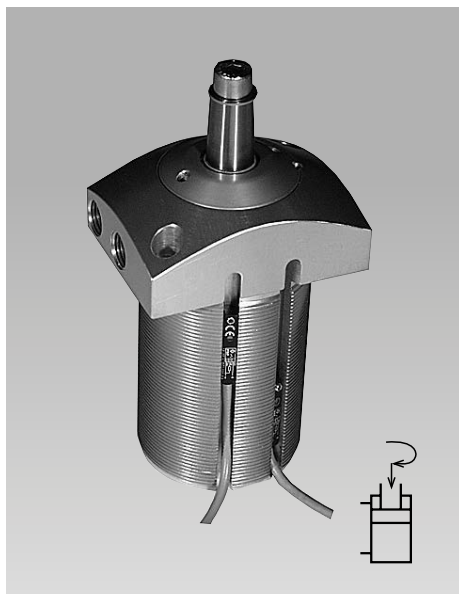




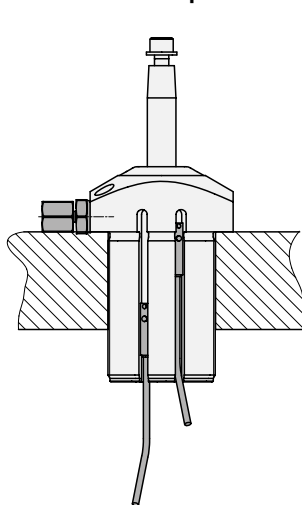
## Pneumatic Swing Clamp

top flange-type, for adjustable magnetic sensors

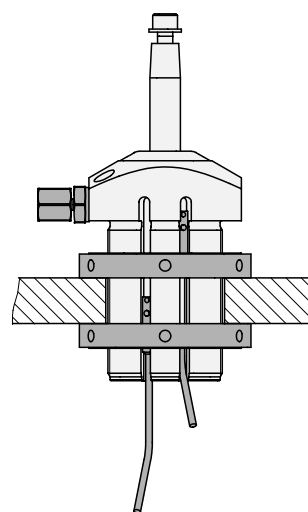
double acting, max. operating pressure 7 bar



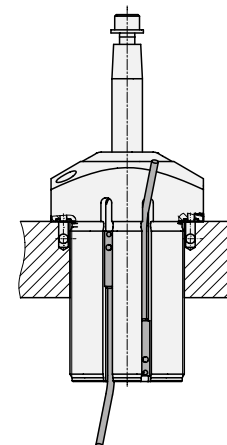
### Installation examples



Connecting thread, mounted with socket head cap screw



Connecting thread, height adjustment by collar nuts



Manifold mounting with O-ring sealing, air supply through drilled channels in the fixture plate

### Application

Pneumatic swing clamps are used for applications which require only low clamping forces. The installed magnetic piston allows monitoring of clamping and unclamping position.

### Description

When pressurising the element, the clamping arm swings and lowers by 90° to the clamping position and then lowers to the clamping point. The position monitoring gives the required information regarding the position of the piston, but not regarding the position of the clamping arm. Monitoring is made by electronic sensors (see accessory) which detect the magnetic field of the magnetic piston. The switching points can be continuously adjusted by displacement of the magnetic sensors.

### Special features

When adjusting the clamping screw it has to be considered that for the swing motion a part of the total stroke is required. Make sure that the swing motion can be effected without any interference. When using special clamping arms with other lengths, the corresponding operating pressures as shown in the clamping force diagram must not be exceeded.

### Installation

On fixtures flange-type swing clamps or threaded versions with corresponding collar nuts can be easily adjusted to different workpiece heights.

### Material

The swing clamps are supplied in corrosion resistant quality. Guide bushing, housing and piston are made of hardcoated aluminium. The piston rod is made of corrosion resistant steel.

### Important notes

Operating of these pneumatic elements has to be effected with an additional service unit in order to guarantee that the clamping elements are supplied with correctly prepared compressed air.

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

### Advantages

- Low built-in design possible
- Height adjustment by threaded body and collar nut
- Flange mounting by socket head cap screws
- 5 standard sizes are available
- optionally with thread connection or for manifold mounting with O-ring sealing

