**Compact Swing Clamps with Sturdy Swing Mechanism**
bottom flange, top flange, threaded-body type, double acting, max. operating pressure 350 bar

### Connecting types
1. Flange at the bottom
2. Flange at the bottom with O-ring sealing
3. Flange at the top
4. Flange at the top with O-ring sealing
5. Threaded-body type

### Application
Hydraulic swing clamps are used for clamping of workpieces when it is essential to keep the clamping area free of straps and clamping components for unrestricted workpiece loading and unloading.

### Swing direction
The units are available with clockwise and counterclockwise swing motion or without swing motion (0°).

### Standard swing angles
are 45°, 60° and 90° ±2°. Special angles on request. Other variants, as e.g. types with metallic wiper on request.

### Option: metallic wiper
In addition to the FKM wiper the following swing clamps can be equipped with a metallic wiper.
- Flange at the top with O-ring sealing
- Threaded-body type

Part no.: Add only letter "M" to the part number of the swing clamp without metallic wiper.

Example of ordering:
Swing clamp 1850 124 with metallic wiper: 1850 124M

### Function
This hydraulic clamping element is a pull-type cylinder where a part of the total stroke is used to swing the piston.

### Versions
Only double-acting elements are available. Single-acting versions see data sheet B 1.849.
Flange at the bottom

Technical data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Piston Ø</td>
<td>14</td>
</tr>
<tr>
<td>Piston rod Ø</td>
<td>10</td>
</tr>
<tr>
<td>Effective piston area</td>
<td>0.754</td>
</tr>
<tr>
<td>Clamping</td>
<td>1.54</td>
</tr>
<tr>
<td>Oil volume per stroke</td>
<td></td>
</tr>
<tr>
<td>Clamping</td>
<td>1.2</td>
</tr>
<tr>
<td>Unclamping</td>
<td>2.5</td>
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<tr>
<td>Max. oil flow rate</td>
<td></td>
</tr>
<tr>
<td>Clamping</td>
<td>5</td>
</tr>
<tr>
<td>Unclamping</td>
<td>10</td>
</tr>
<tr>
<td>Min. operating pressure</td>
<td>30</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>350</td>
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<tr>
<td>Max. force to pull</td>
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<tr>
<td>Effective clamping force</td>
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<tr>
<td>[kN] see diagram</td>
<td></td>
</tr>
<tr>
<td>Swing angle</td>
<td></td>
</tr>
<tr>
<td>[°] (0, 45, 60, 90) ±2</td>
<td></td>
</tr>
<tr>
<td>Swing stroke</td>
<td>8</td>
</tr>
<tr>
<td>Clamping stroke</td>
<td>8</td>
</tr>
<tr>
<td>Total stroke</td>
<td>16</td>
</tr>
</tbody>
</table>

Clamping force diagram

Materials

Housing and piston are made of high alloy steel. By nitrating, wear is reduced and protection against corrosion increased.

FKM seals.

Important notes

1. Danger of injury

Hydraulic clamping elements can generate considerable forces. Due to the 90° swing motion, the exact clamping and unclamping position cannot be determined in advance. Considerable injuries can be caused to fingers in the effective area of the clamping arm.

Remedy: protection device with electrical locking.

2. Admissible oil flow rate

In case of the admissible oil flow rate as per table the shortest possible clamping or unclamping time is 0.5 second. If the flow rate of the pump divided by the number of swing clamps is higher than the indicated value in the chart, the flow rate has to be throttled to avoid any overload and thereby high wear.

3. Unimpeded swing motion

This swing clamp does not have an overload protection device. Therefore the swing motion must not be impeded and the clamping arm may only contact the workpiece after completion of the swing stroke.

4. Clamping arm assembly

4.1 All types

When tightening and untightening the lock nut, the clamping arm has to be backed up to avoid the introduction of moments to the piston rod and thereby any deterioration of the swing mechanism.

4.2 Threaded-body type

The clamping arm can only be fixed after the housing is firmly screwed in, since the final position cannot be determined in advance.

5. Adjustment of contact bolt

The contact bolt may only contact the workpiece after completion of the swing motion. When tightening and untightening the fixing screw, the clamping arm has to be backed up (see 4.1).

6. Special clamping arm

When using special clamping arms with other lengths, the corresponding operating pressures as shown in the clamping force diagram must not be exceeded. If longer clamping arms will be used, not only the operating pressure but also the flow rate have to be reduced (see 2).

7. Bleeding

Air in the oil prolongs the clamping time considerably and leads to function troubles. Therefore bleeding has to be effected during start up, as described as follows for the different types.
7.1 Flange at the top and at the bottom
Loosen carefully the union nut of the tube at low oil pressure and pump until bubble-free oil comes out. Retighten the union nut.

7.2 Flange with O-ring sealing
Loosen carefully the socket head cap screw M5 at low oil pressure and pump until bubble-free oil comes out. Retighten the union nut.

7.3 Threaded-body type
There is no possibility for bleeding at the element itself. Remedy: plug the oil channels in the fixture body at the end. If required, loosen the plugs carefully and pump at low oil pressure until bubble-free oil comes out. Retighten the plugs.

Porting details in fixture
- Flange at the top with O-ring sealing
  Part no.: 18501X4M
- Threaded-body type
  Part no.: 18501X5M
Accessories

Clamping arm assembly, complete, max. 350 bar
Part no. 0354057

Double clamping arm, complete
Part no. 0354082

Clamping arm - blank
Part no. 3548900

Connecting dimensions for special clamping arms

Flange nut as per DIN 1804
Part no. 3527076

Thread reducing adaptor
ND [bar] Designation Part no.
250 D 8L G 1/8 9208034
500 D 8S G 1/8 9208116

Tube male stud coupling for G1/8
ND [bar] Designation Part no.
250 D 8L G 1/8 9208034
500 D 8S G 1/8 3613003