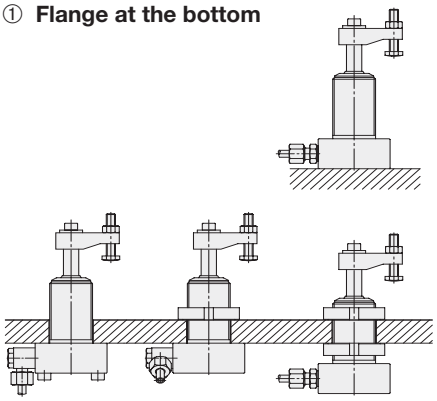
ROEMHELD

B 1.849

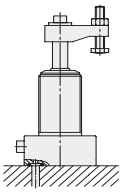
Compact Swing Clamp
5 connecting types, single acting
max. operating pressure 350 bar, force to pull up to 2.63 kN

Connecting types

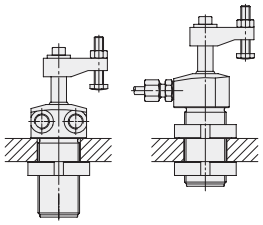
① **Flange at the bottom**



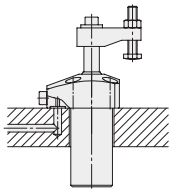
② **Flange at the bottom with O-ring sealing**



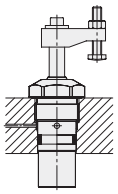
③ **Flange at the top**



④ **Flange at the top with O-ring sealing**

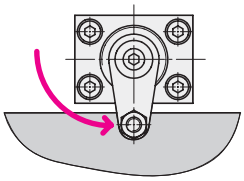


⑤ **Threaded-body type**



FKM wiper standard

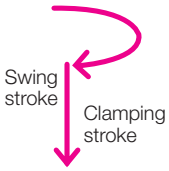
Application
Hydraulic swing clamps are used for clamping of workpieces when it is essential to keep the clamping area free of straps and clamping components for unrestricted workpiece loading and unloading.



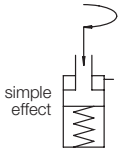
Important notes
Operating conditions, tolerances and other data see data sheet A 0.100.

It is absolutely necessary to follow the instructions for venting of the spring area on data sheet A 0.110.

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

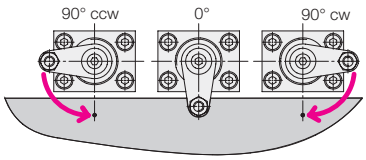


Version
Only single-acting elements are available.



Double-acting elements see data sheet B 1.8491.

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



Adjustable swing direction
The swing direction of each swing clamp can also be changed, as described in the operating instructions.

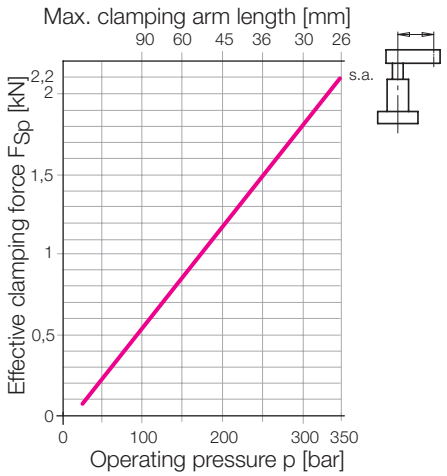
Standard swing angles are 45°, 60°, and 90° ±2°.
Special angles on request.
Other variants, as e.g. versions with metallic wiper on request.

0°-Version
Use as pure pull-type cylinder with a piston which is secured against torsion and which allows eccentric load as per clamping force diagram.

