Flexline rapid clamping systems with drive chain clamping element, T-slot and adjustment track

Advantages
- 8 different clamping elements
- 4 different T-slots
- 3 different adjustment tracks
- drive motor and “die position” monitor attachable on left or right
- easy to service, easily exchangeable modular assemblies ensure high availability of parts
- technical arrangement and finished drawing in just a few minutes
- highly flexible, low-maintenance hydraulic lines with high burst pressure

Applications:
- rapid clamping systems are used for the automatic clamping of dies of varying sizes on the press ram.

Function
The electro-mechanical drive chain moves the clamping element attached to the rapid clamping system automatically from the parking position to the clamping position at the clamping edge and then back to the parking position.

The T-slot of the machine serves as the guide for the drive chain and clamping element. The drive chain also serves as the energy chain for accommodating the hydraulic and electric lines of the clamping element.

Versions:
Flexline rapid clamping systems can be supplied in the following variants:
- Clamping elements
  - Hollow piston cylinders, clamping cylinders with locking mechanism, spring clamping cylinders or sliding clamps
- T-slots 28, 32 or 36 mm or 1-1/16”
- Adjustment tracks (tracks of the clamping element) 660, 820 or 1100 mm
- Drive motor attached on left or right
- Optional position monitoring (configurable) micro switch for “end position” and “intermediate position”
- “Die position” monitoring attached on left or right
- Chain case in galvanized design or painted individually at customer’s request
- Option: Arrangement with UL-compliant parts
- Various Harting connectors to choose from for motor current and monitoring signals
- Option: Socket housing for assembly to machine

Technical data

<table>
<thead>
<tr>
<th>T-slot</th>
<th>28 mm and 36 mm (DIN 650) / 32 mm (similar to DIN 650) and 1-1/16”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment speed</td>
<td>150 mm/s</td>
</tr>
<tr>
<td>Multi-frequency motor</td>
<td>400 V 50 Hz and 480 V 60 Hz / 3~ AC</td>
</tr>
<tr>
<td>Motor current</td>
<td>0.18 A</td>
</tr>
<tr>
<td>Motor power</td>
<td>45 W</td>
</tr>
<tr>
<td>Motor connection</td>
<td>Harting connector with 500 mm cable length</td>
</tr>
<tr>
<td>Monitoring connection</td>
<td>Harting connector with 500 mm cable length</td>
</tr>
<tr>
<td>Monitoring:</td>
<td></td>
</tr>
<tr>
<td>1. Parking position</td>
<td>inductive sensor 24 (10-30) V DC</td>
</tr>
<tr>
<td>2. Die position</td>
<td>inductive sensor 24 (10-30) V DC</td>
</tr>
<tr>
<td>Option:</td>
<td>micro switch</td>
</tr>
<tr>
<td>3. “End position”</td>
<td>micro switch</td>
</tr>
<tr>
<td>(end of chain)</td>
<td></td>
</tr>
<tr>
<td>4. “Intermediate position”</td>
<td>micro switch</td>
</tr>
<tr>
<td>Hydraulic connection</td>
<td>8 mm pipe nozzle with M 16 x 1.5 union nut</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>max. 70˚C</td>
</tr>
<tr>
<td>Part No.</td>
<td>HCR-8228X (standard version)</td>
</tr>
</tbody>
</table>

Subject to technical modification
Flexline rapid clamping systems with drive chain clamping element, T-slot and adjustment track

Dimensions

**Sliding clamping elements**

- Dimensions
  - 50 min. / 60 max.
  - 28 min. / 45 max.

**Cylindrical clamping elements**

- Dimensions
  - 100 min. / 125 max.

**Selection scheme**

You can configure the desired product variant yourself. You are provided with a dimension drawing for the selected configuration and can send us your chosen configuration directly for an offer to be prepared.

