JENOPTIK

MORE LIGHT

Annual Report 2019

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Jenoptik at a glance

in million euros	Jan. – Dec. 2019	Jan. – Dec. 2018	Change in %
Revenue	855.2	834.6	2.5
Domestic	234.0	240.5	– 2.7
Foreign	621.3	594.1	4.6
EBITDA	134.0	127.5	5.0
EBITDA margin (EBITDA in % of revenue)	15.7	15.3	
EBIT	88.9	94.9	– 6.3
EBIT margin (EBIT in % of revenue)	10.4	11.4	
Earnings before tax	85.2	91.4	– 6.8
Earnings after tax	67.6	87.4	– 22.6
EPS (in euros)	1.18	1.53	– 22.8
Dividend (in euros)	0.35	0.35	0
Free cash flow (before income taxes)	77.2	108.3	– 28.7
Net debt	– 9.1	– 27.2	66.4
Equity ratio (equity in % of total equity and liabilities)	60.5	60.6	– 0.2
Order intake	812.6	873.7	– 7.0

	31/12/2019	31/12/2018	Change in %
Order backlog (in million euros)	466.1	521.5	– 10.6
Frame contracts (in million euros)	49.9	62.5	– 20.1
Employees	4,122	4,043	1.9

More Light

Under this motto we announced our Strategy 2022.
In future, we will concentrate on our core areas of expertise – optics and photonics – and will develop Jenoptik into a focused technology group, based on the three pillars “More focus”, “More international”, and “More innovation”.

To ensure that our strategy will be successful, we have started a comprehensive cultural change in the Group. Numerous initiatives as well as our corporate values „open“, „driving“ and „confident“ will help create a common spirit. Under the motto “More Light” we do not only want to imbue Jenoptik with more color and motivation, but secure long-term sustainable growth.

The online report is available at:
www.jenoptik.com / annual-report

About Jenoptik

Optical technologies are the very basis of our business. Our customers are leading companies in industries such as semiconductor equipment, automotive and suppliers, mechanical engineering, medical technology, traffic, aviation as well as the security and defense technology.

The Jenoptik Group is headquartered in Jena (Thuringia). In addition to several major sites in Germany, Jenoptik is represented worldwide, for example with production and assembly sites in the US, France, the United Kingdom, China, and Switzerland. Additionally, the Group has subsidiaries in Australia, Brazil, the Czech Republic, India, Japan, Malaysia, Mexico, the Netherlands, Singapore, and South Korea.

Jenoptik is a globally operating technology group, which has been operating in the three photonics-based divisions Light & Optics, Light & Production and Light & Safety since January 2019. In addition, the Group is providing mechatronics solutions under the brand VINCORION.

Management

» In short «

Jenoptik took

1st PLACE

in the SDax in the "Investors' Darling" capital market competition in 2019, and was named the best capital market communicator of all 70 SDax companies.

At the same time, Jenoptik came third in the overall ranking of all 160 Dax companies. Points assessed in this competition of German financial communication were financial reporting, investor relations work, including digital communication and presentation on the Internet, and, for the first time, communications relating to corporate social responsibility (CSR).

Dr. Stefan Traeger
President & CEO

Dear shareholders,
dear clients, partners, and friends of our company,

Brighter Futures with the Power of Light – this is our vision which we fill with life every day.

We have once again invested in our vision in 2019 because we are convinced of the performance of the Jenoptik Group, and because we realize technologically unique differences also for our customers' benefit.

Our photonic solutions contribute to a better future: Lenses from Jenoptik help NASA's new Mars Rover to maintain its orientation on its mission. Thanks in part to our technology, we will be able to see images from Mars by next year at the latest. With our help, it was also possible for Google, for example, to develop a new type of microscope which enables doctors to diagnose diseased cells more accurately. In addition, our innovative technology ensures modern traffic monitoring in the vicinity of New York schools, so that in particular children can make their way to school in safety. These are just a few examples that make me very proud to be at the top of Jenoptik, continuing our company's success story together with my Executive Board colleague Hans-Dieter Schumacher and more than 4,100 Jenoptik employees.

Jenoptik once again showed an outstanding performance last year, despite the challenging market. The Group is now able to look back on five consecutive years of rising revenue. And we have once again reached our top financial targets this year.

In 2019, we grew by 2.5 percent generating revenue of 855 million euros, and posted EBITDA of 134 million euros, an improvement of 5 percent. All in all, an outstanding team performance by all Jenoptik employees, especially in this economic environment.

But we were not only commercially successful. In terms of operations, we also focused all our efforts and successfully pushed ahead with our strategic priorities – operational excellence, growth in Asia and more innovation.

We started with a new group structure in January 2019. The core of this new structure are three strong photonics divisions: Light & Optics, Light & Production and Light & Safety. We have thereby better aligned our business with market requirements. The new divisions were not the only result of reorganization, we also merged a number of our companies during the course of the year, making us more agile.

In 2019, the new organizational structure was accompanied by the Operational Excellence initiative, which focused on improving delivery quality and reliability in our largest division, Light & Optics. Thanks to the production and process improvements achieved in manufacturing during the year, we have created a good starting point for the future.

Asia was another priority. Here we began to focus our sales activities more strongly on customers and markets in 2019. We have succeeded in significantly expanding our partner network in Asia, and have created good prerequisites for improving cooperation between our divisions and the respective regions, thereby ensuring future growth in those foreign markets that are important to us.

Thirdly, our group initiative "Speed up Innovation" is aimed at creating optimal framework conditions for an innovation-friendly climate within the company. To this end, we have simplified our innovation process and made the innovation landscape within the Group more transparent. One example of this is newly introduced "Vitality Index", which compares the revenue of products less than three years old with total revenue. This will make it easier for us to monitor the development and economic success of our innovation activities in the future, and will help to further sharpen our view of current and future technological competitive advantages.

After defining individual divisional strategies in accordance with the objectives of the group strategy, we also began to implement and execute these in the 2019 fiscal year.

However: A strategy is only successful when the corporate culture mentally and emotionally supports the workforce in achieving the set goals. Therefore, we consistently continued the cultural change in 2019, and engaged in a dialog to make our corporate values – open, driving, confident – more tangible for all employees. Cultural changes take time, so this process will also be a strategic priority in the current fiscal year.

2019 was also marked by the thorough integration of two companies acquired in 2018 into the Group – Prodomax in Canada and the OTTO Group from Jena. We could clearly see that the product range and the market and customer access of these companies are an ideal complement for Jenoptik. The good business development by Prodomax and OTTO contributed significantly to the revenue growth of the Group in 2019. We see our most recent acquisition in January 2020 – the Spanish company INTEROB –in the same context. This acquisition strengthens our position as an integrated provider of highly efficient, automated manufacturing solutions and as a strategic partner to the automotive industry.

Unfortunately, we also had to accept setbacks in 2019. In the middle of the year, we announced the start of the sales process for our mechatronics business operating under the VINCORION brand. We were very confident that we would be able to complete the process in the first half of 2020. However, at the beginning of the year, we found that there was no offer at that time that adequately reflected VINCORION's business potential. Therefore, on January 17, we decided to stop the sale process. Personally, this disappointed me greatly, and we did not take this decision lightly. But, VINCORION is an extremely healthy company with good, new products and a prospering market demand. We are confident that the division can achieve further increases in revenue and earnings in 2020. VINCORION will now operate as an independent investment of the Group, separate from our photonics activities under the Jenoptik brand.

However, this does not mean that we are deviating from our strategy. The target for the coming years until 2022 remains unchanged. We will concentrate on what we do best: Under the motto "More Light", we want to create a modern high-tech group focused on photonics. Our aim is to find the correct technological responses to the major issues of the future – digitization, mobility and security.

At the beginning of 2020, the difficult economic climate globally has not eased. In addition, the outbreak of SARS-CoV-2 in the past weeks had a negative impact on the global economic development. At present, it is difficult to assess the effects on our business. Nevertheless, our presence in the markets, the innovative strength of our products and the positioning of Jenoptik in various sectors, gives us confidence to emerge from the crisis stronger than before.

We want to continue the Jenoptik success story. Subject to the effects from the SARS-CoV-2 outbreak we expect a solid development in 2020.

Dear shareholders, customers, partners and friends of Jenoptik. We thank you for the trust you have placed in our company. We strongly believe that we still have many more successes ahead of us, both large and small. Stay committed to Jenoptik and accompany us on our journey into a promising future.

Brighter Futures with the Power of Light – that is what Jenoptik stands for and that is what we stand for.

Dr. Stefan Traeger
President & CEO

Hans-Dieter Schumacher
Chief Financial Officer

Hans-Dieter Schumacher
Chief Financial Officer

Supervisory Board Report

Honored Shareholders,

Despite challenging political and economic conditions, Jenoptik closed 2019 with results marking another year of excellent growth. Key drivers of this growth were the contributions to revenue from the semiconductor equipment industry and the Automation & Integration area including the companies acquired in 2018. The Supervisory Board closely supported the Executive Board in the consistent implementation of our strategy with a greater focus on photonic technologies and continuously monitored its work.

In the year covered by the report, the Supervisory Board diligently fulfilled its duties as stipulated in law, the Articles of Association, the Rules of Procedure, and the German Corporate Governance Code (the “Code”). The Executive Board fully involved the Supervisory Board in all decisions of fundamental importance to the company at an early stage. The Supervisory Board was also regularly presented with comprehensive information by the Executive Board, both verbally and in written form, on issues pertaining to corporate planning, on business development and profitability trends, on matters involving risk and risk management, on compliance issues, and on the general economic position of the company. Based on reports submitted by the Executive Board, business events of importance to Jenoptik were presented and discussed in detail in both the committees and the meetings of the Supervisory Board. The members of the Supervisory Board fully engaged with the submitted reports and were entitled to put forward their own proposals and suggestions at any time. When convening to discuss topics of particular importance to the Jenoptik Group, the shareholder and employee representatives on the Supervisory Board separately prepared for the meetings, partly in the presence of individual Executive Board members.

On occasions where, in accordance with the provisions of the German Stock Corporation Act (AktG), the Articles of Association, and its Rules of Procedure, the Executive Board required the agreement of the Supervisory Board before undertaking certain actions; approval was granted after thorough examination and consultation. In the event that the business development deviated from the established plans, the Executive Board notified the Supervisory Board, explaining the reasons in detail. The Executive Board completely fulfilled its reporting obligations as stipulated in § 90 AktG and the Code.

During the past fiscal year, the Supervisory Board focused on work to implement the corporate strategy presented in 2018 and supported by the Supervisory Board. This included the launch of a project to potentially sell the VINCORION division in order to streamline business activities to focus on the competence fields of optics and photonics. Regrettably, the sales process had to be stopped in January 2020. Following a successful 2019 fiscal year, VINCORION will continue to operate as an independent investment in the Jenoptik Group, with good prospects for 2020.

The Supervisory Board convened five regular meetings and two extraordinary meetings during the reporting year. One extraordinary meeting was held as a mixture of a telephone and in-person meeting. In one instance, decisions were made through the exchange of written correspondence. Individual agenda items relating to personnel matters on the Executive Board were addressed without the presence of the members of the Executive Board. No active members of the Supervisory Board, the Audit Committee or the Personnel Committee attended half or fewer than half of the meetings in 2019. On average, attendance at Supervisory Board meetings was 96 percent. There were also five meetings of the Audit Committee (one by conference call), four meetings of the Personnel Committee (two by conference call), and two meetings of the Investment Committee (one by conference call). Attendance at Audit Committee and Personnel Committee meetings was 100 percent, at the Investment Committee meetings 92 percent. Members who were unable to attend a meeting participated in the resolutions by means of voting messages. Detailed information on members' attendance at meetings can be found in the chart on pages 22 and 23.

The Executive Board and Supervisory Board always cooperated in an open and trusting atmosphere. The Chairman of the Supervisory Board and the Chairman of the Audit Committee also maintained regular contact with the Executive Board in between the meetings of the Supervisory Board and the committees. The Chairman of the Supervisory Board consulted with the Executive Board on current business performance, in particular, but also on planning, the risk situation, risk management, and compliance measures within the company. In addition, the Executive Board promptly informed the Chairman of the Supervisory Board, either verbally or in writing, about important issues of key relevance to assessing the situation, development, and management of Jenoptik. It informed the Supervisory Board of these issues without delay and at the next meeting by the very latest.

Particular Subjects discussed by the Supervisory Board

At all of its regular meetings, the Supervisory Board dealt with the detailed reports of the Executive Board on the progress of business, particularly with regard to the current development of revenue and earnings, the position of the company, and the financial and risk situations. This included a comprehensive examination and discussion of the corresponding quarterly and monthly reports. M&A projects were set out and discussed at several meetings.

In February 2019, the Supervisory Board approved the Corporate Governance Statement and the Corporate Governance Report by written circulation procedure, and also adopted its report for the 2019 Annual General Meeting. In addition, the CVs of Supervisory Board members were compared against the competency profile adopted by the Supervisory Board, updated, and published on the JENOPTIK AG website.

The focus of the **balance sheet meeting on March 20, 2019** was the audit of JENOPTIK AG's Annual Financial Statements, the Consolidated Financial Statements, and both the Combined Management Report for JENOPTIK AG and the Group and the Non-Financial Report for the prior 2018 fiscal year. Two representatives of the auditor reported on the results of the audit. After a thorough review, and on the recommendation of the Audit Committee, the Supervisory Board approved the Annual and Consolidated Financial Statements. The Annual Financial Statements were thus adopted. Following in-depth discussions, the Supervisory Board also approved the Executive Board's proposal for the appropriation of profits, providing for an increase of 5 cents in the dividend, to 0.35 euros per qualifying no-par value share. Another issue at this meeting was the approval of the agenda for the Annual General Meeting on June 12, 2019. The Supervisory Board approved the settlement of the 2018 target agreements for the members of the Executive Board and adopted the new target agreements for 2019. The Executive Board also provided information on a range of potential acquisition and divestiture projects.

At its **meeting on June 11, 2019**, the Supervisory Board, in addition to dealing with recurring topics, was given updated information and guidance on the Annual General Meeting to be held the following day, as well as on ongoing M&A projects. The new head of the Light & Production division, Mr. Martin Kuhnhen, introduced himself to the Board and provided some initial insights into what he would be focusing on in his work.

At an **extraordinary meeting on July 29, 2019**, the Supervisory Board, following preparatory work by the Personnel Committee, discussed the further development of the Executive Board's remuneration system and adopted a new target metric for one part of the variable remuneration for members of the Executive Board starting in the 2020 fiscal year. It reappointed Dr. Traeger as a member of the Executive Board earlier than scheduled, with effect from July 1, 2020 through June 30, 2025, and appointed him President & CEO. The existing Executive Board service contract with Dr. Traeger was slightly amended with effect from July 1, 2020. The Supervisory Board also discussed the strategic project to potentially sell all shares in the VINCORION division and approved the formal start of the project to address potential buyers.

The **meeting on September 11, 2019** was held at the home of the strategic business unit Biophotonics in Berlin-Adlershof. Following a tour of the plant, the Supervisory Board discussed the regular submissions with the Executive Board, as well as the current Group Risk and Opportunity Report and the planning assumptions for the 2020 fiscal year. The Executive Board informed the Supervisory Board about the "Global Business Excellence" strategic IT project ("GLOBE"). The Supervisory Board

T01 Participation of the individual Supervisory Board members in meetings

	Astrid Biesterfeldt	Evert Dudok	Michael Ebenau	Elke Eckstein	Thomas Klippstein	Dörthe Knips
7 Supervisory Board Meetings	●●●●●●○	●●●●●●○	●●●●●●●	●●●●●●●	●●●●●●●	●●●●●●●
5 meetings of the Audit Committee (of which one by phone)	●●●●●	–	–	–	●●●●●	–
4 meetings of the Personnel Committee (of which one by phone)	–	–	●●●●	–	●●●●	–
2 meetings of the Investment Committee (of which one by phone)	–	–	●●	●○	–	●●

● Participation ○ No participation

examined further developments in the field of corporate governance, in particular the amendments to the German Stock Corporation Act resulting from the Act Implementing the Second Shareholder Rights Directive (ARUG II), and the planned amendments to the Code in the version dated May 9, 2019. It then adopted an addendum to the service contract for Mr. Hans-Dieter Schumacher, which ensured that the remuneration arrangements for the two members of the Executive Board would run in parallel from July 1, 2020 on. A further subject of the meeting was an update on current M&A projects.

At its **extraordinary meeting on October 14, 2019**, the Supervisory Board discussed the current status of the project to potentially sell the VINCORION division.

One of the Supervisory Board's priorities in the final quarter of the fiscal year was the implementation of the new group strategy presented by the Executive Board in 2018. To this end, it was joined by the Executive Board and other members of the Executive Management Committee to discuss the strategic positions of the separate divisions, which were developed from the group strategy, from the perspective of the market, the competition, and customers at a two-day **strategy meeting on November 13 and 14, 2019**. The Executive Board provided the Supervisory Board with in-depth information on the current status of the Jenoptik Group's three top priorities in the 2019 fiscal year: operational excellence, more innovation, and growth in Asia.

At the final **meeting** in the year covered by the report on **December 11, 2019**, the Supervisory Board approved the corporate planning for the 2020 fiscal year following in-depth discussion, and also addressed the medium-term planning. After reviewing a corporate governance checklist, the Supervisory Board and the Executive Board approved the declaration of conformity in accordance with § 161(1) AktG for the 2019 fiscal year and dealt repeatedly with the new recommendations of the Code to obtain information on the status of implementation at the time of its entry into force. The Supervisory Board also approved the acquisition of all shares in the Spanish company INTEROB which is set to complement the portfolio of the Light & Production division in the field of automation & integration. It dealt with the current status of the process to sell the VINCORION division and discussed the efficiency of its work over the past year.

Dieter Kröhn	Doreen Nowotne	Heinrich Reimitz	Stefan Schaumburg	Andreas Tünnermann	Matthias Wierlacher	Total attendence in percent
●●●●●●●	●●●●●●●	●●●●●●●	●●●●●●●	●●●●●● ○	●●●●●●●	96 %
–	●●●●●	●●●●●	–	–	–	100 %
–	–	●●●●	●●●●	●●●●	●●●●	100 %
●●	●●	–	–	–	●●	92 %

Work in the Committees

The Supervisory Board has established five committees to help perform its tasks with greater efficiency. The committee chairs reported on the content and results of the committee meetings at each following meeting of the Supervisory Board. With the exception of the Audit Committee, chaired by Mr. Heinrich Reimitz, the committees are led by myself as the Chairman of the Supervisory Board. An overview of the composition of the individual committees can be found on pages 206/207 of the Annual Report.

During the reporting period, the Audit Committee met four times and held one conference call. The auditor's representatives attended the first face-to-face meeting of the year. The primary duties of the Audit Committee were in-depth audits of the Annual and Consolidated Financial Statements, the Combined Management Report for JENOPTIK AG and the Group, the Non-Financial Report, and detailed discussions of the quarterly and half-yearly reports prior to their publication. In addition, particular attention was paid to the effectiveness and further development of the risk management system, the internal control and compliance management system, and current topics and projects of relevance to Internal Audit. Other recurring issues at all meetings of the Audit Committee were the development of the Jenoptik share and recent analyst assessments. The heads of central departments were also present as guests for individual agenda items at the committee meetings.

During a **conference call on February 12, 2019**, the Executive Board presented the committee members with the preliminary figures in the 2018 Consolidated Financial Statements, which were published the day after.

The main issue at the **balance sheet meeting on March 7, 2019**, held in the presence of the auditor, was an in-depth discussion of the Annual and Consolidated Financial Statements, the Combined Management Report, and the Executive Board's proposed appropriation of profits. The Non-Financial Report and the results of the audit were discussed with a representative from auditing firm PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft ("PWC") in the form of a limited assurance engagement. As a result of these discussions, the Audit Committee recommended to the Supervisory Board that the Annual Financial Statements be adopted. Another issue at the meeting was the recommendation by the Audit Committee to the Supervisory Board that Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart ("EY"), be proposed to the Annual General Meeting as the auditor for the 2019 fiscal year. EY had previously confirmed the absence of circumstances that could compromise its independence as auditor. In addition to recurring issues, the committee also dealt with the current Group Risk and Opportunity Report.

The Financial Statements for the first quarter and a current forecast for the 2019 fiscal year were the priorities at the Audit Committee's **meeting on May 8, 2019**. The Audit Committee was notified of a project to revise the Group Guidelines system and of current issues in Internal Audit.

At its **meeting on August 7, 2019**, the Audit Committee discussed the half-year financial statements with the Chief Financial Officer prior to their publication. The Audit Committee set out the main points for the audit of the Annual Financial Statements in the 2019 fiscal year, reviewed the fee agreement with EY, and addressed the issue of monitoring the independence of the auditor. To this end, it reviewed the non-audit services provided in the past year and updated the catalog of permissible non-audit services it approved in the prior year. The Audit Committee then appointed EY to audit the Annual and Consolidated Financial Statements for the 2019 fiscal year in accordance with the shareholder resolution at the Annual General Meeting. A further matter at the meeting was an update on the sustainability reporting within the Non-Financial Report, following which the Audit Committee resolved to again appoint auditing firm PWC to conduct an audit review of the Non-Financial Report for the 2019 fiscal year. The Audit Committee also familiarized itself with the group-wide "GLOBE" IT project to harmonize IT processes.

At its last **meeting** of the year on **November 11, 2019**, the Audit Committee examined the Interim Financial Statements for the third quarter and the current forecast. Other priorities at the meeting included a presentation of key internal audit findings in the 2019 fiscal year, given by the head of Internal Audit, and an update on sustainability reporting.

The Personnel Committee met four times in the past fiscal year. The purpose of the discussions in February was the settlement of the target agreements with the members of the Executive Board for 2018, in particular defining the multiplier for calculating the variable remuneration, and the target agreements for 2019. At the July meeting, the Personnel Committee recommended that the Supervisory Board approve the early extension of Dr. Stefan Traeger's appointment as a member of the Executive Board and as Chairman of the Executive Board with effect from July 1, 2020 for the period until June 30, 2025. In addition, it engaged in preliminary discussion of a revised target metric for short-term variable remuneration in the Executive Board service contracts starting in the 2020 fiscal year. At the last meeting of the year, the Personnel Committee discussed the long-term succession planning for the Executive Board.

The Investment Committee met twice in the past fiscal year to discuss various acquisition and divestiture projects, in particular the project to potentially sell the shares in the VINCORION division. Ms. Elke Eckstein was excused from attending one meeting of the Investment Committee; she therefore attended half of the Investment Committee meetings.

The Nomination Committee and the Mediation Committee established on the basis of § 27(3) of the Codetermination Act (MitbestG) did not meet in the year covered by the report, as there was no reason for them to do so.

Corporate Governance

The Supervisory Board continued to focus on the principles of good corporate governance and regulatory changes in corporate governance over the past fiscal year. At its meetings in June and September, the Supervisory Board was informed about the current status of the Act Implementing the Second Shareholder Rights Directive (ARUG II). At its September and December meetings, the Supervisory Board discussed the changes to the Code in its version of May 9, 2019. The December meeting also saw the Supervisory Board review its checklist on the Code (in its version of February 7, 2017) and, together with the Executive Board, adopt the declaration of conformity in accordance with § 161(1) AktG. This and prior declarations extending back to 2004 are permanently available to shareholders on the company's website.

The Supervisory Board regularly reviews the efficiency of its work in accordance with the Code's recommendations. Following the efficiency review carried out with the assistance of an external expert in 2017, the Supervisory Board undertook an internal self-assessment in December 2018 and 2019. The review gave a positive picture of the work of the Supervisory Board and its committees. No efficiency shortcomings were identified. The next external efficiency review is scheduled to take place in 2020.

Individual members of the Supervisory Board exercise an executive role at other companies with which Jenoptik has a business relationship. All of these business transactions, which are not of significant relevance to Jenoptik, were conducted under the same conditions as would have been maintained with third-party companies. Detailed information on business transactions with related companies or persons can be found on page 201 in chapter 8.9.5 of the Notes. In the past fiscal year, there were no conflicts of interest that would have required reporting to the Annual General Meeting with this report.

Members of the Supervisory Board are independently responsible for undergoing the training and professional development measures necessary for their tasks. They are given targeted support by the company in the form of an appropriate reimbursement of costs and forwarding of invitations to selected events. New members are supported by the company during their inductions.

Detailed information on corporate governance can be found in the Corporate Governance Report beginning on page 36 of the Annual Report.

Annual Financial Statements and Consolidated Financial Statements

Following delegation by the Supervisory Board to the Audit Committee, the latter, after an in-depth preliminary review and on the basis of the resolution at the Annual General Meeting on June 12, 2019, appointed EY auditor for the 2019 fiscal year at its meeting of August 7, 2019. EY has acted as the JENOPTIK AG and Group auditor since 2016. For the first time, the lead audit partner is Mr. Steffen Maurer. EY audited the Annual Financial Statements prepared by the Executive Board according to the provisions of the German Commercial Code (HGB), the Consolidated Financial Statements prepared according to § 315e HGB and on the basis of International Financial Reporting Standards (IFRS), and the Combined Management Report, and issued its unqualified approval. The audit of the Non-Financial Report in the form of a limited assurance engagement was also issued with unqualified approval by PWC. Within the scope of its duties, EY also checked whether the Executive Board had adopted suitable measures to ensure that developments that may endanger the continued existence of the company are identified in good time. The auditor undertook its audit according to § 317 HGB, giving consideration to the generally accepted German audit principles defined by the Institute of Public Auditors in Germany (Institut der Wirtschaftsprüfer [IDW]). On completion, the audit reports, the Annual Financial Statements, the Consolidated Financial Statements, the Executive Board’s proposal for the appropriation of profits, the Combined Management Report, and the Non-Financial Report were dispatched to all members without delay and, together with the documents submitted by the Executive Board, discussed in great detail by the Audit Committee and the Supervisory Board at their March meetings. Both also dealt extensively with the key audit matters. Representatives of auditor EY and of audit firm PWC, which was appointed by the Audit Committee to conduct an audit review of the Non-Financial Report, reported on the key outcomes of their audits at the meetings and were also available to respond to any further queries. EY also provided information on services rendered in addition to the financial statement audit services. According to the auditor, there were no circumstances that gave rise to a concern of impartiality. No major weaknesses in the risk early warning system or the accounting-related internal control system were reported. The Chairman of the Audit Committee also reported in detail to the Supervisory Board on the examination of the statements carried out by the Audit Committee.

Following its own comprehensive examination and discussion, the Supervisory Board concurred with the findings submitted by the auditor and the Audit Committee's recommendation, and raised no reservations about the results of the audit. It approved the Annual Financial Statements and Consolidated Financial Statements submitted by the Executive Board, thus adopting the Annual Financial Statement in accordance with § 172 (1) AktG. The Supervisory Board discussed in detail with the Executive Board the proposal for the appropriation of accumulated profit, providing for payment of a dividend of 0.35 euros per qualifying no-par value share and also agreed to this following its own review and consideration of the company's financial position.

Changes in the Supervisory Board and the Executive Board

Over the past fiscal year, there were no personnel changes on the Executive Board or the Supervisory Board. We are very pleased that Dr. Stefan Traeger will be working to successfully implement Jenoptik's new growth and profitability strategy as President & CEO for a further five years.

The Supervisory Board would like to thank the members of the Executive Board and all the employees for their exceptional performance and great commitment throughout the fiscal year, as well as our shareholders for the trust they have shown in us.

Jena, March 2020
On behalf of the Supervisory Board

Matthias Wierlacher
Chairman

Jenoptik Highlights 2019

New brand, structure, and corporate culture

The new brand is presented under the motto “More Light”: Jenoptik is streamlining its business as an application specialist for photonic technologies. The “Strategy 2022” is the basis to define and initiate changes in core elements such as the structure, culture, and brand.

Solutions from a single source

Jenoptik consolidates its German entities in the Light & Optics division. It covers all aspects of photonic technologies for OEM customers, from development to production and sales.

Support for the commitment

For the first time, Jenoptik launches a group-wide program to assist employees in their voluntary work. More than 20 employees and their selected associations apply for financial support in the first round of corporate volunteering.

New production facility in France

Jenoptik has invested in a modern production environment for industrial metrology in Bayeux in French Normandy. The new building, which also includes a modern laboratory for pneumatic metrology, opens in April 2019.

Strong demand for automation solutions

In the first few months of the year, Jenoptik subsidiary Prodomax Automation Ltd., based in North America, receives several orders from the automotive industry. It supplies automated assembly systems and lines to make production more efficient for automotive customers.

Order for speed monitoring systems

The city of Cologne orders ten speed camera trailers for semi-stationary speed monitoring from Jenoptik, with the aim of increasing traffic safety in all city districts. Housed in a robust container, the measuring technology can be used at accident black spots for about a week with no need for an external power supply thanks its accumulator batteries.

56 new trainees

Throughout Germany, significantly more trainees and students from Cooperative State Universities start their careers at the Jenoptik Group in August than in prior years.

Long Night of Sciences

More than 3,000 visitors went on a discovery tour of Jenoptik during the Long Night of Sciences in November, giving them the chance to experience the innovative power of science with the company’s products.

First section control radar in Germany

Following approval from the Physikalisch-Technische Bundesanstalt, average speed control (section control) is introduced on German roads. With the help of Jenoptik measuring technology, a pilot phase begins in Lower Saxony in which vehicle speeds are monitored over a defined section of road.

Project with life science partner

Jenoptik signs a long-term cooperation agreement with a leading life science company. Instruments for microscopy image processing based on the JENOPTIK SYIONS technology platform will be developed and produced.

Pictures from Mars

When the US space agency NASA launches its "Mars 2020" mission, the images, which will be transmitted back to Earth from February 2021 on, will be taken using Jenoptik lenses. The team in Jupiter, Florida, has developed three types of lenses for this purpose, which will be used in the Mars rover's technical cameras under extreme conditions.

New building for metrology manufacturing

At its Villingen-Schwenningen site, Jenoptik is investing in a new building for industrial metrology, which is due to be ready for occupancy as early as spring 2020. The metrology products are aimed at customers in the automotive industry and increasingly at other industrial customers.

Investment in Berlin site

At Berlin's Adlershof Technology Park, Jenoptik is investing in further technical upgrades for the production of high-power laser diodes.

Long-term order from the automotive industry

Jenoptik supplies a laser-optical subsystem for a particle sensor developed by the automotive supplier Hella. The sensor can be used to precisely measure minute concentrations of particulate matter inside vehicles and in their environment.

One of the best communicators

Jenoptik is again one of the best communicators on the German capital market. This was confirmed by its first place in the SDax index and third place in the overall ranking of the renowned "Investors' Darling" capital market competition.

Return to general collective wage agreement

Negotiations with IG Metall have been concluded successfully. From 2020 on, JENOPTIK AG and the Jenoptik entities that previously used a company collective wage agreement will join the general collective wage agreeement for the metal and electrical industry.

The Jenoptik Share

Stock Markets

Overall, 2019 was a good year for equities. The European stock markets were influenced by a range of factors. A number of political risks decreased in the course of the year – fears of a renewed euro crisis triggered by Italian budgetary policy dissipated following an agreement with the EU Commission, for example, and concerns that a “hard” Brexit would cause serious economic turmoil in Europe were allayed by the final deal negotiated with the UK. Even more significantly, however, the trade conflict between the US and China showed increasing signs of easing in the second half-year. Equally important was the turnaround by the US Federal Reserve, which abandoned its policy of increasing the benchmark interest rate and subsequently initiated a rate-cutting cycle. In mid-2019, the ECB also postponed its scheduled interest rate turnaround to late 2020. This put pressure on bonds, in turn benefiting the valuation of dividend-bearing securities.

The latest information on the Jenoptik share and the development of the Jenoptik Group can be found at www.jenoptik.de or on Twitter. Our financial reports can also be viewed using the “Jenoptik App for Corporate Publications”

The Dax grew 25.2 percent to 13,249 points in 2019. Second-line indices fared even better, with the MDax and SDax rising to new record levels to end the year with gains of 30.5 and 30.8 percent respectively. The TecDax also had a good year, growing 22.3 percent to 3,087 points.

Jenoptik Share Trends

The Jenoptik share performed variably in 2019. On the year’s first day of trading, the share closed at 23.74 euros. It made consistent gains in the next few months, reaching a high of 36.45 euros on April 24. These gains, however, were lost in the two following months. Uncertainties in the automotive sector increased at the midpoint of the year, in part reflected in our share price. The share fell to its low for the year of 21.00 euros on August 16. It recovered in the final quarter, followed by a sideways trend in the final days of the year. At the end of trading on December 30, 2019, the Jenoptik share was quoted at 25.48 euros, equating to an increase over the year of 7.3 percent. Jenoptik’s total shareholder return, i.e. share price development accounting for dividends paid in the fiscal year, came to 8.8 percent in 2019 (prior year: minus 17.0 percent). At 57,238,115 shares issued, market capitalization amounted to 1,458.42 million euros at the end of the year (prior year: 1,303.9 million euros).

The mood on the international capital markets was mixed in January and February 2020. At the beginning of the year, some of the indices were still climbing back to their old highs. However, from mid-February onwards, burgeoning fears of a global spread of the corona virus and the associated economic consequences caused prices to collapse across the board. The share ended trading on February 28 at 21.32 euros. This equated to a market capitalization of 1,220.3 million euros. G01 G02

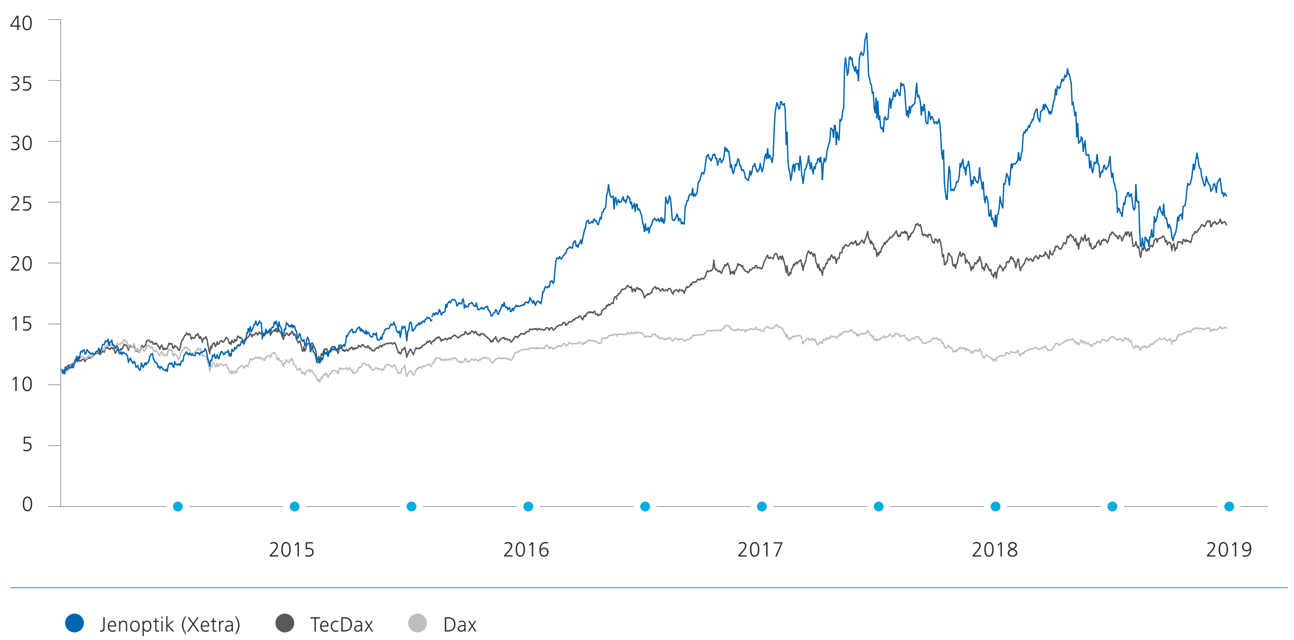
Compared to the prior year, investor trading saw a downturn. In 2019, the average number of Jenoptik shares traded per day on the Xetra, in floor trading, and on Tradegate was 152,355 (prior year: 167,748). Trading volumes thus fell 9.2 percent.

In the TecDax ranking compiled by Deutsche Börse, the Jenoptik share was 28th in terms of stock turnover (prior year: 25th). In terms of free float market capitalization, the company held 23rd place (prior year: 20th).

Of the 70 stocks on the SDax, JENOPTIK AG occupied 7th place in market capitalization (prior year: 10th) and 23rd in trading volumes (prior year: 19th) at the end of the year.

G01 Share performance January 2, 2019 through February 28, 2020 (indexed in euros)

G02 Share performance 2015 to 2020 (indexed in euros)



Shareholder Structure

For more information, see Equity chapter in the Notes and the Investors/Share/Voting rights announcements section at www.jenoptik.com

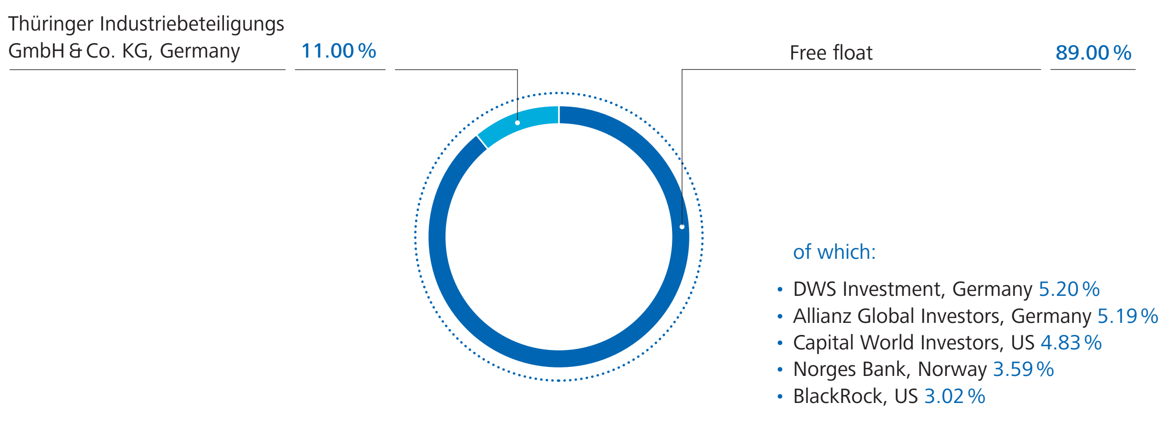
At the end of the fiscal year, the company's free float was unchanged at 89 percent.

Throughout 2019, we received several voting right notifications from institutional investors to buy or sell larger stock positions; these were published by the company.

Dividend

The Jenoptik management aspires to a policy of dividend reliability and continuity in which shareholders – as in recent years – receive payment of a dividend in line with the company's success. At the same time, sufficient cash and cash equivalents to finance the operating business, research and development, a robust equity position, and the use of acquisition opportunities to secure the lasting growth of the company are also in the interests of the shareholders. The Executive and Supervisory Boards of JENOPTIK AG therefore review their dividend recommendation with considerable prudence every year. In the past fiscal year, Jenoptik paid a dividend of 0.35 euros per share (prior year: 0.30 euros) to its shareholders for 2018. In the current year, too, the Executive Board and Supervisory Board will maintain their consistent dividend policy, in spite of lower earnings per share of 1.18 euros (prior year 1.53 euros). Particularly in view of successful development in 2019, the two boards will propose a payment of 0.35 euros per share to the 2020 Annual General Meeting. Subject to approval there, the payout ratio in relation to earnings attributable to shareholders will be 29.7 percent (prior year 22.9 percent) for a total dividend payment of 20.0 million euros.

G03 Shareholder structure (as of February 28, 2020)*



* on the basis of voting rights notifications

Capital Market Communications

We are committed to making sure our communications with shareholders, analysts, and institutional investors are open, transparent, and reliable. We publish comprehensive and up-to-date information on the development of our business, while also seeking an active exchange with others. We believe it is important to increase transparency and boost trust in Jenoptik by engaging in ongoing dialog.

At the end of the year, a total of 42,526 shareholders (prior year: 42,745) were entered in the share register, of which 477 were institutional investors (prior year: 457) and 42,049 private investors (prior year: 42,288). Institutional investors held 79.80 percent of the company's share capital, virtually unchanged on the prior year (prior year: 79.83 percent), private investors 20.20 percent (prior year: 20.17 percent).

In the annual "Investors' Darling" competition run jointly by HHL Leipzig Graduate School of Management and the business journal "manager magazin", Jenoptik took first place in the SDax index and was thus named the best capital market communicator of all 70 SDax companies. Jenoptik came third in the overall ranking of all 160 Dax companies. Points assessed were

T02 Jenoptik share key figures

	2019	2018	2017	2016	2015
Closing price (Xetra end-year) in euros	25.48	22.78	27.55	16.43	14.39
Highest/lowest price (Xetra) in euros	36.45/21.00	39.48/22.78	29.68/16.11	16.65/11.14	15.01/10.22
Absolute performance in euros/relative in percent	1.74/7.33	−5.02/−18.1	10.78/64.28	1.84/12.6	3.79/35.8
Issued no-par value shares (31/12) in millions	57.24	57.24	57.24	57.24	57.24
Market capitalization (Xetra end-year) in million euros	1,458.4	1,303.9	1,576.9	940.1	823.7
Average daily trading volume (in shares)[1]	152,355	167,748	152,928	107,183	224,488
P/E ratio (based on highest price/based on lowest price)	30.9/17.8	25.8/14.9	23.4/12.7	16.7/11.1	17.3/11.8
Operating cash flow per share in euros	2.12	2.61	1.84	1.91	1.60
Group earnings per share in euros	1.18	1.53	1.27	1.00	0.87

[1] Source: Deutsche Börse; includes trading on the Xetra, in Frankfurt, Munich, Berlin, Düsseldorf, Hamburg, Hannover, Stuttgart and on Tradegate

T03 Dividend key figures

	2019	2018	2017	2016	2015
Dividend per share in euros	0.35	0.35	0.30	0.25	0.22
Payout amount in million euros	20.0	20.0	17.2	14.3	12.6
Dividend yield[1] in %	1.4	1.5	1.1	1.5	1.5
Payout ratio[2] in %	29.7	22.9	23.7	24.9	25.4
Total shareholder return in %	8.8	−17.0	65.8	14.1	37.6

[1] based on year-end closing price
[2] based on earnings attributable to shareholders

financial reporting, investor relations work and presentation, including digital communication, and, for the first time, communications relating to corporate social responsibility (CSR). The company's explanation of its strategy and its implementation, together with the specific and detailed reporting on its earnings, financial, and risk positions, were the key factors contributing to its strong ranking. This was complemented by good feedback from share analysts and fund managers.

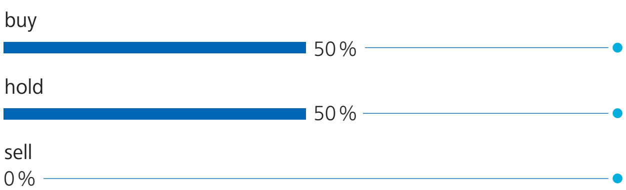
Over 300 shareholders, representing around 65 percent of nominal capital, and numerous guests were on hand for the JENOPTIK AG Annual General Meeting in Weimar on June 12, 2019. By a large majority, the shareholders formally approved the actions of the Executive Board and Supervisory Board and agreed to payment of a higher dividend and all the other agenda items requiring a vote.

The company again stepped up its investor relations activities in the 2019 fiscal year, particularly addressing investors outside Germany, and attended 12 (prior year: 10) capital market conferences at international financial centers such as Frankfurt/Main, London, New York, and Zurich.

Jenoptik also held 19 (prior year: 23) roadshows in Austria, Belgium, Finland, France, Germany, Great Britain, Ireland, Italy, Luxembourg, Spain, Switzerland, and the US. Jenoptik held two analyst conferences in Frankfurt/Main to mark the reporting of its annual and mid-year figures. During conference calls on the publication of the annual and quarterly financial statements and in numerous individual conversations, the Executive Board and the investor relations team explained the development of business, key figures and strategy to institutional investors, analysts and journalists. Interested investors also took the opportunity to tour Jenoptik's sites. In November 2019 Jenoptik held its 7th Capital Market Day in Jena. The Executive Board and management informed investors, analysts, and bank representatives about the status of the strategic development of the Group and its divisions, and provided an outlook on its medium-term targets.

Over the course of 2019, 11 (prior year: 11) analysts published recommendations on the Jenoptik share: Baader Helvea, Bankhaus Lampe, Bankhaus Metzler, Deutsche Bank, DZ Bank, Hauck & Aufhäuser, HSBC, Independent Research, Kepler Cheuvreux, LBBW, and Warburg Research. On December 31, 2019, the average target price of the Jenoptik share as assessed by analysts was 28.95 euros (prior year: 31.91 euros). G04

G04 Analyst recommendations (as of February 28, 2020)



Corporate Governance

» In short «

Current Declaration of Conformity in accordance with

§ 161

Stock Corporation Act was issued jointly by the Executive Board and Supervisory Board in December 2019.

Information and Notes relating to Takeover Law and the Remuneration Report are part of the Combined Management Report.

Corporate Governance Report

In the following Corporate Governance Report, the Executive Board and Supervisory Board give their opinions in accordance with Point 3.10 of the German Corporate Governance Code ("Code") in its version dated February 7, 2017. We also consider the "Remuneration Report" (from page 45) to be a part of the Corporate Governance Report and the Combined Management Report.

Corporate Governance

The Corporate Governance Statement as well as the current declaration of conformity, and those of previous years, are permanently accessible on our website at https://www.jenoptik.com under the category Investors / Corporate Governance

The JENOPTIK AG Executive Board and Supervisory Board affirm their commitment to responsible corporate governance and control, geared towards lasting value creation. They see good corporate governance as the foundation for sustained corporate success and, at the same time, an important contribution to strengthening the trust in Jenoptik on the part of shareholders, business partners, employees and the general public.

The Executive and Supervisory Boards structure their policies to adhere to the recognized standards and support the recommendations of the "Government Commission on the German Corporate Governance Code" ("Code").

In the year covered by the report, the management and supervisory bodies of JENOPTIK AG have again dealt in depth with implementation of the provisions of the Code. The Executive and Supervisory Boards issued the current Declaration of Conformity in adherence with § 161 of the German Stock Corporation Act (AktG) in December 2019. It is permanently available to shareholders on the company's website. Jenoptik has also followed the recommendations contained in the Code – with one exception. If changes should arise in the future, the Declaration of Conformity will be updated during the year.

Declaration of Conformity by the Executive Board and Supervisory Board of JENOPTIK AG in the 2019 Fiscal Year

According to § 161 Para. 1, Sent. 1 of the German Stock Corporation Act (AktG), the Executive Board and Supervisory Board of a listed company are required to issue annually a declaration that the recommendations of the "Governmental Commission on the German Corporate Governance Code" as published by the Federal Ministry of Justice in the official section of the Federal Gazette [Bundesanzeiger] have been and are complied with, or to indicate which recommendations have not been or are not applied and why not.

The Executive Board and Supervisory Board of JENOPTIK AG support the recommendations of the "Governmental Commission on the German Corporate Governance Code," and state that pursuant to § 161 Para. 1, Sent. 1 of the German Stock Corporation Act:

Since the last Declaration of Conformity in December 2018, the recommendations of the "Governmental Commission on the German Corporate Governance Code" ("Code") in the version dated February 7, 2017 have been followed and will be followed in the future with the following exception:

In accordance with Point 5.4.1. Para. 2, Sent. 2 of the Code, the Supervisory Board shall specify a regular limit to the Supervisory Board members' term of office when naming concrete objectives regarding its composition.

This recommendation has not been complied with not and will not be complied with in the future. The Supervisory Board has decided not to specify a regular limit regarding the Supervisory Board members' term of office. Such limit is not consistently compatible with the procedure for elections of employee representatives to the Supervisory Board as stipulated in the German Co-Determination Act.

December 11, 2019 | JENOPTIK AG

On behalf of the Executive Board	On behalf of the Supervisory Board
Dr. Stefan Traeger	Matthias Wierlacher

Annual General Meeting

JENOPTIK AG shareholders exercise their rights at the Annual General Meeting which takes place at least once a year. Each share is accorded one vote – there are no special voting rights. Since September 2018, the shares of JENOPTIK AG have been registered shares. The holders of the shares must be entered in the share register of JENOPTIK AG and disclose the information required by law and the Articles of Association. Only shareholders recorded in the share register are entitled to vote at the Annual General Meeting. They may either participate directly in the Annual General Meeting, or exercise their voting rights via a company-nominated proxy who is bound by the shareholder's instructions, via postal voting, or by authorizing a person of their choice. The shareholders are adequately supported by the company in this process. The reports as well as other documents and information required by law for the Annual General Meeting are available for inspection on our website www.jenoptik.com in the Investors / Annual General Meeting category or at the company's premises. Following the Annual General Meeting, the attendance figures, voting results and the speech by a representatives of the Executive Board will also be published on the Internet.

Transparent Information

As part of our investor relations work, we report comprehensively on the position and development of the company. In doing so, we follow the principle of providing the participants in the capital market as well as the general public with equal, continual, and current information in order to guarantee as much transparency as possible. Together with the Executive Board, the investor relations team is in regular and intensive contact with participants in the capital market at roadshows, capital market conferences, and other events.

We use the financial reports and releases to provide extensive information about the Group's earnings, assets, and finances four times a year. In addition, important events and current developments are reported in press releases and, where necessary, ad-hoc announcements. These documents, presentations, the financial calendar, the Articles of Association and further information are also available in German and English on the Jenoptik website at www.jenoptik.com.

For further information on investor relations activities, please refer to the section "The Jenoptik share"

In accordance with the statutory requirements of the EU Regulation on Market Abuse, insider information is published immediately insofar as JENOPTIK AG is not, in individual cases, exempt from this obligation. The use of electronic distribution channels ensures that the reports are published worldwide simultaneously in German and English.

Jenoptik immediately publishes major changes to its shareholder structure when it is informed that reportable voting rights threshholds have been reached, fallen below or exceeded. All publications are available on our website under the category Investors / Share / Voting rights announcements. Further information can also be found in the Notes in the section on Equity.

Directors' Dealings

In the 2019 fiscal year, none of the members of the Executive Board or the Supervisory Board or persons closely related to them disclosed any reportable securities transactions pursuant to Article 19 of the EU Market Abuse Regulation.

Directors' Dealings reports from prior years can be found at www.jenoptik.com under the category Investors / Corporate Governance/Directors' Dealings

Executive Board and Supervisory Board Remuneration

As of December 31, 2019, as in prior years, the Jenoptik Group had securities-oriented incentive plans in the form of so-called performance shares for the members of the Executive Board and long-term incentives based on virtual shares for parts of senior management.

Further information on the remuneration system for the Executive Board and Supervisory Board can be found in the Remuneration Report and Notes

Accounting and Auditing

Jenoptik prepares the Consolidated Financial Statements as well as all Consolidated Interim Financial Statements in accordance with the International Financial Reporting Standards (IFRS) and the additional requirements of commercial law according to § 315e (1) of the German Commercial Code (HGB), as they are to be used in the European Union. JENOPTIK AG's Annual Financial Statements, which are decisive for the dividend payment, are compiled in accordance with the requirements of the German Commercial Code (HGB) and the German Stock Corporation Act. The Consolidated Financial Statements and the Annual Financial Statements, including the Combined Management Report, are examined by the auditor. On June 12, 2019, the Annual General Meeting selected Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart ("EY") as the auditor for the 2019 fiscal year on the recommendation of the Supervisory Board. It was initially appointed in the 2016 fiscal year following an external tender. The position of responsible auditor for the auditing of the Consolidated Financial Statements and the Annual Financial Statements as well as the Combined Management Report was taken on for the first time by Steffen Maurer.

Detailed information on opportunity and risk management and on internal auditing can be found in the Opportunity and Risk Report from page 117 on

The Supervisory Board has agreed with the auditor that he shall inform the Supervisory Board chairman of any grounds for bias or disqualification, as well as of all important events and findings that emerge during the audit. This includes occasions when inaccuracies are established during the audit in the Declaration of Conformity submitted by the Executive Board and Supervisory Board in accordance with § 161 of the German Stock Corporation Act (AktG).

Before submitting the proposal for the election of the firm to the Annual General Meeting, the Supervisory Board received a declaration of independence from the auditing firm, stating that there were no employment, financial, personal or other links between EY, its board members and audit managers on the one side and the company and its board members on the other, that could give rise to doubts about the independence of the auditor. EY also reported in its declaration on the degree to which non-audit services have been provided for Jenoptik over the past fiscal year or which have been contractually agreed for the current year. In the summer of 2019, the Audit Committee reviewed EY's non-audit services provided in the past year and updated the catalog of approved, predefined non-audit services.

Internal Audit

With the objective of improving business processes and thereby strengthening compliance and corporate governance within the company, Internal Audit at Jenoptik provides independent and objective auditing and consulting services for the Executive and Supervisory Boards. Internal Audit serves to safeguard operational practices and, in particular, monitors compliance with the principles of correctness and legality.

Risk and Opportunity Management

For Jenoptik, the continuous and responsible evaluating of opportunities and risks which may result from entrepreneurial activity is included in the basic principles of responsible company management. The goal of our risk and opportunity management is to support the implementation of the strategy and to define measures which create an optimum balance between growth and return targets on the one side and the associated risks on the other.

Compliance

We see success in business and responsibility for our actions as being two inextricably interlinked objectives. Compliance with statutory provisions and internal rules and regulations is therefore also part of responsible corporate management for Jenoptik. The observance of national and internationally recognized compliance requirements is an integral part of our risk prevention and the processes of the Jenoptik compliance management system (CMS). The CMS is based on the Jenoptik values, our Code of Conduct, and various group guidelines and process descriptions from Jenoptik, compliance with these is a fundamental requirement for maintaining the trust of our business partners, shareholders and the public in the performance and integrity of Jenoptik. For us, essential factors for responsible conduct with all stakeholders include respect, fairness, and openness. Within the Executive Board, Dr. Stefan Traeger, the Chairman, is responsible for Compliance & Risk Management. Global compliance activities are coordinated by the center of excellence in Germany and supported by local experts in the North America and Asia/Pacific regions.

Our Code of Conduct summarizes the most important principles of conduct and is equally binding on all employees of the Jenoptik Group. It sets out minimum standards and serves as an orientation framework to establish maximum integrity as well as ethical and legal standards at Jenoptik.

In the event of questions regarding the Code of Conduct or suspected illegal or unlawful matters, all Jenoptik employees may speak in confidence to the respective executive or the contact persons named in the Code. All employees may also use the reporting system (whistleblowing system) on the Jenoptik intranet, by telephone or via email to report significant violations that must be handled confidentially.

With the group guidelines implemented for key business processes, the Jenoptik Group has a system of processes and controls to identify possible deficits in the company at an early stage and to be able to minimize or eliminate them with appropriate measures. The group guidelines were revised in 2019 in a structured process involving the central departments, divisions and regions. The revised version reduces the scope of content regulated at group level and, for the first time, provides a globally uniform framework. Central departments, divisions and regions can reinforce their respective requirements with more detailed regulations. The guidelines are reviewed annually, and extended or updated as necessary. The guidelines are available to all employees worldwide in various languages via intranet portals and an obligatory read receipt is requested. The new structure of the group guidelines has been valid since January 1, 2020.

In order to familiarize employees with these topics and to improve employee awareness, regular online training courses and classroom events on subjects relevant to compliance, such as anti-corruption, anti-trust law as well as data protection, are regularly held at both the German and foreign business units. The aim is to create company-wide uniform understanding of our compliance standard. In addition to the main training courses offered as part of onboarding training for new employees, employees are also required to participate in mandatory e-learning refresher courses. The aim is to provide the employees with the content of important compliance topics on a continuous basis, but at least once a year, and to then verify this with a test. In addition, employees can contact the central Compliance & Risk Management department with any questions relating to compliance or risk issues at Jenoptik as well as use a help desk on the intranet or an app on their smartphones.

Corporate Governance and Supervision

As a multinational stock corporation with its registered office in Germany, JENOPTIK AG is subject to German stock corporation law. It therefore has a dual management system consisting of an Executive Board and a Supervisory Board. The Executive Board is responsible for running the company in the interests of the company and with the aim of achieving sound corporate development. It takes into account the concerns of all stakeholders, in particular shareholders and the Group’s employees. The Supervisory Board appoints, advises, and monitors the Executive Board in its leadership of the company. Information, including information on important methods of corporate governance as well as a description of the working methods of the Executive Board and Supervisory Board, can be found in the Corporate Governance Statement.

Corporate Governance Statement

The Corporate Governance Statement in accordance with §§ 289 f, 315 d of the German Commercial Code (HGB) is an unaudited part of the Combined Management Report. In addition to the methods of corporate governance mentioned above as well as the description of the function of the Executive Board and Supervisory Board, it contains the Declaration of Conformity in accordance with § 161 of the German Stock Corporation Act (AktG), a description of the structure and function of the committees of the Supervisory Board, the specification of the target figures for the proportion of women in the company as well as a description of the diversity concept followed for composition of the Executive and Supervisory Boards.

The Corporate Governance Statement as well as the current Declaration of Conformity and those of previous years, are permanently accessible at www.jenoptik.com under the category Investors/Corporate Governance

For the Code of Conduct see www.jenoptik.com in the category Investors/Corporate Governance

Further information on compliance and supplier management can also be found in the chapter "Non-financial Report"

More detailed information on the specification of target figures for the quota of women can be found at www.jenoptik.com in the category Investors / Corporate Governance

Objectives for the Composition and Skills Profile of the Supervisory Board

In accordance with Point 5.4.1 of the German Corporate Governance Code, the Supervisory Board of JENOPTIK AG is composed in such a way that, as a whole, its members are endowed with the knowledge, ability and experience necessary to carry out their tasks in an orderly manner. Taking into consideration the size and purpose of the company as well as the international orientation of the Jenoptik Group, the Supervisory Board has laid down objectives for its composition which take into consideration the idea of diversity. The Supervisory Board has also drawn up a requirements and skills profile to ensure that the Supervisory Board has all the skills and experience deemed essential for the activities of the Jenoptik Group. In addition, members should have sufficient time to exercise their mandate. It is the opinion of the Supervisory Board that the required skills include, in particular:

- in-depth experience supervising a listed company,
- financial and business skills, personnel expertise, distribution and sales experience,
- company-related skills in the following areas: digitalization, technology, strategy and growth / M&A, markets and internationality, entrepreneurship / management and capital markets,
- CEO experience, also in a listed company.

It is the opinion of the Supervisory Board that the above-mentioned requirements are largely fulfilled by the abilities, experiences and skills that are available in the Supervisory Board. The skills, abilities and experiences of the individual members of the Supervisory Board can be found in the CVs, which are published on our website at www.jenoptik.com under the category Investors / Corporate Governance / Supervisory Board.

In accordance with its Diversity Statement, the Supervisory Board will ensure that it comprises members who fulfill the criterion of internationality at all times.

Furthermore, the Supervisory Board should include at least four women. Thus, the quota of at least 30 percent required by the German Stock Corporation Act is met.

With regard to the length of service, the Supervisory Board has decided not to establish a regular limit applicable to all members as it is not consistently compatible with the process provided by the Codetermination Act for election of employee representatives to the Supervisory Board.

In addition, the members of the Supervisory Board will play neither an advisory nor an executive role with customers, suppliers, creditors or other business partners of JENOPTIK AG, if this leads to a significant and not merely temporary conflict of interest.

One of the objectives for the composition of the Supervisory Board is also that at least half of the shareholder representatives must be independent. It is the opinion of the Supervisory Board that all current shareholder representatives are independent in the sense of the Code as amended on February 7, 2017. No persons are to be considered who, at the time of election, have already reached the age of 70.

In its elections to the Supervisory Board, the Supervisory Board shall recommend to the Annual General Meeting the candidates it considers to be the most suitable for election, taking into account their expertise and personal integrity.

Further information on the Executive Board and the Supervisory Board, in particular on their working methods, including the work in the committees, participation in the meetings, on other mandates exercised by the members as well as on implementation of the objectives regarding composition of the Supervisory Board can be found in the Report of the Supervisory Board from page 20 on and in the Group Notes to this Annual Report from page 206 on as well as the Corporate Governance Statement under www.jenoptik.com in the category Investors / Corporate Governance.

Information and Notes relating to Takeover Law

Explanatory report in accordance with § 176 (1) (1) of the German Stock Corporation Act (AktG) and reporting on § 289 a and § 315 a of the German Commercial Code (HGB) in accordance with the German Takeover Directive Implementation Act

This information is part of the Combined Management Report.

1. Composition of the share capital

As of the balance sheet date on December 31, 2019, the subscribed capital totaled 148,819 thousand euros (prior year: 148,819 thousand euros). It is divided into 57,238,115 no-par registered value shares (prior year 57,238,115). Each share is therefore worth 2.60 euros of the nominal capital.

The same rights and obligations apply to all the shares of the company. Each share represents one vote in the Annual General Meeting and is the determining factor for the shareholders' proportion of company profits (§ 58 (4), § 60 of the German Stock Corporation Act). The shareholders' rights also include the subscription right to shares in the event of increases in capital (§ 186 of the German Stock Corporation Act). In addition, the shareholders are entitled to administrative rights, e.g. the right to participate in the Annual General Meeting and the authority to put forward questions and motions and to exercise their right to vote. The shareholders' additional rights and duties are defined in the German Stock Corporation Act, in particular in § 12, § 53a ff., § 118 ff., and § 186. Under § 4 (3) of the Articles of Association, any claim by a shareholder to the securitization of their shares is excluded.

2. Restrictions relating to voting rights or the transfer of shares

In accordance with § 136 (1) of the German Stock Corporation Act, legal restrictions affecting voting rights exist with respect to votes for approval of the actions regarding shares which are held directly or indirectly by members of the Executive and/or Supervisory Boards. Violations of reporting obligations as specified in § 33 (1) or (2) and § 38 (1) or § 39 (1) of the German Securities Trading Act (WpHG) may nullify voting rights, at least temporarily, in accordance with § 44 of this Act.

Pursuant to § 67 (2) of the German Stock Corporation Act, only shareholders recorded in the share register are deemed to be shareholders in relation to JENOPTIK AG. To be recorded in the share register, shareholders must provide JENOPTIK AG with the information required by law (name or company name, address, registered office if applicable, date of birth and number of shares they hold); email addresses and their respective changes to be provided in accordance with the Articles of Association to facilitate communication. Also to be disclosed in accordance with the Articles of Association is the extent to which the shares belong to the person who is recorded as the holder in the share register. Shareholders who do not comply with these disclosure obligations may not exercise their voting rights pursuant to § 67 (2) (2) and (3) of the German Stock Corporation Act.

3. Direct or indirect participations in the capital exceeding 10 percent of the voting rights

Information on direct or indirect investments in capital which exceed ten percent of the voting rights can be found in the Group Notes under item 8.6.16, "Equity", from page 179.

4. Holders of shares with special rights conferring controlling powers

There are no shares in JENOPTIK AG that entail special rights.

5. Form of controlling voting rights if employees own shares and do not directly exercise their control rights

There are no employee shareholdings and therefore no resultant control of voting rights.

6. Statutory regulations and provisions of the Articles of Association relating to the appointment and dismissal of Executive Board members and changes to the Articles of Association

The appointment and dismissal of Executive Board members is carried out exclusively in accordance with the statutory regulations of § 84 and § 85 of the Stock Corporation Act and § 31 of the Codetermination Act (MitbestG). In accordance with this, the Articles of Association stipulate in § 6 (2) that the appointment of members to the Executive Board, the revocation of their appointment and the conclusion, modification and termination of contracts for services with members of the Executive Board shall be carried out by the Supervisory Board. In accordance with § 31 (2) of the Codetermination Act, a majority of at least two thirds of the members of the Supervisory Board is required for the appointment of Executive Board members. Revocation of appointment as a member of the Executive Board is only possible for serious due cause (§ 84 (3) of the Stock Corporation Act).

§ 6 (1) (1) of the Articles of Association stipulates that the Executive Board of JENOPTIK AG must comprise at least two members. In the absence of a required Executive Board member, in urgent cases the court must appoint the member on the application of a party involved (§ 85 (1) (1) of the Stock Corporation Act). The Supervisory Board can appoint a Chairman of or Spokesperson for the Executive Board (§ 84 (2) of the Stock Corporation Act, § 6 (2) (2) of the Articles of Association).

In accordance with § 119 (1) (5), § 179 (1) (1) of the Stock Corporation Act, changes to the content of the Articles of Association are passed by the Annual General Meeting. However, changes relating purely to the wording of the Articles of Association may be passed by the Supervisory Board in accordance with § 179 (1) (2) of the Stock Corporation Act in conjunction with § 13 (3) of the Articles of Association. This also includes the corresponding change to the Articles of Association following the utilization of the Authorized Capital 2019 and of the Conditional Capital 2017. According to § 24 (1) of the Articles of Association, resolutions by the Annual General Meeting require a simple majority of the votes cast unless stipulated otherwise by law. In those cases in which the law requires a majority of the nominal capital represented for a resolution to be passed, a simple majority of the nominal capital represented is sufficient, unless specified otherwise by the law.

7. Authority of the Executive Board to Issue and Buy back Shares

In accordance with § 4 (5) of the Articles of Association, the Executive Board is authorized until June 11, 2024, with the consent of the Supervisory Board, to increase the nominal capital of the company by up to 44.0 million euros through one or multiple issues of new, no-par value shares against cash and/or contribution in kind ("Authorized Capital 2019"). With the consent of the Supervisory Board, the Executive Board is authorized to preclude subscription rights for shareholders in certain cases: a) fractional amounts; b) capital increases against contributions in kind in particular also within the framework of business combinations or the acquisition of companies, units of companies or investments in companies (including increasing existing investments) or other contributable assets in conjunction with such an intended acquisition as well as claims against the entity; c) capital increases against cash contributions, under the condition that the percentage of any new shares in the share capital does not in total exceed 10 percent of the share capital at the time the authorized shares are registered or in total 10 percent of the share capital at the time the new shares are issued, taking into consideration resolutions of the AGM or the use of other authorizations to exclude subscription rights in a direct or corresponding application of § 186 (3) (4) of the German Stock Corporation Act since the effective date of this authorization and the issuance price of the new shares is not significantly lower than the stock market price; d) issuances of new shares to employees of the entity and to associates in which the entity holds a majority interest.

All aforementioned authorizations to exclude subscription rights are limited to a total of 10 percent of the share capital available at the time this authorization became effective – or, if this value is lower, to 10 percent of the share capital at the time this authorization is exercised. This limit of 10 percent includes shares that (i) are sold for the purpose of servicing warrants and/or convertibles that were or could still be issued during the period of validity of authorized capital to the exclusion of subscription rights or (ii) are sold by the entity as treasury shares during the period of validity of authorized capital to the exclusion of subscription rights. Decisions on the details of the issuance of new shares, in particular their conditions and the content of rights of the new shares, are taken by the Executive Board, with the consent of the Supervisory Board. The Authorized Capital 2019 has not yet been utilized.

A shareholder resolution passed at the Annual General Meeting on June 7, 2017 empowered the Executive Board, with the consent of the Supervisory Board, to issue option and/or convertible bonds with a maximum total nominal value of 250 million euros. In order to grant shares to the holders/creditors of such option and/or convertible bonds, the company's nominal capital is conditionally increased by up to 28.6 million euros through the issue of up to 11 million new no-par value shares ("Conditional Capital 2017") in accordance with § 4 (6) of the Articles of Association. The conditional capital increase will be implemented only to the extent that

- creditors or holders of option and/or conversion rights arising from option and/or convertible bonds issued by the entity, or by a domestic and/or foreign corporation in which the entity either directly or indirectly holds a majority interest, make use of their option or conversion rights by June 6, 2022 as resolved by the shareholders in their Annual General Meeting resolution dated June 7, 2017, and/or
- the creditors of the issued convertible bonds obliged to exercise their conversion rights issued by the company or a domestic or foreign company in which the company has a direct or indirect majority stake, on the basis of the resolution of the Annual General Meeting on June 7, 2017, fulfill their conversion rights and/or the shares are tendered by June 6, 2022

and neither treasury shares are used nor is payment made in cash. The new shares participate in profits from the start of the fiscal year for which, on the date of their issue, no resolution has yet been passed by the Annual General Meeting in respect of the appropriation of profits.

The Executive Board is authorized, with the consent of the Supervisory Board, to exclude the subscription rights of shareholders to the bonds under certain circumstances. Authorization to exclude subscription rights is, however, limited in the sense that the pro rata amount of nominal capital corresponding to those shares that must be issued after exercising conversion and/or option rights/obligations may not account for more than 20 percent of existing nominal capital existing at the time this authorization takes effect or – if the figure is lower – at the time use is made of the authorization. This 20 percent limit also applies to the sale of treasury shares that are excluded from subscription rights during the period of this authorization, and to shares excluded from subscription rights that are issued under authorized capital during the period of this authorization.

The Executive Board is authorized to set out the further details relating to the increase in conditional capital (e.g. terms of the bonds, interest rate, form of interest, specific term, denomination, issue price, option/conversion price, option/conversion period) in the bond terms and conditions.

Further details regarding the resolved authorization can be found in agenda item 8 in the invitation to the 2017 Annual General Meeting, accessible on our website at www.jenoptik.com in the category Investors/Annual General Meeting. The authorization to issue option and/or convertible bonds has not yet been utilized.

According to a resolution passed by the Annual General Meeting on June 5, 2018, the Executive Board is authorized up to June 4, 2023 to purchase treasury no-par value shares not exceeding a proportion of 10 percent of the nominal capital existing at the time the resolution is adopted or – if this amount is lower – at the time of exercising the resolution for purposes other than trading in its own shares. The purchased treasury shares together with treasury shares that the entity had already purchased and still holds (including the attributable shares in accordance with §§ 71a ff. of the German Stock Corporation Act) may not exceed 10 percent of the share capital of the entity. The authorization may be exercised in whole or in part, on a one-off or repeat basis and for one or more authorized purposes. The purchase and sales of treasury shares may be exercised by the company or, for specific authorized purposes, by dependent companies, by companies in which the company holds a majority interest, or by third parties for its or their account. At the decision of the Executive Board, acquisition is subject to compliance with the principle of equal treatment (§ 53a of the Stock Corporation Act), by purchase via the stock exchange or by means of a public offering or a public invitation to the shareholders to submit an offer for sale. For the purpose of protecting shareholders against a dilution of their shares, the proposed resolution expressly provides for a restriction of the use of acquired treasury shares in such a way that the total of the acquired shares together with shares issued or sold by the company during the term of this authorization under another authorization to the exclusion of shareholders' subscription rights or which enable or oblige the subscription of shares is limited to a total of 20 percent of the nominal capital at the time the authorization becomes effective or – if the following value is lower – at the time this authorization is exercised. Further details regarding the buyback of shares are described in agenda item 9 in the invitation to the 2018 Annual General Meeting, accessible on our website at www.jenoptik.com in the category Investors / Annual General Meeting. As of December 31, 2019, the company had no treasury shares.

8. Key agreements in the event of a change of control resulting from a takeover bid

Clauses in contracts concluded by JENOPTIK AG, which apply in the event of a change in control within the ownership structure of JENOPTIK AG following a change of control, exist for the financing agreements described below with a total utilized volume of approximately 104.4 million euros (prior year: 120.0 million euros).

The conditions for accepting a change in control are formulated differently in each of the loan agreements. For the debenture loan with a total utilized volume of 90.5 million euros, a change in control gives the lenders the right to special termination of the loan in the amount corresponding to their share of the total volume and to demand the immediate repayment of this sum plus the interest accumulated up to the repayment date.

A change of control applies if one or more persons acting in concert, with the exception of the existing main shareholders on the date the contract is concluded, acquire more than 50 percent of the outstanding nominal capital or more than 50 percent of the voting rights, directly or indirectly at any time.

Under the revolving syndicated loan signed in 2015, any change in the current shareholder base of JENOPTIK AG, under which at least 50 percent of the shares or voting rights are held by one or several persons acting in concert as described in § 2 (5) of the Securities Acquisition and Takeover Act (WpÜG), results in the possibility of refusing further disbursements and immediate termination of loan commitments in full or in part within up to 15 banking days following notification of the change of control and any disbursements executed becoming due, in full or in part, with an execution period of 16 banking days, including subsidiary credit lines and accrued interest. The syndicated loan has a total volume of 230 million euros, of which 13.9 million euros had been utilized by December 31, 2019 (prior year: 17.0 million euros).

