

Business Development of Bioprocess Solutions

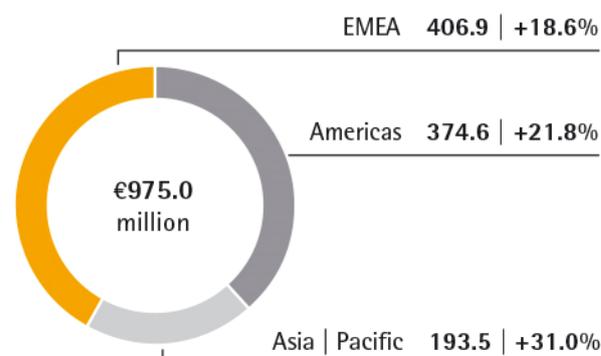
- > Significant double-digit increases in sales revenue and earnings
- > Further market share gains in a continued dynamic market environment
- > Portfolio expansion by the acquisition of kSep Systems

Key Figures

€ in millions	2016	2015	Δ in %
Sales revenue	975.0	809.2	22.1 ¹⁾
Order intake	1,006.5	869.9	17.2 ¹⁾
Underlying EBITDA	273.5	214.5	27.5
as a % of sales	28.0	26.5	
Employees as of Dec. 31	4,584	4,030	13.8

Sales Revenue and Growth by Region¹⁾

€ in millions, unless otherwise specified



Products for Biopharmaceutical Manufacture



Filters for sterilization of biopharmaceutical media



Single-use bag for cell cultivation and storage of biopharmaceuticals



Single-use-based, multi-parallel bioreactor system for process development



Culture media and buffers for cell cultivation



Fully automated single-use centrifuge for cell harvesting



Single-use bioreactor systems for cell cultivation processes of up to 2,000 L

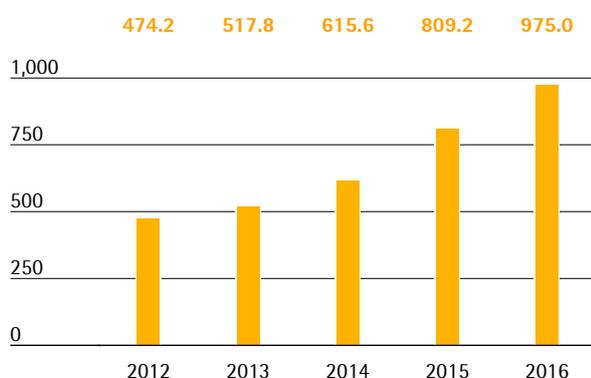
¹⁾ In constant currencies

Sales Revenue

In fiscal 2016, the Bioprocess Solutions Division showed especially strong growth yet again, with sales increasing by 22.1% to €975.0 million. The division thus reached the upper end of our full-year forecast that we had raised toward the mid-year partly due to some larger equipment orders. Within an ongoing dynamic market, the division grew organically by around 20% and reported double-digit growth across the entire portfolio. Acquisitions added around 2 percentage points to the division's growth.

Sales Revenue 2012 to 2016

€ in millions



Sales Revenue and Order Intake

€ in millions	2016	2015	Δ in % reported	Δ in % cc
Sales revenue	975.0	809.2	20.5	22.1
Order intake	1,006.5	869.9	15.7	17.2

All regions reported double-digit growth rates and thus contributed to the expansion of the division's revenue. EMEA, the region generating the highest sales accounting for around 42% of the division's revenue, reported an increase in sales by 18.6% to €406.9 million. In the Americas region, which represented around 38% of sales revenue, the division gained further market share according to our estimates, with an increase in sales by 21.8% to €374.6 million. The Asia | Pacific region, which accounted for around 20% of the division's sales, also performed very dynamically. Partly driven by strong demand for equipment, sales for this region rose significantly by 31.0% to €193.5 million.

Sales by region

€ in millions	2016	2015	Δ in % reported	Δ in % cc
EMEA	406.9	349.6	16.4	18.6
Americas	374.6	310.4	20.7	21.8
Asia Pacific	193.5	149.2	29.7	31.0

Overproportionate Increase in Earnings

In the reporting year, the Bioprocess Solutions Division yet again advanced its earnings overproportionately relative to sales. Driven by economies of scale, its underlying EBITDA thus increased substantially by 27.5% from €214.5 million to €273.5 million. As forecasted towards the middle of the year, the division's respective margin rose from 26.5% to 28.0%.