<table>
<thead>
<tr>
<th>Clamping element</th>
<th>Dimension D x L</th>
<th>Clamping force</th>
<th>Operating pressure</th>
<th>Total stroke S</th>
<th>Clamping stroke St</th>
<th>Oil requirement Clamping/releasing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollow piston cylinder, double acting</td>
<td>Ø 90 x 105</td>
<td>104 kN</td>
<td>400 bar</td>
<td>12 mm</td>
<td>8 mm</td>
<td>2,6/2,6 cm³ / mm</td>
</tr>
<tr>
<td>Hollow piston cylinder, single acting</td>
<td>Ø 105 x 88</td>
<td>100 kN</td>
<td>245 bar</td>
<td>12 mm</td>
<td>8 mm</td>
<td>4,1/4,1 cm³ / mm</td>
</tr>
<tr>
<td>Hollow piston cylinder, double acting</td>
<td>Ø 100 x 112</td>
<td>100 kN</td>
<td>245 bar</td>
<td>12 mm</td>
<td>8 mm</td>
<td>4,1/4,1 cm³ / mm</td>
</tr>
<tr>
<td>Clamping cylinder with mechanical lock, double acting</td>
<td>Ø 100 x 128</td>
<td>100 kN</td>
<td>80 bar</td>
<td>8 mm</td>
<td>4 mm</td>
<td>31/31 cm³ / mm</td>
</tr>
<tr>
<td>Spring clamping cylinder, single-acting</td>
<td>Ø 120 x 134</td>
<td>100 kN</td>
<td>260 bar</td>
<td>7 mm</td>
<td>1 mm</td>
<td>-7,9 cm³ / mm</td>
</tr>
<tr>
<td>Sliding clamp, double acting</td>
<td>80 x 75</td>
<td>78 kN</td>
<td>400 bar</td>
<td>12 mm</td>
<td>8 mm</td>
<td>2/1,5 cm³ / mm</td>
</tr>
<tr>
<td>Sliding clamp, single acting</td>
<td>80 x 75</td>
<td>78 kN</td>
<td>400 bar</td>
<td>12 mm</td>
<td>8 mm</td>
<td>2 cm³ / mm</td>
</tr>
</tbody>
</table>

**Slot width a**

- 28 mm (DIN 650)
- 32 mm
- 36 mm (DIN 650)
- 1-1/16" (27 mm)

**Position query**

- Die position S2 - left
- Die position S2 - right
- End position S3 + spec. of dimension K
- Int. position S4 + spec. of dimension K

**Harting plug for motor and position queries**

- Harting HAN modular 3x5 ES
- Harting HAN 3 HvE/HAN 10 E
- Harting HAN 6 HvE/HAN 10 ES
- Harting HAN 6 HvE/HAN 10 ES "2290"
- Counterparts included in delivery (selectable option: yes/no)

**Clamping dimension**

- Specification of clamping dimension F (±St/2) in [mm]

**Height H of connection box only**

- 654, 574, or 794 mm according to adjustment track

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**Flexline rapid clamping systems with drive chain clamping element, T-slot and adjustment track**

**Electric interfaces:**
Harting connector for motor + position monitoring. See circuit diagram for pin assignment and connector design. (available as special variant or without connector on request)

**Hydraulic interfaces:**
Connection A for clamping
Connection B for releasing
Standard: M16 x 1.5 union nut, pipe connection 8 diam.

**Pin assignment of Harting connectors**

<table>
<thead>
<tr>
<th>HAN 10 modular 3x5 EB</th>
<th>HAN 3 HvE</th>
<th>HAN 10 E</th>
<th>HAN 3 HvE</th>
<th>HAN 10 E</th>
<th>&quot;2290&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver</td>
<td>Motor</td>
<td>Parking</td>
<td>Releasing</td>
<td>Parking</td>
<td>Die</td>
</tr>
<tr>
<td>S1</td>
<td>S1</td>
<td>S2</td>
<td>S3</td>
<td>S2</td>
<td>S3</td>
</tr>
<tr>
<td>(Option)</td>
<td>(Option)</td>
<td>Intermediate</td>
<td>(Option)</td>
<td>Intermediate</td>
<td>(Option)</td>
</tr>
<tr>
<td>End position*</td>
<td>End position*</td>
<td>End position*</td>
<td>End position*</td>
<td>End position*</td>
<td>End position*</td>
</tr>
</tbody>
</table>

* unactuated in *-position!

