food Solutions Italy S.r.l.	Grumello Del Monte	100.00
GEA Imaforni S.p.A	Colognola ai Colli	100.00
GEA Mechanical Equipment Italia S.p.A.	Parma	100.00
GEA Process Engineering S.p.A.	Segrate	100.00
GEA Procomac S.p.A.	Sala Baganza	100.00
GEA Refrigeration Italy S.p.A.	Castel Maggiore	100.00
Golfetto Sangati S.r.l.	Galliera Veneta	100.00
Pavan S.p.A.	Galliera Veneta	100.00

	Head Office	Shares %
Pelacci S.R.L. i.L.	Sala Baganza	67.00
Veneta Alimenti Innovativi S.r.l.	Pieve D'Alpago	100.00
Japan		
GEA Food Solutions Japan K.K. i.L.	Tokyo	100.00
GEA Process Engineering Japan Ltd.	Tokyo	100.00
GEA Westfalia Separator Japan K.K.	Tokyo	100.00
Lithuania		
GEA Baltics UAB	Vilnius	100.00
Malaysia		
GEA Refrigeration Malaysia Sdn. Bhd.	Petaling Jaya	100.00
GEA Westfalia Separator (Malaysia) Sdn. Bhd.	Petaling Jaya	100.00
Nu-Con Systems Sdn. Bhd.	Shah Alam	100.00
Mexico		
Convenience Food Systems S.A. de C.V.	Mexico City	100.00
GEA Power Cooling de Mexico S. de R.L. de C.V.	Naucalpan de Juárez	100.00
GEA Process Engineering S.A. de C.V.	Mexico City	100.00
GEA Westfalia Separator Mexicana S.A. de C.V.	Cuernavaca	100.00
Netherlands		
BOS Homogenisers B.V.	Hilversum	100.00
Brouwers Equipment B.V.	Leeuwarden	100.00
GEA De Klokslag Automatisering B.V.	Bolsward	100.00
GEA De Klokslag Engineering B.V.	Bolsward	100.00
GEA De Klokslag Machinefabriek B.V.	Bolsward	100.00
GEA Dutch Holding B.V.	s-Hertogenbosch	100.00
GEA Farm Technologies Nederland B.V.	Leeuwarden	100.00
GEA Food Solutions B.V.	Bakel	100.00
GEA Food Solutions Bakel B.V.	Bakel	100.00
GEA Food Solutions International B.V.	Bakel	100.00
GEA Food Solutions Weert B.V.	Weert	100.00
GEA Niro PT B.V.	s-Hertogenbosch	100.00
GEA Process Engineering Nederland B.V.	Deventer	100.00
GEA Refrigeration Netherlands N.V.	s-Hertogenbosch	100.00
GEA Westfalia Separator Nederland B.V.	Cuijk	100.00
GEA Westfalia Separator Nederland Services B.V.	Cuijk	100.00

	Head Office	Shares %
KET Marine International B.V.	Zevenbergen	100.00
PMJ Products B.V.	Raamsdonksveer	100.00
Royal de Boer Stalinrichtingen B.V.	Leeuwarden	100.00
Tullp B.V.	Raamsdonksveer	100.00
New Zealand		
Farmers Industries Ltd.	Mt. Maunganui South	100.00
GEA Avapac Ltd.	Hamilton	100.00
GEA Farm Technologies New Zealand Ltd.	Hamilton	100.00
GEA Milfos International Ltd.	Hamilton	100.00
GEA New Zealand Ltd.	Auckland	100.00
GEA Process Engineering Ltd.	Hamilton	100.00
Nigeria		
GEA West Africa Ltd.	Lagos	100.00
Norway		
GEA Norway AS	Oslo	100.00
Panama		
GEA Central America S.A.	Panama	100.00
Peru		
GEA Peruana SAC	Lima	100.00
Philippines		
GEA Pilipinas Inc.	Muntinlupa City	100.00
GEA Process Engineering (Philippines) Inc.	Manila	100.00
GEA Westfalia Separator Phils. Inc.	Manila	100.00
Poland		
GEA Farm Technologies Sp. z o.o.	Bydgoszcz	100.00
GEA Food Solutions Poland Sp. z o.o.	Warsaw	100.00
GEA Process Engineering Sp. z o.o.	Warsaw	100.00
GEA Refrigeration Poland Sp. z o.o.	Gdynia	100.00
GEA Tuchenhagen Polska sp. z o.o.	Koszalin	100.00
GEA Westfalia Separator Polska Sp. z o.o.	Warsaw	100.00
Rumania		
GEA Farm Technologies România S.R.L.	Alba Iulia	100.00
GEA Refrigeration Romania S.R.L.	Cluj-Napoca	100.00

	Head Office	Shares %
GEA Westfalia Separator Romania S.R.L.	Cluj-Napoca	100.00
Russian Federation		
GEA Food Solutions RUS ZAO	Moscow	100.00
GEA Process Engineering OOO	Moscow	100.00
GEA Services and Components OOO i.L.	Moscow	100.00
GEA Westfalia Separator CIS Ltd.	Moscow	100.00
OOO GEA Farm Technologies Rus	Moscow	100.00
OOO GEA Refrigeration RUS	Moscow	100.00
Wilarus OOO	Kolomna	100.00
Saudi Arabia		
GEA Arabia Ltd.	Riyadh	100.00
Serbia		
GEA EEC Serbia d.o.o. Beograd (Zemun)	Belgrade	100.00
Singapore		
GEA Process Engineering Pte. Ltd.	Singapore	100.00
GEA Refrigeration Singapore Pte. Ltd.	Singapore	100.00
GEA Westfalia Separator (S.E.A.) PTE. LTD.	Singapore	100.00
KET Marine Asia Pte. Ltd.	Singapore	100.00
Slovakia		
GEA Farm Technologies Slovakia spol. s.r.o.	Piestany	100.00
Slovenia		
GEA Vipoll, Oprema za industrijo tekočin d.o.o.	Križevci pri Ljutomeru	100.00
GEA VIPOLL 2, razvoj in raziskave d.o.o.	Križevci pri Ljutomeru	100.00
South Africa		
GEA Africa (Pty) Ltd.	Midrand	100.00
South Korea		
GEA Food Solutions Korea Co., Ltd.	Seoul	100.00
GEA Korea Ltd.	Seoul	100.00
Spain		
GEA Farm Technologies Ibérica S.L.	Alcobendas	100.00
GEA Process Engineering S.A.	Alcobendas	100.00
GEA Refrigeration Ibérica S.A.	Alcobendas	100.00
GEA Westfalia Separator Ibérica, S.A.	Alcobendas	100.00

