

# Swing clamp cylinders

threaded body, with overload protection, single-/double-acting, pmax. 500 bar

**240-50**

Issue: 10/2022



## Description:

This hydraulic swing clamp cylinder operates as single-acting or double-acting pull cylinder, whereas part of the stroke is used to rotate the piston. The model with 0° swing angle operates only vertical as pull cylinder.

To guarantee a long lifetime the cylinders have an integrated metal wiper as standard.

The oil supply is made through drilled channels. The seal takes place directly in the mounting hole.

You can select between right or left turning models with various standardized swing angles.

The integrated overload protection protects the swing mechanism from damage due blockage of the rotation or improper assembly of the clamp arm.

## Operating method:

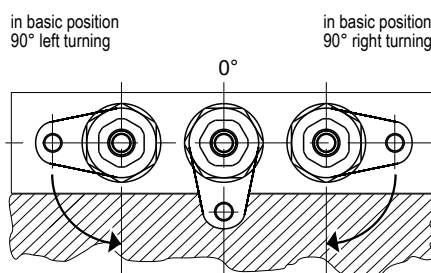
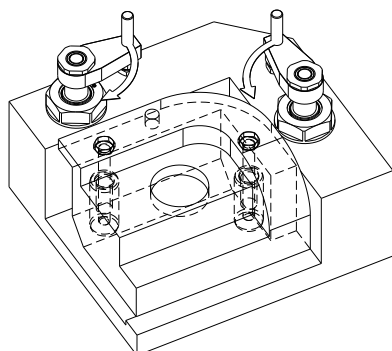
For any risk of exceeding the permitted volume flow a throttle check valve must be interposed into the oil supply line (see data sheet 700-15). Counter-hold the clamp arm when tightening or loosening the counter nut in order to prevent torque transfer to the piston rod and to avoid damage to the ball guide.

Variations with 0°, 30°, 45°, 60° and 90° swing angles are available. The permitted operating pressure is depending from the clamp arm length.

Except from standard clamp arms also special clamp arms can be assembled. The maximum operating pressure of 500 bar does not apply for each clamp arm length. For details about the permitted operating pressure, refer to page 3.

**When installing the cylinder pay attention on cleanness in the oil passages.**

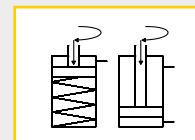
## Application example:



**D**



**Webcode: 024050**



## Housing design:

- ☒ **Type D**  
(threaded body)

## Connections:

- ☒ **Drilled channels**

## Advantages:

- ☒ **Protecting metal wiper**
- ☒ **Integrated overload protection**
- ☒ **Easy to assemble with self designed clamp arms**
- ☒ **Standard and special clamp arms available (see page 3)**

The safety instructions for swing clamp cylinders in our catalogue or on our website and the current accident prevention regulations must be considered.