Underlying EBITDA and EBITDA Margin

	2016	2015
Underlying EBITDA in € millions	273.5	214.5
Underlying EBITDA margin in %	28.0	26.5

The division recorded extraordinary items of - €20.1 million in the reporting year relative to - €8,2 million a year ago. Products and Sales

Product and Sales

The product portfolio of the Bioprocess Solutions Division covers virtually all steps in biopharmaceutical production processes, and increasingly preceding process development as well. It includes cell cultivation media, cell lines, bioreactors, a wide range of products for separation, purification and concentration, and systems for the storage and transport of intermediate and finished products. We also offer an extensive range of services to support our customers in complying with regulatory requirements.

Bioprocess Portfolio Extended Further

During the reporting year, the Bioprocess Solutions Division launched new products on the market along with new generations of existing product lines.

One example is a new filter especially for viruses in cell culture media. It enables efficient virus filtration in advance of the fermentation process, thus reducing the risk of contamination.

In 2016 we also launched of a new fermentation system for process development. It allows the parallel operation of up to eight single-use bioreactors, offers a high level of predictability with regard to later large-scale production, and thus significantly increases the productivity of process development.

Moreover, the division introduced an integrated technology platform for developing cell culture processes. It consists of cell lines, cell culture media, bioreactors and analytical services, and combines these elements into a holistic solution that covers the entire upstream process of our customers.

Single-Use Portfolio complemented through Acquisition

With the acquisition of the U.S. start-up kSep Systems, the Bioprocess Solutions Division supplemented its offering of single-use solutions with an innovative technology for cell harvesting. kSep's fully automated single-use centrifuges enable the separation and concentration of cells in a very short time.

Sales Activities Expanded

The Bioprocess Solutions Division markets its product portfolio directly through its own field sales force. Sales activities for key accounts are coordinated and supported by a global key account management. As part of our regional initiatives for implementing the mid-term strategy, we stepped up our sales activities in North America during the year under review. Thus, we opened a new laboratory for bioanalytical services in Boston, where biologic substances can be tested for safety and quality on behalf of our customers. Another laboratory in South Korea is currently in planning. Moreover, Sartorius has nearly completed the implementation of its new CRM system in Europe and North America, and thus can run its processes even more efficient.

Research and Development

Our research and development (R&D) activities encompass both new and advanced in-house product developments in our own core technologies as well as the integration of new products through alliances. Sartorius' aims at helping its customers to continually optimize their processes and steadily increase their efficiency.

In-house research and development at Sartorius focuses in particular on the following technology areas: membranes, which are the core component of all types of filter products; various base technologies such as single-use bags and sensors; and control technologies, for instance for fermentation. We increasingly pursue the approach of linking our single technologies to develop new products and solutions. Owing to our broad product portfolio, we have extensive expertise in the development of bioprocess applications.

During the reporting year, one focus of our R&D activities was the development of a new software platform for the control of individual process steps. It enables the generation of consistent data in real time for optimized monitoring and control of upstream and downstream processes from laboratory scale all the way to commercial production.

In the area of single-use fermentation, we worked on a new generation of our scalable bioreactor family STR. It allows the fermentation of volumes from 12.5 to 2,000 liters, and combines a user-friendly design with our innovative Flexsafe bags and improved sensors.

From a regional perspective, the largest R&D site is located at our headquarters in Goettingen, with other key R&D activities taking place in Aubagne, Guxhagen, Bangalore and Royston.

Production and Supply Chain Management

The Bioprocess Solutions Division operates a well developed global production network with plants in Europe, North America and Asia. The largest production sites are located in Germany, France and Puerto Rico. Moreover, Sartorius has manufacturing operations in the UK, Switzerland, Tunisia, India and the USA.

Each of our production sites basically serves as a center of competence for particular technologies. The Group's plant in Goettingen, for example, concentrates chiefly on the production of membrane filters, whereas the Aubagne and Mohamdia sites primarily manufacture single-use bags. Our plant in Yauco supplies both membrane filters and single-use bags principally for the U.S. market. The Guxhagen site specializes in bioreactors and other systems for bioprocess applications. It collaborates closely with the Bangalore site, which mainly produces stainless steel components for these systems.

Expansion of Production Capacity

Against the backdrop of the dynamic growth in the bioprocess business, Sartorius increased and accelerated the expansion of its production capacities compared to its initial plans. Thus, we began to work on a significant expansion of production capacities for single-use bags and filters at our plant in Yauco. Moreover, the company expanded its membrane production at the Goettingen site.