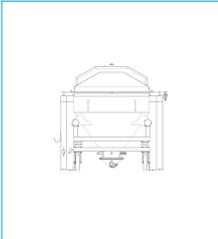




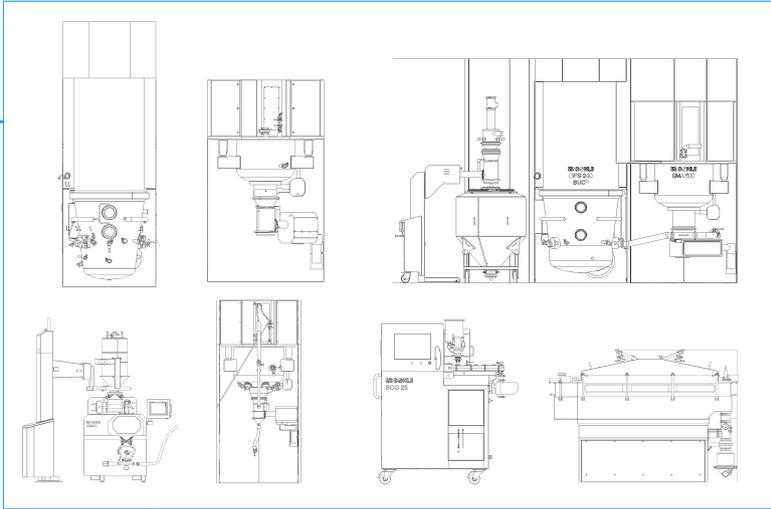
Product Portfolio

**Machinery for Your
OSD Production**

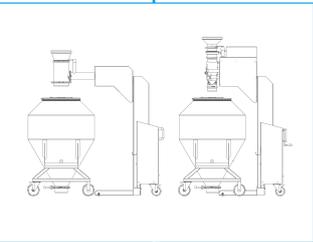
Processes for Your OSD Batch-Production



Weighing

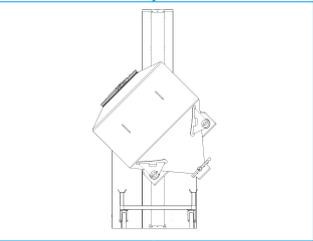


Granulation

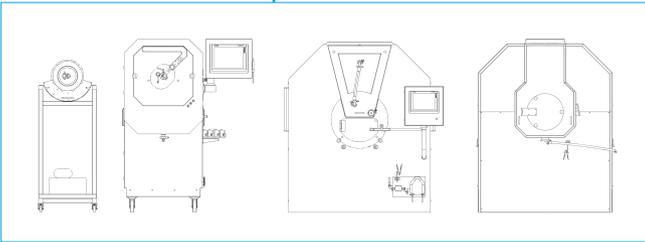


Sieving

Milling



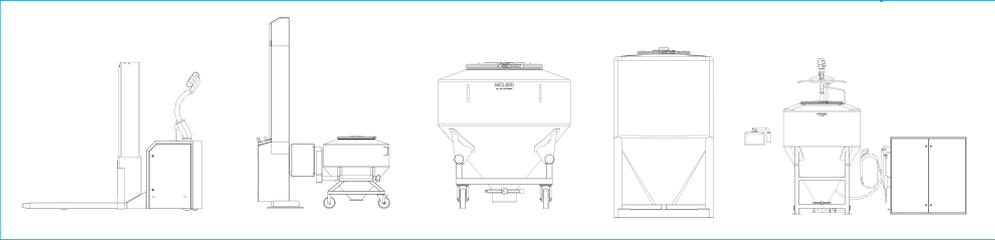
Blending



Coating



Checking

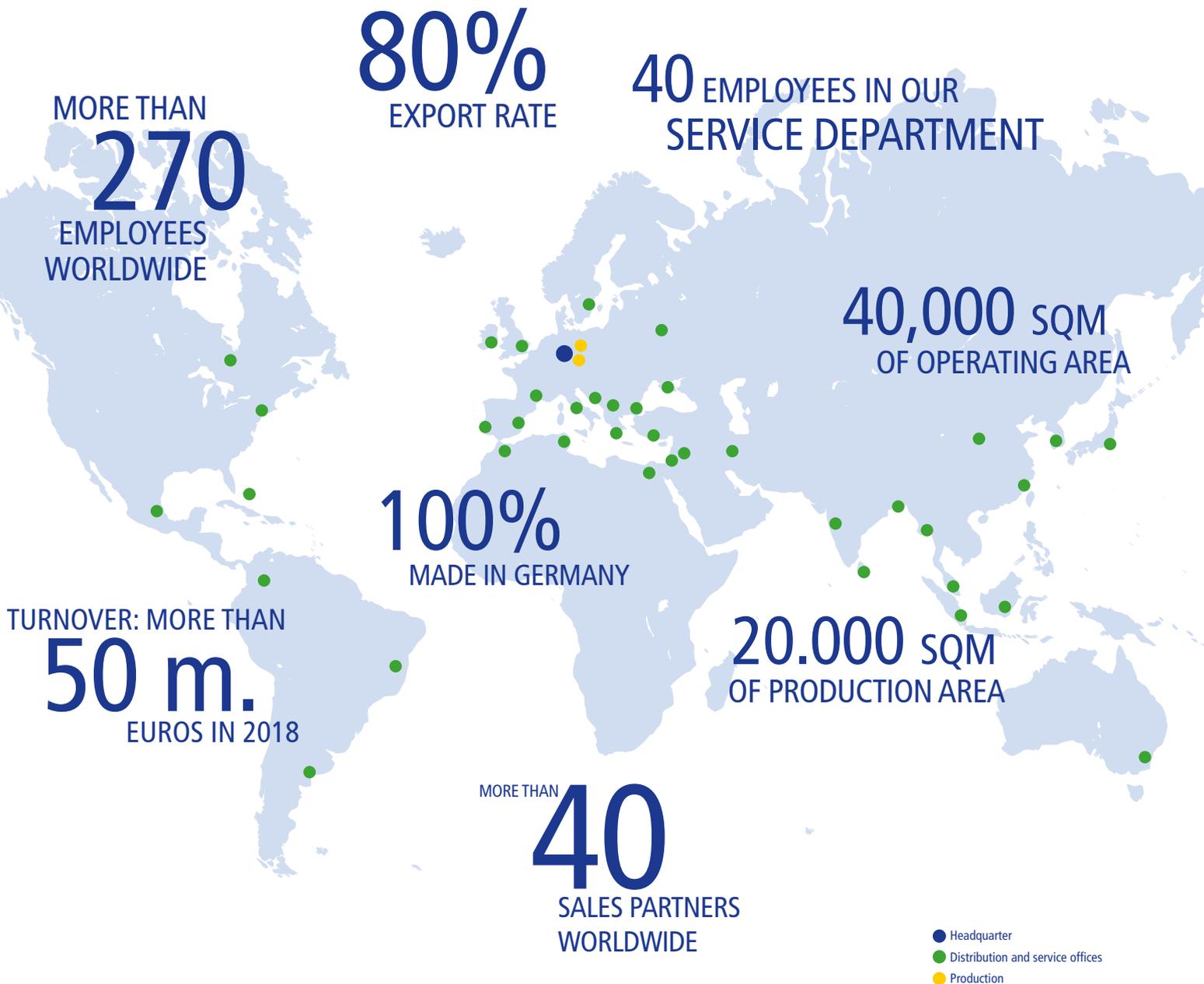


Handling



L.B. Bohle Maschinen + Verfahren GmbH

Hightech „Made in Germany“





Precision from the start

Bohle weighing and dispensing systems are modular and economic solutions, designed to dispense amounts of pharmaceutical powders.

To handle active pharmaceutical ingredients (API's) or highly active substances, which require special safety and environmental measures, isolators and laminar flow cabins are available as integrated solutions. By using Bohle high containment equipment at critical transfer interfaces, best human and environmental safety is provided.

Handling Equipment



IBC
(round and square)



Mobile Lifter



PEB



Universal Cleaning
System PUR



Lifting Column/
Post hoist



Fluid-bed Granulation and Drying BFS

L.B. Bohle developed the Bohle Fluid Bed Systems with tangentially mounted spray nozzles and the Bohle Uni Cone BUC®. With the innovative and patented Bohle Uni Cone BUC® process a complete fluidization is assured which leads to a high coating uniformities and high yields in the final product due to the absence of particle twinning.

Clear benefits with regards to process optimization, ergonomics and cleaning make the BFS stand out significantly from other fluid-bed systems on the market.