9. Compensation agreements by the company with Executive Board members or employees in the event of a change of control

No right to give notice of termination in the event of a change of control, i.e. the acquisition of at least 30 percent of voting rights by a third party, has been agreed with the members of the Executive Board. In such cases, they also have no claim to any severance payment. If the premature termination of an Executive Board role is agreed with an Executive Board member due to a change of control, the amount of the agreed severance payment is limited to a maximum of three years' annual compensation. Under no circumstances, however, may the severance payment be higher than the compensation due for the remaining term of the service contract.

Remuneration Report

Remuneration for the Executive Board

The Remuneration Report below sets out the basic principles of the remuneration system for the members of the Executive Board and Supervisory Board and gives details of the total remuneration for the individual members. This information is part of the Combined Management Report.

Executive Board Remuneration System

Following preparation by the Personnel Committee, the Supervisory Board is responsible for defining the remuneration system and the composition of the remuneration for the individual Executive Board members. The criteria for defining the appropriateness of the remuneration for the Executive Board of Jenoptik are primarily the respective tasks and areas of responsibility of the members of the Executive Board, their personal performance, as well as the economic situation, the success of the company and its future prospects. Standard practice within the comparative environment and in relation to established comparative groups within the company is another factor in the remuneration.

The remuneration for the Executive Board of Jenoptik consists of non-performance-related and performance-related components. The system of performance-related remuneration of the Executive Board, applicable in 2019, was appoved by the Supervisory Board with the assistance of an independent external remuneration adviser in 2016/2017.

The system of one-year variable remuneration was adjusted with effect from January 1, 2020. Details of this can be found in section III. of this Remuneration Report.

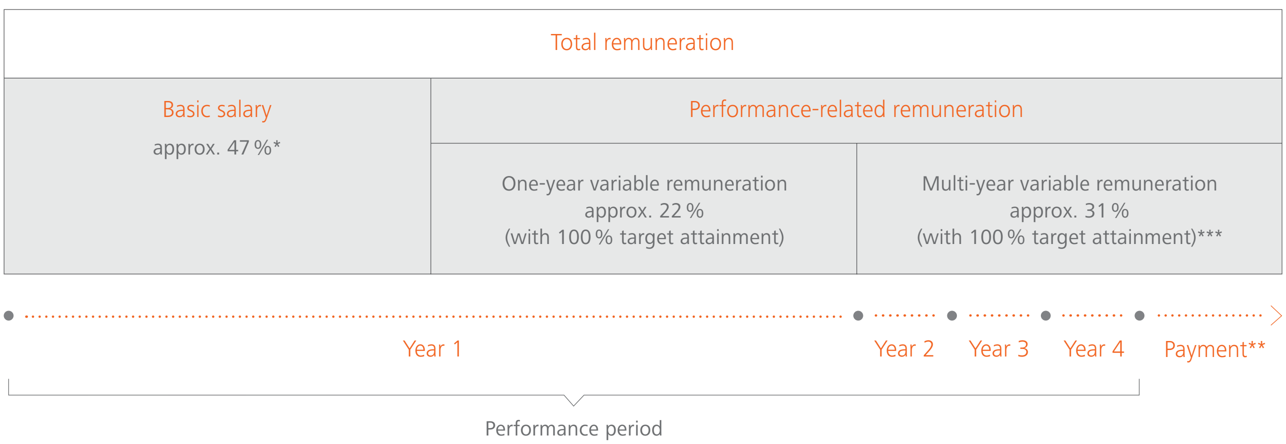
For Hans-Dieter Schumacher, the remuneration system applicable until 2017 will continue to have consequences, as the virtual shares allocated to him from 2015 to 2017 will be paid out in the years 2020 to 2022. Further details can be found in the 2017 Annual Report on page 46.

I. Non-performance-related remuneration

Fixed remuneration. The non-performance-related basic salary is paid on a pro rata basis each month. In 2019, it totaled 600 thousand euros for Dr. Stefan Traeger and 450 thousand euros for Hans-Dieter Schumacher.

Retirement benefits and fringe benefits. Agreements relating to occupational retirement benefits were concluded with the members of the Executive Board. The pension commitment is based on a pension fund reinsured by a life insurance policy. This is a defined contribution scheme within the framework of a provident fund. The annual and the long-term costs for Jenoptik are clearly defined. On reaching retirement age, the payments will no longer affect Jenoptik – with the exception of a possible subsidiary liability. The contributions for the provident fund totaled 200 thousand euros for Dr. Stefan Traeger and 160 thousand euros for Hans-Dieter Schumacher in 2019.

G05 The new Remuneration System of the Executive Board Members



* without fringe benefits
** payment of multi-year variable remuneration
*** based on constant share price

There is accident insurance and third-party financial loss liability insurance for the members of the Executive Board. The latter includes the contractual obligation to pay a deductible amounting to 10 percent of the loss per claim, however up to a maximum sum of 150 percent of the fixed remuneration of the Executive Board member in question. Executive Board members are also entitled to the private use of a company vehicle.

Non-competition clause. A post-contractual non-competition clause was agreed with Dr. Stefan Traeger for a period of one year following the end of his contract of employment. An amount equaling 50 percent of one annual salary is agreed as compensation for the non-competition clause. Prior to the termination of the employment relationship, Jenoptik may also waive the post-contractual non-competition clause by means of a written declaration.

II. Performance-rated remuneration components

The variable remuneration of the Executive Board is based on personal target agreements concluded with the respective member of the Executive Board in the first quarter of each calendar year. The objectives are oriented towards the company's sustainable business development.

The performance-related variable remuneration comprises two components:

The (one-year) bonus (approx. 40 percent of the variable remuneration) is based on the achievement of certain targets within a twelve-month period and is paid in cash in the subsequent year.

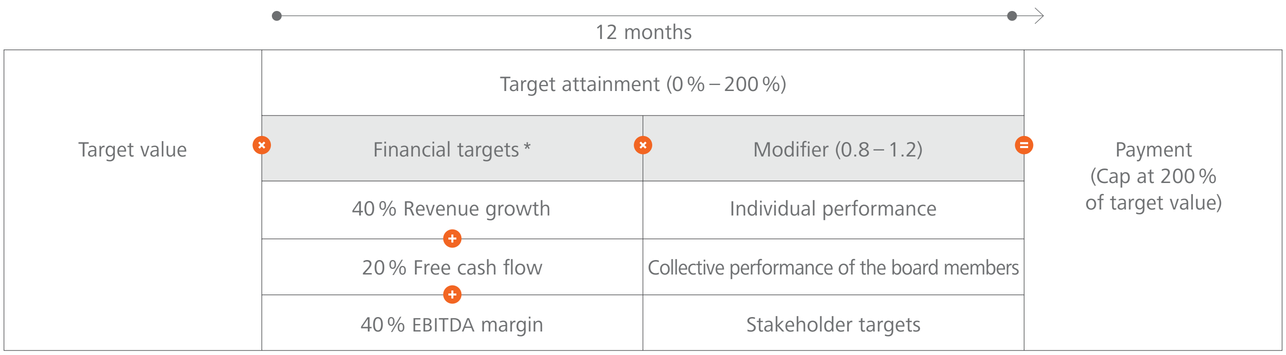
The second part of the performance-related variable remuneration (approx. 60 percent of the variable remuneration) is granted in the form of so-called performance shares. To this end, virtual shares are allocated to the members of the Executive Board on an annual basis. For each installment of performance shares granted, the target attainment is determined at the end of the four-year performance period and the amount resulting from a predefined calculation method is paid out in cash.

The performance-related variable remuneration can be between 0 euros and a maximum of 1,400 thousand euros for Dr. Stefan Traeger and between 0 euros and a maximum of 1,000 thousand euros for Hans-Dieter Schumacher. The value is 0 euros when less than 50 percent of all targets are achieved. For the respective maximum amount, 200 percent of all targets must be achieved.

Bonus. After the end of the fiscal year, the Supervisory Board determines the degree to which the financial targets for this component have been reached. The financial targets and their weighting for 2019 are shown in the chart below. G06

The yardstick for determining the degree of target attainment need not be linear, i.e. a target attainment of 200 percent does not necessarily require a doubling of the initial value of the financial key indicator. In the same way, a 50 percent target attainment does not necessarily have to be achieved at half of the originally defined financial baseline for 100 percent. The precise calibration of the targets is based on historical experience and future expectations, as well as the adopted budget of the respective year.

G06 One-year variable remuneration (bonus)



* Since 1/1/2020 adjusted financial targets, see III.

The financial targets agreed for 2019 are shown in table T04.

To take account of non-financial aspects, the bonus amount for the respective Board member resulting from the target attainment is then multiplied by a performance factor, the so-called multiplier. The value for this can be between 0.8 and 1.2. The multiplier is determined on the basis of the individual performance of the Executive Board member, the collective performance of the entire Executive Board, e.g. successfully executed acquisition projects, and certain stakeholder targets for example from the sustainability/corporate social responsibility, employee satisfaction or diversity areas. Even if the financial targets have been well achieved or exceeded, the Supervisory Board can use this multiplier to reduce the bonus by up to 20 percent in the sense of a malus system if, for example, the behavior of the Executive Board member strongly warrants it, but is not serious enough to justify termination or liability due to breach of duty or a reduction in remuneration in accordance with § 87 (2) of the German Stock Corporation Act (AktG) is not possible.

With 100% target attainment and a multiplier of 1.0, Dr. Stefan Traeger receives a one-year bonus of 300 thousand euros and Hans-Dieter Schumacher 200 thousand euros. In each case, the bonus for Dr. Stefan Traeger is limited to a maximum of 600 thousand euros and for Hans-Dieter Schumacher to 400 thousand euros. This part of the performance-related variable remuneration is paid in cash after the target settlement and adoption of the annual financial statements.

On the basis of its assessment of the individual and collective performances of the members of the Executive Board, the cooperation in the committees and the implementation of various stakeholder targets for the 2019 fiscal year, the Personnel Committee of the Supervisory Board has decided to propose to the Supervisory Board that a multiplier of 0.95 be used for both members of the Executive Board.

T04 The financial targets agreed for 2019

	Target attainment in %		
Target	100	50 (lower cap)	200 (upper cap)
Revenue growth in %	8.0	4.0	12.0
Free cash flow in million euros*	80.0	40.0	100.0
EBITDA margin in %	15.0	10.0	20.0

*Without acquisition effects

T05 Actual target attainment of the one-year variable remuneration for 2019 and payment in thousand euros

Target	Fiscal year 2019 Actually attained	Target attainment	Payment to Dr. Stefan Traeger	Payment to Hans-Dieter Schumacher
Revenue growth	2.5 %	< 50 %	0	0
Free cash flow*	78.3 million euros	97.88 %	58.7	39.2
EBITDA margin	15.7 %	114 %	136.8	91.2
Multiplier	0.95			
Total			**185.8**	**123.8**

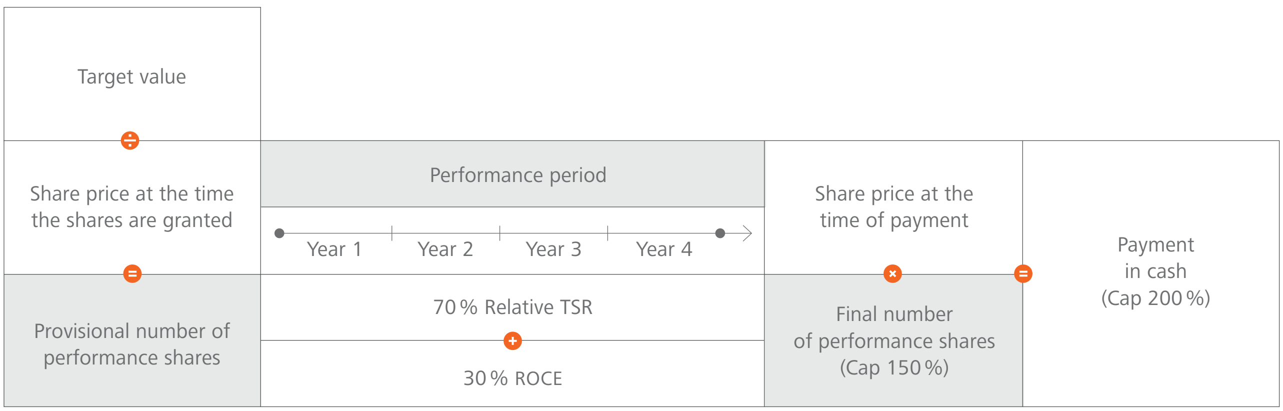
* Without acquisition effects

Performance Shares. Based on a value of 400 thousand euros for Dr. Stefan Traeger and 300 thousand euros for Hans-Dieter Schumacher, performance shares are to be allocated to the member of the Executive Board in the first quarter of each fiscal year. In order to calculate the provisional number of performance shares to be allocated, the initial value mentioned is divided by the volume-weighted average price (VWAP) of the Jenoptik share on the twenty trading days following the announcement of the preliminary annual figures. The VWAP for the specified 2019 period was 31.97 euros. Consequently, Dr. Stefan Traeger was provisionally allocated a total of 12,512 and Hans-Dieter Schumacher 9,384 performance shares (2019 installment). Long-term performance targets are agreed for each installment, the achievement of which is measured at the end of each four-year "performance period". For the performance shares provisionally allocated in 2019, the performance targets will be measured at the beginning of 2023. G07

The ROCE and relative TSR are calculated using the method described in the glossary on page 225. Again, the yardstick for determining the degree of target attainment need not be linear here. T06

Depending on the level of target achievement, the number of performance shares to be finally allocated is determined at the end of the four-year performance period. Their quantity is limited to one and a half times the number of provisionally allocated performance shares ("allocation cap"). If the level of target attainment is less than 50 percent, the entitlement to final allocation of performance shares shall no longer apply.

G07 Multi-year variable remuneration



T06 Performance targets and their weighting for the 2019 installment of the performance shares

Targets	100 % target attainment	50 % target attainment	150 % target attainment	Weighting
Return on capital employed – ROCE	16 % average over the performance period	11 % average over the performance period	21 % average over the performance period	30 %
Relative total shareholder return – TSR	Outperformance of the Jenoptik share against the TecDax 5 %	Underperformance of the Jenoptik share against the TecDax in the amount of minus 20 %	Outperformance of the Jenoptik share against the TecDax 30 %	70 %

The number of finally allocated performance shares is multiplied by the VWAP of the Jenoptik share on the twenty trading days following the announcement of the preliminary annual figures for the last fiscal year of the performance period. The resulting amount shall be paid in cash after the adoption of the annual financial statements. The payout amount is limited to a maximum of 200 percent of the initial value: for Dr. Stefan Traeger to 800 thousand euros and Hans-Dieter Schumacher to 600 thousand euros ("Payout Cap").

The system of remuneration with performance shares is summarized as follows:

Year 1: Agreement of a performance target for the year 1 installment ("Installment 1") with the member of the Executive Board; provisional allocation of performance shares for Installment 1; calculation of the provisional number by dividing the initial value by a VWAP determined in year 1.

Years 1–4: Performance period for Installment 1.

Year 5: Measurement of target attainment, from which determination of the number of final performance shares to be allocated for Installment 1, taking into account the allocation cap; multiplication of this final number by a VWAP determined in year 5. Payment of this amount to the member of the Executive Board, taking into account the payout cap.

In the event of termination of the Executive Board mandate, performance shares which have not yet been allocated finally, but only provisionally, shall not be prematurely finally allocated and paid out, but evaluated, allocated and then paid out in accordance with the regular procedure at the end of the respective performance period. Should JENOPTIK AG terminate the employment relationship for a good reason for which the member of the Executive Board is responsible, all provisionally allocated performance shares for which the performance period has not yet expired shall be forfeited without substitution or compensation.

Dr. Stefan Traeger and Hans-Dieter Schumacher are not entitled to payment of bridging payments following their departures. Nor was any right of termination agreed with them in the event of a change of control.

III. Changes to the remuneration system from 2020

The target metrics of one-year variable remuneration for the Executive Board, the bonus, was adjusted with effect from January 1, 2020. Accordingly, 30 percent of the bonus is reached at 100 percent if the revenue growth in the annual plan adopted by the Supervisory Board for the Jenoptik Group is achieved for the corresponding year. 10 percent of the bonus is reached at 100 percent if a certain level of revenue attributable to new acquisitions is achieved. 40 percent of the bonus is calculated on the basis of the EBITDA margin contained in the annual plan. The previous free cash flow target, which still represents 20 percent of the bonus, will be replaced by a target that is 100 percent achieved if the ratio of free cash flow to EBITDA for the year in question (the so-called "cash conversion rate") reaches the value in the annual plan adopted by the Supervisory Board. With the exception of the acquisition target, unplanned amounts from acquisitions or divestments of companies or parts of companies shall not be taken into account in the target settlement.

In the course of the reappointment of Dr. Stefan Traeger as Chairman of the Executive Board for the period from July 1, 2020 to the end of June 30, 2025, which was resolved by the Supervisory Board on July 29, 2019, the remuneration system for the Executive Board was adjusted in further points with effect from July 1, 2020. Should the Annual General Meeting reject the remuneration system and/or the remuneration report, the members of the Executive Board shall enter into discussions on an adaptation of the remuneration system. In addition, a right of the Company to repayment of the multi-year variable remuneration (so-called clawback) was agreed if, within three years of its payment, it becomes apparent that one of the audited and approved consolidated financial statements during the four-year performance period was objectively incorrect and therefore had to be subsequently corrected in accordance with the relevant accounting standards.

An adjustment of the level of remuneration was agreed with Dr. Stefan Traeger as follows:

T07 Remuneration of Dr. Stefan Traeger

in thousand euros	Fixed remuneration	Bonus (with 100% target attainment and a multiplier of 1.0)	Initial value Performance Shares
since May 2017	600.0	300.0	400.0
from July 2020	650.0	320.0	430.0
from July 2023	700.0	340.0	460.0

For the amount of any settlement in the event of a change of control, see the chapter on Information and Notes Relating to Takeover Law on page 41

T08 Remuneration of the Executive Board – Benefits granted

	Dr. Stefan Traeger President & CEO				
	2019				2018
in euros	Actual	Minimum	100 %	Maximum	
Fixed remuneration	600,000	600,000	600,000	600,000	600,000
Fringe benefits	18,034	18,034	18,034	18,034	14,956
Total	**618,034**	**618,034**	**618,034**	**618,034**	**614,956**
One-year variable remuneration	185,752	0	300,000	600,000	521,664
Multi-year variable remuneration	376,248	0	400,000	800,000	324,274
Thereof performance shares 2019 (performance period until 2022)	376,248 *	0	400,000	800,000	0
Thereof performance shares 2018 (performance period until 2021)	0 *	0	0	0	324,274
Thereof LTI dividends on outstanding LTI tranches	n. a.	n. a.	n. a.	n. a.	n. a.
Total	**1,180,034**	**618,034**	**1,318,034**	**2,018,034**	**1,460,894**
Pension contribution	200,000	200,000	200,000	200,000	200,000
Total remuneration	**1,380,034**	**818,034**	**1,518,034**	**2,218,034**	**1,660,894**

* fair value at the time of provisional allocation

Total Remuneration for the Individual Members of the Executive Board

The tables T08 and T09 contain a list of the remuneration components granted to Dr. Stefan Traeger and Hans-Dieter Schumacher in the fiscal year just past. The summaries differentiate between six components – fixed remuneration, fringe benefits, performance-related variable remuneration with one-year (bonus) and multi-year calculation base (performance shares) and pension contributions.

Based on the degree to which the target for the bonus has been achieved (see table 05) and using the multiplier of 0.95 recommended by the Personnel Committee, the variable remuneration for the 2019 fiscal year for Dr. Stefan Traeger will be 185.8 thousand euros in cash and for Hans-Dieter Schumacher 123.8 thousand euros in cash, subject to the consent of the Supervisory Board. For the 2019 installment, Dr. Stefan Traeger was provisionally allocated a total of 12,512 performance shares and Hans-Dieter Schumacher 9,384 performance shares. Whether and to what extent the performance shares provisionally allocated in 2019 can be finally allocated and paid out in cash will be decided at the beginning of 2024, depending on the achievement of the multi-year targets agreed in 2019 (see table G07).

Further details on the share-based remuneration in the form of performance shares / virtual shares can be found in section 5.20 in the Notes on page 205. We consider this to also be an integral part of this Remuneration Report.

T08 Remuneration of the Executive Board – Benefits granted

	Hans-Dieter Schumacher, Executive Board member				
	2019				2018
in euros	Actual	Minimum	100 %	Maximum	
Fixed remuneration	450,000	450,000	450,000	450,000	437,500
Fringe benefits	18,390	18,390	18,390	18,390	18,337
Total	**468,390**	**468,390**	**468,390**	**468,390**	**455,837**
One-year variable remuneration	123,834	0	200,000	400,000	347,776
Multi-year variable remuneration	301,552	19,366	319,366	619,366	257,868
Thereof performance shares 2019 (performance period until 2022)	282,186 *	0	300,000	600,000	0
Thereof performance shares 2018 (performance period until 2021)	0 *	0	0	0	243,217
Thereof LTI dividends on outstanding LTI tranches	19,366	19,366	19,366	19,366	14,651
Total	**893,776**	**487,756**	**987,756**	**1,487,756**	**1,061,481**
Pension contribution	160,000	160,000	160,000	160,000	160,000
Total remuneration	**1,053,776**	**647,756**	**1,147,756**	**1,647,756**	**1,221,481**

* fair value at the time of provisional allocation

T09 Remuneration of the Executive Board – Inflow

	Dr. Stefan Traeger President & CEO		Hans-Dieter Schumacher, Executive Board member	
in euros	2019	2018	2019	2018
Fixed remuneration	600,000	600,000	450,000	437,500
Fringe benefits	18,034	14,956	18,390	18,337
Total	**618,034**	**614,956**	**468,390**	**455,837**
One-year variable remuneration	521,664	200,000	347,776	235,330
Multi-year variable remuneration	0	0	0	0
Total	**1,139,698**	**814,956**	**816,166**	**691,167**
Pension contribution	200,000	200,000	160,000	160,000
Total remuneration	**1,339,698**	**1,014,956**	**976,166**	**851,167**

Remuneration System for the Supervisory Board

Each member of the Supervisory Board receives a fixed annual remuneration of 40 thousand euros for their services. The Chairman of the Supervisory Board receives double and their deputy one-and-a-half times this amount.

In addition, each member of a committee receives an annual remuneration in the sum of 5 thousand euros per year. The Chairman of the committee receives double this amount. The annual remuneration for members of the Audit Committee, whose duties are particularly labor- and time-intensive, is 10 thousand euros. The Chairman of the Audit Committee receives double and their deputy one-and-a-half times this amount. Members of committees which have not met during the fiscal year receive no remuneration. Members of the Supervisory Board who have only served on the Supervisory Board or a committee for part of the fiscal year receive a pro rata temporis payment. All the aforementioned remuneration is payable on expiry of the fiscal year.

Information on the individual total remuneration for the members of the Supervisory Board see Group Notes page 208

The members of the Supervisory Board are paid a meeting allowance of 1 thousand euros for attending a meeting. Half of this amount is paid for participation in conference calls. The same applies from the second meeting on any day on which several meetings are convened. Verified expenses incurred in connection with a meeting are reimbursed in addition to the meeting allowance, but limited to an amount of 1 thousand euros for meetings held in Germany. JENOPTIK AG also reimburses the members of the Supervisory Board for any value added tax applicable to the payment of their remuneration.

The members of the Supervisory Board are covered by third-party financial loss-liability insurance. This comprises the contractual obligation to pay a deductible amounting to 10 percent of the loss per claim, however up to a maximum sum of 150 percent of the fixed remuneration per year of the Executive Board member in question.

In the 2019 fiscal year, 758.4 thousand euros (gross, after withholding tax in accordance with § 50a (1) (4) Income Tax Act (EStG)) were recognized as liabilities for the fixed remuneration of the Supervisory Board and its committees to be paid in January 2020. Jenoptik did not pay any other remuneration or benefits to the members of the Supervisory Board for services rendered personally by them, in particular consulting and intermediary services.

Combined Non-financial Report

» In short «

In the past fiscal year Jenoptik rose
the engagement score to

72 %

and thus by 4 percentage points.

The Combined Non-financial Report fulfils the requirements
of the CSR Directive Implementation Act.

Separate Combined Non-financial Report in accordance with the CSR Directive Implementation Act

Position and Business Model

More information on the business model and markets can be found from page 74

Jenoptik sees its entrepreneurial activity as more than purely the realization of commercial objectives; it is also something that brings with it an obligation to society and the environment. Together with our customers, we create forward-looking trends in the fields of energy efficiency, healthcare, the environment, mobility, and safety. As an international technology company, innovation is our driving force and the basis of our success in business. Our products allow us to make significant contributions to overcoming the societal challenges we face as well as to the conservation and efficient use of resources.

Since the beginning of 2019, Jenoptik has been operating in the new organizational structure with the Light & Optics, Light & Production, Light & Safety divisions, and VINCORION as an independent investment. Jenoptik mainly operates in the photonics market and is a supplier of high-quality capital goods. The Group is thus primarily a technology partner to industrial companies and public sector contractors.

Our Take on Sustainability

Our understanding of sustainability is based on the conviction that the best way to achieve our economic goals and lastingly profitable growth is to adopt a position of responsibility to the environment and society. To meet this requirement the issue of sustainability at Jenoptik falls within the responsibility of the Chairman of the Executive Board. Since mid-2019, the Investor Relations & Sustainability department has been responsible for group-wide sustainability management at Jenoptik and reports regularly to the Executive Board and Supervisory Board. The Sustainability Working Group – comprising representatives of the Investor Relations & Sustainability, Communication & Marketing, Human Resources, Finance, Environmental Management and Compliance & Risk Management departments – regularly discusses relevant cross-cutting issues.

What follows is information on sustainability issues which are essential to a better understanding of our business performance and the company's development in the future.

G08 Materiality matrix

The separate Combined Non-financial Report published here serves the purpose of fulfilling the requirements of the CSR Directive Implementation Act (CSR-RL-UG) in accordance with §§ 289b (3) and 315b (3) of the German Commercial Code (HGB). The report covers the key issues in the areas of employees, the environment, social commitment, human rights and anti-corruption for both our external target groups and the company in the 2019 fiscal year. The information in the non-financial report applies equally to the Group and JENOPTIK AG; any information that differs is indicated. The description of the approaches set out here is guided by Standard 103 of the Global Reporting Initiative (GRI). This means that Jenoptik describes components such as goals, existing guidelines, responsibilities, but also specific measures such as projects, programs and initiatives. The GRI standard served as an orientation aid for the selection of key figures, but was not used for further detailing. This includes information on the number of employees, employees on parental leave or the fluctuation rate. The materiality analysis and the risk assessment were prepared in accordance with the requirements of CSR-RL-UG. In accordance with § 315b (1) (3) of the German Commercial Code, reference is occasionally made to other information available in the Group Management Report. The list below shows all the relevant passages in the Management Report that are relevant to the separate Combined Non-financial Report.

- Business model page 74
- Strategy from page 77 on
- R+D / Innovation management from page 84 on
- Risk & opportunities from page 117 on
- Diversity policy see Corporate Governance Statement, www.jenoptik.com/investors/corporate governance

Materiality Analysis

Jenoptik maintains ongoing dialog with all stakeholders. On the basis of the analysis and independent assessment of all non-financial aspects which are essential for sustainable business development both from Jenoptik's perspective and from the perspective of the respective external target groups (customers, business partners, employees, shareholders, suppliers and the general public), further additional non-financial objectives (see table page 57) were prioritized in 2019. The results of the overall assessment are summarized in a materiality matrix and were also entirely valid for 2019. Topics in the upper right quadrant are of major significance to the Group's business development from the perspective of both Jenoptik and its stakeholders. G08 T10

The following overview reveals where Jenoptik sees its priorities in the value chain.

T10 Jenoptik's key topics

Employee Matters	Environmental Matters	Social Commitment	Human Rights	Anti-Corruption	Other Topics
Corporate culture	Environmental management	Commitment to science & education, art & culture as well as in social projects	Respect for human rights	No tolerance for corrupt behaviour	Brand & reputation
HR development	Waste management			Responsible business relations built on integrity	Quality management
	Processes to ensure compliance with regulations			Compliance with all applicable laws, standards and guidelines	Innovation & patent development
	Resource management				Corporate strategy

● Jenoptik's key topics ● Topics reported on a voluntary basis

Non-financial targets

Our Strategy 2022 also goes hand in hand with a change in corporate culture towards a more open, agile and less complex company whose employees contribute to its success with commitment and motivation. The JENOPTIK AG Executive Board and Supervisory Board are actively committed to more sustainability and have determined additional non-financial objectives for the Group in 2019. After "Employee Matters" had already been a top priority in human resources work since 2018 and measures aimed at increasing employee satisfaction and the attractiveness of Jenoptik as an employer had been implemented, management focused on the topic of "More Innovation" as well as the reduction of CO_2 emissions and a more transparent supply chain in 2019. The promotion of good framework conditions for more innovations and greater investment in research and development ensure substantial growth and play a decisive role in our future performance. In addition to our already defined strategic goal of increasing our R+D output, including customer-specific developments, to 10 percent of revenue by 2022, we therefore want to continuously increase the share of revenue generated by products and platforms that have been developed in the last three years (so-called Vitality Index).

Further information on this can be found in the chapter Targets and Strategies

For more on the topic of innovation and IP management see R+D chapter from page 84

However, a need for action was also identified in other areas: The requirements in connection with the goal of international climate policy to limit global warming are constantly increasing, and companies are being increasingly called upon to contribute actively to the reduction of CO_2 emissions. Therefore, we at Jenoptik want to increase the proportion of green electricity used at our main production sites to 70 to 80 percent of our total electricity requirements by 2022, expand our vehicle fleet to include vehicles with alternative drive systems and create an appropriate infrastructure at our sites for charging all battery-powered vehicles. In addition, we also wish to implement the increasing transparency requirements regarding human rights. With regard to our supply chain, our goal is to meet the higher standards of due diligence, thereby increasing transparency.

See Corporate Governance Report from page 36 on

The non-financial objectives are described in detail in the respective chapters on the following pages, and are stated in table T10.

In addition, we report on environmental issues as well as our social engagement on a voluntary basis, since our obligation to the environment is particularly close to our heart and environmental issues are of key concern in all our business decisions.

However, our future success also needs a deep understanding of customer and market requirements as well as a functioning sales network.

Quality management and compliance are also of great significance to Jenoptik. We are equally committed to law-abiding and compliant conduct with respect for human rights as we are to ensuring the above-average quality of our products and services. As a responsible and socially committed company, Jenoptik considers it its duty to play an active role in shaping its environment. Dedication to our region is therefore another high priority.

All key topics are reflected in our new corporate strategy and are value drivers in our various areas of business.

Our materiality matrix sets out the basis of all our long-term activities. These key topics are explained in detail in the sections below.

Risks in Connection with Non-Financial Aspects

Acting in conformity with rules and considering business risks and rewards – for Jenoptik, these are the principles of responsible corporate governance. The Group has a risk manual and a system of guidelines, thus providing a reliable reference framework for all employees worldwide. The group guidelines were revised in 2019 in a structured process involving the central corporate departments, divisions and regions. The new version reduces the scope of the content regulated at group level, and for the first time provides a globally uniform framework that can be underpinned by more detailed regulations. The guidelines are reviewed annually, and extended or updated as necessary. The new group policy structure has been in force since January 1, 2020.

Twice a year, Compliance & Risk Management identifies all risks within the Group and discusses the top issues – set in net terms – with the Executive Board. Our risk identification, risk management and risk control processes incorporate non-financial risks in the areas of environment, social issues and corporate governance, including climate-related risks in the form of physical risks and transition risks.

The net analysis did not identify any risks that are very likely to have a serious negative impact on the specified key non-financial aspects now or in the future.

Detailed information on our risk management system and major risks, including in connection with non-financial aspects, can be found in the Risk and Opportunity Report from page 117

Employee Matters

Our employees, with their experience and abilities, are our greatest asset and absolutely essential to the Jenoptik Group's business success. Structured HR work and the responsible and contemporary approach to working conditions are therefore among our most important tasks, because excellent business performance is only possible with dedicated employees.

HR work at Jenoptik covers all employee-related operating and strategic measures for the implementation of the Group's objectives and is thus an essential component of the overall leadership and management process. HR is an internal, internationally active business partner which supports both the operating business and participates in the implementation of strategic decisions in all Jenoptik divisions. In doing this, HR fulfills three different requirements. It delivers local service for

T11 Non-financial objectives and performance indicators

Aspect	Objectives	Performance indicators	Status 2019	Target
Corporate culture	• We want to increase the satisfaction and commitment of the employees	• Fluctuation • Sick leave • Engagement Score • Net Promoter Score	4.1% 5.6% 72% 69%	< 5% < 5% >68% >67%
Recruiting	• We want to fill more internal vacancies with specialists who have been trained by Jenoptik	• Training ratio in Germany • Number of trainees taken on	3.8% 93%	> 4% 100%
Brand & Reputation	• We want to increase the attractiveness of Jenoptik as an employer	• Fluctuation • Engagement Score	4.1% 72%	< 5% >68 %
Innovation and R+D	Securing and boosting competitiveness, revenue and earnings through successful innovations:			
	• We want to increase our R+D output including customer-specific developments	• R+D output	8%	10% by 2022
	• We want to increase the share of revenue generated with products and platforms which have been developed in the last three years	• Vitality Index *	–	Increase
Environmental management	Reduction in CO_2 emissions:			
	• We want to increase the proportion of green electricity used at our main production sites and take this issue into account in the purchasing process	• Proportion of green electricity	45.3%	70 to 80% by 2022
	• We want to expand our fleet of vehicles with alternative drive technologies and create an appropriate infrastructure	• Number of vehicles with alternative drive technologies in the fleet • Number of charging stations	4 1	Increase Increase
Supply chain management	• We want to increase transparency in our supply chain in order to guarantee the protection of human rights and the environment	• CRSA Coverage Rate of the purchase volume	25%	>40%

* Will be recorded in the 2020 fiscal year

all employees and managers, supports division-specific projects and offers expert knowledge in the areas of recruiting, employer branding, HR development, labor law and remuneration. HR reports directly to the Chairman of the Executive Board, who is also HR Director, via the function Head of Global HR.

The first point of contact for all HR-related issues in day-to-day business concerning the Group's employees and managers are the HR Service Partners. Each division has an HR Business Partner who is part of the management team. Working with the Division Management, the HR Business Partners develop and implement strategic HR topics.

Alongside an appealing corporate culture, we see our employees' efforts, expertise, experience, and commitment to the company as key value contributions. This was also confirmed by the results of the materiality analysis, which in Human Resources in particular point to topics such as corporate culture, HR development and employee satisfaction.

In 2019, the topic of "Employee Matters" was the focus of our activities. For monitoring purposes, during the past fiscal year, an internal reporting system has been developed for special non-financial performance indicators (KPIs); it provides the Executive Board with regular information. In order to achieve the defined goals, our HR team developed specific measures which are described in the following sections.

Detailed information on gender equality and targets for the proportion of women on the Supervisory Board, Executive Board and the management level below the Executive Board can be found in the Corporate Governance Report and in the Corporate Governance Statement.

More detailed information on the targets for the proportion of women can be found at www.jenoptik.com under Investors/Corporate Governance in the Corporate Governance Statement

A pleasant corporate culture provides guidance not only for employees, but also for customers, suppliers, and potential applicants. With the implementation of the group strategy the focus is also on establishing a dialog-based corporate culture characterized by initiative, respect for diversity and equal opportunities. An intensive exchange with employees, customers and management representatives in the form of surveys, workshops and interviews formed the basis for the three newly defined Jenoptik values – open, driving, confident. We believe that committed and curious people always perform outstandingly. We value new ideas and develop them further in an open dialog. In order to achieve our targets, we encourage employees who drive things forward and who have the will to succeed. We have the courage, the conviction and the expertise to seize opportunities that present themselves and to be a leader in the field of photonics. At the beginning of 2019, we introduced the Jenoptik values company-wide with an information and workshop program.

Jenoptik is modern and flexible in terms of leadership culture. Key to this will be the respectful behavior in the workplace, balancing of career and family, flexible working hours, and a healthy work environment. Examples of measures for 2019 include the introduction of remote working and the creation of a health management position.

We measure the satisfaction and commitment of our employees through an annual employee survey. This was conducted globally for the second time in 2019 in order to obtain a holistic picture. In the survey, employees evaluate the various facets of their work as well as the corporate and leadership culture. The commitment of our employees (so-called Engagement Score) and the recommendation rate (so-called Net Promoter Score) are also measured. We have already achieved our non-financial objective of increasing both of these KPIs in 2019.

68 percent of our employees, took part in the 2019 survey (prior year 67 percent). The engagement of our employees, the so-called "Engagement Score" improved by 4 percentage points to 72 percent, i.e. 72 percent of our employees identify positively with their duties at Jenoptik and are actively involved. With a "Net Promoter Score" of 69 percent (prior year 67 percent) more than two thirds of our employees would recommend Jenoptik as a good employer. This puts Jenoptik four percentage points above the benchmark of 65 percent determined by our service provider Qualtrics, the targets set by management to increase the engagement and net promoter scores were achieved.

Our managers communicated the results of the employee survey to their teams, who developed team-specific measures in a joint workshop. All measures are regularly presented to the EMC (Executive Management Committee). The next employee survey is scheduled for May 2020 and will measure the effectiveness of the measures implemented. In the most recent employee survey, the top 3 topics were:

- Career advancement and development opportunities,
- Support from their supervisors in identifying areas of development, and
- Transparent communication between Jenoptik and its employees.

In 2019 we also conducted a survey of our new employees (entries January to September 2019) on the onboarding process at Jenoptik for the first time, with the objective of further improving this process. Among our new colleagues, the Engagement Score and the Net Promotor Score were both 90 percent. The satisfaction with our recruiting process is 93 percent, while satisfaction with our onboarding process is 86 percent. From 2020, structured exit interviews will also be conducted in addition to the two surveys.

Jenoptik is family-friendly and responds to the needs of its employees with flexible working hour models. Flextime, part-time work, and flexible parental leave all make it easier for our employees to strike their own balance between family and working life. In 2019, 154 employees made use of parental leave in Germany (prior year: 157 employees). The number of part-time contracts in Germany rose to 7.1 percent in 2019 (prior year: 6.7 percent). One of the most important preconditions for balancing career and family is the availability of childcare. For several years, Jenoptik has been investing in daycare centers at the Jena, Wedel, and Monheim locations, as well as in flexible childcare models. Therefore, our employees are assured a place at the daycare centers.

The global staff fluctuation rate of 4.1 percent in 2019 itself reflects a high level of employee satisfaction within Jenoptik as an attractive employer. (prior year: 4.5 percent). Across Germany, the fluctuation in the past fiscal year was 3.1 percent (prior year: 3.7 percent).

HR development is a key factor that determines the future viability of the company and the commitment of our employees. To help promote them in line with their potential and interests, the development needs are assessed in regular staff appraisals and appropriate training is sought. Regular staff appraisals were held at all sites in 2019, which we verified in the employee survey. In 2019, Jenoptik invested around 2.6 million euros (prior year 2.5 million euros) in the professional development of its employees. This includes both the costs for trainees and students at the Cooperative State Universities and the costs for further training for our employees. Learning at Jenoptik is structured according to the 70:20:10 principle: as employees and their supervisors are the experts for their own further development, 70 percent of learning takes place in the workplace and 20 percent through learning from others. Classroom or online training makes up only 10 percent. The topic of e-learning will be the focus of HR development in 2020.

We are also following the 70:20:10 learning principle in the development of our managers: since 2019, there have been three target-group specific programs aimed at high potentials, new managers and experienced managers. Our managers continue to be key drivers of a uniform leadership culture at Jenoptik and thus of our corporate success. They are responsible for motivating the employees and have a direct influence on their satisfaction.

HR Recruitment. Jenoptik’s HR requirements are guided by the Group’s international growth strategy, resulting in a greater need for recruitment in Asia, Canada and the USA. However, experts and managers are also being sought in Germany. The audiences addressed by recruitment and thus also HR marketing are primarily specialists and skilled workers in the natural and engineering sciences as well as experts with business management and legal backgrounds.

In order to fill more vacant positions with internal specialists trained at Jenoptik, the training ratio was increased, taking into account the retirement of employees in the context of succession planning. This meant that significantly more trainees could be hired in 2019. 65 young people began their training at Jenoptik in 2019 (prior year 38). Thus, at the end of 2019, a total of 142 trainees were employed by the Group throughout Germany. For 2020, the number of trainees is to be increased to a total of 172. This will create 30 additional apprenticeships. The trainee retention rate in 2019 was 93 percent (prior year 90 percent). The trainees were taken on for an unlimited period by the company.

Specific support for school students, university students and graduates forms part of the Group’s expertise strategy, ensuring early loyalty to the company and thus simplifying the recruitment process. A selection of targeted initiatives and cooperation arrangements is shown below in table T12.

Increasing attractiveness as an employer is the focus of employer branding at Jenoptik. Clear and distinctive positioning as an attractive employer should support recruitment and develop a positive and unmistakable employer image as a future-oriented, innovative high-tech company in the photonics industry. The definition of the employer brand and the development of the associated values (Employer Value Proposition) were carried out on the basis of the Jenoptik Strategy 2022 under the motto “More Light”. Last year, the focus was on target-group oriented communication using social media channels . This makes it possible to flexibly adapt communication with the target groups to the current market situation and to measure the success on the basis of different key figures as well as to derive further measures.

Since 2019, Jenoptik has been using a uniform international applicant management system which replaced the previous country-specific systems.

Occupational health and safety are also key topics affecting the basic needs of our employees and their satisfaction in the workplace. They are firmly anchored in the Group’s operating processes and aim to minimize risks arising in the work environment that may endanger employees. The Jenoptik companies are each responsible for applying the law on all aspects of occupational health and safety. The central Environment, Health and Safety (EHS) department reports directly to the Chairman of the Executive Board and is available to advise all companies. It coordinates the relevant tasks and assists the Executive Board on enforcing necessary measures. There are health and safety committee meetings in all divisions each quarter. In addition, all employees are briefed on issues relating to health and safety at work at least once a year. At all of the German locations, around ten percent of the workforce are trained as first-aiders. The number of reportable workplace and commuting accidents in Germany fell to 10.72 per 1,000 employees in 2019 (prior year 12.42 per 1,000 employees). This figure includes workplace accidents (WA) at 43.75 percent and commuting accidents (CA) at 56.25 percent. Compared to the members of the ETEM trade association, Jenoptik is thus clearly below the average figure of 22.71 in 2018. In the interests of our employees’ health and performance, the Group offers regular medical examinations by a company physician. In 2019, we once again held health days for employees at German sites. Since 2019, company health management at Jenoptik in Germany has been centrally managed by the Corporate Center. In the current fiscal year the associated structures in the company will be further developed and various initiatives launched.

T12 Initiatives and coorperations (selection)

Jenoptik supports	• career guidance projects at schools, also offering their students the opportunity to complete an internship • young researchers in Thuringia as a longstanding state-level corporate sponsor of the “Jugend forscht” initiative • various industry organizations to promote professional development activities • students in the form of degree theses, internships, and scholarships
Jenoptik works with	• selected universities around the world with regards to HR marketing and recruitment, for research purposes, and to foster the professional development of its employees • selected universities around the world via projects and is active through a range of committees and networks in an advisory capacity

Environmental Matters

Long-term protection of our environment is of top priority for us. We see the efficient use of resources and energy at all our global locations as our corporate responsibility and here report voluntarily on key environmental matters in the Jenoptik Group. As many of our products contribute to the efficient and responsible use of resources, Jenoptik primarily makes an indirect contribution to conserving resources and therefore also to protecting the environment. In order to make an active contribution to reducing CO_2 emissions, we want to increase the share of green electricity used at our main production sites to 70 to 80 percent of total electricity requirements by 2022, expand our vehicle fleet to include vehicles with alternative drive systems, and create an appropriate infrastructure at our sites for charging all battery-powered vehicles.

Environmental management is a key part of our business practices. We comply with national and international laws and set standards in resource conservation and energy efficiency with respect to the manufacture of our products. However we also require our suppliers and contractual partners to comply with relevant regulations to minimize environmental risks. As a manufacturing company, we set our focus on efficient resource management so as to reduce energy consumption and greenhouse gas emissions to the best of our ability, use commodities and materials in a safe and resource-saving manner and to largely avoid producing hazardous waste. We espouse good environmentally friendly design and the economical use of resources as early as the development stage while minimizing the impact on people, the environment and nature through regulated recycling and disposal. In line with their environmental relevance, selected Jenoptik companies are certified in accordance with the ISO 14001 environmental management standard which globally sets out requirements for an environmental management system. In 2019, all Jenoptik companies and sites were again audited for the required energy audit in accordance with DIN EN 16247.

Environmental management lies within the remit of Safety, Occupational Health and Environmental Protection. The Jenoptik companies are each responsible for applying the law on all aspects of environmental protection. The central environmental protection officer is available to provide assistance where required and, as just one example, reviews all group investment projects with regard to their environmental relevance. The managers responsible for environmental issues at the German locations meet twice a year to share their experiences and ensure a standard approach to implementing environmental law requirements and processes. Waste officers take care of all matters relating to the prevention, accrual, recycling, and disposal of hazardous and non-hazardous waste.

Jenoptik continues to implement and in part exceed statutory requirements relating to nature conservation and environmental protection for new buildings, extensions and the modernization of production facilities. State-of-the-art technologies for saving resources and protecting the environment are applied when fitting out production facilities. The company building for the Light & Production division at the Villingen-Schwenningen site, construction of which has already begun, fully complies with the environmental protection standards introduced at Jenoptik. For example, the new building is equipped with modern insulation, sensor-controlled LED lighting and energy-saving heating and air conditioning technology. In addition, several charging stations for electric mobility will be installed.

At the Jena site, an infrastructure project for a large building complex was successfully completed in 2019 with the renewal of a central ventilation system, the installation of an exhaust air purification system and a system for heat recovery from exhaust air. The roof of another large production complex was refurbished to improve energy efficiency, including renewed and more efficient building heating as well as sustainable water heating and ventilation technology.

The conversion of existing lighting to LED lighting is being examined and successively implemented at several sites worldwide in ongoing rebuilding measures taking into account cost and environmental aspects. In addition, the energy efficiency of the plant technology at the Jena-Göschwitz site was analyzed in 2019. In the future, obsolete and resource-intensive technology will be replaced by low-emission and more resource-efficient systems if necessary.

For further information see section Quality management from page 67

Greenhouse gases. As a technology company, Jenoptik generates only small volumes of emissions within its plants. The majority of its pollutant emissions are attributable to procured and externally purchased energy (district heating or electricity). Due to the availability of data, we report our environmental data with a time lag to the reporting year. In addition to absolute energy consumption, we are also reporting for the first time energy consumption in relation to revenue, thus making the development of energy efficiency in our production transparent. Total energy consumption came to 90.59 MWh per group revenue of 1 million euros and thus remained in 2018 at the prior-year level (prior year: 90.15 MWh/revenue of 1 million euros).

Through the targeted purchase of renewable energies, Jenoptik will source green electricity from European hydro power throughout Germany from 2020. International sites will follow gradually. This will take us a major step closer to our goal of increasing the proportion of green electricity used at our main production sites worldwide to 70 to 80 percent of total electricity requirements by 2022. In 2018, this already amounted to 45.3 percent.

The consumption of the various media (electricity, district heating, gas, heating oil, wood pellets) at all major Jenoptik production sites was used to calculate the CO_2 emissions. The goal remains to record energy consumption throughout the Group, and to this end additional sites were included in the past fiscal year. Rochester Hills, Jupiter and Huntsville (USA), Shanghai (China), France and the UK, Barrie (Canada) and Switzerland have been included for the first time. Therefore, CO_2 emissions rose by 10.8 percent to 12,843 tons in 2018 (prior year: 11,596 tons). T13

Water. Jenoptik does not require large volumes of water for its manufacturing processes. Water is only used as a coolant, as a process medium and for sanitary purposes and comes primarily from the public drinking water supply and from groundwater. Nevertheless, as part of our water management, we take care to keep water consumption as low as possible at all our sites. In 2018, 70,790 m³ of water were consumed at our main production sites (previous year 71,296). T14

T13 Energy consumption and CO_2 emission by the major Jenoptik sites (in MWh and t)

	Energy consumption		CO_2 emissions	
	2018	2017	2018	2017
Germany	58,447	58,348 *	8,038	8,188 *
Europe	1,332 **	983	158 **	148
Americas	15,543 **	7,814	4,455 **	3,068 *
Asia/Pacific	283	283	192	192
Total	**75,605**	**67,428 ***	**12,843**	**11,596 ***

* Corrected value due to harmonization of methodology
** Figures cannot be compared with prior year as the number of the included production sites of Jenoptik increased in 2018

Due to low volumes of water required for production processes, we do not see ourselves encountering any key risks in this area. Conservation regulations also play a very minor role for the Group due to its business purpose and the location of its sites outside conservation areas.

Waste. Within the scope of our business activities, hazardous waste is also generated in the production processes, for example, electronic scrap, adhesive residues or solvents. Our goal is to avoid producing such waste generated during production as far as possible or to recycle it or, at the very least, dispose of it properly in order to minimize negative effects on the environment. In the production of semiconductor lasers in Berlin-Adlershof, for example, a new process helped to use less solvents. The volumes sent for disposal or recycling are recorded locally and we distinguish between hazardous and non-hazardous waste within these categories.

In Germany, waste types are systematically recorded in all divisions categorized and their quantities calculated. The volume of hazardous waste disposed of in waste treatment / disposal plants in the 2019 reporting year increased to 179 tons (prior year: 162 tons). In contrast, the quantity of non-hazardous waste rose to 1,100 tons (prior year: 1,022 tons), caused primarily by so-called "clean days" at the German sites. In general, Jenoptik aims to recycle waste through certified waste management facilities. Through continuous waste separation and training of the employees on waste prevention, the amount of residual waste was again further reduced. At the Triptis site, for example, more plastic materials are being channeled back into the recycling process, thereby conserving resources, avoiding expenditure on waste disposal and generating income.

As a high-tech company, Jenoptik is dependent on a wide range of raw materials. In the face of an increasing scarcity of resources, Jenoptik is committed to making sparing use of the materials it uses. We comply with applicable regulations, for example the requirements of the European chemicals regulation REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) and the European RoHS directive (Restriction of certain Hazardous Substances), and are involved on associated committees. The Product Compliance project was launched in 2019 as a means of implementing efficient processes for the collection of relevant data. In the future, declarations from suppliers, raw material and chemical data can be systematically and automatically evaluated and the respective declarations issued. The objective of our purchasing processes is to meet all regulations relating to conflict minerals in compliance with the Dodd-Frank Act.

T14 Water consumption (in m³)

Water consumption	2018	2017 *
Communal water supply	43,767	47,008
Groundwater from internal production	27,023	24,288
Total	**70,790**	**71,296**

* Values are partly based on estimates

Resource Management. Many of Jenoptik's innovative products and services make a contribution to the efficient and responsible use of resources. As a technology company, we are involved primarily in the areas where our customers' production processes and products can be made more efficient. The table below provides an overview of the contribution of selected Jenoptik products to resource conservation. T15

Social Commitment / Corporate Citizenship

Supporting young people in their education and scientific activities, as well as in social projects – this is at the heart of Jenoptik's social engagement. The Group supports a whole range of non-profit projects, organizations and initiatives and is actively involved in the following three areas, primarily in Germany but increasingly also abroad:

- A commitment to the younger generation with projects in science, education, and in the social arena.
- Art and cultural projects to lend an attractive design to our company locations and create good conditions for our employees' work/life balance.
- A commitment to integration and internationality to strengthen the foundations of business and society in the future.

As a responsible and socially committed company, Jenoptik considers it its duty to play an active role in shaping its business environment. As part of this process, our main concern is to achieve close, long-term partnerships, with the aim of providing not just financial but also non-material assistance. With our commitment to society, we want to strengthen the confidence placed in Jenoptik and boost our employees' sense of identification with the company. We also expect this to have a positive effect on our brand image, reputation and our attractiveness as an employer.

T15 Contribution of our products to resource conservation

Product	Contribution to resource conservation
Jenoptik diode lasers and **laser machines** for a wide range of applications, e.g. in medical technology or the automotive industry	• The most efficient light sources available with an efficiency of up to 70 percent • Resource-friendly alternative to conventional machining processes, especially when processing high-strength steel with a lower weight
Optical systems and components for information and data transmission as well as medical diagnostic procedures	• Continuous further development towards even smaller crystalline structures in semiconductor production opens up ever newer application options, • Time-saving processes and cost-effective production, thereby conserving resources
Metrology – systems and equipment to check shape and roughness, particularly in the automotive industry	• The results are more precise surfaces and tighter tolerances in engine components (downsizing) and thus entire vehicles that require less fuel and produce fewer emissions • More complex transmissions for hybrid cars demand the increased use of metrology
Hybrid power generation systems to enable an efficient power supply to the Patriot missile defense system	• Use of battery technology to reduce fuel consumption • Longer life cycles for customers, lower service expenditure and this product sustainability
Traffic monitoring systems check compliance with current road traffic regulations and improve traffic flow **Toll monitoring systems** on federal highways	• Contribution to increasing road safety and reducing accidents • Reduction in emission of pollutants and noise • Installation at the side of the road limits interference in the environment (no installation of monitoring gantries)

The duties of Corporate Citizenship are the responsibility of Marketing & Communication. Group-wide guidelines govern the principles of a structured and standardized approach to defining "Jenoptik as a Corporate Citizen" and ensure a uniform method of handling donations and sponsorship queries, as well as carrying out sponsorship projects.

Our dedication to our region is of particular relevance. Since 1996, the Group has acted as the patron of the "Adult Initiative for Children with Cancer Jena". Donations both made by Jenoptik and collected from partners, and the organization of various events, have helped to support children with cancer and their parents. Particularly worthy of note is the Easter Charity Concert given by the International Youth Orchestra Academy, the proceeds of which are donated to the initiative. T16

In 2019, the group-wide program "Mitarbeiter im Ehrenamt" (Employees and Volunteering) was launched as a further pillar of social engagement. Volunteering is an important link in society. Many Jenoptik employees make an important contribution to associations and organizations through their volunteering work. The new program encourages and honors this engagement.

Together with numerous partners, the Group is also active as a member of "Familienfreundliches Jena e.V." (Family-Friendly Jena) support group for projects conducted by the "Jenaer Bündnis für Familie" (Jena Family Alliance) to improve general underlying conditions, the work/life balance and equal opportunities in education. Jenoptik supports various models of family-friendly childcare, the "Saaleknirpse" in Jena, the "Wasserstrolche" in Wedel, and the "Talentschuppen" in Monheim. For schoolchildren, once again there was the summer camp jointly organized for children of Jenoptik employees and children of recognized refugee families.

T16 Social commitment - examplary projects

Social	Jenoptik supports	• Easter charity concert by the International Young Orchestra Academy on behalf of the Elterninitiative für krebskranke Kinder Jena e.V. • "Friends of Foster Children", Jupiter (USA) • Fundraising campaign on the occasion of the New Year's Eve reception on behalf of ARCHE Berlin • Summer camps for children of Jenoptik employees and children of recognized refugee families • Promotion of "Mitarbeiter im Ehrenamt" • Project "Mitten im Leben" in the Bürgel parish • Christmas campaigns on behalf of sick and needy children at the Jenoptik locations Jena, Jupiter and Huntsville
Sience & Education	Jenoptik is a partner for ...	• Global competition "SPIE Startup Challenge" • The Thuringian young researchers competition "Jugend forscht" (since 1991) • Competition "Schüler experimentieren" (since 2012) • Applied Photonics Award of Jena-based Fraunhofer IOF • Student project "Hinterm Horizont macht Schule" • Lothar Späth Award for Outstanding Innovations in Science and Economy • 70 years of the German Basic Law: New version as magazine in modern layout – for schools and educational institutions
Art & Culture	Jenoptik promotes artists through its own series of "tangente" art exhibitions (since 1994):	• tangente: Thomas H. Saunders "Art of Microscopy" • Art exhibition OSTER+KOEZLE "raum+stoerung" at the Friedrich Schiller University and tangente "rooms + architectures" as part of the 100th anniversary of the Bauhaus in 2019
	Jenoptik supports cultural projects with partners:	• Open-air Cultural Festival "Kulturarena" organized by the city of Jena • Summer theater spectacular by Theaterhaus Jena • Summer concert series at the Thalbürgel monastery church

2019 was marked by a number of important anniversaries, which were also reflected in our social engagement. For example, Jenoptik sponsored a project in which schoolchildren addressed the 30th anniversary of the fall of the Berlin Wall and, under the patronage of the Udo Lindenberg Foundation, brought the musical “Hinterm Horizont geht's weiter” (Behind the Horizon Life Goes On) to the stage of the German National Theater in Weimar. In the USA, Jenoptik employees at the Jupiter site worked with "Friends of Foster Children" from Palm Beach County to bring holiday joy to children. Also in Jupiter, staff members provided family-style Thanksgiving meals to the needy in the region and participated in food collections. Employees in Huntsville supported the “Kids to love” foundation and collected toys and donations for children for Christmas. At the Jenoptik site in Barrie, Canada, employees support the “Great Cycle Challenge”, a charity campaign for the fight against childhood cancer. The employees fulfilled gift requests in the form of toys and cash donations to bring a smile to the children’s faces during this time.

Since the company’s earliest days, Jenoptik has been enriching life in Jena with art and cultural projects. The in-house ”tangente” series of art exhibitions is a key part of this endeavor. Jenoptik also sponsors art projects by partners, such as an art exhibition organized by the Friedrich Schiller University in Jena to mark the 100th anniversary of the Bauhaus in 2019.

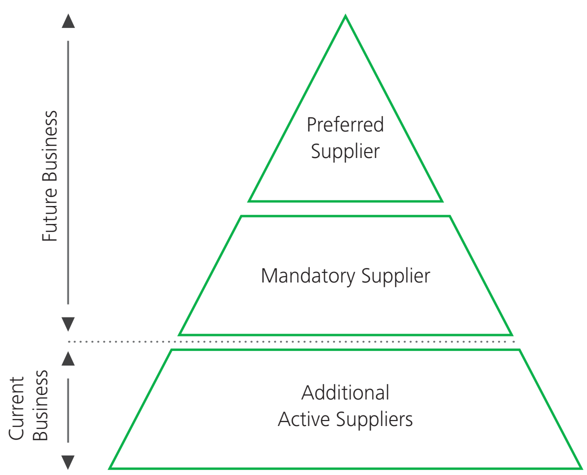
Responsible Corporate Governance

In a globalized market environment, Jenoptik is fully committed to responsible corporate governance and law-abiding, compliant conduct. We make our business decisions with this in mind and always work to ensure that our actions are in accordance with regulations, laws and our values. Compliance & Risk Management therefore lies within the remit of the Chairman of the Executive Board, and the department reports directly and regularly to him. The Director of Compliance & Risk Management is in close contact with all employees throughout the organization, controls the Group's opportunity and risk management system in close cooperation with the central divisions and the divisions’ risk officers. Over the past fiscal year, our compliance organization has been expanded and internationalized. A data protection officer is the group-wide contact for all data protection matters. In the North America and Asia / Pacific regions, the team was strengthened with regional compliance officers. Since the beginning of 2020, Compliance & Risk Management has also taken on group-wide responsibility for export and customs controls.

Respect for human rights is a high priority for Jenoptik, especially in the supply chain. Jenoptik is committed to internationally recognized standards of human rights and does not tolerate any form of slavery, forced labor, child labor, human trafficking or exploitation in its own business operations or those of its supply chain. We also expect our suppliers to comply with and respect internationally recognized human rights standards, e.g. the Slavery and Human Trafficking Statement. The compliance-relevant processes are continuously revised in order to identify violations and high-risk business partners in good time. In a two-step process, a supplier compliance declaration and an additional code of conduct for distributors first oblige all our business partners to adhere to the law. In the second step, a centralized high-risk business partner screening process is used to ensure that Jenoptik cooperates only with those business partners that meet all of its compliance requirements.

Anti-corruption. Jenoptik fights all forms of active and passive corruption and expects all its business partners to do the same. We also see it as our responsibility to ensure that our customers and suppliers act in compliance with the law. For detailed information on Jenoptik’s compliance management system, the company guidelines and codes of conduct for employees, suppliers and sales partners, our online training, and our whistleblower system, we refer you to the Corporate Governance Report from page 36 as well as the Risk and Opportunity Report from page 117.

G09 Classification of suppliers



Supply chain management. As one of our most important resources, our supplier base has a significant influence on the value contribution of our products, but also sustainability and environmental protection. We partner with our suppliers all along the value chain on a long-term basis. When selecting our business partners and when working together, we take into account their performance in terms of safety, health, the environment, social standards and fair business practices in order to further develop an integrated supplier management system.

Our business partners are classified and assigned to different phases of a supplier life cycle within the scope of strategic supplier management. Our Preferred Suppliers are distinguished by their strategic importance for the future business with Jenoptik. They are qualified according to uniform criteria applying group-wide. We hold a strategic meeting with our Preferred Suppliers at least once a year at which we discuss supplier assessment and their development. We use a scorecard to help set targets and measures relating to quality, logistics, technology, costs and sustainability. G09

Our Code of Conduct for Suppliers to the Jenoptik Group is binding on all suppliers worldwide, irrespective of procurement volume, and serves as the basis for contractual relationships. Among other things, it includes topics such as compliance with laws and regulations, respect for human rights, the prohibition of forced and child labor, the responsible handling of conflict materials and the obligation to protect the environment. As part of a qualification process, the Code of Conduct of new suppliers is requested. The qualification process also includes the request for a "Corporate Social Responsibility Supplier Self-Assessment (CRSA)" – a questionnaire for suppliers on sustainability topics in the social, compliance, governance and environmental areas. An evaluation of the questionnaire is carried out interdivisionally with the Compliance & Risk Management, and Safety, Occupational Health and Environmental Protection departments. As a last resort, a phase-out process is initiated.

Purchasing in the Jenoptik Group is globally positioned and responsible for all procurement activities and the implementation of responsible supply chain management. The various purchasing categories and product groups are controlled and managed by category / commodity managers worldwide. The Vice President for Corporate Supply Chain Management & Procurement reports directly to the CFO of JENOPTIK AG.

Quality Management and Brand Image

Quality management. The key to Jenoptik's success as a technology company primarily lies in the quality of its products and solutions. Longstanding collaborations with key customers, sometimes in the form of development partnerships, and the confidence placed in us by our partners are proof that our products and solutions are of superior quality. As a quality leader in many of our product areas, we are committed to ensuring that the quality of our products and services is above average. Quality management at Jenoptik is managed locally in the business units and falls within the responsibility of the head of the divisions. Each division applies individual quality indicators. The following overview summarizes key KPIs for quality management in the Jenoptik Group. T17

T17 KPIs for quality management

Criterion	Examples for KPIs of the divisions
Quality from a customer perspective	• Customer satisfaction • Complaint cost ratio • Warranty and guarantee costs
Quality as an internal business partner	• Internal audits • Measures in the process of continual improvement • Process and product quality - Production yield / quality grade - Reworking costs - Reject costs
Quality from the supplier's perspective	• External supplier audits • Suitable suppliers • Supplier quality and delivery of defective parts

One measure to ensure and further improve our quality is our quality initiative, the impact of which can be seen in all areas of the business – from the development of new products to quality planning and assurance and all the way to the quality of the finished product. In 2019, topics such as international quality and occupational health and safety as well as environmental protection programs were developed on the basis of the Jenoptik and divisional strategies. Within the Automotive area, for example, the Jenoptik subsidiary Five Lakes Automation was integrated into the division's international QM system and a new quality reporting and rollout plan was developed for upcoming certifications. The initiative will continue to run in 2020, now with an increased focus on internal customer and supplier relationships.

In addition to certifications, further issues in quality management at Jenoptik include standardization, process controls, tests as well as continuous dialog with customers, e.g. analyses of customer satisfaction. Almost all the group companies comply with the requirements of quality management standard ISO 9001; many of them also meet the requirements of the ISO 14001 environmental management system.

T18 Certification within the Group (selection)

Certification	Description	2019 actions
ISO 9001	Certification of quality management processes	• Matrix certification of all German sites of the Light & Optics divison • Certification in the Light & Production division • Certification in the Light & Safety division • Certification of JENOPTIK Shanghai PIE Co. Ltd.
ISO 50001	Certification of the energy management system	• Certification of Photonic Sence GmbH due to energy-intensive machining processes
EN 9100	Certification of quality management processes specific to the aerospace and defense industries	• Re-certification at VINCORION
ISO 13485	Certification of comprehensive quality management systems for the design and manufacture of medical products	• Recertification in the Light & Optics division
ISO 14001	Certification of the environmental management system	• Matrix certification of all German sites of the Light & Optics division, integration of Laser GmbH in the environmental management system of Jenoptik Optical Systems Germany • Re-certification in the Light & Production division • Re-certification at VINCORION
ISO / TS 16949	Certification for the automotive industry	• Follow-up audit and special audit at the Triptis location (among others due to merger of the German companies Jenoptik Optical Systems and Jenoptik Polymer Systems)
IRIS	International Railway Industry Standard	• Certification at VINCORION
ILO - OSH - 2001 / OHSAS 18001 or DIN ISO 45001	Certification of occupational safety and health management	• Re-certification in the Light & Production division • Re-certification at VINCORION
AQAO 2110 / 2210	NATO quality assurance system	• Renewal of certification at VINCORION

The table on page 68 shows a selection of group certifications and actions undertaken in 2019. The Light & Optics division has successfully passed the matrix certification in accordance with the ISO 9001 and ISO 14001 international standards for quality and environmental management for several sites. The German sites of VINCORION also received the re-certification audits for the implementation of their quality and environmental management systems. Successfully audited were the implementation of the environmental management standard ISO 14001:2015 (in Wedel and Essen) and compliance with the industry-specific standard EN 9100:2018 (in Wedel and Essen). In 2019, the Light & Production division also received the certifications for the ISO 9001:2015 quality management system and the ISO 14001:2015 environmental management system. The auditors certified a good system of integrated process analysis, a good risk/opportunity analysis and saw strengths in innovation management. In addition, they certified that the employees receive a very high level of training. In June, the Automotive division's production area at the Shanghai site successfully passed an audit by the Deutschen Gesellschaft zur Zertifizierung von Managementsystemen (DQS). For the first time, the plant was audited comprehensively with respect to the requirements of ISO 9001. The shop floor management in assembly received an especially good report. T18

Our brand image and reputation are of key importance – the trust placed in us by our stakeholders, our position in the competitive environment, our attractiveness as an employer, and the identification of the employees. As an international photonics group, we work in many different markets and compete with numerous companies. Our brand image makes us visible, assessible and attractive to customers, as a supplier of high-quality capital goods, and to future employees. We strengthen trust and therefore lasting and stable relationships with our customers and suppliers, shareholders and other stakeholders through transparent communication. Internal and external communications are the task of the central Communication and Marketing department at Jenoptik, which reports directly to the Chairman of the Executive Board and ensures a consistent image for the overall Group and the Jenoptik brand. The aim is to ensure that the company's communications and public image are modern, distinct, ongoing and memorable, as well as oriented towards the Executive Board's strategic targets. Operational topics relating to markets, technologies and products are managed locally by the division marketing managers in the operating areas. Group-wide guidelines govern cooperation between the Corporate Center, divisions and regions. Communications to the capital market are the responsibility of Investor Relations & Sustainability, which also reports to the Chairman of the Executive Board and remains in close contact with Communications and Marketing.

Further information on the subject of innovations can be found in the chapter R+D from page 84

More information can be found in the Corporate Citizenship section of this chapter, on page 64

Within the highly specialized photonics market, which is characterized by a multitude of smaller companies, the Jenoptik brand is perceived as synonymous with a major supplier – with an integrated brand image covering all products. We have been shaping the Jenoptik umbrella brand throughout the Group for over ten years. With "Strategy 2022," the Group is concentrating on the core photonics competencies in light and optics under the Jenoptik brand. Our mechatronic business is managed under the independent VINCORION brand, which better meets the specific market requirements. A uniform corporate culture which supports the strategy on the basis of a common understanding and shared values is essential for a clearly positioned brand. Using surveys, workshops and interviews, employees, representatives of Jenoptik's management as well as customers and partners were intensively involved in the development of the three Jenoptik values "open, driving and confident" and the positioning of the Jenoptik brand. Jenoptik has been positioning itself in the market and against the competition as a top photonics provider since the beginning of 2019. The new Jenoptik brand house with a clear customer promise, defined distinguishing features and a new corporate design has been in place since February 2019. In order to reinforce the new values more strongly, various marketing processes were revised in 2019 and aligned with the value "open". Employees are being involved more than before in marketing topics:

- A voting tool enables employees to participate in the choice of advertising materials
- "Corporate Volunteering" encourages our employees to carry out volunteering activities
- Photo competition for employees on the subject of "more light"

In addition, new social media channels were opened (e.g. Instagram). Further projects will follow in 2020. Our departments are also focusing on the new values. For example, our entire innovation process has become more open and is oriented towards the value "open" with the motto "Speed up innovation".

A new and globally developed communications concept was derived from the brand house in 2019 in order to strengthen the value "confident" in group-wide communications. A modular concept allows for uniform communication for various marketing instruments such as advertisements, trade fairs or video statements, which can yet be tailored to the needs of the divisions.

Jenoptik benefits from the reputation of our main location Jena, which is highly renowned by scientists and customers as an "Optical Valley". Jenoptik is conscious of this reputation and is involved in various activities aimed at sustainably improving the location.

The audit report for the separate Combined Non-financial Report can be found on page 220.

Combined Management Report

» in short «

The EBITDA margin rose to

15.7 %

Jenoptik has thus again improved its profitability.

The Remuneration Report as well as the Information and Notes relating to Takeover Law (see Corporate Governance Chapter) are part of the Combined Management Report.

General Group Information

Group Structure

Legal and organizational structure

As the corporate center of the Group, JENOPTIK AG, based in Jena, is responsible for top-level functions including strategic corporate development and innovation management, as well as key tasks in controlling, corporate development (strategy, mergers and acquisitions, innovation), corporate real estate management, finance, internal audit, investor relations and sustainability, communication and marketing, human resources, accounting, legal and IP, compliance and risk management, taxes, and treasury. It further pools the central functions of IT and data security, purchasing, safety, occupational health and safety, and environmental protection.

For more information on the development of the photonics market, see the Macro-economic and Sectoral Developments chapter from page 91 on

Jenoptik's operating business is geared toward the growth market of photonics, which, according to a study conducted by market research company MarketsandMarkets, is expected to see annual average growth of 7.0 percent in the years 2018 through 2023. Since January 1, 2019, the photonics business has been organized within three divisions, Light & Optics (OEM business), Light & Production (industrial customer business), and Light & Safety (business with public sector contractors). The three divisions build on common core competencies in the field of photonics, including expertise in the fields of optics, sensors, imaging, robotics, and data analysis. Work based on mechatronic technologies is managed under the VINCORION brand. VINCORION is operated as an independent investment in the Jenoptik Group. With this new organizational structure, which is based on a common understanding of markets and customers using the same business models, we have further improved our market and customer orientation.

