High Performance Punch System HDM
Technical Data Sheet

**Design Concept and Operating Principle**

HDM is an integrated punch system, specially optimized for applications in punching, nibbling and forming. HDM offers high performance for such machines.

HS4 is the electronic link between HDM and machine control PLC / CNC. The machine control will communicate all parameters, like stroke positions and speed, using the data interface. After cycle starting, all management and monitoring of hydraulic actuators and sensors is done by HS4. A robust position feedback with digital interface is used to monitor the closed loop ram operation.

Highly efficient use of power is achieved using the load-controlled “two-pressure-system”. Accumulator charging for low pressure results in high speed cylinder operation for nibbling and high speed punching. For high pressure operation, the reduced cylinder speed results in a reduction of hydraulic power, noise and machine stress. In a compact design, all valves are placed on a manifold directly on the cylinder. The benefits of this are good hydraulic response together with simple installation and maintenance.
**Product Features**

- highly dynamic punch drive with closed loop control
- new valve technology DECV: Direct Electronic Copy Valve
  - based on proven Voith H + L copy valve
  - rugged against mechanical stress
  - simple oil filtration is sufficient
  - directly operated, no hydraulic control circuit
  - very fast step response
  - very accurate proportional response
- predefined machine cycles with programmable stroke parameters
- process safety by feedback monitoring
- improved diagnostics by pressure sensors
- optimized power consumption with load-controlled active “two-pressure-system”

**Scope of Delivery**

- Punch Drive HDM
  - optimized punch cylinder
  - manifold with valves and accumulator charging
  - various damping elements
- Electronic Control HS4-SV2
  - intelligent drive control and diagnostics
  - data interface: RS-232, CAN Bus, Profibus, Ethernet, USB
- Power Pack
  - application optimised dimensioning
  - integrated cooling and filtering circuit

**Options**

- additional sizes of max force
- cylinder with alternative fastening possibility
- cylinder with different stroke length (up to 100mm)
- customized power pack
- HL-BRIDGE for digital I/O based data interface

---

**Key Performance Figures HDM**

<table>
<thead>
<tr>
<th></th>
<th>HDM 20 to</th>
<th>HDM 30 to</th>
</tr>
</thead>
<tbody>
<tr>
<td>operating pressure ND/HD</td>
<td>70/285 bar</td>
<td>70/285 bar</td>
</tr>
<tr>
<td>max. load force</td>
<td>220 kN</td>
<td>330 kN</td>
</tr>
<tr>
<td>max. return force</td>
<td>25 kN</td>
<td>45 kN</td>
</tr>
<tr>
<td>max. force in low pressure</td>
<td>35 kN</td>
<td>50 kN</td>
</tr>
<tr>
<td>cylinder stroke (standard)</td>
<td>40 mm</td>
<td>40 mm</td>
</tr>
<tr>
<td>motor rated power</td>
<td>7.5 kW</td>
<td>11 kW</td>
</tr>
</tbody>
</table>
| cycle time
  punch stroke 4 mm    | 27 ms     | 32 ms     |
| cycle time
  punch stroke 6 mm    | 38 ms     | 46 ms     |
| cycle time
  punch stroke 8 mm    | 49 ms     | 60 ms     |
| marking frequency     | 2800 strokes/min | 2800 strokes/min |

additional data according to dimensioning protocol
Functional Diagram

1. main valve with DECV technology
2. high/low pressure switching valve
3. accumulator charging valve, low pressure
4. block cylinder
5. accumulator
6. power pack
7. position feedback
8. pressure feedback
Basic Dimensional Drawing HDM 20t/30t

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>H</th>
<th>S</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDM 20 to</td>
<td>240</td>
<td>145</td>
<td>62</td>
<td>80</td>
<td>180</td>
<td>390</td>
<td>162</td>
<td>164.5</td>
<td>135</td>
<td>272</td>
</tr>
<tr>
<td>HDM 30 to</td>
<td>250</td>
<td>165</td>
<td>62</td>
<td>95</td>
<td>200</td>
<td>390</td>
<td>152</td>
<td>174.5</td>
<td>125</td>
<td>282</td>
</tr>
</tbody>
</table>

dimensions in mm