# Forecast Report

## Framework Conditions: Future Development of the Economy as a whole and the Jenoptik Sectors

Despite a range of uncertainties and risks, the International Monetary Fund (IMF) expects in its "World Economic Outlook" the global economy to grow at a marginally better rate in 2017 than in the prior year. At present, growth of 3.4 percent is forecast. The outlook for industrialized nations has improved slightly, but high levels of debt in some newly industrialized and emerging economies mean that the prospects there are now assessed as less good than still in the October forecast. The IMF has cut back its growth forecasts for India, Brazil and Mexico in particular. There are significantly fewer opportunities for growth in Saudi Arabia, according to the IMF, as oil production is being scaled back and civil wars in other Middle East countries are taking a heavy toll. T45

Both the IMF and the OECD are concerned about signs of protectionism emanating from the US: although the tax cuts and infrastructure programs planned by the US government could further boost the US economy in 2017, restrictions in free trade combined with punitive tariffs imposed on Mexico or China, for example, could result in postponements in capital expenditure and weaken global trading.

The economic, political and institutional implications of the Brexit decision are not yet foreseeable. Great Britain intends to leave both the EU and the single market in the next two years. A new free trade agreement with the EU could complicate trade links, especially in financial services and exports. Even though Brexit, the new US administration and various European elections this year make forecasts subject to uncertainties, in its Winter forecast as of February 2017 the EU Commission is anticipating for the first time economic growth throughout the single currency area in its forecasting period to 2018, albeit with considerable difference in the various EU nations. It believes that GDP in the Euro zone will grow 1.6 percent on the prior year in 2017, and then by 1.8 percent in 2018. Domestic demand is still seen as the greatest driver of growth. The EU Commission considers a continuing low level of investment as cause for concern.

**T45** Gross Domestic Product Forecast (in percent)

| | 2018 | 2017 |
|---|---|---|
| World | 3.6 | 3.4 |
| USA | 2.5 | 2.3 |
| Euro zone | 1.6 | 1.6 |
| Germany | 1.5 | 1.5 |
| China | 6.0 | 6.5 |
| India | 7.7 | 7.2 |
| Emerging Countries | 4.8 | 4.5 |

Source: International Monetary Fund, World Economic Outlook, January 2017

Economic growth in China is expected to slow further. The government is committed to strengthening domestic consumption and the service sector. However, economists believe that these adjustments to the economic structure will lead to a further reduction in the previously very high growth rates. In addition, foreign investment is due to be made more difficult according to reports by news agencies. This is to help boost the domestic currency following a major wave of Chinese investment in the US and Europe in 2016.

In Germany, the economic upswing seen last year is due to continue at a slightly weaker rate: In its latest forecast for 2017, the German Government is forecasting GDP growth of 1.4 percent, again primarily bolstered by consumer spending. The BGA foreign trade association is not alone in seeing major uncertainties arising from the protectionist policies announced in the US. In view of the close ties that exist, German companies have a great deal at stake in terms of jobs and exports, said the BGA in a press release. Overall, the German Federation of Wholesale and Foreign Trade is still expecting exports to grow 2.3 percent in 2017, to a new record figure of around 1.23 trillion euros. The ifo Business Climate Index fell unexpectedly in January 2017 as reported by the ifo Institute in its monthly press release. Although companies assessed their present situation as better, the outlook for the next six months was considerably poorer.

According to Transparency Market Research, the global photonics market will grow annually by an average 5.8 percent to 2020 and reach a value of 766 billion US dollars. By comparison, in their "Photonics Industry Report" the Spectaris, VDMA and ZVEI industry associations still anticipate average annual growth of 6.5 percent and a market volume of 615 billion euros in 2020. They see this development as primarily driven by demand for highly-efficient electronics products and growing

See the chapter Expected Development of the Business Situation for information on how this affects the forecast for the Jenoptik Group

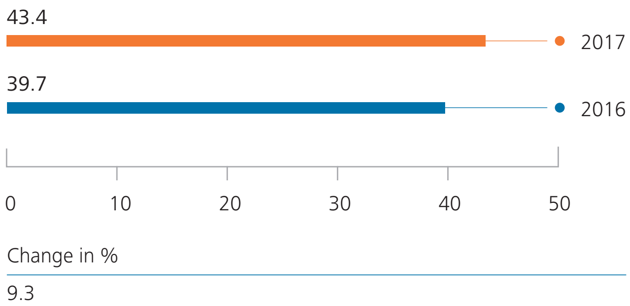
data volumes. The field of silicon photonics is becoming increasingly important to data transfer and the necessary optics design. It uses silicon as an optical medium. With a view to applications, the medical technology and healthcare segments will grow the fastest, as demand for early diagnosis and minimal invasive surgery increases. G21