Technical data

Piston Ø	[mm]	14
Piston rod Ø	[mm]	10
Effective piston area	[cm²]	0.754
Oil volume per stroke	[cm³]	1.2
Max. oil flow rate	[cm³/s]	2.5
Min. oper. pressure	[bar]	30
Max. oper. pressure	[bar]	350
Max. force to pull	[kN]	2.55
Effective clamping force	[kN]	see diagram
Spring force (s.a.)	[N]	40–89
Angle of rotation	[°]	(0,45,60,90) ±2
Swing stroke	[mm]	10
Clamping stroke	[mm]	6
Total stroke	[mm]	16

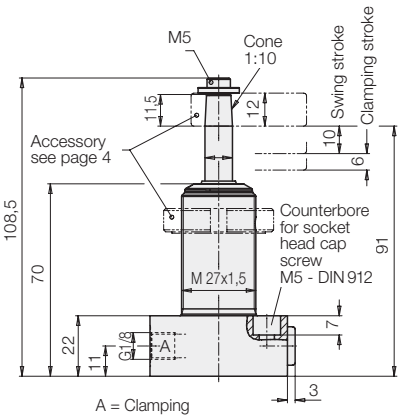
Clamping force diagram

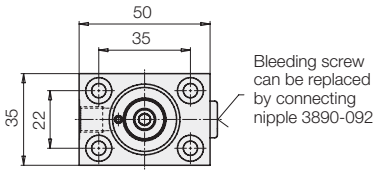


Material

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

① Flange at the bottom

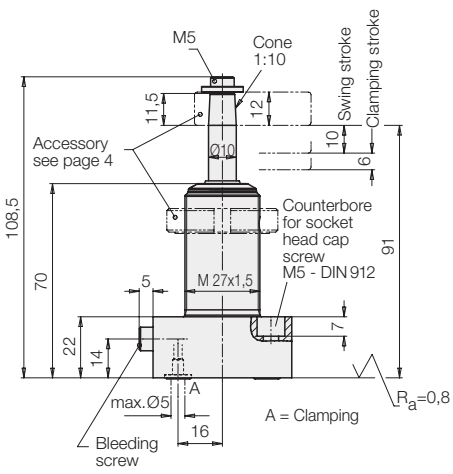


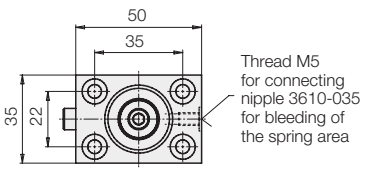


Weight: 0.42 kg

Swing angle	Swing direction	Part-no. Single acting
0°	–	**1849-001**
90°	cw	**1849-011**
90°	ccw	**1849-021**
60°	cw	**1849-031**
60°	ccw	**1849-041**
45°	cw	**1849-051**
45°	ccw	**1849-061**

② Flange at the bottom with O-ring sealing





Weight: 0.42 kg

Swing angle	Swing direction	Part-no. Single acting
0°	–	**1849-002**
90°	cw	**1849-012**
90°	ccw	**1849-022**
60°	cw	**1849-032**
60°	ccw	**1849-042**
45°	cw	**1849-052**
45°	ccw	**1849-062**

Spare O-ring (FKM) 7 x 1.5 **3001-077**

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 by squashing one's fingers in the effective area of the clamping arm.
Remedy: protection device with electrical locking.

2. Maximum oil flow rate

In case of the maximum oil flow rate as per table the shortest possible clamping or unclamping time is 0.5 seconds.
If the flow rate of the pump divided by the number of swing clamps is higher than the indicated value in the table, the flow rate has to be throttled to avoid any overload and thereby high wear.
Throttling has to be made in the oil supply line to the swing clamp to rule out a possible pressure intensification. Use only flow control valves which allow oil return from the swing clamp without any impediments.

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 fixing screw, 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 pressure screw

The pressure screw 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 arms

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. Venting of spring area

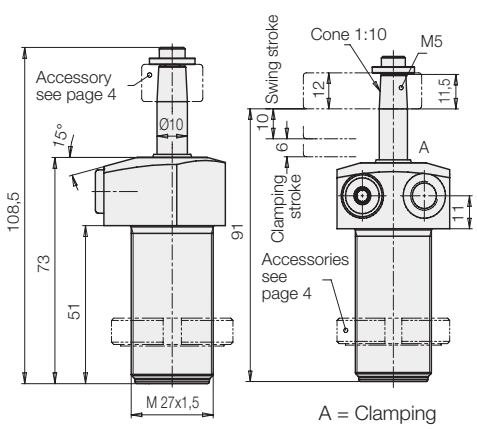
The spring area of single-acting swing clamps has to be vented to avoid troubles of functioning. A sintered metal air filter avoids penetration of contaminations.

