PML 2.
The universal laboratory bead mill.
The PML 2 is the optimal solution for the development of innovative wet grinding processes. The core piece is a robust and powerful drive and control unit which can be combined with different process units tailored to specific applications.
Laboratory bead mill PML 2.
Platform for individual process development.

Selection of applications.

**High value coatings**
- Automotive OEM & Refinish
- Anti-corrosion coatings
- Industrial coatings

**Displays & electronics**
- Colour filters
- Metal pastes
- Ceramic pastes
- Glass pastes

**Printing inks**
- Inkjet inks
- Liquid printing inks
- Liquid toners

**Specialty chemicals**
- Agro chemicals
- Pigment concentrates
- TiO₂-dispersions
- Adhesives and sealants
Process units for various applications.

With ceramic, synthetic and steel executions.

The universal laboratory bead mill.

PML 2. The universal laboratory bead mill.

Process units for various applications.

With ceramic, synthetic and steel executions.

Custom-designed components

- An optional stainless steel machine frame is available for high-tech applications in the clean room and meets the most stringent cleaning, hygiene and acid resistance requirements.
- Wear resistant ceramic components to ensure contamination-free processing, e.g. when producing substances for the electronics industry.
- Proven material combinations for optimized processing of abrasive and corrosive products, e.g. agro chemicals, pigments and engineered ceramics.
Tailored wet-grinding technology.
Flexible solution for research and development.

Exchangeable process units allow a flexible use for various applications.

SuperFlow™
- Pin/counter pin agitator with high power density in DraisResist™
- Particle size reduction down to submicron range
- Recirculation operation
- Large-scale production units available up to 110 kW

MicroMedia™
- Optimized for operation with micro beads ranging from 20 to 200 μm
- “Soft milling” and “High energy grinding” down to nanometre range
- Recirculation operation
- Materials: DraisResist™ and various ceramics
- Large-scale production units available up to 110 kW

Cenomic™ and Centex™
- Full volume bead mill
- Materials: DraisResist™, PU, various ceramics
- Bead separation by axially arranged protection sieve
- Recirculation or single passage operation
- Continuous or discontinuous operation possible
- Large-scale production units available up to 355 kW
User friendly solutions for maximum efficiency.
Bühler control systems.

Every business and every product is different. Bühler automation systems make sure that you benefit from a solution that is perfectly tailored to your needs.

**PREMIUM**

Display of all inputs and operating parameters (also trend depiction) on graphic display touch-screen. The PREMIUM package allows additional selection of specific control algorithms and offers various interfaces to main control systems or the Bühler data logging system “WinTrend”.

**COMFORT**

Simple relay control with the following elements:
- Start/Stop agitator
- Potentiometer: rpm for agitator
- Start/Stop feed pump
- Potentiometer: capacity for feed pump
- Ampere meter for motor power
- Alarm signal and emergency-stop
## Technical data PML 2

**The universal laboratory bead mill.**

### Specification

- Operating position horizontal or vertical: ●
- Service position vertical: ●
- Modular design: ●
- Easy to change process zones: ●
- Doubly acting mechanical seal: ●
- Gearpump, peristaltic pump: ○
- Control package PREMIUM: ○
- ATEX II2G Ex c T3: ○
- Monitoring of product pressure: ●
- Monitoring of product temperature: ●
- Interface for process data recording with WinTrend: ○
- Machine frame made of stainless steel: ○

### Technical data, weight, etc

<table>
<thead>
<tr>
<th>Specification</th>
<th>Power</th>
<th>RPM of Motor</th>
<th>RPM of Rotor</th>
<th>Active volume of process zone</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating position</td>
<td>2.2 kW</td>
<td>3000 min⁻¹</td>
<td>500–4000 min⁻¹</td>
<td>0.07–0.6 l</td>
<td>150 kg</td>
</tr>
</tbody>
</table>

### Process unit

<table>
<thead>
<tr>
<th>Process unit</th>
<th>SuperFlow™ 4</th>
<th>MicroMedia™ L</th>
<th>Centex™ S1</th>
<th>Centex™ S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agitator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DräiResist™ (metal)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Ceramic SSIC</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramic ZrO₂(Y₂O₃)</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramic ZrO₂(Y₂O₃)</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DräiElast™ (metal-free)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>DräiElast™ (metal-free)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

| Stator       |              |               |            |            |
| DräiResist™ (metal) | ●         | ●             | ●          | ●          |
| Ceramic SSIC | ●            | ●             |            |            |
| Ceramic ZrO₂(Y₂O₃) | ●          | ●             |            |            |
| Ceramic ZrO₂(Y₂O₃) | ●          | ●             |            |            |
| DräiElast™ (metal-free) | ●         | ●             | ●          | ●          |
| DräiElast™ (metal-free) | ●         | ●             | ●          | ●          |

### Discontinuous operation

<table>
<thead>
<tr>
<th>Specification</th>
<th>SuperFlow™ 4</th>
<th>MicroMedia™ L</th>
<th>Centex™ S1</th>
<th>Centex™ S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of discs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active volume of process zone [l]</td>
<td>0.275</td>
<td>0.070</td>
<td>0.222</td>
<td>0.600</td>
</tr>
<tr>
<td>Grinding media [mm]</td>
<td>0.2–0.8</td>
<td>0.02–0.3</td>
<td>0.2–2.0</td>
<td>0.2–2.0</td>
</tr>
<tr>
<td>Position (vertical / horizontal)</td>
<td>V</td>
<td>V</td>
<td>H</td>
<td>H</td>
</tr>
</tbody>
</table>

● = Standard. ○ = Option. SuperFlow™, MicroMedia™, Centex™, DräiResist™ and DräiElast™ are trademarks of Bühler AG. All data are approximate. Technical alterations reserved.