The three photonic divisions and VINCORION also represent the segments as defined in IFRS 8. G10

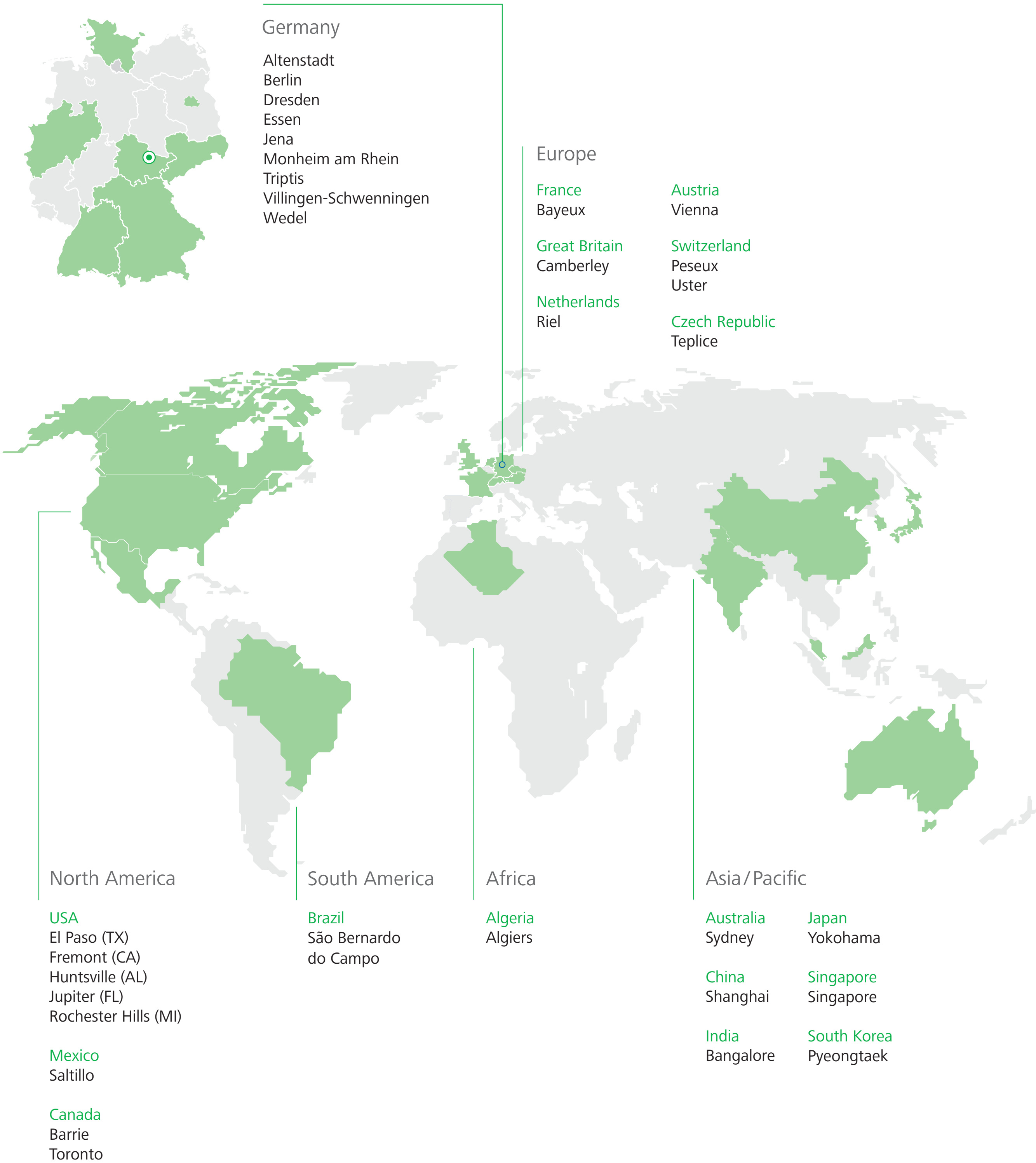
In addition, the legal merger of JENOPTIK SSC GmbH (formerly the Shared Service Center) into JENOPTIK AG was completed in the 2019 fiscal year. In the Light & Optics division, the legal merger of JENOPTIK Laser GmbH (Jena), JENOPTIK Polymer Systems GmbH (sites in Triptis, Berlin, and Mühlhausen), JENOPTIK Diode Lab GmbH (Berlin), and the Sensors business unit of JENOPTIK Advanced Systems GmbH (at the Jena site) within JENOPTIK Optical Systems GmbH was also completed.

In recent years, Jenoptik has continued to expand its international business and the structures associated with it. The US holding company at the Jupiter location in Florida is responsible for steering the overall strategy and coordinating financial activities for the American market. In 2018, Jenoptik approved a new organizational structure for Asia, which will help to simplify complex corporate structures and more clearly define responsibilities. The administrative functions for Asia as a whole where relocated from Singapore, previously the region's Asia headquarters, to the Shanghai site in China. The operating business in Europe is coordinated at the main locations in Germany.

G10 Organizational structure of the Jenoptik Group since January 1, 2019

Photonics			Mechatronics
Light & Optics OEM business	Light & Production B2B business	Light & Safety B2G business	VINCORION
Optical products and key technologies for the markets of the digital world and healthcare	System solutions for more efficiency of products and production processes	Systems and services for safer roads and cities around the world	Mechatronic products and solutions for more security in the civil and military area

G11 Key locations of the Jenoptik Group



Last updated: December 2019

Key locations

Jenoptik is represented in over 80 countries worldwide, with a direct presence in 18 of them, e.g. through its own companies, investments, or affiliated firms. The majority of the Group's products are manufactured in Germany, followed by the US. The Group's Jena headquarters is primarily home to the photonic activities carried out in the Light & Optics and Light & Production divisions. Other major German sites are at Wedel near Hamburg, Essen and Altenstadt in Bavaria (VINCORION), Monheim near Düsseldorf (Light & Safety), Villingen-Schwenningen (Light & Production), Dresden, Berlin, and Triptis (Light & Optics).

Examples of innovative products can be found in the Research and Development chapter from page 84 on

Outside Germany, Jenoptik maintains sites in Canada, China, France, Great Britain, Switzerland and the US. In addition, the Group is represented by subsidiaries and affiliated firms in Algeria, Australia, Brazil, the Czech Republic, India, Japan, Korea, Mexico, the Netherlands, and Singapore. G11

See investment holdings of the Jenoptik Group, pages 209/210

Business Model and Markets

Jenoptik is a globally operating photonics group that provides the majority of its products and services for the photonics market. Photonics covers the basics and areas of use of optical methods and technologies that address the generation, transmission, shaping, and measurement of light. Controllable light sources such as LEDs and lasers, together with suitable optical devices and sensors, make it possible to transmit data, analyze materials, create micro-optical components, and perform non-contact precision measurements. Self-driving cars that have to find their way around independently are practically inconceivable without LiDAR technology.
Pulsed laser technology is also used, allowing satellite constellations, for example, to share data at high speeds. In the process, they use the special physical properties of light quanta (photons) in place of electrons, and also combine optics and electronics. Under the VINCORION brand name, the Group also offers mechatronic solutions.

Our key markets primarily include the semiconductor equipment industry, the medical technology, automotive, machinery engineering, traffic, aviation, and security and defense technology industries. As a supplier of innovative capital goods for these markets, Jenoptik is primarily a partner to industrial companies. Our range of products comprises OEM or standard components, modules and subsystems through to complex systems and production lines for numerous sectors. It further includes total solutions and full-service operator models. Alongside industrial customers, the Light & Safety division and VINCORION primarily serve public sector clients, in part indirectly through system integrators.
Jenoptik's product range competes with a wide range of internationally operating companies not uncommonly specializing in only one or a few of the product areas and markets listed above. Differing product and service ranges are only comparable to a limited extent and thus make it difficult to provide definite market share estimates.

Research and development occupy a key position in Jenoptik's activities. Cooperations arrangements and developments on behalf of customers lead to partnerships and business relationships along the value chain. Our technology-intensive products and systems are often created in close collaboration with customers. This can be seen, for example, in the costs for developments on behalf of customers of 20.4 million euros in 2019. Cooperation arrangements require confidence on both sides as well as knowledge of partner requirements. Such lasting and successful arrangements with key customers are an important factor of our success.

The Jenoptik Divisions

Light & Optics

The Light & Optics division is a global OEM supplier of solutions and products based on photonic technologies. Jenoptik offers a wide range of products and services in the field, combining comprehensive expertise in optics, laser technology, digital imaging, optoelectronics, and software. Our systems, modules, and components help customers to tackle the challenges they face using photonic technologies. Customers include plant and machinery manufacturers, equipment manufacturers, and research institutions. As a high-tech photonics company, Jenoptik can assist its customers as an OEM partner offering an own technology portfolio covering everything from development to volume production.

In the Semiconductor & Advanced Manufacturing business unit, Jenoptik develops and produces optical and micro-optical systems as well as precision components to the highest quality standards. This includes complete systems and modules, all the way to special optical components and custom solutions for wavelengths from the far infrared (FIR) to the deep ultraviolet (DUV) region. The Group develops and manufactures micro-optics, such as for beam shaping applications, which, for example, are used in both lithography and inspection within in the semiconductor equipment industry. With its optical and micro-optical solutions, Jenoptik is also in a position to exploit further potential for growth in the field of digitization, for example in the market for information and communications technology. The company also targets the markets for laser material processing as well as security and defense technology.

In the field of biophotonics, the division focuses on applications for bio-imaging and laser-based therapy. Based on its core expertise in laser and LED-based beam sources, optical components and modules, sensors, digital imaging, and system integration, Light & Optics develops OEM solutions and products for the medical technology/life science industry.

Our diode and solid-state lasers are used in ophthalmology, dermatology, and surgery and are supplied to national and international medical technology companies. The Group also develops and produces optical and optoelectronic components for digital image processing and microscope cameras for applications in the medical field.

A new product concept for the fields of diagnostics and analysis is the JENOPTIK SYIONS technology platform for digital imaging and analysis, which can be configured according to customer requirements. Customers can make use of various imaging technologies and predefined modules to shorten their "time-to-market" processes, e.g. in scientific and clinical laboratories. The flexible miniaturized digital platform can be adapted for various bio-imaging applications.

For the field of industrial solutions, Jenoptik supplies high-power optoelectronic components and modules as well as integrated solutions that combine optics, laser technology, sensors, and digital imaging as required. The company focuses on applications in the fields of industrial automation and automotive and mobility. In addition to complex components for head-up displays, lenses for driver assistance systems, laser optical systems for particle sensors, and polymer optics for machine vision applications, we also produce components for augmented reality applications. In the field of industrial lasers for material processing, Jenoptik covers the entire laser value chain. Sensor products cover infrared camera systems and laser rangefinders, which are used in automation technology, security technology, and military reconnaissance.

Key sales regions in the division are in Europe and North America, and increasingly also in Asia/Pacific. The core markets in which Jenoptik supplies specific market segments are the semiconductor equipment, medical technology/life science, information and communications technology, show and entertainment, automotive, industrial automation, and the defense and security technology industries. Competitors in the Light & Optics division include MKS/Newport, Excelitas/Qioptiq and Berliner Glas.

Detailed information on the course of business in the segments can be found in the Segment Report from page 106 on; see the Forecast Report for information on the future development of the divisions from page 133 on

Information on our extensive product range can be found at www.jenoptik.com/products

Light & Production

The Light & Production Division is a global specialist in the optimization of manufacturing processes. With many years of experience and expertise in industrial metrology and optical inspection, laser-based material processing, and highly flexible robot-based automation, the division develops manufacturing solutions for customers in the automotive, aerospace and other manufacturing industries. Jenoptik supports industrial customers in making their production processes more effective and efficient through the use of optical and photonic technologies.

The company's portfolio includes high-precision contact and non-contact production metrology with a resolution in the nanometer range for pneumatic, tactile, and optical inspection of roughness, contour, shape, and the determination of dimensions at every stage of the production process and in the measurement room. A wide range of services such as in-depth advice, training, service, and long-term maintenance agreements are also all provided. The acquisition of OTTO Vision Technology GmbH and OVITEC GmbH in September 2018 allowed the Jenoptik Group to boost its range of services for innovative metrology solutions, e. g. for 3D inspections, and further expand its market position as a systems supplier for production metrology and industrial imaging applications.

In addition to this, Light & Production develops 3D laser machines that are integrated into customer production lines as part of process optimization and automation. They are used to machine plastics, metals, and leather at high speed and with accurate contours, and are thus both efficient and precise. Jenoptik acquired the Canadian company Prodomax in the summer of 2018. In a similar way to Five Lakes Automation (FLA), which was acquired in 2017, Prodomax plans and designs automated production lines and integrates them in customer production environments. Services and products related to process engineering and implementation include plant layouts, simulation, machine control and software design, robot handling systems, and transport devices. This acquisition has allowed Jenoptik to boost its position as a turnkey supplier of automated production solutions; the company can now offer not only stand-alone laser machines but also complete process solutions from a single source.

The Light & Production division is active around the world and, in addition to Germany, also operates production facilities in the US, Canada, France, China, and recently also in Spain. In addition, there are numerous sales and service offices on three continents. The divisions is present in the centers of the global automotive and automotive supplier industries in Europe, North America, and Asia. Companies such as Marposs, Mahr, and ViciVision compete with Jenoptik's metrology operations, Trumpf, Prima Power, and others with our laser machine business, and firms such as Centerline Automation in Canada and Serra in Spain with our automation business.

Light & Safety

The Light & Safety Division operates in four areas of business: traffic monitoring, civil security, toll payment monitoring systems, and monitoring of environmental parameters. Here, Jenoptik develops, produces, and sells various components, systems, and services used by public sector customers to monitor compliance with applicable road traffic regulations and thus make the world's roads safer. Its product portfolio includes systems covering all aspects of road traffic, such as speed and red light monitoring systems and custom solutions for identifying other traffic violations. Further expertise relates to the measurement of average speeds (section control) and automatic number plate recognition (ANPR), including applications for the police. In order to improve the recognition rate for car license plates using ANPR cameras, the division uses artificial intelligence and computer-based algorithms. Jenoptik thus supplies integrated solutions for public safety and future smart cities.

Jenoptik's traffic monitoring services cover the entire supporting process chain – from system development, construction, and installation of the monitoring infrastructure, to capturing images of traffic violations and their automatic processing.

Jenoptik has contributed to the further technical development of toll monitoring systems in Germany. For these applications, the Group markets innovative toll payment monitoring pillars that combine various digital sensor technologies such as stereo image processing and axle number detection in a single system.

The Light & Safety division's regional areas of focus are also primarily determined by customers. Jenoptik has more than 30,000 devices in use around the world. Competitors here include Redflex, the Sensys Gatso Group, Safran, and Vitronic.

Traffic safety systems in Germany are tested and certified by the Physikalisch-Technische Bundesanstalt (PTB) in Braunschweig, thereby obtaining proof of their measuring accuracy. Foreign deliveries are subject to controls by national institutes, although various countries also partially or fully recognize the German PTB test certificate or licenses from other leading European licensing authorities. As all companies have to go through these procedures, they represent a significant barrier to market entry for potential suppliers.

VINCORION

VINCORION develops, produces, and sells mechatronic products for civil and military markets, in particular for security and defense, aviation, and the rail and transport industries. Its portfolio ranges from individual assemblies for customers to integrate in their systems, through to turnkey solutions and final products. The division specializes in energy systems, drive and stabilization systems, and aviation systems. Qualified customer service ensures product support over what are typically long service lives. Products include diesel-electric generating units, electrical machinery such as generators, electric motors, and converters, power electronics, heating and lift systems, rescue hoists and radomes. They are used in drive, stabilization, and energy systems for military and civilian vehicle, rail, and aircraft equipment.

VINCORION supplies equipment to major systems companies such as Krauss-Maffei Wegmann and Rheinmetall in Germany, Airbus (France / Germany), BAE Systems (Great Britain), and Raytheon (US); it also supplies governments directly. In the area of defense and security technology as well as aviation and rail equipment, VINCORION is a business partner to national and international customers, with end products frequently exported worldwide by the systems companies it supplies. Many of the components and subsystems are developed specially on behalf of clients. In the future, however, new in-house developments such as the heated floor panel for planes and the electric rescue hoist for helicopters will also generate growth. Business is predominantly geared toward the long term and is subject to exacting security, certification, and export control requirements. The platforms on which the systems are deployed, such as the Leopard 2 tank and the Patriot missile defense system, often remain in use for many years and decades, increasing the importance of spare parts business and modernization projects. Competition with other companies is frequently limited to individual product groups. VINCORION's competitors include Moog, UTC Aerospace Systems, and Meggitt.

Targets and Strategies

Strategic orientation of the Group

As described in the chapter titled "Business Model and Markets", the Jenoptik Group offers the majority of its products and services for the photonics market. As so-called enabling technologies, the extremely precise, flexible methods and processes of photonics exert a great economic leverage effect and will thus continue to enjoy an increasing share in industrial value creation. At the same time, our solutions can contribute to increased efficiency and precision of our customers' products as well as to improved environmental compatibility and more sustainability.

The core of our Strategy 2022, introduced in 2018, is to concentrate on the core areas of light and optics. With a greater focus on photonics growth markets we want to develop into a focused and globally positioned photonics company over the coming years. In implementing its strategy, Jenoptik concentrates on internationalization and innovation.

To implement the growth strategy, we are
- focusing on our core competencies in the field of photonics,
- reorganizing and simplifying our corporate structure,
- actively managing our portfolio with a view to additional purchases as well as transformatory acquisitions and selective divestitures,,
- continuing to work on further internationalization in conjunction with greater vertical integration and customer proximity in our priority regions,
- investing more heavily in research and development, expanding our system and application expertise and becoming a solutions provider,
- driving an active cultural change within the company and
- continuing to steadily strengthen our financial resources.

Focus

Our activities in the market for photonic technologies focus on the fields of information processing, intelligent production processes, sensor technology, metrology, and biophotonics. For us, these are markets that are not only characterized by growth, but also by technological differentiation potential. Jenoptik continues to benefit from the global trends in digitization, health, mobility & efficiency, infrastructure as well as security, and is increasingly establishing itself as a strategic systems partner for international customers, with whom it works to design forward-looking solutions.

Further information on the development of the sectors and markets can be found in the Group Management Report.

With the new organizational structure that came into force in the 2019 fiscal year, we have further improved our market and customer orientation. Operations within our former segments were reorganized and the operative business was clustered according to a common understanding of markets and customers based on the same business models. This helps us to bring our products and solutions closer to the customer and opens up improved growth opportunities. Our three photonics divisions, Light & Optics, Light & Production, and Light & Safety, build on our extensive expertise in optics, sensors, imaging, robotics, data analysis, and human-machine interfaces. With our mechatronic activities under the VINCORION brand, we address customers from the aerospace and defense industry independently of the rest of the Group. G12

For us, focusing does not just mean emphasis on our core areas of expertise, but also simplifying structures and making the company more agile. For example, in 2019, the holding company and the Shared Service Center (SSC) were organizationally and legally merged. In addition, all major German legal entities of the Light & Optics division were merged into one company. Decision-making processes and responsibility have thus been further decentralized and, increasingly relocated into the operating areas. This will enable us to prioritize initiatives for future growth more clearly, leading them to success.

Further information on the group structure can be found in the Business Model and Markets chapter from page 74

Innovation

As an innovative high-tech company, identifying customer needs and trends early on and aligning them with our strategic actions and business activities to determine appropriate technology and product developments is of critical importance to Jenoptik. That is why we want to increase our R+D investment, including customer-related projects to a total of approximately 10 percent of revenue by 2022 (2019: 8.0 percent) in order to strengthen our market position in the field of photonics. We will continue to expand our software expertise and our knowledge in the field of artificial intelligence across all business segments in order to offer technological solutions for new requirements with interdisciplinary teams. In addition, we will push ahead with the expansion of our technology platforms in order to better utilize synergies. The planned profitable growth will also be supported through efficiency measures and increasingly also by the further expansion of the service business as well as the realization of economies of scale, for example in the Industrial Solutions, Metrology and Laser Processing areas.

As a system partner, Jenoptik is constantly looking for new solutions together with our customers. Our customers are often already involved in the very early stages of development processes. This enables us to strengthen our relationships and steadily boost value creation.

Further information can be found in the Research and Development chapter from page 84

G12 Strategy of the Jenoptik Group

Group strategy 2022

Strategic building blocks	More Focus	More Innovation	More International
Strategic targets	Quantitative long-term targets: Growth | Profitability | R+D ratio Strengthening financial power		Qualitative long-term targets: Cultural change | Employee satisfaction | Headquarters of the divisions | International value creation

Internationalization

Due to a continuing upswing in domestic industrial production as well as the demographic trend, Jenoptik sees particularly great potential for future growth in the regions of the Americas and Asia / Pacific. In terms of internationalization, we are therefore focusing on these markets. The realignment of our Asian business activities was continued with the reorganization of our structures there. A new leadership team for Asia has been managing the business and structural development of the Group locally since 2019. By establishing a new company Jenoptik can now benefit from the special economic policies that apply in free trade zones in China. In the fiscal year just past, these measures played an important role in our strategic development. In addition, we are aiming to increase value creation by expanding manufacturing and product development in this region. In this way, we will be able to offer local customers products and solutions together with services developed locally to meet their various needs. The plan by 2022 is to establish local R+D teams and own production facilities in all major growth markets – such as China – in order to support our customers in their local markets in achieving their innovation goals.

To further improve our market orientation and customer proximity, we are adapting our structures and developing products and solutions that are consistently geared to the trends and needs of our customers. In the future, Jenoptik will also continue to invest in the implementation and expansion of new and existing sales and service structures. We rely both on our own direct distribution channels and on existing dealer structures. Following the opening of an application center in Fremont, California, further application centers are planned in the years ahead, especially in the Asian region.

Through active portfolio management, we also want to continue to complement our organic growth with acquisitions, and we are continuously examining opportunities. By purchasing companies, we plan to boost our market and customer reach – not only in Europe, but particularly also in the Americas and Asia – or otherwise complement our portfolio through forward integration and additional systems' expertise. Examples of this included the acquisitions of the Canadian Prodomax and the German OTTO Group, successfully completed in 2018, and the recent purchase of INTEROB in Spain. Each acquisition must fit strategically and culturally, offer opportunities for growth and a sound business case, thereby fulfilling the criteria for increasing corporate value as well as integratability. The discontinuation of existing business activities or the sale of shares in companies is also continuously reviewed against the backdrop of the intended focus on photonic core competencies and possible at any time within the scope of active portfolio management. The planned sale of VINCORION was also to be seen in this context. However, in January 2020, the Executive Board decided to stop the sale process, as in its view there was no offer which adequately reflected the potential of this business.

In order to maintain lasting profitable growth, we must attract highly qualified and capable employees and ensure their long-term retention in the company. Structured HR planning is necessary to achieve this in an environment which is becoming increasingly demanding from the demographic aspect. Jenoptik is now positioning itself as an attractive employer by utilizing targeted HR marketing activities. Personnel development measures as well as improved framework conditions and a modern, open corporate culture should help to strengthen employees' loyalty to the company. The new values introduced in 2019 – open, driving and confident – form the basis for our corporate culture and help Jenoptik to grow together across different cultural and legal systems. As part of our personnel work, the anchoring of the values in everyday corporate life is therefore a further focal point in the realization of our strategic objectives.

In the gradual implementation of the Strategy 2022, the Executive Board had set the following priorities for 2019:

- Growth in Asia,
- Operational excellence in our production processes, and
- Speed-up of innovation.

The Executive Board, the members of the Executive Management Committee (EMC) and our employees worked intensely to realize and implement these strategic group initiatives in 2019. For example, sales activities in Asia were aligned even more closely with customers and markets. Jenoptik significantly expanded its own network of partners and carried out a large number of technical training sessions for its own service teams and for dealers. Many new formats for better cooperation as well as various development programs for young talents were also introduced locally.

The Operational Excellence initiative in our largest division, Light & Optics, focused on improving on-time delivery. With the new organizational structure and a number of internal projects further improvements in processes in manufacturing were achieved in 2019. In the year covered by the report, this has already led to a significant improvement in on-time delivery in the Light & Optics division.

Further information on employees and the brand can be found in the Non-financial Report from page 54

In 2019, the initial aim of speeding up innovation was to create optimal framework conditions for an innovation-friendly environment. To this end, the innovation process was simplified and the innovation landscape within the entire Group was made more transparent.

Using the "Vitality Index" from Jenoptik, which was introduced in 2019 and compares the revenue of products less than three years old to total revenue, the successful development of innovation activities can be tracked over time, for example. All innovation topics are viewed in a superordinate and holistic manner with regard to product, platform and technological development. By defining technology and market areas, the Group can further sharpen its focus on current and future technological competitive advantages.

After defining the individual divisional strategies, which follow the objectives of the group strategy, implementation of these strategies also began in the 2019 fiscal year.

Jenoptik has also defined strategic priorities for 2020:

- Development in Asia,
- Global Business Excellence, and
- Cultural change.

Our strategic efforts in Asia have been strongly focused on China over the last two years. In 2020, we will also turn our focus on other countries such as Japan and Singapore in order to achieve sustainable success throughout Asia in the future.

With the Global Business Excellence (GLOBE) program, we want to create the prerequisites for future digital business models and standardized management processes in the Group. The focus of this transformation project in the current fiscal year will be on the introduction of modern collaboration tools as well as the definition of a uniform process landscape and its harmonization across all business segments.

In addition, the cultural change within the Jenoptik Group will be another focus within our strategic initiatives in 2020.

Strategic orientation of the operating business

The Group's photonics divisions, which were established as part of the new business structure, are interconnected in many ways to ensure the transfer of technology or expertise between the divisions. Infrastructures and cross-section functions are also increasingly used jointly, for example for global procurement or in the expansion of the international sales network. Shared locations and the use of infrastructure facilitate market entry, enable the company to achieve critical mass more quickly in key regions around the world, and help to optimize the cost base through the leverage of synergies. Cost benefits are realized and currency risks minimized through global sourcing and production.

In "Light & Optics", we are continuing to focus our OEM business with optical systems on the "Digitization" mega trend. On the basis of our strengths in optical and micro-optical solutions, we aim to access further digital world markets such as advanced manufacturing or industrial solutions in addition to the semiconductor equipment sector. Jenoptik is already positioning itself in the market for optical information and communication technology. Ongoing internationalization, the expansion of the systems business and a focus on key customers will be the basis for sustainable, profitable growth, to which the use of economies of scale and both customer and technology synergies will additionally contribute.

In the market for biophotonics, we are also focusing on the "health" megatrend. Based on beam sources that use lasers and LEDs, optical precision components, digital imaging, and platform technologies, we want to increasingly position ourselves as one of the leading, profitably growing partners for the development of system solutions and products for diagnostics, analysis, screening, and therapy in the healthcare and life science industries. However, we are also participating in the trend for more mobility and efficiency with innovative industrial applications. One business focus is on expanding volume business with optoelectronic and polymer optical high-performance components and modules. In addition, we are continuing to pursue promising growth options for innovative applications using our core areas of expertise, such as driver assistance systems or technologies for autonomous driving (LiDAR). In these fields, too, we want to become an internationally operating supplier.

As a reliable supplier of products, systems, engineering solutions and services for industrial customers (B2B), we are primarily addressing the trend towards more stability, flexibility and efficiency in production processes in the "Light & Production" division. We will use our high-performance Smart Manufacturing applications to support the manufacture of efficient products in various sectors such as the automotive industry. For this purpose, we are increasingly bundling the services of all units of the division into joint projects. Jenoptik's use of optical inspection and production metrology enables it to focus above all on the need to reduce fuel consumption and CO_2 emissions as well as the growing trend towards e-mobility. The aim of this is to expand our position as a leading company in the area of optical 2D and 3D metrology for modern drive systems and in electronic production. A concentration on automated plastic and metal processing will support further growth in the field of laser processing systems. Inline dimensional measurements are increasingly also being carried out for these applications. Our recent acquisitions also contribute to this development. As an integrated supplier, Jenoptik is now able to offer everything for efficient production environments from a single source, from its own products and systems to automated system concepts and complete process solutions. The Light & Production division is therefore developing from a supplier of key technologies to a strategic partner for globally operating customers in our target markets. Regionally, we intend to strengthen our business in Asia, especially in the expanding south-east Asian markets.

In the "Light & Safety" division, we are pursuing two further future trends with a focus on infrastructure and public safety. In the field of traffic monitoring systems, we continue to support our customers – primarily public-sector customers (B2G) – in achieving their targets to improve traffic safety with complete solutions. With the global trends toward increasing mobility, urbanization and security, particularly in emerging countries, Jenoptik is also tapping into new sales regions. In 2019 we began with the development of a new uniform product platform, in particular for these markets. In our existing key markets, there is demand above all for more applications as well as greater information density per monitoring system, which the division is meeting by expanding its growing technology and software expertise. In addition, we see a trend towards major projects in the global traffic safety technology market with a combination of the equipment business and services, known as Traffic Service Provision. That is why Jenoptik is focusing on strengthening this profitable service business. Following the major order for toll monitoring systems concluded in 2018, Jenoptik also intends to further develop this business.

Alongside the traffic safety sector, the market for civil security is also gaining in importance. Based on the existing systems and software applications, the division aims to develop into an integrated solution provider for civil security and future smart cities, while at the same time positioning itself for a future in which autonomous driving is part of everyday life. In this context, the Light & Safety division focused its strategic research work on topics such as powerful database applications, efficient software algorithms and artificial intelligence in 2019. The expansion of our presence in international markets, selected cooperation arrangements as well as the concentration on innovative and competitive products are aimed at securing future growth and boosting our market position.

Jenoptik's Mechatronics business under the VINCORION brand is positioning itself as a partner for systems companies and customers who have a need for individual solutions that meet the stringent requirements of heavily regulated markets such as those of aviation and defense technology. Opportunities for further growth are seen in global trends such as the growing need for security, mobility, and efficiency as well as the increasing electrification in military and civilian sectors. For this reason, the focus will be on such high-growth business areas such as energy systems. Beyond this, the share of systems is to be increased which are used in civilian fields such as aviation. Customer relations with OEMs and end customers will be stepped up around the world. VINCORION is also seeking to expand its service business and international sales and service structures, especially in North America and Asia.

Further information on the segments can be found in the Segment Report on page 106 and the Business Model and Markets chapter on page 74

Strategy development and processes

Jenoptik's Corporate Development department reports directly to the Chairman of the Executive Board and strives to achieve an optimum strategic market alignment of the Group with its segments and foreign locations. The Corporate Strategy team supports the development, implementation, and follow-up of the strategy implementation.

Comprehensive knowledge of the position and competencies of our company in the market environment is indispensable. To underpin the group and individual strategies, on the one hand, there is close cooperation between Corporate Development and the divisions in the area of market intelligence – this concerns information about global target markets, trends and customer requirements, disruptive developments, opportunities and risks, as well as competitors and other framework conditions. On the other hand, it is important to bundle and expand our own technological expertise and unique selling points, including by means of suitable patents, strategic road maps, and structural adaptations. Here the operating business units are also supported in terms of process and content. This helps to secure Jenoptik's targeted market position.

In addition, the central Corporate Development department also supports the operating units in planning and implementing their strategic projects and in designing business models and structures – all with the target of securing sustained profitable growth within the Group. This target can also be supported through company acquisitions.

Control System

The company control system is geared toward the long-term corporate strategy and is therefore consistently aligned with the Group's short to medium-term objectives. The Executive Board is responsible for overall planning and thus for achieving the stated objectives as part of the strategic corporate development.

With the involvement of the Executive Management Committee (EMC), the Executive Board uses a strategy process to steer the development of the business units and monitors the implementation of defined measures. On the basis of global trends, growth paths are defined, opportunities and risks are evaluated, portfolio decisions are made, and the focuses of in-house research and development are determined using so-called technology roadmaps at annual strategy meetings. Strategy and planning meetings provide a planning basis for the following year and in medium-term group planning.

A planning forecast for the coming year and a five-year period is made annually on the basis of the long-term corporate strategy, based on the market-driven strategic planning in the divisions. The "counter flow method" is used for planning (bottom up – top down). In the course of a fiscal year, the planning for that year is updated in several forecast cycles.

Monthly results meetings (business reviews) during the EMC meetings are used for operational control. There the division heads / regional managers report to the Executive Board on the economic situation, the development of customer relationships, the competitive situation, and any exceptional business events. They employ standardized reporting methods largely involving performance indicators, information variables, and qualitative assessments, which are then used to define further operating and strategic measures to achieve the objectives in the event of planning deviations. The internal reports for the monthly Executive Board meetings provide aggregated financial and non-financial information for the divisions and the Corporate Center, which is used as a basis to manage the Group on a global level, allocate resources in a targeted manner, and pass resolutions on the Executive Board.

A business intelligence environment enables and supports continuous improvement in business development analysis, reporting, and planning processes.

The indicator system used in internal reports and to manage the business units in 2019 comprises high-priority performance indicators ("key performance indicators") and other financial and non-financial information parameters. All the indicators chiefly focus on shareholder value, the requirements of the

G13 Performance indicators for corporate management

	Financial indicators		Non-financial indicators	
Key performance indicators	Growth	Revenue, order intake, capital expenditure		
	Liquidity	Free cash flow since 1/1/2020 cash conversion rate		
	Return	EBITDA margin		
Information parameters	Growth	Order backlog, frame contracts	Growth	Number of employees
	Return	ROCE EBIT margin	HR management	Training, fluctuation, sick days
	Liquidity	Net debt, working capital	Process control	Throughput times, reject quotas, and indicators for quality management

capital market, and the corporate strategy. The key indicators are shown in the chart G13. In addition to the key performance indicators at group level, there are also indicators used only within the business units, e. g. order backlog or number of employees. Alongside regular forecasts, a rolling three-month forecast for revenue and order intake is used to manage the company's development. G13

The control system was further developed, and the indicator base was adjusted at the beginning of the 2019 fiscal year in order to better focus on the performance indicators relevant for corporate management. Since the beginning of 2019, the EBIT margin has no longer been used as a key performance indicator, it is now only an information parameter. In addition, the cash conversion rate (ratio of free cash flow to EBITDA) is a new key performance indicator and replaces the free cash flow. In the current fiscal year, too, the Jenoptik Group is committed to the continuous improvement of its processes. One key aspect of this remains the implementation of an SAP business warehouse, which will allow us to better reflect the markets' dynamic growth and thus obtain important control information both faster and more efficiently.

Explanation of the key indicators

EBITDA – earnings before interest, taxes, depreciation and amortization, including impairment losses and reversals of impairment losses. The EBITDA margin is the ratio of EBITDA to revenue.

EBIT – earnings before interest and taxes.

Free cash flow is calculated from the cash flows from operating activities before income taxes less capital expenditure on and income from the sale of property,plant, equipment and intangible assets.

ROCE (return on capital employed) is calculated by dividing EBIT by the average tied operating capital. The total tied operating capital is calculated on the basis of the non-current non-interest-bearing assets (such as intangible assets including goodwill, property, plant and equipment and investment properties) plus the current non-interest-bearing assets (primarily inventories, receivables from the operating business activities and other current receivables) less non-interest-bearing borrowings (such as provisions – excluding pensions and taxes, liabilities from the operating business activities and other current liabilities). The calculation of the average takes into account twelve month-end balances in the period under review, and the opening balance at the start of the year.

For more information on the non-financial information parameters, see the Non-Financial Report from page 54 on

For information on planned development and keys performance indicatrs, see the Forecast Report, from page 133

Research and Development

As a technology group, research and development (R+D) is of key importance to Jenoptik. Our products and services give us competitive advantages which determine our performance and thus our economic success. One of our key strategic aims is therefore to expand our innovative capabilities in the photonics growth markets. In line with market requirements we also develop products and platforms with unique selling points, protecting them where possible by means of industrial property rights. With our products and solutions, we want to improve our customers' performance and profitability, and contribute to greater energy efficiency and the responsible use of resources.

Innovation management is an important tool used by Jenoptik to systematically identify and implement promising ideas. With the networked processes, its primary goal is to generate capital from knowledge by objectively combining market and company viewpoints. Our innovation management has a uniform group-wide process landscape which can be adapted within the divisions to meet the requirements of the respective industry. These framework conditions help to drive developments forward in order to make positive value contributions for the entire Group. Innovation management at Jenoptik lies within the remit of the Chairman of the Executive Board. The innovation managers from the central Corporate Development department evaluate all research and development portfolios and road maps across the Group. They therefore cooperate closely with various areas of the company, such as controlling and investment management, and are intensively involved in the rolling strategy and planning processes.

Innovation process

Innovation is one of the three building blocks of Strategy 2022. As part of the group initiative "Speed up innovation", numerous process improvements were developed and implemented in a series of cross-divisional workshops in 2019. This is expected to accelerate the implementation of innovation projects in the future, which in turn will allow innovative solutions to reach the market sooner. In future, the result of our innovation activities will be measured with the help of a "Vitality Index" which corresponds to the share of revenue with products and platforms developed in the last three years.

Developments directly on behalf of customers continue to play an important role in our innovations. In the future, however, we will focus more on our own developments and spend more resources on pure research activities. The first stage of the Jenoptik innovation process involves a strategic analysis of global trends and the requirements of our customers to identify opportunities for growth. These then become innovation projects based on our core areas of expertise and often in direct cooperation with key customers. Strategic development projects are planned in road maps on the basis of corresponding milestones. This applies to product, technology and process innovations.

In addition to selected photonics markets, the expansion of our applications expertise as well as new digital business models based on our existing technologies and know how are an enormous driver for growth and are at the center of our research and development work.

To further increase our innovative power, we must not only develop technologies and products. In the group-wide Innovation Workshop 2019, for example, the focus was on defining future fields of technology. In a second step, the technology fields were evaluated from the market perspective, and subsequently presented to the Scientific Advisory Council and the Supervisory Board for discussion. In the future, the fields of technology identified in this process will provide orientation for our research activities.

To promote these even more, the Executive Board has approved an "Innovation Budget" for which the development departments can apply. This be used to advance ideas and concepts with high disruptive potential at an early stage of development. The first projects supported by the Innovation Budget started in early 2020.

OTTO Vision in the Light & Production division, which presented the FLEX-3A, an optical 3D measuring system for the fast and ultra-precise measurement of small parts, was the overall winner of the Jenoptik Innovation Awards 2019. The measuring process is fully automatic. No inspection marks are required to obtain a complete 3D model of a part. The system can be used for initial inspections or automated spot checks, but it is also suitable for the generation of so-called digital twins in reverse engineering.

Employees in research and development

The experience and expertise of our employees are essential to the success of our research and development work. Therefore, our demand on their level of qualification is correspondingly high. Their knowledge is used both for specific tasks and across all divisions in development projects. In the fiscal year just past, we hired additional employees in the R+D area. T19

Key cooperation arrangements and memberships in associations

Jenoptik gains access to additional external expertise with the help of targeted cooperation arrangements. Through research cooperations, projects can be realized in a market-driven manner, development times can be reduced and specialist expertize can be successfully built up. Jenoptik works with both universities and non-university research institutions as well as with industrial partners and key customers. The Scientific Advisory Council is a committee of experts which supports the Group in the monitoring and evaluation of long-term technology trends. During the reporting period, the composition of the Scientific Advisory Board was even more consistently with the technologies relevant to Jenoptik in the field of photonics through additional internal and external appointments. The cooperation arrangements named below are just some of those in which Jenoptik was active over the past year.

In the "IDEA" Project (Industrialization of Digital Engineering and Additive Manufacturing), Jenoptik is developing metrological solutions for the process control of 3D printing of metal components. In the so-called "3D printing process", components can be produced from a range of materials by locally melting the powdered starting material, for example, using a laser beam. In this way, the desired component is created, layer by layer, which can possess significant geometric complexity and functions that cannot be realized with conventional production methods, or only at great expense. This type of production has great potential in an customized production, as component-specific tools such as compression or casting molds no longer need to be produced. The objective is to prevent defects and therefore to significantly increase the productivity of the manufacturing process, making it economically attractive for further applications. In addition, the reject rate is reduced, thus protecting the environment. The project is being carried out in a consortium with industrial and research partners (such as Siemens, MTU, EOS, Fraunhofer ILT) and is funded by the German Federal Ministry of Education and Research (BMBF).

The manufacture of diode lasers is a technologically demanding and complex process. From the production of the wafer to the structuring of the laser chips and the final assembly of the laser diode on a heat sink and in a housing, several hundred individual process steps are required, and must be precisely coordinated with each other. But this is precisely what makes it possible to design laser diodes very well for a wide variety of applications and to optimize their parameters. Within the scope of the "HotLas" project, funded by the German Federal Ministry of Education and Research (BMBF), Jenoptik, in cooperation with other partners, has created improved simulation options for predicting and optimizing these parameters as well as extending the operating temperature range of the laser diodes. The latter reduces the demands on the cooling system, thereby improving the cost efficiency of the overall system, especially for ones with high output power. Once the project is completed in 2020, the results will be transferred to series production, thus complementing the Jenoptik product portfolio.

Jenoptik is also active in numerous industry and technology-oriented associations. Examples of this are the Optonet Photonics Network at regional level, SPECTARIS at national level and the European Photonics Industry Consortium (EPIC) at European level. Here, the Group is committed to creating an innovation-friendly environment and promoting the image of photonic technologies. Examples of this are the activities in the Executive Board of Optonet and the Executive Board of the Photonics division within SPECTARIS as well as the gold sponsorship of the Optecnet annual conference, which took place in Jena in 2019.

Development output

The R+D output of the Jenoptik Group, including developments on behalf of customers, was at 68.4 million euros approximately at the level of the prior year (prior year: 69.2 million euros). The R+D expenses fell in comparison with the prior year to 44.1 million euros (prior year: 47.4 million euros). The costs for developments on behalf of customers were 20.4 million euros and were apportioned to the cost of sales (prior year: 20.2 million euros). In 2019, development services including patents were capitalized in the amount of 4.0 million euros (prior year: 1.5 million euros). The increase resulted from necessary

T19 Employees in R+D

	2019	2018
Number of employees in R+D	516	506
Percentage of overall workforce	12.5	12.5

Information on the members of the Scientific Advisory Council can be found on page 223

capitalization of internal projects in the Light & Optics division as well as by VINCORION. The capitalization ratio, i.e. capitalized development costs divided by total R+D expenses, was 9.1 percent in 2019 (prior year: 3.2 percent).

Information on depreciation on internally generated intangible assets can be found in the Notes point 5.1 on page 167

As shown in the table, R+D output is distributed among the divisions: T21

R+D output in the Light & Optics division includes expenses arising from developments on behalf of customers in the amount of 13.2 million euros (prior year: 8.3 million euros), among other things due to the development of a laser-optical subsystem for the particle sensor developed by HELLA. R+D expenses in 2019 totaled 19.0 million euros (prior year: 19.2 million euros).

The R+D output of the Light & Production division included developments on behalf of customers of 3.4 million euros (prior year: 4.8 million euros). The R+D expenses came to 7.9 million euros (prior year: 8.2 million euros).

In the Light & Safety division, the R+D output was 12.0 million euros in 2019 (prior year: 13.6 million euros). Of this, 1.0 million euros were developments on behalf of customers (prior year: 4.3 million euros).

VINCORION posted developments directly on behalf of customers amounting to 2.9 million euros in 2019 (prior year 2.7 million euros). VINCORION is also a long-term partner for large systems companies and develops platform technologies in conjunction with its customers. The R+D expenses reduced to 6.1 million euros (prior year: 10.5 million euros), primarily due to capitalization.

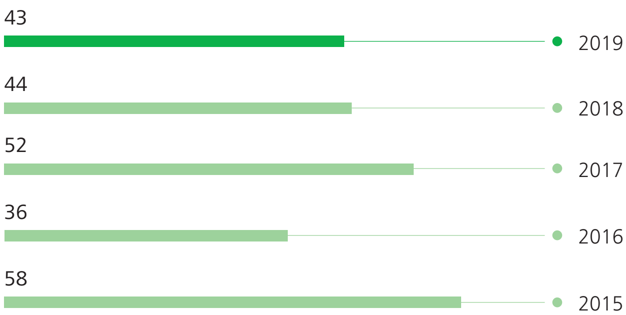
Patents

Our R+D investments are protected via central IP management in close cooperation with the operating areas. We accord particular importance to patent applications in dynamic growth markets such as China, Korea, and the US. In 2019, a total of 43 patents were filed by Jenoptik subsidiary companies (prior year: 44 patents), more than half of which were in the field of

T21 R+D output by division (in million euros)

	2019	2018	Change in %
Group	68.4	69.2	−1.1
Light & Optics	34.6	28.0	23.4
Light & Production	11.3	13.1	−13.6
Light & Safety	12.0	13.6	−12.1
VINCORION	10.5	14.1	−25.4
Other	0.0	0.2	−101.3

G14 Number of patent registrations



T20 R+D output (in million euros)

	2019	2018	2017	2016	2015
R+D expenses	44.1	47.4	43.1	42.3	41.8
Capitalized development costs including patents	4.0	1.5	1.4	0.1	0.4
Developments on behalf of customers	20.4	20.2	22.2	15.0	10.9
R+D output	68.4	69.2	66.6	57.4	53.1
R+D ratio 1 (R+D output / revenue) in %	8.0	8.3	8.9	8.4	7.9
R+D ratio 2 (R+D expenses / revenue) in %	5.2	5.7	5.8	6.2	6.2

optical components and optical modules. The number of patents does not include registered designs, utility models or brand registrations. For competition reasons, Jenoptik does not publish information on the receipt and issue of licenses. G14

Key projects and results

Our aim is to offer our customers the very best solutions. We do this by combining our comprehensive expertise with a broad experience in managing innovation in photonic technologies to the benefit of our customers. The following solutions are some of those developed and launched on the market by Jenoptik in 2019:

In the semiconductor equipment sector, new generations of lithography and inspection machines using light with very short wavelengths are increasingly being used for the production of processor or memory chips. In order to support these new generations of machines, the existing product platform for ultra-precise micro-optical sensors was expanded and its performance further optimized. To this end, manufacturing technologies in the field of micro/nano structuring and assembly as well as the combination and structuring of innovative materials were significantly further developed. In addition, existing platforms for high-performance optics and opto-mechatronic assemblies were adapted to the use of light with shorter wavelengths. One focus here was the development of technology and design approaches for system correction and thus for the realization of complex performance characteristics of these optics. Among other things, the results were also incorporated into the development of the next generation of optical systems for maskless lithography in display manufacturing.

In the field of information and communications technology (ICT), the performance of a novel opto-electronic test card for parallel electrical and optical testing of photonic integrated circuits (PICs) at wafer level was successfully demonstrated using the first prototypes and in close cooperation with pilot customers. These PICs are particularly used in optoelectronic transceivers, which are used today in their millions in data centers for conversion between electrical and optical signals. Significant growth is expected for these in the next few years. In addition, the product and technology platform for high-performance microlenses was further developed to meet the increased requirements of high-speed transceivers.

The catalog range of F-theta lenses and beam expander optics has also been supplemented and further optimized for the laser material processing market. Two key issues were advanced for the further development of product platforms for diffractive beam shaping optics (DOEs). Firstly, prototypes of a modular optical system solution supported by artificial intelligence have been successfully completed and are already being marketed. They are used for intelligent (position) recognition and high-precision laser micromachining of components and assemblies. Customers for this are system integrators, who gain easy access to a modern and very powerful technology through this modular system solution that can be adapted to the corresponding applications. On the other hand, the portfolio of transmission gratings has been extended by gratings for beam combination of high-power laser radiation in the blue wavelength range, which are used e.g. in the processing of copper. These transmission gratings are particularly suitable for applications using high-power lasers, since even small limitations in the grating efficiency can lead to high losses in laser power and thus to thermal problems in the laser system. These products are targeted, for example, at the automotive and mechanical engineering markets as well as medical technology.

In a joint project, colleagues from the Lasers business unit and semiconductor production in Berlin-Adlershof developed a new 275-watt diode laser. With 40 percent more power than its predecessor, optimized thermal management and a long service life, it is one of the few beam sources on the market which, despite its very high output, requires little maintenance and can withstand the extreme demands of high-power laser applications. Customers are attracted by the fact that existing systems can reach new power ranges by coupling the diode lasers. There is particular potential in diode direct applications in laser material processing, such as welding or cutting aluminum sheets for consumer electronics. It is planned to extend the platform to other wavelengths, for example to generate blue light for welding copper electrodes of batteries for electromobility.

For our customers in the medical technology and life science industry, the focus was on the further development of the SYIONS digital micro-imaging platform, for fluorescence microscopy among other things. The first modules including lighting, optics and electronics, sensors and software have been successfully developed, enabling Jenoptik to take a major step forward in cell-based applications. In March 2019, a long-term cooperation agreement was signed with a leading life science company to jointly develop systems for microscopy image processing. With SYIONS, Jenoptik has expanded its comprehensive solution expertise in the field of life science, diagnostics and analytics with a customer-specific, configurable platform for digital imaging and is focusing on the high-growth healthcare & life science market. With the new solution all kinds of image data in in vitro diagnostic devices can be generated quickly and efficiently for scientific and clinical use. Applications or investigations in the areas of cell diagnostics, cell biology and molecular diagnostics, for example, can be realized quickly and inexpensively with the help of the modular system. Thanks to this imaging process, taking samples for analysis is now a thing of the past, thus making the processes of our customers easier.

In the field of ophthalmology, 2019 saw the development of various key components for our customers' ophthalmic surgical systems to support microsurgical procedures for the treatment of pathological changes in the retina or vitreous body. A high-power LED-based white light source, for example, provides optimal illumination of the inner eye and can be adapted to the specific needs of the surgeon. At the beginning of 2020, the first surgical system with integrated Jenoptik technology was commissioned and initial tests carried out. Volume-produced surgical systems should then be on the market from 2021 onwards.

The Group also developed numerous new products for the automotive industry in 2019 and initiated the first strategic projects in the field of electromobility. Specifically for electrical manufacturing, the Jenoptik team in Michigan developed an automation concept for integrating a complete assembly line for a so-called battery pack into our customer's manufacturing process. The battery pack is screwed into the frame of the vehicle and covered by a protective shield to prevent damage to the underside and to protect the vehicle's occupants. The automation line assembled for this in Michigan is then transferred to the electric car manufacturer's production facility and put into operation. This has made Jenoptik an integrator in a promising industry. It is also working on developing and integrating innovative automation concepts for the assembly of battery packs for other automobile manufacturers.

As a supplier of photonic solutions, Jenoptik is active in the future-oriented LiDAR field (Light Detection and Ranging). LiDAR technology complements the existing radar and video sensor technologies and will therefore be integrated into almost all vehicles as a key technology for autonomous and semi-autonomous driving in the near future. Jenoptik has expertise and many years of experience in all the basic technologies required for high-performance LiDAR systems. These include precision optical components, micro-optics and diffractive optical elements (DOE), optoelectronic systems made from glass and polymer, laser diodes as well as laser modules for distance measurement with light. LiDAR offers growth opportunities not only in the automotive market, but also in other industries. Jenoptik is positioning itself as a Tier 2 supplier and supplies customer-specific transmitter and receiver modules as well as selected photonic components to manufacturers of LiDAR systems. Our customers use these products, for example, in the automotive and automation technology sectors.

Our products in the areas of optical surface inspection, optical shaft metrology as well as roughness and contour metrology were also further developed. For example, the Visioline IPS B5 optical surface inspection system entered volume production in 2019 and is now marketed worldwide. It facilitates the inspection of small bores (diameter from 5 mm) and allows for the rapid inspection of entire interior bore surfaces, the inspection and measurement of inner contours as well as the evaluation of defects. The 360° optics of the sensors create an image of the entire bore surface. The fast and robust sensor thus fulfills all requirements for a 100 percent inspection of the product quality in a production line.

The Opticline T3D multi-sensor solution was also launched on the market. This tactile T3D probing solution, exhibited for the first time at the Control trade show, enables comprehensive measurements to be made directly in production and supports our customers in efficient quality control. Prompt test results also save costs, as there is no need to invest in additional production metrology. The combination of optical and tactile metrology means that Opticline devices are multi-talented and ensures, for example, the quality of components in the field of electromobility with only one measuring instrument.

In order to meet the customer requirements for flexible, fast and precise measuring processes, Jenoptik has also further developed the new generation of roughness and contour measurement instruments in the Waveline product range. The measuring stations have a modular design and can be expanded at any time. The W800 model series is particularly suitable for the many different measuring tasks in the measuring room with typically manual or semi-automated measuring processes.

In 2019, Jenoptik invested significantly in expertise in artificial intelligence in the traffic safety market. By introducing and applying so-called deep learning algorithms to automatic license plate recognition, for example, the recognition rate using ANPR cameras has been improved significantly. Our solutions, which enable the classification of vehicle type, model and color, have benefited from the application of so-called “deep learning networks”. Our developers also worked on topics such as the future monitoring of low emission zones, to which only low-emission vehicles may have access. In order to be able to react even better and more flexibly to industry and national requirements in traffic monitoring in the future and to serve various market segments efficiently, we started the development of a modern, modular system platform in 2019.

In the market for security and defense technology, VINCORION's Energy & Drive business unit completed the product portfolio with its new air-cooled SAM 600 A generator, thus focusing on an innovative and modular platform concept. Electric generators from VINCORION generate reliable, efficient and on-demand electricity for the on-board networks of various military vehicles, ensuring mobility and operational readiness. The 28-V generator is characterized by a high proportion of standardized components and is optimized for a small footprint and high degree of efficiency. A battery management system has also been developed that reliably detects the charge status of new and already used vehicle batteries in a cellular network within a short period of time. VINCORION developed P²M² Portable Power Management Modules for the flexible power supply of mobile divisions. These can use all available energy sources and can be supplied with memory modules even independently of energy sources. Units can select the appropriate modular power supply for each mission. This makes the units independent of complex logistics.

In the aviation area, VINCORION developed a floor heating system for the entrance areas of airplanes, modified existing heating elements, and expanded the product portfolio. This heating system is extremely reliable and robust; It can neither overheat nor burn out and provides more comfort and safety in civil aviation. The first innovative heated floor panels were delivered for the A330 in the first quarter of 2019 and in the first quarter of 2020 these will be delivered for the A350. In addition, a further major Airbus program was won. Development began at the start of 2020. The development team also worked on the new “SkyHoist 800” electric helicopter rescue hoist, which, thanks to its innovative product features, exceeds the standard market parameters with an dead weight of less than 50 kg, tensile loads of up to 350 kg, and a lifting speed of up to 2 m per second. Its modular concept also reduces maintenance-related downtime and thus operating costs.

Employees

Development of employee numbers

As of December 31, 2019, with 4,122 employees (incl. trainees), Jenoptik recorded growth in its workforce of 1.9 percent (31/12/2018: 4,043 employees). The number of Jenoptik employees abroad rose by 0.7 percent to 988 (31/12/2018: 981 employees). At 24.0 percent, the proportion of employees abroad is largely unchanged compared to the previous year (31/12/2018: 24.3 percent). T22

Temporary workers were also employed in the past fiscal year to cover production peaks and for major projects. They were employed mainly in the operating areas, and the number fluctuated during the year. On the reporting date of December 31, 2019, 101 temporary workers were employed in the Group (31/12/2018: 107).

At 301.1 million euros, personnel expenses in 2019 (wages, salaries, social security deductions, costs for retirement provision) were up 8.2 percent compared with the prior year’s figure of 278.3 million euros. The growth is attributable both to the increased number of employees in the Group and to wage and salary increases.

Revenue per employee (including temporary employees) measured in full time equivalent fell by 2.3 percent to 216.6 thousand euros in the 2019 fiscal year (prior year: 221.8 thousand euros). G15

T22 Employees by region (incl. trainees and academy students) as of December 31

	2019	2018	Change in %	Absolute change
Germany	3,134	3,062	2.4	72
Germany in %	76.0	75.7	0.4	0.3
Abroad	988	981	0.7	7
Abroad in %	24.0	24.3	−1.2	−0.3
Europe (excl. Germany)	232	220	5.5	12
Americas	565	568	−0.5	−3
Asia/Pacific	191	193	−1.0	−2

The employee age distribution is balanced, as can be seen in the table below. The figures are largely unchanged compared with the prior year. T23

The proportion of women in the Group (in Germany and abroad) was 27.0 percent on December 31, 2019, a slight increase in comparison with the prior year (31/12/2018: 26.3 percent).

At 5.6 percent, the sickness rate among Jenoptik employees in Germany in 2019 remained at almost the level of the prior year (prior year: 5.3 percent). The fluctuation rate in the Group fell to 4.1 percent compared to the prior year (prior year: 4.5 percent). In Germany, the fluctuation rate fell from 3.7 percent in 2018 to 3.1 percent in 2019. It is calculated by dividing the number of employees leaving the company in the fiscal year by the number of employees as of the reporting date of the prior year plus those who joined the company in the fiscal year. Temporary workers are not included in the calculation.

Training & HR development

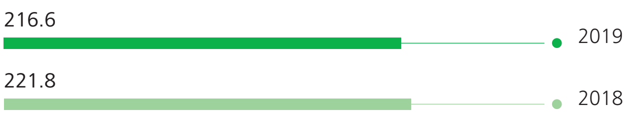
As of December 31, 2019, 156 trainees and students of the Cooperative State Universities were employed by the Group (31/12/2018: 117). Of these, 65 were new employees. At the same time, 28 trainees and students of the Cooperative State Universities successfully completed their training in the year covered by the report, and were taken on.

At the Wedel, Villingen-Schwenningen, Jena, and Triptis sites, the new trainees receive job-specific training for optical, precision engineering, electronic, and commercial occupations in training centers. Jenaer Bildungszentrum gGmbH – Schott, Zeiss, Jenoptik – in which Jenoptik is a partner, has also established itself as a training center for optics and photonics at a national level.

In 2019, Jenoptik invested around 2.6 million euros in the professional development of its employees (prior year: 2.5 million euros). These costs include both the expenses for trainees and students at the Cooperative State Universities and the costs for further training of our employees. The overall development needs in the Group are assessed in regular staff appraisals. Suitable qualification measures are then defined and implemented.

Further information on this can be found in the Non-financial Report from page 54

G15 Revenue per employee (in thousand euros)



Change 2019 −2.3%

T23 Group age distribution (in percent)

	2019	2018
Under 30	14.15	14.75
30–39	26.61	25.87
40–49	22.84	22.78
50–59	25.18	25.29
60–65	9.88	10.26
More than 65	1.34	1.05

Economic Report

Macro-economic and Sectoral Developments

The global economy grew last year by 2.9 percent, significantly slower than economists had expected; the International Monetary Fund (IMF) reduced its forecasts several times during the year due to growing economic uncertainties. Various geopolitical and trade conflicts, such as the trade dispute between the USA and China or Brexit, weakened the global economy, not least because companies were reluctant to invest in machinery and other capital goods. Since October, the US – with the approval of the World Trade Organization (WTO) – has levied tariffs on EU imports worth 7.5 billion euros, primarily for passenger airplanes, food, and consumer goods. An initial preliminary agreement was signed between the US and China at the beginning of 2020, which provides for the reduction of tariffs. Nevertheless, the majority of the special duties in force since 2018 remain in place for the time being. At the end of January 2020, the United Kingdom decided to leave the EU. In the trade dispute between Japan and South Korea, both countries increased their export restrictions on certain materials used in chip production; the impact on global supply chains remained limited.

In the US, the pace of growth stabilized at the end of the year despite the trade disputes. The result was that gross domestic product for 2019 as a whole increased by 2.3 percent compared with the prior year (2.9 percent), according to the first estimate by the Department of Commerce at the end of January. The growth was primarily aided by foreign trade. Due to the trade dispute with China, imports and investments by companies declined sharply. Private consumption grew, but at a much slower pace. The US economy was adversely affected by the crisis experienced by the aircraft manufacturer Boeing, because exports of commercial airplanes fell significantly following the global flight ban on the Boeing 737 Max aircraft. The US concluded a new trade agreement with Japan in October, but this agreement does not concern the automotive market.

The trade dispute with the US and the associated punitive tariffs severely impacted the Chinese economy, even though the prospect of an initial preliminary agreement with the US eased the economic situation somewhat towards the end of the year. After a figure of 6.6 percent in the prior year, gross domestic product increased by only 6.1 percent in 2019 – as announced by both the IMF and the Chinese Bureau of Statistics. This was the slowest growth rate in 29 years. Exports, in particular, were weaker, with Chinese exports rising by only 0.5 percent compared with 2018, according to the Beijing Municipal Bureau of Statistics. In 2019, imports fell by 2.8 percent. According to economic surveys, China recorded a solid increase in production, order intakes and domestic demand at the end of the year. The coronavirus outbreak affected the Chinese economy at the beginning of 2020: As a result of the government-imposed partition, production was halted, especially in the automotive industry.

In Germany, according to the German Federal Statistical Office, gross domestic product (GDP) rose by 0.6 percent in 2019, and according to the IMF by only 0.5 percent, which is significantly lower than in previous years. The German economy had recovered slightly in the third quarter in comparison with the previous quarter and the same quarter of the previous year, but then stagnated in the final quarter due to weak foreign trade and a slump in industrial production. Despite a strong domestic economy last year, export-oriented industry found itself in recession as investments fell sharply. Indicators include declining order intakes and lower production in the manufacturing sector. Although exports rose to a record level of 1,327.6 billion euros in 2019, the growth of 0.8 percent was significantly lower than in the two previous years, according to the German Federal Statistical Office. Even at the beginning of 2020, the economic weakness had not yet been overcome, according to the Federal Ministry for Economic Affairs and Energy. In January, the Ifo Institute's business climate barometer fell by 0.4 points to 95.9 points, dampening hopes of an economic recovery in the near future. T24

T24 Change in gross domestic product (in percent)

	2019	2018
World	2.9	3.6
USA	2.3	2.9
Eurozone	1.2	1.9
Germany	0.5	1.5
China	6.1	6.6
India	4.8	6.8
Emerging countries	3.7	4.5

Source: International Monetary Fund, World Economic Outlook, January 2020

Photonics is regarded as a key technology for future industries and growth markets. The development of the industry is driven by topics such as autonomous driving, digital production, new developments in the medical sector and, increasingly, aspects of climate protection. According to the Spectaris industry association, in the prior year, photonic technologies already contributed to saving 1.1 billion tons of CO_2. According to preliminary calculations by Spectaris, the German industry was to have increased its revenue last year by 6 to 7 percent to around 39.6 billion euros (prior year 37.1 billion euros). Whether or not this goal was achieved was still open to question at the editorial deadline, as the World Market Index for Optical Technologies calculated by Spectaris revealed a weakening in the course of the year compared to the prior year: In the first 9 months, revenue recorded by the 15 international companies included in the index was 2.7 percent down on the prior year's figure.

After a weak start to the year, the semiconductor market has recovered slightly since the third quarter. According to the Semiconductor Industry Association (SIA), global revenue in the semiconductor industry amounted to 412.2 billion US dollars, down 12.1 percent on the prior year's record of 468.8 billion US dollars. In 2019, all regions from North America and Europe to China and Asia / Pacific were in the red. Preliminary figures from IT analyst Gartner also indicated lower industry revenue: Revenue of 418.3 billion US dollars was some 11.9 percent down on 2018. Gartner had already lowered its revenue forecast several times during the year.

The trade dispute between the US and China and the resulting uncertainties affected not only the semiconductor market in 2019, but also the semiconductor suppliers. For example, export licenses to China for large chip manufacturers were withheld. Overall, the industry achieved global revenue of 57.6 billion US dollars in 2019, 10.5 percent less than in the record year before, according to the year-end forecast of the Semiconductor Equipment and Materials International (SEMI) industry association. For the first time, South Korea was not the largest supplier, but Taiwan ahead of China. Last year, merger and acquisition activity in the industry increased again compared to the prior year and consolidation among chip suppliers continued, according to market analysts from IC Insights. More than 30 semiconductor deals with a total volume of 31.7 billion US dollars exceeded the prior year's figure of 25.9 billion US dollars by 22 percent.

In the last year, the German mechanical and plant engineering industry reported a drop in production and order intake. According to initial forecasts, production fell by an average of 2 percent, while the order intake was 9 percent below that of the previous year. According to the VDMA, the reasons for this are international trade conflicts, increasing protectionism, Brexit and a far-reaching structural change in important customer groups such as the automotive industry. Manufacturers of machine tools were also affected by technological change and global export risks, with exports falling by 7.7 percent in 2019.

The weak economic environment from customer industries was also reflected in the robotics industry. According to the Robotic Industries Association (RIA), order intake in North America rose by only 1.6 percent in 2019, compared to 2018. Sales and delivieries in this cyclical industry in North America fell by 1.3 percent, among other things due to a weak final quarter. The International Federation of Robotics (IFR) confirmed the global weakness without growth in the past year.

The economy in the automotive industry was in sharp decline over the past year. An end to years of growth in the industry was reflected in both numerous revenue and profit warnings from car manufacturers and suppliers as well as announcements of plant closures and job cuts. The industry was burdened, among other things, by the diesel scandal and the shift towards electric vehicles, as well as by uncertainty about future environmental regulations, for example a new exhaust gas measurement method. According to the British SMMT industry association, production and foreign investment in the British automotive industry also fell sharply as a result of Brexit. According to the China Passenger Car Association (PCA), in 2019 car sales in China fell by 7.5 percent compared to the prior year. On the German market, around 5 percent more passenger cars were registered than in the prior year, which is equivalent to 3.61 million new vehicles, according to the German Federal Motor Transport Authority. This growth can be attributed to special factors, such as more working days in the past year and a high proportion of commercial registrations. According to analyses by the CAR Institute, however, German car production fell to a 22-year low in 2019.

According to the German Association of the Automotive Industry (VDA), 2019 was a challenging year for the global car markets: Europe and Brazil exceeded the prior year's level, while the US and the Asian markets were down on new car registrations, in some cases significantly. Following the outbreak of the corona virus at the beginning of 2020, in January passenger car sales in China fell by a substantial 20 percent compared with the same month last year, thus adding to the already weakening car market in China.

In the field of traffic safety, the majority of discussions in Germany revolved around the planned car toll system in the past year. Following extensive deliberations, in June the European Court of Justice ruled that the project was in violation of EU law. In early 2019, a Jenoptik section control system was put into operation in Lower Saxony. Following a court order to pause recording, the system in the Lower Saxony pilot project was reactivated in early July. The final ruling of the Higher Administrative Court of Lower Saxony (OVG) in November declared the use of sectional controls to be lawful. Public discussions in 2019 also focused on the introduction of a speed limit on motorways in order to improve environmental protection and safety. While the Netherlands has further reduced its speed limit on motorways from 130 to 100 km/h, the German Bundestag decided against a speed limit on motorways in October. According to the German Federal Statistical Office (Destatis), excessive speed was a contributing factor in almost half of traffic fatalities on German motorways (autobahn) in 2018. In its 2019 collision statistics, the German Federal Highway Research Institute (BASt) determined the lowest level of traffic fatalities since records began, attributing this to the increasing safety of vehicles and the growing use of assistance systems. Destatis also expects a new low in traffic statistics; nevertheless, there are still an average of 8 fatalities and more than 1,000 injuries on German roads every day.

In the aviation industry, uncertainties arose during 2019 as a result of political decisions: in the US, for example, punitive tariffs on aircraft components from the EU entered into force in October. Following two plane crashes, US aircraft manufacturer Boeing is facing commercial difficulties caused by the flight ban on the Boeing 737 Max in force since March 2019 as well as associated cancellations and extra payments. The flight ban, the stop to production and deliveries as well as additional costs for the software revision and claims for compensation burdened the balance sheet of the manufacturer, suppliers and even the US economy. European aircraft manufacturer Airbus was also unable to meet its original delivery target last year. Nevertheless, for the first time since 2011, Airbus delivered more airplanes than Boeing and also received more orders. As a result of fraud and corruption investigations conducted against Airbus, the aircraft manufacturer is paying a fine, which has led to a loss in its annual balance sheet, as was announced in early 2020.

Up to the end of 2019, German export licenses in the security and defense technology industry, saw an increase of 65 percent in comparison with the prior year to almost 8 billion euros, according to the Federal Ministry for Economic Affairs and Energy, thereby achieving a new annual record. The highest level prior to this was 7.95 billion euros in 2015. In September 2019, the German government again extended the arms embargo on Saudi Arabia and other countries involved in the Yemen war for six months, to March 2020. According to a report by the Swedish International Peace Research Institute Sipri in December 2019, arms sales in 2018 rose sharply, especially in the USA: 59 percent of all armaments came from the United States. Germany was responsible for 2 percent. Overall, the 100 leading armaments companies increased their arms sales by 4.6 percent in comparison with the prior year. In August 2019, the US withdrew from the INF Treaty banning intermediate-range missiles and announced a new missile system. At the same time, an arms treaty between Turkey and the US was discussed. After Turkey initially purchased Russian air defense systems, negotiations were held on the purchase of American Patriot missiles.

Legal Framework Conditions

The legal framework conditions governing business operations essentially remained constant in 2019 and therefore had no significant impact on the business development of the Jenoptik Group.

Earnings, Financial and Asset Position

Comparison of actual and forecast course of business

Based on the very good order backlog, the Jenoptik management forecast further growth for the 2019 fiscal year with the release of the preliminary results in February 2019. With the publication of the final figures in March, the statements became more concrete: the management expected an increase in revenue in the mid single-digit percentage range (excluding major portfolio changes) and growth in EBITDA with a margin of between 15.5 and 16.0 percent. The Executive Board expected increasing momentum in the course of the year.

After the guidance was confirmed in May, the original growth forecast was slightly adjusted in August with the publication of the half-year results. Due to the continuing reluctance to invest, particularly in the automotive industry, the Executive Board now expected revenue without major portfolio changes to be between 850 million euros and 860 million euros, and thus still an increase. The EBITDA margin was expected to be around 15.5 percent. These assumptions were once again confirmed in November.

In the year covered by the report, the Jenoptik Group achieved revenue of 855.2 million euros, which was within the now expected range and above the 2018 figure.

At 15.7 percent, the EBITDA margin exceeded the predicted figure. Profitability therefore improved significantly in comparison with the prior year (prior year: 15.3 percent).

Revenue and EBITDA of the divisions and their forecast development are shown in the following table. T25

With respect to the order intake, management had expected a slight increase at the beginning of 2019. Due to the significant deterioration in economic conditions from the middle of the year onwards and a tense market environment, especially in the automotive industry, the development of the Jenoptik Group's order intake was weaker than expected. In November, it was announced that the high level of the prior year could not be achieved. At the end of the year, the order intake was 7.0 percent down on the prior year's figure.

The free cash flow forecast of around 80 million euros issued in the spring was almost achieved with a figure of 77.2 million euros.

Capital expenditure, including additions to rights of use as per IFRS 16, rose to 55.6 million euros, thus showing the expected strong growth.

T25 Actual and forecast course of business (in million euros)

Indicator	Year-end 2018	2019 forecast		Year-end 2019	Change in %
Revenue	834.6	February: March: August:	Further growth Growth in the mid single-digit percentage range (without any major portfolio changes) Between 850 and 860 million euros (without any major portfolio changes)	855.2	2.5
Light & Optics	337.0	March:	Growth in the mid single-digit percentage range	350.0	3.9
Light & Production	210.7	March:	Growth in the lower double-digit percentage range	228.9	8.6
Light & Safety	116.9	March:	Noticeable decline (2018: settlement of a major order)	108.7	−7.1
VINCORION	166.4		Stable	164.8	−1.0
EBITDA/EBITDA margin	127.5/15.3%	March: August:	Growth, EBITDA margin between 15.5 and 16.0% Around 15.5%	134.0/15.7%	5.0
Light & Optics	74.1	March:	Growth in the mid single-digit percentage range	69.8	−5.8
Light & Production	24.6	March:	Growth slightly stronger than revenue	25.8	4.7
Light & Safety	15.9	March:	Decline in line with revenue	18.8	18.2
VINCORION	20.1	March:	Slight increase, improved margin	24.2	20.0
Order intake	873.7	March: November:	Slight increase Very high prior-year figure will not be achieved	812.6	−7.0
Free cash flow	108.3	March:	Approx. 80 million euros	77.2	−28.7
Capital expenditure [1]	42.5	March:	Strong increase	55.6	30.7

[1] Without capital expenditure on financial assets

Earnings position

The tables in the Management Report, which show a breakdown of the key indicators by segment, include the Corporate Center, real estate and consolidation effects under "Other".

