LSS BØHLE



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L.B. Bohle in times of COVID-19 Revenue up again in 2019 Product innovations despite fair cancellations

Dear Readers,

2020 is turning out to be very different than what was planned and envisioned. The rapid and vast spread of the corona virus is not only restricting us in our daily lives but has above all changed our business plans and activities.

Two issues are fundamental for us: on the one hand, the protection of our employees, and on the other hand, our company's ability to work. We have introduced comprehensive measures in both areas to increase employee safety and ensure continuous operation in production, project management and sales.

Within a short period of time we had to constantly consider new, necessary restrictions to contain the corona virus in our processes. The travel ban is hitting us particularly hard. Travel was part of our daily work routine for all of us. Our sales department visited you to discuss projects, you accepted your machines at our factories, and our service department maintained, calibrated and optimized the machines at your factories. We all hope that these travel restrictions will have a positive effect and that we can resume our usual working pattern as soon as possible. We started the current year full of energy and ambitious plans. 2020 was to be a major exhibition year with numerous leading trade fairs. However, the corona virus then thwarted our extensive trade fair plans. Interphex in New York has been postponed from the end of March to July this summer. Probably the most important trade fair for 2020, Interpack in Düsseldorf, has even been postponed to 2021.

The CPHI trade fairs in Abu Dhabi, CIPM in China, Pharmtech in Russia and PMEC in India are scheduled to take place in the second half of the year as planned.

We wanted to present our latest developments in the field of continuous manufacturing (article page 6) at the trade fairs in New York and Düsseldorf. With the QbCon[®] 1 and the BCD continuous dryer, we are introducing two new machines in 2020 that are unique in pharmaceutical technology.

In general, we have taken major steps in development over the past year with machines for continuous production. Our systems are the technological market leaders in this field. Our new BCD continuous fluid bed dryer was finalized and has already been sold to a multinational company. QbCon[®] 1, the first continuous wet granulator and dryer, is already used daily in research and development as well as in production.

> With our extensive portfolio ranging from weighing, wet and dry granulation, grinding and sieving machines, blending processes, and film coating systems, to extensive applications for tablet handling, we always offer you the best machines and pro

cesses for your production. We are able to equip your entire production with our machines at any time. In this issue of Innovativ, you will find an article on the Russian pharmaceutical manufacturer Obl Pharm, whose new plant we equipped with systems for wet granulation as well as for blending, coating and tablet handling.

L.B. Bohle, founded in 1981, is still a relatively young company on the market for pharmaceutical suppliers. This path has been distinguished by continuous growth, a wealth of innovation and a high level of customer acceptance. However, the almost 40 years on the market also means a large number of installed systems in production facilities worldwide. We are, of course, trying to meet the increased demand for service, calibrations, spare parts and training to guarantee you the best possible care and support.

Having founded a service subsidiary in Switzerland in 2018, we were able to hire our first service technician in India. Our entire service plan is designed to provide you with comprehensive advice and, first and foremost, to be able to help you quickly.

Dear readers, we are looking forward to continuing to work together with you on a basis of trust in numerous projects so we can carry on contributing to your success with our machines, processes and innovations.

We wish you all the best. Stay healthy.

Kind regards, Tim Remmert, Thorsten Wesselmann Executive Directors

L.B. Bohle in times of COVID-19

Our top priority is safeguarding continuous operation and customer contact

Capacity planning, strategic product and company development and sales forecasts are part of the daily business for medium-sized technology companies such as L.B. Bohle. The management at L.B. Bohle has of course always given thought to pandemic plans or measures in the event of a crisis. However, the global crisis dynamics caused by the rapid spread of the corona virus has also presented L.B. Bohle with challenges.

"One of our distinctive strengths is speed – so far we have been fast in terms of product development, project implementation and responding to inquiries from our customers and partners," emphasises Tim Remmert (Executive Director Sales). "Now we needed to react to the spread of the virus quickly and effectively and take appropriate measures," Remmert continues. The health of the workforce, maintaining continuous operation and intensive communication with customers are three cornerstones of the measures introduced.