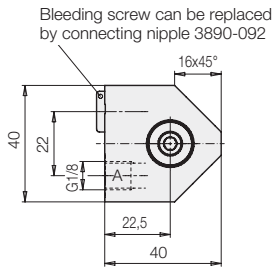
If there is a possibility that cutting lubricants and coolants penetrate through the sintered metal air filter into the cylinder's interior, a vent hose has to be connected and be placed in a protected position. The different connecting possibilities are as follows:

7.1 Flange at the top and at the bottom
Instead of an air filter plug a fitting for connection of tubes and hoses may be used.

ROEMHELD

③ Flange at the top

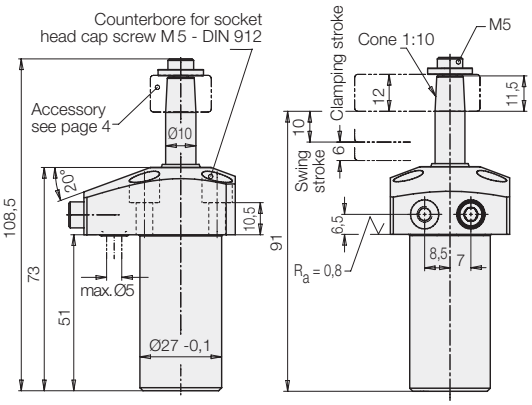


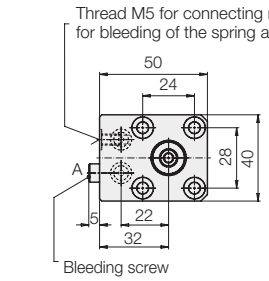


Weight: 0.35 kg

Swing angle	Swing direction	Part-no. Single acting
0°	–	**1849-003**
90°	cw	**1849-013**
90°	ccw	**1849-023**
60°	cw	**1849-033**
60°	ccw	**1849-043**
45°	cw	**1849-053**
45°	ccw	**1849-063**

④ Flange at the top with O-ring sealing



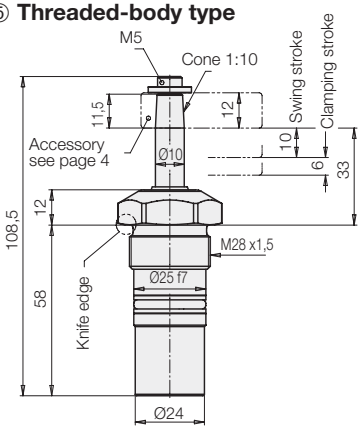


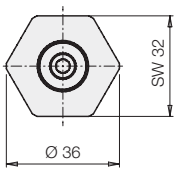
Weight: 0.42 kg

Swing angle	Swing direction	Part-no. Single acting
0°	–	**1849-004**
90°	cw	**1849-014**
90°	ccw	**1849-024**
60°	cw	**1849-034**
60°	ccw	**1849-044**
45°	cw	**1849-054**
45°	ccw	**1849-064**

Spare O-ring (FKM) 7 x 1.5 **3001-077**

⑤ Threaded-body type



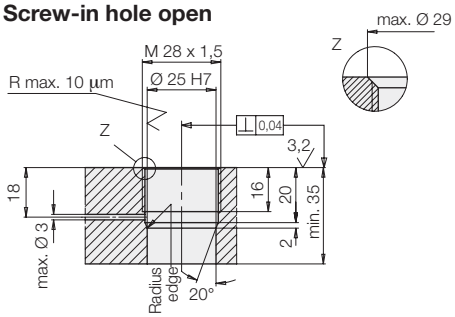


Max. seating torque Nm 100

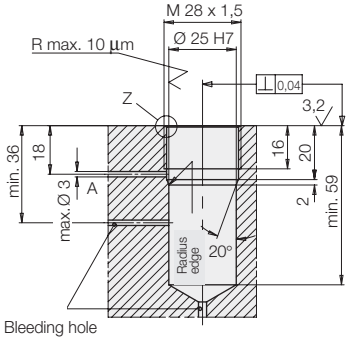
Weight: 0.27 kg

Swing angle	Swing direction	Part-no. Single acting
0°	–	**1849-005**
90°	cw	**1849-015**
90°	ccw	**1849-025**
60°	cw	**1849-035**
60°	ccw	**1849-045**
45°	cw	**1849-055**
45°	ccw	**1849-065**

Screw-in hole open

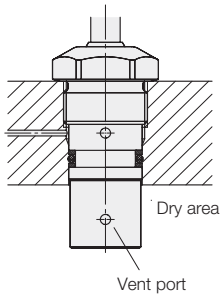


Screw-in hole closed



7.2 Flange with O-ring sealing
The connecting nipple 3610-035 which fits to thread M5 is suitable for a plastic hose ND 6.