**We also design and manufacture customized variants!**



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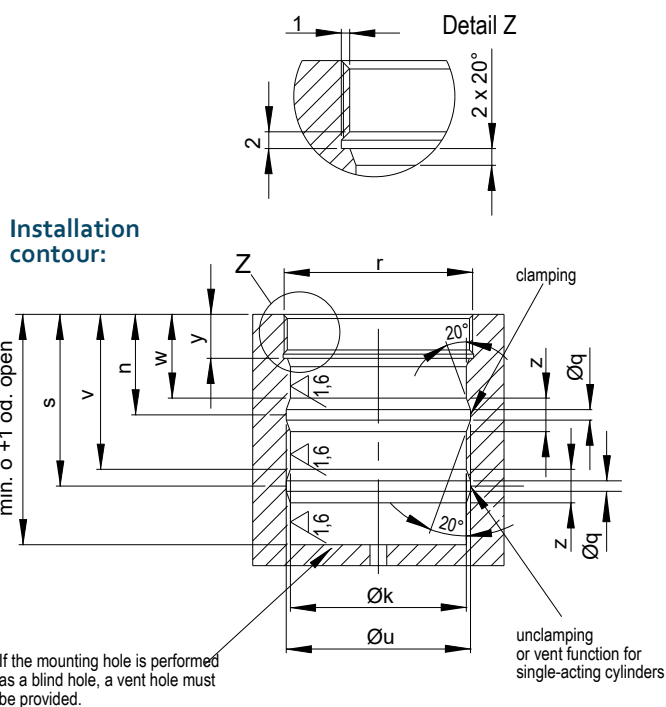
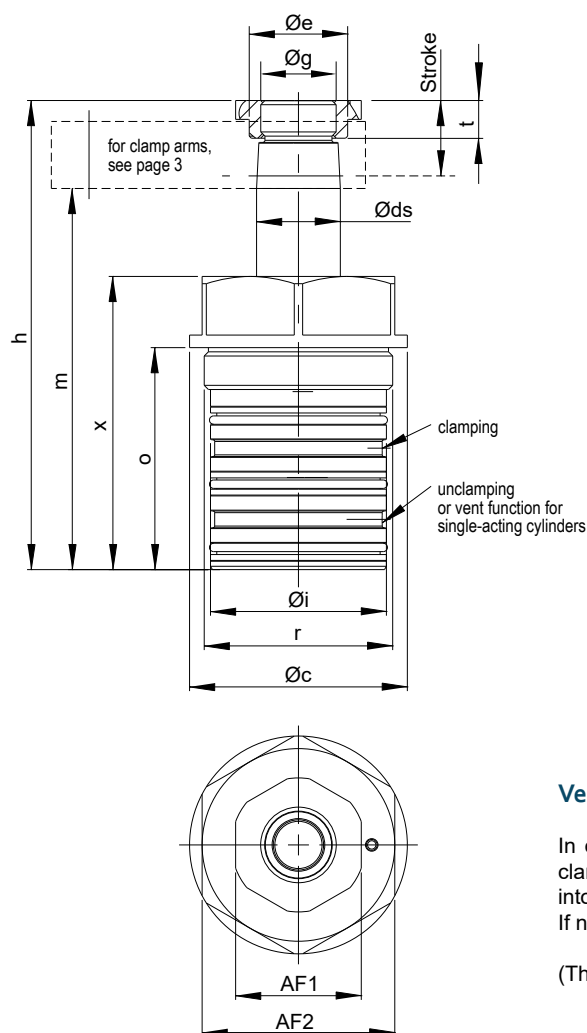
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## Ventilation for single-acting swing clamp cylinders:

In order to avoid malfunctions, the spring chamber of the single-acting swing clamp cylinder must be vented. The penetration of foreign particles and liquids into the spring chamber must be prevented e. g. by a sintered metal filter. If necessary, an additional vent line can be connected.

(The sintered metal filter and the vent line are not included.)

## Technical data:

Piston Ø:	[mm]	25	40	63
Clamping stroke	[mm]	10	13	14
Swing stroke	[mm]	8	9	10
Total stroke	[mm]	18	22	24
Operating pressure, min.	[bar]	30	30	30
Volume flow, max.	[cm³/s]	3,2	10	27,7
Oil requirement/forward stroke	[cm³]	3,2	10,0	27,7
Oil requirement/back-ward stroke	[mm]	8,8	27,7	74,8
c Ø	[mm]	52	64	100
ds Ø	[mm]	20	32	50
e Ø	[mm]	23,5	33,5	55,5
g Ø	[mm]	M18x1,5	M28x1,5	M45x1,5
h	[mm]	112	152	182
i Ø (f7)	[mm]	42	55	85
k Ø (H7)	[mm]	42	55	85
mno	[mm]	91-1	124-1	142-1
q Ø	[mm]	24	29	41
r	[mm]	53	66	96
s	[mm]	5	5	6
AF 1	[mm]	M45x1,5	M60x1,5	M90x1,5
AF 2	[mm]	41	46,5	64
t	[mm]	30	40	68
u Ø	[mm]	46	55	95
v	[mm]	9	10	12
w	[mm]	44	57	87
x	[mm]	37	41,5	59
y	[mm]	20	24	36
z	[mm]	70	99	116
	[mm]	10,5	12,5	20,5
	[mm]	8	10	10



## Clamp arms:

For these swing clamps, standard clamp arms are available as accessories. See **data sheet 240-0 «Clamp arms»** (Webcode 024000).