	Head Office	Shares %
Sweden		
GEA Exergy AB	Gothenburg	100.00
GEA Sweden AB	Mölndal	100.00
Switzerland		
GEA Aseptomag AG	Kirchberg	100.00
GEA Aseptomag Holding AG	Kirchberg	100.00
GEA Food Solutions Switzerland AG	Rothrist	100.00
GEA mts flowtec AG	Kirchberg	100.00
GEA Suisse AG	Kirchberg	100.00
GEA Systems Suisse AG	Liestal	100.00
GEA Venture Suisse AG	Kirchberg	100.00
Taiwan		
GEA Process Engineering Taiwan Ltd.	Taipeh	100.00
Thailand		
CFS Asia Ltd. i.L.	Bangkok	99.9998
GEA (Thailand) Co., Ltd.	Bangkok	99.9994
GEA Process Engineering (Thailand) Co., Ltd.	Bangkok	100.00
GEA Westfalia Separator (Thailand) Ltd.	Bangkok	97.30
Turkey		
GEA Farm Technologies Tarim Ekip.Mak.Kim. Tek.Dan.San.Tic.Ltd.Sti.	Izmir	100.00
GEA PROCESS MÜHENDISLIK MAKINE INSAAT TAAHÜT ITHALAT IHRACAT DANIS. SAN. VE TIC. LTD. STI.	Izmir	100.00
GEA Westfalia Separator Sanayi ve Ticaret Ltd. Sti.	Izmir	100.00
Ukraine		
DE GEA Westfalia Separator Ukraine	Kiev	100.00
GEA Food Solutions Ukraine LLC i.L.	Kiev	100.00
GEA Grasso TOV	Kiev	100.00
TOV GEA Ukraine	Bila Zerkva	100.00
United Arab Emirates		
GEA Middle East FZE	Dubai	100.00
PPME Middle East FZE i.L.	Dubai	100.00
Uruguay		
Balterin S.A.	Montevideo	100.00

	Head Office	Shares %
USA		
GEA Farm Technologies, Inc.	Wilmington	100.00
GEA Food Solutions North America, Inc.	Frisco	100.00
GEA Mechanical Equipment US, Inc.	Wilmington	100.00
GEA North America, Inc.	Wilmington	100.00
GEA Systems North America LLC	Columbia	100.00
Niro Sterner, Inc.	Columbia	100.00
Pavan U.S.A., Inc.	Emigsville	100.00
Vietnam		
GEA Vietnam Co., Ltd.	Ho Chi Minh City	100.00
Accociated Companies		
Argentina		
IMAI S.A.	Buenos Aires	20.00
Joint Ventures		
Germany		
Merton Wohnprojekt GmbH*	Frankfurt/Main	50.00
Japan		
GEA ORION Farm Technologies Co., Ltd.	Nagano	49.00
United Arab Emirates		
GRADE Grasso Adearest Ltd.	Dubai	50.00
GRADE Refrigeration LLC	Sharjah	49.00
Uruguay		
Crismil S.A.	Montevideo	49.00
Other equity investments under section 313(2) no. 4 of the HGB		
Brazil		
EPSA Empresa Paulista de Servicos Ambientais S.A.	Sao Paulo	47.50
Germany		
Bauverein Oelde GmbH	Oelde	35.50
India		
Indo Technofrigo Ltd. i.L.	Rajkot	49.00

*) Recognised as assets held for sale as of December 31, 2018

12.5 Companies exempted in accordance with section 264(3) and 264b of the HGB

The following German companies are exempted from the duty to comply with the supplementary accounting, audit, and publication provisions applicable to corporations and certain partnerships in accordance with sections 264(3) and 264b of the HGB:

GEA AWP GmbH, Prenzlau
GEA Bischoff GmbH, Essen
GEA Bock GmbH, Frickenhausen
GEA Brewery Systems GmbH, Kitzingen
GEA Diessel GmbH, Hildesheim
GEA Erste Kapitalbeteiligungen GmbH & Co. KG, Düsseldorf
GEA Farm Technologies GmbH, Bönen
GEA Food Solutions Germany GmbH, Biedenkopf-Wallau
GEA Germany GmbH, Oelde
GEA Group Holding GmbH, Düsseldorf
GEA Lyophil GmbH, Hürth
GEA Mechanical Equipment GmbH, Oelde
GEA Messo GmbH, Duisburg
GEA Real Estate GmbH, Frankfurt am Main
GEA Refrigeration Germany GmbH, Berlin
GEA Refrigeration Technologies GmbH, Düsseldorf
GEA TDS GmbH, Sarstedt
GEA Tuchenhagen GmbH, Büchen
GEA Westfalia Separator Group GmbH, Oelde
GEA Wiegand GmbH, Ettlingen
LL Plant Engineering AG, Lennestadt
mg Altersversorgung GmbH, Düsseldorf
mg capital gmbh, Düsseldorf
Paul Pollrich GmbH, Düsseldorf
ZiAG Plant Engineering GmbH, Frankfurt am Main

