Mechanical-Hydraulic Powder Presses KPP

The KPP series has been developed to combine the productivity and energy efficiency of mechanical presses with the flexibility and the capabilities of hydraulic presses. The presses operate based on the withdrawal principle. The top ram is driven mechanically by a double eccentric shaft via connecting rods. All other axes including die, top punch hold down device, filling shoe, core rod and additional axes are closed-loop controlled CNC-axes and hydraulically driven.

Unlike on conventional mechanical presses the frame is not exposed to tensile loadings during compaction. The integrated high-precision guides ensure highest geometry accuracy and thereby optimum guidance of the top ram.

**Gearbox**

The double eccentric shaft is driven via a variable asynchronous motor. The complete drive unit is located in the base frame of the press.

**Hydraulic power unit**

The hydraulic axes are driven by a state-of-the-art hydraulic accumulator system. The hydraulic manifolds are mounted as near as possible to the cylinders.

**Multifunctional top punch hold down**

Freely programmable

The closed-loop controlled hold down device fulfills the following functions: After the filling process the tooling is closed by running down the top ram and lowering the top punch hold down at the same time. Subsequently, the powder transfer is performed via top punch hold down device and the axes of the multi-plate die-set. This sequence corresponds to that of a fully hydraulic press.

After the top ram has reached the press position, the top punch hold down is activated. The demoulding process can be executed relating to force or to position.
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
Multi-Plate Die-Set

**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.

**Advantages of a multi-plate die-set with fixed stops**
- High positioning and repetition accuracies
- Maximum counterforce in press position
- Low energy consumption

**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

自动化和附件

- 处理填充鞋
- 处理冲头板
- 机器人或线性处理
- 传输平衡
- 外部高度测量站
- 机械和气动紧凑清洗
- 选择第二UPP / KPP粉末压制系统
- 铁轨系统
Technical Data

Press series KPP

<table>
<thead>
<tr>
<th>Forces</th>
<th>2500</th>
<th>4500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressing force top ram max. (m) kN</td>
<td>2500</td>
<td>4500</td>
</tr>
<tr>
<td>Withdrawal force max. (die) (h) kN</td>
<td>2000</td>
<td>2600</td>
</tr>
<tr>
<td>Counter force in press position max. (die) (h) kN</td>
<td>2000</td>
<td>2900</td>
</tr>
<tr>
<td>Force lower core rod up/down kN</td>
<td>65/40</td>
<td>65/40</td>
</tr>
<tr>
<td>Force top punch hold down in pressing direction kN</td>
<td>125</td>
<td>450</td>
</tr>
</tbody>
</table>

| Strokes | 218 | 218 |
| Stroke top ram (m) mm | 218 | 218 |
| Compact height adjustment (h) mm | 80 | 80 |
| Filling height mm | 180 | 120 |
| Stroke die mm | 180 | 120 |
| Stroke lower core rod (h) mm | 150 | 150 |
| Stroke filling shoe (h) mm | 320 | 320 |
| Stroke top punch hold down (h) mm | 100 | 100 |

| Positioning accuracies | 0.001 | 0.001 |
| Minimum programmable increment mm | 0.001 | 0.001 |
| Repetition accuracy mm | ± 0.01 | ± 0.01 |
| Positioning accuracy filling shoe mm | < 0.1 | < 0.1 |

| General information | 5.22 | 5.18 |
| Stroke rate s./min. | 5.22 | 5.18 |
| Electric power (without additional axes) kW | 97.5 | 152.5 |
| Opening for die-set mm | Depending on the number of pressing levels |
| Total height mm | Depending on the height of the multi-plate die-set |
| Total weight (incl. multi-plate die-set) kg | 42 000 | 70 000 |

Remarks: h=hydraulic, m=mechanical

Further dimensions on request/dimensions, technical data and design are subject to change.
Environmental management system ISO 14001/quality management system ISO 9001