Protecting the workforce is our top priority

By extending the hygiene standards, keeping distance from other people and keeping business trips or meetings to a minimum, management immediately initiated measures that affect the L.B. Bohle team and, of course, their families. "We have also changed our working day to a two-shift system. This enables us to ensure that operations can continue without any problems even in the event of an infection," Remmert continues. One advantage for customers worldwide in this context is that the time we are available has been extended.

"The maintenance of continuous operation through production, project support and



administration has been permanently safeguarded," states Executive Director Technology Thorsten Wesselmann after weeks of intensive work. "The strategy of relying primarily on suppliers from the immediate region is helping us at the moment. Our supply chains are not disrupted to the same extent as in other sectors, such as the automotive industry," Wesselmann analyses.

A comprehensive dialogue with customers is extremely important, in particular in times of crisis. Tim Remmert makes it clear: "We are maintaining an intensive dialogue with our customers, especially at this time. Projects have to be continued, offers must be presented in detail and orders have to be successfully completed. It is an advantage that we have many long-standing business relationships that are characterized by great trust."

Even in times of crisis and with travel restrictions, a FAT (Factory Acceptance Test) was successfully conducted using a Smartglass application and live video transmission.

Further and new developments are scheduled as planned

Even though the pandemic has led to restrictions in business relationships and everyday life, L.B. Bohle is still purposefully working on innovations and new products. "We are currently making outstanding progress, especially in the area of continuous manufacturing," says Wesselmann, looking back with satisfaction at the latest development steps.

The new BCD continuous fluid bed dryer is the first dryer on the market that is capable of fully continuous drying. We are clearly way ahead of our competitors, who can only dry sub-batches," Wesselmann states.

Thorsten Wesselmann is also very satisfied with the improvements to the QbCon[®] 1, the first truly continuous wet granulator and dryer for research and development. "We guarantee fast development times for new products and a secure scale-up. Both can be crucial, particularly in the current situation when new preparations are to be launched on the market quickly," Wesselmann concludes.

L.B. Bohle increases revenue again

Tim Remmert: "Strong second half year ensures sales growth"

The good year that was forecasted for 2019 has been confirmed: "2019 was a very good business year for us," reports Executive Director Sales Tim Remmert. Although the incoming orders were subject to strong fluctuations again, the peak at the end of the year meant that sales grew compared to the previous year.

Despite all efforts to achieve consistent capacity utilization, the financial year was characterized by volatility: "The strong fluctuations in incoming orders have increased further," states Remmert. As in previous years, business was rather sluggish in the first half of the year and "in November/ December we reached the absolute peak." It was only possible to cope with the peaks "thanks to our team's flexibility and huge efforts."

Growth in the USA and Europe

Basically, "demand on the European market and in the USA drove growth in 2019," says Remmert, whereas the German domestic market was somewhat weaker after the previous year's boost." In Russia, the trend of the past few years continued, with incoming orders remaining strong. It was there in particular that we were able to increasingly complete large projects," reports Tim Remmert. Pharmaceutical producers in the UK traditionally contribute little to sales, so the uncertainty surrounding Brexit had very little impact. "However, we are profiting indirectly because pharmaceutical companies are increasingly moving to the EU member state Ireland and investing there," explains Remmert. In addition to coating projects, a compact granulation system was produced for a pharmaceutical giant.



Boost for continuous manufacturing

The topic of continuous manufacturing really took off in 2019: "In Germany we sold the first components for continuous wet granulation and drying to a multinational company," says Remmert. The demand for QbCon[®] 1, the first truly continuous wet granulator and dryer for research and development, is also increasing. "We are only receiving positive feedback from customers using the QbCon[®] 1," reports Remmert.

New service point in India

For L.B. Bohle, the Asian market remains a market with great development potential. Despite replicas of entire machines and patent infringements, China and India's pharmaceutical markets in particular offer great opportunities. L.B. Bohle has been able to significantly improve its position in India in recent years thanks to numerous references. "To support the sales offensive, we have set up a service point at the Ahmedabad site in order to be able to offer customers comprehensive service," explains Remmert.



Collaboration with Korsch is intensified

In 2020, the executive directors want to maintain the momentum created at the end of 2019. "We held a sales meeting with our partner Korsch AG at the end of January," reports Remmert. "The joint trade fair activities will be expanded worldwide, and we are going to improve our communication on projects and cross-process thinking even more," Remmert continues.