In the 2019 fiscal year, with revenue of 855.2 million euros, the Jenoptik Group achieved revenue growth of 2.5 percent and exceeded the high level of the prior year despite difficult economic conditions (prior year: 834.6 million euros). In the course of the year, the momentum increased and the quarter with the highest revenue both in the past fiscal year and the prior year was the fourth quarter with 259.5 million euros (prior year: 241.2 million euros). Growth in 2019 came from the Light & Optics and Light & Production divisions. The solid business performance was driven in particular by strong demand from the semiconductor equipment industry and the good business development in the field of automation & integration. At the same time, the companies acquired in 2018 made a significant contribution to revenue totaling 66.4 million euros (prior year: 37.0 million euros). T26

On a regional level, growth momentum came from abroad, in particular from North America. Europe remained the region with the highest revenue, closely followed by the Americas. In Europe, the share of group revenue remained at a high level of 28.8 percent due to the strong demand from the semiconductor equipment industry and the traffic safety technology market (prior year: 29.3 percent). In the Americas, revenue increased significantly by 15.4 percent in comparison with the prior year, due primarily to the full-year contribution made by Prodomax, but also to higher demand for optical systems as well as traffic safety solutions. Revenue in the Asia / Pacific region fell slightly to 97.2 million euros (prior year: 100.8 million), mainly due to the difficult economic conditions. At 621.3 million euros, Jenoptik generated 72.6 percent of revenue abroad in the past fiscal year (prior year: 594.1 million or 71.2 percent) – proof of the successful implementation of our internationalization strategy. Revenue in Germany was 234.0 million euros. The prior year's higher revenue of 240.5 million euros was characterized by the deliveries of the toll payment monitoring systems in the Light & Safety division. T27

More information on the development of revenue in the divisions in the Segment Report from page 106

T26 Revenue by division (in million euros)

	2019	2018	Change in %
Group	855.2	834.6	2.5
Light & Optics	350.0	337.0	3.9
Light & Production	228.9	210.7	8.6
Light & Safety	108.7	116.9	−7.1
VINCORION	164.8	166.4	−1.0
Other	2.8	3.5	−20.6

T27 Revenue by region (in million euros)

	2019	2018	Change in %
Group	855.2	834.6	2.5
Germany	234.0	240.5	−2.7
Europe	246.0	244.7	0.6
Americas	239.7	207.7	15.4
Asia / Pacific	97.2	100.8	−3.6
Middle East / Africa	38.3	40.8	−6.3

Once again, the Group generated its largest revenue share in 2019 with 34.7 percent in the automotive / mechanical engineering target market (prior year: 33.7 percent). The share of revenue in the security and defense technology sector fell slightly to 18.6 percent (prior year: 18.9 percent). Revenue generated with the semiconductor equipment industry increased to 19.7 percent (prior year: 18.0 percent) on the basis of the good industry development. The medical technology market grew to 5.7 percent (prior year: 5.3 percent). In 2019, our top three clients accounted for 17.3 percent of group revenue (prior year: 18.0 percent). T28

Cost of sales rose by 4.1 percent to 563.4 million euros and thus at a slightly stronger rate than revenue (prior year: 541.5 million euros), due primarily to the higher material and personnel costs. The cost of sales also include expenses arising from developments on behalf of customers, of 20.4 million euros (prior year: 20.2 million euros), which were offset by corresponding revenues. T29

The gross profit of 291.8 million euros was at approximately the same level as in the prior year (prior year: 293.1 million euros). At 34.1 percent, the gross margin was below that of the prior year (prior year: 35.1 percent). The cause of this were revenue declines due to an increasingly difficult environment in the automotive industry, a changed product mix, which in part requires a higher use of materials, as is the case with Prodomax, as well as increased personnel costs.

In 2019 the research and development expenses were 44.1 million euros, down on the prior year's figure of 47.4 million euros. The share of R+D expenses as a proportion of revenue thus fell slightly to 5.2 percent (prior year: 5.7 percent). The R+D output including developments on behalf of customers was 68.4 million euros, remaining at approximately the level of the prior year (prior year: 69.2 million euros).

More detailed information on research and development from page 84

In the course of expanding global activities and in connection with the acquisitions, the selling expenses in 2019 rose by 2.6 percent to 89.3 million euros (prior year: 87.0 million euros). At 10.4 percent, the selling expenses ratio remained at the same level as the prior year (prior year: 10.4 percent).

General and administrative expenses increased to 60.5 million euros (prior year: 56.1 million euros), mainly due to the administrative expenses of the companies acquired in 2018, which were not fully included in the prior year, adjustments to pay rates, new recruitment, primarily in the Light & Optics division, and the introduction of an SAP system at the Altenstadt site. The administrative expenses ratio rose to 7.1 percent (prior year: 6.7 percent).

Other operating income, at 18.6 million euros, was down the level of the prior year (prior year: 20.9 million euros), in particular due to lower currency gains totaling 7.0 million euros (prior year: 9.7 million euros).

T29 Key items in the Statement of Comprehensive Income (in million euros)

	2019	2018	Change in %
Cost of sales	563.4	541.5	4.1
R+D expenses	44.1	47.4	−7.1
Selling expenses	89.3	87.0	2.6
Administrative expenses	60.5	56.1	7.9
Other operating income	18.6	20.9	−10.9
Other operating expenses	27.5	28.4	−3.1

T28 Revenue by target market (in million euros and as percent of total revenue)

	2019		2018	
Automotive & mechanical engineering	296.8	34.7%	281.3	33.7%
Semiconductor equipment industry	168.2	19.7%	150.0	18.0%
Security and defense technology	159.3	18.6%	157.7	18.9%
Aviation & traffic	148.7	17.4%	162.5	19.5%
Medical technology	48.4	5.7%	44.6	5.3%
Other	33.7	3.9%	38.7	4.6%
Total	**855.2**	**100%**	**834.6**	**100%**

Other operating expenses came to 27.5 million euros (prior year: 28.4 million euros). They included expenses for group projects such as the introduction of a group-wide ERP system, costs in connection with corporate transactions and impairments on receivables. At 9.1 million euros, the currency losses were slightly higher than those of the prior year (prior year: 8.8 million euros).

Despite increased spending for future growth and the higher functional costs, the earnings before interest, taxes, depreciation, and amortization, incl. impairment losses and reversals (EBITDA) rose by 5.0 percent to 134.0 million euros (prior year: 127.5 million euros). This was mainly the result of contributions made by the acquired companies and positive impacts arising from the use of IFRS 16 of 11.6 million euros. The EBITDA margin accordingly increased to 15.7 percent (prior year: 15.3 percent). EBITDA also increased in the course of the year. After 23.8 million euros in the first quarter of 2019 and 30.2 million euros in the second quarter, the EBITDA rose to 37.4 million euros in the third quarter and to as much as to 42.6 million euros in the fourth quarter. T31

T30 ROCE (in million euros)

	2019	2018
Long-term non-interest bearing assets	451.1	327.6
Short-term non-interest bearing assets	368.0	332.5
Non-interest bearing borrowings	−213.3	−190.7
Average tied capital	605.8	469.4
EBIT	88.9	94.9
ROCE (in percent)	14.7	20.2

Nevertheless, the lower gross profit combined with higher functional costs led to a weaker operating result. At a total of 88.9 million euros, the operating result (EBIT) was 6.3 percent below that of the prior year (prior year: 94.9 million euros). The group EBIT margin thus fell to 10.4 percent (prior year: 11.4 percent). The Light & Safety division and VINCORION developed positively. Group EBIT includes the operating result of the acquired companies in the amount of 5.8 million euros (prior year: minus 0.5 million euros), including impacts arising from the purchase price allocation of minus 5.3 million euros (prior year: minus 10.5 million euros) and positive effects from the first-time application of IFRS 16 amounting to 1.7 million euros. T32

As a result of the increase in average tied operating capital due to IFRS 16, the assets acquired in the prior year as well as the lower EBIT, the Group's ROCE (Return on Capital Employed) fell to 14.7 percent as of December 31, 2019 (prior year: 20.2 percent). Jenoptik shows this indicator inclusive of goodwill and before taxes. The ROCE is calculated using the method described in the in the chapter Control System on page 82 and shown in the following table. The average tied capital is calculated as the average of the month-end values in the reporting period. T30

The financial result remained at the same level as in the prior year with a total of minus 3.7 million euros (prior year: minus 3.5 million euros). Income from the measurement effects and lower interest expenses to third parties compensated for the higher interest expenses compared to the prior year due to first-time application of IFRS 16 (1.6 million euros). Currency effects totaling 0.5 million euros (prior year: 1.0 million) and interest and similar income of 1.0 million euros had a positive impact on earnings (prior year: 0.3 million euros). Increased interest and similar expenses of minus 5.3 million euros (prior year: minus 4.9 million euros) had a negative impact on earnings.

Detailed information on the composition of the other operating income and expenses on page 160 of the Notes as well as in other comprehensive income

Information on the division EBITDA in the Segment Report from page 106

T31 EBITDA (in million euros)

	2019	2018	Change in %
Group	134.0	127.5	5.0
Light & Optics	69.8	74.1	−5.8
Light & Production	25.8	24.6	4.7
Light & Safety	18.8	15.9	18.2
VINCORION	24.2	20.1	20.0
Other	−4.6	−7.3	36.2

T32 EBIT (in million euros)

	2019	2018	Change in %
Group	88.9	94.9	−6.3
Light & Optics	57.9	65.9	−12.1
Light & Production	14.5	16.8	−14.0
Light & Safety	11.7	10.9	7.2
VINCORION	17.4	16.5	5.3
Other	−12.5	−15.2	17.5

The lower EBIT was also reflected in the earnings before tax, which at a total of 85.2 million euros were 6.8 percent down on the prior year (prior year: 91.4 million euros).

See the Notes for detailed information on the subject of taxes

The current income taxes of 11.4 million euros were above the level of the prior year (prior year: 11.0 million euros). Of these, 8.4 million euros (prior year: 11.2 million euros) are attributable to Germany and 3.0 million euros (prior year: minus 0.2 million euros) to other countries. The decline in Germany is due to the reduced domestic income in the reporting period. The rise in foreign taxes is primarily due to the acquisition of Prodomax.

The Jenoptik Group’s cash effective tax rate, the ratio between current income taxes and earnings before tax, rose due to the increased foreign share of taxable income to 13.3 percent (prior year: 12.0 percent), but was at a comparatively low level for German companies due to the domestic earnings and the usable losses carried forwards.

Non-cash deferred tax expenses came to 6.2 million euros in the past fiscal year (prior year: income of 7.0 million euros). This is primarily due to the amount of deferred taxes on JENOPTIK AG's tax loss carried forward compared with the same period of the prior year. The group tax rate thus amounted to 20.6 percent (prior year: 4.4 percent), income taxes came to a total of minus 17.6 million euros (prior year: minus 4.0 million euros).

In 2019, due not least to the deferred tax income in the prior year, Jenoptik generated earnings after tax of 67.6 million euros, a reduction of 22.6 percent (prior year: 87.4 million euros). At 67.7 million euros, shareholder earnings were down on the prior year's figure of 87.6 million euros, and earnings per share of 1.18 euros were also significantly lower than the prior year's figure of 1.53 euros per share.

The development of order intakes in the 2019 reporting year was characterized above all by a reluctance to invest in the automotive sector. Overall, the Group received orders worth around 812.6 million euros in 2019 (prior year: 873.7 million euros). The drop of 7.0 percent was also due to a major order in the semiconductor equipment business which was booked at the end of 2018. The order intake was also lower than the revenue generated in the fiscal year. As a result, the book-to-bill ratio also reduced to 0.95 (prior year: 1.05). T33 G16 T36

T33 Order intake (in million euros)

	2019	2018	Change in %
Group	812.6	873.7	−7.0
Light & Optics	324.7	396.1	−18.0
Light & Production	199.3	200.7	−0.7
Light & Safety	107.9	118.4	−8.9
VINCORION	177.9	154.9	14.8
Other	2.8	3.5	−20.6

T34 Order backlog (in million euros)

	2019	2018	Change in %
Group	466.1	521.5	−10.6
Light & Optics	144.9	180.6	−19.7
Light & Production	81.6	112.5	−27.5
Light & Safety	69.9	69.5	0.5
VINCORION	169.7	158.9	6.8

T35 Frame contracts (in million euros)

	2019	2018	Change in %
Group	49.9	62.5	−20.1
Light & Optics	12.4	12.5	−1.3
Light & Production	0	0	0
Light & Safety	12.6	19.2	−34.3
VINCORION	24.9	30.7	−18.9

T36 Book-to-bill ratio

	2019	2018
Group	0.95	1.05
Light & Optics	0.93	1.18
Light & Production	0.87	0.95
Light & Safety	0.99	1.01
VINCORION	1.08	0.93

Nevertheless, major projects, among others, in the defense and traffic safety businesses in the fourth quarter allowed the Group to achieve a sharp rise in order intake compared to the prior quarters of 2019.

The order backlog reduced to 466.1 million euros (31/12/2018: 521.5 million euros) at the end of 2019. Of this order backlog, 68.1 percent (prior year: 79.2 percent) will still be converted to revenue in 2020 and in conjunction with a well-filled order pipeline, this is a solid basis for the forecast growth in the 2020 fiscal year. T34

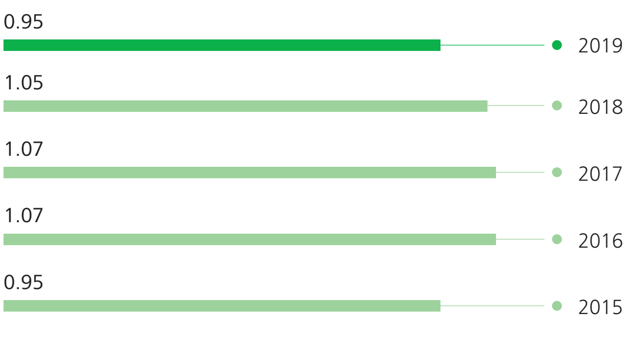
There were also frame contracts worth 49.9 million euros (31/12/2018: 62.5 million euros). Frame contracts are contracts or framework agreements with customers, where the exact extent and time of occurrence cannot yet be specified precisely. The decline in the frame contracts is due to reclassifications in the order intake or adjustments. T35

Financial position

Financial management principles

The central Treasury department plans the requirements and controls the provision of liquid resources within the Group. The Group's financial flexibility and solvency is guaranteed at all times on the basis of multi-year financial planning and monthly rolling liquidity planning. A cash pooling system also ensures the liquidity supply to all the major companies in Europe and North America. Companies not integrated in the cash pooling system are supplied with liquidity through internal group loans or lines of credit from local banks.

G16 Development of the book-to-bill ratio



In 2019, Jenoptik also launched a program to sell trade receivables (factoring) to better adapt to its customers' payment arrangements. This gives the Group a further instrument to manage its liquidity and working capital.

Primarily using currency forward transactions, Jenoptik hedges orders in foreign currencies, thereby reducing the consequences of exchange rate fluctuations on earnings and cash flow. Derivative financial instruments are used exclusively to hedge the operating business and necessary financial transactions, e.g. internal loans or acquisition financing in foreign currencies.

As a result of the above measures, the existing syndicated loan, the granted debenture loans, and a high level of cash and cash equivalents, the liquidity of all the group companies was sufficiently secured at all times in the past fiscal year.

Capital structure and financing analysis

With a still very good equity ratio of 60.5 percent as of December 31, 2019, and net debt of minus 9.1 million euros, the Group has a viable financing structure. This gives Jenoptik the flexibility and financial latitude to finance future organic growth and acquisitions, and thus to implement its international growth strategy.

The debenture loans issued have maturities until April 2020 (21.5 million euros) and April 2022 (69.0 million euros). In addition, the Group has a largely unused credit line worth 230.0 million euros thanks to the syndicated loan agreement. Financial covenants have been agreed for the syndicated loan, and Jenoptik is in compliance with all their conditions.

In addition to cash and cash equivalents of 99.0 million euros and current financial investment of 69.7 million euros, the Group also has unused capacity from global loan agreements totaling 222.2 million euros to fall back on. This means that Jenoptik had around 390 million euros available for corporate development projects, as of the end of 2019.

In 2019, the Group's non-current financial debt increased to 122.6 million euros (31/12/2018: 111.4 million euros). This balance sheet item includes financial liabilities to banks in the amount of 72.2 million euros (31/12/2018: 108.2 million euros) and lease liabilities of 50.4 million euros (31/12/2018: 3.2 million euros) which rose sharply due to the application of IFRS 16. At the end of 2019, non-current financial debt accounted for around 77 percent of Jenoptik's financial debt (12/31/2018: 92 percent).

See the Segment Report from page 106 for detailed information on the order intake in the divisions

See Notes on page 177 for further information on factoring

More information from page 194

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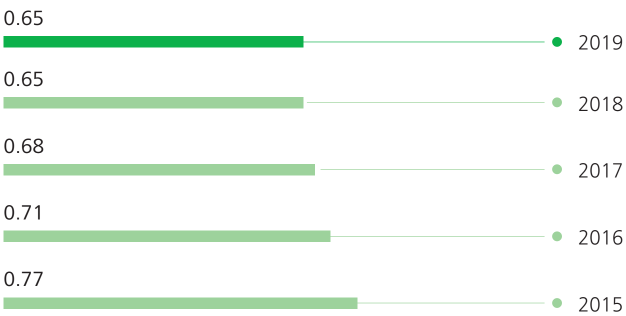
Current financial debt increased to 37.0 million euros (31/12/2018: 10.1 million euros). Contributory causes include the application of IFRS 16 and the reclassification of the tranche of the debenture loans due for repayment in 2020.

The debt-to-equity ratio remained constant at 0.65 (31/12/2018: 0.65), as equity and borrowings increased proportionally at year-end 2019. The debt-to-equity ratio is defined as the ratio between borrowings (427.9 million euros) and equity (655.4 million euros). G17

At the end of 2019, the net cash position, defined as the total cash, cash equivalents, and current financial investments minus current financial debt, amounted to 131.7 million euros (31/12/2018: 138.6 million euros). The value of cash, cash equivalents, and current financial investments increased to 168.7 million euros (31/12/2018: 148.7 million euros). As stated above, current financial debt rose to 37.0 million euros (31/12/2018: 10.1 million euros).

G17 Debt-to-equity ratio



Due to the good cash flows from operating activities Jenoptik was again free of net debt at the end of the fiscal year. Although financial debt rose 56.9 million euros owing to the first-time application of IFRS 16, net debt as of December 31, 2019 came to minus 9.1 million euros (31/12/2018: minus 27.2 million euros). This positive development was achieved despite a higher dividend payout of 20.0 million euros (prior year: 17.2 million euros), and increased capital expenditure. T37

Analysis of capital expenditure

The focus of capital expenditure is derived from the Group strategy and is in line with the planned growth targets and the asset structure of the Group. To ensure this, the individual investments are systematically reviewed with respect to sustainability or their value contribution on the basis of performance and financial indicators, and all risks and opportunities are thoroughly analyzed.

At 55.6 million euros, group investment in intangible assets and property, plant and equipment was significantly up on the prior year in 2019 (prior year: 42.5 million euros). Investments were primarily made to create the conditions for growth and new customer orders, for example by increasing manufacturing capacity at various locations in Germany and abroad, e. g. in Bayeux, Berlin, and Villingen-Schwenningen.

At 43.9 million euros, the largest share of capital expenditure was once again on property, plant, and equipment (prior year: 37.9 million euros). Payments were made primarily for the new build at the Villingen-Schwenningen site, new technical equipment, and an expansion in production capacities. T38

T37 Net and gross debt (in million euros)

	2019	2018	2017	2016	2015
Non-current financial debt	122.6	111.4	108.6	120.5	113.2
Current financial debt	37.0	10.1	19.3	4.1	14.9
Gross debt	**159.6**	**121.5**	**127.9**	**124.6**	**128.1**
minus current financial investments	69.7	59.5	64.6	50.5	0.4
minus cash and cash equivalents	99.0	89.3	132.3	92.0	83.8
Net debt	**−9.1**	**−27.2**	**−69.0**	**−17.9**	**43.9**

Capital expenditure for intangible assets increased to 11.7 million euros, in part due to the launch of an SAP S/4 HANA system (prior year: 4.5 million euros). During the reporting period, development services arising from internal projects and worth 3.8 million euros were capitalized (prior year: 1.3 million euros).

Scheduled depreciation/amortization totaled 43.8 million euros (prior year: 30.6 million euros). This increase was primarily due to impacts of 9.9 million euros arising from the application of IFRS 16, and the purchase price allocation. Impairment losses and reversals came to minus 1.2 million euros (prior year: minus 2.1 million euros).

Depreciation on property, plant, and equipment increased to 33.0 million euros (prior year: 21.6 million euros) and was thus well below capital expenditure on property, plant, and equipment.

Amortization on intangible assets amounted to 10.8 million euros (prior year: 8.9 million euros), and, as in the prior year, primarily included amortization of patents, trademarks, and software, as well as intangible assets identified in the course of company acquisitions. T39

Analysis of cash flows

Cash flows from operating activities fell to 108.9 million euros in the year covered by the report (prior year: 135.5 million euros). The operating cash flow was primarily affected by lower earnings before tax and the negative impacts arising from the changes in provisions and working capital (working capital – see page 103). It also includes a positive impact of 11.6 million euros due to the changed presentation in accordance with IFRS 16. T40

In 2019, cash flows from investing activities amounted to minus 54.4 million euros (prior year: minus 117.5 million euros), While cash flows from investing activities in the prior year were dominated by expenditure of 81.4 million euros for the acquisition of consolidated entities, the period under report was affected by higher capital expenditure for intangible assets and property, plant, and equipment. Expenditure for financial assets within the framework of short-term disposition exceeded proceeds by 9.7 million euros and thus also had a negative impact (prior year: positive impact of 4.1 million euros).

More information on capital expenditure in the divisions can be found in the Segment Report from page 106 on; on future investment projects in the Forecast Report from page 133 on

T38 Capital expenditure and depreciation/amortization (in million euros)

	2019	2018	Change in %
Capital expenditure	55.6	42.5	30.7
Intangible assets	11.7	4.5	156.7
Property, plant, and equipment	43.9	37.9	15.9
Investment properties	0	0.1	– 100.0
Depreciation/amortization/impairment losses and reversals	45.1	32.6	38.1
Intangible assets	11.6	10.1	14.4
Property, plant, and equipment	33.4	22.4	48.9
Investment properties	0.1	0.1	– 5.8

T39 Capital expenditure by division – Intangible assets and property, plant and equipment (in million euros)

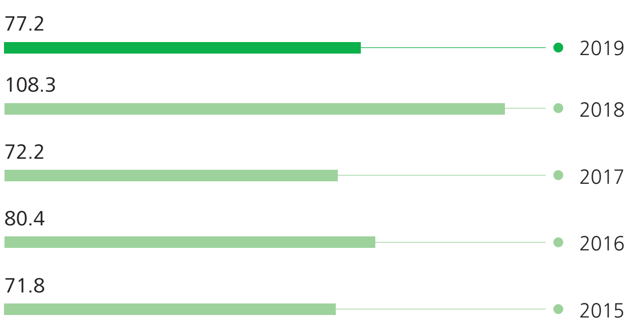
	2019	2018	Change in %
Group	55.6	42.5	30.7
Light & Optics	18.4	17.2	7.0
Light & Production	13.9	8.9	56.3
Light & Safety	4.1	4.9	– 17.0
VINCORION	8.8	4.9	80.3
Other	10.4	6.6	56.9

For more information on impact arising from the first-time application of IFRS 16, see the Notes, page 144

As a result of lower cash flows from operating activities before taxes and interest and higher capital expenditure, the free cash flow fell to 77.2 million euros (prior year: 108.3 million euros). The free cash flow is calculated as the cash flows from operating activities before income tax payments in the amount of 121.6 million euros (prior year: 149.3 million euros), less expenditure for operating investment activities, i.e. minus inflows and outflows of funds for intangible assets and property, plant, and equipment, amounting to 44.3 million euros (prior year: 41.1 million euros). G18

The cash flows from financing activities amounted to minus 46.1 million euros (prior year: minus 60.9 million euros) in the 2019 fiscal year, and were dominated by repayments of bonds and loans of 21.3 million euros (prior year: 40.3 million euros) and the higher dividend payment of 20.0 million euros (prior year: 17.2 million euros). Following first-time application of IFRS 16, lease payments also increased in the past fiscal year.

G18 Free cash flow (in million euros)



Asset position

Compared to the end of 2018, the Jenoptik Group's total assets grew in value to 1,083.3 million euros as of December 31, 2019 (31/12/2018: 985.9 million euros). The increase of 97.4 million euros is in part due to the introduction of IFRS 16 and the rise in current assets.

More information on the intangible assets and property, plant, and equipment see Notes points 5.1 and 5.2

Non-current assets rose sharply to 555.2 million euros (31/12/2018: 491.8 million euros). Particularly strong growth was seen in property, plant, and equipment, from 185.9 million euros at the end of 2018 to 251.1 million euros as of December 31, 2019, thanks both to the impact of IFRS 16 and capital expenditure. Both capital expenditure and positive currency effects produced an increase in intangible assets. The "Goodwill" item increased, in particular due to impacts arising from the conversion of transactions in foreign currency, to 165.9 million euros (31/12/2018: 159.8 million euros), and thus remained the largest item in intangible assets. There were only minor changes in the remaining items under non-current assets.

Over the past fiscal year, current assets rose to 528.1 million euros (31/12/2018: 494.1 million euros). Compared with the end of 2018, inventories fell to 153.7 million euros as of December 31, 2019 (31/12/2018: 175.6 million euros). This reduction was mainly due to the recognition of revenue at the end of the year and, in particular, the increasing recognition of revenue over time and thus its classification as a contract asset. As a result, current trade receivables grew to 136.9 million euros (31/12/2018: 131.2 million euros), and contract assets to 54.9 million euros (31/12/2018: 23.4 million euros). Cash and cash equivalent holdings grew to 99.0 million euros (31/12/2018: 89.3 million euros) as a result of the positive cash flow.

T40 Cash flows (in million euros)

	2019	2018	2017	2016	2015
Cash flows from operating activities	108.9	135.5	96.3	100.1	85.1
Cash flows from investing activities	−54.4	−117.5	−42.2	−71.3	−7.2
Cash flows from financing activities	−46.1	−60.9	−12.9	−20.7	−66.5
Cash-effective change in cash and cash equivalents	8.4	−42.9	41.3	8.0	11.4
Non-cash change in cash and cash equivalents	1.4	−0.1	−0.9	0.1	2.9
Change in cash and cash equivalents	**9.8**	**−43.1**	**40.3**	**8.1**	**14.3**
Cash and cash equivalents at the end of the fiscal year	**99.0**	**89.3**	**132.3**	**92.0**	**83.8**

The rise in contract assets and receivables was largely offset by the decline in inventories and the increase in trade accounts payable. The working capital therefore remained almost unchanged on the prior year, at 217.8 million euros (31/12/2018: 216.8 million euros). The working capital ratio, that of working capital to revenue, reduced to 25.5 percent (31/12/2018: 26.0 percent) as a result of the increase in revenue and the effect of active working capital management. T41

The positive earnings after tax, in particular, but also positive currency effects and actuarial impacts in connection with pension provisions, produced a 57.5-million-euro rise in equity, to 655.4 million euros (31/12/2018: 598.0 million euros). By contrast, equity was reduced by the dividend payment and impacts arising from the first-time application of IFRS 16. The equity ratio, that of equity to total assets, remained virtually unchanged at 60.5 percent (31/12/2018: 60.6 percent). G19

At the end of 2019, the non-current liabilities grew to 176.0 million euros (31/12/2018: 170.3 million euros), primarily due to the increase of 11.2 million euros in non-current financial debt (impacts from the first-time application of IFRS 16), to 122.6 million euros. Pension provisions, however, were reduced, as the negative impacts arising from the fall in interest rates were more than offset by the earnings in plan assets.

A major item of the non-current financial debt are the debenture loans issued in 2015, currently totaling 90.5 million euros. Following early repayment of a tranche of the debenture loans worth 12.5 million euros in April 2019, a further tranche worth 21.5 million euros was reclassified to current liabilities, as it becomes due in April 2020.

The current liabilities rose to 251.9 million euros (31/12/2018: 217.7 million euros). This was largely due to the increase in current financial debt to 37.0 million euros (31/12/2018: 10.1 million euros) following the first-time application of IFRS 16 and the above-mentioned reclassification of a tranche of the debenture loans. As of the reporting date, current trade accounts payable increased to 83.7 million euros (31/12/2018: 60.1 million euros). By contrast, contract liabilities saw a drop to 43.9 million euros (31/12/2018: 53.3 million euros), in part due to lower advance payments. Other current provisions also fell due to reduced personnel and warranty provisions, to 51.9 million euros (31/12/2018: 58.7 million euros).

G19 Equity ratio (in percent)

For more information see the Notes, chapter Provisions for Pensions and Similar Obligations, from page 182 on

T41 Components of working capital (in million euros)

	2019	2018	Change in %
Inventories	153.7	175.6	−12.5
Trade receivables (prior year trade receivables from third parties and from construction contracts)	136.9	131.2	4.3
Contract assets	54.9	23.4	134.7
Less trade payables (prior year trade payables to third parties and from construction contracts)	83.7	60.1	39.3
Less contract liabilities	43.9	53.3	−17.6
Total	**217.8**	**216.8**	**0.5**

Acquisitions and disposals: There were no purchases or sales of companies in the 2019 fiscal year.

In January 2020 Jenoptik acquired the Spanish company INTEROB to boost its position as a turnkey supplier of automated production solutions.

For more information on the INTEROB acquisition, see the Notes, page 151, and the Report on Post-Balance Sheet Events, page 116

Assets and liabilities not included in the statement of financial position

The value of the Jenoptik brand is one of the main assets we do not include on the balance sheet. Jenoptik operates in the highly fragmented photonics market, which is characterized by a multitude of highly-specialized companies. We aim to further boost awareness of our brand, especially on the international stage, in the coming years. Since February 2019, Jenoptik has been on the market with new brand positioning and a new corporate design. With its "Strategy 2022," the Group focuses on the core photonics areas of light and optics under the Jenoptik brand. The independent VINCORION brand for the mechatronics business was launched in 2018 to take better account of specific market requirements.

For more information on the brand, see the Non-Financial Report from page 67

Non-capital tax losses carried forward. Tax losses carried forward arise from losses in the past that have not yet been offset against taxable profits. They represent potential future cash flow benefits, since actual tax payments can be reduced by these losses being offset against taxable profits.

For non-usable losses carried forward, deferred tax assets are not recognized for corporation tax purposes in the amount of 29.3 million euros (prior year: 26.2 million euros) and trade tax purposes in the amount of 129.0 million euros (prior year: 181.7 million euros), as they are unlikely to be used within a determined planning time frame. Equally, no deferred tax assets were recognized for deductible timing differences in the amount of 7.3 million euros (prior year: 8.3 million euros).

Off-balance sheet financing instruments for the financial and asset position. Since the end of 2019 Jenoptik has been using a factoring program, a further instrument for managing its liquidity and working capital, in order to sell trade receivables from selected customers to a factoring company. Although customers' payment terms have in some cases been significantly extended, this has allowed Jenoptik to convert some long-term

T42 Financial debt by due date (in million euros)

	Up to 1 year		1 to 5 years		More than 5 years		Total as of 31/12	
	2019	2018	2019	2018	2019	2018	2019	2018
Liabilities to banks	26.3	9.3	72.2	108.2	0	0	98.5	117.5
Liabilities from leases	10.7	0.8	34.0	3.2	16.4	0	61.1	4.0
Total	**37.0**	**10.1**	**106.2**	**111.4**	**16.4**	**0**	**159.6**	**121.5**

T43 Components of interest-bearing debt (in million euros)

	2019	2018	Change in %
Current	37.0	10.1	265.4
Liabilities to banks	26.3	9.3	182.8
Lease liabilities	10.7	0.8	1,191.4
Non-current	122.6	111.4	10.0
Liabilities to banks	72.2	108.2	−33.3
Lease liabilities	50.4	3.2	1,485.4

receivables into liquidity at short notice. This additional liquidity is then available to the Group for various operational purposes, e.g. investment and acquisitions. Since the economic opportunities and risks associated with the receivables are transferred to the buyer when the receivables are sold, those receivables are no longer recognized in Jenoptik's statement of financial position ("real factoring"). Jenoptik does not use any other off-balance sheet financing instruments.

For information on off-balance-sheet liabilities we refer to the Point "Other financial obligations" in the Notes on page 201.

Information on contingent assets and liabilities can be found in the Notes, from page 196 on.

Clauses in contracts concluded by JENOPTIK AG, which apply in the event of a change of control within the ownership structure of JENOPTIK AG following a takeover bid, exist for financing agreements with a total utilized volume of approximately 104.4 million euros (prior year: 120.0 million euros). More information can be found in the Remuneration Report, from page 45 on, and in the Information on Takeover Law, from page 41 on.

General Statement by the Executive Board on the Development of Business

Despite more difficult economic conditions, Jenoptik was able to continue on its successful path of growth in the 2019 fiscal year. Revenue increased and profitability improved. The Light & Optics and Light & Production divisions contributed to the rise in revenue. A strong demand from the semiconductor equipment industry and the Automation & Integration area supported the positive development. The companies acquired in 2018 thus also contributed to growth. Due to impacts arising from the first-time application of IFRS 16 and the contributions from the acquired companies, EBITDA increased at a faster rate than revenue. The EBITDA margin improved to 15.7 percent.

The order intake was down on the high prior-year, which had been influenced by a major order received in December 2018. In the fourth quarter of 2019, however, the order intake increased significantly, thus providing a good basis for growth in the current fiscal year. The lower order intake also caused a reduction in the order backlog. However, with a book-to-bill ratio of 0.95 we have a solid basis for the Group's further profitable growth.

With improved earnings capacity and good cash flows, we were able to finance not only our operating business but also higher investments. Although the free cash flow remained clearly positive, it was below the very good level of the prior year due to lower cash flows from operating activities before interest and taxes and higher capital expenditure. In late December 2019 the Jenoptik Group was once again free of net debt. The equity ratio remained virtually unchanged. Our total assets came to over 1 billion euros.

Overall, the Executive Board was very satisfied with the company's performance.

Segment Report

The three photonics divisions, Light & Optics, Light & Production, and Light & Safety, together with VINCORION have represented the segments as defined in IFRS 8 since January 1, 2019. Prior-year information in the Segment Report has been adjusted to reflect the new structure of the Jenoptik Group.
The range of services and competitive positioning of the divisions and VINCORION are set out in greater detail in the Group Business Model chapter, from page 74 on.

Light & Optics Division

Information on the various markets can be found in the Sector Report, from page 91 on, and on future developments in the Forecast Report, from page 129 on

As an OEM partner, the division supports its customers with a broad technology portfolio covering everything from development to volume production. Cooperation as a development and production partner with numerous large international companies was again an important part of the business in the 2019 fiscal year. Integrated solutions for semiconductor manufacturing underwent further development, while the product range for the information and communications technology (ICT) market was expanded. The division also focused on the medical technology and life science markets, e. g. with a modular technology platform for analysis and diagnostics solutions in the bio-imaging sector.

The Light & Optics division established its new organizational structure on January 1, 2019, combining the former Optical Systems and Healthcare & Industry divisions with the sensors business that was previously part of the Defense & Civil Systems division. The new division operates in three strategic business areas: Semiconductor & Advanced Manufacturing, Biophotonics, and Industrial Solutions. Sales and production (Operations) were combined globally under one management.

Light & Optics once again increased its revenue in 2019, which rose 3.9 percent to 350.0 million euros (prior year: 337.0 million euros). The fourth quarter was the strongest, with 99.3 million euros in revenue. In 2019, the division particularly benefited from good business with solutions for the semiconductor equipment industry, allowing it to more than offset the decline in the Industrial Solutions unit. Revenue was increasingly recognized over time. In total, around 79 percent of the division's revenue was generated abroad in 2019 (prior year: 78 percent), with Europe still enjoying the greatest share, followed by the Americas. This region saw the strongest increase in 2019, in part due to greater demand for optics to be used in biophotonics, semiconductor equipment, and entertainment applications.

Income from operations before interest, taxes, depreciation and amortization (EBITDA) was down 5.8 percent on the prior year, to 69.8 million euros (prior year: 74.1 million euros). This was due to the declining margin contribution in the Industrial Solutions unit, which could not be offset by the good business with the semiconductor equipment industry and the positive impacts of 1.9 million euros arising from the first-time application of IFRS 16. In terms of EBITDA, the fourth quarter was the most profitable, with 20.4 million euros. At 19.8 percent, the EBITDA margin in 2019 was down on the prior-year figure of 21.8 percent but still remained at a very good level. The divi-

T44 Light & Optics at a glance (in million euros)

	2019	2018	Change in %
Revenue (external)	350.0	337.0	3.9
EBITDA	69.8	74.1	−5.8
EBITDA margin * in %	19.8	21.8	
EBIT	57.9	65.9	−12.1
EBIT margin * in %	16.5	19.4	
Capital expenditure	18.4	17.2	7.0
Free cash flow	57.1	58.6	−2.6
Order intake (external)	324.7	396.1	−18.0
Order backlog (external)	144.9	180.6	−19.7
Frame contracts	12.4	12.5	−1.3
Employees	1,416	1,368	3.5

* Based on total revenue

sion's income from operations (EBIT) came to 57.9 million euros (prior year: 65.9 million euros); the EBIT margin was 16.5 percent (prior year: 19.4 percent).

In line with expectations, the order intake, worth 324.7 million euros, was down on the prior-year figure of 396.1 million euros in 2019. This was partly attributable to the fact that a high-volume order for semiconductor equipment was placed and booked in late 2018 already. Set against revenue, this resulted in a book-to-bill ratio of 0.93 for the reporting period (prior year: 1.18). In the fourth quarter, the division saw a significant increase in its order intake thanks to several major orders from different industries.

In March, the Light & Optics division announced the start of a long-term cooperation arrangement with an international life sciences company. Following successful conclusion of the development phase, the aim is to produce significant numbers of digital imaging systems, based on Jenoptik's own SYIONS imaging platform, which are to be used by this customer in the field of cell diagnostics.

The division reported an order from the automotive industry in November 2019. Light & Optics will supply a laser-optical subsystem for a particle sensor developed by HELLA. This particle sensor will be used to reliably and precisely measure minute concentrations of particulate matter inside vehicles and in their environment. The high measuring accuracy is achieved thanks to Jenoptik's custom precision polymer optics and the high-accuracy adjustment of the optoelectronic system.

Due to the lower order intake, the division's order backlog fell 35.7 million euros in value to 144.9 million euros at the end of the year (31/12/2018: 180.6 million euros). The Light & Optics division also had frame contracts worth 12.4 million euros (31/12/2018: 12.5 million euros).

With higher capital expenditure and positive impacts arising from the first-time application of IFRS 16, and the use of factoring, the division's free cash flow of 57.1 million euros (before interest and income tax) was almost at the prior year's good level (prior year: 58.6 million euros). The working capital, at 77.9 million euros, was also practically unchanged (prior year: 79.2 million euros).

As of December 31, 2019, Light & Optics had a total of 1,416 employees, 48 more than in the prior year. The division had 56 people in trainee positions at the end of 2019.

R+D expenses in the past fiscal year totaled 19.0 million euros (prior year: 19.2 million euros). Including development services on behalf of customers, the division's R+D output came to 34.6 million euros, slightly up on the prior-year figure of 28.0 million euros. The share of total R+D output in division revenue was 9.9 percent (prior year: 8.3 percent).

For more information on the key development topics, see the Research and Development chapter from page 84 on

Capital expenditure on property, plant, and equipment and intangible assets rose to 18.4 million euros (prior year: 17.2 million euros). This was offset by depreciation in the sum of 10.7 million euros (prior year: 8.3 million euros). Key areas of investment in the 2019 fiscal year included the expansion of capacities and the technical development of the manufacturing infrastructure, e.g. for the semiconductor equipment and automotive sectors. Jenoptik is also upgrading and expanding its production facilities for the manufacture of high-performance laser diodes in Berlin, which will enable orders to be executed more quickly. At the Huntsville location in the US, Jenoptik expanded the clean room space and invested in a new photolithographic system for the production of micro-optics. These investments aim to help secure the long-term competitiveness of the Light & Optics division in its core business of photonics.

Production and organization. As part of Jenoptik's "Strategy 2022", the Light & Optics division completed a key initiative to simplify group structures, in line with its stated aim of achieving "More Focus". The division combined its entire photonic technology business for OEM customers, including all major German legal units, in a single company. This significantly streamlined the corporate structure in Germany. The legal merger of the companies was completed in March 2019. Its expertise and longstanding experience in optics and photonics are being combined in one global production, service, and sales network with the aim of being in a position to offer more solutions from a single source in the future.

In addition, the strategic initiative for on-time delivery in the field of optics was launched in the past fiscal year, with the aim of improving on-time delivery. As a result, continuous improvements in processes and the supply chain were achieved across all departments. In 2019, on-time delivery saw a significant improvement compared to the two prior years, especially with regard to our most important customers. These topics will be actively addressed this year, too.

Light & Production Division

With the acquisition of the Spanish company INTEROB in January 2020, the Light & Production division is strengthening its position as a turnkey provider of automated production solutions. With the prior acquisitions of Prodomax and the OTTO Group in 2018, the division already took an important step in its development to become an integrated supplier of high-tech production environments, as well as of production metrology and industrial imaging applications.

At the start of the 2019 fiscal year, the Mobility segment was split up into two new divisions, Light & Production (previously the Automotive division), and Light & Safety (previously Traffic Solutions). The Light & Production division particularly focuses on solutions for the automotive industry in its Metrology, Laser Processing, and Automation & Integration business areas.

Revenue in the Light & Production division grew 8.6 percent to 228.9 million euros in 2019 (prior year: 210.7 million euros), with the Automation & Integration area making a significant contribution to this increase. The companies acquired in 2018 contributed 66.4 million euros (prior year: 37.0 million euros). By contrast, the development of the two areas, Metrology and Laser Processing, was affected by increasingly difficult conditions in the automotive industry, particularly in the second half of 2019.

At around 79 percent, the division again generated most of its revenue abroad in 2019 (prior year: approximately 79 percent). In the Americas, in particular Prodomax contributed to the increase in revenue. Revenue also rose slightly in Germany, primarily due to the contribution of the OTTO Group, which was included for the full fiscal year for the first time. The other regions saw revenue declines.

On the basis of good overall revenue growth and bolstered by positive impacts arising from the first-time application of IFRS 16, worth 2.7 million euros, EBITDA increased 4.7 percent to 25.8 million euros (prior year: 24.6 million euros). The EBITDA margin came to 11.3 percent, compared with 11.7 percent in the prior year. In the prior year, the EBITDA included earnings-reducing impacts of 7.0 million euros arising from the purchase price allocation and acquisition costs of 1.9 million euros.

EBIT in the Light & Production division totaled 14.5 million euros (prior year: 16.8 million euros), to which the companies acquired in 2018 contributed 5.8 million euros (prior year: minus 0.5 million euros). The impacts arising from the purchase price allocation included in EBIT came to minus 5.3 million euros (prior year: minus 10.5 million euros and acquisition costs of 1.9 million euros). The EBIT margin fell to 6.3 percent (prior year: 8.0 percent).

In 2019, the division's order intake was worth 199.3 million euros, practically unchanged on the prior-year figure of 200.7 million euros, with growth seen in the Automation & Integration area. The order intake includes orders from Prodomax and the OTTO Group, worth around 46 million euros (prior year: approximately 24 million euros). The book-to-bill ratio in 2019 reached a figure of 0.87 (prior year: 0.95). Testifying to good demand in the field, the division received larger-volume orders for automation solutions from North American OEMs and automotive suppliers worth a total of over 30 million euros in the early months of the year.

T45 Light & Production at a glance (in million euros)

	2019	2018	Change in %
Revenue (external)	228.9	210.7	8.6
EBITDA	25.8	24.6	4.7
EBITDA margin* in %	11.3	11.7	
EBIT	14.5	16.8	−14.0
EBIT margin* in %	6.3	8.0	
Capital expenditure	13.9	8.9	56.3
Free cash flow	19.5	15.2	28.1
Order intake (external)	199.3	200.7	−0.7
Order backlog (external)	81.6	112.5	−27.5
Frame contracts	0	0	0
Employees	1,093	1,055	3.6

* Based on total revenue

As a result of the increase in revenue, the order backlog decreased by 27.5 percent to 81.6 million euros at year-end 2019 (31/12/2018: 112.5 million euros).

An increase in EBITDA and lower working capital were key reasons for the improvement in the division's free cash flow (before interest and income tax) to 19.5 million euros (prior year: 15.2 million euros). The working capital fell from 59.3 million euros at the end of 2018 to 50.1 million euros. The reduction in inventories and trade receivables was greater than the increase in contract assets; the sum of trade accounts payable and contract liabilities increased.

As of December 31, 2019, the Light & Production division had 1,093 employees, more than in the prior year (31/12/2018: 1,055 employees). 29 people were in trainee positions as of the reporting date (31/12/2018: 19 trainees).

The division's R+D output fell to 11.3 million euros (prior year: 13.1 million euros). This included developments on behalf of customers in the amount of 3.4 million euros (prior year: 4.8 million euros). R+D expenses came to 7.9 million euros (prior year: 8.2 million euros). In 2019, the share of R+D output in total revenue in the Light & Production division was 5.0 percent (prior year: 6.2 percent).

As scheduled, capital expenditure on property, plant, and equipment and intangible assets rose sharply by 56.3 percent to 13.9 million euros (prior year: 8.9 million euros). Modern development, production, and office spaces for industrial metrology are being built at the Villingen-Schwenningen site at a cost of over 13 million euros. Construction work started in March 2019 and business operations at the new site are due to commence in the spring of 2020. The new production building in Bayeux, France opened on schedule to some 60 Jenoptik employees in spring 2019. This capital expenditure has allowed Jenoptik to create a modern production and sales environment for industrial metrology. Well-known automotive and supplier companies are among Jenoptik's customers in France. For its industrial business worldwide, Bayeux is the center of excellence for pneumatic metrology.

In 2019, capital expenditure was offset by depreciation in the sum of 11.3 million euros (prior year: 6.6 million euros).

Acquisitions. There were no purchases or sales of companies in the 2019 fiscal year.

In January 2020, the Light & Production division acquired the Spanish company INTEROB, which specializes in the design, construction, and integration of custom automation solutions and robotics applications.

Light & Safety Division

The Light & Safety division is responsible for the Group's business with systems and services related to road traffic, such as speed and red light monitoring systems and custom solutions for identifying other traffic violations, and for the field of civil security.

At the start of the 2019 fiscal year, the former Mobility segment was split up into two new divisions, Light & Production (previously the Automotive division), and Light & Safety (previously Traffic Solutions).

In the 2019 fiscal year, the division generated revenue of 108.7 million euros (prior year: 116.9 million euros). In the prior year, the delivery of toll payment monitoring systems had contributed around 26 million euros to revenue. Light & Safety, however, largely managed to offset the shortfall in revenue arising from this project, a development assisted by a strong fourth quarter in which revenue of 33.6 million euros was generated. At around 73 percent, the share of revenue generated abroad rose significantly in 2019 (prior year: 55 percent), with Light & Safety seeing growth in the Americas and Europe. In Germany, strong revenue arising from the prior-year toll project could not, as expected, be fully compensated. Revenue for the 2019 fiscal here came to 29.6 million euros (prior year: 52.1 million euros).

Despite the fall in revenue, EBITDA climbed sharply to 18.8 million euros (prior year: 15.9 million euros), primarily due to impacts arising from the first-time application of IFRS 16, worth 2.3 million euros, and higher margins in the product mix. A considerable contribution to earnings of 6.9 million euros was generated in the fourth quarter. In 2019, the EBITDA margin improved significantly to 17.3 percent (prior year: 13.6 percent). At 11.7 million euros, EBIT was slightly up on the prior-year figure (prior year: 10.9 million euros); the EBIT margin rose to 10.7 percent (prior year: 9.3 percent).

As expected, the division increased its order intake in the fourth quarter, posting new orders worth some 35.7 million euros, mainly from the US. At 107.9 million euros, the order intake in 2019 was still down on the prior-year figure of 118.4 million euros. As a result of lower revenue, the book-to-bill ratio of 0.99 was only just under the prior-year figure (prior year: 1.01).

As of December 31, 2019, the order backlog of 69.9 million euros was at the same good level as the prior year (31/12/2018: 69.5 million euros). The division also had frame contracts worth 12.6 million euros (31/12/2018: 19.2 million euros).

For more information on the key development topics, see the Research and Development chapter from page 84 on

For more information on the INTEROB acquisition, see the Notes, page 151, and the Report on Post-Balance Sheet Events on page 116

With a total of 496 employees, the number of people employed in the Light & Safety division at the end of the year saw a slight increase (31/12/2018: 472 employees). At the end of December, the division had a total of 13 people in trainee positions (31/12/2018: 9 trainees).

In 2019, the division's R+D expenses of 11.0 million euros were up on the prior year (prior year: 9.3 million euros). The development costs on behalf of customers fell to 1.0 million euros (prior year: 4.3 million euros). Overall, the division's R+D output fell to 12.0 million euros (prior year: 13.6 million euros).

For information on the key development topics, see the Research and Development chapter from page 84 on

In the year covered by the report, the division invested 4.1 million euros in property, plant, and equipment and intangible assets (prior year: 4.9 million euros). As a result, capital expenditure was 17.0 percent lower than in the prior year. The majority of investment went into preparing and carrying out traffic service provision projects. Capital expenditure was offset by depreciation and impairment losses amounting to 7.2 million euros (prior year: 5.0 million euros).

The free cash flow (before interest and income taxes) fell from 30.3 million euros in the prior year to 11.3 million euros in the 2019 fiscal year, a difference largely attributable to the high payment received for the toll project in the prior year. As of December 31, 2019, the working capital came to 14.8 million euros, down on the prior-year figure of 10.6 million euros. This was mainly due to an increase in inventories and reduced contract liabilities.

Production and organization. In 2019, Light & Safety continued its cross-divisional integration of international operational functions in supply chain, service, and quality assurance to improve order execution. A concomitant aim is to build up international value creation structures. For quality assurance, the focus was on improving processes in hardware and software development, incoming goods inspection, and supplier management.

In early July 2019, the Saarland Constitutional Court issued a ruling on a constitutional complaint in connection with a speeding offense. The court held that the complainant was entitled to receive and review the raw measured data generated, but not saved, by the Jenoptik TraffiStar S350 system. The jugdment did not revoke the system's approval by the Physikalisch-Technische Bundesanstalt (PTB); measuring systems of this type are, however, not being operated in the Saarland at the moment. Jenoptik disagrees with the ruling. Several higher regional courts have also expressly ruled against the Saarland decision (e. g. Bavaria, Oldenburg, Cologne, Düsseldorf, and Stuttgart higher regional courts), thus confirming the unrestricted use of the TraffiStar S350 measuring system. Jenoptik has already applied to the PTB for approval of a software update that will enable the systems in the Saarland to return to operation.

T46 Light & Safety at a glance (in million euros)

	2019	2018	Change in %
Revenue (external)	108.7	116.9	−7.1
EBITDA	18.8	15.9	18.2
EBITDA margin* in %	17.3	13.6	
EBIT	11.7	10.9	7.2
EBIT margin* in %	10.7	9.3	
Capital expenditure	4.1	4.9	−17.0
Free cash flow	11.3	30.3	−62.7
Order intake (external)	107.9	118.4	−8.9
Order backlog (external)	69.9	69.5	0.5
Frame contracts	12.6	19.2	−34.3
Employees	496	472	5.1

* Based on total revenue

VINCORION

VINCORION is responsible for the Jenoptik Group's range of mechatronics services for the aviation, security and defense technology, and rail markets. In the 2019 fiscal year, VINCORION continued to position itself as a partner for systems companies and customers with a need for individual solutions, and also launched a wide range of new products. International sales and service structures were expanded and the technology and knowledge transfer to civilian fields was continued.

At 164.8 million euros, revenue, as expected, remained practically unchanged on the prior year (prior year: 166.4 million euros). Buoyed by the export license issued in early October 2019 by the German Federal Ministry for Economic Affairs and Energy to export power supply units for the "Patriot" missile defense system to the United Arab Emirates (UAE), VINCORION generated sales of 68.0 million euros in the fourth quarter, which was significantly up on the prior quarters of the year. At around 51 percent, the share of revenue generated abroad, remained below the prior-year figure of 58.5 percent, due to project-related reasons. VINCORION posted a significant rise to 81.0 million euros in Germany (prior year: 69.0 million euros), where revenue in the aviation business, for example, saw growth. The majority of products are still sold to German buyers, whose end customers, however, are largely active on the international sales market. By contrast, revenue in the Americas fell due to project-related reasons.

VINCORION's EBITDA saw a sharp rise to 24.2 million euros (prior year: 20.1 million euros), primarily due to positive impacts of 3.7 million euros arising from the first-time application of IFRS 16. A significant contribution to earnings of 13.6 million euros was generated in the fourth quarter on the back of this rise in revenue. The EBITDA margin improved to 14.7 percent (prior year: 12.1 percent). At 17.4 million euros, EBIT was also up on the prior-year figure (prior year: 16.5 million euros); the EBIT margin came to 10.5 percent (prior year: 9.9 percent).

In line with expectations, VINCORION increased its order intake in the fourth quarter, posting new orders worth some 69.9 million euros. At 177.9 million euros for the full year, the order intake was down on the prior-year figure of 154.9 million euros. VINCORION, amongst others, received orders for systems for the Leopard 2 tank, the Patriot missile defense system, and in the aviation business. The book-to-bill ratio increased to 1.08 (prior year: 0.93).

The increase in the order intake also produced a rise in the order backlog to 169.7 million euros as of December 31, 2019 (31/12/2018: 158.9 million euros). The division also had frame contracts worth 24.9 million euros (31/12/2018: 30.7 million euros).

With a total of 795 employees, the number of people employed in VINCORION at the end of the year was practically unchanged (31/12/2018: 790 employees). At the end of December, the division had a total of 51 people in trainee positions (31/12/2018: 49 trainees).

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T47 VINCORION at a glance (in million euros)

	2019	2018	Change in %
Revenue (external)	164.8	166.4	−1.0
EBITDA	24.2	20.1	20.0
EBITDA margin* in %	14.7	12.1	
EBIT	17.4	16.5	5.3
EBIT margin* in %	10.5	9.9	
Capital expenditure	8.8	4.9	80.3
Free cash flow	1.0	19.6	−94.7
Order intake (external)	177.9	154.9	14.8
Order backlog (external)	169.7	158.9	6.8
Frame contracts	24.9	30.7	−18.9
Employees	795	790	0.6

* Based on total revenue

R+D expenses fell to 6.1 million euros in 2019 (prior year: 10.5 million euros). Higher expenditure in the prior year was particularly due to projects to develop new products in the aviation business. The development costs on behalf of customers amounted to 2.9 million euros (prior year: 2.7 million euros), and are primarily due to joint development projects with systems companies. Overall, VINCORION's R+D output fell to a value of 10.5 million euros (prior year: 14.1 million euros).

For information on the key development topics, see the Research and Development chapter from page 84 on

VINCORION invested 8.8 million euros in property, plant, and equipment and intangible assets (prior year: 4.9 million euros). As a result, the level of capital expenditure was 80.3 percent higher than in the prior year due to capitalized development costs and lease contracts. Capital expenditure was offset by depreciation and impairment losses amounting to 6.8 million euros (prior year: 3.6 million euros).

The free cash flow (before interest and income taxes) fell from 19.6 million euros in the prior year to 1.0 million euros in the 2019 fiscal year, despite positive impacts arising from IFRS 16. This was primarily attributable to a sharp rise in trade receivables, which led to a higher level of working capital. As of December 31, 2019, the working capital came to 84.1 million euros, up on the prior-year figure of 71.8 million euros.

Production and organization.

On January 17, 2020, the Executive Board of JENOPTIK AG decided to stop the process of selling the mechatronics business operated under the VINCORION brand. The Board had come to the conclusion that there was no offer that corresponded to the business potential of VINCORION as confirmed in the 2019 fiscal year. VINCORION will continue to be operated as an independent investment in the Jenoptik Group.

General Statement by the Executive Board on the Development of the Segments

Depending on their target markets, the Jenoptik Group's three photonics divisions and VINCORION developed differently in 2019. The Light & Optics division benefited from good revenue with the semiconductor equipment industry. Earnings, however, were down on the prior year due to a decline in the Industrial Solutions area. Despite a more difficult economic environment in some areas of the automotive industry, particularly in the second half of the year, the Light & Production division succeeded in increasing revenue and earnings, with Prodomax and the OTTO Group, both acquired in 2018, making major contributions. As expected, the Light & Safety division reported a fall in revenue without the toll project from the prior year, but still managed to increase its earnings. In line with forecasts, VINCORION generated revenue at the prior-year level, and significantly improved its profitability.

The reportable segments also developed disparately in terms of free cash flow. While the Light & Optics division generated a free cash flow comparable to the prior year, Light & Production posted an improvement. Light & Safety reported a fall in the cash flow on the prior year; in 2018 the cash flow was strongly impacted by high payments received for the toll project. Due to higher working capital, VINCORION's free cash flow fell. The introduction of IFRS 16 had a significant positive impact on EBITDA and the free cash flow in all segments.

Over the course of the past fiscal year, Jenoptik boosted its capital expenditure on expanding international sales structures, in efficient processes, and the development of new products.

In 2019, we also managed to establish a broader range of systems and secure both international projects and new customers. Demand varied by market and was clearly influenced by economic developments. Order intakes in all three photonics divisions were below prior-year figures. The Light & Optics division's 2018 order intake, however, included a major order for semiconductor equipment, which was booked ahead of schedule at the end of 2018. VINCORION posted more orders in the past fiscal year than in the prior year. Its business is geared toward the long term and characterized by major projects.

Management Report of JENOPTIK AG

(Abridged version according to HGB)

Supplementary to the reports on the Jenoptik Group, the development of JENOPTIK AG is set out below.

JENOPTIK AG is the parent company of the Jenoptik Group and based in Jena. Its asset, financial, and earnings position is fundamentally defined by its capacity as the holding company of the Jenoptik Group. The operating activities of JENOPTIK AG primarily cover the provision of services for subsidiary companies and the subleasing of commercial premises.

The Annual Financial Statements of JENOPTIK AG are prepared in accordance with German commercial law (HGB) and the supplementary regulations of the German Stock Corporation Act (AktG). The Consolidated Financial Statements are prepared in accordance with the International Financial Reporting Standards (IFRS) valid on the reporting date and the interpretations of the International Financial Reporting Interpretations Committee (IFRIC) whose application is mandatory within the European Union. This gives rise to differences in the accounting and valuation methods, chiefly concerning fixed assets, derivatives, provisions, and deferred taxes.

The Group's strategic policy focuses on our core competencies, and thus also on the simplification of structures. In this context, the legal merger of JENOPTIK SSC GmbH (formerly the Shared Service Center, hereafter referred to as SSC GmbH) with JENOPTIK AG took place with economic effect from January 1, 2019. A comparison of the current reporting period with the prior year is therefore only of limited relevance.

T48 Abbreviated Income Statement of JENOPTIK AG (in thousand euros)

	1/1 to 31/12/2019	1/1 to 31/12/2018
Revenue	36,221	22,533
Cost of sales	32,640	18,468
Gross profit	3,580	4,065
Selling expenses	1,634	1,850
General administrative expenses	12,448	15,850
Research and development expenses	266	253
Other operating result	−2,422	−356
Income and expenses from profit and loss transfer agreements and income from investments	73,277	104,093
Financial result	3,742	−6
Income taxes	8,210	10,876
Earnings after tax	55,621	78,964
Net profit	55,621	78,963
Retained profits from prior year	30,000	40,000
Accumulated profit	85,621	118,963

Asset, Financial, and Earnings Position

Earnings position

Revenue was up 13.7 million euros on the prior year, at 36.2 million euros. The increase primarily resulted from the central services for group companies that were transferred to JENOPTIK AG following the merger of SSC GmbH.

Administrative expenses were 3.4 million euros down on the prior year. Lower general administrative expenses are mainly due to the increased charging of administrative services to group companies, lower expenses for variable remuneration and lower legal fees.

JENOPTIK AG posted research and development expenses of 0.3 million euros (prior year: 0.3 million euros), primarily covering expenditure for innovation management and the coordination of R+D work in the Jenoptik Group.

Selling expenses of 1.6 million euros (prior year: 1.8 million euros) concerned expenses for strategic marketing projects, communication, advertising, and sponsorship.

The other operating result included other operating income of 10.7 million euros (prior year: 7.7 million euros), which was offset by 13.1 million euros of other operating expenses (prior year: 8.0 million euros).

Other operating income primarily included currency gains worth 3.6 million euros (prior year: 4.3 million euros), intra-group cost allocations of 4.0 million euros (prior year: 1.8 million euros), and income arising from the reversal of provisions in the sum of 1.2 million euros (prior year: 1.1 million euros).

Key items in the other operating expenses were currency losses of 3.8 million euros (prior year: 3.1 million euros), expenses for intra-group cost allocations of 4.0 million euros (prior year: 1.6 million euros), 3.0 million euros for an internal group project to analyze and optimize business processes and introduce an SAP S/4 system, and 2.1 million euros for consulting services relating to the planned sale of the VINCORION division and a review of potential company acquisitions.

The financial result of 3.7 million euros (prior year: 0) included earnings from securities and loans, depreciation on loans, and the interest result. Interest income of 2.1 million euros for internal group loans of 100.7 million euros, which were granted in connection with the acquisition of Prodomax in 2018, contributed to the improvement of 3.7 million euros. Interest expenses fell by 0.5 million euros, in part due to the early repayment of a tranche of the debenture loans worth 12.5 million euros in April 2019.

Income taxes were 2.7 million euros below the figure for the prior year due to lower taxable income of the companies consolidated for tax purposes in the fiscal year.

JENOPTIK AG's annual net profit fell by 23.3 million euros, or 29.6 percent, to 55.6 million euros (prior year: 79.0 million euros). The company's earnings position was mainly influenced by the subsidiaries' earnings, which are transferred to JENOPTIK AG on the basis of existing control and profit and loss transfer agreements. The net earnings contribution of the subsidiaries fell compared to the prior year, by 30.6 million euros to 73.0 million euros. Due to the more difficult framework conditions in the automotive industry, earnings contributions by the Metrology and Laser Processing areas (both Light & Production) as well as Industrial Solutions (Light & Optics) reduced. In addition, as the export permission was granted very late in the year, this resulted in lower revenue in the high-margin spare part business and thus to lower earnings contributions by the Power Systems business unit (VINCORION). In the prior year, the toll project had a positive impact on profit and loss transfer.

Asset and financial position

At 781.8 million euros, JENOPTIK AG's total assets were 1.9 percent up on the figure for the prior year (prior year: 767.6 million euros).

The assets side of the statement of financial position reflects JENOPTIK AG's status as a holding company. Alongside intensity of investments of 72.4 percent, of which 63.7 percent was attributable to financial investments and 8.7 percent to property, plant, and equipment (in particular real estate), total assets are also characterized by a high level of cash and cash equivalents (16.6 percent) and loans to associates (10.2 percent).

Of the 29.3-million-euro fall in financial investments, 22.5 million euros arose from the conversion of a loan granted to subsidiary Prodomax into a short-term loan and the associated reclassification of the item in current assets.

Receivables from associates, worth 86.3 million euros (prior year: 78.6 million euros), were mainly due to the issue or settlement of cash and cash equivalent to and from group companies, and chiefly affected the settlement accounts for cash pool holdings and the short-term loan to Prodomax, of which 13.7 million euros had not yet been drawn as of the reporting date.

T49 JENOPTIK AG Statement of Financial Position (in thousand euros)

	31/12/2019	31/12/2018
Assets		
Intangible assets, property, plant, and equipment	76,605	66,642
Financial investments	459,471	488,773
Non-current assets	**536,077**	**555,415**
Inventories, trade receivables, and other assets	87,233	81,978
Cash and cash equivalents	154,903	127,479
Current assets	**242,136**	**209,457**
Accurals und deferrals	3,589	2,706
	781,801	**767,578**
Equity and liabilities		
Share capital	148,819	148,819
(Conditional capital 28,600 thousand euros)		
Capital reserves	180,756	180,756
Revenue reserves	216,070	147,140
Accumulated profit	85,621	118,963
Equity	**631,266**	**595,678**
Provisions	**20,166**	**21,040**
Liabilities to banks	90,500	103,000
Trade accounts payable	7,806	1,703
Other liabilities	32,060	46,156
Liabilities	**130,369**	**150,860**
	781,801	**767,578**

The increase in cash and cash equivalents by 27.45 million euros, from 127.4 million euros to 154.9 million euros, was the result of positive cash flows of the subsidiaries.

Accruals and deferrals essentially comprised accrued costs for IT service and maintenance contracts, as well as incidental rental costs not yet settled.

The liabilities side reflects in particular JENOPTIK AG's financing function as the holding company for the Jenoptik Group. Equity came to 631.3 million euros, liabilities to banks 90.5 million euros (11.6 percent of total assets).

Thanks to the positive annual result in the sum of 55.6 million euros, equity improved by 35.6 million euros. This was countered by the payment of dividends of 20.0 million euros for the 2018 fiscal year. The equity ratio rose from 77.6 percent to 80.7 percent.

Tax provisions at the companies consolidated for tax purposes fell due to a payment for tax arrears of 3.9 million euros for the years 2017 and 2018.

Other liabilities comprised 30.6 million euros of cash pool holdings.

Over the reporting year, JENOPTIK AG's debt-to-equity ratio improved due to the increase in equity and the repayment of financial debt, from 28.86 percent to 23.85 percent.

As of December 31, 2019, JENOPTIK AG had 258 employees, of which 18 were temporary workers and 7 were trainees (prior year: 135 employees, of which 10 temporary workers).

Risks and Opportunities

Due to its function as a holding company, JENOPTIK AG's development of business is subject to the same risks and opportunities as the Jenoptik Group. It generally participated in the risks of equity holdings and subsidiaries in line with their equity interests and financial investments. The risks and opportunities of the Group and the segments are set out in the Risk and Opportunity Report from page 117 on.

Forecast report

The net profit of JENOPTIK AG is largely dependent on the development of contributions to earnings by the subsidiaries.

Based on the development set out in the Group Forecast Report, JENOPTIK AG is anticipating revenue from holding company services at the prior-year level in the 2020 fiscal year. Due to higher rental revenue, JENOPTIK AG is expecting in total a higher revenue. The profit of JENOPTIK AG – before transfer of profit and losses of the subsidiaries – will remain stable compared with the prior year.

For detailed information on the expected future development of the Jenoptik Group and its segments we refer to the Forecast Report from page 133 on.

Events after the Balance Sheet Date

The JENOPTIK AG Executive Board approved the submission of the present Consolidated Financial Statements to the Supervisory Board on March 10, 2020. The Supervisory Board is responsible for reviewing and approving the Consolidated Financial Statements at its March 24, 2020 meeting.

Dividends. According to the Stock Corporation Act, the amount available for a dividend payment to the shareholders is based on the accumulated profit of the parent company JENOPTIK AG, as determined by the regulations of the HGB. For the 2019 fiscal year, JENOPTIK AG's accumulated profit totaled 85,620,600.56 euros, comprising net profit for 2019 in the amount of 55,620,600.56 euros plus retained profits of 30,000,000.00 euros.

The Executive Board recommends to the Supervisory Board that for the 2019 fiscal year a dividend of 0.35 euros per qualifying no-par value share be proposed to the 2020 Annual General Meeting (prior year: 0.35 euros). This would mean that a sum of 20,033,340.25 euros from JENOPTIK AG's accumulated profit in the 2019 fiscal year would be distributed. Of JENOPTIK AG's remaining accumulated profit, a sum of 35,587,260.31 euros will be allocated to revenue reserves, and a sum of 30,000,000.00 euros will be carried forward.

With this recommendation the Executive Board maintains a continuous dividend policy, in spite of the lower earnings per share of 1.18 euros (prior year 1.53 euros). Prior-year earnings included, in particular, a non-cash deferred tax income which contributed to the increase in earnings per share. The payout ratio is 29.7 percent (prior year 22.9 percent).

Acquisition of INTEROB. With the signing of the agreement on January 25, 2020 and on the closing date of February 4, 2020, Jenoptik acquired the INTEROB Group, consisting of INTEROB, S.L. and INTEROB RESEARCH AND SUPPLY, S.L. INTEROB specializes in projects relating to the plant planning, design, manufacture, and integration of automation solutions, as well as robotics applications with a focus on the automotive industry. The acquisition allows the Jenoptik Group to boost its position as a turnkey provider of automated production solutions. In the 2019 fiscal year, INTEROB posted some 22 million euros of revenue; its profitability was above the average in the Jenoptik Group. Jenoptik will consolidate 2020 revenue and earnings, including the impacts arising from the purchase price allocation on a pro rata temporis basis. The purchase price is slightly less than twice the revenue generated in 2019. INTEROB is based in Valladolid, Spain, and was founded in 2001.

On January 17, 2020 the Executive Board of JENOPTIK AG decided to stop the process of selling the mechatronic business operating under the VINCORION brand. The Board had come to the conclusion that there was no offer that corresponded to the business potential which VINCORION demonstrated in the 2019 fiscal year. Going forward, VINCORION will be operated as an independent investment of Jenoptik.

No further events of significance occurred after December 31, 2019.

Opportunity and Risk Report

Principles of Opportunity and Risk Management at Jenoptik

For Jenoptik, the responsible evaluation of risks and opportunities within the corporate environment is one of the principles of responsible corporate governance. To ensure implementation of our strategy, it is necessary to identify risks and opportunities at an early stage, to evaluate them appropriately, and control them efficiently. This is done by promoting an open risk culture and regularly examining the established risk management system. Jenoptik's risk and opportunity management system is annually reviewed for appropriateness and effectiveness at an internal risk workshop. Reporting processes employ centrally available software.

Risks are defined as potential developments and events that may result in a negative divergence from objectives and forecasts in the company and involve uncertainty regarding the occurrence of an event. Correspondingly, opportunities are events that may result in a positive divergence from our expected targets.

Jenoptik's risks and opportunities are assessed with the help of the probability of occurrence and extent of damage factors using a key matrix. (see paragraph Structure and process of the opportunity and risk management system). The risks and opportunities described here are the result of the aggregation of locally identified risks and opportunities that were each allocated to defined categories. G20

For further information see structure and processes of the risk and opportunity management system

Organizational integration of the risk and opportunity management

The Executive Board is responsible for the risk and opportunity management system in the Jenoptik Group. The group-wide approach is set out in a risk manual.

Central Compliance & Risk Management organizes and manages the system, working closely with the other central departments and the risk officers in the divisions, who in turn are responsible for implementing the risk and opportunity management system in the risk reporting units. The risk reporting units are defined reporting units that are employed to accurately identify and allocate risks and opportunities, and can be both business units and individual subsidiaries.

G20 Risk assessment

Metrics	Probability of occurence	Consequences / extent of damage		
		Qualitative		Quantitative EBIT deviation
5 = High	up to 50%	The goal of the Group or the risk reporting unit is jeopardized	or	> 20%
4 = Medium-high	up to 40%	The goal of the Group or the risk reporting unit has to be adapted immediately	or	> 15 to 20%
3 = Medium	up to 30%	The goal of the Group or the risk reporting unit has to be adapted in the medium term	or	> 10 to 15%
2 = Low	up to 20%	Further measures are necessary in order to achieve the goals of the Group or the risk reporting unit	or	> 5 to 10%
1 = Very low	up to 10%	Minor consequences	or	> 0 to 5%

Internal Audit monitors the effectiveness of the risk management system, while the Audit Committee of the Supervisory Board takes up the external monitoring function for or in conjunction with the Supervisory Board.

On the Risk Committee, all aggregated reporting results are consolidated to form a top-level evaluation of the Group's risk position. The Risk Committee consists of the members of the Executive Board and the head of central Compliance & Risk Management. G21

The consolidated companies exposed to risk correspond to those included in the consolidated balance sheet.

Structure and processes of the risk and opportunity management system

The Jenoptik risk and opportunity management system is based on the ISO 31000 standard.

The definition and ongoing development of the system takes place with the close cooperation of central Compliance & Risk Management, the Executive Board, and the Audit Committee of the Supervisory Board. The Executive Board is responsible for the system and approves it. Central Compliance & Risk Management communicates the requirements of the risk management system, advises on their practical implementation, and monitors the measures and results of the risk management processes.

A core process of risk management are the various risk assessments, which are carried out using a combination of top-down and bottom-up elements. In order to ensure the most in-depth risk identification and comparability possible within the company, a risk register was developed to support management in the evaluation of risks. It comprises several specified categories to which potential risks and opportunities are allocated by the risk reporting units. This is to ensure that each risk reporting unit deals with the entire risk landscape and that, simultaneously, an aggregation of the results is guaranteed across the specified categories. While operational and financial targets are analyzed over a time frame of up to two years, strategic topics are considered for periods of up to four years. Under the current system, sustainability risks are not determined in a separate risk category. They are, however, in part covered by the existing risk categories.