7.3 Threaded-body type
The air filter is integrated in the lower part of the housing. If the cylinders are mounted in plates as per drawing below (see figure), liquids must not penetrate.



Installation in a pocket hole is only possible, if a vent hole is provided in a determined area (see drawing). Also this bore hole has to be protected against penetration of liquids.

8. Bleeding

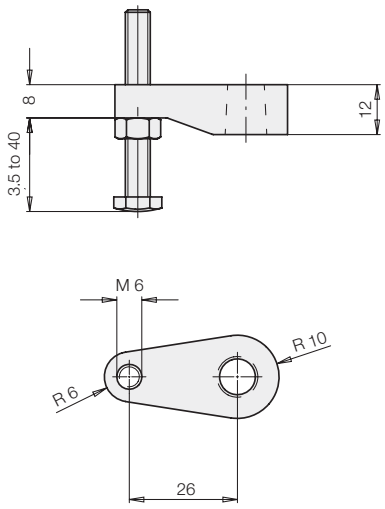
Air in the oil prolongs the clamping time considerably and leads to function troubles. Therefore bleeding has to be effected during start up, as described as follows for the different types.

8.1 Flange at the bottom and at the top
Loosen carefully the union nut of the tube at low oil pressure and pump until bubblefree oil comes out. Retighten the union nut.

8.2 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 screw.

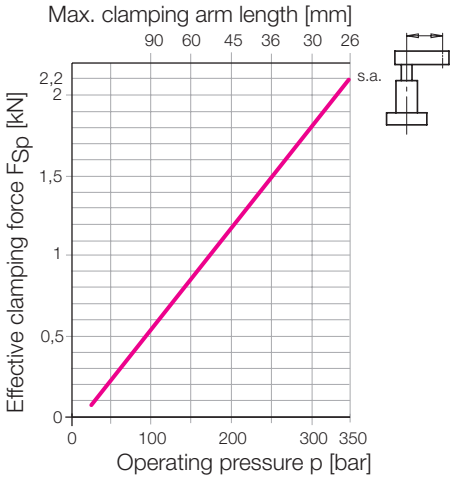
8.3 Threaded-body type
There is no possibility for bleeding at the element itself. Remedy: plug the oil channels in the fixture body at the end. If required, loosen the plugs carefully and pump at low oil pressure until bubblefree oil comes out. Retighten the plugs.