L.B. Bohle is continuously making large investments in the company. In addition to the completion of the new canteen building, which cost around EUR 1 million, large sums are being invested in software and electrical engineering.

Securing skilled workers and expertise in the long term

Further investments are also being made in the future of the current workforce of around 270 employees, including 13 trainees. "We are currently developing training and personnel concepts in order to retain skilled workers in the long term or to attract them to us in order to secure expertise," Thorsten Wesselmann outlines an important task for the future. The aim is to increase the feel-good factor for the staff in addition to offering them a secure job. Investments have therefore been made in health prevention since summer 2019. "In addition to purchasing height-adjustable desks for the administration department, the mobile backtraining program now comes to the plants once a week to give our employees' back and abdominal muscles a computer-aided workout for five minutes," adds Remmert.

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Product innovations despite fair cancellations

QbCon[®] 1 and BCD dryer for continuous production

Leading trade fairs are in fact the place to present new products, and that is what L.B. Bohle had planned as well: the new QbCon[®] 1 and first truly continuous dryer BCD were to celebrate their world premieres at Interphex in the USA and Interpack in Düsseldorf.

"Due to the cancellation or postponement of the two trade fairs, we are unfortunately not able to present the new systems to the public on a large scale," says Executive Director Sales Tim Remmert regretfully. "Nevertheless, the two innovations are available to our customers with immediate effect," Remmert continues. L.B. Bohle still sees great potential in the field of continuous manufacturing. Over the past five years, the company has intensified its activities in this area with high investments in product development, personnel and infrastructure. For Remmert it is clear that "by introducing continuous production processes, our customers increase their process, user safety and, above all, general product quality."

QbCon® 1: perfect start to continuous production

QbCon[®] 1 was already presented to the public for the first time at Achema 2018. In the two years since then, the unit has been successfully used in practice, providing important insights into the research and development of companies. The further developed QbCon[®] 1 revolutionizes the processes of continuous wet granulation and drying that have been common in pharmaceutiWith the QbCon[®] continuous production unit that enables continuous production using direct compression, wet and dry granulation, L.B. Bohle offers a system with comprehensive software and process monitoring to produce solids.

cal production until now. "QbCon® 1 enables a truly continuous granulation and drying process for the first time. Our patented fluid bed drying system guarantees the material flow from the raw material to the dried granule in a closed continuous operation," reports Dr. Robin Meier (Manager Scientific Operations). "The fully automatic cleaning of the filter during the drying process is possible for the first time," says Dr. Meier, emphasizing the advantage over the competitors.

QbCon[®] 1 offers users further advantages in terms of process quality and handling:

- Gentle, uniform drying through gentle fluidization and conveying
- Uniform conveying of the granule from feeding to discharge
- Very short residence time of granules in different particle sizes
- Rapid development of new products secured scale-up
- Convenient handling and easy cleaning

QbCon[®] 1 guarantees gentle and uniform drying through gentle fluidization and conveying for the first time.

Granule drying with the BCD continuous fluid bed dryer

"Constant and continuous drying must be guaranteed to seamlessly connect to continuous wet granulation. With the BCD continuous fluid bed dryer, L.B. Bohle now enables the continuous drying of granules for the first time," states Dr. Meier, focusing on the second innovation. Until now, dryers only existed on the market that did not meet the requirements of continuous drying. "They only form sub-batches. However, in the BCD, we implement a truly continuous process without interruptions," explains Dr. Meier. The results from the laboratory scale are also easily scalable to production size.

The BCG twin screw granulator and the BRC dry granulator extend the range of continuous processes in the continuous granulation segment. The KOCO® coater for the continuous coating of tablets rounds off the portfolio for continuous processes.

Continuously produced wet granules fall gravimetrically into the dryer without any further necessary transport steps and are then dried in a continuous process. The constant conveying of the wet granules from the dryer inlet towards its outlet is achieved by a controllable movement. This ensures gentle and very uniform drying. The movement is so gentle that there is almost no resulting back-mixing and all granules (even in different particle sizes) are dried for the same length of time. Innovative product filters guarantee service lives of days without having to interrupt the continuous granulation process. As a result, there is no loss of quality, even with finely micronized drugs.