Within the scope of the risk analysis, the risk reporting units determine the risks and opportunities in order to be able to undertake a valid risk assessment in the next stage regarding

G21 Process of risk reporting

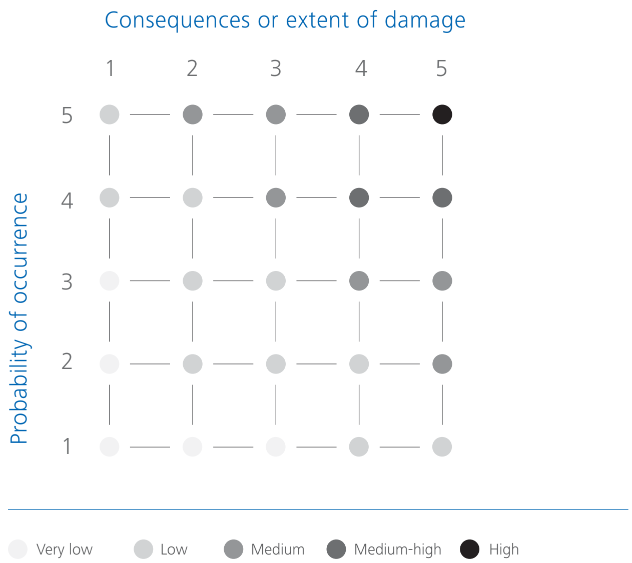
Risk Officers in the divisions and central departments	Assessment of single risks
Central Functions	Review of aggregated risks
Corporate Compliance & Risk Management department	Review and analysis of group risks
Risk Committee	Analysis of group risks
Executive Board	Final assessment of group risks
Audit Committee Supervisory Board	Evaluation of group risks

the assessment methods (qualitative or quantitative) and the measures already taken or still required. This takes place in accordance with the net method, i. e. mitigating measures are already included in the assessment so that only the assessed residual risk is reported and aggregated. The assessment of a risk is the product of the probability of occurrence and the quantitative amount of loss or the qualitative extent of damage. The opportunities are evaluated in the same way. G22

There is a scale of 1 to 5 for both assessment factors mentioned, probability of occurrence and extent of loss, with 1 being the smallest and 25 the greatest possible risk indicator. G23

Every six months, the results of the risk assessments are requested by central Compliance & Risk Management at the risk reporting units and aggregated to the Group Risk and Opportunity Report. The findings are then validated by the central departments of the Corporate Center before being discussed in the Risk Committee. The Executive Board makes a general assessment and, as necessary, approves further action. Then the Group Risk and Opportunity Report is presented to and discussed by the Audit Committee of the Supervisory Board and the Supervisory Board.

G23 Calculation of risk scores



G22 Risk and opportunity categories

Operational Risks / Opportunities	Strategic Risks / Opportunities
Supply Chain Management / Safety and Environmental Protection / Production (incl. Quality Management) / Marketing & Sales / Patents & IP rights / Human Resources Management / IT / Compliance / Legal Affairs / Real Estate	Market Development / Product Development (incl. R+D) / Corporate Development (Portfolio and Structure) / Organizational Setup (Processes and Resources)
Financial Management Risks / Opportunities	
Accounting / Finance Management (Treasury) / Controlling / Taxes	

1st year 2nd year 3rd year 4th year

In addition, any risks identified during the year which have a high probability of occurrence and significant potential for damage, are communicated without delay to the Chief Compliance & Risk Officer and the Executive Board. Following joint analysis with the technical departments, they decide on further measures to be taken and, if necessary, the required communication.

The above-mentioned reporting instruments also form the basis for the risk early warning system. This is reviewed by the auditor during the audit. The auditor confirms that it is designed in such a way that any developments that could jeopardize the continued existence of the Group can be identified in good time.

Risk prevention and ensuring compliance

Prevention is a key element of the risk management system, and an integral part of regular business operations and committee work.

It essentially comprises risk monitoring as part of a range of assessments and special approval procedures. Consequently, risks and opportunities, as well as their impact on the company, are discussed during the monthly meetings of the Executive Board and at EMC and strategy meetings. At the same time, potential risks to achieving the strategic goals can be considered directly in the strategy development process and minimized by taking suitable measures.

Compliance with national and international compliance requirements is an integral part of risk prevention and of the processes of Jenoptik's risk management system. In order to improve employee awareness and achieve company-wide uniform understanding of our compliance standards, regular training is provided on subjects relevant to compliance, such as anti-corruption or anti-trust law, as well as data protection issues or insider trading. Online training on key compliance issues is obligatory for all employees. A help desk is available on the intranet to assist employees on any risk or compliance issues they may have. Following the introduction of the new Group Guidelines system in 2020, the corporate guidelines implemented within the Group with regard to important company processes are annually reviewed and, as necessary, expanded, and updated. They are published on the intranet. Together with our Code of Conduct, they help to prevent risks.

For further information, see Corporate Governance Report from page 36 on

In accordance with international standards, a supplier code of conduct requires Jenoptik's suppliers to comply with a number of different compliance requirements. Central business partner screening (third-party due diligence) is used to check whether cooperation with a high-risk business partner is viable from a compliance perspective.

Jenoptik therefore has a system of regulations, processes and controls that enable it to identify any possible deficits in the company and to minimize them using appropriate measures at an early stage.

Alongside the risk and compliance management systems, the Internal Control System (ICS) is a key element of corporate governance. It covers technical and organizational regulations and control steps to ensure compliance with guidelines and prevent damage, as well as ensuring clear divisions of responsibility and function, in adherence to the principle of double-checking. In particular, its intention is to ensure the security and efficiency of transactions as well as the reliability of financial reporting, and it is regularly reviewed by Internal Audit. The established ICS self-assessments, to be completed by the management of all subsidiaries and JENOPTIK AG in the form of questionnaires, were also carried out in the past fiscal year. Monitoring and evaluation of the completed questionnaires is carried out by central Accounting, Controlling, and Internal Audit. Reported deficits are analyzed and appropriate countermeasures are defined to ensure they are lastingly eliminated.

Internal Audit is permanently incorporated into the ongoing further development of the internal monitoring and risk management system through process-independent audits. As a staff department, it reports to the Chief Financial Officer and acts on his behalf. Employees in Internal Audit are not subject to any instructions in their work. This includes the choice of audit items, the setting of priorities and the procedures used, the frequency and scheduling of audits, and reporting. The organizational units of the Jenoptik Group are analyzed and audited on the basis of a risk-oriented audit plan. The compliance with and proper implementation of the applicable guidelines form integral parts of the audit. This not only identifies errors, infringements, or process weaknesses and the most expedient remedial action, but also potential process improvements in the sense of a "best practice approach". The recommendations are prioritized, categorized, and reported directly to the persons responsible for the audited units, the respective central departments, and to the Executive Board. The audited unit then submits a report to the Executive Board, indicating the measures and deadlines for implementation of the stated recommendations. This is followed by follow-up audits that review the implementation of the recommendations, with information on the results being sent to the respective management levels and central departments as well as the Executive Board. Internal Audit submits a report containing its key findings since the last report to the Audit Committee of the Supervisory Board at least once a year. In 2019, six audits, three follow-up audits, and five special audits were conducted. Nine units received support for implementation of the measures identified in the course of auditing.

Jenoptik has a centralized financial management system. The central Treasury department coordinates the financing needs of the Group, ensures liquidity and monitors the currency, interest rate, and liquidity risks on the basis of group-wide rules and relevant process descriptions. These regulations include provisions for the clear separation of transaction and corporate oversight functions as well as trading within predetermined limits.

The purpose of financial risk management is to limit financial risks arising from changes in market rates, for example interest and exchange rates. Financial instruments are used exclusively for the purpose of securing underlying transactions and not for speculative purposes. They are only concluded with banks with investment grade rating (at least BBB-Standard & Poor's rating scale).

Key features of the Internal Control and Risk Management System with regard to the consolidated accounting process of the Group and JENOPTIK AG (§ 289 (4) and § 315 (4) of the German Commercial Code [HGB])

The accounting-related internal control system is part of the overall ICS of the Jenoptik Group. Its purpose, in part, is to ensure a due and proper process in preparing the Consolidated Financial Statements, guaranteeing compliance with statutory regulations, accounting rules, and internal guidelines for uniform accounting and valuation principles, which are binding for all companies included in the Consolidated Financial Statements. New regulations and changes to existing rules are analyzed promptly and implemented. All employees involved in the accounting process receive regular training.

Access restrictions in the respective IT systems protect the financial systems against abuse. Centralized control and regular backup of the IT systems reduce the risk of data loss.

In order to prepare the Consolidated Financial Statements, data from the companies is recorded directly by them in the LucaNet consolidation tool. The transferred data from the statements and financial statements of consolidated companies is verified by manual and technical system inspections. All the consolidation processes required for the preparation of the Consolidated Financial Statements are documented. These processes, systems, and controls enable Jenoptik to ensure a group accounting process that complies with both the IFRS and statutory requirements. The group auditor audits JENOPTIK AG's Financial Statements and Consolidated Financial Statements in accordance with the IFRS regulations in compliance with § 317 of the German Commercial Code (HGB) and the EU Audit Regulation (537/2014), giving consideration to the generally accepted German audit principles defined by the Institute of Public Auditors in Germany (IDW).

The Corporate Governance Report can be found on pages 36 ff of the Annual Report. The Corporate Governance Statement in accordance with §§ 289 f, 315 d of the German Commercial Code (HGB) can be found on our website at www.jenoptik.com, in the "Investors/Corporate Governance" section. In accordance with § 317 (2) (6) of the German Commercial Code, the information required under §§ 289 f, 315 d is not considered by the auditor.

The Group’s Risk and Opportunity Profile

The Group’s risk profile for 2019 and subsequent years was determined with the aid of the various risk and opportunity assessments from the segments. Part of the risk assessment of the segments is a review by the central functions of the Corporate Center, whose identified risks are then included in the segment reporting and in the final group assessment. Our risk and opportunity management allows to directly compare the individual risk subcategories and the associated risk symptoms. The risk assessment of subcategories is set out in greater detail in the table below.

Overall, the risks to which the Group is exposed are at the lower end of the medium risk range. No significant changes on the prior year were identified.

Once again, strategic risks and opportunities were on average assessed as the most important for the overall Group, compared to operational and financial management risks, in 2019. Following the strategic realignment initiated in 2018 to focus on photonics market segments, their development is both a risk and an opportunity for the Group.

Continuing uncertainties arising from trade and geopolitical conflicts may have a decisive influence on overall economic development in Jenoptik’s growth markets, for example in China. The uncertainties existing at the time that this report was prepared also harbor potential risks for the current and future business of the Group. On the one hand, we are constantly assessing the potential impacts of a wider outbreak of coronavirus and the action being taken. The risks arising from this to the supply chain or sales cannot yet be quantified at the time of reporting. On the other hand, potential risks to the Group’s current and future business continue to arise with regard to the final form of future relations between the EU and Great Britain and the

T50 Risk profile of the Jenoptik Group 2019

	Group risk assessment	
	2019	2018
Strategic risks		
Market development	Medium	Medium
Product development (incl. R+D)	Medium	Medium
Corporate development (portfolio and structure)	Medium	Medium
Organizational setup (processes and resources)	Medium	Medium
Operational risks		
Supply chain management	Medium	Medium
Safety and environmental protection	Low	Low
Production (incl. quality management)	Medium	Medium
Marketing and sales	Medium	Medium
Patents and IP rights	Low	Low
Human resources management	Medium	Medium
IT	Medium	Medium
Compliance	Medium	Medium
Legal affairs	Low	Low
Real estate	Low	Low
Financial management risks		
Accounting	Low	Low
Finance management	Low	Low
Controlling	Low	Medium
Taxes	Low	Low
Total risk	Medium	Medium

associated legal consequences of Great Britain's withdrawal from the European Union after the end of the transition period. We are therefore continuously assessing the direct impacts of Brexit on Jenoptik's business. We have, for example, conducted an analysis of our supply chains and supplier management. Suitable measures have already been initiated to avoid bottlenecks; alternative suppliers have been evaluated and adjustments made to working capital management, for example. At the same time, we also analyze the impacts of potential financial management factors such as tariff or export restrictions or exchange rate fluctuations, which we counter with appropriate hedging mechanisms.

Continuing high levels of public debt in parts of Europe and associated budgetary consolidation are also hampering investment by both public sector clients and consumers. In the course of active risk management, we also develop suitable measures to counter political uncertainties within our business processes wherever possible.

Jenoptik is exposed to intense competition throughout its business. The company counters the risk of being squeezed out by competitors with, for example, innovative USPs, specific and flexible adjustments to its product range, or customization options for existing products and solutions. In addition, mergers and acquisitions on the markets we target may further exacerbate the competitive environment. Potentially improved cost structures at competitor companies, and the resulting increasing pricing pressure, may have negative effects on group earnings. We counter this risk by continuously analyzing our portfolio, i. e. by determining whether and how specific acquisitions may usefully complement our product range and generate lasting profitable growth. M & A activities and the integration of acquisitions pose a fundamental risk to the Group. We actively counter this risk with extensive due diligence and a structured integration process individually tailored to the acquired company.

Operational risks and opportunities were assessed with low to medium risk indicators for the whole Group.

The increasing number of complex international projects, particularly those of a technically challenging nature, place enormous operational demands on all parts of the business. Supplier management and production are predominantly responsible for assuring the quality of our products. The use of isolated single-source suppliers may increase the risk of dependency, but ongoing refinement of our purchasing and production organization aims to ensure that our customers continue to receive high-quality, tailored solutions in good time.

Global IT systems and processes are of great significance to Jenoptik in all its divisions. The security and availability of these systems have top priority. Data is stored on redundant storage media and secured against data loss by means of a partially tiered archive and backup system enabling rapid data recovery in the event of a crisis situation. The world is seeing a rise in the number of IT threats, e. g. in the form of phishing attacks, in which sensitive corporate information is obtained by third parties by means of deception. Jenoptik actively takes both preventive and corrective action to reduce the risk of cyber attacks: as examples, all IT security issues are coordinated by the Chief Information Security Officer, existing processes are continuously scrutinized and adjusted, technical measures are implemented, and employees in positions of responsibility are provided with internal training. Jenoptik took out cyber risk insurance in 2018 to cover the residual risk of data loss or restricted use of the IT infrastructure and limit any resulting financial impacts on the Group.

Our employees make the most important contribution to the company's success. As an international technology company, we need dedicated and highly qualified colleagues – now and in the future. Due to the difficulties in attracting qualified employees, particularly in Germany, Jenoptik is also exposed to the risk of not being able to fill vacant positions as they arise. We counter this risk with a large range of targeted measures, including the establishment of a succession planning process for management positions, leadership and professional career programs, an employer branding campaign, and both attractive and personalized incentive and loyalty schemes.

In view of Jenoptik's international business operations, one general risk is non-compliance with legal, ethical, and contractual requirements. As a result of adjustments in the compliance organization as well as better established structures and processes in the divisions, the risk was reduced compared with the prior year and is now in the low risk range. As a company with customers and business partners in numerous countries, clients in the public sector and involvement in the US defense market, Jenoptik must grapple with many, partly evolving, compliance requirements in different markets. Although the necessary organizational structures and measures to minimize potential compliance violations have been implemented with a groupwide export control and data protection organization, the central Compliance and Risk Management department, and corresponding processes, such violations cannot be entirely ruled out. Strict adherence to the compliance program and the continuous development of the compliance management system aim to close up any process gaps and ensure that processes comply with laws and regulations.

Financial management risks were assessed on average as low throughout the Group in 2019. The issues cited below also include the segment-specific risks. One key task of the central Treasury department is to safeguard and coordinate the financing of all group companies over the long term. Jenoptik has good internal financing and access to alternative, external financing options. Currency-related risks arise from the Group's international activities. These risks are identified by the central Treasury department in collaboration with the group companies and are controlled with appropriate measures such as the conclusion of currency forward transactions.

The risk of changing interest rates is in part reduced by the conclusion of fixed interest loans. In addition, interest rate swaps are used to reduce the risk of changing interest rates for loans with variable interest. A variable interest rate was consciously agreed for a part of the loans in order to profit from the current low interest rate environment.

Group-wide liquidity planning aims to identify liquidity risks at an early stage and systematically minimize them. Regular Treasury reports and a monthly rolling liquidity forecast have been established for liquidity control and monitoring.

With regard to the use of financial instruments, we refer to the Notes, section 3.8, from page 155 on

In the Controlling and Accounting departments, opportunities predominantly arise from the continuing expansion and optimization of the standardized ERP system, and from the centralization of accounting activities for continuous quality improvement. Thanks to the establishment of new controlling instruments based on modern IT solutions, we counter the risk of lacking business-critical information in internal reporting.

Risk and Opportunity Profiles of the Segments

The risk and opportunity profile of the Jenoptik Group was derived from the various risk profiles of the photonics divisions and VINCORION. Financial management risks are aggregated in the group risk and opportunity profile. As a result of the changes to the group structure carried out in early 2019 (see the Group Structure chapter, page 72), we have also adjusted our risk and opportunity reporting. The Light & Production and Light & Safety divisions are now reported separately rather than being aggregated in a single segment. As a result, the prior-year figures for the two divisions represent the risk values for the former Automotive and Traffic Solutions divisions. T51

Light & Optics

Strategic risks and opportunities primarily arise on the basis of demand in the semiconductor equipment industry, which is subject to cyclical developments. They may have a significant positive or negative effect on results. Beyond this, the focus on larger customers is generally associated with the risk that poor business performance or the loss of customers may impact severely on revenue and earnings. On the other hand, the loyalty of such customers enables profitable revenue growth due to economies of scale. Although there is always an inherent threat posed by the growing number of mainly Asian competitors and the trend among suppliers and customers toward forward and/or backward integration, growth may still be achieved through the continuous expansion of existing competitive advantages and internationalization. In addition, the Light & Optics division addresses this risk by continuously reviewing vertical integration with the aim of supplying more system and service solutions to its customers.

The growing importance of digitization and the related demand for applications and devices, both from private households and companies, provides Light & Optics with major opportunities for the coming years. Demographic developments in industrialized nations and the relentless progress being made in medical technologies, particularly in our core markets of Asia and the Americas, are also boosting demand for product solutions. Due to ongoing development of the product portfolio and Jenoptik's greater market orientation we can better meet our customers' requirements. Increasing financial problems in healthcare systems, however, are resulting in growing price pressure among suppliers. The trend toward increasing complexity in the market environment makes clear and reliable forecasts more difficult, especially in innovative areas of application.

Customers' specific requirements result in particular operational risks and opportunities in supplier management and production processes. For many components of the division, there is only a very limited number of qualified suppliers that are able to meet the necessary specifications in a timely manner. When such a supplier is lost or the customer changes specifications, this can result in corresponding problems in the development or production process. Partners are subject to ongoing qualification with the help of strategic purchasing to develop a stable base of suitable suppliers in the medium and long term. Specific customer requirements, especially regarding the quality and growing number of complex high-end products, also lead to increased demands on production technologies, which are met through targeted expansion or replacement investment. If necessary investments are delayed, there is a risk that quality and performance requirements may not be met to the agreed schedule, or at all, resulting in either delivery delays or non-acceptance by the customer.

T51 Risk profiles of the segments 2019

	Risk assessment							
	Light & Optics division		Light & Production division		Light & Safety division		VINCORION	
	2019	2018	2019	2018	2019	2018	2019	2018
Strategic risks								
Market development	Medium	Medium	Medium high	Medium high	Medium	Medium	Medium	Medium
Product development (incl. R+D)	Medium	Medium	Medium	Medium	Medium high	High	Medium	Medium
Corporate development (portfolio and structure)	Medium	Medium	Low	Medium	Low	Medium	Medium	Medium
Organizational setup (processes and resources)	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Operational risks								
Supply chain management	Medium	Medium	Medium	Medium	Medium	Medium high	Medium	Medium
Safety and environmental protection	Low	Low	Low	Low	Low	Low	Low	Low
Production (incl. quality management)	Medium	Medium	Low	Low	Medium	Medium	Low	Low
Marketing and sales	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Patents and IP rights	Low	Low	Low	Medium	Medium	Medium	Low	Low
Human resources management	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
IT	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Low
Compliance	Low	Low	Medium	Medium	Medium	Medium high	Medium	Medium
Legal affairs	Low	Low	Very Low	Low	Medium	Medium	Low	Medium
Real estate	Low	Low	Very Low	Low	Low	Low	Low	Low
Financial management risks								
Accounting	Low	Low	Low	Low	Low	Medium	Low	Low
Finance management	Low	Low	Low	Low	Low	Low	Low	Low
Controlling	Low	Low	Low	Low	Medium	Medium	Low	Low
Taxes	Low	Low	Medium	Medium	Medium	Medium	Low	Low
Total risk	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium

Light & Production

The strategic risks and opportunities in the Light & Production division are strongly influenced by the development of the automotive industry and its investment schedule. Current challenges the industry is facing are based on technological shifts and sales trends and may pose risks to our success as a supplier to this industry, which we are proactively countering with the aid of the division's new strategic focus and a corresponding adjustment to its product range, in addition to selectively strengthening our positions as a turnkey supplier of automated production solutions and a systems supplier for production metrology and industrial imaging applications.

In terms of operational risks and opportunities, the increasing internationalization of projects and parts of the value chain is reflected in increased demands on supplier management, manufacturing, marketing, sales, and HR management. The systematic expansion of efficient service and sales structures is of crucial importance to achieving growth targets, particularly abroad.

By building up a broad sales partner organization, we are consistently increasing our access to new customers and markets in Asia. The resulting opportunities are offset by stricter compliance requirements. We are actively countering the risks by adopting suitable measures such as business partner audits and training, as well as ensuring close coordination between those responsible in the region, the division, and the central Compliance department.

Innovations and process adjustments in implemented ERP systems may presently still cause isolated delays within the organization. However, the consolidation of the system landscape means that the opportunities outweigh the risks in terms of efficiency and improved control options.

Light & Safety

Uncertain economic and political developments around the world currently represent the main strategic risks and opportunities for the Light & Safety division. As a supplier to international public-sector customers in particular, Jenoptik is exposed to both the political and economic development of the respective countries. Particularly in the event of unrest, changes in government, or in connection with Brexit, this may result in projects being delayed or even stopped entirely. By contrast, improvements in the political situation in certain sales markets and the economic prosperity of the countries are opening up opportunities to better serve the evolving demand for traffic safety technology. Conflicting legal decisions made by German courts regarding traffic monitoring systems, including our TraffiStar S350, may adversely affect both revenue and earnings. To minimize this risk, the division has submitted revised operating software to the Physikalisch-Technische Bundesanstalt (PTB) for review.

At the same time, the growing demand for safety technologies, intelligent traffic flow solutions ("smart cities"), the levying of congestion charges for the use of inner-city traffic infrastructure, and compliance with emission values for air pollutants, especially in metropolitan areas, present good opportunities for the division. We want to improve our strategic competitive position by continuously optimizing our product range and developing a standardized platform to cover the above-mentioned future issues.

The operational risks and opportunities are currently dominated by the ongoing possibility of a disorderly Brexit. Great Britain's withdrawal from the European Union could particularly impact on the Light & Safety division, which maintains a production and development site in the country. As stated above, we continue to analyze the potential consequences and have already prepared a range of measures. At the time the Risk and Opportunity Report was prepared, however, the potential risks were still not quantifiable in full. We therefore cannot rule out the risk that unscheduled measures and delays in our business processes could result in higher future costs, which would negatively impact on the division's earnings.

The division's supply chain is exposed to a range of risks: both the risks surrounding Brexit and the fact that the division has a very limited number of qualified suppliers. If one of these suppliers is lost or products are discontinued, problems may arise due to the need for new approvals, modified production processes, or delivery bottlenecks. Strategic Purchasing helps the division to qualify partners and to ensure a stable base of suitable suppliers in the medium and long term.

In addition, the Light & Safety division is compelled to meet strict compliance requirements, whether imposed by customers or legislation. They entail the risk of delays in our business processes or of additional costs that could adversely affect the business's earnings. In the field of traffic safety technology, the requirements of the General Data Protection Regulation are of particular significance. They can now be better met thanks to the establishment of a standardized group-wide data protection organization.

VINCORION

Strategic risks and opportunities. The defense market is strongly influenced by political decision-making, in particular by governments' budgetary positions, and by the export license policies of the German government. This also applied to the restrictions in force in the 2019 fiscal year, particularly regarding the Middle East, which pose risks to our ability to deliver to customers at short notice. Associated with this is the risk that our customers will lose confidence in our reliability. By contrast, the requirement that NATO member states spend two percent of their gross domestic product on defense and the consideration by the European Union's member states to establishing a common armaments policy are both likely to stimulate the market environment. The planned increase in the defense budget and the associated growth in investment by the German government may result in higher order intakes for VINCORION. In terms of corporate development, the potential risk of a dependency on political decisions and government budgets will continue to be countered by the targeted expansion of the product portfolio for civilian and, in particular, international markets. The processes and resources required for this must be gradually adapted within the course of strategic organizational development. Marketing and sales activities are also being stepped up to fully exploit the relevant growth options. The new VINCORION brand is helping us to better target our customers.

Since a large proportion of revenue generated by VINCORION is the result of project business, product developments and launches represent both a huge risk and a huge opportunity. Long-term development projects present great potential to generate future revenues. However, there are also inherent technological and organizational risks that may jeopardize the timely success of the development.

Based on current information, the decision taken by Airbus to discontinue production of the A380 in 2021 will not have any material impact on VINCORION's business in 2020 and 2021, especially as the spare parts business and repair and maintenance work on the A380, which will remain in service, will continue to contribute to our earnings. Due to the business model being focused on long-term customer relationships and long product life cycles, supplier performance is an important success factor. As a result, good cooperation to date also presents opportunities to establish VINCORION as a supplier for further Airbus aircraft.

Operational risks and opportunities arise primarily from a strong dependency on single sources in a number of cases, which may endanger future business opportunities. We counter these risks through active supplier management.

The consolidation of VINCORION's ERP systems and an independent IT strategy that better takes into account the specific IT requirements in the defense sector offer opportunities in terms of efficiency, improved control options, and compliance with other information security standards (e. g. NIST).

General Statement by the Executive Board on the Group's Risk and Opportunity Situation

Overall, in terms of strategic, operational, and financial management risks, the Jenoptik Group's exposure to risk is largely unchanged on the prior year, and currently remains at the lower end of the medium risk range.

The strategic risks that were assessed as "medium" are offset by adequate opportunities or are countered by measures that enable lastingly beneficial strategic positioning. This is particularly the case for the risks in the "product development" and "organizational setup" subcategories. The risks in the "market development" category are attributable to external sources of risk that are also countered by appropriate strategic measures. The risks in the "corporate development" subcategory remained stable compared to the prior year, also due to the acquisitions of Prodomax, the OTTO Group, and INTEROB, as well as other structural measures which strengthen our portfolio.

In the area of operational risks, the successful development and expansion of the sales structures is of crucial importance. The same applies to supplier management and production, which demand special attention due to the high technological requirements in an international market environment and, in some cases, associated single source procurement.

The Group's financial management risks remain at a low level on average. By improving the tools and processes provided, the risk assessment for the "controlling" subcategory was also downgraded from "medium" to "low".

Overall, it can be said that the realignment of the Group's strategic market segments (with the help of "Strategy 2022") may gradually help to reduce the existing strategic risks. The growing importance of the photonics industry and the strong related demand for applications and devices, both from private households and companies, continues to offer Jenoptik with the potential for good further growth.

Overall, there is an satisfying relationship between risks and opportunities in the Jenoptik Group. No risks were identified that may jeopardize the continued existence of the Group.

Forecast Report

Framework Conditions: Future Development of the Economy as a Whole and the Jenoptik Sectors

For the current year, the International Monetary Fund (IMF) forecasts global economic growth of 3.3 percent in its World Economic Outlook as of January 2020, 0.1 percentage points down on its forecast in fall 2019 but better than in the prior year. Hopes that growth may pick up a little faster are based on the initial agreement in the trade conflict between China and the US, a loose monetary policy around the world, and diminishing concerns about Great Britain's withdrawal from the EU. Despite this, however, trade uncertainties and international tensions remain. Due to problems in emerging countries such as India, the IMF adjusted its 2021 forecast from 3.6 to 3.4 percent. Economic growth in the US is expected to weaken in 2020, but will pick up somewhat in the euro zone, according to the IMF.

Tariff sanctions could also interrupt global supply chains in the technology sector. Other risks identified by the IMF include tensions between the US and Iran, which could adversely affect global oil supplies, and growing social unrest in many countries.

Economists believe that the economic impacts of the outbreak of coronavirus and the extent to which it will spread cannot yet be fully quantified. Measures such as isolation of entire regions, production stops and international supply disruptions could effect in particular export-oriented countries, especially in the automotive industry and the chemical, textile and electronics sectors. At the beginning of March 2020, the IMF lowered its economic forecast for the global economy and China due to the spread of the virus. Global economic growth in 2020 is expected to be 0.1 percentage points lower than forecast still in January. Global economic growth in 2020 is expected to be lower than in the previous year (2.9 percent). An exact forecast is currently difficult to make. In January, the IMF had still predicted growth of 3.3 percent.

T52 Gross domestic product forecast (in percent)

	2020*	2021*
World	3.3	3.4
US	2.0	1.7
Eurozone	1.3	1.4
Germany	1.1	1.4
China	6.0	5.8
India	5.8	6.5
Emerging countries	4.4	4.6

Source: International Monetary Fund, World Economic Outlook, January 2020
* Forecast

The downside risk is also clearly reflected in China: in February, the IMF reduced its forecast for Chinese economic growth to just 5.6 percent for the current year instead of the 6.0 percent predicted in January. The prerequisite is that the virus weakens and the Chinese economy returns to normality in the second quarter of 2020.

In recent months, the export trade in the US did not make enough contributions to growth. According to the US Treasury Department, the crisis at Boeing, in particular, is likely to have a negative impact on gross domestic product (GDP) this year due to the worldwide grounding of the 737 Max aircraft, and growth could slow down by 0.5 percentage points. It is therefore expecting growth to come in at 2.5 percent for 2020 (prior year: 2.3 percent); the IMF forecasts 2.0 percent. According to the US Federal Reserve (Fed), business worries are likely to last until a second trade agreement has been signed by the US and China. The tariffs that have been imposed will then be reduced or removed. Experts, however, are not expecting a further agreement to be signed prior to the US presidential election in November 2020.

In the first partial trade deal with the US, China committed to importing at least 200 billion dollars more of US goods for two years. In view of the restrictions imposed by the coronavirus, the timing and extent of this commitment is questionable.

For Germany, the IMF forecasts year-on-year GDP growth of 1.1 percent in 2020 – 0.1 percentage points more than in its prior forecast – and 1.4 percent in 2021. This would be more than double the 0.6 percent achieved in 2019, the weakest growth in six years. German industry, which is export-oriented, is likely to benefit from the stabilization of the global economy. In January, the German government raised its GDP forecast for 2020 to 1.1 percent. Institutes and a number of economic experts, however, are expecting less than 1 percent growth in the stabilizing German economy. In the current fiscal year, a "calendar effect" caused by a high number of work days, could provide an artificial boost of 0.4 percentage points. In view of Germany's dependence on exports and global trade, economic experts expect the coronavirus to delay the economic upswing in Germany; some observers, such as Deutsche

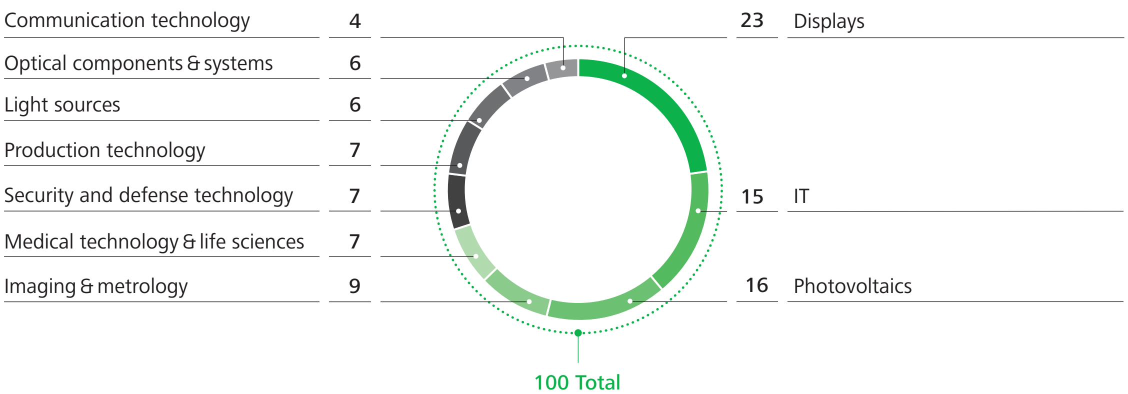
Bank, forecast a decline of 0.2 percent in the first quarter compared to the previous quarter making a technical recession, i. e. two quarterly declines in a row, probable – others see a renewed stagnation as last seen at the end of 2019. T52

Thanks to digitization, the photonics industry remains part of a growing environment, according to the Spectaris industry association. On the 60th anniversary of the laser, the use of lighting technologies is making an essential contribution to global market growth and has become indispensable for many innovations, e. g. as a basic technology for autonomous driving, for industry 4.0 and big data applications, and for the smart laboratory in analytical and biotechnology. Quantum technology may provide photonics with its next source of growth momentum. Further growth is expected in the photonics industry, according to Spectaris, in the pursuit of climate protection and sustainability. Light-based technologies deployed in the service of “green photonics” are key here. The use of photonic solutions will save 3 billion tons of CO_2 emissions by 2030, according to Spectaris. The market research company MarketsandMarkets expects the global photonics market to grow from 556.4 billion US dollars in 2018 to 780.4 billion US dollars by 2023, with an average annual growth rate of 7.0 percent.

The Photonics21 technology platform published a position paper on the promotion of optical technologies in June 2019. The paper details commitments by the European photonics industry to invest up to 100 billion euros in research and development throughout the next phase of the “Horizon Europe” research initiative (2021 to 2027) when the European Commission launches a new photonics PPP (public-private partnership). This PPP will double the Commission’s annual commitment to 200 million euros, equating to 1.4 billion euros in seven years. This investment is required to ensure competitiveness in comparison with China, South Korea, and the US. Europe is in a good position to accelerate initiatives such as artificial intelligence, high-performance computing, smart cities, quantum communication, and quantum computing, all of which depend on photonics as the key enabling technology.

The potential opened up by digitization is set to boost the medical technology industry, according to Spectaris: the use of digital components alone is expected to generate revenue of 15 billion euros by 2028; the figure for 2018 was 3.3 billion euros. This would equate to an annual increase of 16 percent in this segment.

G24 Global photonics market in 2020 (in percent)



Source: VDMA, ZVEI, Spectaris: Photonics Industry Report 2013

Following a weak 2019 for the semiconductor industry, with global revenues amounting to 412.1 billion US dollars, the SIA industry association is again expecting moderate growth in the next two years. The market is set to recover in 2020 and grow 5.9 percent, followed by 6.3 percent in 2021. In the future, the automotive industry will be one of the industry's key sales markets. The semiconductor equipment market will also recover in 2020, according to the SEMI industry association. Fueled by new projects in China, by the demand for advanced logic and foundry, and, to a lesser extent, memory chips, revenue is expected to grow by 5.5 percent to 60.8 billion US dollars, followed by a record year with 68.8 billion US dollars. SEMI expects all industry sectors to recover. T53

The German Mechanical Engineering Industry Association (VDMA) is forecasting a drop of 2 percent in production in the machinery and plant engineering industry for 2020. Reasons for this include continuing global economic weakness, trade conflicts and protectionism, and structural changes in key customer groups. According to the VDMA's assumptions, machines with a total value of 218 billion euros will be produced in the current year. The industry still needs to be prepared to deal with ongoing pressure, as no upswing is presently in sight.

The trend toward increasing automation shows no sign of abating: Within the robotics industry, the International Federation of Robotics (IFR) is optimistic about the years through 2022. Thanks to continuing trend towards automation, the IFR forecasts average annual global growth of 12 percent from 2020 on.

The automotive industry is still facing problems. The German VDA industry association is expecting the loss of 79,000 to 88,000 jobs in Germany. A weak economy and a drop in demand at car manufacturers also affects the outlook for suppliers:

T53 Semiconductor equipment: Global revenue forecast

Year	in billion USD	Change on prior year in %
2021**	66.8	9.8
2020**	60.8	5.5
2019*	57.6	– 10.5
2018	64.4	14

Source: Semiconductor Equipment and Materials International (SEMI)
* provisional calculation
** forecast

major German automotive suppliers do not expect global production of passenger cars and light commercial vehicles to pick up significantly in the next five years. From 2020, industry experts are expecting several mergers in the car industry and further consolidation, especially in the low-margin volume segment. Over the long term, mobility in general, the optimization of combustion engines, the switch to electromobility, and driver assistance systems will remain global drivers of growth. For the time being, the EU Trade Commission has stated that the announced 25 percent punitive tariffs on car imports to the US are currently on hold. The European Union's regulation on exhaust emissions will come into force in 2020, with 95 percent of all new registrations having to comply with a limit value for carbon dioxide. According to industry experts, a short-term slump in production and sales due to coronavirus can be offset in China's car market in the current year. However, if demand and supply chains are affected for a longer period of time, car sales in China could reach a low point in 2020 and global production could continue to drop to 76.9 million passenger cars (prior year 80.1 million passenger cars), according to VDA.

In the field of traffic safety, a motion aiming to introduce a speed limit of 130 kilometers per hour on German autobahns was rejected by the Bundestag and the Bundesrat. Nevertheless, a number of parties and the Federation of German Consumer Associations expect that in future, as in other European countries, there will be a speed limit on autobahns (motorways) in Germany, not only to better protect the climate and reduce accidents and fatalities, but also to enable automated driving on the autobahn. According to the German Federal Government, however, there are no plans for a general speed limit on German autobahns. In its "Road Safety Market by Solution, Service, Region" report, US market research company MarketsandMarkets believes that the global traffic safety market will grow from 3.0 billion US dollars in 2019 to 4.7 billion dollars in 2024, an average annual increase of 9.3 percent. Key drivers include the increase in numbers of people living in cities, growing mobility and motorization, a rising number of traffic accidents and deaths, and more government initiatives to promote road safety. On a regional level, the market is growing most strongly in Asia / Pacific as demand for traffic safety solutions in countries such as China, Japan, and Australia increases. Automatic number plate recognition (ANPR) is becoming more important as a means of traffic monitoring and prevention: The technology could also be used to monitor rights to enter or restricted zones, such as those in which diesel vehicles are prohibited in Germany. Before this can be done, the necessary (regulatory) political conditions first need to be created.

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The future development of the aviation industry will in part be adversely affected by the general downturn in the global economy and the political environment. The Boeing 737 Max aircraft is not expected to fly again before the summer of 2020 at the earliest. According to its own statements, European aircraft manufacturer Airbus will not benefit from the crisis at Boeing in the short term, as the company's A320neo jets are already sold out through 2025. Aircraft manufacturer Airbus is forecasting demand for 39,210 new planes over the next 20 years, a doubling of the world's present fleet to more than 48,000 jets. Its long-term forecast for average annual growth, updated annually, fell just minimally, from 4.4 to 4.3 percent. In its "Market Outlook" Boeing is expecting that global demand will rise to around 44,000 new commercial aircraft in the next 20 years, mainly due to the steadily increasing demand for air travel in industrialized and emerging countries and the necessary replacement of old aircraft with new, low-fuel jets. In addition, there may be new rules for the certification of aircraft, which would no longer involve only the country of production approving the aircraft, but would also require other national authorities to be involved in this process or issue separate approvals. This would significantly delay the market launch of new aircraft. Aircraft manufacturer Bombardier is withdrawing from the construction of commercial aircraft and selling its shares in the Airbus A220 program to the majority shareholder Airbus and the Canadian province of Quebec. Bombardier wants to retain the Learjet business aircraft.

Bombardier is also facing major changes in the rail industry: In February 2020, it was announced that a merger of Bombardier's train division with the French company Alstom was imminent. This would create a new railway technology group with revenue of around 15 billion euros. Following the failed merger of Alstom and Siemens Mobility in 2019, this would be a new attempt to consolidate the industry in its efforts to counter competition from Chinese companies.

The planning of longer-term projects in the security and defense industry in Germany will be affected by current export restrictions until at least the spring of 2020, as the government has again extended its export ban on Saudi Arabia and other nations involved in the Yemen war to March 2020. Following the military offensive in Syria, the German Federal Government does not intend to issue any new export licenses for armaments that could be used in Syria by Turkey. Together with France, the German Federal Government agreed in October 2019 on common guidelines for future arms exports based on the "de minimis" rule with a threshold of 20 percent. This means that Germany will not block the export of armaments arising from joint Franco-German projects if less than 20 percent of the components in these goods are made by German companies. Since 2017, armaments projects at European level have been managed within the framework of PESCO (Permanent Structured Cooperation): in late 2019, EU defense ministers agreed on 13 new projects, including one on European multi-purpose missile defense.

The US defense budget for 2020 was raised again: at 738 billion dollars, it is 20 billion dollars higher than in 2018. For 2021, 740.5 billion US dollars have currently been earmarked for defense.

Defense spending in Germany is expected to come to around 50.3 billion euros in the current year. Germany will decide on a successor to the Tornado fighter jet in 2020. The choice is between the American F-18 or the European Eurofighter, which Airbus says is needed as a technological bridge to the long-term European development project for the FCAS fighter jet. In their joint armaments cooperation arrangement to build a new battle tank, Krauss-Maffei Wegmann and Nexter, already affiliated in a holding company, agreed with Rheinmetall to work together – with no merger – in a consortium. The tank will replace the Leopard 2 and is due to go into service in 2038. Prior to this, the German government plans to acquire 80 new Leopard 2 tanks worth around 1 billion euros, as provided for in a resolution passed at the end of 2019.

Expected Development of the Business Situation

Planning assumptions for the Group and the divisions

The forecast for the future business development was based on the Group planning undertaken in the fall of 2019 and the forecast revised in early 2020.

Jenoptik has been operating in the following reportable segments since January 1, 2019: the three photonics divisions Light & Optics, Light & Production, and Light & Safety, and VINCORION.

Separate plans from the divisions, VINCORION, and the operational business units are the starting point, these are reconciled and integrated in the group planning. Potential acquisitions, divestitures, and exchange rate fluctuations are not included in the planning. On the other hand, the fact was taken into account that a joint operation (HILLOS GmbH) is no longer proportionately consolidated as of the 2020 fiscal year due to its changed accounting as joint venture. As a result, its contributions to revenue and earnings are no longer included in the individual items of the income statement, but are instead reported in the result from other investment. The forecast also includes the impacts arising from the acquisition of INTEROB in early 2020. Revenue and earnings, including the impacts arising from the purchase price allocation, will be consolidated on a pro rata basis in 2020.

The system of key performance indicators includes the revenue, EBITDA margin, order intake, cash conversion rate, and capital expenditure. Other indicators will also be regularly compiled in the future and are used by top management for informational purposes.

In 2020, we will continue to pursue our "Strategy 2022" – which focuses on photonic technologies – and implement measures to realize its objectives. In the process, we are concentrating on three building blocks – focusing, innovation, and internationalization.

Overall, the Jenoptik Group anticipates consistently good business performance in the Light & Optics division in 2020. We will enable this by stepping up our activities as a global OEM supplier of solutions and products based on photonic technologies, by focusing on key sales markets, by growing our global reach, and with innovative products and a larger range of integrated system solutions. Market observers and key customers expect demand in the semiconductor equipment market to increase in the current year. In this regard, the division will benefit from its range of optical and micro-optical system solutions for semiconductor production. In the field of biophotonics (medical technology and life science), existing cooperation arrangements with key international customers will be expanded in the current fiscal year. Following a decline in 2019, the division will make various efforts to optimize business in its Industrial Solutions area in the current year. In order to support good overall development in the Light & Optics division and broaden our presence in our core markets, the range of optical solutions for information and communication technologies is also growing in significance. In the current fiscal year, the division will also continue to invest in its operational performance and sales to support future growth and continue the process of internationalization.

Business performance in the Light & Production division, especially in the second half-year, showed a mixed picture. The Automation & Integration area saw very positive growth, which is due to continue in the current year. The Metrology and Laser Material Processing areas were affected by a challenging market environment with an order intake that was weaker than expected. Despite signs of a slight improvement in the area of laser material processing at the end of the year, business is expected to be rather subdued in the first half of 2020 due to the longer lead times for these projects. Growth may then be achieved in the second half-year 2020.

In the metrology sector, we assume that the trend toward integrated production-related metrology will continue. This plays a particularly important role when precision parts are manufactured, such as those required by the automotive industry for efficient and environmentally-friendly drive systems. We also continue to develop from selling stand-alone machines to supplying modular systems and solutions for customer manufacturing in the B2B segment, thereby contributing to boost our customers' productivity. In the laser machines business, the division primarily focuses on 3D material processing of a wide variety of metal and plastic components, including natural materials, in addition to the established systems for plastics processing in the automotive industry. In January 2020, Light & Production acquired the Spanish company INTEROB, like Prodomax and FLA a specialist in the design, construction, and integration of custom automation solutions and robotics applications, thereby taking a further step on the road to becoming an integrated supplier of high-tech production environments. The acquisition also gives the division both regional and technological potential for growth. It will also help it to expand its international reach.

See the "Control System" chapter for more information on the key performance indicators

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See the "Business Model and Markets" and the "Targets and Strategy" chapters for more information on the strategy and the new division structure

See the Framework Conditions chapter for more information on the future development of the Jenoptik sectors

The Light & Safety division is expecting good growth in the 2020 fiscal year. Orders secured in the US will help to bolster this growth, and further projects are in the pipeline. New products, investment in customer relationships, e. g. by expanding the sales team, and improvements in the partner network will support the business performance. In addition, local project management and service structures will be strengthened to further improve direct customer support.

The traffic service provision business model will be expanded. The civil security business is another area that is growing in significance. We will expand our product range in 2020, particularly in the area of traffic monitoring, and broaden our range of software solutions. Additional new functions are also being integrated in existing systems to reflect the required interdependence of applications such as law enforcement, facial recognition, or automatic number plate recognition (ANPR). There are plans, for example, to push on with development of a modern, modular system platform. Solutions were delivered to the first key customers back in 2019, with full roll-out scheduled to start in 2020. Deep learning technology is due to be used to a greater extent in safety and civil security applications. On a regional level, Jenoptik is primarily expecting growth momentum benefiting the Light & Safety division to come from the Americas, Europe, and the Arabian region.

Following a stable development of revenue and a marked margin improvement in the fiscal year just past, VINCORION is expected to generate improvements in both figures on the basis of a good 2019 order intake and the current project pipeline.

Its business is predominantly project-based and geared toward the long term. European defense spending is picking up again. Various major new procurement projects are also planned in Germany, key criteria being networkability, automation, and energy efficiency. At the same time, a potentially more restrictive export policy under the present Federal Government in Germany could impact on or delay projects. In the medium term, a significant increase in investment for the German armed forces has political support, but we do not expect this to have any effect on our business in the short term, as political decision-making processes are generally highly protracted. In the years ahead, it may contribute to higher revenues. Beyond this, VINCORION is looking to further increase the share of its systems used in civilian fields. These include system solutions for civil aviation. We assume that new in-house developments, such as the heated floor panel for passenger aircraft and the electric rescue hoist for helicopters, will also contribute to growth. Internationalization also remains a key topic in 2020; foreign business is due to expand steadily, particularly in North America and Asia / Pacific.

Earnings position forecast 2020

Based on good order intake growth in the fourth quarter of 2019 and the continued good performance of the semiconductor equipment business and the Automation & Integration area, the Executive Board expects further growth in 2020. Due to increasing uncertainties, however, it has become more difficult to make reliable statements regarding future developments. Our scheduled growth presupposes that political and economic conditions do not worsen. In particular, these include economic trends, the potential impacts of Brexit, regulations at European level, export restrictions, and further policy developments in our sales markets. At present, it is also not possible to assess to what extent the spread of coronavirus will negatively affect business of Jenoptik in the current year. The forecast below was made on the assumption that potential negative impacts on the economy, supply chains, and sales markets in connection with the coronavirus will not worsen.

Major portfolio changes were not included in the forecast, which does, however, account for the pro rata consolidation of INTEROB, acquired in early 2020. By contrast, the contributions to revenue and earnings from HILLOS GmbH (2019 revenue: almost 20 million euros) are no longer included.

For 2020, Jenoptik is expecting revenue growth to be in the low single-digit percentage range (prior year: 855.2 million euros).

At present, the Group is expecting EBITDA (earnings before interest, taxes and depreciation / amortization, incl. impairment losses and reversals) to grow in the current fiscal year (2019: 134.0 million euros). The integration costs associated with the acquisition of INTEROB and the impacts arising from the purchase price allocation have already been taken into account. The EBITDA margin is expected to be around 16 percent.

The order intake for a period is in part affected by major orders, particularly in VINCORION and in the Light & Safety division, and increasingly also in the Light & Production division. In the past fiscal year, Jenoptik received new orders worth 812.6 million euros and had thus built up a good order base at year-end 2019, particularly following a strong fourth quarter. For the current fiscal year, Jenoptik expects the order intake to be significantly higher than in the prior year.

Also worthy of note is that Jenoptik had frame contracts worth 49.9 million euros at the end of 2019, which are not included in the order intake or backlog. 68.1 percent of the order backlog as of December 31, 2019 is due to be converted to revenue in 2020 (31/12/2018: 79.2 percent).

In 2020, the Light & Optics division will compensate for the loss of HILLOS GmbH's revenue contribution of some 20 million euros, and is therefore expecting stable development. EBITDA is expected to rise significantly.

The Light & Production division expects revenue growth in the low double-digit percentage range, to which INTEROB, acquired in early 2020, will also contribute. EBITDA is due to grow more strongly than revenue, which will help to improve profitability. In this division, too, the accuracy of forecasts is influenced by the rising share of international projects, which are increasingly subject to revenue recognition over time as specified in IFRS 15.

The Light & Safety division also expects growth in 2020, with a revenue increase in the mid single-digit percentage range. EBITDA is expected to see slight growth. This lower growth rate compared to revenue is in part due to the development of a standardized product platform and the expenditure associated with this.

Based on significant order intake growth, especially in the fourth quarter of 2019, and the current project pipeline, VINCORION is expecting revenue to increase in the mid single-digit percentage range in the 2020 fiscal year. EBITDA is due to grow in line with revenue.

T54 Targets for Group and divisions (in million euros)

	Actual 2019 (incl. Hillos)	Forecast 2020 (without major portfolio changes; incl. INTEROB; excl. Hillos)
Revenue	855.2	Growth in the low single-digit percentage range
Light & Optics	350.0	Stable development
Light & Production	228.9	Growth in the low double-digit percentage range
Light & Safety	108.7	Growth in the mid single-digit percentage range
VINCORION	164.8	Growth in the mid single-digit percentage range
EBITDA / EBITDA margin	134.0 / 15.7%	Growth / margin approx. 16%
Light & Optics	69.8	Significant rise
Light & Production	25.8	Growth stronger than revenue
Light & Safety	18.8	Slight rise
VINCORION	24.2	Growth in line with revenue
Order intake	812.6	Significantly above prior year
Cash conversion rate	57.6%	Slightly over 50%
Capital expenditure [1]	55.6	At prior-year level

[1] Without capital expenditure on financial investments

Group asset and financial position forecast

Jenoptik expects that capital expenditure will be at the prior-year level (prior year: 55.6 million euros) in the 2020 fiscal year. Capital expenditure on property, plant, and equipment will focus on the growth areas within the divisions or take place within the scope of new customer projects. It aims to expand capacities, thereby ensuring future growth.

Based on our advance spending/services for future growth, we expect the cash conversion rate (ratio of free cash flow to EBITDA) to come in at slightly over 50 percent in 2020 (31/12/2019: 57.6 percent).

In addition to financing the continued growth of the company, the future aim of the Executive Board remains to ensure a dividend policy in line with corporate success. In the view of the Executive Board, a stable provision of equity for sustainable organic growth to increase the company value as well as the exploitation of opportunities for acquisitions are also of crucial importance to the interests of the shareholders.

See the Report on Post-Balance Sheet Events for more information on the dividend

Important note. The actual results may differ significantly from the forecasts of anticipated development made above and summarized below. This may be the case, in particular, if one of the uncertainties mentioned in this report were to materialize or worsen, or if the assumptions upon which the statements are based prove to be inaccurate in relation to the economic development.

General statement by the Executive Board on future development

In the current 2020 fiscal year, the Jenoptik Group will continue implementing its "Strategy 2022", concentrating on photonic technologies. In terms of economic development, our key focus remains on profitable growth. We believe that revenue growth, resulting economies of scale, and more efficient and faster processes result in higher, sustainable earnings.

Jenoptik wants to see further growth in 2020. We intend to build on the good order intake growth seen in the fourth quarter of 2019 and continued good performance in the semiconductor equipment business and the Automation & Integration area. The solid asset position and a viable financing structure also give us sufficient room for maneuver to finance further growth and further acquisitions. For 2020, the Executive Board forecasts revenue growth, without major portfolio changes, in the low single-digit percentage range (excl. Hillos and incl. INTEROB) and an EBITDA margin of around 16 percent. Achieving these targets is dependent on the development of the economic and political environment. At the time this report was prepared, it was not possible to state to what extent the spread of coronavirus will impact on business development in the current year.

In 2020, we will again invest a significant portion of our funds in the expansion of the international sales network and the development of innovative products. As part of our active portfolio management, potential acquisitions are closely scrutinized; divestitures have not been ruled out.

Based on the information available at the time this report was prepared, the Executive Board expects the Jenoptik Group to show a solid business development in 2020.

Jena, March 10, 2020

JENOPTIK AG
the Executive Board

Consolidated Financial Statements

» in short «

At the end of the fiscal year,
total assets exeeded the threshold of

1 billion euros

for the first time.

Consolidated Statement of Comprehensive Income

Consolidated Statement of Income

in thousand euros	Note No.	1/1 – 31/12/2019	1/1 – 31/12/2018
Revenue	4.1	855,235	834,571
Cost of Sales	4.2	563,435	541,475
Gross profit		**291,801**	**293,096**
Research and development expenses	4.3	44,052	47,443
Selling expenses	4.4	89,349	87,050
General administrative expenses	4.5	60,539	56,129
Other operating income	4.7	18,586	20,861
Other operating expenses	4.8	27,532	28,426
EBIT		**88,915**	**94,910**
Financial income	4.9	5,345	3,599
Financial expenses	4.9	9,055	7,070
Financial result		**−3,709**	**−3,470**
Earnings before tax		**85,206**	**91,440**
Income taxes	4.10	−17,565	−4,002
Earnings after tax		**67,641**	**87,438**
Results from non-controlling interests		−11	−138
Earnings attributable to shareholders		67,652	87,575
Earnings per share in euros (undiluted = diluted)	4.11	**1.18**	**1.53**

Consolidated Comprehensive Income

in thousand euros	Note No.	1/1 – 31/12/2019	1/1 – 31/12/2018
Earnings after tax		**67,641**	**87,438**
Items that will never be reclassified to profit or loss	5.15	5,923	495
Actuarial gains/losses arising from the valuation of pensions and similar obligations		6,704	599
Equity instruments measured at fair value through other comprehensive income		977	– 22
Deferred taxes		– 1,758	– 82
Items that are or may be reclassified to profit or loss	5.15	7,063	– 2,912
Cash flow hedges		– 169	– 4,760
Foreign currency exchange differences		8,353	692
Deferred taxes		– 1,121	1,155
Total other comprehensive income		**12,986**	**– 2,418**
Total comprehensive income		**80,627**	**85,020**
Thereof attributable to:			
Non-controlling interests		– 14	– 111
Shareholders		80,641	85,131

Consolidated Statement of Financial Position

Assets in thousand euros	Note No.	31/12/2019	31/12/2018	Change
Non-current assets		**555,207**	**491,812**	**63,395**
Intangible assets	5.1	212,736	205,553	7,183
Property, plant and equipment	5.2/5.4	251,123	185,930	65,193
Investment property	5.3	4,263	4,354	−91
Financial investments	5.5	8,273	6,770	1,503
Other non-current assets	5.6	1,094	2,913	−1,820
Deferred tax assets	5.7	77,718	86,291	−8,573
Current assets		**528,126**	**494,096**	**34,030**
Inventories	5.8	153,678	175,602	−21,925
Current trade receivables	5.9	136,881	131,198	5,683
Contract assets	5.10	54,875	23,385	31,491
Other current financial assets	5.11	5,449	5,268	180
Other current non-financial assets	5.12	8,557	9,912	−1,355
Current financial investments	5.13	69,661	59,476	10,185
Cash and cash equivalents	5.14	99,025	89,255	9,771
Total assets		**1,083,333**	**985,908**	**97,425**

Equity and liabilities in thousand euros		31/12/2019	31/12/2018	Change
Equity	5.15	**655,444**	**597,951**	**57,493**
Share capital		148,819	148,819	0
Capital reserve		194,286	194,286	0
Other reserves		311,682	254,175	57,507
Non-controlling interests	5.16	657	671	−14
Non-current liabilities		**176,008**	**170,267**	**5,741**
Pension provisions	5.17	31,643	37,339	−5,697
Other non-current provisions	5.19	17,864	16,279	1,586
Non-current financial debt	5.21/5.4	122,562	111,405	11,157
Other non-current liabilities	5.22	2,254	2,771	−517
Deferred tax liabilities	5.7	1,685	2,473	−788
Current liabilities		**251,881**	**217,690**	**34,191**
Tax provisions	5.18	6,443	9,000	−2,557
Other current provisions	5.19	51,887	58,706	−6,819
Current financial debt	5.21/5.4	36,996	10,123	26,873
Current trade payables	5.23	83,730	60,102	23,629
Contract liabilities	5.25	43,882	53,273	−9,392
Other current financial liabilities	5.24	12,520	7,582	4,938
Other current non-financial liabilities	5.26	16,423	18,903	−2,480
Total equity and liabilities		**1,083,333**	**985,908**	**97,425**

Consolidated Statement of Cash Flows

in thousand euros	1/1–31/12/2019	1/1–31/12/2018
Earnings before tax	**85,206**	**91,440**
Financial income and expenses	3,786	3,622
Depreciation and amortization	43,809	30,569
Impairment losses and reversals of impairment losses	1,222	2,068
Profit/loss from asset disposals	169	101
Other non-cash income/expenses	−1,997	−613
Operating profit before adjusting working capital and further items of the statement of financial position	**132,194**	**127,188**
Change in provisions	−7,765	7,334
Change in working capital	−2,748	12,457
Change in other assets and liabilities	−118	2,368
Cash flows from operating activities before income tax payments	**121,563**	**149,346**
Income tax payments	−12,670	−13,856
Cash flows from operating activities	**108,892**	**135,490**
Capital expenditure for intangible assets	−11,473	−5,293
Proceeds from sale of property, plant and equipment	627	787
Capital expenditure for property, plant and equipment	−33,474	−36,564
Capital expenditure for investment property	0	−100
Acquisition of consolidated entities	−774	−81,404
Proceeds from sale for financial assets within the framework of short-term disposition	60,159	34,108
Capital expenditure for financial assets within the framework of short-term disposition	−69,900	−29,969
Proceeds from other financial investments	108	561
Interest received	346	347
Cash flows from investing activities	**−54,381**	**−117,527**
Dividends paid	−20,033	−17,171
Capital expenditure for shares in consolidated entities	0	−589
Proceeds from issuing bonds and loans	6,782	4,188
Repayments of bonds and loans	−21,257	−40,272
Payments for leases	−9,875	−709
Change in group financing	2,003	−2,872
Interest paid	−3,746	−3,469
Cash flows from financing activities	**−46,127**	**−60,896**
Change in cash and cash equivalents	**8,384**	**−42,932**
Effects of movements in exchange rates on cash held	1,009	150
Change in cash and cash equivalents due to changes in the scope of consolidation and valuation adjustments	377	−273
Cash and cash equivalents at the beginning of the period	89,255	132,310
Cash and cash equivalents at the end of the period	**99,025**	**89,255**

Statement of Changes in Equity

in thousand euros	Note No.	Share capital	Capital reserve	Retained earnings	Equity instruments measured through other comprehensive income
Balance at 1/1/2018		**148,819**	**194,286**	**212,022**	**213**
Changes in accounting policies [1]				−2,875	
Balance at 1/1/2018 [1]		**148,819**	**194,286**	**209,147**	**213**
Net profit for the period	4.11			87,575	
Other comprehensive income after tax	2.3/5.17/8.2				−16
Total comprehensive income				**87,575**	**−16**
Acquisition of non-controlling interests				−659	
Dividends				−17,171	
Other adjustments				3,047	
Balance at 31/12/2018		**148,819**	**194,286**	**281,938**	**197**
Balance at 1/1/2019		**148,819**	**194,286**	**281,938**	**197**
Changes in accounting policies [2]	1.2			−3,102	
Balance at 1/1/2019 [2]		**148,819**	**194,286**	**278,837**	**197**
Net profit for the period	4.11			67,652	
Other comprehensive income after tax	2.3/5.17/8.2				685
Total comprehensive income				**67,652**	**685**
Dividends				−20,033	
Other adjustments	2.1			1	
Balance at 31/12/2019		**148,819**	**194,286**	**326,456**	**882**

[1] Adjusted due to initial application of IFRS 9 and IFRS 15
[2] Adjusted due to initial application of IFRS 16

Cash flow hedges	Cumulative exchange differences	Actuarial effects	Equity attributable to shareholders of JENOPTIK AG	Non-controlling interests	Total	
1,554	**297**	**−27,382**	**529,809**	**123**	**529,932**	**Balance at 1/1/2018**
			−2,875	−1	−2,876	Changes in accounting policies [1]
1,554	**297**	**−27,382**	**526,934**	**122**	**527,056**	**Balance at 1/1/2018 [1]**
			87,575	−138	87,438	Net profit for the period
−3,347	498	421	−2,444	26	−2,418	Other comprehensive income after tax
−3,347	**498**	**421**	**85,131**	**−111**	**85,020**	**Total comprehensive income**
			−659	660	0	Acquisition of non-controlling interests
			−17,171		−17,171	Dividends
			3,047		3,047	Other adjustments
−1,793	**795**	**−26,961**	**597,281**	**671**	**597,952**	**Balance at 31/12/2018**
−1,793	**795**	**−26,961**	**597,281**	**671**	**597,952**	**Balance at 1/1/2019**
			−3,102	0	−3,102	Changes in accounting policies [2]
−1,793	**795**	**−26,961**	**594,179**	**670**	**594,850**	**Balance at 1/1/2019 [2]**
			67,652	−11	67,641	Net profit for the period
−97	7,205	5,196	12,989	−3	12,986	Other comprehensive income after tax
−97	**7,205**	**5,196**	**80,641**	**−14**	**80,627**	**Total comprehensive income**
			−20,033		−20,033	Dividends
			1		1	Other adjustments
−1,890	**8,000**	**−21,765**	**654,788**	**656**	**655,444**	**Balance at 31/12/2019**

Notes

1 Presentation of the Group Structure

1.1 Parent company

The parent company is JENOPTIK AG, Jena and is registered in the Commercial Register of Jena in Department B under the number 200146. JENOPTIK AG is listed on the German Stock Exchange in Frankfurt and traded on the TecDax and SDax, amongst others.

The list of shareholdings of the Jenoptik Group is published in the Federal Gazette in accordance with § 313 (2) Nos. 1 to 4 of the German Commercial Code (Handelsgesetzbuch [HGB]) and is disclosed from page 209 in the Notes under the heading List of Shareholdings of the Jenoptik Group. The entities to which the simplification relief regulations were applied as specified in § 264 (3) or § 264b of the HGB, are disclosed in the section "Required and Supplementary Disclosures under HGB".

1.2 Accounting principles

The consolidated financial statements of JENOPTIK AG were prepared for the 2019 fiscal year in accordance with the International Financial Reporting Standards (IFRS) and the binding interpretations of the International Financial Reporting Interpretations Committee (IFRIC) in force at the reporting date for use in the European Union.

The consolidated financial statements were presented in euros. Unless otherwise specified, all amounts are presented in thousand euros. Please note that there may be rounding differences as compared to the mathematically exact amounts (monetary units, percentages, etc.). The statement of comprehensive income was prepared in accordance with the cost of sales method.

The fiscal year of JENOPTIK AG and those of the subsidiaries included in the consolidated financial statements corresponds with the calendar year.

In order to improve the clarity of the presentation, individual items were aggregated in the statement of total other comprehensive income and the financial position. The classifications used for these items are listed in the Notes.

Changes in accounting policies

The following IFRS were applied for the first time in the fiscal year 2019:

IFRS 16 "Leasing". IFRS 16 includes a comprehensive set of new rules for accounting for leases and supersedes the previous rules of IAS 17 Leases and some interpretations.

The objective is to disclose the lessee's rights and obligations associated with the leases in the balance sheet. Relief is planned for short-term leases and the leasing of low-value. Lessors will continue having to account for leases by classifying them as either finance or operating leases, applying the criteria defined in IAS 17. Moreover, IFRS 16 contains further regulations on classification and disclosures in the Notes.

The first-time application of IFRS 16 on January 1, 2019 had a material impact on the Group's earnings, financial, and asset position, as the Group as lessee has to date primarily entered into contracts for movable assets and real estate accounted for as operating leases.

For the first-time application of IFRS 16 as of January 1, 2019, the Group opted for the modified retrospective approach and measured the rights of use in the amount of the continuing carrying amounts from the commencement of the leases, applying interest rates from the date of first application.

The Group makes use of the practical relief offered by IFRS 16 and recognizes the lease payments for short-term leases (excluding property) as well as low-value leased assets as expenses on a straight-line basis over the term of the lease. In addition, the Group does not apply IFRS 16 to leases of intangible assets. The rights of use are not shown separately on the balance sheet; instead, they are shown in the same balance sheet item in which the underlying asset would be posted if it were the property of the Group. Leased items are therefore recognized in the respective categories under property, plant and equipment.

The first-time application of IFRS 16 resulted in an increase in the value of fixed assets of 54,330 thousand euros as of January 1, 2019. Liabilities increased by 58,693 thousand euros due to initial recognition of lease liabilities as the present value of the outstanding lease payments.

The weighted, average incremental borrowing rate as of January 1, 2019 amounted to 2.7 percent. The difference between rights of use and lease liabilities led to a reduction in equity of 3,102 thousand euros, taking deferred taxes (1,260 thousand euros) into account.

The resulting increase in total assets of 55,591 thousand euros reduced the equity ratio.

Impact of IFRS 16 on the opening statement of financial position

in thousand euros	1/1/2019
Non-current assets – Intangible assets	**−512**
Acquired patents, trademarks, software, customer contacts	−512
Non-current assets – Property, plant and equipment	**54,842**
Right of use – Land, buildings	50,788
Rights of use – Technical equipment and machinery	303
Rights of use – Other equipment, operating and office equipment	3,752
Deferred tax assets	**1,260**
Total assets	**55,591**
Equity	**−3,102**
Other reserves	−3,102
Non-current liabilities	**50,411**
Non-current financial debt	50,528
Other non-current provisions	−117
Current liabilities	**8,282**
Current financial debt	8,352
Other current financial liabilities	−70
Total liabilities	**55,591**

Based on the other financial obligations arising from rental, leasehold and lease agreements as at December 31, 2018 the reconciliation statement in the table below led to to the opening balance sheet value of the lease liabilities as of January 1, 2019.

Reconciliation to the lease liabilities in accordance with IFRS 16

in thousand euros	
Other financial obligations from rental and lease agreements as of December 31, 2018	**65,999**
Extemptions for short-term leases	−1,170
Extemptions for leases of low-value assets	−1,271
Payments for renewal and termination options	6,031
Payments for non-lease components	−2,453
Others	−648
Obligations from operating leases (undiscounted)	**66,488**
Effect of discounting	−7,608
Obligations from operating leases (discounted)	**58,880**
Carrying amount of finance lease liabilities in accordance with IAS 17 as of December 31, 2018	4,007
Carrying amount of lease liabilities in accordance with IFRS 16 as of January 1, 2019	**62,887**

As of December 31, 2019, the application of IFRS 16 led to an increase in the value of fixed assets of 51,387 thousand euros compared with the rules under IAS 17. Liabilities increased by 56,348 thousand euros compared with the reporting date in the prior year, in particular due to the recognition of lease liabilities as the discounted value of the outstanding lease payments.

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Impact of IFRS 16 on the current statement of financial position

in thousand euros	31/12/2019
Non-current assets – Intangible assets	**−446**
Acquired patents, trademarks, software, customer relationships	−446
Non-current assets – Property, plant and equipment	**51,833**
Right of use assets – Land, buildings	47,152
Rights of use assets – Technical equipment and machinery	262
Rights of use assets – Other equipment, operating and office equipment	4,418
Deferred tax assets	**1,433**
Total assets	**52,820**
Equity	**−3,528**
Other reserves.	−3,528
Non-current liabilities	**47,592**
Non-current financial debt	47,405
Other non-current provisions	187
Current liabilities	**8,756**
Current financial debt	9,484
Other current financial liabilities	−728
Total equity and liabilities	**52,820**

Impact of IFRS 16 on the current income statement

in thousand euros	1/1 to 31/12/2019
Total depreciation on rights of use assets	**9,908**
Depreciation on cost of sales	6,283
Depreciation on research and development expenses	609
Depreciation on selling expenses;	1,286
Depreciation on general administrative expenses	1,730
Fictions rental expenses in accordance with IAS 17 [1]	**11,594**
Rental expenses costs of sales	7,413
Rental expenses research and development expenses	710
Rental expenses selling expenses	1,453
Rental expenses general administrative expenses	2,018
Interest on lease liabilities in accordance with IFRS 16	**1,572**
Deferred tax expenses	**33**
Impact on EBITDA	**11,594**
Impact on EBIT	**1,686**

[1] If IFRS 16 were not to apply

In addition, changed recognition of lease expenses in the fiscal year 2019 produced an improvement in EBITDA of 11,594 thousand euros and in EBIT of 1,686 thousand euros in the income statement. Depreciation on rights of use assets came to 9,908 thousand euros. Interest expenses amounted to 1,572 thousand euros.

In the cash flow statement, payments for operating leases will now be reported in the cash flows from financing activities, leading to an improvement of 11,594 thousand euros in the cash flows from operating activities compared to the provisions in the IAS 17.

The comparative figures for the prior-year period did not require any adjustments. There were no material impacts for the Group as lessor.

IFRIC 23 "Uncertainty over income tax treatment". The interpretation is to be applied to the accounting of income taxes if there are any uncertainties regarding the treatment of income for tax purposes.

Uncertainties regarding the treatment of income for tax purposes are subject to continuous analysis. Where there is a probability of the tax authorities not accepting uncertainty over income tax treatment, a reasonable sum will be set aside for risk provisioning, regardless of whether the tax authorities agree to the tax uncertainty. The risk provision will also change as a result of the discussions in audits currently in progress. The amount of the risk provision shall be equal to the amount which represents the most likely value or expected value, taking into account any tax uncertainties. In this context, uncertain tax situations are not considered separately but together. This amendment has no effect on the consolidated financial statements.

Amendments to IAS 28 "Non-current investments in associates and joint ventures". In particular, the amendments address the question of how the requirements in IAS 28 and IFRS 9 financial instruments interact. They regulate the extent to which "non-current interests", which are part of the net investment in the associates or joint venture and to which the equity method does not apply, are covered under the scope of the two standards. These essentially make it clear that IFRS 9 has to be applied initially to such non-current investments. This amendment has no impact on the consolidated financial statements.

Amendments to IFRS 9 "Prepayment features with negative compensation". The change makes clear that the cash flow condition is met for financial assets with negative compensation in the event of early repayment. As a result of the narrow area of application, this amendment standard has no impact on the consolidated financial statements.

IFRS Improvements (2015–2017). The Annual Improvements Project has made amendments to various standards. The collective standard contains clarifications on IFRS 3, IFRS 11, IAS 12, and IAS 23. The effective date is January 1, 2019. These amendments had no material impact on the consolidated financial statements.

Amendments to IAS 19 "Plan amendment, curtailment or settlement". The changes relate to the accounting for plan adjustments, curtailments or settlements that are made during a reporting period and specify how a company must define and report the impact of a plan adjustment, curtailment or settlement carried out during a fiscal year. These amendments have no material impact on the consolidated financial statements.

Standards which have been published but not yet adopted by the EU as mandatory

The application of the following standards and interpretations published by the IASB and adopted by the EU is not yet mandatory. They were not taken into account by Jenoptik in the consolidated financial statements as of December 31, 2019. The Group has no plans to apply these standards early.