In the semiconductor equipment industry, the SEMI industry association sees global revenues growing by 9.3 percent to 43.4 billion US dollars in 2017, according to its most recent forecast in a press release in December 2016. Taiwan, Korea and China will remain the biggest markets, but revenue in Europe is expected to grow at the fastest rate following a weak prior year. According to a press release IT analyst Gartner forecasts growth of 2.9 percent in 2017. G22

The momentum in the global semiconductor market, which began in mid-2016, will continue in 2017, according to industry experts. As published in a press release, the SIA association is expecting moderate revenue growth of 3.3 percent, to around 346 billion US dollars, in 2017, and 2.3 percent, to 354 billion US dollars, in 2018. Gartner expects greater growth of 7.2 percent for 2017, to 364 billion US dollars. It believes that industrial, automotive and storage applications will develop at a rapid pace, while traditional areas of business such as smartphones and PCs will grow more slowly.

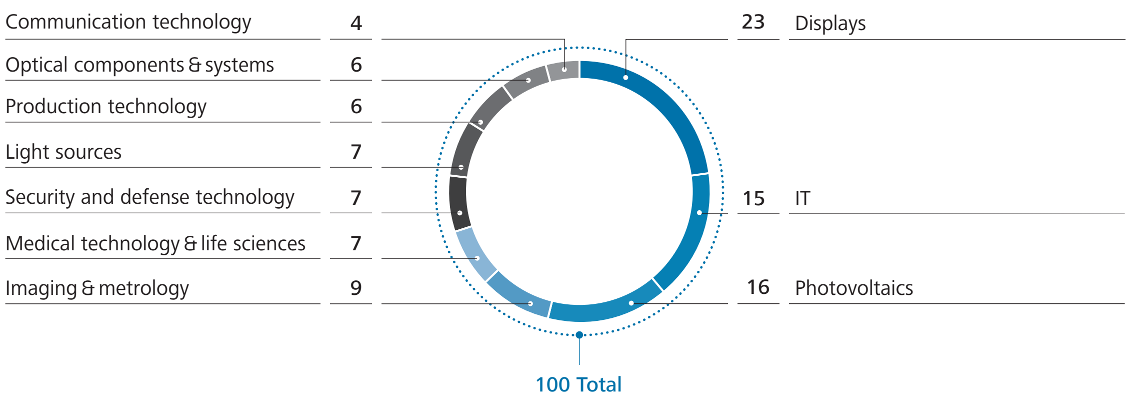
The machinery and plant engineering industry is facing geopolitical uncertainties such as forthcoming Brexit, the situation in the US and similar protectionist trends as the VDMA industry association reported in a press release. Exports to China could also contract as a consequence of overcapacity and high debt in the state-owned enterprise sector and the municipalities. Although the VDMA is anticipating minor growth of 1 percent in production for Germany in 2017, genuine growth momentum is not in sight. Revenue at Germany machinery engineering

## G22 Semiconductor Equipment: Global Revenue Forecast (in billion US dollars)




Source: Semiconductor Equipment and Materials International (SEMI)

## G21 Global Photonics Market in 2020: 615 billion euros (share in percent)




Source: VDMA, ZVEI, Spectaris: Photonics Industry Report 2013 companies is due to increase from around 220 billion euros to 224 billion euros. The VDMA takes a critical view of the German government's focus on e-mobility, as alternatives such as the ongoing development of combustion engines are not being pursued with the same vigor. The machinery engineering industry has opportunities for new growth in the automation of production processes and digitization.

On an international scale, these trends are reflected in the forecast revenue growth with industrial robots of 13 percent annually to 2019, according to the International Federation of Robotics (IFR). As part of its reindustrialization strategy, the US industrial sector continues to invest heavily in automation and robotics, according to the IFR in its "World Robotics Report 2016". The aim of automating production is to boost the competitiveness of American industry and both secure and repatriate production capacities. According to the ZVEI manufacturers' association, the German automation industry can look forward to a good year: growth of 3 to 6 percent is anticipated in factory automation, and up to 3 percent in process automation, as stated at a ZVEI press conference at a trade fair at the end of 2016.