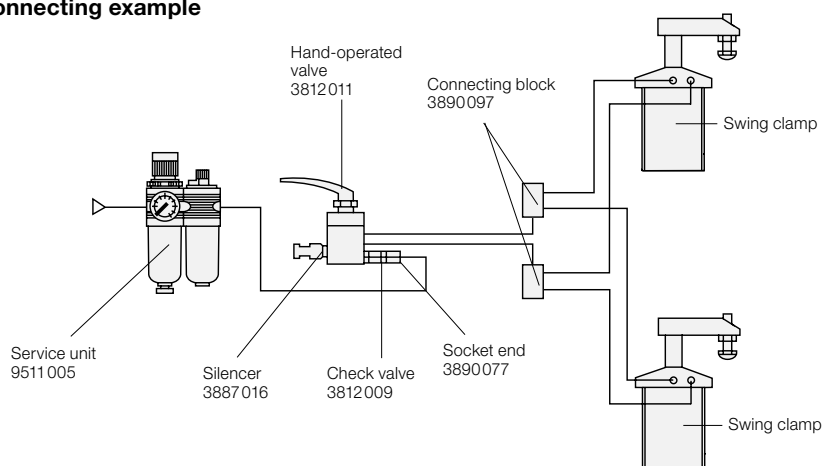
### Versions

- Threaded body for height adjustment
- Manifold mounting with O-ring sealing

### Pneumatic accessories

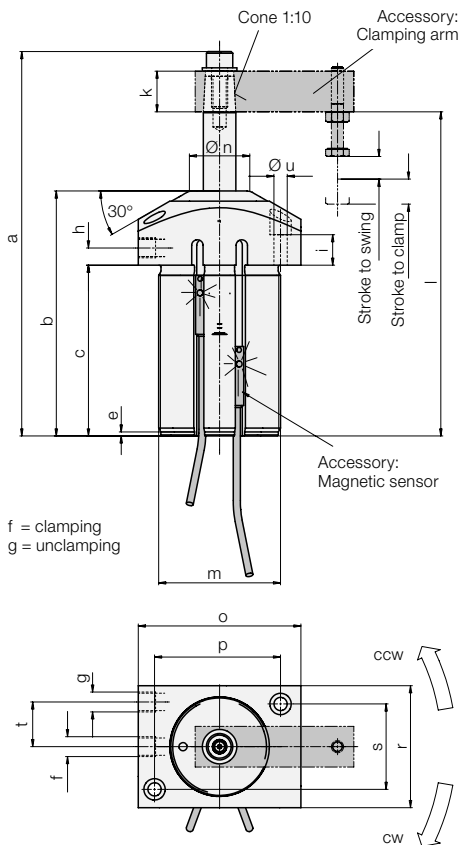
see data sheet J 7.400.

### Connecting example



# Threaded body

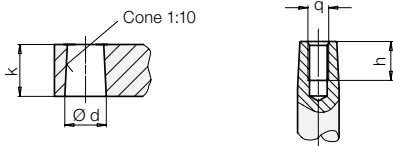
## Technical characteristics • Accessories



<b>Piston Ø</b>	<b>[mm]</b>	<b>20</b>	<b>32</b>	<b>40</b>	<b>50</b>	<b>63</b>
Piston rod Ø	[mm]	8	12	16	20	25
Stroke to swing	[mm]	7.5	9.5	17	18	23
Stroke to clamp	[mm]	7	9	15	15	18
Force to pull at 4 bar	[N]	105.5	276.4	422.2	659.7	1050.5
* air 5 bar	[N]	131.9	345.5	527.7	824.6	1313.1
pressure 6 bar	[N]	158.3	414.6	633.3	989.6	1575.8
Min. operating pressure	[bar]	3				
Max. operating pressure	[bar]	7				
Angle of rotation	[°]	90° ± 2°				
Weight	[kg]	0.3	0.6	1.0	1.5	2.6
a	[mm]	120	143	189	202	239.5
b	[mm]	76	94.5	120.5	130	150
c	[mm]	48	61	84	85	91
e	[mm]	2	2	2	2	2
f	[mm]	M5	M5	G 1/8	G 1/8	G 1/4
g	[mm]	M5	M5	G 1/8	G 1/8	G 1/4
h	[mm]	6	6.5	8.5	10	13
i	[mm]	7.5	11	15	19	27
□ k	[mm]	12	16	20	25	30
l	[mm]	103.5	119.5	159	164	197
m	[mm]	M40x1.5	M52x1.5	M60x1.5	M70x1.5	M85x2
Ø n	[mm]	14	24	30	38	42
o	[mm]	60	68	80	90	106
p	[mm]	44	54	62	72	86
r	[mm]	40	52	60	70	85
s	[mm]	25	36	42	48	66
t	[mm]	12.8	15	22	23	30.3
Ø u	[mm]	5.5	6.5	6.5	8.5	8.5
Direction of rotation cw	<b>Part no.</b>	<b>1873 103</b>	<b>1874 103</b>	<b>1875 103</b>	<b>1876 103</b>	<b>1877 103</b>
Direction of rotation ccw	<b>Part no.</b>	<b>1873 203</b>	<b>1874 203</b>	<b>1875 203</b>	<b>1876 203</b>	<b>1877 203</b>

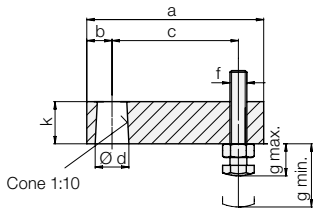
\* Effective clamping force see diagram (page 3)

### Seat of clamping arm



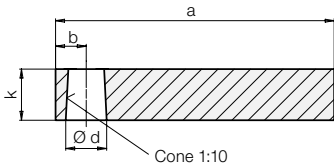
<b>Swing clamp</b>	<b>Ø d + 0.05</b>	<b>□ k</b>	<b>h</b>	<b>q</b>
<b>1873 X03/ -X05</b>	7.85	12	9	M 4
<b>1874 X03/ -X05</b>	11.85	16	15	M 6
<b>1875 X03/ -X05</b>	15.85	20	19	M 8
<b>1876 X03/ -X05</b>	19.85	25	18	M 12
<b>1877 X03/ -X05</b>	24.85	30	25	M 10