Amendments to IAS 1 and IAS 8 "Definition of materiality". The amendments to IAS 1 and IAS 8 in relation to the definition of materiality were published in October 2018. Information is deemed material if the omission, misstating or obscuring of such information could reasonably influence the decision of the primary addressees. For the first time, the new definition of materiality takes into account the concealment of information as a measure of materiality in terms of the information. It is aimed at the primary financial statement addressees as these have been defined in the conceptual framework since 2010. Furthermore, information must be reasonably able to influence their decisions in order to be deemed material. The amendments were made in order to adapt the definition to the statements on materiality in the 2018 framework concept and to make them generally applicable more easily. The amendments are to be applied for the first time prospectively for fiscal years commencing on January 1, 2020. The changes in content have already been taken into account in the context of the previous materiality assessment, so Jenoptik does not expect any impact on the consolidated financial statements.

Amendments to IFRS 9, IAS 39 and IFRS 7 "Interest Rate Benchmark Reform". The amendments to IFRS 9, IAS 39 and IFRS 7 in relation to the Interest Rate Benchmark Reform were published in September 2019. The amendments represent the first phase of the IASB's work on the impact of the reform of the Interbank Offered Rates (IBOR). The internationally targeted reforms led to uncertainties regarding the long-term viability of the previous IBOR. The amendments provide for temporary reliefs both in IFRS 9 and IAS 39 that are intended to allow hedge accounting to be maintained in the period prior to the formal replacement of existing interest rate benchmarks through alternative, near risk-free rates (RFR). The reliefs apply to all hedging relationships directly affected by the reform of the interest rate benchmarks. When reviewing how a cash flow hedge can be recognized in the balance sheet, the assumption is that the reforms will not lead to any changes to the interest rate benchmarks. The same applies to the assessment of the economic relationship under IFRS 9 or the effectiveness assessment in accordance with IAS 39. The amendments are to be applied for the first time retrospectively on January 1, 2020. Earlier application is allowed. However, dedesignated hedging relationships can also not be restored. There are no financial instruments in hedging transactions that are linked to the IBOR as the reference interest rate. Therefore, Jenoptik does currently not anticipate any impact on the consolidated financial statements.

Standards which have been published but not yet adopted by the EU as mandatory

The following standards published by the IASB have not yet been adopted by the European Union.

Amendments to IFRS 3 "Definition of a business operation". The amendments to IFRS 3 regarding the definition of a business operation were published in October 2018. They are intended to help companies determine whether a transaction should be accounted for as a merger or acquisition of assets. They specify the minimum requirements for a business operation (existence of input factors and a substantial process that essentially enables outputs to be generated). The assessment previously required as to whether market participants are able to replace missing elements in this process, no longer applies. Additional guidelines are intended to help assessing whether an acquired process is substantial. In addition, the definitions of a business operation and output have been narrowed down to the extent that these must involve services to customers. An optional concentration test will also be introduced to facilitate a simplified assessment. In order to illustrate how the changes will apply, explanatory examples have also been added. The amendments are to be applied for the first time prospectively on January 1, 2020. The changes may affect future mergers of Jenoptik.

Amendments to IAS 1 "Presentation of the financial statements". The amendments to IAS 1 for the classification of liabilities as current or non-current, were published in January 2020. The rights of the reporting entity as at the reporting date are therefore decisive for the classification of liabilities. A liability is to be classified as non-current if the entity is entitled to postpone the settlement of the liability by at least 12 months after the balance sheet date, taking into account the circumstances or expectations on the reporting date. The amendments are to be applied for the first time for fiscal years commencing on January 1, 2022. Based on the adjustments to the standard, a different classification and a related reclassification of existing liabilities in the Jenoptik Group may be required.

IFRS 17 "Insurance contracts". The standard is not applicable to the Group and will not have any impact on the consolidated financial statements.

1.3 Estimates

The preparation of the consolidated financial statements in accordance with IFRS, as are to be applied in the EU, requires that assumptions be made for certain items, affecting their recognition in the statement of financial position or in the statement of other comprehensive income as well as the disclosure of contingent receivables and liabilities. All assumptions and estimates are made to the best of the Group's knowledge and belief in order to provide a true and fair picture of the asset, financial and earnings situation of the Group.

The underlying assumptions and estimates are continually reviewed. This gives the author of the consolidated financial statements a certain amount of discretionary leeway. This essentially relates to:

- the assumptions and parameters for the valuation of intangible assets identified in the context of purchase price allocations (see section "Corporate acquisitions" from page 151),
- the assessment of impairment to goodwill (see section "Intangible assets" from page 167),
- the determination of the useful lives when valuing intangible assets, property, plant, and equipment and investment property (see section "Intangible assets" from page 167, section "Property, plant, and equipment" from page 170 and section "Investment property" from page 171),
- the assessment of the likelihood of the extension, purchase or termination options for the valuation of the leasing liability in accordance with IFRS 16 being exercised (see section "Leasing" from page 172),
- the method for valuing inventories, as well as for defining valuation routines and discounts, (see section "Inventories" from page 175),
- the estimate of anticipated losses as part of the valuation of financial assets (see section "Trade Receivables" from page 176),
- the actuarial parameters for the valuation of provisions for pensions and similar obligations as well as the determination of the fair value of fiduciary assets (see section "Provisions for pensions and similar obligations" from page 182),
- the assumptions and methods for valuing other provisions – for example, warranty obligations and actuarial parameters of personnel provisions (see section "Other provisions" from page 185),
- the estimate of the probability of the outflow of resources from current obligations and their reporting as a contingent liability (see section "Contingent liabilities and contingent payables" from page 157),
- the realizability of future tax breaks – in particular arising from losses carried forward – in the valuation of deferred tax assets (see section "Income taxes" from page 164) and
- the identification of separate payment obligations and allocation of the transaction price (see section "Revenue" from page 159).

2 Consolidation Principles

2.1 The Group of entities consolidated

Along with JENOPTIK AG, all significant subsidiaries have been fully included in the consolidated financial statements and one joint operation on a proportional basis. The list of shareholdings is presented in the section "List of shareholdings in the Jenoptik Group" from page 209.

The consolidated financial statements of JENOPTIK AG includes 37 (prior year: 40) fully consolidated subsidiaries. Of which 12 (prior year: 16) have their legal seat in Germany and 25 (prior year: 24) have theirs abroad. The consolidated entities of the Jenoptik Group include one joint operation (prior year: 1) as well as one associated entity valued using the at-equity method (prior year: 1).

The reduction in the number of fully consolidated entities is the result of mergers in the first half of 2019. Upon entry in the commercial register on March 15, 2019, all assets and liabilities, including all existing contractual relationships of JENOPTIK Laser GmbH, Jena, JENOPTIK Polymer Systems GmbH, Triptis, and JENOPTIK Diode Lab GmbH, Berlin, were transferred to JENOPTIK Optical Systems GmbH. In addition, the assets and liabilities of JENOPTIK SSC GmbH, Jena, were transferred to JENOPTIK AG upon entry in the commercial register on May 2, 2019. In addition, Computer Recognition Systems Ltd., Milton Keynes, Great Britain, was liquidated and removed from the group of consolidated entities

The entities not yet consolidated, PHOTONIC SENSE Inc., Nashua, USA, and JENOPTIK (Shanghai) International Trading Co., Ltd., Shanghai, China, were included in the consolidated financial statements for the first time with effect from January 1, 2019. This did not have any significant effects on the Group. There were no acquisitions or sales of entities in the fiscal year 2019.

Hillos GmbH, Jena, will be included in the consolidated financial statements as a joint operation with a proportional shareholding of 50 percent in accordance with IFRS 11. This entity is a strategic customer of Jenoptik, operating in the area of construction and construction-related applications of laser technology. The following assets and liabilities are to be allocated to the Group:

in thousand euros	31/12/2019	31/12/2018
Non-current assets	616	578
Current assets	8,962	8,631
Non-current liabilities	74	57
Current liabilities	2,168	1,819
Earnings	18,763	22,353
Expenses	18,312	21,947

A further 5 subsidiaries, of which 4 are non-operating entities, were not consolidated as their influence on the net assets, financial position, and earnings – both individually and in total – is of minor significance. The total revenue of the non-consolidated entities amounts to about 0.1 percent of group revenue; EBIT was around minus 0.1 percent of group EBIT. The estimated effect of a consolidating all the previously non-consolidated entities on the group's total assets is less than 0.1 percent.

The following subsidiaries have investments held by non-controlling shareholders:

Name	Registered office	Non-controlling interests
JENOPTIK Korea Corporation Ltd.	Korea	33.40
JENOPTIK JAPAN Co. Ltd.	Japan	33.42
ASAM Grundstücksverwaltungs-gesellschaft mbH & Co. Vermietungs KG	Germany	6.00

For reasons of materiality, it was decided not to present separate financial information on these subsidiaries.

2.2 Consolidation procedures

The assets and liabilities of the domestic and foreign entities included fully or proportionately in the consolidated financial statements are recognized in accordance with the uniform accounting policies and valuation methods applicable for the Jenoptik Group.

At the acquisition date, the capital consolidation is based on the acquisition method. In this context, the assets and liabilities of the subsidiaries are recognized at fair values. Furthermore, identifiable intangible assets are capitalized and contingent liabilities classified as liabilities as defined in IFRS 3.23. The remaining difference between the purchase price and the acquired net assets corresponds to the goodwill. This is subject to an annual impairment test in the subsequent periods accordance with IAS 36.

Receivables and payables as well as income and expenses between the consolidated entities are eliminated. The Group's inter-company goods and services are delivered and rendered both on the basis of market prices as well as transfer prices and are determined on the basis of the "dealing-at-arm's-length" principle. Assets from inter-company deliveries included in the inventories and property, plant, and equipment are adjusted by interim results. Consolidation procedures recognized as profit or loss are subject to the delimitation of deferred taxes, with deferred tax assets and deferred tax liabilities being netted if there is a legally enforceable right to offset current tax refund claims against current tax liabilities and only if they concern income taxes levied by the same tax authority.

Changes in shareholdings in subsidiaries which reduce or increase the investment ratio without loss of control, are shown as transactions between equity investors, outside of profit or loss.

There was no change in the consolidation methods applied in the prior year.

2.3 Foreign currency conversion

Annual financial statements of the consolidated entities prepared in foreign currencies are converted on the basis of the functional currency concept as defined in IAS 21 "The Effects of Changes in foreign exchange rates" by using the modified reporting date exchange rate method. Since the subsidiaries conduct their business activities independently from the financial, economic and organizational aspects, the functional currency of the entities is generally identical to that of their respective national currency.

Assets and liabilities are consequently converted at the exchange rate on the reporting date, whereas income and expenses are converted at the annual average exchange rate which is determined on a monthly basis. The resulting difference arising from the currency conversion is offset outside of profit or loss and shown separately in equity under foreign currency reserves.

If a consolidated entity leaves the group of consolidated entities, the corresponding difference arising from the foreign currency conversion is reversed through profit or loss.

Receivables and payables in the individual financial statements of consolidated entities prepared in a local currency which is not the functional currency of the subsidiary, are converted at the exchange rate on the balance sheet date in accordance with IAS 21. Differences arising from the foreign currency conversion are shown under other operating income or other operating expenses affecting the results and, if these are derived from financial transactions, are recognized under financial income or financial expenses (see details on the Income Statement from page 161). This excludes currency conversion differences arising from loans and advances which constitute a part of the net investment in a foreign operation. These differences from foreign currency conversions are recorded in other comprehensive income outside or profit or loss until the sale of the net investment; It is only at the time of their disposal that the cumulative amount is reclassified into the income statement.

The exchange rates used for the conversion are shown in the table below:

		Annual average exchange rate		Exchange rate on the reporting date	
	1 EUR =	1/1 to 31/12/2019	1/1 to 31/12/2018	31/12/2019	31/12/2018
Australia	AUD	1.6106	1.5799	1.5995	1.6220
Canada	CAD	1.4857	1.5302	1.4598	1.5605
Switzerland	CHF	1.1127	1.1549	1.0854	1.1269
China	CNY	7.7339	7.8073	7.8205	7.8751
Great Britain	GBP	0.8773	0.8847	0.8508	0.8945
India	INR	78.8501	80.7275	80.1870	79.7298
Japan	JPY	122.0564	130.4090	121.9400	125.8500
Korea	KRW	1,304.8987	1,299.2331	1,296.2800	1,277.9300
Malaysia	MYR	4.6372	4.7642	4.5953	4.7317
Singapore	SGD	1.5272	1.5928	1.5111	1.5591
US	USD	1.1196	1.1815	1.1234	1.1450

2.4 Entities acquired and sold

Acquisition of Prodomax

With the signing the agreement on July 10, 2018 and the closing on July 23, 2018, Jenoptik acquired a 100 percent stake in Prodomax Automation Ltd. (Prodomax), Barrie (Ontario), Canada through its US company JENOPTIK Automotive North America Inc. Its inclusion in the 2018 consolidated financial statements in accordance with IFRS 3 was based on provisional figures. The provisional nature related to the valuation of the intangible assets identified during the purchase price allocation. Finalization took place in the first quarter of 2019 and led to an adjustment of the intangible assets identified during the purchase price allocation, of minus 463 thousand euros, and subsequently (taking into account the formation of deferred tax liabilities in the sum of 116 thousand euros) to an increase in goodwill of 347 thousand euros. There were no significant effects arising from the retrospective adjustment of depreciation and amortization.

Acquisition of INTEROB

With the signing of the contract on January 25, 2020 and the closing on February 4, 2020, Jenoptik acquired a 100 percent stake respectively in INTEROB, S.L., Valladolid, Spain and INTEROB RESEARCH AND SUPPLY, S.L., Valladolid, Spain (jointly referred to as INTEROB) through JENOPTIK Automatisierungstechnik GmbH. INTEROB specializes in the design, construction and integration of customized automation solutions as well as robotics applications. With the acquisition, the Jenoptik Group is boosting its regional and technological growth potential in the automotive industry and is continuing the development, begun with the acquisition of Prodomax and Five Lakes, towards becoming an integrated supplier for advanced manufacturing environments.

The information below is based on provisional figures. The provisional nature relates to the determination of the acquired net assets on the basis of the valuation, not yet finalized, of the intangible assets identified in the process of the purchase price allocation, as well as the determination of the purchase price in respect of net debt and working capital on the date of acquisition. The first-time consolidation will be finalized by the end of fiscal year 2020.

The purchase price in the sum of 36,429 thousand euros comprises a fixed cash component (29,364 thousand euros) and a conditional component (7,065 thousand euros), which is based on the attainment of agreed earnings figures in the years 2020 to 2022 and recognized at fair value.

The conditional component of the purchase price includes a standard earn-out as well as an earn-out premium in the event that the acquired companies exceed the targets. The actual EBITDA achieved and the deviation from the projected EBITDA in the respective fiscal years, are the parameters by which the amounts of both components of the earn-out are measured. In this context, the level of the earn-out is not limited The Jenoptik Group assumes a target achievement in accordance with the planning for the treatment of the conditional purchase price component in the statement of financial position.

In return, Jenoptik acquired the following net assets as at the date of the initial consolidation:

in thousand euros	Total
Non-current assets	11,063
Current assets	21,229
Non-current liabilities	5,159
Current liabilities	11,231

The acquired assets include receivables with a gross value of 8,219 thousand euros. The general risk of default is taken into account by means of an allowance at the amount of 126 thousand euros. Cash and cash equivalents amounting to 207 thousand euros are also included in the acquired assets.

In connection with the acquisition of shares of INTEROB, in addition to the revaluation of property, plant, equipment and inventories, a customer base and order backlog were identified in particular as intangible assets during the provisional purchase price allocation. The intangible assets are depreciated over periods of between three and eight years. Goodwill in the sum of 20,527 thousand euros was also recorded for the acquisition of the skilled personnel as well as for synergy effects arising from the expansion of the range of services in the field of automation solutions and robotics applications, the enlarged customer base and the opening up of new markets. The group goodwill is allocated to the group cash-generating units “Light & Production” and is not tax-deductible.

Contingent liabilities were not identified during the corporate acquisition.

Because the acquisition date is after the balance sheet date for the past fiscal year, neither earnings nor expenses relating to INTEROB are included in the Jenoptik Group's statement of total comprehensive income.

Costs incurred up to December 31, 2019 for the acquisition of INTEROB totaled 164 thousand euros. These were shown in other operating expenses.

There were no sales of companies in the 2019 fiscal year.

2.5 Notes on other entities

Jenoptik holds shares in 6 (prior year: 6) other entities with a maximum 50 percent investment quota respectively. These investments are of minor importance respectively and overall for the asset, financial and earnings situation of Jenoptik. Therefore, based on the principle of cost effectiveness and materiality, the equity valuation was not applied to these investments. The general disclosures on the investments are contained in the list of shareholdings of the Jenoptik Group from page 209.

3 Accounting Policies and Valuation Methods

3.1 Goodwill

Goodwill as stated in IFRS 3 corresponds to the positive difference between the consideration for a corporate merger and the newly acquired, revalued assets and liabilities, including certain contingent liabilities remaining after a purchase price has been allocated and intangible assets have consequently been identified. Within the framework of this purchase price allocation, the identifiable assets and liabilities are not recognized at their previous carrying amounts but at their fair value. During an acquisition of a controlling interest, non-controlling interests are valued according to their proportion of the identifiable net assets.

Goodwill is recognized as an asset and subject to an impairment test at least once a year on a defined date or whenever there is an indication that the cash-generating unit could be impaired. An impairment loss is recognized immediately through profit or loss and not reversed in later reporting periods.

3.2 Intangible assets

Intangible assets acquired in return for payment, primarily patents, trademarks, software and customer relationships, are capitalized at their acquisition costs. Intangible assets with finite useful lives are subject to schedule depreciation on a straight-line basis over their economic useful lives. This is generally a period of between three and ten years. The Group reviews whether its intangible assets with finite useful lives have suffered an impairment loss (see section "Impairment of property, plant, and equipment and intangible assets").

Internally generated intangible assets are capitalized if the recognition criteria specified in IAS 38 "Intangible assets" have been fulfilled.

Internally generated intangible assets are subject to schedule amortization on a straight-line basis over their anticipated useful lives. This is generally a period of between five and ten years.

Development costs are capitalized if a newly developed product or process can be clearly identified, is technically realizable and if there plans for production, own use, or marketing. Furthermore, it is assumed that, if capitalized, there is sufficient probability that the development costs will be covered by future financial cash inflows and can be reliably determined. Finally, there must be adequate resources available to conclude the development and enable the asset to be used or sold.

Capitalized development costs are subject to scheduled amortization over the anticipated sales period of the products – in principle however no longer than five years. In this context, the acquisition and manufacturing costs cover all the costs directly attributable to the development process as well as appropriate portions of the overheads relating to the development. If the requirements for capitalization have not been fulfilled, the expenditures are recognized through profit or loss in the year they occurred.

Amortization on intangible assets is apportioned on the basis of the causer principle to the corresponding function areas in the income statement.

Research costs are recorded as current expenses in research and development expenses in accordance with IAS 38.

3.3 Property, plant, and equipment

Property, plant, and equipment are valued at acquisition and production costs, less scheduled, straight-line depreciation. The depreciation method reflects the anticipated pattern of consumption of the future economic benefits. If the acquisition cost of individual components of an asset is material (particularly in the case of buildings), the depreciation is applied separately for each part of the property, plant and equipment. Where necessary, impairment losses reduce the amortized acquisition and production costs. In principle, government grants are deducted from the acquisition and production costs in accordance with IAS 20 “Accounting for and presentation of government grants” (see section entitled “Government grants”). Production costs are calculated on the basis of directly attributable specific costs as well as proportionate, directly attributable cost of materials and production overheads including depreciation. In accordance with IAS 23 “Borrowing costs”, borrowing costs directly attributable to acquisition or production costs of a qualifying asset are capitalized as a portion of the acquisition or production costs.

Costs incurred for repairing property, plant, and equipment are generally treated as an expense. Subsequent acquisition costs for any components of property, plant, and equipment replaced at regular intervals, can be capitalized insofar as future economic benefits can be reasonably expected and the respective costs can be reliably measured.

Scheduled depreciation is essentially based on the following useful lives:

	Useful life
Buildings	12–80 years
Machinery and technical equipment	5–15 years
Other equipment, operating and office equipment	3–15 years

If any items of property, plant, and equipment are decommissioned, sold or relinquished, the gain or loss arising from the difference between the proceeds of the sale and the residual carrying amount are recorded under other operating income or other operating expenses.

3.4 Impairment of property, plant, and equipment and intangible assets

Property, plant, and equipment and intangible assets with finite useful lives are assessed at each reporting date to see if there are any indications of possible impairment losses for the corresponding assets in accordance with IAS 36 “Impairment of assets”. If any such indications for specific assets or a cash-generating units are identified, an impairment test are performed on these assets.

The differentiation between cash-generating units is primarily carried out on the basis of the business units constituting the divisions.

As part of the impairment test, the recoverable amount of an asset or cash-generating unit is first determined and then compared with the corresponding carrying amount in order to identify if there is any need for an impairment to be applied.

The recoverable amount is the higher of the fair value less costs to sell and the value in use of an asset or a cash-generating unit.

The amount designated as at fair value less costs to sell is the amount which could be achieved through the sale of an asset in a transaction at arm’s length between knowledgeable and willing parties.

Value in use is determined on the basis of discounted expected future cash inflows. This is based on a fair market interest rate before tax that reflects the risks of using the asset that are not yet considered in the estimated future cash inflows.

If the recoverable amount of an asset is estimated to be less than the carrying amount, it is depreciated to the recoverable amount. The impairment loss is recognized immediately through profit or loss.

If an impairment loss is reversed in a subsequent accounting period, the carrying amount of the asset has to be adjusted to the recoverable amount determined. The maximum limit is determined by the amount of the amortized acquisition or production costs that would have been recorded if an impairment loss had not been recognized in prior periods. The impairment loss reversal is immediately recorded through profit or loss.

3.5 Government grants

IAS 20 distinguishes between grants related to acquiring non-current assets and grants related to income.

In general, IAS 20 states that grants are to be accounted for through profit or loss in the same period as the relevant expenses.

In the Jenoptik Group a grant for non-current assets is deducted from the acquisition and production costs. Correspondingly, the amount to be written off is determined on the basis of the reduced acquisition and production costs.

3.6 Leases

On commencement of contract, the Group assesses whether a contract constitutes or contains a lease. This is the case if the contract entitles to control the use of an identified asset in return for payment of a remuneration for a specific period. As a lessee, Jenoptik has been accounting for the rights of use of the lease items and the corresponding leasing liabilities in accordance with IFRS 16 since January 1, 2019.

Rights of use are valued at acquisition costs less all accumulated depreciation. The acquisition costs include the recognized leasing liabilities, the initial direct costs incurred as well as the lease payments made at or before provision. Rights of use are subject to planned, straight-line depreciation over the shorter of the two periods of duration and anticipated useful life and for real estate class assets and amount one to 25 years and for machinery, technical equipment as well as other equipment, operating and office equipment class assets, one to five years. The rights of use are recognized in the balance sheet item in which the underlying asset would be shown if it were the property of the Group.

The lease liabilities are recognized at the current value and include fixed payments, variable lease payments linked to an index or interest rate, payments arising from a contractually guaranteed residual value, payments from the exercising of renewal or purchase options deemed to be sufficiently secure and contractual penalties for the exercising of sufficiently secure termination options.

When calculating the current value of the lease payment, the Group applies its incremental borrowing rate on the date of provision if the interest rate underlying the lease cannot be readily determined. The Group's lease liabilities are shown in the items "Non-current financial debt" and "Current financial debt".

The Group makes use of the practical recognition exemptions offered by IFRS 16 and recognizes the lease payments for short-term leases (excluding property) as well as low-value leased assets as expenses on a straight-line basis over the term of the lease.

There were no material impacts on the Group as lessor arising from the first-time application of IFRS 16.

The rules of IAS 17 were applied for leases in the 2018 fiscal year. When using leased items of property, plant, and equipment, the conditions for finance leases as defined in IAS 17 "Leases" were fulfilled if all material risks and opportunities incidental to ownership have been transferred to the respective entity of the Group. All other leases were classified as operating leases.

Finance leases. The Group, as a lessee of the finance lease, capitalizes the assets leased at the inception of the lease at the amount equal to their fair value, or if lower, the present value of the minimum lease payments. The straight-line depreciation method was used to write off the asset over the period of its economic useful life or the shorter term of the lease agreement if it is unlikely that an option to purchase the asset will be exercised at the end of the lease period. Liabilities from finance lease agreements were recognized at the present value of the minimum lease payments.

Operating leases. Lease payments from operating leases were recognized through profit or loss on a straight-line basis over the term of the corresponding lease.

Any incentives received or outstanding for entering into an operating lease agreement were also recognized on a straight-line basis over the term of the lease.

3.7 Investment property

Investment property comprises plots of land and buildings held for gaining rental income or for the purpose of their value increasing. These properties are not held for the Group's own production, for supplying goods or rendering services, for administration purposes or for any sales in the ordinary course of business activities.

In accordance with the right of choice under IAS 40 "Investment property", such assets are to be accounted for at amortized acquisition or construction costs (see page 171). The fair values to be stated are determined using the discounted cash flow method.

The straight-line depreciation method is based on a useful life of between 20 to 80 years.

In accordance with IAS 36, depreciation resulting from impairment losses on investment property is made if the value in use or fair value less costs to sell of the respective asset is less than the carrying amount. If the reasons for an impairment loss resulting from depreciation from a prior period cease to exist, corresponding write ups are recorded.

3.8 Financial instruments

Financial instruments are contracts giving rise to a financial asset of one entity and to a financial liability or an equity instrument of another entity. As defined in IAS 32, such instruments include on the one side primary financial instruments such as trade receivables and trade payables or financial receivables and financial payables. On the other side, they also include derivative financial instruments which are used for hedging risks arising from fluctuations in interest and foreign currency exchange rates.

Financial assets and financial liabilities are recognized in the consolidated statement of financial position from the date on which the Group becomes a contractual party in a financial instrument agreement.

Depending upon the Group's business model for managing assets and the question as to whether the contractual cash flows of the financial instruments exclusively constitute repayments and interest payments on the outstanding nominal amount, the existing financial instruments are categorized in accordance with IFRS 9 either as "at amortized costs", "at fair value outside profit or loss in other comprehensive income", or "at fair value through profit or loss" and valued accordingly.

The amortized costs of a financial asset or a financial liability are defined as the amount at which the financial asset or financial liability was valued at initial recognition:

- minus any repayments
- minus any impairment losses or potential inability to be recovered, as well as
- plus/minus the cumulative distribution of any difference between the original amount and the amount repayable on maturity (e. g. premium and transaction costs). Under the effective interest method, this difference is spread over the full contractual term of the financial asset or financial liability.

The amortized costs for current receivables and payables generally reflect the nominal amount or the repayment value.

Fair value generally corresponds to the market or stock market value. If there is no active market, the fair value is checked by using financial mathematical methods such as by discounting estimated future cash flows at market interest rates or by applying standard option price models and by confirmations issued by the banks that sold the instruments.

a) Primary financial instruments

Shares in entities

Initial recognition in the statement of financial position is based on the fair value.

In the Jenoptik Group, all shares in companies are classified as "outside profit or loss at fair value in other comprehensive income" based on the exercising of the voting right granted in accordance with IFRS 9 and valued at fair value. In the absence of any identifiable market prices, the fair values of these financial instruments are determined on the basis of discounted cash flows. Changes in value are recorded in other comprehensive income outside of profit or loss.

Shares in entities which are subject to at-equity valuation

Shares in entities over which Jenoptik exerts key influence, are valued using the at-equity method under IAS 28. For this purpose, the original investment carrying amount is updated with the shares in the company's Consolidated Statement of changes in equity to which the shareholders are entitled. Shares in the profit or loss are recognized under profit or loss, whilst shares in other comprehensive income are recorded outside profit or loss.

Loans

Loans involve credit granted by the Jenoptik Group which are valued at the amortized costs in accordance with IFRS 9.

Non-current, non-interest-bearing loans and low interest-bearing loans are accounted for at current value. If any objective, substantial evidence of impairment can be identified, then unscheduled depreciation is applied.

Trade receivables

Trade receivables are non-interest bearing due to their short term nature and are recognized at nominal value less impairment losses on the basis of anticipated bad debts (amortized costs). The anticipated bad debts are determined in accordance with IFRS 9 via the simplified method. In this context, consideration is given to both the individual default risk as well as an anticipated default risk derived from past events for a group of receivables with comparable default risks (portfolio-based impairment) through the recognition of a provision for risk in the amount of the bad debts anticipated over the entire period, using an impairment loss account. When the loss of a trade receivable is finally realized, the receivable is witten off by using an impairment account, in which all material risks and opportunities related to the ownership of the receivable are transferred.

Contract assets

Contract assets reported in accordance with IFRS 15 are recognized at the nominal value, taking into account impairment losses in accordance with IFRS 9. Jenoptik also applies the simplified approach to determining impairment losses on contract assets and determines the risk provisions for the anticipated bad debts over the total term.

Other financial assets

Other financial assets are recognized at amortized costs. All identifiable default risks are accounted for by a corresponding impairment.

Significant non-current, non-interest-bearing or low interest-bearing receivables are discounted.

Current financial investments

Current cash deposits are classified as “at amortized costs” in accordance with IFRS 9 and recognized accordingly.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, checks and bank credit balances available on demand with an original maturity of up to three months. These are recognized at the nominal amount less a provision for the risk of anticipated loan defaults.

Financial liabilities and equity instruments

In principle, financial liabilities are valued at amortized costs by applying the effective interest method. This does not apply to financial liabilities which are accounted for at fair value through profit or loss.

An equity instrument is a contractual agreement containing a residual interest in the assets of the Group after all liabilities have been deducted. Shares which have been issued are classified as equity, whereby the costs (less related income tax benefits) directly attributable to the issue of treasury shares, have been deducted from equity.

Liabilities to banks

Interest-bearing bank loans and overdraft lines of credit are accounted for at the amounts received less any directly attributable disbursement expenses. Financing costs, including premiums due to be paid on repayment or redemption, are accounted for on an accrual basis by applying the effective interest method, and increase the carrying amount of the instrument insofar as they have not been settled at the date of its inception.

b) Derivative financial instruments

Within the Jenoptik Group derivative financial instruments are used for hedging risks arising from fluctuations in interest and foreign currency exchange rates. They serve to reduce earnings volatility resulting from interest and foreign currency exchange rate risks. Fair values are determined on the basis of the market conditions – interest rates, foreign currency exchange rates – at the balance sheet date and using the valuation methods shown below.

Derivative financial instruments are not used for speculation purposes. The use of derivative financial instruments is governed by a group guideline which regulate the use of derivative financial instruments. In order to hedge risks from fluctuations in interest and foreign currency exchange rates, the Group uses cash flow hedges.

Changes in the fair value of derivative financial instruments which serve to hedge cash flow risks, are documented. If the hedge accounting has been classified as effective, the changes in fair value are recognized outside of profit or loss in other comprehensive income. Reclassifications from equity to profit or loss are carried out in the period during which the hedged underlying transaction affects profit or loss. Fluctuations in value arising from financial instruments which are classified as not effective are recorded directly in profit or loss.

3.9 Inventories

Inventories are recognized at the lower of acquisition or production costs and their net realizable value. The net realizable value is the estimated proceeds from sale less the estimated production costs and any further costs incurred up to sale. To determine the net realizable value devaluation routines are applied, in addition to the case-by-case assessments. Indicators of lower net sales proceeds are parameters, such as the range, the market price based on existing orders and the marketability. The specific discount rates are regularly reviewed and, if necessary, revised.

Acquisition costs include any other costs of purchasing as well as other costs incurred to restore the inventories to their current condition. Any reductions in purchase prices such as rebates, bonuses or trade discounts are taken into account.

Production costs include the full costs relating to production that have been determined on the basis of normal production capacity utilization. In addition to direct costs, these also include the appropriate portion of the necessary material and production overheads as well as production related depreciation which can be directly attributable to the production process. In this context, particular account is taken of the costs that are allocated to specific production cost centers. Administrative expenses are also taken into account insofar as they can be allocated to production. If fair values at the reporting date have decreased owing to lower prices on the sales market, then these are recognized. In principle, the valuation of similar inventory assets is based on the average cost method. If the reasons that led to a write-down of inventories cease to exist and the net realizable value has consequently increased, the reversals of write-downs are recognized as a reduction in material expenses in the corresponding periods in which they occur.

3.10 Borrowing costs

Borrowing costs that can be directly attributed to the construction or production of a qualifying asset are capitalized as a portion of the acquisition or production costs of this asset.

3.11 Contract assets and contract liabilities

A contract asset is the not yet unconditional claim to the receipt of a consideration in return for goods or services transferred to a customer. If the Group meets its contractual obligations by transferring goods or services to a customer before the customer pays the consideration or before the payment is due, a contract asset will be recognized for the conditional claim to consideration in return. This gives rise to contract assets as the difference between the realized revenue from the respective order, less payments received and customer billings. Receivables from customers arising from invoices issued are shown under trade receivables.

If the requested payments received and due, as well as the customer billings issued, exceed the realized revenue, a contract liability will be shown. A contract liability therefore constitutes the obligation of the Group to transfer goods or services to a customer for which the Group has received a consideration from the customer or for which a requested payment is due. Contract liabilities are recognized as proceeds as soon as the Group fulfills its contractual obligations.

The contract liabilities additionally include obligations arising from agreed contractual penalties that are accounted as a reduction in revenue.

3.12 Deferred taxes

The accounting for and valuation of deferred taxes is performed in accordance with IAS 12 “Income Taxes”. Deferred tax assets and deferred tax liabilities are shown as separate items in the balance sheet in order to take into account future tax effects resulting from timing differences between the balance sheet valuations of assets and liabilities and tax losses carried forward.

Deferred tax assets and deferred tax liabilities are computed in the amount of the anticipated tax burden or tax relief in subsequent fiscal years on the basis of the tax rate applicable on the date of realization. The effects of changes in tax rates on deferred taxes are recognized in the reporting period during which the legislative procedure on which the change in the tax rate is based has been completed.

Deferred tax assets on differences in the balance sheet and on tax losses carried forward are only recognized if it is probable that these tax advantages can be realized in the foreseeable future.

Deferred tax assets and deferred tax liabilities are offset against each other insofar as taxes are levied by the same authority and relate to the same tax period. In accordance with the regulations of IAS 12, there is no discounting of deferred tax assets and liabilities.

3.13 Provisions for pensions and similar obligations

Pensions and similar obligations comprise the pension obligations of the Jenoptik Group as well as defined benefit and defined contribution retirement schemes.

In accordance with IAS 19, pension obligations for defined benefit schemes are determined by applying the so-called projected unit credit method. An actuarial expert opinion for this procedure is obtained at least once a year.

In Germany, the mortality rates are determined in accordance with the Klaus Heubeck guideline mortality tables 2018 G. In Switzerland, the BVG/LPP 2015 mortality tables apply. Actuarial gains and losses are recognized outside profit or loss in other comprehensive income. Past-service expenses are shown under personnel expenses and the interest portion of the addition to provisions is recorded in the financial result.

Assets that meet the requirements for plan assets under IAS 19.8 are recognized at their fair value and offset against the pension obligations.

For defined contribution retirement schemes, the contributions payable are recognized immediately as an expense.

3.14 Tax provisions

Tax provisions contain obligations arising from current income taxes. Deferred taxes are disclosed in separate items in the statement of financial position.

Tax provisions for corporate income tax and trade tax or similar income tax expenses are determined on the basis of the taxable income of the consolidated entities, less any prepayments made.

3.15 Other provisions

In accordance with IAS 37 "Provisions, contingent liabilities and contingent assets", provisions are set aside insofar as there is any current liability to a third party resulting from a past event that is likely to lead to an outflow of resources in the future and the amount of which can be reliably estimated. Other provisions are only set aside for legal or de facto obligations to third parties that are more likely than not at the reporting date.

Provisions are recognized at their discounted settlement value at the reporting date, provided the interest effect is significant. The settlement value also includes the anticipated price or cost increases. Discounting is based on interest rates before taxes that reflect current market expectations with regard to the interest effect and which are dependent upon the corresponding term of the obligation. The interest portion arising from the compounded of the provision, as well as any effects of changes in interest rates, are recognized in the financial result.

Provisions are valued on the basis of empirical values, taking the circumstances at the balance sheet date into consideration. Provisions for guarantees and warranties are set aside for individual cases and on a lump-sum basis. The amount of the provision is based on the historical development of guarantees and warranties as well as on a consideration of all currently known and future potential guarantee or warranty claims, weighted by the probability of their occurrence.

Claims to recourse are only taken into account if these claims are virtually certain.

3.16 Share-based payments

The members of the Executive Board and some senior management personnel of JENOPTIK AG receive share-based remuneration in the form of long term incentives (LTI) as well as performance shares. Both types of virtual shares are accounted for as share-based payment with settlement in cash in accordance with IFRS 2 "Share-based payment". At the balance sheet date and depending upon the contractual provisions, a provision is set aside in the amount either of the pro rata temporis or full fair value of the payment obligation. Changes in fair value are recognized through profit or loss.

3.17 Contingent Liabilities

Contingent liabilities are potential obligations that are based on past events and whose existence is only confirmed by the occurrence of one or more uncertain future events, which are, however, outside the control of the Jenoptik Group. Moreover, current obligations can constitute contingent liabilities if there is insufficient certainty regarding the likelihood of outflows of resources to set aside a provision and/or the amount of the obligation cannot be reliably estimated. The valuations of the contingent liabilities correspond to the existing scope of liability at the balance sheet date. In principle, they are not accounted for in the statement of financial position but are explained in the Notes.

3.18 Revenue

Proceeds from contracts with customers are recognized in accordance with IFRS 15 if the control of the goods or services is transferred to the customer. These are recognized in the amount of the consideration in return that the Group is expected to receive in exchange for these goods or services. For sales transactions with multiple performance obligations, the revenue is allocated based on stand-alone selling prices.

Proceeds from the sale of goods are generally recorded at the time when control of the asset passes to the customer. The determination of this timing takes into account, among other things, the transfer of the legal ownership, the physical transfer of possession and any potentially agreed acceptance of the products by the customer.

In certain cases, the goods produced by Jenoptik within a specific order process represent assets with no alternative benefit to the Group. Subject to a claim for payment for the service rendered to date, the revenue is realized over time, whereby the degree of completion is determined according to the input-oriented cost-to-cost method. This applies both to the production of individual assets as well as to development projects with subsequent volume production (customer-specific volume production).

Proceeds from the provision of services which represent separate performance obligations within the meaning of IFRS 15 and from which the customer can benefit at the same time as the service is rendered, are recognized over a specific period according to the degree of completion as at the balance sheet date, whereby the degree of completion is generally determined according to the input-oriented cost-to-cost method.

The Group usually offers statutory warranties for the repair of defects that were present at the time of sale. These so-called assurance-type warranties are recognized under provisions for warranties in accordance with IAS 37. If agreed guarantees and warranty claims significantly exceed the usual framework (so-called service-type warranties), these are assessed and accounted for as a separate performance obligation. In this case, the revenue proportion thereof is realized on a straight-line basis over the agreed period of the service-type warranty.

Rental income received from investment property is recognized on a straight-line basis over the term of the corresponding rental contracts and disclosed in revenue.

If a contract contains a number of delimitable components (multi-component contracts), these will be implemented separately in accordance with the above principles.

In determining the consideration in return that Jenoptik receives for fulfilling a customer order, agreed variable components are estimated at the beginning of the contract and then included in the transaction price when it is highly likely that the elimination of the uncertainty associated with the variable components of the consideration in return will not lead to a cancellation of revenue which has already been recognized. At Jenoptik, this applies to both agreed discounts and bonuses as well as to possible contractual penalties.

As a result of the fact that advance payments from the customer are generally short-term, the Group takes advantage of the simplification relief offered by IFRS 15 and refrains from taking a financing component into account when determining the consideration in return.

3.19 Cost of sales

Cost of sales show the costs incurred to generate revenue. This item also includes the costs for setting aside provisions for warranties and guarantees. The scheduled depreciation / amortization on intangible assets and property, plant, and equipment is shown in accordance with the principle of cause and included in cost of sales insofar as they are attributed to the production process.

3.20 Research and development expenses

Research and development expenses include non-capitalizable research and development expenses, with the exception of research and development expenses for customer orders which are disclosed under cost of sales.

3.21 Selling expenses and general administrative expenses

Along with personnel expenses and cost of materials, selling expenses include the costs incurred for distribution, advertising, sales promotion, market research, and customer service. In addition, selling expenses also include the costs for contract initiation which are immediately recognized as an expense as a result of the application of the practical remedy under IFRS 15, since the period of depreciation for the asset that the Group would otherwise have recognized is not more than one year.

General administrative expenses include personnel expenses and the cost of materials as well as administration-related depreciation.

3.22 Other operating income and expenses

Income from the reversal of provisions is recorded in the functional costs, insofar as the provision was also generated in the corresponding functional costs. If the provision was set aside in other operating expenses, the provision reversal will also be shown in other operating expenses. Furthermore, these items include currency exchange gains and losses arising from operational receivables and liabilities as well as net gains or losses arising from hedging instruments for these items. Effects arising from the hedging of net positions are also included. Additionally, value adjustments and reversals of trade receivables are also shown within these items. In addition to other taxes, expenses for group projects are also allocated to other operating expenses. Income and expenses from the measurement of the fair value of contingent considerations arising from corporate acquisitions are shown in these items if the contingent consideration is dependent upon financial parameters within the EBIT.

3.23 Financial income and financial expenses

The financial income and financial expenses of the Group mainly comprise interest income and interest expenses. Furthermore, these items include currency exchange gains and losses arising from financial assets and liabilities as well as net gains or losses arising from hedging instruments for these financial assets and liabilities.

4 Disclosures on the Statement of Income

4.1 Revenue

In contrast to 2018 revenue increased overall by 20,665 thousand euros or 2.5 percent to 855,235 thousand euros.

Detailed disclosures on revenue by division and region are shown in the Segment Report from page 106. An additional breakdown of revenues by target markets is included in the Management Report on page 96.

A breakdown of revenue into revenue recognized over time and at a point in time is shown in the table at the bottom.

The revenue recognized over time included revenue from customer-specific volume production in the sum of 129,427 thousand euros (prior year: 150,392 thousand euros). In addition, in particular, revenue for customer-specific individual production orders and services rendered was recognized over time.

Revenue in the Light & Safety division also included other revenue from embedded operating lease contracts in the sum of 10,284 thousand euros (prior year: 6,675 thousand euros).

Revenue for performance obligations that had already been fulfilled in previous years was realized in the fiscal year just passed in the sum of 372 thousand euros (prior year: 1,107 thousand euros), in particular on the basis of variable components in return, the amounts of which were previously subject to uncertainty.

Revenue also included revenues arising from the so-called "bill and hold" agreements in the sum of 7,639 thousand euros (prior year: 515 thousand euros).

4.2 Cost of sales

in thousand euros	2019	2018
Cost of materials	340,914	335,816
Personnel expenses	168,966	159,260
Depreciation and amortization	28,264	22,365
Other cost of sales	25,290	24,033
Total	**563,435**	**541,475**

In contrast to 2018 cost of sales showed an overall increase of 21,960 thousand euros or 4.1 percent to 563,435 thousand euros.

4.3 Research and development expenses

In 2019, in contrast to the prior year, research and development expenses increased overall by 3,391 thousand euros to 44,052 thousand euros.

These cover all expenses attributable to research and development activities. These income statement items did not include expenses paid by customers in connection with research and development services in the sum of 20,408 thousand euros (prior year: 20,191 thousand euros). Such expenditures were allocated to cost of sales.

In the fiscal year just past, costs in the sum of 3,801 thousand euros (prior year: 1,280 thousand euros) were capitalized in the intangible assets for internal development projects.

More detailed information on the Group's research and development activities is provided in the Combined Management Report in the section "Research and development" from page 84.

in thousand euros	Light & Optics	Light & Production	Light & Safety	VINCORION	Other	Group
External revenue	**350,037 (336,984)**	**228,907 (210,707)**	**108,681 (116,937)**	**164,798 (166,400)**	**2,812 (3,542)**	**855,235 (834,571)**
thereof recognized over time	128,275 (93,371)	74,840 (38,255)	30,236 (56,672)	23,443 (40,576)	2,812 (3,542)	259,607 (232,417)
thereof recognized at a point in time	221,762 (243,613)	154,067 (172,452)	78,445 (60,265)	141,354 (125,824)	0 (0)	595,629 (602,153)

The figures in brackets relate to the prior year.

4.4 Selling expenses

In contrast to 2018, selling expenses increased overall by 2,300 thousand euros or 2.6 percent to 89,349 thousand euros in 2019.

Selling expenses essentially comprise material costs in the sum of 4,356 thousand euros (prior year: 5,382 thousand euros), personnel expenses in the sum of 51,736 thousand euros (prior year: 48,245 thousand euros) and depreciation and amortization in the sum of 7,053 thousand euros (prior year: 3,090 thousand euros).

4.5 General administrative expenses

Compared to 2018, general administrative expenses increased by 4,410 thousand euros to 60,539 thousand euros in 2019. This is due in particular to the companies acquired in 2018 now being included in the consolidated financial statements for the full year, as well as to the costs of implementing a new ERP system at a subsidiary.

General administrative expenses essentially comprise material costs in the sum of 10,975 thousand euros (prior year: 14,262 thousand euros) and personnel expenses in the sum of 43,884 thousand euros (prior year: 39,320 thousand euros) and depreciation and amortization in the sum of 5,542 thousand euros (prior year: 1,220 thousand euros).

4.6 Expenses according to types of expense

The following main types of expenses are included in revenue, selling and administrative expenses as well as in the research and development expenses:

in thousand euros	1/1–31/12/2019	1/1–31/12/2018
Cost of materials	344,776	356,089
Personnel expenses	301,076	278,347
Depreciation and amortization	43,802	30,569
Other expenses	67,720	67,091
Total	**757,374**	**732,096**

The increase in depreciation and amortization is mainly due to the first-time application of IFRS 16 in the 2019 fiscal year.

4.7 Other operating income

in thousand euros	1/1–31/12/2019	1/1–31/12/2018
Income from currency gains	7,042	9,744
Income from reversed bad debt allowances on receivables	1,760	3,461
Income from services, offsets and rental	2,527	2,022
Income from non-cash contributions	1,930	1,686
Income from government grants	988	1,090
Income from damage claims/insurance payments	508	557
Income from sale of materials	262	230
Income from the sale of intangible assets and property, plant and equipment	136	119
Income from adjustment to fair values of earn-out liabilities	819	0
Others	2,614	1,952
Total	**18,586**	**20,861**

In 2019, other operating income fell by 2,275 thousand euros and thus by 10.9 percent to 18,586 thousand euros.

Income from from foreign currency exchange gains mainly include gains arising from fluctuations in exchange rates between the transaction date and the payment date of receivables and payables in foreign currencies, as well as exchange rate gains arising from the valuation at the exchange rate on the reporting date.

The reversal of bad debt allowance for receivables has been recognized through profit or loss on the basis of payments received for overdue receivables.

Income from services, offsets and rentals which is not derived from the usual activity of the companies, is shown under other operating income.

Income from government grants generally related to grants for research and development projects that Jenoptik received from the Federal Ministry for Education and Research and other federal and European institutions.

The income from the adjustment to the fair values of contingent liabilities relates to variable purchase price components arising from the acquisition of the OTTO Group and Five Lakes.

Other operating income includes, among other things, income from the operation of staff canteens.

4.8 Other operating expenses

in thousand euros	1/1–31/12/2019	1/1–31/12/2018
Foreign currency exchange losses	9,143	8,823
Expenses from increase of bad debt allowances for receivables and bad debt losses	4,482	5,904
Expenses for group projects	3,696	2,877
Impairments of intangible assets and property, plant and equipment	1,248	2,136
Amortization of intangible assets from a first-time consolidation	918	2,031
Expenses for services and rentals	2,560	1,925
Acquisition costs	2,052	1,901
Losses from the disposales of intangible assets and property, plant and equipment	172	387
Other taxes	611	358
Additions/reversals of provisions	−158	−349
Others	2,806	2,433
Total	**27,532**	**28,426**

Other operating expenses decreased compared with the prior year by 894 thousand euros or 3.1 percent to 27,532 thousand euros.

The expenses incurred from foreign currency exchange losses primarily include losses from changes in currency exchange rates between the transaction date and the date of payment of foreign currency receivables or payables, as well as from the valuation at the exchange rate on the reporting date. In addition, the results from the hedging of net exposures in foreign currency led to a loss. Exchange rate gains resulting from these items are recognized under other operating income. Foreign currency gains and losses in 2019 led to a net loss of 2,101 thousand euros (prior year: net gain of 921 thousand euros).

For details on expenses arising from the creation of bad debt allowances for receivables we refer to section 8.2 “Financial instruments” (from page 194).

Group projects essentially include non-capitalizable expenses for a project to implement a new group-wide ERP system.

Impairment losses on intangible assets and property, plant and equipment include, in particular, the unscheduled amortization of an intangible asset from a completed development project.

Amortization on intangible assets arising from first-time consolidation fell to 918 thousand euros as the amortization on some intangible assets from the first-time consolidations of Prodomax and the OTTO Group, shown under other operating expenses, expired during 2019.

The transaction costs include, in particular, consulting costs in connection with the sale process of the VINCORION division, which was stopped in January 2020, as well as for the audit of future corporate acquisitions.

The addition to and reversal of provisions include reversals in the sum of minus 158 thousand euros (prior year: additions in the sum of 237 thousand euros and reversals in the sum of minus 586 thousand euros) which could not be directly apportioned to the functional costs. More information on these items can be found in the section “Other provisions” from page 158.

Other operating expenses in the 2019 fiscal year include, amongst others, expenses for reorganizations and optimization projects, expenses for the operation of staff canteens as well as non-period expenses.

4.9 Financial income and financial expenses

in thousand euros	1/1–31/12/2019	1/1–31/12/2018
Income from measuring financial instruments in foreign currency	4,295	3,105
Income from the reversal of impairment losses on current financial investments as well as cash and cash equivalents	631	0
Other interest and similar income	419	495
Total financial income	**5,345**	**3,599**
Expenses for measuring financial instruments in foreign currency	3,782	2,135
Interest expenses for debenture loans	1,312	1,769
Interest expenses for leases	1,617	39
Interest expenses for syndicated loans	551	561
Interest expenses for foreign finance loans	260	551
Net interest expenses for pension provisions	585	540
Accrued interest on other provisions and liabilities	702	432
Expenses arising from impairment losses on current financial investments as well as cash and cash equivalents	0	411
Other interest and similar expenses	246	632
Total financial expenses	**9,055**	**7,070**
Total	**−3,709**	**−3,470**

The net balance of financial income and financial expenses reduced by 239 thousand euros or 6.9 percent to minus 3,709 thousand euros (prior year: minus 3,470 thousand euros).

Income from measuring financial instruments in the foreign currency in the sum of 4,295 thousand euros (prior year: 3,105 thousand euros) and countervailing expenses in the sum of 3,782 thousand euros (prior year: 2,135 thousand euros) led to a net profit in fiscal year 2019 of 513 thousand euros (prior year: 970 thousand euros). This result is derived from the foreign currency exchange gains and losses arising from the group financing as well as the measurement of financial assets which were issued in foreign currencies, less the measurement of the respective derivatives.

The change in allowance for current cash deposits as well as cash and and cash equivalents resulted in an income of 631 thousand euros in the 2019 fiscal year (prior year: expense of 411 thousand euros) which was primarily attributable to the reduced likelihood default on the part of banks holding deposits.

The item other interest and similar income primarily comprises interest income from bank deposits as well as investment income.

As a result of the introduction of IFRS 16, interest expenses on leases increased by 1,578 thousand euros to 1,617 thousand euros (prior year: 39 thousand euros).

The reduction in interest expenses on debenture loans results from repayments in October 2018 and April 2019.

Interest expenses for foreign finance loans were incurred on local financing of entities in the USA and China.

The item other interest and similar expenses primarily comprises guarantee and bank charges.

4.10 Income taxes

Current income taxes (paid or owing), as well as deferred tax assets and deferred tax liabilities in the respective countries, are shown as income taxes. The current income tax of the Jenoptik Group was calculated by applying the tax rates applicable at the balance sheet date.

The calculation of the deferred taxes for the domestic entities was based on a tax rate of 29.80 percent (prior year: 29.74 percent). In addition to the corporation tax at 15.0 percent (prior year: 15.0 percent) and the solidarity surcharge of 5.5 percent of the corporation tax charge (prior year: 5.5 percent), an effective trade tax rate of 13.98 percent (prior year: 13.92 percent) was taken into account. The calculation of deferred taxes for foreign entities is based on the tax rates applicable in the respective country.

Deferred taxes are recognized as either tax expenses or tax income in the income statement, unless these directly relate to items recognized outside of profit or loss in other comprehensive income. In this event, deferred taxes are also recognized outside of profit or loss in other comprehensive income.

Tax expenses were classified according to origin as follows:

in thousand euros	2019	2018
Current income tax expense		
Germany	8,406	11,150
Abroad	2,963	−196
Total	**11,369**	**10,954**
Deferred Taxes		
Germany	7,200	−6,162
Abroad	−1,004	−791
Total	**6,196**	**−6,953**
Total income taxes	**17,565**	**4,002**

The current income taxes includes for 2019 an expense in the sum of 568 thousand euros (prior year: income of 827 thousand euros) for current taxes from earlier business periods. Deferred tax expenses include income relating to a different period in the sum of 18 thousand euros (prior year: expense 889 thousand euros).

Deferred tax expenses include an expense resulting from the development of timing differences in the sum of 2,838 thousand euros (prior year: expense 2,262 thousand euros).

As at the balance sheet date, the Jenoptik Group had the following tax losses carried forward at its disposal for offsetting against future profits:

in thousand euros	2019	2018
Corporation tax	213,065	252,178
Trade tax	368,699	408,463

The reduction in tax losses carried forward mainly resulted from their being used in the fiscal year just past. Taking into consideration all currently known positive and negative factors influencing the future tax results of the Jenoptik Group, a utilization of the corporation tax loss carried forward of 183,793 thousand euros (prior year: 225,931 thousand euros) and the use of a trade tax loss carried forward of 239,661 thousand euros (prior year: 226,716 thousand euros) was probable. A deferred tax claim of 63,108 thousand euros (prior year: 67,951 thousand euros) was recognized for these available tax losses carried forward, of which 33,490 thousand euros (prior year: 31,561 thousand euros) was attributable to trade tax losses carried forward.

For the remaining, non-utilizable losses carried forward, no deferred tax assets were recognized for corporation tax purposes in the sum of 29,272 thousand euros (prior year: 26,247 thousand euros) and for trade tax purposes in the sum of 129,038 thousand euros (prior year: 181,747 thousand euros).

A portion of the tax losses carried forward is subject to a time limit for carry forward purposes:

in thousand euros	31/12/2019	31/12/2018
1 year or less	618	259
2 years to 5 years	3,850	5,838
6 years to 9 years	2,823	2,716
More than 9 years	411	445
Total losses carried forward subject to a time limit	**7,702**	**9,258**

In addition, no deferred tax assets were shown for allowable time differences in the sum of 7,336 thousand euros (prior year: 8,271 thousand euros) as these will probably not be realized in the underlying reporting period.

The following recognized deferred tax assets and deferred tax liabilities were attributed to recognition and valuation differences in the individual balance sheet items and to tax losses carried forward:

	Deferred tax assets		Deferred tax liabilities	
in thousand euros	31/12/2019	31/12/2018	31/12/2019	31/12/2018
Intangible Assets	3,825	2,284	5,332	4,922
Property, plant, and equipment	822	1,692	15,899	3,088
Financial investments	1,092	986	1,961	457
Inventories	6,775	7,396	98	673
Receivables and other assets	1,592	1,359	7,076	5,398
Provisions	13,766	12,584	3,974	661
Liabilities	17,209	4,254	28	218
Tax losses carried forward and tax refunds	65,320	68,680	0	0
Gross value	**110,401**	**99,235**	**34,368**	**15,417**
Offset	−32,683	−12,944	−32,683	−12,944
Value presented statement of financial position	**77,718**	**86,291**	**1,685**	**2,473**

The net inventory of the asset surplus in deferred taxes reduced by 7,785 thousand euros. Taking into consideration the deferred taxes recognized outside of profit or loss (minus 1,619 thousand euros), as well as the foreign currency exchange conversions (plus 30 thousand euros) in the reporting year, this gave rise to deferred tax expenses of 6,196 thousand euros shown in the income statement.

Temporary differences in the sum of 122,739 thousand euros (prior year: 79,965 thousand euros) related to shares in subsidiaries for which no deferred tax liabilities have been created due to IAS 12.39. Deferred tax liabilities in the sum of 37 thousand euros (prior year: 28 thousand euros) were set aside on outside basis differences in accordance with IAS 12.40.

The following table shows the tax reconciliation between the tax expense expected in the respective fiscal year and the actual tax expense recognized. To determine the anticipated tax expense, in the fiscal year 2019 the applicable group tax rate of 29.80 percent (prior year: 29.74 percent) was multiplied by the earnings before tax (EBT).

in TEUR	2019	2018
Earnings before tax	**85,206**	**91,440**
Income tax rate for the Jenoptik Group in %	29.80	29.74
Expected tax expense	**25,391**	**27,194**
Following tax effects resulted in the difference between the actual and the expected tax expense:		
Non-deductible expenses, tax-exempt income and permanent deviations	81	691
Change in the realizability of deferred tax assets and tax credits	−8,387	−24,204
Effects arising from differences in tax rates	−246	415
Implications of changes in tax rates	−118	79
Taxes in prior years	550	−414
Other tax effects	294	241
Total adjustments	**−7,826**	**−23,192**
Tax expenses according to the income statement	**17,565**	**4,002**

4.11 Earnings per share

Earnings per share correspond to the earnings attributable to shareholders divided by the weighted average of outstanding shares.

	1/1 – 31/12/2019	1/1 – 31/12/2018
Earnings attributable to shareholders in thousand euros	67,652	87,575
Weighted average number of outstanding shares	57,238,115	57,238,115
Earnings per share in euros (undiluted = diluted)	**1.18**	**1.53**

Further explanations on the earnings per share are available in Section Jenoptik Share from page 30.

5 Disclosures on the Statement of Financial Position

5.1 Intangible assets

in thousand euros	Development costs arising from internal development projects	Acquired patents, trademarks, software, customer relationships	Internally generated patents	Goodwill	Other intangible assets	Total
Acquisition/production costs	**15,108**	**101,326**	**1,367**	**169,646**	**2,316**	**289,763**
Balance as of 1/1/2019	**(14,501)**	**(68,158)**	**(1,424)**	**(111,279)**	**(2,247)**	**(197,609)**
Adjustment as a result of IFRS 16	0	−542	0	0	0	−542
	(0)	(0)	(0)	(0)	(0)	(0)
Foreign currency exchange effects	16	2,478	0	5,813	0	8,307
	(5)	(−476)	(0)	(−703)	(0)	(−1,173)
Changes in the group of entities	0	−463	0	348	0	−116
consolidated	(0)	(32,906)	(0)	(59,069)	(0)	(91,975)
Additions	1,530	3,203	13	0	6,933	11,678
	(864)	(2,705)	(23)	(0)	(957)	(4,549)
Disposals	8	2,211	16	0	804	3,038
	(272)	(2,429)	(241)	(0)	(207)	(3,149)
Transfers (+/-)	0	220	260	0	−324	157
	(10)	(463)	(160)	(0)	(−681)	(−48)
Acquisition/production costs	**16,647**	**104,011**	**1,624**	**175,806**	**8,121**	**306,210**
Balance as of 31/12/2019	**(15,108)**	**(101,326)**	**(1,367)**	**(169,646)**	**(2,316)**	**(289,763)**
Amortization and impairments	**13,635**	**59,872**	**807**	**9,895**	**0**	**84,209**
Balance as of 1/1/2019	**(13,748)**	**(52,134)**	**(900)**	**(9,895)**	**(1)**	**(76,679)**
Adjustment as a result of IFRS 16	0	−30	0	0	0	−30
	(0)	(0)	(0)	(0)	(0)	(0)
Foreign currency exchange effects	11	579	0	0	0	590
	(5)	(153)	(0)	(0)	(0)	(158)
Changes in the group of entities	0	0	0	0	0	0
consolidated	(0)	(210)	(0)	(0)	(0)	(210)
Additions	109	10,497	162	0	0	10,768
	(155)	(8,608)	(147)	(0)	(0)	(8,910)
Impairment losses	0	5	0	0	792	796
	(0)	(1,195)	(0)	(0)	(0)	(1,195)
Disposals	8	2,210	10	0	780	3,007
	(272)	(2,429)	(240)	(0)	(0)	(2,942)
Transfers (+/-)	0	57	90	0	0	147
	(0)	(2)	(0)	(0)	(−2)	(0)
Amortization and impairments	**13,748**	**68,769**	**1,049**	**9,895**	**12**	**93,474**
Balance as of 31/12/2019	**(13,635)**	**(59,872)**	**(807)**	**(9,895)**	**(0)**	**(84,209)**
Net carrying amount as of 31/12/2019	**2,899**	**35,242**	**575**	**165,911**	**8,110**	**212,736**
	(1,473)	**(41,454)**	**(560)**	**(159,750)**	**(2,316)**	**(205,553)**

The figures in brackets relate to the prior year.

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The changes in the group of entities consolidated in the prior year resulted from the acquisitions of Prodomax and the OTTO Group. In the fiscal year 2019 the finalization of the intangible assets identified during the purchase price allocation 19 was carried out.

The additions to other intangible assets in the sum of 4,253 thousand euros were the result of investments in the new SAP S/4HANA system which is under development and will be implemented as part of a process and data harmonization program.

Furthermore, additions to other intangible assets included capitalized expenses for internally generated assets in development in the sum of 2,417 thousand euros (prior year: 632 thousand euros), of which 2,271 thousand euros were attributable to development costs arising from internal development projects and 147 thousand euros to internally generated patents. Once the internal development projects have been completed or the patents granted, these were transferred to the corresponding groups of intangible assets.

Disposals of patents, trademarks, software, and customer relationships primarily relate to intangible assets that were recorded in prior years within the context of acquisitions and which are written off in full at the end of their useful life.

As in the prior year, intangible assets were not subject to any disposal restrictions. The order commitments for intangible assets totaled 46 thousand euros (prior year: 329 thousand euros).

Other than goodwill, there were no intangible assets with an indefinite useful life.

A new organizational structure came into effect on January 1, 2019, reorganizing the business activities within the segments. The relevant parts of the operating business were combined according to a similar market and customer understanding based on the same business models. During the course of this reorganization, the cash-generating units which benefit from the synergies embodied by goodwill, were restructured and goodwill was reallocated.

In the prior year, an impairment test of goodwill was carried out at the divisional level immediately before the reallocation as of December 31, 2018 and did not give lead to any need for impairment losses to be applied. As part of the realignment, the former Sensor Systems business unit of the Defense & Civil Systems segment was transferred to the new Light & Optics division. As a result of this change, the goodwill in the sum of 1,797 thousand euros was reallocated accordingly. The following figures for the prior year were adjusted to reflect the new structure.

As of December 31, 2019 the goodwill totaled 165,911 thousand euros (prior year: 159,750 thousand euros). The additions to goodwill in the sum of 348 thousand euros resulted from the finalization of the initial consolidation of Prodomax. The further change in the carrying amounts in the sum of 5,813 thousand euros was attributable exclusively to currency effects (prior year: minus 703 thousand euros).

As in the prior year, no impairments to goodwill were required in the 2019 fiscal year.

The following table summarizes the goodwill for the cash-generating units corresponding to the divisions:

in thousand euros	31/12/2019	31/12/2018
Light & Optics	44,598	44,556
Light & Production	72,900	68,704
Light & Safety	42,290	40,367
VINCORION	6,124	6,124
Total	**165,911**	**159,750**

The impairment test for goodwill was performed at the level of the cash-generating units benefiting from the synergies of the respective corporate merger and representing the lowest level at which goodwill is monitored for internal company management. If the carrying amounts of these cash-generating units exceeded their recoverable amounts, the goodwill was reduced correspondingly. The determining factor for the impairment test was the recoverable amount, i.e. the higher of the two amounts derived from the fair value less costs to sell or value in use.

Jenoptik calculated the recoverable amount in the form of the value in use, based on a discounted cash flow method. The basis for this is the five-year corporate plan approved by the management. This took past experience into consideration and was based on the management's best estimate of future development. The cash flows in the detailed planning phase were planned based on differentiated growth rates taking into account the development and dynamics of the relevant sectors and target markets.

The following planning assumptions were applied for divisions with significant goodwill:

In the 2019 fiscal year the Light & Optics division continued the positive revenue development achieved in the prior year Both gross margin and EBITDA margin remained at a high level, slightly below the prior year's figures. For future revenue growth, the division focuses on the semi & advanced manufacturing, biophotonics and industrial solutions market segments. The target markets for Biophotonics are the bio-imaging, laser-based therapy and laser components market segments. Industrial Solutions targets the industrial automation, mobility and safety & security market segments in order to achieve a significant improvement in business development over the medium-term period.

In the past fiscal year the Light & Production division recorded an increase in revenue but a decline in profitability. Future growth will be driven by concentrating on integrated production solutions and servicing other key industries at an international level. The aim is to exploit the anticipated synergy effects arising from acquisitions over prior years. Overall, corporate planning for the Light & Production division takes moderate growth into account. For the Metrology area, a significant revival of the automotive market is expected from 2022, supported by various planned performance projects.

Despite a decline in revenue, the Light & Safety division was able to increase profitability slightly in the 2019 fiscal year. The focus of development over the coming years will be on the increasing level of internationalization, especially in the regions of the Americas, the Middle East / North Africa, and other European countries. The on-going continuation of structural and process optimizations as well as the increase in local and international value added, sustained increase in revenue and profitability over the medium term can be expected.

Differentiated ranges are used to determine the future development of the working capital.

At the same time, the result of the respective planning year is adjusted for non-cash expenses and income such as depreciation / amortization in order to determine the free cash flow.

This assumes a perpetual annuity, the amount of which is individually determined by management for each cash-generating unit from the fifth year of the planning time frame. The perpetual annuity includes a growth component in the form of a deduction on the capitalization interest rate of between 0.9 and 1.1 percentage points (prior year: 0.9 and 1.1 percentage points). Non-recurring effects in the last year of the plan are eliminated prior to calculating the perpetual annuity.

The weighted average cost of capital after taxes required for the impairment tests is determined by using the capital asset pricing model for determining the cost of equity. The components for calculating the cost of equity are a risk-free interest rate, the market risk premium, a beta factor customary in our industry derived from division-specific peer groups as well as the average country risk of each cash-generating unit. Borrowing costs were determined by including a risk-free interest rate, the spread customary in our industry and the standard average tax rate. The weighted costs of equity and borrowing costs resulted from applying the capital structure customary in our industry.

Impairment testing was conducted assuming a weighted average cost of capital after taxes at a rate between 6.01 and 9.47 percent (prior year: 5.26 to 8.26 percent). This corresponded to the weighted average cost of capital before tax of between 8.02 and 12.87 percent (prior year: 5.76 to 11.67 percent).

The assumptions used to determine the values in use of the cash-generating unit are shown in the following table:

	Growth components in the perpetual annuity	Weighted cost of capital after tax	Weighted cost of capital before tax
Light & Optics	1.10	9.47	12.87
(Prior year: Optical Systems)	(1.10)	(7.51)	(10.45)
Light & Production	0.90	9.15	11.89
(Prior year: Automotive)	(0.90)	(8.26)	(11.67)
Light & Safety	0.90	6.47	8.14
(Prior year: Traffic Solutions)	(0.90)	(5.26)	(5.76)
VINCORION	0.90	6.01	8.02
(Prior year: Defense & Civil Systems)	(0.90)	(6.20)	(8.63)

The figures in brackets relate to the prior year.

For comparison purposes, the figures of the divisions were compared with the prior year's divisional figures before the realignment of the organizational structure.

Sensitivity analyses were conducted for all cash-generating units to which goodwill was allocated as of December 31, 2019. A reduction in the cash flows or an increase in the weighted cost of capital within the range considered by the management as possible, would not result in the recoverable amount being less than the carrying amount of the cash-generating units.

5.2 Property, plant, and equipment

in thousand euros	Land, Buildings	Technical equipment and machinery	Other equipment, operating and office equipment	Equipment under construction	Total
Acquisition/production costs	**171,075**	**194,631**	**107,491**	**15,438**	**488,635**
Balance as of 1/1/2019	**(161,392)**	**(177,035)**	**(103,506)**	**(9,721)**	**(451,653)**
Adjustment as a result of IFRS 16	50,788	303	3,752	0	54,842
	(0)	(0)	(0)	(0)	(0)
Foreign currency exchange effects	941	1,274	308	8	2,531
	(754)	(1,513)	(125)	(161)	(2,554)
Changes in the group of entities consolidated	0	0	0	0	0
	(4,337)	(499)	(863)	(0)	(5,700)
Additions	6,930	10,559	8,236	18,173	43,897
	(5,917)	(10,304)	(8,273)	(13,373)	(37,867)
Disposals	493	6,962	4,558	992	13,005
	(62)	(3,978)	(4,923)	(223)	(9,185)
Transfers (+/-)	2,212	5,539	49	−7,914	−114
	(−1,263)	(9,257)	(−353)	(−7,594)	(47)
Acquisition/production costs	**231,452**	**205,344**	**115,278**	**24,714**	**576,787**
Balance as of 31/12/2019	**(171,075)**	**(194,631)**	**(107,491)**	**(15,438)**	**(488,635)**
Depreciation and impairments	**71,836**	**148,064**	**82,805**	**0**	**302,705**
Balance as of 1/1/2019	**(69,287)**	**(137,130)**	**(80,471)**	**(35)**	**(286,923)**
Foreign currency exchange effects	121	832	99	0	1,052
	(67)	(959)	(73)	(0)	(1,099)
Changes in the group of entities consolidated	0	0	0	0	0
	(225)	(107)	(269)	(0)	(602)
Additions	11,512	12,029	9,409	0	32,950
	(3,935)	(10,577)	(7,050)	(0)	(21,563)
Impairment losses	205	113	134	0	452
	(941)	(0)	(0)	(0)	(941)
Impairment reversal	0	0	0	0	0
	(0)	(−33)	(0)	(−35)	(−67)
Disposals	346	6,775	4,220	0	11,342
	(37)	(3,528)	(4,790)	(0)	(8,355)
Transfers (+/-)	−143	647	−656	0	−152
	(−2,582)	(2,851)	(−270)	(0)	(−1)
Depreciation and impairments	**83,184**	**154,909**	**87,571**	**0**	**325,664**
Balance as of 31/12/2019	**(71,836)**	**(148,064)**	**(82,805)**	**(0)**	**(302,705)**
Net carrying amount as of 31/12/2019	**148,267**	**50,435**	**27,707**	**24,714**	**251,123**
	(99,239)	**(46,567)**	**(24,686)**	**(15,438)**	**(185,930)**

The figures in brackets relate to the prior year.

The increase in property, plant and equipment was primarily attributable to the initial application of IFRS 16 as of January 1, 2019. For further details on this we refer to the disclosures in section 1.2 Accounting principles, as well as to section 5.4. Leasing.

Land and buildings of the Group in the amount of 148,267 thousand euros (prior year: 99,239 thousand euros) mainly comprised the Group's own production and administrative buildings in Jena, Altenstadt, Huntsville (USA), Shanghai (China) and Rochester Hills (USA) as well as the leased production and administration buildings in Wedel, Berlin, Monheim and Camberley (UK). In the fiscal year just past, work commenced on the construction of a new building with development, production and office premises for JENOPTIK Industrial Metrology Germany GmbH at the Villingen-Schwenningen site. The investments made for this purpose in 2019 amounted to 10,134 thousand euros and will be shown under assets under construction until the planned completion of the building complex in spring 2020.

In addition, in the 2019 fiscal year, production capacities were expanded in almost all business areas, and existing plant replaced or new plant installed.

More detailed explanations on the investments made are contained in the Combined Management Report, under the section "Financial position" from page 99.

Order commitments for property, plant, and equipment in the sum of 6,958 thousand euros have increased significantly compared with the prior year (prior year: 10,146 thousand euros) and primarily resulted in replacement and new investment in technical equipment and machinery.

