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.

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.

137 Consolidated Financial Statements 210

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).

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.

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**

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.

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 Balance as of 1/1/2019	**171,075**	**194,631**	**107,491**	**15,438**	**488,635**
	(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 Balance as of 31/12/2019	**231,452**	**205,344**	**115,278**	**24,714**	**576,787**
	(171,075)	**(194,631)**	**(107,491)**	**(15,438)**	**(488,635)**
Depreciation and impairments Balance as of 1/1/2019	**71,836**	**148,064**	**82,805**	**0**	**302,705**
	(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 Balance as of 31/12/2019	**83,184**	**154,909**	**87,571**	**0**	**325,664**
	(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.

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 (108,573)	1 (−11)	532 (216)	5,617 (5,307)	50,528 (0)	121 (208)	−45,644 (−2,888)	122,562 (111,405)
Non-current liabilities to banks	108,227 (107,883)	0 (−11)	87 (217)	0 (2,166)	0 (0)	170 (208)	−36,302 (−2,237)	72,182 (108,227)
Non-current liabilities from finance leases	3,178 (690)	1 (0)	446 (−2)	5,617 (3,141)	50,528 (0)	−49 (0)	−9,342 (−652)	50,380 (3,178)
Current financial debt	10,123 (19,337)	−31,132 (−13,305)	255 (16)	3,947 (1,187)	8,352 (0)	−192 (0)	45,644 (2,888)	36,996 (10,123)
Current liabilities to banks	9,294 (19,157)	−21,257 (−12,596)	198 (17)	1,705 (479)	0 (0)	43 (0)	36,302 (2,237)	26,285 (9,294)
Current liabilities from finance leases	829 (180)	−9,875 (−709)	57 (−1)	2,242 (708)	8,352 (0)	−235 (0)	9,342 (652)	10,712 (829)
Total	**121,528** **(127,910)**	**−31,131** **(−13,316)**	**787** **(232)**	**9,564** **(6,495)**	**58,880** **(0)**	**−70** **(208)**	**0** **(0)**	**159,558** **(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			847	
		(48)			(48)	
Other financial liabilities	AC	9,078	9,078			
		(5,288)	(5,288)			
Total		**258,062**	**191,275**	**4,078**	**1,618**	**61,091**
		(191,876)	**(182,980)**	**(3,169)**	**(1,719)**	**(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	0	0	2,487
	(1,569)	(0)	(0)	(1,569)
Derivatives with hedge relations (assets)	810	0	810	0
	(128)	(0)	(128)	(0)
Derivatives without hedge relations (assets)	1,032	0	1,032	0
	(1,871)	(0)	(1,871)	(0)
Contingent liabilities	771	0	0	771
	(1,671)	(0)	(0)	(1,671)
Derivatives with hedge relations (liabilities)	4,078	0	4,078	0
	(3,169)	(0)	(3,169)	(0)
Derivatives without hedge relations (liabilities)	847	0	847	0
	(48)	(0)	(48)	(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.

	Interest rates	Carrying amounts	Cash outflows			
in thousand euros	(Range in %)	31/12/2019	Total	Up to 1 year	1 to 5 years	More than 5 years
Variable interest-bearing liabilities to banks	0.8 – 1.00 (0.8 – 5.29)	14,053 (32,285)	14,355 (33,193)	142 (6,287)	14,213 (26,906)	0 (0)
Fixed interest-bearing liabilities to banks	0.98 – 5.00 (1.0 – 3.9)	84,414 (85,236)	84,904 (88,217)	24,879 (3,395)	60,024 (84,823)	0 (0)
Fixed interest-bearing liabilities from leases	0.9 – 5.9 (0.9 – 7.6)	61,091 (3,902)	66,252 (4,109)	11,423 (868)	32,943 (3,230)	21,886 (11)
Total		**159,558** **(121,422)**	**165,511** **(125,520)**	**36,444** **(10,550)**	**107,180** **(114,959)**	**21,886** **(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.

	Carrying amounts	
in thousand euros	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 (2,441)	1,326 (1,858)	543 (583)
Purchased services	1,301 (1,355)	757 (812)	543 (543)
Receivables from operations	204 (453)	181 (432)	22 (21)
Liabilities from operations	1,813 (2,155)	113 (30)	1,700 (2,125)
Loans	10 (10)	10 (10)	0 (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

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