Bohle BFS are available for batch sizes ranging from 1 to 960 litres.



VMA – Single-Pot Granulator

Bohle Vagumator single-pot systems are designed for closed, dust-free processing of pharmaceutical granules from charging through discharge including inline milling. Mixing, granulation and drying cycles are completed in a single machine under contained conditions.

The VMA guarantees batch sizes from 20-960 litres.

Benefits:

- Small footprint
- Easy through-the-wall-assembly
- Gravity feeding is standard
- Installation in hazardous areas

Granulation



GMA – High Shear Granulator

The Granulator GMA is a granulating system specifically optimized for pharmaceutical applications. The impeller is designed for high shear and compression, ensuring effective granulation. The chopper prevents excessive granule growth and distributes the granulating liquid within the product.

GMA batch sizes: 20 – 960 litres

Benefits:

- Less liquid consumption
- Good discharging conditions
- Closed system
- Granulation can be controlled by time, amount or power
- Easy cleaning, no rinse water remaining

Compact Unit: Small footprint, high quality

The individual components of the High Shear Granulator GMA, wet sieve BTS, Fluid Bed System BFS and Bohle Uni Cone BUC®, cyclone separator and dry sieve BTS are optimally integrated into the Compact Unit. This integration covers process, cleaning, control and explosion protection as well as qualification.

The Compact Unit is a compelling solution when traditional wet granulation must be realized economically and ergonomically.