Special clamp arms are available on request.

## Dimensions for in-house production of clamp arms:

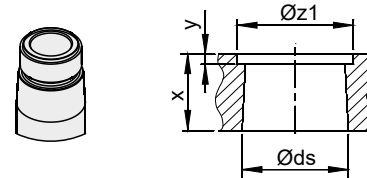
Piston Ø [mm]	25	40	63
Ø ds [mm]	20	32	50
x [mm]	16	23	34
y [mm]	4	5	6
Ø z1 [mm]	24	34	56

Attention: consider the interference contour for the housing.

## Compatible clamp arms:

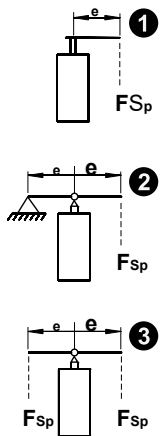
**c d e f**

## Taper holder (SPK) taper ratio 1:10



To fix the clamp arms, the swing clamp cylinders are equipped with a hexagon nut.  
From a piston Ø of 63 mm, scope of supply includes a slotted nut instead.  
See information sheet **«Assembly / disassembly of the clamp arms»**.

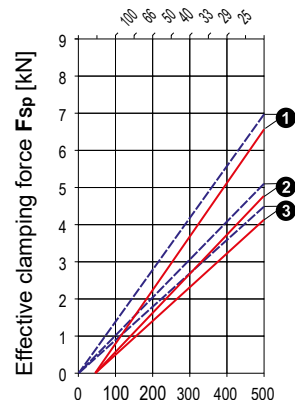
## Effective clamping force $F_{Sp}$ depending from operating pressure $p$ :



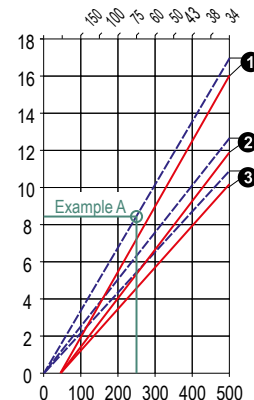
--- double-acting  
— single-acting

### Piston Ø 25 mm

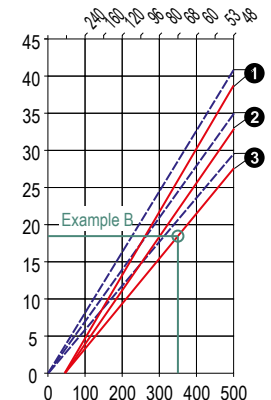
Maximum clamp arm length  $e$  [mm], only relevant for clamp arms type 1



### Piston Ø 40 mm



### Piston Ø 63 mm



### Example A:

- double-acting cylinder, piston Ø 40 mm
- present operating pressure  $p = 250$  bar
- clamp arm type 1, length  $e = 60$  mm
- resulting clamping force  $F_{Sp} \sim 8,5$  kN

### Example B:

- single-acting cylinder, piston Ø 63 mm
- present operating pressure  $p = 350$  bar
- clamp arm type 3, length  $e = 27$  mm
- resulting clamping force  $F_{Sp} \sim 18$  kN

The retraction force of the spring in single-acting swing clamp cylinders reduces the clamping force slightly. To achieve the same clamping force as with double-acting cylinders, the operating pressure must be increased slightly.

## Order number key:

Example: **SSZY** - **RE90** - **D4013** - **K10** - **003**

**1** **Swing motion:** right turning = **R**, left turning = **L**, neutral  $0^\circ$  = **N**  
**Operating method:** single-acting = **E**, double-acting = **D**  
**Swing angle [degree]:** Standard = **0**, **30**, **45**, **60**, **90**

**2** **Housing design:** threaded body = **D**  
**Piston Ø [mm]:** see dimension table on page 2  
**Clamping stroke [mm]:** see dimension table on page 2

**3** **Clamp arm holder:** taper = **K**  
**Overload protection:** with = **1**  
**Position control:** without = **0**

**4** **Oil supply:** drilled channels = **003**

For additional help in model selection, see data sheet **«Swing Clamp Cylinders - Selection Guide»**.