Düsseldorf, March 12, 2019

The Executive Board

Stefan Klebert | Steffen Bersch | Niels Erik Olsen | Dr. Helmut Schmale | Martine Snels

FURTHER INFORMATION

Independent Auditor's Report

To GEA Group Aktiengesellschaft

Report on the Audit of the Consolidated Financial Statements and of the Combined Group Management Report

Opinions

We have audited the consolidated financial statements of **GEA Group Aktiengesellschaft, Düsseldorf**, and its subsidiaries (the Group), which comprise the consolidated balance sheet as of December 31, 2018, and the consolidated income statement, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from January 1, 2018, to December 31, 2018, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the combined group management report of GEA Group Aktiengesellschaft, Düsseldorf, for the financial year from January 1 to December 31, 2018. In accordance with German legal requirements we have not audited the section ‚Non-financial statement – sustainability at GEA', which contains the non-financial statement, and the corporate governance report including the corporate governance statement which are included in the combined group management report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Section 315e (1) HGB [Handelsgesetzbuch: German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as of December 31, 2018, and of its financial performance for the financial year from January 1 to December 31, 2018, and
- the accompanying combined group management report as a whole provides an appropriate view of the Group's position. In all material respects, this combined group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the combined group management report does not cover the content of the section „Sustainability at GEA", which contains the non-financial statement, and the corporate governance report including the corporate governance statement.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the combined group management report.

Basis for the Opinions

We conducted our audit of the consolidated financial statements and of the combined group management report in accordance with Section 317 HGB and EU Audit Regulation No. 537/2014 (referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the „Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Combined Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the combined group management report.

Key Audit Matters in the Audit of the Consolidated Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the financial year from January 1 to December 31, 2018. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, we do not provide a separate opinion on these matters.

Recognition of revenue from construction contracts

Please refer to the explanatory notes on ‚accounting policies' under note 2 for the accounting policies applied. Information on revenue from construction contracts can be found under note 7.1 in the notes to the consolidated financial statements. Information on the gross amount due from customers for contract work and the gross amount due to customers for contract work is provided under notes 5.9 and 6.6, respectively.

THE FINANCIAL STATEMENT RISK

In financial year 2018, revenue in the amount of EUR 2,040.2 million was generated from construction contracts. As of the December 31, 2018 reporting date, the gross amount due from customers for contract work (contract assets) was EUR 462.8 million and the gross amount due to customers for contract work (contract liabilities) was EUR 623.3 million.

Contract revenue and realized results of construction contracts, which are to be recognised over time according to IFRS 15.35, are recognised in accordance with the percentage of completion method pursuant to IFRS 15.B18 by reference to the stage of completion. The stage of completion is determined as the proportion that contract costs incurred for work performed to date bear to the estimated total contract costs (cost to cost method). When it is probable that total contract costs will exceed total contract revenue, this loss is to be recognised as a provision for onerous contracts according to the rules set forth under IAS 37.

Determining the revenue from construction contracts that can be recognised is complex and requires estimates, especially with regard to the total contract cost to be estimated for establishing the stage of completion. The risk for the consolidated financial statements of GEA Group Aktiengesellschaft is that the revenue and realized results of construction contracts are inaccurately allocated to financial years or that onerous construction contracts are not recognised in time.

OUR AUDIT APPROACH

We assessed the procedure for estimating contract costs, the method for determining stage of completion as well as the design and establishment of controls to ensure proper planning of the entire contract costs.

We performed the following audit procedures for construction contracts specifically selected on the basis of risk (list not exhaustive):

- interviewing GEA staff involved in the project, including on estimates of the overall contract costs, risks involved and status of the projects
- reconciling the actual cost allocated to the contracts with internal cost schedules and external documents
- critical review of assumptions used for estimates of total contract costs, also by analyzing project progress to date and any deviations from the budget
- assessment of the computational accuracy of the stage of completion determined as well as any losses anticipated and also the proper accounting treatment of construction contracts and possible provisions for onerous contracts under IAS 37.

OUR OBSERVATIONS

GEA's accounting treatment of construction contracts and the corresponding provisions for onerous contracts is for the most part appropriate. The assumptions underlying the accounting for long-term production orders are appropriate overall.

Impairment of trade receivables

Please refer to the explanatory notes on ‚accounting policies' under note 2 for the accounting policies applied. Information on trade receivables can be found under note 5.8 in the notes to the consolidated financial statements.

THE FINANCIAL STATEMENT RISK

Trade receivables from third parties in the amount of EUR 897.4 million are reported in the consolidated financial statements of GEA Group Aktiengesellschaft as of December 31, 2018. Trade receivables from third parties that are past due but not impaired amounted to EUR 278.2 million as of December 31, 2018, of which EUR 24.0 million was overdue for more than 360 days.

The recoverability of trade receivables is assessed on a collective basis based on debtors of the same type and on an individual basis based on individual debtors. Both prior experience with this portfolio and foreseeable future developments are taken into account in the collective assessment of expected losses for portfolios of risks of the same type. If past due receivables, financial and economic difficulties at the customer or actual and expected defaults on payment have occurred, the assessment of expected losses is carried out on the basis of the individual debtor. For the assessment of expected losses from individual debtors all credit risk-relevant information is evaluated on an individual basis, resulting in a corresponding impairment loss being recognised. If the receivable is no longer expected to be collectible in its entirety, the receivables and impairment losses are derecognised. The assessment of the similar type of debtors, the interpretation of indicators on future development and estimates of the default amount for individual debtors require judgment and are subject to a series of assumptions regarding customer solvency. The risk for the consolidated financial statements of GEA Group is that the impairment of trade receivables from third parties is recognised too late or not in the amount necessary.

OUR AUDIT APPROACH

We evaluated the process for monitoring past due trade receivables as well as the adequacy of implemented controls to ensure proper recognition of impairment losses. To this end, we verified for example that controls are in place enabling group entities to regularly identify and continuously monitor past due receivables.