Clamping arm assembly, complete max. 350 bar



Part-no. **0354-057**

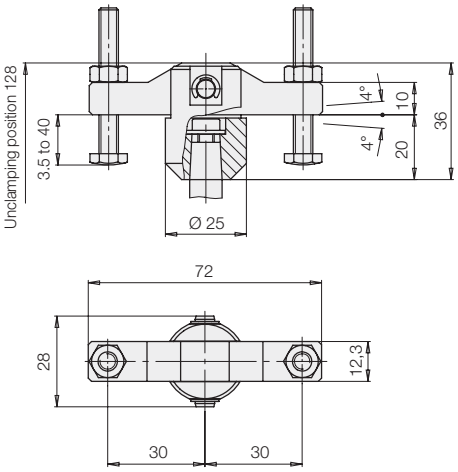
Clamping force diagram



Double clamping arm, complete

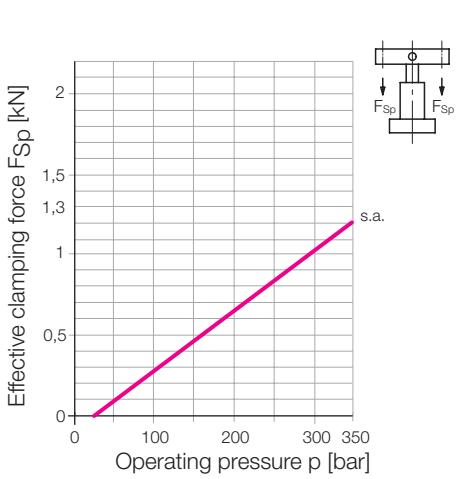
Contact bolt – M 6 x 45

Part-no. 3614-138

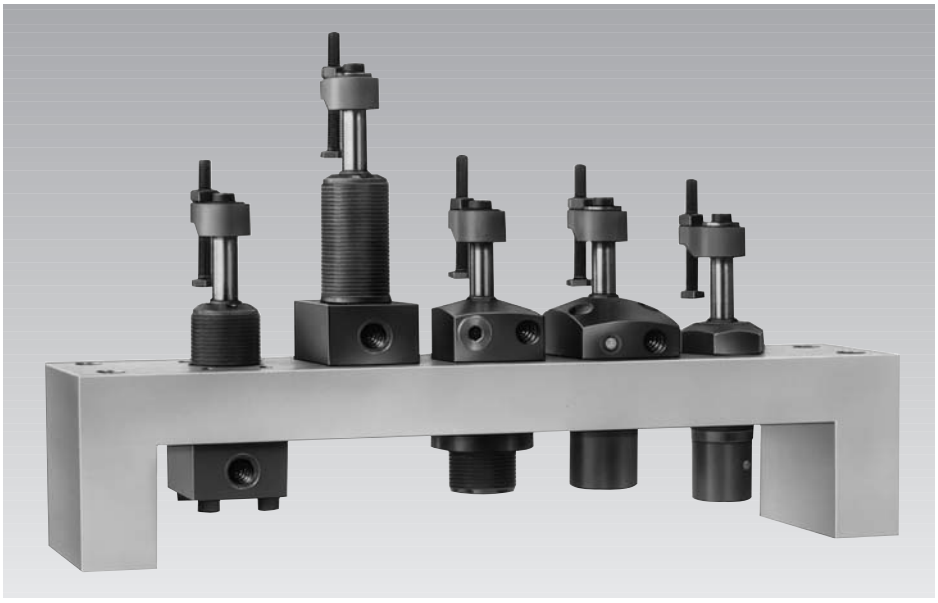


Part-no. **0354-082**

Clamping force diagram



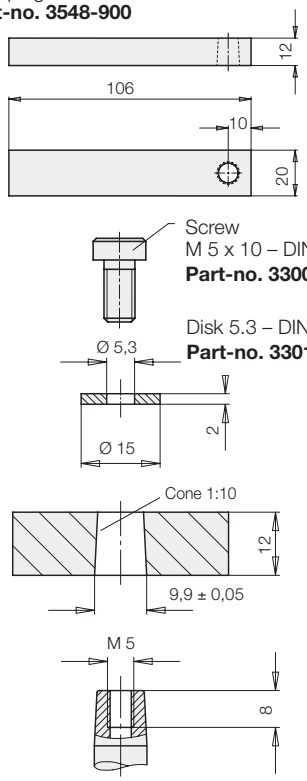
Arrangement of the different connecting types



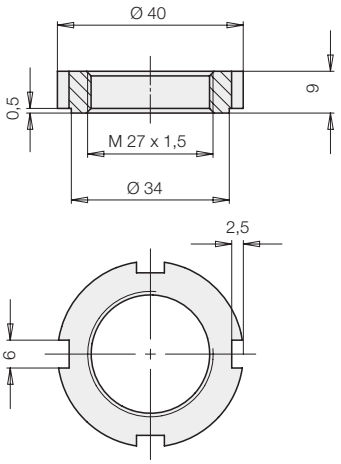
Connecting dimensions for special clamping arms

Clamping arm - blank

Part-no. 3548-900



Flange nut as per DIN 1804



Part-no. **3527-076**

Tube male stud coupling for G1/8

ND [bar]	Designation	Part-no.
250	D 8L G 1/8	**9208-034**
500	D 8S G 1/8	**9208-116**

Thread reducing adaptor

ND [bar]	Designation	Part-no.
500	GWR 1/8 –1/4	**3613-003**

Connecting nipple **3610-035**