For the automotive industry, the VDA anticipates in its press releases that the car markets in the US and Western Europe will develop at a stable rate in 2017, while the Chinese market is expected to continue growing. On a global scale, the car market is due to grow in size by 2 percent to approximately 84 million vehicles. The global commercial vehicle market may retain or slightly exceed its prior-year level. According to the association, industry trends include digitization, networking, automated driving and alternative drive systems. The new US government's policy regarding non-American automakers is not yet foreseeable. According to an analysis of market researcher IHS, a slight decline in new registrations is expected in the US in 2017, although high sales figures will continue. In Germany, automotive associations and manufacturers have criticized the initiative taken by a number of federal states to ban combustion engines in new cars from 2030. In addition to state subsidies for electric cars made in China, China plans to introduce a production quota for electric vehicles from 2018, which will give domestic automakers a competitive advantage.

In its report „Road Safety Market by Solution, Service" US market research company Markets and Markets believes that the global traffic safety market will grow from 2.6 billion US dollars in 2016 to 4.1 billion dollars in 2021, an average annual increase of 9.3 percent. Key factors include the growing number of traffic accidents, growing urbanity and mobility, and increasing statutory regulations for traffic safety. The red light monitoring segment is due to dominate the market, particularly in connection with smart cities. Automatic number plate recognition (ANPR) is also becoming more important as a means of traffic monitoring and prevention: in industry reports, market researchers expect the ANPR market segment to grow by an average 12.8 percent annually and be worth 1.4 billion US dollars by 2023. Interest in section control is growing in Germany: the city of Cologne, for example, plans to install section control technology in the Rheinufer Tunnel, reported local media. This is dependent on the successful completion of the pilot project in Lower Saxony.

By 2020, the market for electronic toll payment monitoring is due to expand at a double-digit growth rate to meet the demand for improved, safer infrastructure, according to a long-term analysis conducted by market researcher "Future Market Insights". The demand for faster toll payment processing and the aim to reduce congestion and journey times will be important drivers of this market, although high installation costs and a strong dependency on governments are inhibiting factors.

The global railway industry is at a crossroads: according to a study by market researchers at SCI Verkehr and McKinsey, manufacturers must develop their business models with a greater focus on service and after-sales. Global growth in new business is losing momentum and is due to amount to just 1.3 percent in the coming five years, in part due to declining demand occasioned by China's scaled-down capital expenditure planning, while service and maintenance will account for a majority of revenue in the future. In summary, the global market for railway technology is due to grow an average of 2.3 percent in the next five years according to SCI. Asia will remain the biggest regional market, while Africa and the Middle East will grow most strongly, conditional upon a stable political environment.

The American aircraft manufacturer Boeing increased its regional long-term forecast for the aviation industry: China will need over 6,800 new aircraft in the next 20 years, equivalent to a value of over one trillion US dollars. In its press releases, Boeing is forecasting demand for 39,620 passenger and transport aircraft with a total value of 5.9 trillion US dollars globally. In its "Global Market Forecast" European manufacturer Airbus is anticipating 33,000 new aircraft with at least 100 seats, worth 5.2 trillion US dollars. Together with Siemens, the company plans to verify the technical feasibility of hybrid electric drive systems for aircraft by 2020. In a press release the IATA industry association forecasts, that following cyclical high profits in the international aviation industry profit will fall to 29.8 billion US dollars in 2017 (prior year 36.5 billion US dollars). This is in part due to the renewed rise in oil prices and a range of political, economic and security risks. Nevertheless, 2017 would be one of the industry's best three years if the forecast is fulfilled.