We critically reviewed the impairment of a selection of past due trade receivables selected on the basis of risk and volume. For this purpose, we analyzed the development of past due receivables and impairment losses over the course of the year, compared them to historical experience with the debtors concerned, queried the responsible GEA staff regarding impairment and assessed internal as well as external documentation, such as correspondence between the Company and customers.

OUR OBSERVATIONS

The assumptions and estimates to assess the impairment of trade receivables are appropriate overall.

Impairment of deferred tax assets for unused tax loss carryforwards

Please refer to the explanatory notes on ‚accounting policies' under note 2 for the accounting policies applied. Information on deferred tax assets and liabilities can be found under note 7.7 in the notes to the consolidated financial statements.

THE FINANCIAL STATEMENT RISK

Deferred tax assets for unused tax loss carryforwards in the amount of EUR 202.5 million are reported in the consolidated financial statements of GEA Group Aktiengesellschaft as of December 31, 2018.

For the measurement of deferred tax assets for unused tax loss carryforwards, the Executive Board has to assess to what extent it is probable that current deferred tax assets can be utilized in subsequent reporting periods. Utilizing these deferred tax assets requires that sufficient taxable income is generated in future periods. If, on the other hand, there is reasonable doubt about the future usability of the deferred tax assets determined, the deferred tax assets for unused tax loss carryforwards are not recognised or an impairment loss is recognised for deferred tax assets that have already been reported, if necessary.

The measurement of deferred tax assets and liabilities greatly depends on the assumptions of management (the Executive Board) about the operating performance of country units and the Group's tax planning and therefore is subject to considerable uncertainty, especially considering the multi-year planning horizon typically applied. Moreover, utilizing deferred tax assets also depends on the respective tax environment.

There is the risk for the consolidated financial statements that deferred tax assets for unused tax loss carryforwards are recognised which should be impaired due to insufficient future taxable income.

UNSERE VORGEHENSWEISE IN DER PRÜFUNG

We involved our own tax specialists in the audit to assess these tax matters. First, we reconciled the loss carryforwards to the tax assessments and tax calculations for the current financial year.

In addition, we particularly assessed the deferred tax assets for unused tax loss carryforwards for impairment based on internal forecasts of future tax income prepared by the Company, and critically reviewed the underlying assumptions by taking into account expected market developments. In this regard, we especially compared the planned future taxable income to the (IFRS) budget acknowledged by the Company's Supervisory Board and critically reviewed any tax adjustments made. We also confirmed the accuracy of the Company's forecasts to date by comparing the budgets of previous financial years with actual profits generated at a later point in time and analyzing deviations.

OUR OBSERVATIONS

The assumptions of management for the measurement of deferred tax assets are reasonable overall.

Other Information

Management is responsible for the other information. The other information comprises:

- the section „Sustainability at GEA" inclusive of the non-financial statement and the corporate governance report including the corporate governance statement, and
- the remaining parts of the annual report, with the exception of the audited consolidated financial statements and combined group management report and our auditor's report.

Our opinions on the consolidated financial statements and on the combined group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the combined group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

In accordance with our engagement letter, we conducted a separate assurance engagement of the combined non-financial statement to obtain limited assurance. Please refer to our assurance report dated March 12, 2019, for information on the nature, scope and findings of this assurance engagement.

Responsibilities of Management and the Supervisory Board for the Consolidated Financial Statements and the Combined Group Management Report

Management is responsible for the preparation of consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the Group's assets, liabilities, financial position and financial performance. In addition, management is responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, management is responsible for the preparation of the combined group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, management is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a combined group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the combined group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the combined group management report.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Combined Group Management Report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the combined group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the combined group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this combined group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the combined group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the combined group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by management and the reasonableness of estimates made by the management and related disclosures.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the combined group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the combined group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.
- Evaluate the consistency of the combined group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by management in the combined group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by management as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor at the annual general meeting on April 19, 2018. We were engaged by the Supervisory Board on October 25, 2018. We have been the group auditor of **GEA Group Aktiengesellschaft, Düsseldorf**, without interruption since financial year 2011.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the Audit Committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Michael Jessen.

Düsseldorf, March 12, 2019

KPMG AG
Wirtschaftsprüfungsgesellschaft
(Original German version signed by:)

Lurweg	Jessen
Wirtschaftsprüfer	Wirtschaftsprüfer
[German Public Auditor]	[German Public Auditor]

Limited Assurance Report of the Independent Auditor regarding the Combined Non-financial Statement

To the Supervisory Board of GEA Group Aktiengesellschaft, Düsseldorf

We have performed an independent limited assurance engagement on the combined non-financial statement of GEA Group Aktiengesellschaft, Düsseldorf (further „GEA“) and the group as well as the by reference qualified parts”Fundamental Information about the Group” (further: „Report“) according to ss. 315b and 315c in conjunction with 289b to 289e German Commercial Code (HGB) for the business year from January 1 to December 31, 2018.

Management's Responsibility

The legal representatives of GEA are responsible for the preparation of the Report in accordance with ss. 315b and 315c in conjunction with 289b to 289e HGB.

This responsibility of the legal representatives includes the selection and application of appropriate methods to prepare the Report and the use of assumptions and estimates for individual disclosures which are reasonable under the given circumstances. Furthermore, this responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Report in a way that is free of – intended or unintended – material misstatements.

Independence and quality assurance on the part of the auditing firm

We are independent from the entity in accordance with the requirements of independence and quality assurance set out in legal provisions and professional pronouncements and have fulfilled our additional professional obligations in accordance with these requirements.

Our audit firm applies the national statutory provisions and professional pronouncements for quality assurance, in particular the Professional Code for German Public Auditors and Chartered Accountants (in Germany) and the quality assurance standard of the German Institute of Public Auditors (Institut der Wirtschaftsprüfer, IDW) regarding quality assurance requirements in audit practice (IDW QS 1).