Benefits:

- Small footprint and minimized room height
- Multipurpose use for various processes
- Single operator panel to serve both machines
- Single WIP-skid to serve both machines





Roller Compaction – BRC

L.B. Bohle meets the growing demand for dry granulation applications by offering the BRC 25 and BRC 100, an innovative variable gap dry granulator.

The BRC enables high-production capacity with minimal loss of material. This is achieved by fast and precise control of the compaction force with a new electromechanical spindle drive for the two rollers.

In combination with a sensitive control of the variable gap via the screw feeding system, constant ribbon properties are assured over a wide production range from <1kg up to 400kg/h.

Further benefits:

- Hygienic design and effective cleaning by integrated WIP nozzles
- Versatile and gentle particle size adjustment with the
- PAT tool integration possible
- Containment execution as an option



QbCon® 1 - Continuous wet granulation and drying



Continuous wet granulation and drying have long been a hot topic in pharmaceutical R&D and industry.

L.B. Bohle's new R&D system QbCon® 1 for truly continuous granulation and drying meets all requirements for the successful introduction of continuous wet granulation.

Benefits:

- Material flow from raw material to dried granule in a closed continuous operation
- Fully automatic cleaning of filter during the drying process for unprecedented durability
- Uniform conveying of the granules from feeding to discharge
- Easy scale-up for the development of new products
- Very short residence time and a narrow residence time distribution



Hammer Mill BTM

Even for most complicated products, the user-friendly, modular and compact cGMP, FDA compliant design of the Turbo Mill BTM ensures excellent throughput capacities and milling results.

Important features: easy transport on a mobile under-carriage as well as height adjustability.

Benefits:

- Particle size < 100 μm
- Screen sizes from 0.1 to 4 mm
- Speed of 600 – 6,000 rpm
- Comfortable control via 7" Touch Panel.
User and recipe administration, Batch print out via PDF (USB interface)



Conical Mill BTS

The Bohle high speed cone mill is a patented unit used for particle sizing of dry or wet products which guarantees finest sieving results. Production capacities of 2–3 tons/hour are possible. The BTS is also available in explosion proof design according to ATEX guidelines and a RFID execution for screen monitoring.

A further benefit for the operator is the comfortable control via a Touch Panel.



Pharma Blender PM

The Bohle blending systems allow homogeneous blending of dry powder batches with its patented blending baffles mounted to the inside of the container lid. The blending procedure can be scaled up from 4 – 12,000 litres.

For optimum flexibility, the blending containers can be exchanged to use different volumes if necessary. Due to the patented Bohle blending system each blending container can be used for effective mixing between 20 – 85 % of the total container volume for densities between 0.2 – 1.2 kg/l.

Further benefits:

- PM can also be used as a milling station for bin to bin transfer
- Small footprint
- Fast and simple installation and low maintenance
- Easy product changeover by exchanging the blending
- Containment execution as an option
- Chopper as an option

Control System

- PLC new generation
- Enlarged HMI 15"
- Design: minimized, swivel, hygienic
- USB-port as standard





Film Coater BFC

The high-end version of the Bohle coater designed specifically for high speed, problem-free coating, providing unparalleled tablet uniformity and efficiencies. A high containment execution is also available. Batch sizes from 50 – 980 litres can be realized in the different coaters.

Benefits:

- Best coating uniformity RSD < 2 %
- Patented spirals: excellent mixing and careful product movement
- Minimal spray losses < 5 %
- Reduction of the process times up to 25 % due to a high number of nozzles and an efficient air flow system
- Same pan geometry for easy scale up
- Unique cleaning abilities with integrated high-pressure washing-system
- High sophisticated control system

Tablet Coater BTC

Tablet coating with the high-efficiency Bohle Tablet Coater guarantees up to 35-percent shorter pharmaceutical and nutraceutical processing times compared to conventional tablet coating equipment for significant cost savings and more efficient, longer running operations.

Benefits:

- State of the art coating technology
- Homogeneous mixing due to patented spirals
- Gentle mechanical treatment of tablet cores to avoid edging and breaking
- Simple and quick discharging by reversing the direction of rotation
- Nozzles with AB-caps ensure long enduring operation
- Minimizing loss of spraying solution to a value below 5 %
- Geometrical similarities of all machine sizes ensure secure scale-up conditions
- Friendly operator software and visualization





Laboratory Coater BFC 5

BFC 5 is a stand-alone unit. The entire air handling, electrical and control systems are incorporated in the unit.

Benefits:

- BFC 5 can be operated with one of two different pan sizes. Pans are changed manually
- The capacity of the smaller pan can be reduced with a divider plate
- Batch sizes from 2 to 13 liters
- Computerized Win CC visualization with extensive batch management tools and a broad range of tools for preparing recipes
- Multipanel visualization with touch panel, operator panel is attached to the coater
- Manual cleaning



Tablet Checking



Tablet Checker KA

The Bohle Tablet Checker is used for a mechanical check of the thickness of sugar-coated or film-coated pills, capsules and tablets.

Up to 1.000.000 tablets can be checked in in hour.

Benefits:

- Reproducible setting
- Precise calibration
- Validatable process
- Low maintenance and comfortable cleaning concept
- Versatile integration in the production setup





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