Control for CNC press brakes

Product characteristics

The patented, speed-controlled ePrAX™ max is a complete electrohydraulic drive (including cylinder) for press brakes. It is characterized by a simple mechanical and electrical connection.

Speed control takes place separately for each actuator via the ePrAX drive regulator. Super silent servomotors control the speed of approaching stroke and bending stroke. The specific use of the temporarily stored drop energy for the return stroke leads to high dynamics and significant energy savings. This principle allows an efficient operation without additional cooling. The required oil volume is only 10% compared to conventional drives.

Development times of the machines, installation and commissioning are reduced to a minimum. Only 9 screws are required for mounting each closed drive unit. The units leave our production facility fully tested and run under standard conditions.

The high system rigidity of the closed hydraulic system results in a precise control accuracy. Both product variants with 110 and 170 tons respectively impress with a high productivity due to long maintenance intervals of at least 7,000 hours.

The ePrAX™ max complies with the valid accident prevention regulations and is certified with type examination certificate No. 13005.

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## Structure

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>press drive, left</td>
</tr>
<tr>
<td>2</td>
<td>press drive, right</td>
</tr>
<tr>
<td>3</td>
<td>drive controller, left</td>
</tr>
<tr>
<td>4</td>
<td>drive controller, right</td>
</tr>
<tr>
<td>5</td>
<td>safety control (optional)</td>
</tr>
</tbody>
</table>

*Linear scale*
## Technical data

### General

<table>
<thead>
<tr>
<th>ePrAX\textsuperscript{max} 15</th>
<th>weight per actuator ([\text{kg}])</th>
<th>ambient temperature (\text{[°C]})</th>
<th>mounting position</th>
<th>corrosion protection</th>
<th>press force ([\text{kN}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>420</td>
<td>0 to +40</td>
<td>vertical</td>
<td>surface protected by corrosion protection fluid</td>
<td>550</td>
<td></td>
</tr>
<tr>
<td>ePrAX\textsuperscript{max} 19</td>
<td>600</td>
<td></td>
<td></td>
<td></td>
<td>850</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ePrAX\textsuperscript{max} 15</th>
<th>working stroke ([\text{mm}])</th>
<th>max. rapid traverse rate ([\text{mm/s}])</th>
<th>max. working speed ([\text{mm/s}])</th>
<th>permitted weight of pressing bar including tools per actuator ([\text{kg}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>280</td>
<td>230</td>
<td>10</td>
<td>600-1100</td>
<td></td>
</tr>
<tr>
<td>ePrAX\textsuperscript{max} 19</td>
<td></td>
<td></td>
<td></td>
<td>900-1200</td>
</tr>
</tbody>
</table>

For two-cylinder CNC press brakes according EN 12622 the following is applicable: maximum tilting of the pressing bar must be limited mechanically through machine construction to 15 mm.

### Electrical parameters

<table>
<thead>
<tr>
<th>ePrAX\textsuperscript{max} 15</th>
<th>rated output ([\text{kW}])</th>
<th>voltage (controller) ([\text{V}])</th>
<th>device connected load (controller) ([\text{kVA}])</th>
<th>power loss (controller) ([\text{W}])</th>
<th>interference immunity</th>
<th>ingress protection class according DIN40050</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.45</td>
<td>3x400 (-15 %)</td>
<td>9.4</td>
<td>187</td>
<td>EMC according DIN55011 / 61000-6-2</td>
<td>IP52</td>
<td></td>
</tr>
<tr>
<td>ePrAX\textsuperscript{max} 19</td>
<td>6.07</td>
<td>3x460 (+10 %)</td>
<td>22.5</td>
<td>330</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The measurement\* of energy consumption and sound level for a press brake with ePrAX\textsuperscript{max} 19 drives compared to a conventional press brake showed the following results:

<table>
<thead>
<tr>
<th>ePrAX\textsuperscript{max} 19</th>
<th>consumption ([\text{kWh}])</th>
<th>sound level ([\text{db(A)}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>60.5</td>
<td></td>
</tr>
<tr>
<td>conventional press control</td>
<td>10.9</td>
<td>72</td>
</tr>
</tbody>
</table>

\*with 500 strokes at a press force of 50 t and 0.5 seconds press time
Functional diagram

1. Top dead center
2. Pre-closing
3. Approach speed
4. Change point for slow speed (switchover point) / Mute
5. Slow closing speed
6. Decompression
7. Pre-opening
8. Withdrawal speed

Electrical functionality

Diagram showing electrical connections and components related to CNC press brakes.
Dimensions and connections

ePrAX max 15

Installation drawing shows right actuator (dimensions in mm).

1 required mounting space
Installation drawing shows right actuator (dimensions in mm).

Installation drawing shows left actuator (dimensions in mm).
ePrAX max 19

Installation drawing shows right actuator (dimensions in mm).

1 required mounting space
Installation drawing shows right actuator (dimensions in mm).

8x M30-6H \( \phi \) 60 tightening torque 745 Nm ±10% (screws property class 8.8)
Installation drawing shows left actuator (dimensions in mm).

8x M30-6H 60 tightening torque
745 Nm ±10%
(screws property class 8.8)
Order information

Type code

Ordering example | ePrAX® | 15-055 - 28 - 1 - W S 145 A1 |
--- | --- | --- | --- | --- | --- | --- |

- **basic version**: ePrAX®max

- **size**
  - 15-055: pressing force 550 kN per ePrAX®max
  - 19-085: pressing force 850 kN per ePrAX®max

- **stroke**: 280 mm

- **working speed**: 10 mm/s

- **modification index**: A-Z 1-9

- **piston rod pressure**: e. g. 145 bar

- **safety control**
  - O: without safety control
  - S: with safety control

- **controller**
  - W: wall mounting (standard)

- **optional**: optional