Practitioner's Responsibility

Our responsibility is to express a conclusion on the Report based on our work performed within our limited assurance engagement.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): “Assurance Engagements other than Audits or Reviews of Historical Financial Information” published by IAASB. This Standard requires that we plan and perform the assurance engagement to obtain limited assurance whether any matters have come to our attention that cause us to believe that the Report of the entity for the business year January 1 to December 31, 2018 has not been prepared, in all material respects, in accordance with ss. 315b and 315c in conjunction with 289b to 289e HGB. We do not, however, provide a separate conclusion for each disclosure. In a limited assurance engagement the evidence gathering procedures are more limited than in a reasonable assurance engagement and therefore significantly less assurance is obtained than in a reasonable assurance engagement. The choice of audit procedures is subject to the auditor's own judgement.

Within the scope of our engagement, we performed amongst others the following assurance procedures:

- Inquiries of personnel on corporate level, who are responsible for the materiality analysis, in order to gain an understanding of the processes for determining material sustainability topics and respective reporting boundaries of GEA
- A risk analysis, including a media search, to identify relevant information on GEA sustainability performance in the reporting period
- Reviewing the suitability of internally developed Reporting Criteria.
- Evaluation of the design and implementation of the systems and processes for determining, processing and monitoring disclosures relating to environmental, employee and social matters, respect for human rights, and combating corruption and bribery, including the consolidation of the data
- Inquiries of personnel on corporate level who are responsible for determining disclosures on concepts, due diligence processes, results and risks, for conducting internal controls and consolidation of the disclosures
- Evaluation of selected internal and external documentation
- Analytical evaluation of data and trends of quantitative information which are reported by all sites for consolidation on corporate level
- Evaluation of local data collection, validation and reporting processes as well as the reliability of reported data based on a sample of the sites in York and Northvale (both United States)
- Assessment of the overall presentation of the disclosures

Conclusion

Based on the procedures performed and the evidence obtained, nothing has come to our attention that causes us to believe that the Report of for GEA the business year from January 1 to December 31, 2018 is not prepared, in all material respects, in accordance with ss. 315b and 315c in conjunction with 289b to 289e HGB.

Restriction of Use / Clause on General Engagement Terms

This report is issued for purposes of the Supervisory Board of GEA Group Aktiengesellschaft, Düsseldorf only. We assume no responsibility with regard to any third parties.

Our assignment for the Supervisory Board of GEA Group Aktiengesellschaft, Düsseldorf and professional liability is governed by the General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften (Allgemeine Auftragsbedingungen für Wirtschaftsprüfer und Wirtschaftsprüfungsgesellschaften) in the version dated January 1, 2017 (https://www.kpmg.de/bescheinigungen/lib/aab_english.pdf).

By reading and using the information contained in this report, each recipient confirms notice of provisions of the General Engagement Terms (including the limitation of our liability for negligence to EUR 4 million as stipulated in No. 9) and accepts the validity of the General Engagement Terms with respect to us.

Munich, March 12, 2019

KPMG AG
Wirtschaftsprüfungsgesellschaft

Hell ppa. Dietrich
[German Public Auditor]

Responsibility Statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position, and profit or loss of the group, and the management report of the group, which has been combined with the management report of the Company, includes a fair review of the development and performance of the business and the position of the group, together with a description of the principal opportunities and risks associated with the expected development of the group.

Düsseldorf, March 12, 2019

Stefan Klebert Steffen Bersch Niels Erik Olsen Dr. Helmut Schmale Martine Snels

Corporate Bodies and their Mandates

Executive Board

Stefan Klebert, Düsseldorf, Germany, CEO – Chairman of the Executive Board (since February 18, 2019)

b) • Hoberg & Driesch GmbH, Düsseldorf, Germany, Member of the Shareholders Committee
• Hoberg & Driesch GmbH & Co. KG Röhrengroßhandel/Hoberg und Driesch Beteiligungs GmbH, Düsseldorf, Germany, Member of the Advisory Boards
• Chiron Group SE, Tuttlingen, Germany, Member of the Board of Directors
• Chiron-Werke GmbH & Co. KG/Chiron-Werke Beteiligungsgesellschaft mbH, Tuttlingen, Germany, Member of the Advisory Boards

Jürg Oleas, Meerbusch, Germany/Eich, Switzerland, CEO – Chairman of the Executive Board (until February 17, 2019)

a) • LL Plant Engineering AG, Lennestadt, Germany, Chairman of the Supervisory Board
b) • RUAG Holding AG, Bern, Switzerland, Member of the Board of Directors
• Lafarge Holcim Ltd., Jona, Switzerland, Member of the Board of Directors

Steffen Bersch, Münster, Germany, Member of the Executive Board

a) • Thyssen'sche Handelsgesellschaft m.b.H., Mülheim, Germany, Member of the Supervisory Board

Niels Erik Olsen, Hilleroed, Denmark, Member of the Executive Board

b) • GEA Process Engineering A/S, Søborg, Denmark, Chairman of the Supervisory Board
• Grundfos Holding A/S, Bjerringbro, Denmark, Member of the Board of Directors

Dr. Helmut Schmale, Bochum, Germany, CFO – Chief Financial Officer

a) • LL Plant Engineering AG, Lennestadt, Germany, Deputy Chairman of the Supervisory Board

Martine Snels, Kalmthout, Belgium, Member of the Executive Board

Supervisory Board

Dr. Helmut Perlet, Munich, Germany, Chairman of the Supervisory Board

a) • Commerzbank AG, Frankfurt am Main, Germany, Member of the Supervisory Board (until May 8, 2018)

Kurt-Jürgen Löw, Ebernhahn, Germany, Deputy Chairman of the Supervisory Board, Chairman of the Works Council of GEA Group Aktiengesellschaft

a) • GEA Westfalia Separator Group GmbH, Oelde, Germany, Deputy Chairman of the Supervisory Board