The German Ministry of Defense is due to see its budget increase significantly in the coming years. It rose by around 2.7 billion euros to 37 billion euros in 2017, and the German government plans to increase it further to 39.2 billion euros by 2020. It would, however, have to rise to over 60 billion euros to make up 2 percent of gross domestic product, as demanded by NATO and the US. As stated in an arms report by the Federal Defense Ministry, one of the biggest armaments projects could turn out far more expensive than expected: the development of the new Meads missile defense system for the Tactical Air Defense System (TLVS), for which Jenoptik is a supplier. Over the next decade, it is due to gradually replace the Patriot system, but negotiations and legislative approval could be delayed to the next legislative period. On defense policy, Germany, France, Italy and Spain intend to increase cooperation in the future as was announced by the defense ministers of the countries in a joint letter. The EU Commission intends to support this move with additional funding for defense research and more stringent tendering rules. From 2021, 500 million euros will be provided for European development projects from a European defense fund. A pilot scheme worth 90 million euros is already planned for 2017 to 2019. Aviation company Airbus has reported to the media that final assembly of the Eurofighter jet in Germany and Spain will end in 2018 if no new orders are received. Great Britain and Italy are not yet affected. Reasons include the low order backlog, an assembly process spread over four sites and complex responsibility over exports. There will, however, still be modernization and maintenance work to perform.

## Expected Development of the Business Situation

### Planning Assumptions for the Group and Segments

The forecast for the future business development was based on the Group planning undertaken in the Autumn of 2016.

The starting point for this planning is formed by the strategic plans from the segments and operational business units which are geared towards market requirements, and are coordinated together and integrated in the group planning. Possible acquisitions were not included in the planning.

See the Targets and Strategy chapter for more information on the strategy and the new segment structure

At the start of the 2017 fiscal year, the system of key performance indicators was subjected to further development at both group and segment level, and focused on the revenue, EBIT margin, EBITDA, order intake, free cash flow and capital expenditure indicators. Other indicators will also be regularly compiled in the future and are used by top management as information parameters.

For more information on the top control and information parameters, see the Control System chapter

Alongside the successful implementation of a standardized ERP system in the Traffic Solutions area in Germany, at the Shared Service Center and at JENOPTIK AG in the past fiscal year that started at the beginning at January 1, 2017, roll-out of the JOE project will extend to the US in 2017 and 2018, and thus outside Germany for the first time. The costs associated with this are included in the forecast. The Jenoptik Excellence Program (JEP), with a focus on Go-Lean and purchasing, will also be continued in 2017. Ongoing optimization of both procurement processes and production processes will produce savings in future that result in further improvements in the gross margin. This, too, is included in the current planning.

Strategic HR work will again focus on rolling out individual human resources topics on an international level in 2017. Group-wide harmonization of HR processes at the European locations and in Asia / Pacific and North America will take center stage here. Another focus of HR work in the current fiscal year will involve the ongoing support of organizational development in the context of new regional competence centers in the Mobility segment and the completed restructuring process in the Healthcare business unit. Beyond this, there are plans to optimize standardized personnel cost planning in the harmonized ERP system.

The Jenoptik Group anticipates a good development of business in the Optics & Life Science segment in 2017. Its continuing focus on optical information and communication technologies will contribute to growth. For the semiconductor equipment market, observers are expecting positive performance in the current year. Here, the segment can also profit from its position as one of the leading suppliers of optical and micro-optical system solutions for semiconductor production. Due to a larger range of integrated system solutions, we are increasingly benefiting from a higher share of added value. Jenoptik has also securely established itself as a development and production partner for numerous international market leaders. The segment is therefore expecting revenue to rise in this market. In medical technology and life science, existing cooperation with key international customers is due to be expanded in the current fiscal year and contribute to growth. In 2017, the segment will also continue to focus on the acquisition of new major customers. On a regional level, growth is particularly expected in Asia / Pacific and the Americas. In the current fiscal year, the segment will also continue to invest in the international production locations to promote future growth, continue the process of internationalization, especially in the core regions and push on with forward integration and expansion of the systems business.

The Mobility segment expects a positive development in the automotive industry in 2017. The risk of the emissions scandal spreading or new regulations influencing automotive manufacturers' capital spending patterns is still present. In terms of products, the trend toward integrated production-related metrology is due to continue. This plays a particularly important role when precision parts are manufactured, such as those required by the automotive industry for efficient and environmentally friendly drive systems. In order to take into account this trend, the segment is continuing to invest in the development of tactile, pneumatic and particularly optical measurement technologies. Growth momentum is also expected in the field of laser machines. Alongside established systems for plastics processing in the automotive industry, the segment is primarily focusing on 3D processing of metal and plastic parts. Construction of the modern technology campus for metrology and laser machines for the North American automotive industry will be completed in 2017, and will give the Group a key basis from which to expand its business in the region. In the field of traffic safety, anticipated growth will particularly be bolstered by the major orders secured in 2016. The Traffic Service Provision business model that alongside the equipment business is becoming increasingly important in established markets, including Germany, Canada and Australia, will also be further expanded. From a regional perspective, Jenoptik forecasts the greatest growth momentum in the Asia / Pacific region and North America, in particular Canada. We believe that the traffic safety market in the US will slowly recover in 2017. A slight improvement is also expected in the Middle East / Africa. At the start of 2017, a new global sales structure with regional competence centers (RCC) was launched in the Traffic Solutions area. It aims to show a stronger presence in local markets, step up customer relations and respond faster to market trends.