For Remmert "the BCD fluid bed dryer is the ideal tool for the continuous manufacturing of high-quality products on a laboratory and production scale." The implementation of Process Analytical Technology (PAT), for example for constant in-line determination of the granule moisture content and for feedback con-

trol of the process, also ensures process and product quality. The BCD can be used within the QbCon[®] 1 laboratory machine for throughputs of 0.25–2.5 kg/h or for production sizes up to 25 kg/h. It is available in different sizes to make production more efficient and higher quality.

Advantages of the BCD continuous fluid bed dryer:

- Fully continuous drying without the formation of sub-batches for the first time
- Simple set-up and convenient operation Very long service life of the product filters without the need to interrupt the process
- PAT probes only in contact with dry product – no unwanted product adhesion
- Very short mean residence times and narrow residence time distributions Small in-process volume

- Selective rejection of "bad product" possible
- Four degrees of freedom to control the drying process
- Uniform drying across all particle sizes
- Gentle drying process: No formation of fines in the process, even for highly porous granules
- Extremely fast execution of experimental designs with minimum product expenditure for rapid product development

Machinery for new plant in Russia

Obl Pharm invests more than EUR 40 million near Moscow

The Russian manufacturer Obl Pharm started production in May 2019 on an area of more than six hectares in a new plant with an annual capacity of 1.6 billion tablets, 120 million capsules and 15 million powder/granule sachets. With the commissioning of the new site in the city of Obolensk, a good 100 km away from Moscow, Obl Pharm is strengthening its position as one of the leading tablet manufacturers in Russia.

L.B. Bohle Maschinen + Verfahren GmbH was awarded the contract by Obl Pharm to equip the factory with machines for the granulation, blending, coating and handling process steps. "The order sends a clear signal that we are increasingly in demand as a total solution provider," states Executive Director Technology Thorsten Wesselmann, who was also on site for the inauguration of the plant, and comments on the importance of the project as a reference. "We can actually meet any production requirement with our extensive product portfolio, our high level of expertise in linking processes and our flexibility," Wesselmann continues.



Granulation suites, blenders and coaters Wet granulation and drying are now carried out in the factory using two compact granulation units, one of which was designed in an explosion-proof version. Batches of up to 480 litres per unit can be produced in this way. Obl Pharm is also relying on L.B. Bohle's expertise in dry granulation. The BRC 100 dry granulator offers a capacity of up to 400 kg/h for this.

Three PM 1000 blenders are used to homogeneously mix dry powder mixtures. "Our blenders are particularly appealing due to the significantly lower space requirement compared to similar systems, the quick replacement of the mixing containers for product changes, the uncomplicated and cost-effective installation, and the low maintenance requirements," explains Wesselmann.

As a technology leader for all pharmaceutical film coating applications, L.B. Bohle also equipped the new factory with two BTC series coaters. The BTC 400 installed in Obolensk offers batch sizes of up to 650 litres. The



second machine supplied by the manufacturer of special process machines based in Ennigerloh was a BTC 200 in explosion-proof version for batches of up to 300 litres.

In addition to the process equipment, L.B. Bohle also equipped the new Obl plant with an extensive handling program. "The package includes lifting columns, weighing systems and various intermediate bulk containers," explains Wesselmann.

Successful first project for Obl Pharm

"We are proud to have implemented this project so quickly and successfully with Obl Pharm. The commissioning of the plants also went smoothly at the new location, where production is carried out according to the latest GMP and ISO standards," Tim Remmert, Executive Director Sales, sums up after the project was completed. "We firmly believe that this first joint project will help Obl Pharm achieve its planned growth and that we will be in demand again for further investments."











"We're here if you need us!"

Service locations close to the customer all over the world

Customers can rely on machines and plants from L.B. Bohle: top workmanship, supreme quality and easy maintenance guarantee reliable operation and long running times.