Ahmad M. A. Bastaki, Safat, Kuwait, Executive Director, Planning and Senior Management of Kuwait Investment Authority

Prof. Dr. Ing. Werner Bauer, Lutry, Switzerland, former Chairman of the Supervisory Board of Nestlé Deutschland AG (until November 12, 2018)

a) • Bertelsmann SE & Co. KGaA/Bertelsmann Management SE, Gütersloh, Germany, Deputy Chairman of the Supervisory Board
b) • Lonza S.A., Basel, Switzerland, Member of the Board of Directors
• Givaudan S.A., Vernier, Switzerland, Deputy Chairman of the Board of Directors
• SIG Combibloc Group SA, Neuhausen am Rheinfall, Switzerland, Member of the Board of Directors (since September 27, 2018)

Hartmut Eberlein, Gehrden, Germany, Chairman of the Audit Committee of GEA Group Aktiengesellschaft

Rainer Gröbel, Sulzbach/Ts., Germany, Departmental Head, IG Metall, Management Board

a) • Schunk GmbH, Heuchelheim, Germany, Deputy Chairman of the Supervisory Board

a) Membership of statutory German supervisory boards
b) Membership of comparable German or foreign supervisory bodies of business entities

Colin Hall, London, UK, Head of Investments of Groupe Bruxelles Lambert, Belgium, and CEO of Sienna Capital S.a.r.l. (since November 13, 2018)

b)
- Imerys S.A., France, Member of the Board of Directors
- Parques Reunidos Centrales S.A., Spain, Member of the Board of Directors
- Umicore S.A., Belgium, Member of the Board of Directors
- Kartesia Management S.A., Luxemburg, Member of the Board of Directors
- Ergon Capital Partners S.A., Belgium, Member of the Board of Directors
- Ergon Capital Partners II S.A., Belgium, Member of the Board of Directors

Michaela Hubert, Prichsenstadt, Germany, Chairman of the General Works Council of GEA Brewery Systems GmbH

Michael Kämpfert, Düsseldorf, Germany, Vice President HR DACH & EE of GEA Group Aktiengesellschaft

Eva-Maria Kerkemeier, Herne, Germany, 1. Authorized Representative of IG Metall Bochum-Herne, Germany

Brigitte Krönchen, Oelde, Germany, Deputy Chairman of the Group Works Council of GEA Group Aktiengesellschaft

a)
- GEA Farm Technologies GmbH, Bönen, Germany, Deputy Chairman of the Supervisory Board

Jean E. Spence, Marco Island/FL, USA, Management Consultant, President, JES Consulting, LLC

b)
- TreeHouse Foods, Inc., Oak Brook/IL, USA, Member of the Board of Directors (since September 4, 2018)

Dr. Molly P. Zhang, Aurora/CO, USA

b)
- Cooper Standard Holdings Inc., Novi, Michigan, USA, Member of the Board of Directors
- XG Sciences, Inc., Lansing, Michigan, USA, Member of the Board of Directors
- Newmont Mining Corporation, Greenwood Village, Colorado, USA, Member of the Board of Directors

Supervisory Board committees of GEA Group Aktiengesellschaft (as of December 31, 2018)

Mediation Committee in accordance with section 27(3) of the Mitbestimmungsgesetz (MitbestG – German Co-determination Act)

Dr. Helmut Perlet, Chairman
Dr. Molly P. Zhang (since December 19, 2018)
Eva-Maria Kerkemeier
Kurt-Jürgen Löw

Presiding Committee

Dr. Helmut Perlet, Chairman
Ahmad M. A. Bastaki
Rainer Gröbel
Colin Hall (since December 19, 2018)
Michaela Hubert
Kurt-Jürgen Löw

Audit Committee

Hartmut Eberlein, Chairman (financial expert within the meaning of section 100(5) of the Aktiengesetz (AktG – German Stock Corporation Act))
Michael Kämpfert
Brigitte Krönchen
Dr. Helmut Perlet

Nomination Committee

Dr. Helmut Perlet, Chairman
Ahmad M. A. Bastaki
Jean E. Spence

a) Membership of statutory German supervisory boards
b) Membership of comparable German or foreign supervisory bodies of business entities

Key Figures by Quarter[1]

	Q1 2018	Q1 2017	Q2 2018	Q2 2017	Q3 2018	Q3 2017	Q4 2018	Q4 2017[1]	2018	2017[1]	2016
Order intake (EUR million)											
BA Equipment	701.4	621.7	688.3	622.0	623.9	576.9	648.9	670.9	**2,662.4**	**2,491.5**	**2,346.8**
BA Solutions	462.0	564.1	755.3	671.5	627.6	531.2	654.1	717.1	**2,499.1**	**2,484.0**	**2,534.6**
GEA	1,102.6	1,136.0	1,383.0	1,241.1	1,197.2	1,056.7	1,235.0	1,317.0	**4,917.7**	**4,750.8**	**4,673.6**
Revenue (EUR million)											
BA Equipment	592.2	531.6	653.2	585.5	650.5	576.0	731.7	677.9	**2,627.6**	**2,371.0**	**2,262.2**
BA Solutions	504.0	520.7	633.4	601.7	598.0	608.6	705.7	710.5	**2,441.1**	**2,441.6**	**2,425.7**
GEA	1,039.4	1,003.9	1,227.0	1,138.5	1,188.9	1,130.7	1,372.9	1,331.4	**4,828.2**	**4,604.5**	**4,491.9**
EBITDA (EUR million)											
BA Equipment	65.5	67.4	90.0	93.1	107.0	85.1	98.3	123.6	**360.8**	**369.3**	**371.8**
BA Solutions	–0.2	22.4	37.3	32.5	32.3	19.0	49.6	78.0	**119.0**	**151.7**	**163.3**
GEA	57.3	90.9	122.6	106.6	120.8	106.8	130.5	194.2	**431.2**	**498.5**	**500.6**
Operating EBITDA[2] (EUR million)											
BA Equipment	66.2	69.3	91.0	96.9	108.8	93.3	127.1	129.8	**393.1**	**389.3**	**383.5**
BA Solutions	0.0	23.6	37.6	35.1	32.7	21.4	52.3	81.1	**122.6**	**161.3**	**183.5**
GEA	66.6	96.4	133.0	122.4	137.6	120.5	181.1	224.1	**518.2**	**563.5**	**566.3**
Operating EBITDA margin[2] (%)											
BA Equipment	11.2	13.0	13.9	16.5	16.7	16.2	17.4	19.2	**15.0**	**16.4**	**17.0**
BA Solutions	0.0	4.5	5.9	5.8	5.5	3.5	7.4	11.4	**5.0**	**6.6**	**7.6**
GEA	6.4	9.6	10.8	10.8	11.6	10.7	13.2	16.8	**10.7**	**12.2**	**12.6**