As in fiscal year 2018, no property, plant and equipment was pledged as of the balance sheet date. Loans in the sum of 41 thousand euros were secured through registered charges against real property (prior year: 74 thousand euros). There were no further restrictions on disposals for property, plant and equipment.

5.3 Investment property

in thousand euros	Investment property
Acquisition / production costs Balance as of 1/1/2019	**10,495 (10,397)**
Additions	0 (100)
Disposals	0 (2)
Acquisition / production costs Balance as of 31/12/2019	**10,495 (10,495)**
Depreciation Balance as of 1/1/2019	**6,141 (6,047)**
Additions	91 (97)
Disposals	0 (2)
Depreciation Balance as of 31/12/2019	**6,232 (6,141)**
Net carrying amount as of 31/12/2019	**4,263 (4,354)**

The figures in brackets relate to the prior year.

The investment property as of December 31, 2019 primarily encompassed property in the Jena-Göschwitz Industrial Park.

The fair values totaled 4,358 thousand euros (prior year: 4,476 thousand euros). These were determined internally within the company on the basis of a discounted cash flow method. In this context, the net rents without utilities as well as the maintenance and other costs are estimated for the entire remaining useful lives of the properties and discounted over the remaining useful lives. Risk-adjusted interest rates are applied as discount rate. As a result of the use of non-observable parameters such as interest rates, rents without utilities, as well as maintenance and ancillary expenses, the level 3 fair value in the hierarchy of fair values is assigned.

For 2019, rental income from investment property at the end of the fiscal year amounted to 505 thousand euros (prior year: 518 thousand euros).

In fiscal year 2019, the direct operating expenses for property and movables accounted for at the end of the year totaled 149 thousand euros for rented space (prior year: 194 thousand euros) and for non-rented space 39 thousand euros (prior year: 55 thousand euros).

5.4 Leasing

Leasing in accordance with IFRS 16

The Group applied IFRS 16 for the first time as of January 1, 2019. With regard to the first-time application and the general accounting principles, we refer to section 1.2 “Accounting principles” (from page 144) resp. section 3.6 Leases (page 154).

The Group as lessee. The Group has concluded lease agreements for real estate, technical equipment and machinery and other equipment, motor vehicles and for operating and business equipment.

The rights of use are recognized in the statement of financial position under property, plant and equipment, in which the underlying assets would be presented if they were the property of the Group. A separate presentation of the rights of use as of January 1, 2019 and December 31, 2019, as well as of the additions and depreciation in the 2019 fiscal year, are shown in the table at the bottom.

Lease liabilities are recognized in the statement of financial position under “Non-current financial debt” or “Current financial debt” and can be seen in the following table:

in thousand euros	31/12/2019
Lease liabilities under non-current financial debt	47,405
Lease liabilities under current financial debt	9,484

Interest expenses for leases in the fiscal year 2019 totaled 1,617 thousand euros.

Some leases also include renewal and termination options, as well as variable lease payments, which are set forth in more detail below.

The table below contains information on the Group's variable lease payments as well as the ratio between variable and fixed payments:

Expenses for lease contracts	in thousand euros
from short-term lease agreements	1,079
from low-value lease contracts	726
from variable lease payments	1,358
Total lease expenses	**3,163**

in thousand euros	Rights of use to land, buildings	Rights of use to technical equipment and machinery	Rights of use to other equipment, operating and business equipment	Total rights of use
Acquisition/production costs, balance as of 1/1/2019	0	4,101	668	4,769
Adjustment as a result of IFRS 16	50,788	303	3,752	54,842
Foreign currency exchange effects	487	4	32	523
Additions	3,858	963	3,038	7,859
Disposals	206	6	261	473
Transfers (+/-)	−5	0	−27	−31
Acquisition/production costs, balance as of 31/12/2019	54,922	5,365	7,203	67,490
Depreciation	0	444	111	554
Foreign currency exchange effects	31	0	2	33
Additions	7,596	581	2,329	10,506
Impairment losses	205	0	29	233
Disposals	61	3	135	200
Transfers (+/-)	−1	0	−6	−7
Depreciation, balance as of 31/12/2019	7,770	1,021	2,330	11,121
Carrying amount as of 31/12/2019	47,152	4,344	4,873	56,369

The variable lease payments mainly include payments for non-leasing components of lease agreements that have been accounted for in accordance with IFRS 16.

Liabilities arising from fixed lease payments are listed according to their maturity in the table below:

Liabilities from fixed lease payments	in thousand euros
Up to 1 year	11,423
1 year to 5 years	32,943
More than 5 years	21,886
Total	**66,252**

The management negotiates extension and termination options of the lease contracts. The assessment as to whether there is sufficient certainty regarding the exercise of these extension and termination options has been assessed and evaluated accordingly by the management.

The non-discounted potential future lease payments for periods after the exercise date for extension and termination options, not included in the term of the lease, totaled 6,809 thousand euros as of the balance sheet date.

Further details	in thousand euros
Payment obligations for short-term lease contracts	41
Potential cash outflows arising from extension and termination options which were not shown in the statement of financial position	6,809

In the 2019 fiscal year, the total cash outflow arising from lease contracts (including current and low-value lease contracts as well as variable lease payments) with interest portion amounted to 14,655 thousand euros.

In the 2019 fiscal year, income from subletting of legal assets for the use of fixed assets amounted to 137 thousand euros.

The Group as lessor. For the Group IFRS 16 did not give rise to any significant changes compared with IAS 17. Leases will continue to be classified as operating or finance leases.

The anticipated deposits arising from minimum lease payments are listed in the table below according to their maturity:

Anticipated deposits arising from fixed lease payments	in thousand euros
Up to 1 year	1,182
1 year to 2 years	368
2 years to 3 years	310
3 years to 4 years	190
4 years to 5 years	38
More than 5 years	20

In the fiscal year 2019 the Group, as lessor, has no lease contracts arising from finance leases.

Leasing in accordance with IAS 17

As a result of the application of the modified retrospective approach for the first-time application of IFRS 16, in the figures for the prior year leases were still shown in accordance with IAS 17. The disclosures below therefore refer to the prior year's figures in the statement of financial position.

Finance leases

The Group as lessee. In fiscal year 2018, all technical equipment and machinery was financed through leases. These were accounted for at a carrying amount of 3,658 thousand euros. The original acquisition and production costs totaled 4,101 thousand euros.

In addition, there were leases for other plant, operating and business equipment. The carrying amount totaled 558 thousand euros. The original acquisition and production costs for these assets totaled 668 thousand euros. These essentially included technical testing equipment as well as a storage system in the IT environment.

The finance lease contracts in force as of the balance sheet date were based on a weighted average interest rate of 1.7 percent.

In the 2018 fiscal year, 36 thousand euros of the total lease payments amounting to 749 thousand euros were recognized through profit or loss. This corresponded to the interest portion included in the lease payment.

The lease payments due in the future (as at December 31, 2018) are shown in the table below:

in thousand euros	Up to 1 year	1 to 5 years	More than 5 years	Total
Minimum lease payments	868	3,230	11	4,109
Interest portions included in the payments	39	63	0	102
Present value	829	3,167	11	4,007

The Group as lessor. One group entity in the former Mobility segment had concluded contracts in the fiscal year 2018 for leasing traffic safety equipment to a client. These were categorized as finance leases. The average total lease period for these contracts was 30 months.

Of the agreed minimum lease payments in the sum of 298 thousand euros received in the 2018 fiscal year, none were recognized through profit or loss as the short-term portion of the contract was not subject to interest due to the expiry of the contract in the current fiscal year.

As of December 31, 2018, there were no further outstanding minimum lease payments.

All financial income from lease business was recorded through profit or loss.

Operating leases

The Group as lessee. Operating leases in the fiscal year 2018 mainly included lease contracts for commercial space as well as for office and data processing equipment and motor vehicles.

The payments arising from leases were recognized through profit or loss in the sum of 11,052 thousand euros. These did not include any conditional lease payments.

As of the balance sheet date December 31, 2018, obligations arising from operating leases without a termination date still remained, with the following maturities:

in thousand euros	Up to 1 year	1 to 5 years	More than 5 years	Total
Minimum lease payments	10,107	30,494	25,397	65,999

The increase in the minimum lease payments in fiscal year 2018, was essentially attributable to the conclusion of a new long-term lease contract at JENOPTIK Holdings UK Ltd. following the move into a new company building.

The Group as lessor. Within the framework of operating leases the Group leases commercial property. Rental income from the leasing of property, plant and equipment and from investment property in the period under review amounted to 1,935 thousand euros (prior year: 1,905 thousand euros).

At the balance sheet date December 31, 2018, the following minimum lease payments had been contractually agreed with the tenants:

in thousand euros	Up to 1 year	1 to 5 years	More than 5 years	Total
Minimum lease payments	475	1,381	7	1,864

Lease agreements without a termination date were only recorded in the amount of the rental income up to the earliest possible date of termination. The probability of a continuation of the lease or of granting extensions to the lease agreements, was not included in the calculation.

5.5 Financial investments

in thousand euros	31/12/2019	31/12/2018
Shares in associates	5,776	5,191
Shares in unconsolidated, associates	352	411
Investments	2,135	1,158
Loans to non-consolidated, affiliated entities and investments	10	10
Total	**8,273**	**6,770**

Shares in associates

TELSTAR-HOMMEL CORPORATION, Ltd. of Pyeongtaek, Korea, was included in the consolidated financial statements as an associated company using the at-equity method. The company is a long-standing partner for Jenoptik in the Korean market and sources components, amongst other things, from the Light & Production division.

The following table contains summarized financial information of the company:

in thousand euros	2019	2018
Disclosures on the Statement of income		
Revenue	31,268	40,179
Profit/loss arising from continuing operations	1,590	1,611
Other comprehensive income	164	55
Total comprehensive income	**1,754**	**1,666**
Share in %	33.3	33.3
Group share of total comprehensive income	**585**	**555**
Disclosures on the statement of financial position and reconciliation to the at-equity carrying amount		
Non-current assets	18,329	13,460
Current assets	19,461	23,187
Non-current liabilities	17,714	16,790
Current liabilities	2,747	4,281
Equity	**17,330**	**15,575**
Share in %	33.3	33.3
Proportional equity = at-equity carrying amount	**5,776**	**5,191**

The share of the company's profit due to Jenoptik is shown under other operating income.

Investments

The increase in investments resulted from the revaluation outside profit or loss of the minority shareholding in a real estate-owning limited partnership due to an increase in the present value of the property.

The table below reflects the changes in the impairments to financial investments:

in thousand euros	2019	2018
Impairments as of 1/1	**10,523**	**12,668**
Additions	110	656
Utilization	2,444	586
Reversal/derecognition	26	1
Impairments as of 31/12	**8,163**	**10,523**

The bad debt allowances were consumed as a result of two companies in liquidation being deleted from the commercial register.

5.6 Other non-current assets

Other non-current assets include both financial assets as well as non-financial assets.

Other non-current financial assets include the following:

in thousand euros	31/12/2019	31/12/2018
Derivate	312	1,828
Other non-current financial assets	334	363
Total	**646**	**2,191**

Other non-current financial assets were subject to disposal restrictions in the sum of 84 thousand euros (prior year: 82 thousand euros).

The aggregated item of derivative financial instruments is explained in more detail in section 3.8 b) from page 156.

Other non-current, non-financial assets in the sum of 448 thousand euros (prior year: 723 thousand euros) essentially comprised the deferred charges for the syndicated loan in the amount of 153 thousand euros (prior year: 343 thousand euros).

5.7 Deferred taxes

The development of deferred taxes shown as an item in the statement of financial position is shown in section 4.10 from page 164.

5.8 Inventories

in thousand euros	31/12/2019	31/12/2018
Raw materials, consumables and supplies	70,706	71,697
Unfinished goods, work in progress	65,323	85,691
Finished goods and merchandise	17,648	18,214
Total	**153,678**	**175,602**

As of the end of the fiscal year 2019, accumulated impairment losses in the sum of 41,465 thousand euros (prior year: 44,273 thousand euros) were taken into account in the carrying amount. The net sale value of these inventories was 27,728 thousand euros (prior year: 32,479 thousand euros).

In 2019, impairment losses were recognized in the sum of 2,558 thousand euros (prior year: 3,016 thousand euros). Impairment losses were reversed in the sum of 5,430 thousand euros (prior year: 3,136 thousand euros) as the reason for the impairment loss applied in prior years no longer existed.

The consumption of inventories affected expenses in the fiscal year in the sum of 258,469 thousand euros (prior year: 272,495 thousand euros), with the table below showing the distribution:

in thousand euros	31/12/2019	31/12/2018
Cost of Sales	255,411	270,796
Research and development expenses	2,490	1,122
Selling expenses	329	296
Administrative expenses	239	280
Total	**258,469**	**272,495**

At the reporting dates there were no restrictions on the disposal of inventories.

5.9 Current trade receivables

Trade Receivables

in thousand euros	31/12/2019	31/12/2018
Trade receivables from third parties	129,094	126,219
Receivables from due requested advance payments	7,583	4,527
Trade receivables from unconsolidated associates	112	263
Trade receivables from investment companies	92	190
Total	**136,881**	**131,198**

The fair values of trade receivables corresponded to their carrying amounts as of the reporting date. Trade receivables are non-interest-bearing and generally have a due date of 30 to 60 days.

The table below shows the composition of the trade receivables:

in thousand euros	31/12/2019	31/12/2018
Gross amount of trade receivables due from third parties	137,730	132,977
Receivables from due requested advance payments	7,583	4,527
Gross amount of trade receivables due from unconsolidated associates	112	1,643
Gross amount of trade receivables from investment companies	161	259
Total gross amount of trade receivables	**145,585**	**139,406**
Cumulative impairments	−8,704	−8,208
Carrying amount of trade receivables	**136,881**	**131,198**

Default risks were determined through the assessment of clients' creditworthiness by means of a scorecard, taking into account specific regional and individual company characteristics. In addition to internal company data, this includes credit assessments through external reporting agencies. Based on the rating of customers' creditworthiness, lines of credit are granted to ensure the active management of business transactions. This means for example, amongst other things, that certain payment methods can be agreed with customers depending on their creditworthiness. In addition, outstanding claims against customers are regularly monitored and measures taken to reduce overdue receivables.

The default risk is taken into account through individual impairments and flat-rate individual impairments. The following table shows the changes in impairments to outstanding trade receivables:

in thousand euros	2019	2018
Impairments at 1/1	**8,208**	**8,879**
Changes in the group of entities consolidated	0	809
Additions	4,205	3,640
Consumption	2,004	1,852
Reversal/derecognition	1,740	3,301
Foreign currency exchange effects	35	32
Impairments at 31/12	**8,704**	**8,208**

The impairment requirement is analyzed at each closing date in order to determine the anticipated credit losses. If there are any objective indications of impairment losses, an individual impairment is applied. In addition, flat-rate individual impairments for receivables grouped into categories are recognized in days, on the basis of the overdue period. Finally, a flat-rate impairment is made to take into account the existing default risk for receivables not yet due and for which no impairment has been recognized.

The amount of the impairment to trade receivables due from third parties totaled 8,635 thousand euros (prior year: 6,759 thousand euros). The remaining impairment requirement relates mainly to receivables due from an investment in liquidation.

Overdue but unimpaired receivables were owed primarily by public sector contractors. As of December 31, 2019 there were no securities for unimpaired receivables in the form of bank guarantees (prior year: 0 thousand euros).

The table below shows the default risk position for trade receivables due from third parties with the help of an impairment matrix:

In the fiscal year 2019 the case-related individual impairments to receivables totaled 2,028 thousand euros (prior year: 1,944 thousand euros). These primarily related to receivables with an overdue date of more than 360 days.

Factoring

As a result of extended payment deadlines for customers, inputs for customer-specific projects and changes in payment terms, Jenoptik will utilize factoring from the 2019 fiscal year. Within the context of a genuine and confidential factoring program, existing receivables are sold to a factoring company (hereafter referred to as the "Factor") in return for a consideration – together with the transfer of the default or del credere risk. Payments from the original customer to the Group are classified as "other current financial liabilities" and then forwarded to the factor.

In the statement of financial position, sold trade receivables are derecognized on transfer of the economic ownership to the factor in accordance with IFRS 9 and, until receipt of payment, are recognized as receivables due from the Factor under the heading "Other current financial assets". The asset is finally derecognized on payment by the Factor.

Factoring charges are shown in the consolidated income statement, under administrative expenses.

in thousand euros	Expected credit loss rate	Expected total gross carrying amount at default	Expected credit loss
not due	0.48%	93,397	448
	0.35%	(87,352)	(305)
overdue < 30 days	0.69%	14,461	99
	0.35%	(23,011)	(81)
overdue 30 – 60 days	14.63%	8,728	1,277
	6.25%	(8,982)	(562)
overdue 61 – 120 days	20.66%	8,115	1,677
	13.57%	(4,106)	(557)
overdue 121 – 240 days	26.82%	4,211	1,130
	27.86%	(3,221)	(897)
overdue 241 – 360 days	28.60%	3,613	1,033
	40.75%	(1,419)	(578)
overdue > 360 days	57.09%	5,204	2,971
	77.30%	(4,887)	(3,778)
Total	**6.27%**	**137,730**	**8,635**
	5.08%	**(132,977)**	**(6,759)**

In the cash flow statement, the Factor's payments to the Group are shown under cash flows from operating activities. The payment received from the original customer and the subsequent payment as a result of the transfer to the factor, are recognized under cash flows from financing activities.

Up to December 31, 2019, receivables of 20,140 thousand euros were sold. After allowing for a surety retention by the Factor of 5 percent, payment receipts totaled 19,133 thousand euros. These are shown under other current financial assets.

5.10 Contract assets

The balance sheet item includes conditional claims of the Group against customers for receipt of a consideration in return, in exchange for goods or services that have already been transferred. These are grouped as follows:

in thousand euros	31/12/2019	31/12/2018
Contract assets	**54,875**	23,385
Realization within one year	54,875	23,205
Realization within more than one year	0	180

The default risk of contract assets is basically taken into account through corresponding impairments. As of December 31, 2019, no indicators for an individual impairment were identified. The general default risk was recognized by an impairment loss equal to the amount of the anticipated loss of 0.15 percent of the balance of contract assets. The impairment loss was in the sum of 82 thousand euros.

5.11 Other current financial assets

in thousand euros	31/12/2019	31/12/2018
Receivables due from Mitarbeitertreuhand e.V.	1,875	1,880
Derivatives	1,530	171
Receivable arising from surety retention for factoring	840	0
Other current financial assets	1,204	3,217
Total	**5,449**	**5,268**

As in the prior year, in 2019 there were no restrictions on disposals of other current financial assets.

Other current financial assets in the prior year included, in particular, a receivable due from a credit institution arising from the settlement of a foreign exchange forward transaction to hedge a foreign currency loan in the inter-company area.

Default risks are taken into account through impairments. The composition of the carrying amount of other current financial assets is as follows:

in thousand euros	31/12/2019	31/12/2018
Gross amount of other financial assets	6,737	6,557
Accumulated impairment loss	−1,288	−1,289
Carrying amount of other financial assets as at 31/12	**5,449**	**5,268**

5.12 Other current non-financial assets

in thousand euros	31/12/2019	31/12/2018
Accruals	4,792	4,254
Receivables from other taxes	1,951	2,317
Receivables from income taxes	1,484	2,593
Receivables from grants	104	226
Other current non-financial assets	226	523
Total	**8,557**	**9,912**

As in the prior year, there were no restrictions on disposals of other current non-financial assets.

5.13 Current financial investments

in thousand euros	31/12/2019	31/12/2018
Fair value	69,661	59,476

The current financial investments primarily entail cash deposits of 69,661 thousand euros.

For financial investments valued at amortized costs, it is assumed that the fair values correspond to the carrying amounts, taking into consideration the impairment losses. Applying IFRS 9, a risk provision in the sum of 239 thousand euros (prior year: 493 thousand euros) was recognized for the first time as an impairment to cover the debtor's default risk.

For further details on the financial instruments we refer to the Notes, section 8.2 from page 194.

5.14 Cash and cash equivalents

in thousand euros	31/12/2019	31/12/2018
Checks, cash on hand, bank balances and demand deposits or deposits with a maturity of < 3 months	99,025	89,255

For further information on the change of cash and cash equivalents we refer to the section entitled "Details on the Cash Flow Statement" from page 190. In addition, in application of IFRS 9, an impairment loss in the sum of 123 thousand euros (prior year: 500 thousand euros) was recorded as a provision for a default risk in fiscal year 2019.

5.15 Equity

The development of the equity of Jenoptik is shown in the consolidated statement of changes in equity.

Share capital

Share capital amounts to 148,819 thousand euros and is divided into 57,238,115 no-par value registered shares.

At the beginning of July 2011 Thüringer Industriebeteiligungs GmbH & Co. KG, Erfurt, Thüringer Industriebeteiligungsgeschäftsführungs GmbH, Erfurt, bm-t beteiligungsmanagement thüringen GmbH, Erfurt, Stiftung für Unternehmensbeteiligungen und -förderungen in der gewerblichen Wirtschaft Thüringens (StUWT), Erfurt, Thüringer Aufbaubank Erfurt and the Free State of Thüringia, Erfurt, disclosed that they had exceeded the thresholds of 3, 5, and 10 percent of the voting rights in JENOPTIK AG on June 30, 2011 and that they had held 11.00 percent of the voting rights (6,296,193 voting rights) on that day. Thüringer Industriebeteiligungs GmbH & Co. KG acquired the voting rights from ECE Industriebeteiligungen GmbH.

On March 9, 2020, DWS Investment GmbH, Frankfurt, Germany, notified us that it had fallen below the threshold of 10 percent of the voting rights in JENOPTIK AG on March 4, 2020. Accordingly, DWS Investment GmbH directly held 9.98 percent of the voting rights (5,713,554 voting rights) in JENOPTIK AG on that day, indirectly according to § 34 WpHG.

On March 5, 2020, Allianz SE informed us, with a voluntary group notification due to crossing of threshold, that it had exceeded the threshold of 5 percent of the voting rights in JENOPTIK AG on March 2, 2020. Accordingly, on that day Allianz SE indirectly held 5.40 percent of the voting rights (3,092,867 voting rights) as attributed to it in accordance with § 34 (1) (1) of the WpHG. All holdings included in this notification are managed by Allianz Global Investors GmbH. The shareholdings of Allianz Global Investors GmbH, which are subject to notification, are entirely derived from the following voting rights notification of January 16, 2020.

On January 16, 2020, Allianz Global Investors GmbH, Frankfurt am Main, Germany, notified us it had exceeded the threshold of 5 percent of the voting rights in JENOPTIK AG on January 15, 2020. Accordingly, on that day Allianz Global Investors GmbH held 5.19 percent of the voting rights (2,971,856 voting rights) as attributed to it in accordance with § 34 (1) (6) of the WpHG. Allianz Asset Management GmbH and Allianz SE also hold an indirect stake via Allianz Global Investors GmbH.

SMALLCAP World Fund, Inc., Baltimore, Maryland, USA, notified us on March 6, 2020 that it has fallen below the threshold of 3 percent of the voting rights in JENOPTIK AG, Jena, Germany, on March 3, 2020. Accordingly, on that day SMALLCAP World Fund, Inc. held 2.89 percent of the voting rights (1,654,146 voting rights) which were attributable to it directly in accordance with § 33 of the WpHG.

Capital Group Companies, Inc., Los Angeles, California, USA, notified us on February 28, 2020 that it had fallen below the threshold of 5 percent of the voting rights in JENOPTIK AG, Jena, Germany, on February 26, 2020. Accordingly, on that day Capital Group Companies, Inc. held 4.45 percent of the voting rights (2,546,852 voting rights) which were attributable to it indirectly in accordance with § 34 of the WpHG.

The Ministry of Finance, Oslo, Norway, notified us on November 20, 2019 on behalf of the Norwegian state that it had exceeded the threshold of 3 percent of the voting rights in JENOPTIK AG on November 19, 2019. Accordingly, the Ministry of Finance held 3.59 percent of the voting rights (2,053,512 voting rights) on that day. Of this, 3.08 percent of the voting rights (1,761,758) were held by it indirectly in accordance with § 34 WpHG, 0.45 percent of the voting rights (258,758 voting rights) as instruments via stock borrowing in accordance with § 38 (1) (1) WpHG, as well as 0.06 percent (32,996 voting rights) via a contract for difference in accordance with § 38 (1) (2) WpHG. The voting rights are held directly by the Norges Bank, Oslo, Norway.

BlackRock, Inc., Wilmington, USA, notified us on June 13, 2018 that it had exceeded the threshold of 3 percent of the voting rights in JENOPTIK AG, Jena, Germany, on June 8, 2018. Accordingly, BlackRock, Inc., held 3.17 percent of the voting rights (1,812,914 voting rights) on that day. 3.02 percent of the voting rights (1,721,197 voting rights) were attributable to BlackRock, Inc. indirectly in accordance with § 34 of the WpHG. 0.02 percent of the voting rights (2,052 voting rights) were attributable to instruments in accordance with 38 (1) (1) of the WpHG and 0.15 percent of the voting rights (83,665 voting rights) to instruments in accordance with § 38 (1) (2) of the WpHG (new version).

Templeton Investment Counsel, LLC, Wilmington, Delaware, USA, issued us with multiple notifications on voting rights in the fiscal year 2019, the last on October 23, 2019 that it had fallen below the threshold of 3 percent of the voting rights in JENOPTIK AG, Jena on October 22, 2019. Accordingly, on that day Templeton Investment Counsel, LLC held 2.97 percent of the voting rights (1,700,772 voting rights) as attributable to it indirectly in accordance with § 34 of the WpHG.

AIM International Mutual Funds (Invesco International Mutual Funds), Wilmington, Delaware, USA, issued us with multiple notifications on voting rights in the fiscal year 2019, the last on January 13, 2020 that it had fallen below the threshold of 3 percent of the voting rights in JENOPTIK AG on January 7, 2020. Accordingly, on that day AIM International Mutual Funds (Invesco International Mutual Funds), Inc. held 2.79 percent of the voting rights (1,595,202 voting rights) which were attributable to it directly in accordance with § 33 of the WpHG. Invesco Ltd., Bermuda indirectly holds 2.80 percent of the voting rights (1,602,383 voting rights) via AIM International Mutual Funds in accordance with § 34 WpHG. Invesco Ltd. merged with the Oppenheimer International Small-Mid Company Fund in 2019 which notified us on January 25, 2018 that it had exceeded the 3 percent threshold.

The voting right notifications of recent years and the notifications of shareholders that had closed out their investments, are also published on our Internet site www.jenoptik.com under Investors / Share / Voting rights announcements.

Authorized capital

An "Authorized Capital 2019" was created with the resolution passed by the Annual General Meeting on June 12, 2019 as follows: The Executive Board is authorized through June 11, 2024, with the consent of the Supervisory Board, to increase the nominal capital of the company by up to 44,000 thousand euros through one or multiple issues of new, no-par value shares against cash and / or contribution in kind ("Authorized Capital 2019"). The new shares can be taken up by one or more banks with the obligation to offer these to shareholders (indirect subscription rights). With the consent of the Supervisory Board, the Executive Board is authorized to preclude subscription rights for shareholders in certain cases: a) fractional amounts; b) capital increases against contributions in-kind in particular also within the framework of business combinations or the acquisition of companies, parts of companies or investments in companies (including increasing existing investments) or other contributable assets in conjunction with such an intended acquisition as well as claims against the entity; c) capital increases against cash contributions, under the condition that the percentage of any new shares in the share capital does not in total exceed 10 percent of the share capital at the time the authorized shares are registered or in total 10 percent of the share capital at the time the new shares are issued, taking into consideration resolutions of the AGM or the use of other authorizations to preclude subscription rights in a direct or corresponding application of § 186 (3) (4) of the German Stock Corporation Act since the effective date of this authorization and the issuance price of the new shares is not to be significantly lower than the stock market price; d) issuances of new shares to employees of the entity and to associates in which the entity holds a majority interest.

All aforementioned authorizations to exclude subscription rights are limited to a total of 10 percent of the share capital available at the time this authorization became effective – or, if this value is lower, to 10 percent of the share capital at the time this authorization is exercised. This limit of 10 percent includes shares that (i) are sold for the purpose of servicing options and/or convertibles that were or could still be issued during the period of validity of authorized capital to the exclusion of subscription rights or (ii) are sold by the entity as treasury shares during the period of validity of authorized capital to the exclusion of subscription rights.

Decisions on the details of the issuance of new shares, in particular their conditions and the content of rights of the new shares, are taken by the Executive Board, with the consent of the Supervisory Board. The Authorized Capital 2019 has not yet been utilized.

Conditional capital

The shareholder resolution passed by the Annual General Meeting (AGM) held on June 7, 2017, to contingently raise the share capital of the entity by up to 28,600 thousand euros through the issue of up to 11,000,000 new no-par value shares ("Conditional Capital 2017"). The conditional capital increase will only be executed to the extent that

- the creditors/owners of option and/or conversion rights arising from option and/or convertible bonds issued up to June 6, 2022 by the company or a domestic or foreign incorporated company in which the company has a direct or indirect majority stake, pursuant to the authorization resolution of the Annual General Meeting dated June 7, 2017, exercise their option or conversion rights and/or
- the creditors of the issued convertible bonds obliged to exercise their conversion rights which were issued by the company or a domestic or foreign incorporated company in which the company has a direct or indirect majority stake, on the basis of the resolution of the Annual General Meeting on June 7, 2017, fulfill their conversion obligation by June 6, 2022 and/or tenders for shares are issued,

and neither treasury shares are used nor payment is made in cash. The new shares participate in profits from the start of the fiscal year for which, on the date of their issue, no resolution has yet been passed by the Annual General Meeting in respect of the appropriation of profits.

The Executive Board is authorized, with the consent of the Supervisory Board, to specify additional details on the issuance of the conditional capital increase. If the authorization to issue option and/or convertible bonds to the exclusion of subscription rights is exercised, this authorization is limited in the sense that the pro rata amount of nominal capital corresponding to those shares that must be issued after exercising conversion and/or option rights/obligations may not account for more than 20 percent of existing nominal capital existing at the time this authorization takes effect or – if the figure is lower – at the time use is made of the authorization. This 20 percent limit also applies to the sale of treasury shares that are excluded from subscription rights during the period of this authorization, and to shares issued during the period of this authorization under authorized capital and for which subscription rights are excluded.

The Executive Board is authorized to set out the further details relating to the increase in conditional capital (e. g. terms of the bonds, interest rate, form of interest, specific period, denomination, issue price, option/conversion price, option/conversion period) in the bond terms and conditions.

Reserves

Capital reserve. The capital reserve contains the adjustments recognized within the framework of the first-time adoption of IFRS as well as the differences resulting from the capital consolidation being offset against reserves up to December 31, 2002.

Other reserves. A component of other reserves is retained earnings realized in the past by companies included in the consolidated financial statements less dividends paid.

Other reserves also contain value adjustments to be accounted for outside of profit or loss for

- equity instruments that are recognized outside profit or loss at fair value in other comprehensive income,
- cash flow hedges,
- accumulated foreign currency exchange differences and
- actuarial gains/losses arising from the valuation of pensions and similar obligations.

In the 2019 fiscal year, the changes in value for equity instruments recognized outside profit or loss totaled 977 thousand euros (prior year: minus 22 thousand euros). The applicable deferred taxes total minus 292 thousand euros (prior year: 6 thousand euros). The effective portions of the change in the value of derivatives to be taken into account outside of profit or loss within the framework of the cash flow hedges are recognized at minus 169 thousand euros (prior year minus 4,760 thousand euros) less applicable deferred taxes in the sum of 72 thousand euros (prior year: 1,413 thousand euros). Accumulated foreign currency exchange differences encompass the effects arising from foreign currency conversions of the separate financial statements of subsidiaries whose functional currency deviates from that of the Group, as well as effects arising from foreign currency conversions of assets and liabilities held in foreign currencies in the total sum of 8,353 thousand euros (prior year: 692 thousand euros). The applicable deferred taxes increased to minus 1,193 thousand euros (prior year: minus 258 thousand euros).

Actuarial gains arising from the valuation of pensions are recognized in the sum of 6,704 thousand euros (prior year: 599 thousand euros) was recognized for these available tax losses carried forward. The resultant deferred taxes totaled minus 1,466 thousand euros (prior year: minus 88 thousand euros).

In the 2019 fiscal year the change in deferred taxes recognized outside of profit or loss led to a reduction in the reserves in the total sum of 2,879 thousand euros (prior year: increase by 1,073 thousand euros). The amount of deferred tax assets in the equity totaled 2,982 thousand euros (prior year: 5,861 thousand euros).

Treasury shares

Based on the resolution passed by the Annual General Meeting on June 5, 2018, the Executive Board is authorized up to June 4, 2023 to purchase treasury no-par value shares not exceeding a proportion of ten percent of the nominal capital existing at the time the resolution is adopted or – if this amount is lower – of the nominal capital existing at the time the resolution is used for purposes other than trading in treasury shares. The purchased treasury shares together with treasury shares that the entity had already purchased and still holds (including the attributable shares in accordance with §§ 71a ff. of the German Stock Corporation Act) may not exceed 10 percent of the share capital of the entity. The authorization may be exercised in whole or in part, on a one-off or repeat basis and for one or more authorized purposes. The purchase and sale of treasury shares may be exercised by the entity or, for specific authorized purposes, also by dependent companies, by companies in which the entity holds a majority interest, or by third parties for its or their account. At the decision of the Executive Board, acquisition is by purchase on the stock exchange, subject to compliance with the principle of equal treatment (§ 53a of the Stock Corporation Act), or by means of a public offering or a public invitation to the shareholders to submit an offer for sale.

For the purpose of protecting shareholders against a dilution of their shares, the proposed resolution expressly provides for a restriction of the use of acquired treasury shares in such a way that the total of the acquired shares together with shares issued or sold by the Company during the term of this authorization under another authorization to the exclusion of shareholders' subscription rights or which enable or oblige the subscription of shares is limited to a notional interest in the nominal capital of no more than a total of 20 percent of the nominal capital at the time the authorization becomes effective or – if the following value is lower – at the time this authorization is exercised.

Further details regarding the buyback of treasury shares are described in agenda item 9 in the invitation to the 2018 Annual General Meeting, accessible to the general pubic on our website at www.jenoptik.com under the heading Investors / Annual General Meeting. As of December 31, 2019, the company had no treasury shares.

5.16 Non-controlling interests

This balance sheet item contains reconciliation items for shares of non-controlling shareholders in the capital to be consolidated, arising from the capital consolidation, as well as the profits and losses allocated to them.

5.17 Provisions for pensions and similar obligations

Provisions for pension obligations are set aside on the basis of pension plans for retirement, disability and survivor benefit commitments and exist in Germany and Switzerland. The benefits provided by the Group vary according to the legal, tax, and economic circumstances of the respective country and, as a rule, depend on the duration of employment and on the remuneration of the employee on commencement of retirement. The existing pension plans in Germany are closed, with the exception of the reinsured group provident fund. Within the Group, the occupational pension provision is provided both on the basis of defined contribution as well as defined benefit plans. In the case of defined contribution plans, the company pays contributions in accordance with statutory or contractual provisions, or voluntarily makes contributions to public or private pension insurers. Upon payment of the contributions, the company has no further benefit obligations.

Defined benefit plans

Most retirement schemes within the Group are based on defined benefit plans, wherein a distinction is made between pension schemes financed through provisions or externally financed pension schemes.

The company is exposed to various risks in conjunction with defined benefit plans. Along with general actuarial risks such as longevity risks and the risk of changes in interest rates, the company is exposed to foreign currency exchange as well as investment risks.

Pension plans in the form of a reinsured group provident fund are treated as defined benefit plans due to the ongoing low interest rate phase and the associated claim risk arising from the subsidiary liability.

In accordance with IAS 19, pension provisions for the benefit commitments are determined in accordance with the projected unit credit method. In this context, the future obligations are valued on the basis of benefit claims acquired pro rata as of the balance sheet date, taking into account trend assumptions for the valuation parameters which affect the level of benefits. All benefit schemes require actuarial calculations.

Jenoptik determines the net interest expense (net interest income) by multiplying the net liability (net asset) at the commencement of the period by the underlying interest rate on commencement of the period, used for discounting the benefit-oriented gross pension obligation.

The actuarial effects cover, on the one side, the actuarial profits and losses arising from the valuation of the benefit-oriented gross pension obligation and on the other, the difference between the actual yield realized on plan assets and the typical yield assumed on commencement of the period.

The benefit obligations of the Group included 1,162 entitled persons, including 448 active employees, 150 former employees as well as 564 retirees and survivors.

In compliance with IAS 19, the assets held by the Mitarbeitertreuhand e.V., Jena, are offset as plan assets against pension obligations. The pension obligations of JENOPTIK Industrial Metrology Switzerland SA, JENOPTIK Advanced Systems GmbH and the commitments via the group provident fund are also covered by means of plan assets and are accordingly shown as a net amount. These plan assets are primarily managed by AXA Lebensversicherung AG and AXA Winterthur, Switzerland.

The change in the defined benefit obligations (DBO) is shown as follows:

in thousand euros	2019	2018
DBO on 1/1	**73,644**	**83,122**
Foreign currency exchange effects	256	443
Current service cost	524	582
Contributions to the pension plans	612	133
Thereof by employees	612	133
Interest expenses	1,177	927
Past service expenses	135	0
Actuarial gains (-) and losses (+)	5,949	−5,076
Empirical gains and losses	−251	−4,833
Changes from demographic assumptions	−1,080	728
Changes from financial assumptions	7,280	−971
Other changes	0	−3,856
Pension payments	−2,332	−2,631
DBO at 31/12	**79,964**	**73,644**

Actuarial losses resulting from the change in financial assumptions arose in particular as a result of the significantly lower discount rate in 2019.

The empirical gains in the prior year were the result of a change in respect of the inclusion of retirees in Switzerland. These were no longer included in the determination of the defined benefit plans, provided that there were no further claims against the company after entering retirement. Other changes in the prior year related to a reduction in the obligations of the reinsured provident fund; this reduction was also offset by a reduction in plan assets.

The effects of the expense recognized in the statement of income are summarized as follows:

in thousand euros	2019	2018
Current service costs	659	582
Net interest costs	584	538
Total expenses	**1,243**	**1,120**

The current and past service expenses are included in the personnel expenses of the functional areas. The interest charged on the obligation as well as the interest received on plan assets are recorded in the interest result.

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The changes in the plan assets are shown as follows:

in thousand euros	2019	2018
Plan assets as at 1/1	**36,304**	**46,055**
Foreign currency exchange effects	171	296
Interest income from plan assets	592	390
Return on plan assets less interest income	12,572	−4,572
Contribution	740	267
Employers	129	133
Employees	612	133
Administrative expenses	−16	−16
Other changes	0	−3,826
Pension payments	−2,043	−2,290
Plan assets at 31/12	**48,320**	**36,304**

The yield from the plan assets in the fiscal year 2019 was determined in accordance with the discounting factor for calculation of the DBO for the prior year, at 592 thousand euros (prior year: 390 thousand euros). The actual yield from the plan assets was 13,164 thousand euros (prior year: minus 4,182 thousand euros). This resulted in particular from the valuation of a share in a property-owning limited partnership on the basis of an expected profit from the sale of a property.

The plan assets in the prior year included reducing effects arising from the exclusion of the pensioners in Switzerland. The adjustment to the risk assessment arising from the reinsured provident fund, also carried out in the prior year, is shown as other change.

The net obligation as of the balance sheet date is as follows:

in thousand euros	2019	2018
Present value of the obligation covered by the fund	74,321	68,458
Plan assets	−48,320	−36,304
Net liability of the obligation covered by plan assets	26,001	32,154
Net liability of the obligation not covered by plan assets	5,643	5,186
Total	**31,643**	**37,339**

The portfolio structure of the plan assets is as follows:

in thousand euros	2019	2018
Loans rendered (loans and receivables)	2,330	2,930
Insurance contracts	20,098	16,981
Stocks and other securities	9,305	7,475
Investments	15,126	6,226
Cash equivalents	3,337	4,572
Other assets and liabilities	−1,875	−1,880
Total	**48,320**	**36,304**

Insurance contracts in the sum of 13,829 thousand euros relate to pension insurance policies with AXA Lebensversicherung AG. The insurance company's investments were mainly in equities and investment assets, debenture loans and fixed-interest bearing securities. There are also insurance contracts in the sum of 5,256 thousand euros as a result of the pension plan of AXA Fondation LPP (Switzerland). Its assets are mainly invested in debt and equity instruments as well as real estate.

There is an active market for the stocks and other securities held in plan assets.

The increase in the investments is due to the fair value valuation of a share in a property-owning limited partnership.

Other liabilities relate to repatriation obligations due to pension payments made in 2019 from the plan assets to JENOPTIK AG.

The actuarial assumptions are shown in the table below. Where applicable, the above-mentioned assumptions allow for anticipated inflation.

in percent	2019	2018
Discount rate		
Germany	0.90	1.71
Switzerland	0.25	0.75
Future increases in salary		
Switzerland	1.50	1.75
Future increases in pension		
Germany	1.56	1.67

Actuarial gains or losses are the result of changes in pension beneficiaries and deviations from actual trends (e. g. increases in income or pensions) vis-á-vis calculation assumptions. In accordance with the regulations stated in IAS 19, this amount is offset against other comprehensive income in equity.

A change in the key actuarial assumptions as of the balance sheet date would influence the DBO as follows:

	Change in the DBO	
in thousand euros	Increase	Reduction
Discount rate – change by 0.5 percentage points	−5,432 (−8,552)	6,138 (9,269)
Expected salary increases – change by 1.0 percentage points	294 (226)	−273 (−229)
Expected pension increases – change by 1.0 percentage points	8,646 (8,065)	−6,328 (−5,818)
Mortality rates – change by 1 year	4,191 (3,556)	−4,166 (−3,572)

The figures in brackets relate to the prior year.

The sensitivity analysis shows the change in a DBO in the event of a change in an assumption. Since the changes do not have a straight-line effect on the calculation of DBO due to actuarial effects, the cumulative change in the DBO resulting from changes in a number of assumptions cannot be directly determined.

As of December 31, 2019, the weighted average remaining service period was 8 years and the weighted average remaining maturity of the obligation was 15 years.

The financing of the pension plans of JENOPTIK Advanced Systems GmbH, Wedel and individual beneficiaries of JENOPTIK SSC GmbH, Jena, is performed by using a CTA model. The pension plan of JENOPTIK Industrial Metrology Switzerland SA provides for risk participation by the beneficiaries on transfer to retirement. In this context, the pension plan is financed by contributions from both the employer and the employee.

The anticipated pension payments arising from the pension plans as of December 31, 2019 for the following fiscal year are in the sum of 2,882 thousand euros (prior year: 2,514 thousand euros) and for the subsequent four fiscal years a total of 12,110 thousand euros (prior year: 12,191 thousand euros).

Defined contribution plans

Within the framework of the defined contribution plans, expenses for 2019 totaled 21,781 thousand euros (prior year: 19,512 thousand euros), this figure including contributions to statutory pension insurance providers in the sum of 16,153 thousand euros (prior year: 14,986 thousand euros).

5.18 Tax provisions

in thousand euros	31/12/2019	31/12/2018
Provisions for income taxes	6,250	8,764
Provisions for other taxes	193	236
Total	**6,443**	**9,000**

Details on income tax expenses are provided in Note 4.10 from page 164.

5.19 Other provisions

The development of other provisions is as follows:

in thousand euros	Balance at 1/1/2019	Adjustment as a result of IFRS 16	Foreign currency exchange effects	Additions	Discounting	Utilization	Reversals	Balance at 31/12/2019
Personnel	33,001	0	208	25,538	426	−23,312	−2,361	33,499
Guarantee and warranty obligations	29,334	0	11	12,417	0	−9,158	−8,295	24,310
Impending losses	1,004	0	15	890	0	−40	−273	1,596
Price adjustments	1,398	0	0	468	0	0	−33	1,834
Restructuring	0	0	0	0	0	0	0	0
Others	10,248	−117	73	1,990	62	−2,768	−975	8,513
Total	**74,985**	**−117**	**307**	**41,303**	**488**	**−35,278**	**−11,937**	**69,751**

Key items in the personnel provisions relate to performance premiums, profit sharing, and similar commitments, as well as to the share-based payments for the Executive Board and some senior management personnel. Personnel provisions also include anniversary of service payments in the sum of 4,159 thousand euros (prior year: 2,826 thousand euros) and partial retirement obligations in the sum of 2,171 thousand euros (prior year: 2,372 thousand euros). Actuarial expert opinions were obtained for the partial retirement obligations with the assumption of income increasing at 2.69 percent (prior year: 2.8 percent). The amount of the liability for top-up payments already earned as of December 31, 2019 was 815 thousand euros (prior year: 828 thousand euros).

The provision for guarantee and warranty obligations included expenses for individual guaranty cases as well as for general guarantees. The calculation of the provision for general guarantee risks was based on empirical values which were determined as a guarantee cost ratio of revenue on a company or product group-specific basis and applied to revenues which are liable to guarantees. The amounts that were reversed in the 2019 fiscal year chiefly comprise guarantee and warranty provisions for specific individual cases for which the underlying obligations no longer existed as a result of a decision by a court of arbitration.

The provision for impending losses essentially includes the liability overhang for individual customer projects and was set aside in the amount of the difference between anticipated unavoidable costs and economic benefit. The unavoidable costs take into account all costs directly related to the performance of the contract but not any general administrative and selling expenses.

Provisions for price adjustments existed for customer contracts that were subject to the risk of subsequent changes in selling prices. Additions and reversals were allocated to revenue.

Other provisions included, amongst others, provisions for claims for damages. Other provisions also included numerous identifiable specific risks as well as contingent liabilities, accounted for in the amount of the best possible estimate of the settlement sum. Additions in the 2019 fiscal year included, among other things, provisions for bonus as well as expenses arising from dismantling obligations.

The anticipated claims by maturity are shown below:

in thousand euros	Up to 1 year	1 to 5 years	More than 5 years	2019
Personnel	25,769	4,592	3,139	33,499
Guarantee and warranty obligations	19,705	4,605	0	24,310
Impending losses	1,524	72	0	1,596
Price adjustments	514	1,320	0	1,834
Others	4,376	2,767	1,371	8,513
Total	**51,887**	**13,355**	**4,509**	**69,751**

5.20 Share-based payments

As of December 31, 2019, the Jenoptik Group had share-based remuneration instruments in the form of virtual shares for both Executive Board members and some senior management personnel. In this context, a distinction must be made between Long Term Incentives of the Executive Board remuneration system that was applicable for Hans-Dieter Schumacher up to the end of 2017 and the remuneration system for some senior management personnel ("LTI") as well as the Performance Shares in accordance with the new Executive Board remuneration system.

The effects of the share-based remuneration with settlement in cash on the statement of income as well as the statement of financial position in the 2019 fiscal year were as follows:

	Income statement		Statement of financial position	
in thousand euros	2019	2018	2019	2018
Virtual shares for the current year	−429	−398	429	398
Virtual shares for prior years	78	−1,184	3,171	3,492
Total	**−352**	**−1,582**	**3,600**	**3,890**

The valuation basis used for determining the fair value of the LTI is the daily and volume-weighted, average share price of JENOPTIK AG over the last twelve months. The fair value of the performance shares is determined on the basis of an arbitrage-free valuation according to the Black / Scholes option pricing model.

Payment for the virtual shares granted to the Executive Board is generally made at the end of their four-year, contractually-defined term. However, this applies to the performance shares only if multi-annual targets have been achieved on completion of the term. In the event of the resignation of a member of the Executive Board before the end of the term, the LTI is paid out early in cash. Also in the event of a resignation, performance shares will only be valued, allocated and then paid out at the end of the respective performance period, depending on whether the targets have been achieved. In the first quarter 2019 performance shares in a total of 21,986 units were allocated provisionally to the members of the Executive Board. The virtual shares allocated for the members of the Executive Board for fiscal years 2015 to 2019 were valued at the fair value as of the 2019 balance sheet date and recognized in provisions.

The development of the Executive Board's virtual shares is shown in the following tables:

in units	Number for 2019	Number for 2018
Dr. Stefan Traeger (Chairman of the Executive Board)		
1/1	25,486	11,284
Granted for period	12,512	14,202
31/12	37,998	25,486
Hans-Dieter Schumacher		
1/1	66,166	55,038
Granted for period	9,384	10,652
Granted for protection of existing shares in case of dividend payment	709	476
31/12	76,259	66,166

Of the total expenses arising from share-based payments, recognized in fiscal year 2019, for the current fiscal year and prior years, 241 thousand euros (prior year: 110 thousand euros) were apportioned to Dr. Stefan Traeger and 15 thousand euros (prior year: 567 thousand euros) to Hans-Dieter Schumacher.

For all further disclosures, we refer to the Remuneration Report in the Corporate Governance chapter which forms part of the Combined Management Report.

Virtual shares are also granted to some members of the top management. The number of virtual shares is determined on the basis of target achievement as well as on the volume-weighted average closing price of the Jenoptik share in the fourth quarter of the calendar year before the last. Payment is made after the fourth subsequent year after allocation, based on the volume-weighted average closing price of the Jenoptik share in the full fourth subsequent year. In the event of an retirement before the end of the term, the virtual shares may be forfeit, depending on the reasons for the departure.

The development of these virtual shares is shown in the following table:

in units	Number for 2019	Number for 2018
Members of the Executive Management Committee		
1/1	75,834	83,073
Granted for the period	11,174	12,073
Granted for adjusted achievement of prior year objectivs	1,690	−1,072
Paid out	−28,351	−18,240
31/12	60,347	75,834

5.21 Financial debt

The maturity periods for the financial debt are shown in the table below:

in thousand euros	Up to 1 year	1 to 5 years	Total
Liabilities to banks	26,285 (9,294)	72,182 (108,227)	98,467 (117,521)
Liabilities arising from leases	10,712 (829)	50,380 (3,178)	61,091 (4,007)
Total	**36,996** **(10,123)**	**122,562** **(111,405)**	**159,558** **(121,528)**

The figures in brackets relate to the prior year.

Liabilities to banks with a maturity of up to one year consist mainly of a tranche of the debenture loans in the sum of 21,500 thousand euros, due in 2020.

Liabilities to banks with a term of one to five years consist mainly of further tranches of the debenture loans with a nominal value of 69,000 thousand euros.

As at the balance sheet date, the syndicated loan was utilized with guarantees in the sum of 13,874 thousand euros. Taking into account the additional lines of financing not fully utilized, 222,204 thousand euros of the guaranteed, existing lines of credit were unused as of the balance sheet date.

Liabilities arising from leases increased compared with the prior year as a result of the initial application of IFRS 16 as of January 1, 2019. We refer in this respect to the disclosures in Section 1.2 Accounting principles.

5.22 Other non-current liabilities

Other non-current liabilities include both financial liabilities as well as non-financial liabilities.

Other non-current financial liabilities include the following:

in thousand euros	31/12/2019	31/12/2018
Liabilities from acquiring associates	0	1,234
Non-current financial liabilities to clients	990	0
Derivatives	1,264	1,360
Non-current trade payables	0	69
Total	**2,254**	**2,664**

The liabilities arising from the acquisition of the OTTO Group was reclassified into current liabilities in the past fiscal year.

Further disclosures on derivatives are provided in Note 8.2 from page 194.

There were no other non-current, non-financial liabilities as of the balance sheet date (prior year: 108 thousand euros).

5.23 Current trade payables

This item includes:

in thousand euros	31/12/2019	31/12/2018
Trade payables to third parties	83,618	60,074
Trade payables to unconsolidated, associates and joint operations	25	16
Trade payables to investment companies	88	11
Total	**83,730**	**60,102**

5.24 Other current financial liabilities

This item includes:

in thousand euros	31/12/2019	31/12/2018
Derivatives	3,661	1,857
Payments received from sales of receivables	3,179	0
Other liabilities to unconsolidated, associates and joint operations	1,700	2,127
Liabilities from interest payments	815	679
Liabilities from acquiring associates	771	1,140
Liabilities from remuneration for the Supervisory Board	759	0
Other current financial liabilities	1,634	1,779
Total	**12,520**	**7,582**

The item derivatives is explained in more detail under Note 8.2 from page 194.

The payments received from sales of receivables in the sum of 3,179 thousand euros resulted from payments by customers on trade receivables that were sold under a genuine and confidential factoring program (see the disclosures in the Section 5.9 Current trade receivables from page 176).

Liabilities to unconsolidated associates and joint operations primarily include liabilities to a joint operation in the sum of the non-consolidated portion of 1,700 thousand euros (prior year: 2,124 thousand euros). Standard market interest rates were agreed for liabilities.

Liabilities from corporate acquisitions included variable purchase price components arising from the acquisition of the OTTO Group as of December 31, 2019. In the prior year, the liabilities arising from the acquisition of associates mainly related to the current portion of the conditional purchase price payment arising from the acquisition of Five Lakes and the subsequent adjustment to the purchase price for the acquisition of the OTTO Group.

In 2018, obligations for Supervisory Board remuneration payments were recognized in other provisions.

5.25 Contract liabilities

This balance sheet item includes the obligation of the Group under IFRS 15 to transfer goods or services to a customer for which the Group has received a consideration in return from the customer or for which a requested advance payment is due.

The status of the contract liabilities as of the balance sheet date December 31, 2019 is shown in the table below:

in thousand euros	31/12/2019	31/12/2018
Contract liabilities	**43,882**	53,273
Realization within one year	41,996	45,314
Realization within more than one year	1,886	7,959

The non-current portion essentially includes advance payments from customers of VINCORION for long-running contracts. There were no significant financing components.

The transaction price for all customer orders that have not yet been completed in full is shown as order backlog. This has the following due dates:

in thousand euros	31/12/2019	31/12/2018
Transaction price of performance obligations not yet completely fulfilled	**466,121**	521,497
Realization within the next fiscal year	317,410	412,806
Realization within the next but one fiscal year	78,715	60,817
Realization in later fiscal years	69,996	47,874

5.26 Other current non-financial liabilities

in thousand euros	31/12/2019	31/12/2018
Liabilities to employees	7,669	9,779
Liabilities from other taxes	4,974	4,353
Liabilities from social security	1,714	1,382
Liabilities to employer's insurance association	1,312	1,283
Accruals	343	1,768
Miscellaneous current non-financial liabilities	410	338
Total	**16,423**	**18,903**

Liabilities to employees included, amongst others, vacation entitlements and flextime credits.

Liabilities from other taxes essentially comprise liabilities arising from sales tax.

6 Disclosures on Cash Flows

Liquid funds comprise the cash and cash equivalents recognized in the statement of financial position in the sum of 99,025 thousand euros (prior year: 89,255 thousand euros) after taking into account an impairment loss of 123 thousand euros (prior year: 500 thousand euros) as provision for a default risk. Liquid funds are defined as the sum of cash on hand and demand deposits at banks with a initial maturity of less than three months.

The statement of cash flows explains the flow of payments, divided between the inflows and outflows of cash from operating, investing and financing activities. Changes in the balance sheet items used for preparing the statement of cash flows cannot be directly derived from the statement of financial position because the effects arising from the foreign currency conversion and changes in the group of entities consolidated are non-cash transactions and are therefore eliminated. Cash flows from operating activities are indirectly derived from earnings before tax. Earnings before tax are adjusted for non-cash income and expenses. The cash flows from operating activities are determined by taking into account the changes in working capital, provisions, and other operating balance sheet items.

The cash flows from operating activities in the fiscal year just past totaled 108,892 thousand euros (prior year: 135,490 thousand euros). The effects of the increased payouts in working capital, the decrease in provisions and the lower operating result were the main causes of the change compared to the prior year which, in contrast to the positive effect arising from the first-time application of IFRS 16 in the amount of 11,594 thousand euros.

Cash flows from investing activities totaled minus 54,381 thousand euros (prior year: minus 117,527 thousand euros) and in fiscal year 2019 were characterized primarily by investments in intangible assets and property, plant and equipment. More detailed information on the investments is provided in the section Earnings, Financial and Asset Position in the Combined Management Report from page 93. In the prior year, the cash flows from investing activities were characterized by the acquisitions of Prodomax in the sum of 74,936 thousand euros and the OTTO Group in the sum of 4,299 thousand euros.

In addition, the cash flows for investing activities included net payments from current cash deposits in the sum of minus 9,741 thousand euros. By contrast, in the prior year net payments to cash deposits in the sum of 4,140 thousand euros had a positive impact on the cash flow.

Cash flows from financing activities amounted to minus 46,127 thousand euros (prior year: minus 60,896 thousand euros). Cash outflows from the dividends paid in the sum of 20,033 thousand euros (prior year: 17,171 thousand euros), increased over the prior year as a result of the increased dividend payment compared with 2018 of 0.35 euros per share (prior year: 0.30 euros per share). The payments arising from the repayment of bonds and loans in the year under review essentially included the cash outflows arising from the repayment of a tranche of the debenture loan in the sum of 12,500 thousand euros, as well as from the repatriation of a line of credit of a Chinese company in the sum of 6,384 thousand euros. In the prior year this included the repatriation of a Prodomax bank loan in the sum of 22,870 thousand euros. Payments for leases in the sum of 9,875 thousand euros (prior year: 709 thousand euros) as well as the interest paid for leases in the sum of 1,617 thousand euros (prior year: 39 thousand euros) increased as a result of the first-time application of IFRS 16. The change in the group financing included in particular payments from or to unconsolidated associates and investments.

The changes in financial debt that will lead to cash flows from financing activities in the future, are shown in the following table:

			Non cash-effective change					
in thousand euros	Balance as of 1/1/2019	Cash-effective change	Foreign currency exchange effects	Addition	Adjustment as a result of IFRS 16	Change in the fair value	Change in maturity	Balance as of 12.31.
Non-current financial debt	111,405	1	532	5,617	50,528	121	−45,644	122,562
	(108,573)	(−11)	(216)	(5,307)	(0)	(208)	(−2,888)	(111,405)
Non-current liabilities to banks	108,227	0	87	0	0	170	−36,302	72,182
	(107,883)	(−11)	(217)	(2,166)	(0)	(208)	(−2,237)	(108,227)
Non-current liabilities from finance leases	3,178	1	446	5,617	50,528	−49	−9,342	50,380
	(690)	(0)	(−2)	(3,141)	(0)	(0)	(−652)	(3,178)
Current financial debt	10,123	−31,132	255	3,947	8,352	−192	45,644	36,996
	(19,337)	(−13,305)	(16)	(1,187)	(0)	(0)	(2,888)	(10,123)
Current liabilities to banks	9,294	−21,257	198	1,705	0	43	36,302	26,285
	(19,157)	(−12,596)	(17)	(479)	(0)	(0)	(2,237)	(9,294)
Current liabilities from finance leases	829	−9,875	57	2,242	8,352	−235	9,342	10,712
	(180)	(−709)	(−1)	(708)	(0)	(0)	(652)	(829)
Total	**121,528**	**−31,131**	**787**	**9,564**	**58,880**	**−70**	**0**	**159,558**
	(127,910)	**(−13,316)**	**(232)**	**(6,495)**	**(0)**	**(208)**	**(0)**	**(121,528)**

The figures in brackets relate to the prior year.

The non-cash effective changes are primarily characterized by the first time application of IFRS 16 as of January 1, 2019. We refer in this respect to Section 1.2 Accounting principles.

Information regarding the allocation of free cash flows to the segments is provided in the Segment Report from page 106.

The total amounts for cash flows from operating, investing and financing activities of the proportionately consolidated joint operation are of minor significance for Jenoptik.

Additional information on the consolidated statement of cash flows is provided in the Combined Management Report in the section Financial Position.

7 Disclosure on the Segment Report

The segments are shown in accordance with the regulations laid down in IFRS 8 "Operating segments".

IFRS 8 follows the management approach. Accordingly, the external reporting is carried out for the attention of the chief operating decision makers on the basis of the internal group organizational and management structures as well as the internal reporting structure. The Executive Board analyzes the financial information using the key performance indicators which serve as a basis for decisions on allocating resources and assessing performance. The accounting policies and principles for the segments are the same as those described for Group in the Accounting principles.

Jenoptik has been reporting in the following reportable segments since January 1, 2019: the three photonic divisions of Light & Optics, Light & Production and Light & Safety as well as the VINCORION mechatronics business. These divisions or areas of business represent the segments as defined in IFRS 8.5. The new Light & Optics division combines the former Optical Systems and Healthcare & Industry divisions, together with the photonics activities of the former Defense & Civil Systems division. The Light & Production division corresponds to the former Automotive division and the Light & Safety division to the Traffic Solutions division. The mechatronics business of the Defense & Civil Systems division is now operated under the VINCORION brand. The figures for the prior year on the divisions or areas of business have been adjusted in this segment report.

More information on the applicable organizational structure of the Jenoptik Group and the realignment with effect from January 1, 2019, is provided in the Combined Management Report in the section General Group information from page 72.

The Light & Optics division is a global OEM supplier of solutions and products based on photonic technologies. Jenoptik offers a wide range of products and services in the field, combining comprehensive expertise in optics, laser technology, digital imaging, optoelectronics, and software. The systems, modules, and components help customers to tackle the challenges they face using photonic technologies. Customers include plant and machinery manufacturers, equipment manufacturers in areas such as semiconductor equipment, laser material processing, medical technology and life science, industrial automation, automotive and mobility as well as security, and research institutions.

The Light & Production Division is a global specialist in the optimization of manufacturing processes. With many years of experience and expertise in industrial metrology and optical inspection, modern laser-based material processing, and highly flexible robot-based automation, the division develops manufacturing solutions for customers in the automotive, aerospace, medical technology, and other manufacturing industries.

The Light & Safety Division operates in four areas of business: traffic monitoring, civil security, toll payment monitoring systems and monitoring of environmental parameters. Here, Jenoptik develops, produces, and sells various components, systems, and services used by public sector customers to monitor compliance with applicable road traffic regulations and thus make the world's roads safer.

VINCORION develops, produces, and sells mechatronic products for civil and military markets, in particular for security and defense technology, aviation, and the rail and transport industries. Its portfolio ranges from individual assemblies for customers to integrate in their systems, through to turnkey solutions and final products. The division specializes in energy systems, drive and stabilization systems, and aviation systems.

The activities of the holding company (Corporate Center) and real estate management are summarized under Other. The Shared Service Center was integrated into the holding company in 2019.

The "Consolidation" column comprises the business relationships to be consolidated between the segments as well as the required reconciliations.

The business relationships between the entities of the Jenoptik Group segments are fundamentally based on prices that are also agreed with third parties.

Revenue in excess of 10 percent of the total revenue of the Jenoptik Group was generated with one customer of the Light & Optics segment (103,713 thousand euros; prior year: 92,158 thousand euros). There were no other customer relationships with individual customers whose share of revenue is significant when measured against group revenue.

The analysis of revenue by region is conducted according to the country in which the customer has its legal seat.

7.1 Segment Report

in thousand euros	Light & Optics	Light & Production	Light & Safety	VINCORION	Other	Consolidation	Group
Revenue	351,941 (339,603)	228,990 (210,851)	108,696 (116,937)	164,858 (166,430)	47,338 (48,335)	−46,587 (−47,586)	855,235 (834,571)
of which intra-group revenue	1,904 (2,619)	83 (144)	15 (0)	60 (30)	44,525 (44,793)	−46,587 (−47,586)	0 (0)
of which external revenue	350,037 (336,984)	228,907 (210,707)	108,681 (116,937)	164,798 (166,400)	2,812 (3,542)	0 (0)	855,235 (834,571)
Germany	71,655 (71,219)	49,029 (44,587)	29,561 (52,134)	80,919 (69,002)	2,812 (3,541)	0 (0)	233,977 (240,483)
Europe	134,794 (130,264)	36,509 (42,223)	31,187 (29,137)	43,560 (43,074)	0 (0)	0 (0)	246,050 (244,698)
of which Great Britain	1,646 (2,267)	3,614 (2,349)	19,789 (13,364)	4,368 (16,095)	0 (0)	0 (0)	29,417 (34,075)
of which the Netherlands	93,861 (93,670)	69 (187)	2,949 (2,852)	1,066 (497)	0 (0)	0 (0)	97,944 (97,206)
Americas	77,045 (66,512)	106,483 (77,055)	23,385 (14,830)	32,817 (49,350)	0 (1)	0 (0)	239,730 (207,748)
of which the USA	71,806 (63,030)	73,871 (50,820)	16,403 (7,484)	32,176 (48,924)	0 (0)	0 (0)	194,255 (170,259)
of which Canada	5,229 (3,461)	27,742 (9,851)	6,585 (7,172)	640 (426)	0 (0)	0 (0)	40,195 (20,910)
Middle East/Africa	14,221 (20,392)	915 (1,215)	16,508 (16,362)	6,606 (2,844)	0 (0)	0 (0)	38,251 (40,815)
Asia/Pacific	52,322 (48,596)	35,972 (45,627)	8,040 (4,474)	895 (2,129)	0 (0)	0 (0)	97,228 (100,826)
of which China	12,223 (13,224)	24,191 (28,095)	694 (754)	194 (236)	0 (0)	0 (0)	37,302 (42,309)
of which Singapore	27,017 (23,322)	117 (424)	543 (46)	108 (174)	0 (0)	0 (0)	27,785 (23,966)
EBITDA	69,848 (74,135)	25,784 (24,624)	18,810 (15,909)	24,159 (20,136)	−4,650 (−7,186)	20 (−69)	133,972 (127,548)
EBIT	57,933 (65,881)	14,462 (16,826)	11,659 (10,874)	17,382 (16,499)	−12,549 (−15,109)	27 (−62)	88,915 (94,910)
Research and development expenses	−19,015 (−19,171)	−7,921 (−8,228)	−11,000 (−9,264)	−6,120 (−10,531)	−179 (−252)	182 (3)	−44,052 (−47,443)
Free cash flow (before income taxes)	57,101 (58,637)	19,491 (15,211)	11,301 (30,333)	1,035 (19,553)	−11,993 (−14,034)	307 (−1,423)	77,242 (108,276)
Working capital	77,915 (79,193)	50,104 (59,283)	14,818 (10,648)	84,149 (71,759)	−8,969 (−4,153)	−194 (80)	217,822 (216,810)
Order intake	324,661 (396,108)	199,262 (200,734)	107,942 (118,441)	177,899 (154,897)	2,812 (3,542)	0 (0)	812,576 (873,723)
Frame contracts	12,386 (12,549)	0 (0)	12,615 (19,203)	24,916 (30,717)	0 (0)	0 (0)	49,916 (62,468)
Assets	273,204 (230,830)	274,235 (254,472)	114,993 (106,775)	192,443 (154,602)	887,458 (849,074)	−659,000 (−609,844)	1,083,333 (985,908)
Liabilities	121,585 (92,450)	200,162 (183,399)	99,142 (89,292)	145,579 (106,767)	160,814 (170,261)	−299,393 (−254,211)	427,889 (387,957)
Additions to intangible assets, property, plant, and equipment and investment property	18,418 (17,218)	13,874 (8,876)	4,068 (4,904)	8,801 (4,883)	10,624 (6,636)	−210 (0)	55,576 (42,516)

in thousand euros	Light & Optics	Light & Production	Light & Safety	VINCORION	Other	Consolidation	Group
Scheduled depreciation/ amortization	−10,667 (−8,289)	−11,322 (−6,635)	−7,151 (−5,035)	−6,778 (−3,636)	−7,899 (−6,982)	7 (7)	−43,809 (−30,569)
Impairment losses	−1,248 (0)	0 (−1,195)	0 (0)	0 (0)	0 (−941)	0 (0)	−1,248 (−2,136)
Number of employees on average excluding trainees	1,341 (1,283)	1,072 (884)	471 (475)	758 (740)	320 (332)	0 (0)	3,961 (3,714)

EBITDA = Earnings before interest, taxes, depreciation and amortization
EBIT = Earnings before interest and taxes
The free cash flow (before income taxes) = cash flows from operating activities before payment of income taxes, less proceeds from and expenditure for intangible assets and property, plant, and equipment
The figures in brackets relate to the prior year.

7.2 Non-current assets by regions

in thousand euros	31/12/2019	31/12/2018
Group	468,571	396,560
Germany	271,221	214,996
Europe	55,938	48,773
of which Great Britain	49,427	43,187
Americas	134,287	126,073
of which the USA	48,175	43,446
of which Canada	86,111	82,628
Asia/Pacific	7,125	6,718

Non-current assets comprise intangible assets, property, plant, and equipment, investment property, as well as non-current non-financial assets. The assets are allocated to the individual regions according to the countries in which the consolidated entities have their legal seat.

8 Other Disclosures

8.1 Capital Management

The aim of Jenoptik's capital management is to maintain a strong capital base in order to retain the trust of the shareholders, creditors and capital markets, as well as to ensure the sustained, successful development of the company. The Executive Board monitors in particular the equity ratio, the development of cash flows as well as the net debt as part of the regular management reporting. In the event of significant deteriorations in the key indicators, alternative actions are worked out and the corresponding measures implemented.

As of December 31, 2019, the Jenoptik Group has concluded a syndicated loan in the sum of 230,000 thousand euros as well as several debenture loans totaling 90,500 thousand euros as its key financing. Further details on these are shown in the Notes under Point Liquidity risk (see page 197). With regard to the existing debenture loans, no agreement was concluded on adherence to specific financial indicators. Specific financial indicators in respect of gearing (gross financial debt to equity) and equity were agreed for the syndicated loan. These financial ratios were adhered to at all times in the fiscal year 2019.

In addition to the syndicated loan and debenture loans, the Jenoptik Group utilizes to a lesser extent other sources of financing consisting of bilateral credit lines, lease and rental financing as well as factoring. For the first time in the 2019 fiscal year, the Jenoptik Group concluded a factoring program in order to actively manage cash flow development. More detailed information on the factoring is shown in Chapter Current trade receivables (see page 176).

8.2 Financial instruments

General

Within the framework of its operating activities, the Jenoptik Group is exposed to credit, default, liquidity and market risks. The market risks include in particular risks of fluctuations in interest rates and foreign currency exchange rates.

Detailed information on the risk management and control of risks is shown in the Combined Management Report in the Risk and Opportunity Report (see page 117). Additional information on capital management disclosures is provided in the Economic Report in the chapter Financial Position (see page 99).

The risks described above impact on the financial assets and liabilities which are shown below.

Financial assets:

in thousand euros	Valuation category in accordance with IFRS 9 [1]	Carrying amounts 31/12/2019	Balance sheet valuation in accordance with IFRS 9: Amortized costs	Fair value – through other comprehensive income	Fair value – through profit or loss
Financial investments					
Current cash deposits	AC	69,661 (59,476)	69,661 (59,476)		
Shares in unconsolidated associates and investments	FVTOCI	2,487 (1,569)		2,487 (1,569)	
Shares in entities which are subject to the equity valuation	--- [2]	5,776 (5,191)	5,776 (5,191)		
Loans granted	AC	10 (10)	10 (10)		
Trade receivables	AC	136,881 (131,198)	136,881 (131,198)		
Other financial assets					
Derivatives with hedge relations					
Foreign exchange forward transactions/foreign exchange swaps	---	810 (128)		810 (128)	
Derivatives without hedge relations					
Interest and currency swap	FVTPL	79 (101)			79 (101)
Foreign exchange forward transactions/foreign exchange swaps	FVTPL	953 (1,770)			953 (1,770)
Other financial assets	AC	4,252 (5,460)	4,252 (5,460)		
Cash and cash equivalents	AC	99,025 (89,255)	99,025 (89,255)		
Total		**319,935 (294,158)**	**315,606 (290,590)**	**3,297 (1,697)**	**1,032 (1,871)**

The figures in brackets relate to the prior year.
[1] AC = Amortized costs
FVTPL = Fair value through Profit & Loss
FVTOCI = Fair value through other comprehensive income
[2] Valuation in accordance with IAS 28

Financial liabilities:

in thousand euros	Valuation category in accordance with IFRS 9 [1]	Carrying amounts 31/12/2019	Balance sheet valuation in accordance with IFRS 9: Amortized costs	Fair value – through other comprehensive income	Fair value – through profit or loss	Valuation in accordance with IFRS 16 or IAS 17
Financial liabilities						
Liabilities to banks	AC	98,467 (117,521)	98,467 (117,521)			
Liabilities from leases	--- [2]	61,091 (4,007)				61,091 (4,007)
Liabilities from trade receivables	AC	83,730 (60,171)	83,730 (60,171)			
Other financial liabilities						
Contingent liabilities	FVTPL	771 (1,671)			771 (1,671)	
Derivatives with hedge relations						
Foreign exchange forward transactions/foreign exchange swaps	---	4,078 (3,169)		4,078 (3,169)		
Derivatives without hedge relations						

in thousand euros	Valuation category in accordance with IFRS 9 [1]	Carrying amounts 31/12/2019	Balance sheet valuation in accordance with IFRS 9: Amortized costs	Fair value – through other comprehensive income	Fair value – through profit or loss	Valuation in accordance with IFRS 16 or IAS 17
Foreign exchange forward transactions/foreign exchange swaps	FVTPL	847 (48)			847 (48)	
Other financial liabilities	AC	9,078 (5,288)	9,078 (5,288)			
Total		**258,062** **(191,876)**	**191,275** **(182,980)**	**4,078** **(3,169)**	**1,618** **(1,719)**	**61,091** **(4,007)**

The figures in brackets relate to the prior year.
[1] AC = Amortized costs
FVTPL = Fair value through Profit & Loss
FVTOCI = Fair value through other comprehensive income
[2] Valuation in accordance with IFRS 16 (prior year: IAS 17)

The classification of the fair values for the financial assets and liabilities is shown in the following overview:

in thousand euros	Carrying amounts 31/12/2019	Step 1	Step 2	Step 3
Shares in unconsolidated associates and investments	2,487 (1,569)	0 (0)	0 (0)	2,487 (1,569)
Derivatives with hedge relations (assets)	810 (128)	0 (0)	810 (128)	0 (0)
Derivatives without hedge relations (assets)	1,032 (1,871)	0 (0)	1,032 (1,871)	0 (0)
Contingent liabilities	771 (1,671)	0 (0)	0 (0)	771 (1,671)
Derivatives with hedge relations (liabilities)	4,078 (3,169)	0 (0)	4,078 (3,169)	0 (0)
Derivatives without hedge relations (liabilities)	847 (48)	0 (0)	847 (48)	0 (0)

The figures in brackets relate to the prior year.