L.B. Bohle has continually expanded its service network over the years. In addition to the service team at the head office in Ennigerloh, Germany, L.B. Bohle has other service branches in the USA, China, India and Switzerland. "Due to the rapidly increasing number of machines on the market, the service demand from our customers is also naturally growing," states Executive Director Sales Tim Remmert. "We are trying to meet this increased demand for maintenance, calibration and general services with short response times in all markets," Remmert continues.

Service in more than 45 countries worldwide

A technically competent and efficient team of 30 service and process engineers works for L.B. Bohle worldwide. "We are on the road with service technicians in more than 45 countries. With the service branches in the USA, Switzerland, China and India, we offer our customers additional direct contacts in important markets," says Remmert, outlining the service activities all over the world. L.B. Bohle's highly trained service technicians are a major competitive advantage. All of them are capable of maintaining or even repairing process units for the entire range of systems. For Remmert, "the fact that we send just one technician to the customer is a great advantage. This saves both sides time and capacity, does not tie up resources unnecessarily and allows production to resume quickly."

Increasing importance of after-sales service

In addition to general repair and installation work, training, spare parts and machine conversions are becoming increasingly important in the after-sales process. The experienced service technicians, for example, conduct individual training sessions on up and running or newly installed machines at the customer's site. These training sessions enable users to operate the machine safely or to actively help themselves in emergency situations.

Fast availability of spare parts

For L.B. Bohle, the fast and reliable supply of spare parts is another important criterion for maintaining consistently high customer satisfaction. "We have continuously increased our number of contacts in the spare parts sector in recent years. We have increased capacities both in technical clarification and order processing to be able to act and react quickly," states Thorsten Wesselmann (Executive Director Technology) as he emphasises the importance of the spare parts department.

Customer satisfaction survey

www.lbbohle.com/service-support/ customer-satisfaction-survey

The area of retrofitting and conversions has also recently taken on a higher priority. "Our systems have a very long-life cycle. This means that the requirements for the system or the area of application may change over the years," reports Wesselmann. "For this reason, we have entrusted a long-serving employee, who most recently worked in the spare parts department and was previously a service technician for many years, with planning retrofits or conversions," Wesselmann continues.

For Tim Remmert, the entire after-sales service must be coordinated in such a way that the customer is highly satisfied with the services provided by L.B. Bohle. "Our belief is that we do not leave our customers on their own even after a successful project. Our team is always a professional partner in all situations – on the phone, by email or in production."













Huge trade fair success in India

L.B. Bohle and Korsch together for the first time at PMEC

Last year's PMEC in Delhi, India, turned out to be another success for L.B. Bohle.

Similar to the leading trade fairs Achema, Interpack and Interphex in New York, L.B. Bohle also presented itself for the first time in India with Korsch AG under the claim "Your Process in Mind".

The larger trade fair stand and the new positioning in the hall significantly increased the number of visitors compared to the previous year.

With the BRC 25 roller compactor, the focus was on a machine that was delivered to a large Indian pharmaceutical company immediately after the end of the trade fair and is already being used successfully in production today.

References for granulation, blending and coating

"In the meantime, we have noticed that we have been able to significantly increase our profile on the Indian market," reports Parag Radia, Director L.B. Bohle India. "Thanks to our references for granulation, blending and coating, all of which have helped customers to increase efficiency, the word is quickly spreading about our systems' high quality and technological edge," Radia continues.

The Indian pharmaceutical market is still one of the fastest growing markets. The country is now the largest producer of generic drugs in the world. "India is absolutely the focus of our sales activities due to its size and dynamics," reports Executive Director Sales Tim Remmert. "It therefore goes without saying for us to intensify our sales and service activities in addition to our increased trade fair presence, " Remmert explains, emphasizing the importance of the subcontinent.

Service technician reinforcement for L.B. Bohle India

L.B. Bohle has been offering its customers in India and neighbouring countries rapid technical support and assistance through its own local service technicians since autumn 2019. The service department is in Ahmedabad, as is the branch office. The Ahmedabad location has clear advantages for Radia in contrast to the previous branch in Mumbai: "Ahmedabad is a center for India's pharmaceutical industry and many renowned producers are based there. Our customers are therefore very close to us and we can guarantee fast response times."