See the Segment Report for more information on the RCC

Business in the Defense & Civil Systems segment is predominantly project-based and geared toward the long term. The defense market in the West is increasingly recovering and a significant increase in expenditure – primarily in NATO member states – is expected in the coming years, meaning that demand for defense products could rise. In the medium-term, a considerable increase in investment is planned for the German armed forces. This could also contribute to higher revenues in the years ahead. In the 2016 fiscal year, the segment secured several major orders, work on these will continue in the current year and should thus have a positive impact on revenue and earnings performance. Internationalization also remains a key topic in 2017; foreign business is due to expand steadily, particularly in North America and Asia / Pacific. Beyond this, the segment is looking to further increase the share of systems used in civil fields. This, for example, includes energy systems for railway technology, an internationally growing market and system solutions for civil aviation.

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See the Framework Conditions chapter for more information on the future development of the Jenoptik sectors

## Forecast for the Earnings Situation in 2017 and Trends in 2018

Based on a good order and project pipeline, the Executive Board is anticipating organic growth in revenue and earnings for 2017. This presupposes that political and economic conditions do not worsen. These include in particular the effects of Brexit, which could not be adequately assessed at the time this report was compiled, regulations at European level, export restrictions, further developments in the US, China, the Middle East and the conflict between Russia and Ukraine.

Larger acquisitions are not included in these forecasts but have not been ruled out for the current fiscal year.

The Jenoptik Group expects organic growth to generate revenue of between 720 and 740 million euros in 2017. All three segments will contribute to this growth. For 2018, the Executive Board is forecasting growth (including smaller acquisitions) to around 800 million euros, in line with its established mid-term targets. More than 40 percent of revenue is then expected to be generated in the Americas and Asia / Pacific.

Jenoptik is currently anticipating a rise in EBIT for the 2017 fiscal year (2016: EBIT in continuing operations 66.2 million euros). Depending on the development of revenue, the operating earnings margin (EBIT margin) is expected within the range of 9.5 to 10.0 percent. The Executive Board forecasts slightly weaker growth in EBITDA (earnings before interest, taxes, depreciation and amortization including impairment losses and reversals of impairment losses) than in EBIT. The costs for the group development project are expected in the mid single-digit million euros range and are already included in the EBIT margin range referred to above. EBIT and EBITDA are also due to develop positively in 2018.

The order intake for a period is affected by major orders, particularly in the Defense & Civil Systems and Traffic Solutions areas. In the 2016 fiscal year, Jenoptik received several major multi-year orders in both areas and has thus built up a very good order base. Jenoptik expects order intake to grow slightly in the current fiscal year. Also worthy of note is that Jenoptik already had frame contracts worth 160.9 million euros at the end of 2016, which are not included in the order intake or backlog. Around 71 percent of the order backlog as at the end of December 2016 will impact on revenue in 2017. The order intake is due to increase further in 2018.

For the 2017 fiscal year, the Optics & Life Science segment anticipates revenue growth in the high single-digit percentage range. The segment's 2016 EBIT included one-off operational income of around 2.9 million euros. As a comparable sum is not currently expected, the operating earnings are due to remain stable at minimum. A rise in revenue and EBIT is forecast for 2018.

Buoyed by the major orders it has secured, the Mobility segment is anticipating revenue growth in the high single-digit percentage range in the current fiscal year. EBIT is due to show a stronger rate of growth than revenue. Further increases in revenue and earnings are expected in 2018. The accuracy of the forecast is influenced by the time at which traffic safety projects are settled.

