The fully hydraulic powder presses of the UPP series have been developed in particular for the production of highly complex powdered metal parts. The 4-column press frame is pretensioned. The upper part of the press is made of spheroidal graphite iron. This design ensures the highest stiffness and stability in comparison with conventional welded or plate constructions.

The machines are driven by a state-of-the-art hydraulic accumulator system. The hydraulic manifolds with all circuit elements are mounted as near as possible to the cylinders. The presses operate based on the withdrawal principle with two main press axes. Both of them are equipped with rapid motion cylinders. During the rapid motion the oil in the chambers of the working cylinder is circulated directly from one side of the piston to the other.

Main press- and die cylinders as well as the drive of the filling shoe are CNC-controlled. All axes are fully synchronized with each other including all axes of the multi-plate die-set, if applicable.

This technology enables minimum energy consumption and highest ram speeds. The change from rapid movement to pressing movement occurs dynamically, «on-the-fly» and smoothly. This results in maximum productivity with very low energy consumption.
Easy Programming and Operation

The three programming levels PRP, CAP and FRP ensure fast programming. The parameters entered into the PRP and CAP levels are used to calculate a complete press sequence, which is displayed in the FRP. The press sequence can be optimized on all three levels.

**PRP (Part Related Programming)**
The part dimensions are entered directly into the PRP.

**CAP (Computer Assisted Programming)**
Process parameters are defined on the CAP level. Integrated optimization programs assist the operator in bringing the part to size and density after a few strokes.

**FRP (Free Programming)**
In free programming almost any movement can be programmed providing maximum flexibility.

Production and Quality Monitoring

- Dynamic force measurement
- Tool protection
- Force monitoring
- Oscilloscope
- SPC (Statistic Process Control)
- Automatic filling height correction
- Internal or external data storage
Advantages of a multi-plate die-set with fixed stops

- High positioning and repetition accuracies
- Maximum counterforce in press position
- Low energy consumption

Compensation of the punch deflection

- The punch deflection is compensated for with freely programmable demoulding movements.
- The tooling and clamping components do not need to be designed for equal deflection.
- The Osterwalder process technology provides the option to select among different demoulding strategies.
- If a formula has been developed, no or only minor adjustments will be necessary as a result of changes in the powder consistency.

Additional options

- Customer-specific strokes for additional axes
- Motorized adjustable stops
- Automatic press stop adjustment
- Set-up aid/manipulator
- Hydraulic stops
- Die-set change-over system
- Die-set set-up station
- Rotating device for upper part of die-set
Double Die-Set Carriage

Automation and Accessories

- Handling on filling shoe
- Handling on die plate
- Robot or linear handling
- Transfer balance
- External height measuring station
- Mechanical and pneumatic compact cleaning

Rail system
Technical Data

<table>
<thead>
<tr>
<th>Press series UPP</th>
<th>2500</th>
<th>5500</th>
<th>8000</th>
<th>10000</th>
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<tbody>
<tr>
<td><strong>Forces</strong></td>
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<tr>
<td>Pressing force top ram max. kN</td>
<td>2500</td>
<td>5500</td>
<td>8000</td>
<td>10000</td>
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<tr>
<td>Withdrawal force max. (die) kN</td>
<td>1750</td>
<td>3700</td>
<td>3800</td>
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<tr>
<td>Counter force in press position max. (die) kN</td>
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<td>3700</td>
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<tr>
<td>Force lower core rod up/down kN</td>
<td>60/40</td>
<td>180/130</td>
<td>180/130</td>
<td>180/130</td>
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<tr>
<td><strong>Strokes</strong></td>
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<tr>
<td>Stroke top ram mm</td>
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<tr>
<td>Stroke lower ram (die) mm</td>
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<td>Stroke lower core rod mm</td>
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<tr>
<td>Filling height mm</td>
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<td>Stroke filling shoe mm</td>
<td>320</td>
<td>550</td>
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<td><strong>Positioning accuracies</strong></td>
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<td>Minimum programmable increment mm</td>
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<td><strong>General information</strong></td>
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<td>Stroke rate max./min.</td>
<td>19</td>
<td>17</td>
<td>15</td>
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<tr>
<td>Electric power (without additional axes) kW</td>
<td>101</td>
<td>171</td>
<td>217</td>
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<tr>
<td>Opening for die-set mm</td>
<td>Depending on the number of pressing levels</td>
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<tr>
<td>Total height mm</td>
<td>Depending on the height of the multi-plate die-set</td>
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<td>Total weight (incl. multi-plate die-set) kg</td>
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<td>60000</td>
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Further dimensions on request/dimensions, technical data and design are subject to change

Environmental management system ISO 14001/quality management system ISO 9001

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