Fair values available which are available as quoted market prices at all times, are allocated to level 1. Fair values determined on the basis of direct or indirect observable parameters, are allocated to level 2. Level 3 is based on measurement parameters that are not based upon observable market data.

The fair values of all derivatives are determined using the generally recognized cash value method. In this context, the future cash flows determined via the agreed forward rate or interest rate are discounted using current market data. The market data used in this context is taken from leading financial information systems, such as for example Refinitiv (formerly Reuters). If an interpolation of market data is applied, this is done on a straight-line basis.

The fair values of contingent liabilities were measured by taking the expected and discounted payment outflows at the reporting date into consideration.

The development of the financial assets and liabilities which are valued at fair value and assigned to Level 3, can be found in the table below:

in thousand euros	Shares in unconsolidated associates and investments	Contingent liabilities
Balance at 1/1/2019	**1,569**	**1,671**
Disposals	−60	−96
Gains/losses recognized in the operating result	0	−819
Valuation outside profit/loss	977	0
Foreign currency exchange effects	2	15
Balance at 31/12/2019	**2,487**	**771**

The disposals of contingent liabilities result from the payment of the variable purchase price components agreed in connection with the acquisition of Five Lakes. The reversal of the remaining contingent liability of Five Lakes and the fair value valuation of the variable purchase price components agreed in the context of the acquisition of the OTTO Group, resulted in gains in the sum of 819 thousand euros which were recorded in other operating income. The payment of the variable purchase price components arising from the acquisition of the OTTO Group will be made as expected in 2020. As the result of the increase in the current value of a property, the value of an investment in a real estate-owning limited partnership was upgraded outside profit/loss by 977 thousand euros.

Credit and default risks

The credit or default risk is the risk of a customer or a contract partner of the Jenoptik Group failing to fulfill its contractual obligations. This results in both the risk of creditworthiness-related impairment losses to financial instruments as well as the risk of a partial or a complete default on contractually agreed payments.

Credit and default risks primarily exist for trade receivables. These risks are countered by active receivables management and, if required, taken into account by creating impairment provisions. In addition, the Jenoptik Group is exposed to credit and default risks for cash and cash equivalents as well as current cash deposits. These risks are taken into account through constant monitoring of the creditworthiness of our business partners. To this end, business partner credit ratings and Credit Default Swaps (CDS) are subject to regular evaluation. For risk management purposes, cash deposits, amongst other things, are distributed between a number of banks within fixed limits. In accordance with IFRS 9, impairments were also applied to cash and cash equivalents as well as to current cash deposits.

The maximum default risk corresponds to the carrying amount of the financial assets in the sum of 319,935 thousand euros (prior year: 294,158 thousand euros) as of the reporting date. For further explanations we refer to Note 8.2 from page 195.

The following impairments were recorded for financial assets in the fiscal year:

in thousand euros	2019	2018
Financial investments	110	935
Trade receivables	4,205	3,445
Cash and cash equivalents	0	132
Total	**4,315**	**4,511**

These impairment losses are offset against the following reversals of write-downs:

in thousand euros	2019	2018
Financial investments	280	1
Trade receivables	1,740	3,301
Other financial assets	1	0
Cash and cash equivalents	377	0
Total	**2,398**	**3,302**

The impairment losses and reversals of impairment losses on trade receivables are included in other operating expenses or income. The impairment losses and reversals of impairment losses on financial investments and cash or cash equivalents are included in the financial result.

Liquidity risk

The liquidity risk entails the possibility of the Group being unable to meet its financial obligations. In order to ensure our ability to pay as well as our financial flexibility at all times, the net cash and cash equivalents, as well as the lines of credit and level of utilization, are planned by means of a five-year financial plan as well as a monthly, rolling 12 week liquidity forecast. The liquidity risk is also limited by effective cash and working capital management.

As of the balance sheet date the liquidity reserves are divided into cash and cash equivalents in the sum of 99,025 thousand euros (prior year: 89,255 thousand euros) and current cash deposits in the sum of 69,661 thousand euros (prior year: 59,476 thousand euros). In addition, the Group has a secured and unused line of credit available in the sum of 222,204 thousand euros (prior year: 220,179 thousand euros) which is mainly attributable to a syndicated loan of 230,000 thousand euros agreed up to March 2022. Only a small portion of this has currently been utilized.

In April 2019, a variable-interest debenture loan tranche in the sum of 12,500 TEUR was repaid prematurely.

Outstanding loans in the sum of 90,500 thousand euros (prior year: 103,000 thousand euros) will be repaid in the years 2020 resp. 2022.

Cash outflows up to one year mainly include the repayment of a debenture loan tranche including interest. This item also includes interest and redemption payments for real estate financing in the USA.

in thousand euros	Interest rates (Range in %)	Carrying amounts 31/12/2019	Cash outflows Total	Up to 1 year	1 to 5 years	More than 5 years
Variable interest-bearing liabilities to banks	0.8 – 1.00	14,053	14,355	142	14,213	0
	(0.8 – 5.29)	(32,285)	(33,193)	(6,287)	(26,906)	(0)
Fixed interest-bearing liabilities to banks	0.98 – 5.00	84,414	84,904	24,879	60,024	0
	(1.0 – 3.9)	(85,236)	(88,217)	(3,395)	(84,823)	(0)
Fixed interest-bearing liabilities from leases	0.9 – 5.9	61,091	66,252	11,423	32,943	21,886
	(0.9 – 7.6)	(3,902)	(4,109)	(868)	(3,230)	(11)
Total		**159,558**	**165,511**	**36,444**	**107,180**	**21,886**
		(121,422)	**(125,520)**	**(10,550)**	**(114,959)**	**(11)**

The figures in brackets relate to the prior year.

The cash outflows in the time frame of between one to five years mainly include the repayments of the debenture loan with an original term of seven years.

The credit line for the operating business in China was newly agreed in 2019. This serves essentially as a back-up line and was almost completely unused at the end of the year.

Interest rate fluctuation risk

The Jenoptik Group is fundamentally exposed to the risks of changes in interest rates due to fluctuations in market interest rates for all interest-bearing financial assets and liabilities. In the fiscal year 2019, this essentially related to debenture loans issued in the sum of 90,500 thousand euros (prior year: 103,000 thousand euros) as well as current cash deposits of 69,661 thousand euros (prior year: 59,476 thousand euros), as well as a portion of the cash and cash equivalents of 99,025 thousand euros (prior year: 89,255 thousand euros) at the respective balance sheet.

in thousand euros	Carrying amounts 31/12/2019	31/12/2018
Interest-bearing financial assets	73,159	65,623
Variable interest	26,417	21,147
Fixed interest	46,741	44,476
Interest-bearing financial liabilities	159,558	121,422
Variable interest	14,053	32,285
Fixed interest	145,505	89,138

The calculated gains and losses arising from a change in the market interest rate as of December 31, 2019 within a range of 100 basis points, are shown in the following table:

in thousand euros	31/12/2019	31/12/2018
Increase by 100 basis points		
Interest-bearing financial assets	285	656
Interest-bearing financial liabilities	– 1,595	– 1,214
Impact on earnings before tax	**– 1,310**	**– 558**
Reduction by 100 basis points		
Interest-bearing financial assets	– 285	– 656
Interest-bearing financial liabilities	1,595	1,214
Impact on earnings before tax	**1,310**	**558**

As part of the management of interest rate risks, Jenoptik relies on a mix of fixed and variable interest-bearing assets and liabilities, as well as various interest rate hedging transactions. These include, for example, interest swaps, interest caps and floors, as well as combined interest and currency swaps. At the balance sheet date as of December 31, 2019, there was a combined interest rate and currency swap with the following structure.

Interest and currency swap	
Nominal amount	CNY 17,980 thousand
Term	March 12, 2015 to March 12, 2025
Fixed interest rate	5.10 percent p.a.
Variable interest rate	6-month Euribor

This hedging transaction is used to secure an intra-group loan for real estate financing in Shanghai (China). The change in its market value of minus 22 thousand euros was recorded through profit or loss in the statement of income.

The following payments are anticipated from this interest rate hedging instruments:

in thousand euros	Up to 1 year	1 to 5 years	More than 5 years	Total
Interest and currency swap	123 (120)	492 (459)	83 (180)	699 (759)

The figures in brackets relate to the prior year.

Foreign currency exchange risk

There are two types of currency risks: conversion risk and transaction risk.

The conversion risk arises from fluctuations in value caused by changes in exchange rates resulting from the conversion of existing foreign currency financial assets and liabilities into the balance sheet currency. Since this is not associated with any cash flows, no hedging is applied.

The transaction risk arises from the fluctuation in value of cash flows in foreign currencies caused by changes in currency exchange rates. Derivative financial instruments, primarily currency forward transactions and currency swaps, are used to hedge this risk.

Hedging is provided for significant cash flows in foreign currencies arising from the operational business (revenue). Contractually agreed cash flows are hedged 1:1 via so-called micro-hedges. Planned cash flows are secured proportionally as part of the anticipatory hedging, providing hedging both of groups of similar transactions (revenue) as well as net positions of individual companies.

JENOPTIK AG also hedges the anticipated cash flows from intra-group loans in foreign currencies which have not been recognized as a "Net investment in a foreign operation", using derivative financial instruments. As of December 31, 2019, intra-group loans in foreign currencies are hedged as follows:

Borrowers of inter-group loans	Outstanding amount of intra-group loans (excluding "Net investment in a foreign operation")	Hedging amount
Prodomax Automation Ltd., Canada	22,000 TCAD	-
JENOPTIK Holdings UK Ltd., Great Britain	29,000 TGBP	22,990 TGBP
JENOPTIK JAPAN Co. Ltd., Japan	62,838 TJPY	62,838 TJPY

As of the balance sheet date, existing forward exchange transactions and currency swaps totaled a nominal value of 118,670 thousand euros (prior year: 134,762 thousand euros). A so-called cash flow hedge relations with the respective underlying transaction was documented for the vast majority of these transactions. Where this is proven effective, its changes do not have to be recorded through profit or loss. In order to measure the effectiveness, a prospective, quality-related effectiveness test is conducted, on the designation date as well as on an ongoing basis, normally as of the balance sheet dates, on the basis of the IFRS 9 "Financial instruments" accounting standard.

Forward exchange transactions and foreign exchange swaps are grouped according to sales and purchases in foreign currencies as follows:

in thousand euros	31/12/2019	31/12/2018
USD – sale for EUR	69,641	111,267
USD – purchase for EUR	0	67
GBP – sale for EUR	26,752	21,402
USD – purchases for CHF	904	0
USD – sale for CAD	19,990	0
USD – purchase for GBP	675	0
CNY – sale for EUR	195	990
KRW – sale for EUR	0	572
JPY – sale for EUR	513	465
Total foreign currency sales	**117,091**	**134,695**
Total foreign currency purchases	**1,579**	**67**

Hedging transactions that did not entail the local currency EUR but e.g. US dollars for Canadian dollars, were concluded for the first time in the 2019 fiscal year.

Forward exchange transactions and swaps give rise to the following market values:

in thousand euros	31/12/2019	31/12/2018
Positive market values		
Derivatives with hedging relations		
non-current	233	37
current	577	91
Derivatives without hedging relations		
non-current	0	1,828
current	953	43
Total positive market values	**1,763**	**1,999**
Negative market values		
Derivatives with hedging relations		
non-current	1,031	1,402
current	3,047	1,767
Derivatives without hedging relations		
non-current	584	7
current	263	40
Total negative market values	4,926	3,217
Balance	**−3,163**	**−1,217**

The market values for hedging transactions for intra-group loans are included in the derivatives without hedges as the underlying transaction comprising intra-group receivables and liabilities is deconsolidated. The positive market values of these derivatives totaled 958 thousand euros (prior year: 1,745 thousand euros) as of the balance sheet date, the negative market values totaled 800 thousand euros (prior year: 47 thousand euros). The overall change led to a loss of 34 thousand euros (prior year: loss of 69 thousand euros) which were recognized in the financial result through profit or loss.

Cumulative losses in hedged derivatives in the sum of 2,724 thousand euros (prior year: 2,556 thousand euros) were recognized in equity outside profit or loss as at December 31, 2019. Of the profits and losses recognized in equity outside profit or loss as at December 31, 2019, in 2019 a reclassification in the sum of minus 1,191 thousand euros (prior year: minus 2,204 thousand euros) was carried out from equity to profit or loss. This type of reclassification is normally associated with the recognition of the underlying transaction (for example, recognition of revenue and booking of the corresponding receivable on billing) through profit or loss so the intended balancing effect of concluding the hedge transaction is adjusted in the statement of income.

The foreign currency hedging transactions hedge against foreign currency risks in the sum of 91,850 thousand euros with a time frame up to the end of 2020. Foreign currency risks in the sum of 26,821 thousand euros are hedged with a time frame up to the end of 2022.

The main foreign exchange transactions of the Jenoptik Group involve US dollars. The table below shows a breakdown of the US-dollar-based conversion and transaction risks, as well as the Group’s net risk position:

in thousand euros	31/12/2019	31/12/2018
Financial assets	35,427	52,106
Financial liabilities	3,435	2,820
Translation risk	**31,992**	**49,287**
Planned cash flows	153,444	135,023
Cash flows hedged through derivatives	88,052	111,199
Transaction risk	**65,392**	**23,823**
Net risk item	**97,384**	**73,110**

The decrease in the financial assets held in US dollars compared to the prior year is mainly due to the lower level of cash and cash equivalents and the reduction in the balance of current cash deposits in US dollars. The marked increase in planned cash flows in US dollars compared to the prior year is attributable to the targeted international growth of the Jenoptik Group.

As of the balance sheet date there was a US dollar-based net risk item in the sum of 97,384 thousand euros (prior year: 73,110 thousand euros). A change in the US dollar exchange rate would have the following consequences:

	EUR/USD rate	Change in the net risk item (in thousand euros)
Reporting date exchange rate 31/12/2019	1.1234 (1.1450)	
Increase by 5 percent	1.1796 (1.2023)	4,637 (3,481)
Reduction by 5 percent	1.0672 (1.0878)	−5,125 (−3,848)
Increase by 10 percent	1.2357 (1.2595)	8,853 (6,646)
Reduction by 10 percent	1.0111 (1.0305)	−10,820 (−8,123)

The figures in brackets relate to the prior year.

8.3 Other financial obligations

As of December 31, 2019 obligations existed in the sum of 102,332 thousand euros (prior year: 119,081 thousand euros), in particular order commitments for inventories in the sum of 75,259 thousand euros (prior year: 83,454 thousand euros) and for intangible assets and property, plant and equipment in the sum of 7,003 thousand euros (prior year: 10,475 thousand euros) as well as other financial obligations of 20,022 thousand euros (prior year: 24,997 thousand euros).

Other financial obligations also include a service contract concluded for facility management services which has been in force for all German Jenoptik sites since April 2018 and has a contract term of four years.

The decrease in other financial obligations is mainly attributable to the reduction in existing orders and the lower order backlog as at the balance sheet date compared to the prior year.

Loan commitments to unconsolidated associates in the sum of 47 thousand euros (prior year: 154 thousand euros) were not taken up in full.

The Group applied IFRS 16 “Leases” for the first time. The objective is to disclose the lessee’s rights and obligations associated with the leases in the Group statement of financial position. The impact on the Group's balance sheet is presented in the Notes under “Changes in accounting methods” from page 144 and “Leases” from page 172.

8.4 Legal disputes

JENOPTIK AG and its group entities are involved in few court or arbitration proceedings. Provisions for litigation risks, respectively litigation expenses, were set aside in the appropriate amounts in order to meet any possible financial burdens resulting from any court decisions or arbitration proceedings (see Section 5.19 from page 185).

8.5 Related party disclosures in accordance with IAS 24

Related parties are defined in IAS 24 “Related Party Disclosures” as being entities or persons that have control over or are controlled by the Jenoptik Group to the extent that they have not already been included in the consolidated financial statements as consolidated entities as well as entities or persons that, on the basis of the Articles of Association or by contractual agreements, are able to significantly influence the financial and business policies of the management of JENOPTIK AG or participate in the joint management of JENOPTIK AG. Control applies if a shareholder holds more than half of the voting rights in JENOPTIK AG. The largest single shareholder of JENOPTIK AG is Thüringer Industriebeteiligungs GmbH & Co. KG, Erfurt, which directly holds in total 11 percent of the voting rights and thus does not have control over JENOPTIK AG.

Members of the Executive Board and of the Supervisory Board of JENOPTIK AG also qualify as related parties. In the 2019 fiscal year no exchange of goods or of services was transacted between the entity and members of these two bodies.

The breakdown of the total remuneration of the members of the management in key positions (Executive Board and Supervisory Board) is shown in the following table.

in thousand euros	2019	2018
Short-term benefits	2,331	2,836
Post-employment benefits	360	360
Share-based payment	256	677
Total	**2,947**	**3,873**

As of the balance sheet date, there were obligations to members of management in key positions totaling 3,605 thousand euros (previous year: 3,813 thousand euros).

Detailed information on the disclosure of the remuneration of the members of the Executive Board and the Supervisory Board as required by IAS 24.9 has been published in the Remuneration Report in the section Corporate Governance as part of the Combined Management Report on pages 45 ff. as well as in the section Required and supplementary disclosures under HGB in the Notes to the Consolidated Financial Statements on pages 205 and 208.

The following table shows the composition of the business relationships with unconsolidated entities and with the joint operation considered to be other related parties.

in thousand euros	Total	of which unconsolidated entities	of which joint operation
Revenue	1,869	1,326	543
	(2,441)	(1,858)	(583)
Purchased services	1,301	757	543
	(1,355)	(812)	(543)
Receivables from operations	204	181	22
	(453)	(432)	(21)
Liabilities from operations	1,813	113	1,700
	(2,155)	(30)	(2,125)
Loans	10	10	0
	(10)	(10)	(0)

The figures in brackets relate to the prior year.

9 Events after the balance sheet date

The JENOPTIK AG Executive Board approved the submission of the present Consolidated Financial Statements to the Supervisory Board on March 10, 2020. The Supervisory Board is responsible for reviewing and approving the Consolidated Financial Statements at its March 24, 2020 meeting.

Acquisition of INTEROB. With the signing of the agreement on January 25, 2020 and the closing on February 4, 2020 Jenoptik acquired the INTEROB Group, consisting of INTEROB, S.L. and INTEROB RESEARCH AND SUPPLY, S.L. The initial consolidation will take place in 2020. More detailed information on the acquisition is contained in Section 2.4.

Dividends. According to the Stock Corporation Act, the amount available for a dividend payment to the shareholders is based on the accumulated profit of the parent company JENOPTIK AG, as determined by the regulations of the HGB. For the 2019 fiscal year, JENOPTIK AG's accumulated profit totaled 85,620,600.56 euros, comprising net profit for the 2019 fiscal year for 55,620,600.56 euros plus retained profits of 30,000,000.00 euros.

The Executive Board recommends the Supervisory Board to propose to the Annual General Meeting 2020 a dividend of 0.35 euros per share entitled to dividends for the past financial year 2019 (previous year: 0.35 euros). It is intended to distribute an amount of 20,033,340.25 euros from the retained earnings of JENOPTIK AG in the 2019 fiscal year. Of the remaining retained earnings of JENOPTIK AG, an amount of 35,587,260.31 euros is to be transferred to other revenue reserves and an amount of 30,000,000.00 euros will be carried forward to the new account.

With this recommendation, the Executive Board continues its continuous dividend policy, despite the lower earnings per share of 1.18 euros (previous year: 1.53 euros). The high prior-year result included non-cash tax income, which increased earnings after tax and earnings per share. The payout ratio is 29.7 percent (prior year: 22.9 percent).

VINCORION. On January 17, 2020 the Executive Board of JENOPTIK AG decided to stop the process of selling the mechatronic business operating under the VINCORION brand. The Board had come to the conclusion that there was no offer that corresponded to the business potential which VINCORION demonstrated in the 2019 fiscal year. Going forward, VINCORION will be operated as an independent investment of Jenoptik.

No further events of significance occurred after December 31, 2019.

10 Required Disclosures and Supplementary Information under HGB

10.1 Required disclosures in accordance with § 315e and § 264 (3) or § 264b of the HGB

The Consolidated Financial Statements of JENOPTIK AG were prepared in accordance with § 315e of the HGB, exempting an entity from preparing consolidated financial statements under HGB in accordance with the guidelines of the IASB. At the same time, the Consolidated Financial Statements and Combined Management Report are in conformity with the European Union Consolidated Accounts Directive (2013/34/EU). In order to achieve comparability with a set of consolidated financial statements prepared in accordance with the commercial regulations of the HGB, all of the required disclosures and explanations under the HGB as well as any required disclosures above and beyond those needed to be in compliance with IFRS are to be published.

Through having been included in the Consolidated Financial Statements of JENOPTIK AG, the following fully consolidated German associates have made use of the simplification relief measures defined in § 264 (3) or § 264b of the HGB:

- JENOPTIK Advanced Systems GmbH, Wedel
- JENOPTIK Automatisierungstechnik GmbH, Jena
- JENOPTIK Industrial Metrology Germany GmbH, Villingen-Schwenningen
- JENOPTIK Optical Systems GmbH, Jena
- JENOPTIK Power Systems GmbH, Altenstadt
- JENOPTIK Robot GmbH, Monheim am Rhein
- OTTO Vision Technology GmbH, Jena
- SAALEAUE Immobilien Verwaltungsgesellschaft mbH & Co. Vermietungs KG, in liquidation, Pullach im Isartal

10.2 Number of employees

The breakdown of the average number of employees is presented in the following table:

Employees	2019	2018
Light & Optics	1,341	1,283
Light & Production	1,072	884
Light & Safety	471	475
VINCORION	758	740
Other	320	332
Total	**3,961**	3,714

Of whom in the fiscal year 2019, an average of 32 (prior year: 33) employees were employed in the proportionately consolidated entity.

In addition, the entity employed an average of 123 trainees in 2019 (prior year: 103).

10.3 Cost of materials and personnel expenses

in thousand euros	2019	2018
Cost of materials		
Expenditures for raw materials, consumables and merchandise	277,799	276,360
Expenditure for services purchased	66,977	79,729
Total	**344,776**	**356,089**
Personnel expenses		
Wages and salaries	261,744	244,879
Social security, pension contributions and retirement benefits	39,332	33,468
Total	**301,076**	**278,347**

10.4 Financial statement auditor fees

The fees for the services rendered by our auditor, as well as by its affiliates and network companies, amounted to:

in thousand euros	2019	2018
Financial statement audit services	833	911
Other services	380	27
Other attestation services	40	23
Tax consulting services	15	5
Total	**1,269**	**965**

The fees for financial statement audit services relate to expenses for the audit of the consolidated financial statements of the Jenoptik Group as well as the statutory annual financial statements of the subsidiaries and joint operations included in the consolidated financial statements.

The other services rendered by the statutory auditor relate in particular to permissible transaction advisory services in connection with the sale process of the VINCORION division as well as in matters of accounting in accordance with IFRS. Other attestation services were rendered as part of the attestation of key financial figures, attestations under the Renewable Energies Act as well as under the European Market Infrastructure Regulation (EMIR).

Of the total expenses, financial statement audit services in the sum of 697 thousand euros (prior year: 725 thousand euros), other services in the sum of 380 thousand euros (prior year: 27 thousand euros), other attestation services in the sum of 40 thousand euros (prior year: 20 thousand euros) and tax consulting services in the sum of 15 thousand euros (prior year: 0 thousand euros) were attributable to the auditors of the consolidated financial statements Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Germany.

11 Corporate Governance

11.1 German Corporate Governance Code

In December 2019, the Executive Board and Supervisory Board of JENOPTIK AG submitted a declaration of conformity in accordance with § 161 of the German Stock Corporation Act as required by the recommendations of the Government Commission's German Corporate Governance Code in the version dated February 7, 2017. The declaration is reproduced in the Corporate Governance Report from page 36 and has been made permanently available to shareholders on the JENOPTIK AG website under www.jenoptik.com in the section Investors/Corporate Governance. The declaration can also be viewed in the offices of JENOPTIK AG (Carl-Zeiss-Straße 1, 07743 Jena).

11.2 Executive Board

The following persons were appointed as members of the Executive Board in the 2019 fiscal year:

	Other mandates with:
Dr. Stefan Traeger President & CEO of JENOPTIK AG	JENOPTIK North America, Inc., USA (GI, Chairman, CCB) JENOPTIK (Shanghai) Precision Instrument and Equipment Co., Ltd., Shanghai, China (GI, Chairman, CCB) JENOPTIK (Shanghai) International Trading Co., Ltd., China (GI, Member, CCB) Prodomax Automation Ltd., Canada (GI, Chairman, CCB) JENOPTIK Korea Corp., Ltd., Korea (GI, Member, CCB) JENOPTIK JAPAN Co. Ltd., Japan (GI, Member, CCB) TELSTAR-HOMMEL Co., Ltd., Korea (GI, Member, CCB)
Hans-Dieter Schumacher Member of the Executive Board of JENOPTIK AG	Prodomax Automation Ltd., Canada (GI, Member, CCB, up to 31/1/2019) JENOPTIK (Shanghai) Precision Instrument and Equipment Co., Ltd; China (GI, Member, CCB) JENOPTIK (Shanghai) International Trading Co., Ltd., China (GI, Member, CCB) JENOPTIK Traffic Solutions Switzerland, Switzerland (GI, Chairman, CCB, since 5/7/2019)

Abbreviations: CCB – comparable controlling body, GI – Group internal appointment

The following overview shows the remuneration of the Executive Board for the 2019 fiscal year. In addition to direct or indirect remuneration components earned, this overview includes the fair value of the share-based remuneration instruments (performance shares). A detailed description of the remuneration system can be found in the Remuneration Report on pages 45 of the Combined Management Report in the chapter Corporate Governance.

Fringe benefits consist of contributions to the accident insurance as well as the provision of company cars.

Retirement benefits paid to former Executive Board members or their survivors amounted to 185 thousand euros (prior year: 181 thousand euros). The pension provisions for former Executive Board members totaled 3,416 thousand euros as at the balance sheet date (prior year: 3,142 thousand euros). The expenses recorded for these existing provisions in the 2019 fiscal year comprised interest costs in the sum of 50 thousand euros (prior year: 52 thousand euros).

In the 2019 fiscal year – as in the preceding years – no loans or advances were granted to the members of either the Executive Board or the Supervisory Board. Consequently, there were no loan redemption payments.

Components of the remuneration for the Executive Board

	Dr. Stefan Traeger (President & CEO)		Hans-Dieter Schumacher (Member of the Executive Board)	
in thousand euros	2019	2018	2019	2018
Fixed remuneration	600.0	600.0	450.0	437.5
Variable remuneration	185.8	521.7	123.8	347.8
Performance shares for the fiscal year *	376.2	324.3	282.2	243.2
LTI granted for dividend protection of existing shares	n.a.	n.a.	19.4	14.7
Retirement benefits	200.0	200.0	160.0	160.0
Fringe benefits	18.0	15.0	18.4	18.3
Total remuneration	**1,380.0**	**1,660.9**	**1,053.8**	**1,221.5**

* shown at fair value on the date of the provisional allocation

11.3 Supervisory Board

The following persons were appointed members of the Supervisory Board in the 2019 fiscal year:

	Member of	Other mandates with
Matthias Wierlacher (Chairman) Chairman of the Board of the Thüringer Aufbaubank Appointed in 2012, Chairman since July 2015	• Personnel Committee (Chairman) • Investment Committee (Chairman) • Nomination Committee (Chairman) • Mediation Committee (Chairman)	• Mittelständische Beteiligungsgesellschaft Thüringen mbH (SB member) • bm-t beteiligungsmanagement thüringen GmbH (GI, SB Chairman) • ThüringenForst – Public Body – (SB member)
Michael Ebenau[1)] (Vice Chairman) Secretary of the IG Metall Union, District Management Mitte Appointed in 2007	• Personnel Committee • Investment Committee • Mediation Committee	• Samag Saalfelder Werkzeugmaschinen GmbH (CCB, up to 31/12/2018)
Astrid Biesterfeldt[1)] Vice President Business Unit Energy & Drive at JENOPTIK Advanced Systems GmbH Appointed in 2014	• Audit Committee	none
Evert Dudok Executive Vice President Connected Intelligence, Airbus Appointed in 2015		• EURASSPACE Gesellschaft für Raumfahrttechnik mbH (GI, SB member)
Elke Eckstein CEO Enics AG, Switzerland Appointed in 2017	• Investment Committee	• Enics Eesti AS, Estonia (GI, CCB, Chairman) • Enics Electronics (Beijing) Ltd., China (GI, CCB) • Enics Electronics (Suzhou) Ltd., China (GI, CCB) • Enics Finland Oy, Finland (GI, CCB, Chairman) • Enics Hong Kong Ltd., Hong Kong (GI, CCB) • Enics Raahe Oy, Finland (GI, CCB, Chairman) • Enics Schweiz AG, Switzerland (GI, CCB, Chairman) • Enics Slovakia s.r.o., Slovakia (GI, CCB) • Enics Sweden AB, Sweden (GI, CCB, Chairman) • Karl Mayer Textilmaschinenfabrik GmbH (CCB, up to June 30, 2019) • Saferoad SRH Holding AS, Norway (CCB) • Aura Light AB, Sweden (CCB, since January 1, 2019, Chairman up to March 2020)
Thomas Klippstein[1)] Chairman of the Group Works Council of Jenoptik Appointed in 1996	• Personnel Committee • Audit Committee	none

	Member of	Other mandates with
Dörthe Knips[1)] Production control employee at JENOPTIK Optical Systems GmbH Appointed in 2017	• Investment Committee	none
Dieter Kröhn[1)] Production planner at JENOPTIK Advanced Systems GmbH Appointed October 1999 to June 2007, reappointed since December 2010	• Investment Committee • Mediation Committee	none
Doreen Nowotne Independent corporate management consultant Appointed in 2015	• Audit Committee (Vice Chairman) • Investment Committee	• Brenntag AG (SB member) • Lufthansa Technik AG (SB member) • Franz Haniel & Cie. GmbH (SB member, from April 2020 SB Chairman)
Heinrich Reimitz Member of the Management of HPS Holding GmbH, Austria Appointed in 2008	• Audit Committee (Chairman) • Personnel Committee • Nomination Committee	• Ühinenud Farmid AS, Estonia (CCB, member)
Stefan Schaumburg[1)] Head of the Functional Department and Secretary of the Management Board of the IG Metall Union, Frankfurt Appointed in 2012	• Personnel Committee	• GKN Driveline International GmbH (SB Vice Chairman; CCB)
Prof. Dr. rer. nat. habil., Master's in Physics Andreas Tünnermann Director of the Institute for Applied Physics and university lecturer in applied physics at the Friedrich Schiller University Jena, and Head of the Fraunhofer Institute for Applied Optics and Precision Mechanics, Jena Appointed in 2007	• Personnel Committee • Mediation Committee • Nomination Committee	• Docter Optics SE (CCB, member) • ARRI AG (SB member since 10/7/2019)

[1)] Employee representative
Abbreviations: SB – Supervisory Board, CCB – Comparable Controlling Body, GI – Group internal appointment, Dep. – Deputy

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Supervisory Board Remuneration

For the 2019 fiscal year the members of the Supervisory Board received the following remuneration in total:

in thousand euros	Total earnings	of which Fixed annual remuneration 2019	of which Meeting allowances (plus reimbursement of expenses)	Sales tax [1]
Matthias Wierlacher (Chairman)	132.3	119.0	13.3	21.1
Michael Ebenau (Vice Chairman)	95.8	83.3	12.5	15.3
Astrid Biesterfeldt	72.7	59.5	13.2	11.6
Evert Dudok	54.9	47.6	7.3	8.7
Elke Eckstein	66.1	53.6	12.6	10.2
Thomas Klippstein	82.1	65.5	16.6	13.1
Dörthe Knips	63.7	53.6	10.1	10.2
Dieter Kröhn	63.1	53.6	9.5	10.1
Doreen Nowotne	88.9	71.4	17.5	14.2
Heinrich Reimitz	90.1	65.0	25.1	–
Stefan Schaumburg	65.4	53.6	11.8	10.4
Prof. Dr. rer. nat. habil. Andreas Tünnermann	63.2	53.6	9.6	10.1
Total	**938.3**	**779.3**	**159.1**	**135.0**

[1] Included in total remuneration, fixed remuneration and meeting allowances; Mr. Mag. Heinrich Reimitz has a limited tax liability in Germany due to his place of residence being abroad; since his remuneration is subject to a withholding tax in accordance with § 50 a (1) No. 4 of the German Income Tax Act, no sales tax was incurred.

For a more detailed explanation of the Supervisory Board remuneration system we refer to the Remuneration Report in the chapter on Corporate Governance which forms part of the Combined Management Report.

12 List of Shareholdings in the Jenoptik Group as at December 31, 2019 in accordance with § 313 (2) HGB

No.	Name and registered office of the entity	Share of Jenoptik or the direct shareholder in %	Equity 31/12/2019 in thousand euros 7)	Result for 2019 in thousand euros 7)
	1.1. Consolidated associates – direct investments			
1	JENOPTIK Robot GmbH, Monheim am Rhein, Germany	100		
2	JENOPTIK Industrial Metrology Germany GmbH, Villingen-Schwenningen, Germany	100		
3	JENOPTIK Automatisierungstechnik GmbH, Jena, Germany	100		
4	JENOPTIK Advanced Systems GmbH, Wedel, Germany	100		
5	JENOPTIK Optical Systems GmbH, Jena, Germany	100		
6	SAALEAUE Immobilien Verwaltungsgesellschaft mbH & Co. Vermietungs KG, Jena, Germany, i.L. 5)	100		
7	JENOPTIK North America, Inc., Jupiter (FL), USA	100		
8	JENOPTIK Asia-Pacific Pte. Ltd., Singapore, Singapore	100		
	– indirect shareholdings			
9	JENOPTIK Traffic Solutions Switzerland AG, Uster, Switzerland	100		
10	RADARLUX Radar Systems GmbH, Leverkusen, Germany	100		
11	JENOPTIK ROBOT MALAYSIA SDN BHD, Kuala Lumpur, Malaysia i.L. 5)	100		
12	ROBOT Nederland B.V., Riel, Netherlands	100		
13	JENOPTIK Holdings UK Ltd., Milton Keynes, Great Britain	100		
14	Vysionics ITS Holdings Ltd., Milton Keynes, Great Britain	100		
15	JENOPTIK Traffic Solutions UK Ltd., Camberley, Great Britain	100		
16	Domestic and Commercial Security Ltd., Saltesh, Great Britain	100		
17	JENOPTIK Industrial Metrology Switzerland SA, Peseux, Switzerland	100		
18	JENOPTIK Industrial Metrology France SAS, Bayeux Cedex, France	100		
19	OTTO Vision Technology GmbH, Jena, Germany	100		
20	OVITEC GmbH, Jena, Germany	100		
21	JENOPTIK Power Systems GmbH, Altenstadt, Germany	100		
22	PHOTONIC SENSE GmbH, Eisenach, Germany	100		
23	PHOTONIC SENSE, INC., Nashua (NH), USA	100		
24	ASAM Grundstücksverwaltungsgesellschaft mbH & Co. Vermietungs KG, Mainz, Germany	94		
25	Traffipax, LLC, Jupiter (FL), USA	100		
26	JENOPTIK Automotive North America, LLC, Rochester Hills (MI), USA	100		
27	JENOPTIK INDUSTRIAL METROLOGY DE MEXICO, S. DE R.L. DE C.V., Saltillo, Mexico	100		
28	Five Lakes Automation, LLC, Novi (MI), USA	100		
29	JENOPTIK Optical Systems, LLC, Jupiter (FL), USA	100		
30	JENOPTIK Advanced Systems, LLC, El Paso (TX), USA	100		
31	Prodomax Automation Ltd., Barrie, Canada	100		
32	JENOPTIK (Shanghai) Precision Instrument and Equipment Co., Ltd., Shanghai, China	100		
33	JENOPTIK (Shanghai) International Trading Co., Ltd., Shanghai, China	100		
34	JENOPTIK Australia Pty Ltd, Sydney, Australia	100		
35	JENOPTIK Korea Corporation, Ltd., Pyeongtaek, Korea	66.6		

No.	Name and registered office of the entity	Share of Jenoptik or the direct shareholder in %	Equity 31/12/2019 in thousand euros [7]	Result for 2019 in thousand euros [7]
36	JENOPTIK JAPAN Co. Ltd., Yokohama, Japan	66.58		
37	JENOPTIK India Private Limited, Bangalore, India	100		
	1.2. Unconsolidated associates – direct investments			
38	FIRMICUS Verwaltungsgesellschaft mbH, Jena, Germany	100	49 [1]	–1 [1]
39	SAALEAUE Immobilien Verwaltungsgesellschaft mbH, Jena, Germany, i.L. [5]	100	31 [1]	1 [1]
	– indirect shareholdings			
40	AD-Beteiligungs GmbH, Monheim am Rhein, Germany	100	209 [1]	–15 [1]
41	JENOPTIK do Brasil Instrumentos de Precisão e Equipamentos Ltda., Sao Paulo, Brazil	100	105 [1]	–22 [1]
42	JENOPTIK Saudi Arabia, LLC, Jeddah, Saudi-Arabia, i.L. [5]	90	51 [2]	–44 [2]
	2. Joint operations			
43	HILLOS GmbH, Jena, Germany	50		
	3. Associated entities valued at equity			
44	TELSTAR-HOMMEL CORPORATION, Ltd., Pyeongtaek, Korea	33.33	17,329	1,589
	4. Investments – direct shareholdings			
45	JENAER BILDUNGSZENTRUM gGmbH SCHOTT CARL ZEISS JENOPTIK, Jena, Germany	33.33	627 [1]	–73 [1]
	– indirect shareholdings			
46	JT Optical Engine Verwaltungs GmbH, Jena, Germany, i.L. [5]	50 [4]	24 [1]	0 [1]
47	JT Optical Engine GmbH + Co. KG, Jena, Germany, i.L. [5]	50 [4]	509 [1]	–1 [1]
48	JENOPTIK Robot Algérie SARL, Algier, Algeria	49	130 [1]	0 [1]
49	HOMMEL CS s.r.o., Teplice, Czech Republic	40	924 [1]	124 [1]
50	Zenteris GmbH, Jena, Germany, i.I. [6]	24.9 [4]	[3]	[3]

1) Details for 2018 financial statements
2) Details for 2017 financial statements
3) Details not available
4) Deviating fiscal year as of June 30
5) i.L. = in liquidation
6) i.I. = in insolvency
7) Data from financial statements in foreign currency translated as of the balance sheet date 31/12/2019

Jena, March 10, 2020
JENOPTIK AG

The Executive Board

Further Information

» in short «

Jenoptik will invite its shareholders to attend

on June 9, 2020

the Annual General Meeting in Weimar.

Assurance from the Legal Representatives

We give our assurance that, to the best of our knowledge and in accordance with the applicable accounting principles, the consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the Group and that the course of business, including the business result and the position of the Group, are portrayed in such a way in the Combined Management Report that a true and accurate picture is conveyed and that the significant opportunities and risks of the Group's future development are fairly described.

Jena, March 10, 2020

Dr. Stefan Traeger
President & CEO

Hans-Dieter Schumacher
Chief Financial Officer

Independent auditor's report

To JENOPTIK AG

Report on the audit of the consolidated financial statements and of the combined management report

Opinions

We have audited the consolidated financial statements of JENOPTIK AG, Jena, and its subsidiaries (the Group), which comprise the consolidated statement of comprehensive income for the fiscal year from 1 January to 31 December 2019, the consolidated statement of financial position as of 31 December 2019, the consolidated statement of cash flows and the consolidated statement of changes in equity for the fiscal year from 1 January to 31 December 2019, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of JENOPTIK AG, which has been combined with the management report of the Company, for the fiscal year from 1 January to 31 December 2019. In accordance with the German legal requirements, we have not audited the content of the statement on corporate governance pursuant to Sec. 289f HGB ["Handelsgesetzbuch": German Commercial Code] and Sec. 315d HGB, which was published on the website specified in the 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 Sec. 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 at 31 December 2019, and of its financial performance for the fiscal year from 1 January to 31 December 2019, and
- the accompanying group management report, which has been combined with the management report of the Company, as a whole provides an appropriate view of the Group's position. In all material respects, this 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 group management report does not cover the content of the corporate governance statement referred to above.

Pursuant to Sec. 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 group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and the 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 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 Art. 10 (2) f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Art. 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the 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 fiscal year from 1 January to 31 December 2019. 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.

Below, we describe what we consider to be the key audit matters:

1. Testing goodwill for impairment

Reasons why the matter was determined to be a key audit matter

Goodwill recognized in the consolidated financial statements of JENOPTIK AG is subject to an annual impairment test pursuant to IAS 36.

The result of the valuations depends chiefly on the estimated future cash inflows as well as the discount rate used. The impairment test is therefore associated with exceptional uncertainty and judgment, which is why it was determined to be a key audit matter.

Auditor’s response

We discussed the method used to perform the impairment test with the Company’s executive directors and assessed its compliance with the requirements of IAS 36. We verified the individual components used to determine the discount rate with the support of our internal valuation experts, in particular by analyzing the peer group, comparing market data with external evidence and examining the calculation. We examined the clerical accuracy of the valuation model on a sample basis.

We checked on a test basis that the planning assumptions used in the detailed forecasts of each of the cash-generating units are in line with the business plan of the Company prepared by the Executive Board. In addition, we verified the growth rates for income and expenses used to roll forward the budget by comparing internal and external data. We also analyzed the forecasts with regard to adherence to the budget in the past, compared it with the prior-year forecast, discussed it with the Company’s executive directors and obtained evidence substantiating the individual assumptions of the forecasts.

We verified the significant assumptions used in the sensitivity calculations prepared by the Company in order to estimate any potential impairment risk associated with a change in one of the significant assumptions used in the valuation.

We do not have any significant reservations regarding the impairment of goodwill.

Reference to related disclosures

Additional disclosures on the impairment of goodwill as well as the associated judgments are contained in note 5.1 “Intangible Assets” of the Company’s notes to the consolidated financial statements.

2. Write-downs of inventories

Reasons why the matter was determined to be a key audit matter

The complex and heterogeneous production processes as well as a rapidly changing market on account of the technical progress result in increased inventory risks and uncertainties surrounding the measurement of inventories.

Corresponding valuation allowances take into account inventory risks arising from the period of storage and/or reduced usability. In particular, the calculation of the write-down rates using the Company's IT-supported write-down procedure as well as the additional manual adjustments to write-downs, where necessary, which are not taken into account in this write-down procedure, are subject to the estimates made by the executive directors of the Company.

Auditor's response

In our audit, we first examined the procedures for determining write-downs recognized for slow-moving goods and marketability and verified them in comparison to prior fiscal years. Here, we compared the forecast accuracy of the underlying assumptions on a sample basis by checking against the actual write-downs realized upon disposal of the corresponding inventories. The result of our comparison was used as a basis for our assessment of write-downs in the current fiscal year.

In addition, we verified the system-based implementation of write-down routines in SAP by involving corresponding IT specialists.

Our audit did not lead to any reservations concerning the inventory allowances.

We discussed manual adjustments to write-downs with the Company's executive directors, obtained evidence and performed further audit procedures in particular cases, which did not lead to any significant objections with regard to the valuation of manual adjustments.

Reference to related disclosures

Additional disclosures on the measurement of inventories are contained in note 3.9 "Inventories" of the notes to the consolidated financial statements.

3. Measurement of deferred tax assets on loss carryforwards

Reasons why the matter was determined to be a key audit matter

The deferred tax assets recognized in the consolidated financial statements of JENOPTIK AG primarily relate to tax loss carryforwards in Germany. The measurement of deferred tax assets on loss carryforwards mainly depends on the estimated future taxable income. The measurement is therefore inherently subject to judgment and uncertainties, which is why we determined this to be a key audit matter.

Auditor's response
We discussed the method used to measure deferred tax assets with the Company's executive directors and assessed its compliance with the rules of IAS 12.

We scrutinized the executive directors' forecasts of estimated future taxable income and compared these to the internal planning on a sample basis. We also engaged internal tax specialists to assist us with assessing the reconciliation of planned earnings to the expected taxable income. Furthermore, we confirmed the assumptions of the tax planning based on the taxable income generated in the past.

We do not have any significant reservations regarding the deferred tax assets on loss carryforwards.

Reference to related disclosures
Additional disclosures on the recoverability of deferred tax assets on loss carryforwards are contained in note 4.10 "Income Taxes" of the notes to the consolidated financial statements.

Other information
The Supervisory Board is responsible for the Report of the Supervisory Board. In all other respects, the executive directors are responsible for the other information. The other information comprises the following components designated for the annual report, which were provided to us prior to us issuing this auditor's report: Foreword by the Executive Board, Report by the Supervisory Board, Highlights 2019, the Jenoptik Share, Corporate Governance report, statement on corporate governance, which is included in the group management report, the combined non-financial statement, the assurance by the executive directors, the auditor's report on the combined non-financial statement, the "Executive Board and Executive Management Board" section, the glossary, the multi-year overview, the JO indicators by segments, the quarterly overview as well as the dates and the imprint.

Our opinions on the consolidated financial statements and on the 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 group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the executive directors and the Supervisory Board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the 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 Sec. 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the executive directors are 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, the executive directors are 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, the executive directors are responsible for the preparation of the 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, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a 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 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 group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the 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 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 group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 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 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 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 control.
- 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 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 the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' 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 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 Sec. 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 group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the 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 the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors 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 Art. 10 of the EU Audit Regulation

We were elected as group auditor by the annual general meeting on 12 June 2019. We were engaged by the Supervisory Board on 11 September 2019. We have been the group auditor of JENOPTIK AG without interruption since fiscal year 2016.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Art. 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 Mr. Steffen Maurer.

Stuttgart, March 10, 2020

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Blesch	Maurer
Wirtschaftsprüfer	Wirtschaftsprüfer
[German Public Auditor]	[German Public Auditor]

Independent Practitioner’s Report on a Limited Assurance Engagement on Non-financial Reporting [1]

To Jenoptik AG, Jena

We have performed a limited assurance engagement on the combined separate non-financial report pursuant to §§ 289b Abs. 3 und 315b Abs. 3 HGB (“Handelsgesetzbuch”: “German Commercial Code”) of Jenoptik AG, Jena, (hereinafter the “Company”) for the period f from January 1, to December 31, 2019 (hereinafter the “non-financial Report”).

Responsibilities of the Executive Directors

The executive directors of the Company are responsible for the preparation of the Non-financial Report in accordance with §§ 315c in conjunction with 289c to 289e HGB.

This responsibility of Company’s executive directors includes the selection and application of appropriate methods of non-financial reporting as well as making assumptions and estimates related to individual non-financial disclosures which are reasonable in the circumstances. Furthermore, the executive directors are responsible for such internal control as they have considered necessary to enable the preparation of a Non-financial Report that is free from material misstatement whether due to fraud or error.

Independence and Quality Control of the Audit Firm

We have complied with the German professional provisions regarding independence as well as other ethical requirements.

Our audit firm applies the national legal requirements and professional standards – in particular the Professional Code for German Public Auditors and German Chartered Auditors (“Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer”: “BS WP/vBP”) as well as the Standard on Quality Control 1 published by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany; IDW): Requirements to quality control for audit firms (IDW Qualitätssicherungsstandard 1: Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis – IDW QS 1) – and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner´s Responsibility

Our responsibility is to express a limited assurance conclusion on the Non-financial Report based on the assurance engagement we have performed.

Within the scope of our engagement we did not perform an audit on external sources of information or expert opinions, referred to in the Non-financial Report.

1) PricewaterhouseCoopers GmbH has performed a limited assurance engagement on the German version of the separate non-financial report and issued an independent assurance report in German language, which is authoritative. The following text is a translation of the independent assurance report.

We conducted our assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the IAASB. This Standard requires that we plan and perform the assurance engagement to allow us to conclude with limited assurance that nothing has come to our attention that causes us to believe that the Company's Non-financial Report for the period from from January 1, to December 31, 2019 has not been prepared, in all material aspects, in accordance with §§ 315c in conjunction with 289c to 289e HGB.

In a limited assurance engagement the assurance procedures are less in extent than for a reasonable assurance engagement, and therefore a substantially lower level of assurance is obtained. The assurance procedures selected depend on the practitioner's judgment.

Within the scope of our assurance engagement, we performed amongst others the following assurance procedures and further activities:

- Obtaining an understanding of the structure of the sustainability organization
- Inquiries of management and relevant personnel involved in the preparation of the Non-financial Report regarding the preparation process, the internal control system relating to this process and selected disclosures in the Non-financial Report
- Identification of the likely risks of material misstatement of the Non-financial Report
- Analytical evaluation of selected disclosures in the Non-financial Report
- Comparison of selected disclosures with corresponding data in the consolidated financial statements and in the combined group management report
- Evaluation of the presentation of the non-financial information

Assurance Conclusion

Based on the assurance procedures performed and assurance evidence obtained, nothing has come to our attention that causes us to believe that the Company's Non-financial Report for the period from January 1, to December 31, 2019 has not been prepared, in all material aspects, in accordance with §§ 315c in conjunction with 289c to 289e HGB.

Intended Use of the Assurance Report

We issue this report on the basis of the engagement agreed with the Company. The assurance engagement has been performed for purposes of the Company and the report is solely intended to inform the Company about the results of the limited assurance engagement.

The report is not intended for any third parties to base any (financial) decision thereon. Our responsibility lies only with the Company. We do not assume any responsibility towards third parties.

Munich, 10 March 2020

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft

Hendrik Fink
Wirtschaftsprüfer
[German Public Auditor]

ppa. Barbara Wieler

Executive Board

Dr. Stefan Traeger
President and CEO

Dr. Stefan Traeger has been President & CEO of JENOPTIK AG since May 1, 2017. He is responsible for the divisions (operational business) and the regions as well as for the areas of Corporate Development (Strategy, Mergers & Acquisitions, Innovation), Corporate Communications and Marketing, Investor Relations and Sustainability, Legal and IP, Compliance & Risk Managemet, Environment, Health and Safety (EHS) and, as Human Resources Director, for HR.

Hans-Dieter Schumacher
Chief Financial Officer

Hans-Dieter Schumacher has been Chief Financial Officer (CFO) of JENOPTIK AG since April 1, 2015. He is responsible for the areas of Finance & Controlling (Corporate & Divisional), General Procurement, Treasury, Tax, IT & Data Security as well as Corporate Real Estate Management and Internal Audit.

Executive Management Committee

Dr. Stefan Traeger
President & CEO

Hans-Dieter Schumacher
Chief Financial Officer

Kevin Chevis
Head of Light & Safety division

Maria Koller
Head of Global HR

Martin Kuhnhen
Head of Light & Production division

Dr. Ralf Kuschnereit
Head of Light & Optics division

Albert Miranda
President Jenoptik North America

Steffen Müller
Vice President Corporate Development and M & A

Jonathan Qu
President Jenoptik Asia

Dr. Stefan Stenzel
Head of VINCORION

Markus Weber
Head of Corporate Controlling

Scientific Advisory Council – External Members

(as at February 2020)

Prof. Dr. Jürgen Beyerer
Fraunhofer Institute IOSB, Karlsruhe
Karlsruhe Institute of Technology (KIT), Chair of Vision and Fusion Laboratory (IES), Institute for Anthropomatics and Robotics, Department of Informatics

Prof. Dr. Joachim Denzler
Friedrich Schiller University Jena, Chair of the Computer Vision Group, Department of Mathematics and Computer Science

Prof. Dr. Gerhard P. Fettweis
Technische Universität Dresden, Vodafone Chair Mobile Communications Systems, Institute of Communication Technology, Faculty of Electrical and Computer Engineering

Prof. Dr. Karsten Lemmer
German Aerospace Center (DLR)

Prof. Dr. Jürgen Popp
Leibniz Institute of Photonic Technology IPHT, Jena
Friedrich Schiller University Jena, Chair of Physical Chemistry II, Institute of Physical Chemistry, Faculty of Chemistry and Earth Sciences

Prof. Dr. Michael Schefczyk
Technische Universität Dresden, Chair of Entrepreneurship and Innovation, Faculty of Business and Economics

Prof. Dr. Martin Schell
Fraunhofer Heinrich Hertz Institute HHI, Institute for Telecommunications

Prof. Dr. Johannes Heinrich Schleifenbaum
Fraunhofer Institute for Laser Technology ILT, Aachen
RWTH Aachen University, Chair of Digital Additive Production (DAP), Faculty of Mechanical Engineering

Prof. Dr. Patrick Spieth
University of Kassel, Chair of Technology, Innovation Management and Entrepreneurship, Institute of Management and Business Studies, Institute of Management and Business Studies, Faculty of Economics and Management

Prof. Dr. Günther Tränkle
Ferdinand Braun Institute, Leibniz Institute for High-Frequency Technology, Berlin
Technische Universität Berlin, Institute of High-Frequency and Semiconductor System Technologies, Faculty Electrical Engineering and Computer Science

Prof. Dr. Andreas Tünnermann
Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena
Friedrich Schiller University Jena, Institute of Applied Sciences, Faculty of Physics and Astronomy

Glossary

B

Book-to-bill ratio – Ratio of order intake to revenue for a fiscal year. A ratio of over 1.00 indicates that the order intake surpassed revenue for the fiscal year, likely leading to an increase in order backlog.

B2B – Business activities with the capital goods industry.

B2G – Business activities with the public sector.

C

Cash conversion rate – The percentage ratio of free cash flow to EBITDA for the respective year.

CSRA coverage rate – "Corporate Social Responsibility Self Assessment" is a questionnaire for our suppliers based in defined best cost countries on sustainability issues in the areas of social, compliance, governance and environment. The coverage rate indicates the percentage of our suppliers who completed this questionnaire.

D

Debenture loan – In addition to bank loans and bonds, another form of (long-term) external financing for companies. The borrower is granted a loan against a debenture by large financial intermediaries (in general credit institutions) without having to access the organized capital market.

E

EBIT – Income from operations – earnings before interest and taxes.

EBITDA – Earnings before interest, taxes, depreciation and amortization (including impairment losses and reversals of impairment losses).

Equity ratio – Indicator used in capital structure analysis stating the relative proportion of equity in total assets.

F

Frame contracts – These are contracts or framework agreements the amount and probability of which cannot yet be determined exactly.

Free cash flow – Available cash flow. The free cash flow is regarded by financing institutions as an indicator of the ability to repay loans and is therefore often used as a basis to calculate financing capacity. It is calculated from the cash flows from operating activities before income tax payments less capital expenditure in and income from the sale of property, plant, equipment and intangible assets.

G

Goodwill – Difference between the purchase price of a newly acquired company and its equity (assets minus liabilities).

Gross margin – The gross margin indicates how much (in percent of revenue) a company is earning after deducting cost of sales. The indicator helps to assess how efficiently a company is operating.

I

Innovation – a novelty or development that is based on a conscious and targeted process of change and is accompanied by social, technical and economic change. It can refer to products, services, structures or processes.

N

Net debt – Calculated by deducting cash and securities from the total of non-current and current financial debt.

O

OEM – An Original Equipment Manufacturer which markets its components/products to another company instead of selling by retail.

P

Performance Shares – Share-based, performance-related remuneration which is based, on the one hand, on the achievement of certain operational targets, and on the other hand on the share price as an indicator for the increase in the company's value. It is paid out in cash after the end of the performance period.

R

Relative total shareholder return – Difference in percentage points between the change in the share price of the Jenoptik share including reinvested dividends and the change in the TecDax Performance Index.

ROCE (Return on Capital Employed) – is calculated by dividing EBIT by the average tied operating capital. The total tied operating capital is calculated on the basis of the non-current non-interest-bearing assets (such as intangible assets including goodwill, property, plant and equipment and investment properties) plus the current non-interest-bearing assets (primarily inventories, receivables from the operating business activities and other current receivables) less non-interest-bearing borrowings (such as provisions – excluding pensions and taxes, liabilities from the operating business activities and other current liabilities). The calculation of the average takes into account twelve month-end balances in the period under review, and the opening balance at the start of the year.

S

Swap – An agreement between two companies to exchange cash flows. In the case of an interest swap, fixed interest payments are swapped for floating payments for a nominal fee.

Sustainability – a principle of using resources and economic activity that satisfies present needs without compromising the needs of future generations. It is a long-term oriented way of thinking, in order to ensure the preservation of the natural regenerative capacity of resources.

Syndicated loan – The syndicated loan is a credit granted jointly by several banks (members of a consortium) to one debtor. One or several banks may take the lead.

V

Vitality index – puts the revenue of products younger than three years in relation to total revenue.

W

Working capital – The total of trade receivables and contract assets as well as inventories minus trade payables and contract liabilities.

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Historical Summary of Financial Data

		2013	2014	2015	2016	2017	2018	2019
Statement of Income								
Revenue	million euros	600.3	590.2	668.6	684.8	747.9	834.6	855.2
Light & Optics	million euros	n/a	n/a	n/a	n/a	n/a	337.0	350.0
Light & Production	million euros	n/a	n/a	n/a	n/a	n/a	210.7	228.9
Light & Safety	million euros	n/a	n/a	n/a	n/a	n/a	116.9	108.7
VINCORION	million euros	n/a	n/a	n/a	n/a	n/a	166.4	164.8
Foreign revenue	million euros	371.9	379.1	450.8	458.3	525.3	594.1	621.3
of revenue	%	62.0	64.2	67.4	66.9	70.2	71.2	72.6
Cost of sales	million euros	394.6	384.7	442.5	446.9	484.0	541.5	563.4
Gross profit	million euros	205.7	205.5	226.2	237.9	263.9	293.1	291.8
Gross margin	%	34.3	34.8	33.8	34.7	35.3	35.1	34.1
R+D expenses	million euros	39.8	39.4	41.8	42.3	43.1	47.4	44.1
Selling expenses	million euros	66.6	67.5	72.6	73.6	80.3	87.0	89.3
Administrative expenses	million euros	46.4	51.1	54.0	57.6	55.8	56.1	60.5
EBITDA	million euros	74.8	76.1	88.8	96.9	106.9	127.5	134.0
Light & Optics	million euros	n/a	n/a	n/a	n/a	n/a	74.1	69.8
Light & Production	million euros	n/a	n/a	n/a	n/a	n/a	24.6	25.8
Light & Safety	million euros	n/a	n/a	n/a	n/a	n/a	15.9	18.8
VINCORION	million euros	n/a	n/a	n/a	n/a	n/a	20.1	24.2
EBITDA margin [3)]	%	12.5	12.9	13.3	14.2	14.3	15.3	15.7
Light & Optics	%	n/a	n/a	n/a	n/a	n/a	21.8	19.8
Light & Production	%	n/a	n/a	n/a	n/a	n/a	11.7	11.3
Light & Safety	%	n/a	n/a	n/a	n/a	n/a	13.6	17.3
VINCORION	%	n/a	n/a	n/a	n/a	n/a	12.1	14.7
EBIT	million euros	52.7	51.6	61.2	68.5	78.0	94.9	88.9
EBIT margin [3)]	%	8.8	8.7	9.2	10.0	10.4	11.4	10.4
EBT	million euros	47.2	46.1	57.4	64.7	80.1	91.4	85.2
EBT margin	%	7.9	7.8	8.6	9.5	10.8	11.0	10.0
Earnings after tax	million euros	47.2	41.6	49.9	57.5	72.7	87.4	67.6
EPS	euros	0.82	0.73	0.87	1.00	1.27	1.53	1.18
Cost of materials (incl. external services)	million euros	250.9	253.6	281.5	284.6	309.3	356.1	344.8
Material intensity	%	40.7	41.3	40.4	40.2	40.2	41.6	39.5
R+D output	million euros	52.2	50.4	53.1	57.4	66.6	69.1	68.4
R+D ratio	%	8.7	8.5	7.9	8.4	8.9	8.3	8.0
Financial result	million euros	−5.5	−5.5	−3.8	−3.7	2.0	−3.5	−3.7
Cash Flows and Capital Expenditure								
Cash flows from operating activities	million euros	60.6	46.3	85.1	100.1	96.3	135.5	108.9
Free cash flow (before income tax)	million euros	47.0	22.5	71.8	80.4	72.2	108.3	77.2
Capital expenditures	million euros	24.4	29.9	24.7	27.5	37.9	42.5	55.6
Personnel								
Employees on average		3,233	3,375	3,421	3,404	3,500	3,714	3,961
Revenue per employee	thousand euros	185.7	174.9	195.4	201.2	213.7	224.7	215.9
Personnel expenses	million euros	210.9	219.7	239.6	246.1	258.3	278.3	301.1
Personnel intensity	%	35.1	37.2	35.8	35.9	34.5	33.4	35.2

		2013	2014	2015	2016	2017	2018	2019
Statement of Financial Position								
Non-current assets	million euros	329.8	389.5	382.8	371.9	376.2	491.8	555.2
Intangible assets and property, plant and equipment	million euros	216.0	274.0	278.4	269.2	285.7	391.5	463.9
Investment property	million euros	19.1	16.4	4.5	4.4	4.4	4.4	4.3
Financial investments	million euros	20.1	21.1	21.7	19.0	4.4	6.8	8.3
Other non-current assets	million euros	4.4	1.8	4.5	5.0	2.9	2.9	1.1
Deferred tax assets	million euros	70.3	76.3	73.6	74.2	78.9	86.3	77.7
Current assets	million euros	362.6	382.2	386.3	441.2	512.9	494.1	528.1
Inventories	million euros	165.1	179.0	167.1	159.3	168.6	175.6	153.7
Trade and other receivables	million euros	125.3	133.4	135.0	139.3	147.4	173.6	205.8
Current financial assets and cash	million euros	72.2	69.8	84.2	142.5	196.9	148.7	168.7
Equity	million euros	367.1	386.6	435.1	476.4	529.9	598.0	655.4
Share capital	million euros	148.8	148.8	148.8	148.8	148.8	148.8	148.8
Non-current liabilities	million euros	173.1	216.6	169.5	175.4	162.1	170.3	176.0
Pension provisions	million euros	28.2	41.0	36.1	37.6	37.1	37.3	31.6
Other non-current provisions	million euros	11.0	10.0	10.3	12.3	15.9	16.3	17.9
Non-current financial liabilities	million euros	115.2	156.8	113.2	120.5	108.6	111.4	122.6
Other non-current liabilities	million euros	16.9	7.0	7.9	4.8	0.4	2.8	2.3
Deferred tax liabilities	million euros	1.8	1.7	2.0	0.1	0.1	2.5	1.7
Current liabilities	million euros	152.3	168.5	164.5	161.3	197.1	217.7	251.9
Tax provisions	million euros	4.8	5.7	3.3	3.4	8.9	9.0	6.4
Other current provisions	million euros	37.4	37.7	42.7	46.2	51.2	58.7	51.9
Current financial liabilities	million euros	1.2	5.1	14.9	4.1	19.3	10.1	37.0
Trade payables and other liabilities	million euros	109.0	120.0	103.6	107.7	117.6	139.9	156.6
Total equity and liabilities	million euros	692.4	771.7	769.2	813.1	889.1	985.9	1,083.3
Balance sheet ratios								
Equity ratio	%	53.0	50.1	56.6	58.6	59.6	60.6	60.5
Asset coverage		261.0	256.5	279.5	301.7	321.7	321.6	261.0
Gross debt	million euros	116.4	161.9	128.1	124.6	127.9	121.5	159.6
Net debt	million euros	44.1	92.1	43.9	−17.9	−69.0	−27.2	−9.1
Working capital	million euros	195.6	217.5	215.5	209.9	214.8	216.8	217.8
Working capital ratio	%	32.6	36.9	32.2	30.7	28.7	26.0	25.5
Debt to equity ratio		0.9	1.0	0.8	0.7	0.7	0.6	0.7
Total return on investment based on EBT	%	6.8	6.0	7.5	8.0	9.0	9.3	7.9
Return on equity based on EBT	%	12.9	11.9	13.2	13.6	15.1	15.3	13.0
ROCE		14.0	13.0	13.5	15.6 [1)]	18.2 [1)]	20.2	14.7
Dividend key figures								
Dividend per share	euros	0.20	0.20	0.22	0.25	0.30	0.35	0.35 [2)]
Pay out ratio on earnings attributable to shareholders	%	24.3	27.5	25.4	24.9	23.7	22.9	29.7 [2)]
Dividend yield based on year-end stock exchange price	%	1.6	1.9	1.5	1.5	1.1	1.5	1.4 [2)]

1) Continued operations
2) Subject to the approval by the annual general meeting
3) Based on total revenue

Key Figures of Jenoptik by Segment

in million euros		1.1.–31.12.2019	1.1.–31.12.2018	Change in %
Revenue	**million euros**	**855.2**	**834.6**	**2.5**
Light & Optics	million euros	350.0	337.0	3.9
Light & Production	million euros	228.9	210.7	8.6
Light & Safety	million euros	108.7	116.9	–7.1
VINCORION	million euros	164.8	166.4	–1.0
EBITDA	**million euros**	**134.0**	**127.5**	**5.0**
Light & Optics	million euros	69.8	74.1	–5.8
Light & Production	million euros	25.8	24.6	4.7
Light & Safety	million euros	18.8	15.9	18.2
VINCORION	million euros	24.2	20.1	20.0
EBITDA margin*	**%**	**15.7**	**15.3**	
Light & Optics	%	19.8	21.8	
Light & Production	%	11.3	11.7	
Light & Safety	%	17.3	13.6	
VINCORION	%	14.7	12.1	
EBIT	**million euros**	**88.9**	**94.9**	**–6.3**
Light & Optics	million euros	57.9	65.9	–12.1
Light & Production	million euros	14.5	16.8	–14.0
Light & Safety	million euros	11.7	10.9	7.2
VINCORION	million euros	17.4	16.5	5.3
EBIT margin*	**%**	**10.4**	**11.4**	
Light & Optics	%	16.5	19.4	
Light & Production	%	6.3	8.0	
Light & Safety	%	10.7	9.3	
VINCORION	%	10.5	9.9	
R+D output	**million euros**	**68.4**	**69.2**	**–1.1**
Light & Optics	million euros	34.6	28.0	23.4
Light & Production	million euros	11.3	13.1	–13.6
Light & Safety	million euros	12.0	13.6	–12.1
VINCORION	million euros	10.5	14.1	–25.4
Order intake	**million euros**	**812.6**	**873.7**	**–7.0**
Light & Optics	million euros	324.7	396.1	–18.0
Light & Production	million euros	199.3	200.7	–0.7
Light & Safety	million euros	107.9	118.4	–8.9
VINCORION	million euros	177.9	154.9	14.8
		31/12/2019	31/12/2018	Change in %
Order backlog	**million euros**	**466.1**	**521.5**	**–10.6**
Light & Optics	million euros	144.9	180.6	–19.7
Light & Production	million euros	81.6	112.5	–27.5
Light & Safety	million euros	69.9	69.5	0.5
VINCORION	million euros	169.7	158.9	6.8

* Based on total revenue

Summary by Quarter 2019

		1st quarter 1/1 – 31/3	2nd quarter 1/4 – 30/6	3rd quarter 1/7 – 30/9	4th quarter 1/10 – 31/12
Revenue	**million euros**	**184.0**	**199.1**	**212.7**	**259.5**
Light & Optics	million euros	83.2	79.5	88.1	99.3
Light & Production	million euros	50.4	60.9	59.5	58.1
Light & Safety	million euros	24.5	23.9	26.7	33.6
VINCORION	million euros	25.3	33.8	37.8	68.0
EBITDA	**million euros**	**23.8**	**30.2**	**37.4**	**42.6**
Light & Optics	million euros	16.6	15.4	17.4	20.4
Light & Production	million euros	5.6	6.4	7.2	6.6
Light & Safety	million euros	3.7	2.8	5.4	6.9
VINCORION	million euros	–0.4	4.9	6.1	13.6
EBITDA margin*	**%**	**12.9**	**15.2**	**17.6**	**16.4**
Light & Optics	%	19.8	19.2	19.7	20.5
Light & Production	%	11.0	10.5	12.1	11.4
Light & Safety	%	15.2	11.8	20.1	20.5
VINCORION	%	–1.6	14.4	16.1	20.0
EBIT	**million euros**	**12.8**	**19.4**	**25.9**	**30.8**
Light & Optics	million euros	14.2	12.8	14.0	16.9
Light & Production	million euros	2.4	3.5	4.5	4.0
Light & Safety	million euros	2.0	1.1	3.6	5.1
VINCORION	million euros	–2.0	3.2	4.4	11.8
EBIT margin*	**%**	**7.0**	**9.7**	**12.2**	**11.9**
Light & Optics	%	16.9	16.0	15.8	17.0
Light & Production	%	4.7	5.8	7.6	6.9
Light & Safety	%	8.0	4.4	13.4	15.1
VINCORION	%	–8.1	9.5	11.7	17.4
Order income (external)	**million euros**	**210.4**	**182.2**	**182.4**	**237.7**
Light & Optics	million euros	76.5	76.5	80.1	91.6
Light & Production	million euros	63.1	49.9	45.6	40.6
Light & Safety	million euros	27.0	23.6	21.6	35.7
VINCORION	million euros	43.0	30.8	34.2	69.9

* Based on total revenue

Imprint

Editor
JENOPTIK AG, Communications and Marketing

Layout
Hilger & Boie

Print
Druckhaus Gera GmbH

Images
Hilger & Boie (pages 2, 5 – 6, 9 – 10, 13), NASA (pages 2 – 5, 29)
Jeibmann Photographik (pages 6, 10, 16 – 19, 28 – 29), SCHEERE PHOTOS (pages 8, 28)
unsplash.com (pages 10 – 11, 13), pexels.com (page 13)
Ulrich Wozniak (pages 11, 28), dirk peiper fotografie (page 29), Manager magazin (page 29)
eyetronic – stock.adobe.com, sanee – stock.adobe.com (page 28), sepy – Fotolia (page 29)
Archiv Jenoptik (pages 2, 4 – 6, 7, 9, 28 – 29)

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For better readability, the masculine forms are used normally.

This is a translation of the original German-language Annual Report of the Jenoptik Group. JENOPTIK AG shall not assume any liability for the correctness of this translation. In case of differences of opinionthe German text shall prevail.

Dates

March 25, 2020
Publication of Financial Statements 2019

May 13, 2020
Publication of Quarterly Statement January – March 2020

June 9, 2020
Annual General Meeting of JENOPTIK AG 2020

August 6, 2020
Publication of Interim Report January – June 2020

November 10, 2020
Publication of Quarterly Statement January – September 2020

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