

Business Development of Bioprocess Solutions

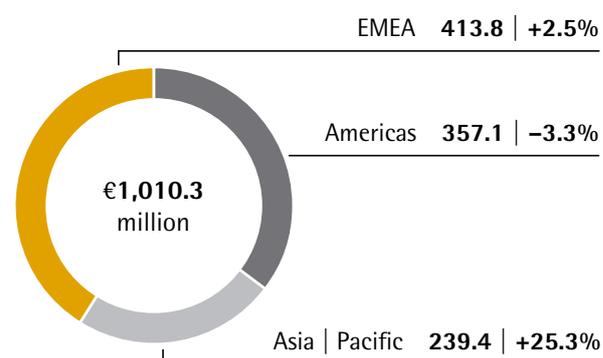
- > 4.9% sales growth relative to a very high revenue base
- > Development impacted by temporary effects in America
- > Portfolio expanded by the acquisition of Umetrics

Key Figures

€ in millions	2017	2016	Δ in %
Sales revenue	1,010.3	975.0	4.9 ¹⁾
Order intake	1,091.3	1,006.5	9.7 ¹⁾
Underlying EBITDA	282.4	273.5	3.3
as a % of sales	28.0	28.0	
Employees as of Dec.31	4,980	4,584	8.6

Sales Revenue and Growth¹⁾ by Region²⁾

€ in millions, unless otherwise specified



¹⁾ In constant currencies

²⁾ Acc. to customers' location

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



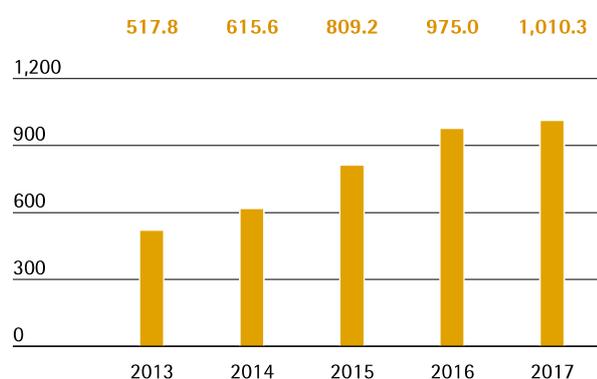
Single-use bioreactor systems for cell cultivation processes of up to 2,000 L

Sales Revenue and Order Intake

After two years of exceptionally strong growth in 2015 and 2016, the Bioprocess Solutions Division recorded sales growth in constant currencies of 4.9% to €1,010.3 million in the reporting year. Therefore, revenue was slightly lower than originally expected, but at the level of the sales forecast adjusted for the third quarter. In fiscal 2017, the division's development was impacted by a few simultaneous, temporary effects. For the year under review, the division thus reported relatively soft demand in North America and in parts of Europe, which was caused by inventory destocking by various customers. Moreover, no deliveries were meanwhile possible from the company's production facility in Puerto Rico due to Hurricane Maria, and ongoing bottlenecks in a partner's delivery capacity that lasted longer than expected impacted business performance in cell culture media. Consolidation of the acquisitions of kSep and Umetrics contributed around one percentage point in the reporting year to sales growth.

Sales Revenue 2013 to 2017

€ in millions



Sales Revenue and Order Intake

	2017	2016	in % reported	in % cc
€ in millions				
Sales revenue	1,010.3	975.0	3.6	4.9
Order intake	1,091.3	1,006.5	8.4	9.7

The division's sales development was quite different in the regions. EMEA, the region generating the highest revenue for the division and representing around 41% of its total sales, recorded a gain of 2.5% to €413.8 million. In the Americas region, which represented around 35% of revenue, sales decreased slightly by 3.3% to €357.1 million due to the temporary effects already mentioned above. The Asia | Pacific region, which accounted for around 24% of the division's sales, performed very dynamically. Partly driven by equipment shipments to fill relatively large orders, sales for this region rose significantly by 25.3% to €239.4 million.

Order intake showed positive development in the reporting year. Orders rose more strongly than division sales, and were up 9.7% in constant currencies to €1,091.3 million. On a reported basis, this increase was 8.4%.

Sales by region

	2017	2016	in % reported	in % cc
€ in millions				
EMEA	413.8	406.9	1.7	2.5
Americas	357.1	374.6	-4.7	-3.3
Asia Pacific	239.4	193.5	23.7	25.3

Overproportionate Increase in Earnings

In the reporting year, the Bioprocess Solutions Division yet again slightly increased its underlying EBITDA, which rose by 3.3% from €273.5 million to €282.4 million. The division's respective margin was at the previous year's level of 28.0%.

Underlying EBITDA and EBITDA Margin

	2017	2016
Underlying EBITDA in € millions	282.4	273.5
Underlying EBITDA margin in %	28.0	28.0

The division recorded extraordinary items of -€21.6 million in the reporting year, relative to -€20.1 million a year ago.

Product and Sales

The product portfolio of the Bioprocess Solutions Division covers virtually all steps in biopharmaceutical production process, and increasingly its upstream process development as well. The portfolio includes cell culture 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 biological products. We also offer an extensive range of services to support our customers in complying with regulatory requirements.

Well-Developed Portfolio Supports Customers

The Bioprocess Solutions Division expanded its portfolio in the reporting year via product upgrades and new generations of existing product lines as well as through the acquisition of Umetrics.

Furthermore, Umetrics provides software solutions that enable biopharmaceutical customers to increase efficiency as well as assisting them in digitalizing their processes, especially during scale-up.