HS 300 lifting columns optimize the packaging system

Cooperation with Mediseal in Brazil

L.B. Bohle is highly appreciated for its handling applications by customers worldwide and has been impressing for decades with its precision, durability and versatile integration into the manufacturing process.

This quality once again earned the pharmaceutical specialist from Ennigerloh an order from Aché Laboratórios Farmacêuticos. Aché is one of the largest pharmaceutical companies in Brazil with at least 5,000 employees. The company required lifting column technology to feed a blister packaging plant at Mediseal GmbH. Due to the many years of using handling and process equipment from L.B. Bohle in Aché's various production facilities, it was an obvious step to also supplement the packaging plant with lifting columns and containers from L.B. Bohle.

Six lifting columns optimize the process

The entire packaging line, which can process up to 500 cartons per minute, was equipped with a total of six HS 300 lifting columns, as



well as PEB containers and automatic closing flaps. The lifting columns serve as a perfect interface for the transfer to pack the tablets in the blisters. The convenient control of the lifting columns using the touch panel and the automation enhance the ease of use, minimize the risk of operating errors and save time, as no operator has to climb a ladder for loading. The system is designed in such a way that the container only needs to be refilled every 30 minutes.

"L.B. Bohle stands for absolute quality in the handling sector."

The entire project phase, from the first meeting to the FAT, lasted six months and was characterized above all by the mutual trust between Mediseal and L.B. Bohle on the one hand and Aché on the other. "The collaboration with L.B. Bohle worked without any problems at all. The fast and reliable way of working at all levels especially, but in particular with the Regional Sales Manager Peter Pogoda, must be emphasised," Felipe Pimentel, Project Manager at Mediseal, summarizes the cooperation. "For me, L.B. Bohle stands for absolute quality in handling. I always recommend the applications from L.B. Bohle with a clear conscience," says Pimentel.



New company restaurant opened

Customers and employees dine in a modern atmosphere

The new staff restaurant was actually scheduled to be opened at the end of December 2019. But even for the experienced builders at L.B. Bohle, the ambitiously planned completion could not be finished quite that quickly. "Unfortunately, we too had to accept that tradesmen are currently in great demand," reports Lorenz Bohle, Chairman of the Advisory Board. "The companies' order books are full and so we unfortunately had to postpone the opening until February. After all, the highquality completion of the building is more important to us than its short-term use," Bohle continues.

The new building in the park at the company's head office in Ennigerloh offers space for a 300 square metre canteen, where employees, customers and guests can enjoy their meals.

Building flooded with light

"We wanted to create a space where you can feel comfortable," says Bohle, looking visibly



satisfied through the building. "The bright rooms, modern ambience and interior, in addition to the excellent catering, contribute to the fact that the canteen is not only used frequently, but above all with pleasure," Lorenz Bohle notes. When the weather is nice, guests have the opportunity to use the spacious outdoor seating area.



L.B. Bohle honours employees for their loyalty

Indispensable expertise

Chairman of the Advisory Board Lorenz Bohle thanked twelve employees for their many years of loyalty and service to the company during an official celebration. Over the past few years it has become a good tradition to thank those celebrating their jubilee at the end of the year with a meal together. Together with the celebrants' department heads, the gathering looked back on the previous years and positively towards the future.

Several anniversaries delight company management

It is always very important to the Chairman of the Advisory Board, Lorenz Bohle, to honour and thank the employees. "I am always delighted to hold the list of those celebrating an anniversary in my hands. This year we even have three employees who have been loyal to the company for 35 years. The anniversary celebrations are therefore always a welcome occasion to express my sincere thanks," says Bohle.

"Mutual trust and reliability have always been important cornerstones of our corporate development. The continuity in the workforce shows me that these values are practised by both employees and management," Bohle continues. Christel Wienker, Martin Neumann and Klaus Emmerlich have been part of the team at the supplier of special process machines based in Ennigerloh for 35 years.

Joachim Volpert has remained loyal to L.B. Bohle for 30 years.

Godehard Pickert, Frank Muß and Dieter Düpjohann have been at the company for 25 years.

Beatrix Schneider, Martin Denda, Lukas Buntrock, Maximilian Tiemann, Frederik Niemeier celebrated their 10th anniversary in 2019.



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