Bohle developed the Bohle Fluid Bed Systems with tangentially mounted spray nozzles and the Bohle Uni Cone BUC®. This equipment is available for batch sizes ranging from 1 to 500 kg. Built in 12 bar shock resistant execution, organic and water based processes are always accessible. Short product transfer times and effective cleaning offer opportunities for additional savings in production time and costs.

By design all size fluid beds are geometrically similar which enables an easy scale up procedure. Dust-free suction and discharge of the product bowl is performed through the use of a newly developed patented multi-functional valve directly above the distributor plate.

The overall design of the BFS types results in substantial ergonomic benefits, which means major advantages in cleaning and processing in comparison to other existing fluid bed systems on the market. In addition, the low position of the valve allows easy operator access. Bohle Fluid Bed Systems contain fewer gaskets, valves and vents, which makes cleaning fast and easy.

All Bohle systems utilize a very efficient use of space.
The Granumator 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.

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

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.

Benefits:
- Small footprint
- Easy through-the-wall-assembly
- Gravity feeding is standard
- Installation in hazardous areas
- Switch cabinet on board

### Technical Information:

#### Bohle High Shear

<table>
<thead>
<tr>
<th>GMA 70</th>
<th>GMA 300</th>
<th>GMA 600</th>
<th>GMA 1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFS 30</td>
<td>BFS 120</td>
<td>BFS 240</td>
<td>BFS 480</td>
</tr>
<tr>
<td>20 – 55</td>
<td>90 – 240</td>
<td>180 – 480</td>
<td>360 – 960</td>
</tr>
<tr>
<td>15 – 400</td>
<td>5 – 220</td>
<td>5 – 173</td>
<td>5 – 145</td>
</tr>
<tr>
<td>150 – 1500, variable adjustable</td>
<td>Patented measurement of mechanical torque/power</td>
<td>PLC controlled, Touchpanel operated</td>
<td></td>
</tr>
</tbody>
</table>

#### Bohle Single Pot

<table>
<thead>
<tr>
<th>VMA 70</th>
<th>VMA 300</th>
<th>VMA 600</th>
<th>VMA 1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impeller [rpm]</td>
<td>15 – 400</td>
<td>5 – 220</td>
<td>5 – 173</td>
</tr>
<tr>
<td>Chopper [rpm]</td>
<td>150 – 1500, variable adjustable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid dosing</td>
<td>Piston membrane pump, included in control panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowl/lid temperature control</td>
<td>10 – 80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacuum [mbar]</td>
<td>&lt; 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacuum feeding</td>
<td>For easy, fast and low dust emitting feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control system</td>
<td>PLC controlled, visualisation by InTouch from Wonderware</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 economical and ergonomically sound. Featuring many technological advances and inherent safety considerations, the Compact Unit creates an industry benchmark.

Benefits:
- GMA and BFS built into the wall right next to each other
- 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

Small Footprint, High Quality

The systems require a minimal footprint due to the close arrangement of the components. Additionally, direct product transfer from the outlet valve of the GMA via a stainless steel pipe to the suction valve of the BFS is possible. The proven tangential sieve can also be integrated into this pipe system. An additional discharge valve is integrated in the process container of the BFS eliminating the need to refit the transfer line and discharge line during processing.

Wet Tangential Sieve – Patented

The Bohle tangential sieve is exclusively designed for wet sieving of granules. The sieve is attached to the GMA base and situated directly below the GMA discharge. The impeller presses the wet granules through the tangential sieve directly into the transfer line.

This design reduces construction height and virtually eliminates transfer line obstructions and blockage of wet granules in the sieve.

Discharge Cyclone
- One level operation
- Short process times
- Completely closed process
- Short transfer routes means safe transfer
- Short cleaning process
- Small footprint