In the product area, Sartorius presented the second generation of its BIOSTAT STR single-use bioreactor series in the year under review. The second generation is designed for the new single-use bags and can handle a working volume of 12.5 to 2,000 liters. The scalable series saves customers a significant amount of time in developing production processes.

In addition, a newly developed single-use system offers users an innovative, comprehensive solution for the filtration of biopharmaceutical media on a large scale. The new system makes filtration processes even easier and less time consuming.

The area of membrane chromatography was expanded as well. Now also available as cassettes, membrane adsorbers can be combined on a large scale to form a production system for the purification of biopharmaceutical media, thus eliminating the previous limitations inherent in the smaller sizes.

Sales Activities Expanded

The Bioprocess Solutions Division markets its product portfolio directly through its own field sales representatives. Sales activities for key accounts are coordinated and supported by global key account management. As part of our regional initiatives for implementing our mid-term strategy, we stepped up our sales activities in North America during the year under review.

Research and Development

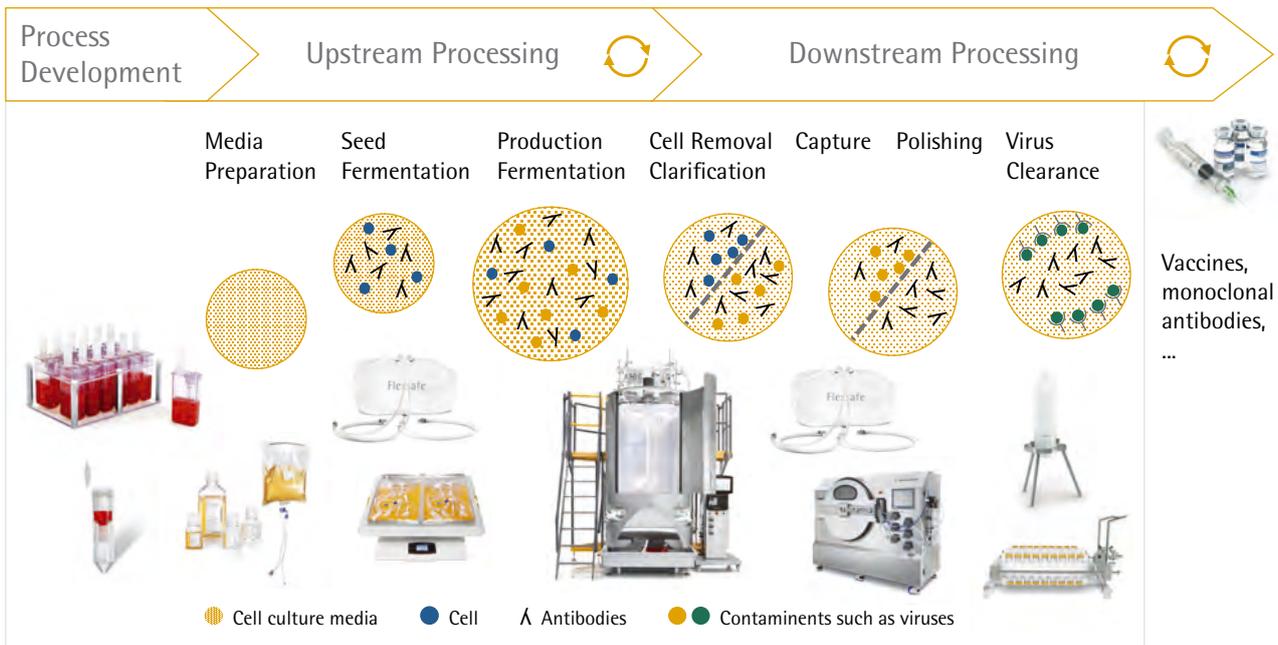
The Division's research and development (R&D) activities encompass both new and advanced in-house product developments in our own core technologies as well as the integration of new products through alliances and acquisitions. Sartorius aims to help customers continually optimize their processes and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

Development activities at Sartorius focus 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 containers and sensors; and control technologies, for instance for fermentation.

During the reporting year, one focus of the 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 both upstream and downstream processes from laboratory scale all the way to commercial production.

Another key task is ongoing integration of the software portfolio acquired in the takeover of Umetrics. Even prior to the acquisition, Sartorius had already spent several years working with Umetrics data analysis specialists for the purpose of modeling and optimizing biopharmaceutical development and production processes. Additional data-based software analysis tools are planned for the future to enable customers to work more efficiently and cost-effectively.

From a regional perspective, the largest R&D site is located at our headquarters in Göttingen, with other key R&D activities taking place in Aubagne (France) Guxhagen (Germany) and Bangalore (India) as well as Bohemia (USA), Royston (UK) and Umeå (Sweden).



Simplified diagram

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.

Expansion of Production Capacity

Against the backdrop of the dynamic growth of the bioprocess business in recent years, Sartorius increased and accelerated the expansion of its production capacities compared to its initial plans. Membrane production in Göttingen was further expanded.

In September, Hurricane Maria hit Puerto Rico. Thanks to the Yauco site's high construction standards, both existing buildings and those under construction suffered only minor damage. Heavy infrastructure damage made deliveries from the plant impossible for around four weeks, however. Even so, Sartorius considers the Yauco location to be highly suitable. In the future, however, production will focus more strongly on standard products that can be stored on the U.S. mainland to reduce possible future disruptions in the supply chain.