The Defense & Civil Systems segment is again forecasting minor revenue growth in the 2017 fiscal year. In 2016, the segment managed to again improve its EBIT margin. Starting from this good earnings position, stable performance is expected in the current fiscal year. Minor revenue growth and stable earnings are also forecast for 2018.

## Group Asset and Financial Position Forecast

Due to a strong scheduled increase in capital expenditure in 2017, we expect the free cash flow to be considerably below the figure at the end of 2016. Even with increasing capital expenditure and stable working capital despite growth, Jenoptik expects to be able to meet all interest, tax and dividend payments out of the free cash flow. A higher free cash flow is expected in 2018 than in 2017.

For 2017, Jenoptik anticipates an increase in capital expenditure to 35 to 40 million euros, and expects to maintain this level in 2018. The capital expenditure on property, plant and equipment will focus on the growth areas within the segments or take place within the scope of new customer projects. It aims to expand capacities, thereby ensuring future growth. At group level, further capital expenditure will be effected for the JOE Project. Capital expenditure is due to be covered by the operating cash flows or with available cash and cash equivalents.

In 2016, Jenoptik paid out a dividend for the 2015 fiscal year in the amount of 0.22 euros per share to the shareholders. In addition to financing the continued growth of the company, the future aim of the Executive Board is still to ensure a dividend policy in line with corporate success. In the view of the Executive Board, a stable provision of equity for sustainable organic growth to increase the company value as well as the exploitation of opportunities for acquisitions are also of crucial importance to the interests of the shareholders.

The actual results may differ significantly from the forecasts of anticipated development made above. This may arise, in particular, if one of the uncertainties mentioned in this report were to materialize or if the assumptions upon which the statements are based prove to be inaccurate, also in relation to the economic development.

See the Report on Post-Balance Sheet Events for more information on the dividend

## T46 Targets for Group and Segments (in million euros)

| | Actual 2016 | 2017 guidance | Trend 2018 compared with 2017 [2] |
|---|---|---|---|
| Revenue | 684.8 | Between 720 and 740 million euros | Around 800 million euros, incl. smaller acquisitions |
| Optics & Life Science | 221.5 | Growth in the high single-digit percentage range | Further growth |
| Mobility | 247.7 | Growth in the high single-digit percentage range | Further growth |
| Defense & Civil Systems | 218.3 | Slight growth | Slight growth |
| EBITDA (continuing operations) | 94.7 | Slightly weaker rise than EBIT | Positive development |
| EBIT/EBIT margin (continuing operations) | 66.2/9.7 % | Increase, EBIT margin between 9.5 and 10.0% | Further growth |
| Optics & Life Science | 33.4 | Stable at minimum (includes one-off operational income in 2016) | Further growth |
| Mobility | 24.4 | Rise stronger than revenue | Further growth |
| Defense & Civil Systems | 19.1 | Stable | Stable |
| Order intake | 733.8 | Slight increase | Increase |
| Free cash flow | 80.4 | Considerably below 2016 figure | Increase |
| Capital expenditure [1] | 27.5 | 35 to 40 million euros | At 2017 level |

[1] without capital expenditure on financial investments
[2] Trend forecast, not a forecast as specified in DRS 20

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# General statement by the Executive Board on Future Development

The Jenoptik Group will continue to push ahead with its strategic agenda in the 2017 fiscal year, with a key focus on profitable growth in all segments. In the opinion of the Executive Board, revenue growth, the resulting economies of scale, more efficient processes and higher margins from the growing systems and service business will lead to a lasting increase in earnings.

In 2017, the company will again invest a significant portion of its funds in the expansion of international sales and value creation structures, as well as the development of innovative products. The measures for internal process optimization and group development projects will also continue as scheduled, while value-adding acquisitions will be closely scrutinized.

The Jenoptik Group plans to continue on its path of organic growth in 2017. In pursuing this policy, the company can build on a strong order backlog and a high volume of frame contracts. The good asset position and a viable financing structure also give Jenoptik sufficient room for maneuver to carry out acquisitions and finance further growth. For 2017, the Executive Board expects revenue of between 720 and 740 million euros and an EBIT margin of between 9.5 and 10.0 percent. Achieving these targets is dependent on economic and political conditions.

The Executive Board expects positive corporate development within the Jenoptik Group overall during the 2017 fiscal year.

Jena, March 8, 2017

JENOPTIK AG
the Executive Board