1) The purchase price allocation for the Pavan Group acquired in the previous year was finalized in the fourth quarter of 2018 resulting in changes to the comparative figures as of December 31, 2017.
2) Before effects of purchase price allocations from revalued assets and liabilities and before one-offs

GRI Content Index

GEA's sustainability report for fiscal year 2018 follows the international standards set by the Global Reporting Initiative (GRI). This report has been prepared in accordance with the GRI Standards: Core option. At the request of GEA's Supervisory Board, KPMG AG Wirtschaftsprüfungsgesellschaft reviewed GEA's combined non-financial consolidated statement for fiscal year 2018 and performed a limited assurance engagement in relation to the statutory information required pursuant to ss. 315b, 315c in conjunction with 289b to 289e HGB (Handelsgesetzbuch – German Commercial Code). This review was in line with the applicable "International Standard on Assurance Engagements" (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information", see disclosure 102-56.

GRI Standard	Disclosure		Page	Omission/comment
GRI 101: Foundation 2016				

General Disclosures

Organizational profile

GRI Standard	Disclosure		Page	Omission/comment
GRI 102: General Disclosures 2016	102-1	Name of the organization	24	
	102-2	Activities, brands, products, and services	6–11, 24 f.	
	102-3	Location of headquarters	255	
	102-4	Location of operations	25 f., 36	
	102-5	Ownership and legal form	21 f.	
	102-6	Markets served	41 f.	
	102-7	Scale of the organization	6–11, 21 f., 36, 40–42, 49 ff.	
	102-8	Information on employees and other workers	50 f.	
	102-9	Supply chain	30 f., 107 f.	
	102-10	Significant changes to the organization and its supply chain	25 f., 30 f., 37 f.	
	102-11	Precautionary Principle or approach	116–123	
	102-12	External initiatives	99 f., 107	
	102-13	Membership of associations	99	

GRI Standard	Disclosure		Page	Omission/comment

Strategy

GRI 102: General Disclosures 2016	102-14	Statement from the senior decision-maker	14 f.	

Ethics and integrity

GRI 102: General Disclosures 2016	102-16	Values, principles, standards, and norms of behavior	59 ff., 95 f., 99, 107 ff.	

Governance

GRI 102: General Disclosures 2016	102-18	Governance structure	13, 16–20, 25 f., 27, 62 f., 246	

Stakeholder engagement

GRI 102: General Disclosures 2016	102-40	List of stakeholder groups	112	
	102-41	Collective bargaining agreements	95	
	102-42	Identifying and selecting stakeholders	112	
	102-43	Approach to stakeholder engagement	112	
	102-44	Key topics and concerns raised	114	

GRI Standard	Disclosure		Page	Omission/comment

Reporting practice

GRI Standard	Disclosure		Page	Omission/comment
GRI 102: General Disclosures 2016	102-45	Entities included in the consolidated financial statements	111	
	102-46	Defining report content and topic Boundaries	111 f.	
	102-47	List of material topics	113	
	102-48	Restatements of information	111	
	102-49	Changes in reporting	113	
	102-50	Reporting period	24	
	102-51	Date of most recent report		Annual Report 2017 (January 1–December 31, 2017)
	102-52	Reporting cycle	24	
	102-53	Contact point for questions regarding the report	255	
	102-54	Claims of reporting in accordance with the GRI Standards	111	
	102-55	GRI Content Index	248 ff.	
	102-56	External assurance	111, 242 f.	

Topic-specific Standards: Economic

Economic Performance

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	108	
GRI 201: Economic Performance 2016	GEA-specific disclosure for profitability and liquidity: Cash flow driver margin		27, 49, 108	Cash flow driver margin as one of GEA 's key performance indicators
GRI 201: Economic Performance 2016	201-2	Financial implications and other risks and opportunities due to climate change	102 f., 123	Climate change and the finite nature of resources open up considerable opportunities to sell efficient process-related systems and components. Due to the multitude of components and processes, and notably due to the necessity to collect comprehensive operational data outside the company's own sphere of influence, it is impossible to provide global evidence for the entire portfolio of products and services. For this reason, GEA does not have a system for computing the financial implications of climate change for the organization. Therefore, GEA reports key financial indicators applicable to innovation management. Nonetheless, GEA is keeping track of developments in this field and checks whether existing scientific approaches to ascertaining climate-related financials may be suitable for the company's sustainability management in the future.
GRI 201: Economic Performance 2016	GEA-specific disclosure on the protection of intellectual property rights: Number of patents/patent families		35	

GRI Standard	Disclosure		Page	Omission/comment

Procurement Practices

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	30 f.	
GRI 204: Procurement Practices 2016	204-1	Proportion of spending on local suppliers	31	

Anti-corruption

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	108 f.	
GRI 205: Anti-corruption 2016 ✓	205-1	Operations assessed for risks related to corruption	110	
	205-2	Communication and training about anti-corruption policies and procedures	109	Available data include information on the number of individuals participating in e-learning courses (no further differentiation by employee category or region), training courses by topics and regions (excluding attendance figures) as well as preventive measures in relation to business partners (without quantity). The members of the governing body (Supervisory Board) are regularly informed about compliance topics including anti-corruption measures.