**Clamping cylinder double-acting with mechanical lock**

**Mode of operation**
To clamp, apply pressure to connection A. The clamping element is moved by means of the integrated wedge mechanics to the edge of the die in a rapid adjustment stroke.

After generating clamping force of 100 kN with only 80 bar operating pressure, the clamping position is them mechanically secured in a self-locking manner, so that the clamping force is retained completely, even in the event of pressure loss.

For safety reasons it is recommended to maintain the hydraulic pressure.

To release, depressurize connection A and apply pressure to connection B. The mechanical lock is released and the clamping element moves to the release position.
Special versions
Please contact us if your individual clamping task is not covered by the options available with "Flexline." In many cases, we will be able to fulfill your requirements with a customized special version which deviates only slightly from the standard design.

Possible special versions:
- Clamping solutions for tight spaces
- Special mounting hole pattern
- Different T-slot dimension (e.g. T-slot 22)
- Modified adjustment track V (e.g. > 1100 mm)
- Clamping elements with, for example
  - special clamping force
  - specific operating pressure
  - modified clamping stroke St
  - modified clamping dimension F
  - modified shape
  - different mode of operation
- different motor voltage (e.g. 24 V DC) or different drive principle (e.g. pneumatic)
- special options for electric or hydraulic connections
- Parts of certain manufacturers or specification
- Additional requests and customer-specific requirements...

Examples of special versions
Special sliding clamping element with two clamping pistons
- Short track

Adapter plate with special mounting hole pattern
- special electric connection and hydraulic connection

Long track with special low profile chain case
- additional position monitoring

Specific flange plate with special mounting hole pattern

Additional extension bracket with new parking position to overcome major obstruction on the press
Rapid clamping system with pneumatic cylinder
‘Pneumatic travelling clamp’

Possible clamping elements:
- Hollow piston cylinder double-acting with a max. clamping force of 115 kN
- Hollow piston cylinder single-acting with a max. clamping force of 104 kN
- Locking cylinder double-acting with a max. clamping force of 100 kN
- Spring clamping cylinder single-acting with a max. clamping force of 100 kN

Application and special features:
Low-cost rapid clamping system for short distances of travel. In this version, standard clamping elements are moved by means of a pneumatic cylinder. The pneumatic positioning drive fits completely into a T-slot as per DIN 650 with a slot width of 28 mm, therefore the positioning cylinder can be positioned upstream or downstream of the clamping element. The positioning drive is fastened in the T-slot using a wedge lock without the need to modify the press ram. Interrogation of the unclamping and clamping positions is carried out using inductive magnetic sensors on the pneumatic cylinder.

- robust and cost-effective system for short distances of travel
- easy installation using standard clamping elements
- for fastening, no modification to the press ram is required
- rapid adaptation to various die sizes

Scope of supply:
Pneumatic positioning drive unit including screw fittings for pneumatic connection and position interrogation on the cylinder.

Clamping element
High-pressure hose and screw fittings for hydraulic connections on the clamping element

Optional extras:
- parking station (for the unclamping position outside of the press ram)
- traveling distance up to 400 mm
- reed contacts instead of inductive magnetic sensors
- pneumatic one-way restrictors for adjusting the positioning speed

Other optional extras including adaptation are available upon request

Technical data:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure, pneumatic:</td>
<td>min. 6 bar</td>
</tr>
<tr>
<td></td>
<td>(max. 10 bar)</td>
</tr>
<tr>
<td>Weight of the clamping element:</td>
<td>max. 8.5 kg (for 6 bar)</td>
</tr>
<tr>
<td></td>
<td>14 kg (for 10 bar)</td>
</tr>
<tr>
<td>Travel:</td>
<td>200 mm</td>
</tr>
<tr>
<td>Temperature range:</td>
<td>max. 70°C</td>
</tr>
</tbody>
</table>
Rapid clamping system with pneumatic cylinder
‘Pneumatic travelling clamp’

Optional extras and versions of installation

Hollow piston cylinder, double-acting

Wedge lock

Die clamping edge 28 Web height

20 min.

Travel 200

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