Topic-specific Standards: Environmental

Emissions

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	91 f., 99 f.	
GRI 305: Emissions 2016 ✓	305-1	Direct (Scope 1) GHG emissions	100 f.	Due to allocation errors and miscalculations, the basis of reporting sites was corrected in 2017. As a consequence, the 2017 report merely includes production sites, workshops and service locations as well as GEA Group Aktiengesellschaft as Global Corporate Center.
	305-2	Energy indirect (Scope 2) GHG emissions	100 f.	
	305-3	Other indirect (Scope 3) GHG emissions	100 f.	Currently, this performance indicator merely subsumes reporting on business travel. In this context, GEA differentiates between air travel (global recording by GEA's travel agency), car rentals (rentals in Germany, with the exception of Sixt: EMEA rentals) as well as travel with Deutsche Bahn (bookings in Germany).

GRI Standard	Disclosure		Page	Omission/comment

Supplier Environmental Assessment

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	107 f.	
GRI 308: Supplier Environmental Assessment 2016	308-1	New suppliers that were screened using environmental criteria	108	All supplier audits are reported. No differentiation between new and existing suppliers.

Topic-specific Standards: Social

Labor/Management Relations

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	94 f.	
GRI 402: Labor/Management Relations 2016	402-1	Minimum notice periods regarding operational changes	94 f.	Regulated by law within the framework of parity co-determination in Germany.

Occupational Health and Safety

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	91 f.	
GRI 403: Occupational Health and Safety 2016 ✓	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	93	Currently not included in the reporting: type of injuries (only recorded at local level) as well as breakdown by region and gender for all employees; occupational diseases; information for all workers (excluding employees) whose work, or workplace, is controlled by the organization.

Training and Education

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	97 f.	
GRI 404: Training and Education 2016	404-1	Average hours of training per year per employee	98	For data privacy reasons, the amount of time per employee spent on e-learning is not recorded.

GRI Standard	Disclosure		Page	Omission/comment

Diversity and Equal Opportunity

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	96 f.	
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	96	Age groups for the members of the governing bodies are not reported.

Human Rights Assessment

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	95 f.	
GRI 412: Human Rights Assessment 2016	412-1	Operations that have been subject to human rights reviews or impact assessments	96	The management approach manifests that the observance of human rights is the bedrock of the company's business policy. Internal audits also consider compliance aspects. For ensuring adherence to human rights, the company has installed a reporting system that is accessible to all employees and external third parties worldwide. Thus, it covers 100 percent of all business locations.

Supplier Social Assessment

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	107 f.	
GRI 414: Supplier Social Assessment 2016	414-1	New suppliers that were screened using social criteria	108	All supplier audits are reported. No differentiation between new and existing suppliers.

Customer Health and Safety

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Erklärung des wesentlichen Themas und seiner Abgrenzung; Der Managementansatz und seine Bestandteile; Beurteilung des Managementansatzes	102 f.	
GRI 416: Customer Health and Safety 2016 ✓	GEA specific disclosure: Number of certificates in accordance with ISO 9001, 14001, 50001 as well as BS OHSAS 18001		103	Since all product categories and categories of service (i.e., 100 percent of all products and solutions) are checked for their respective impact on health and security under GEA's binding group-wide product development process, GEA's report mainly focuses on the management of product quality and safety, product life cycle and circular economy as well as customer information and support. The number of certifications serves as an indicator of quality and sustainability.

GRI Standard	Disclosure		Page	Omission/comment

Customer Privacy

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	110 f.	
GRI 418: Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	111	

Socioeconomic Compliance

GRI Standard	Disclosure		Page	Omission/comment
GRI 103: Management Approach 2016	103-1 103-2 103-3	Explanation of the material topic and its Boundary The management approach and its components Evaluation of the management approach	59 ff., 107 f., 108 ff., 116–118	
GRI 419: Socioeconomic Compliance 2016 ✓	419-1	Non-compliance with laws and regulations in the social and economic area	111	Includes corporate governance violations as well as data protection breaches

✓ audited by KPMG according to ISAE 3000

Financial Calendar

APRIL 26 2019
Annual Shareholders' Meeting
for 2018

MAY 10 2019
Quarterly Statement
for the period to March 31, 2019

AUGUST 6 2019
Half-yearly Financial Report
for the period to June 30, 2019

OCTOBER 25 2019
Quarterly Statement
for the period to September 30, 2019

The GEA Stock: Key data

WKN	660 200
ISIN	DE0006602006
Reuters code	G1AG.DE
Bloomberg code	G1A.GR
Xetra	G1A.DE

American Depository Receipts (ADR)

CUSIP	361592108
Symbol	GEAGY
Sponsor	Deutsche Bank Trust Company Americas
ADR-Level	1
Ratio	1:1

Communication, Marketing & Branding
(Financial and Sustainability Communication)

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Note regarding the rounding of figures
Due to the commercial rounding of figures and percentages, small deviations may occur.

Note to the statement
This statement is the English translation of the original German version; in case of deviations between these two, the German version prevails.

engineering for
a better world

We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA is one of the largest technology suppliers for food processing and a wide range of other industries. The global group specializes in machinery, plants, as well as process technology and components. GEA provides sustainable solutions for sophisticated production processes in diverse end-user markets and offers a comprehensive service portfolio.

The company is listed on the German MDAX (G1A, WKN 660 200), the STOXX® Europe 600 Index and selected MSCI Global Sustainability Indexes.

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