### Clamping arm



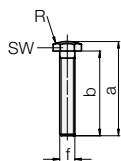
<b>Swing clamp</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>Ø d + 0.05</b>	<b>f</b>	<b>g min.</b>	<b>g max.</b>	<b>□ k</b>	<b>Part no.</b>
<b>1873 X03/ -X05</b>	54	7	42	7.85	M 4	8	28	12	<b>0187326</b>
<b>1874 X03/ -X05</b>	68	10	52	11.85	M 6	12	27	16	<b>0187426</b>
<b>1875 X03/ -X05</b>	78	12	58	15.85	M 6	12	42	20	<b>0187526</b>
<b>1876 X03/ -X05</b>	90	14	68	19.85	M 8	15	42	25	<b>0187626</b>
<b>1877 X03/ -X05</b>	110	18	80	24.85	M10	19	56	30	<b>0187726</b>

### Clamping arms for special versions



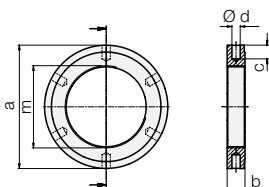
<b>Swing clamp</b>	<b>a</b>	<b>b</b>	<b>Ø d + 0.05</b>	<b>□ k</b>	<b>Part no.</b>
<b>1873 X03/ -X05</b>	62	7	7.85	12	<b>3548355</b>
<b>1874 X03/ -X05</b>	72	10	11.85	16	<b>3548356</b>
<b>1875 X03/ -X05</b>	95	12	15.85	20	<b>3548357</b>
<b>1876 X03/ -X05</b>	116	14	19.85	25	<b>3548353</b>
<b>1877 X03/ -X05</b>	143	18	24.85	30	<b>3548358</b>

### Contact bolts, dome head



<b>Swing clamp</b>	<b>a</b>	<b>b</b>	<b>f</b>	<b>R</b>	<b>SW</b>	<b>Part no.</b>
<b>1873 X03/ -X05</b>	32.5	30	M 4	15	7	<b>3614 141</b>
<b>1874 X03/ -X05</b>	33.5	30	M 6	20	10	<b>3614 137</b>
<b>1875 X03/ -X05</b>	48.5	45	M 6	20	10	<b>3614 138</b>
<b>1876 X03/ -X05</b>	50	45	M 8	20	13	<b>3614 139</b>
<b>1877 X03/ -X05</b>	66.5	60	M10	35	17	<b>3614 140</b>

### Flange nut



<b>Swing clamp</b>	<b>Ø a</b>	<b>b</b>	<b>c</b>	<b>Ø d</b>	<b>m</b>	<b>Part no.</b>
<b>1873 X03</b>	62	12	8	4x6	M 40x1.5	<b>3527 040</b>
<b>1874 X03</b>	80	13	10	6x6	M 52x1.5	<b>3527 082</b>
<b>1875 X03</b>	90	13	10	6x6	M 60x1.5	<b>3527 042</b>
<b>1876 X03</b>	100	14	12	6x8	M 70x1.5	<b>3527 083</b>
<b>1877 X03</b>	120	16	12	6x8	M 85x2.0	<b>3527 084</b>

# Manifold mounting with O-ring sealing

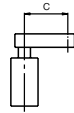
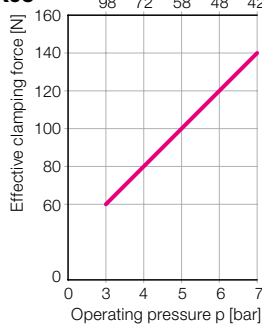
## Technical data

### Effective clamping force

**1873X03**

Max. clamping arm length c [mm]

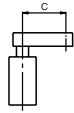
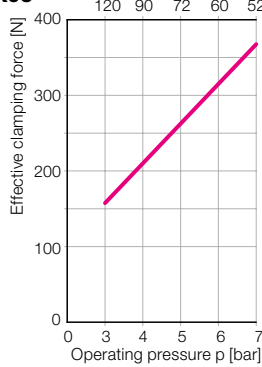
**1873X05**



**1874X03**

Max. clamping arm length c [mm]

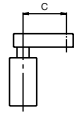
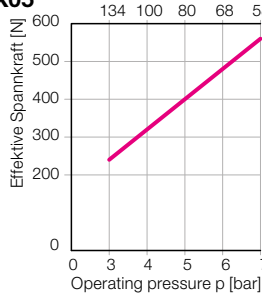
**1874X05**



**1875X03**

Max. clamping arm length c [mm]

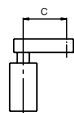
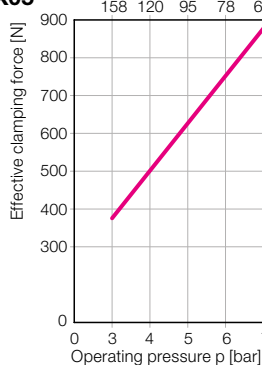
**1875X05**



**1876X03**

Max. clamping arm length c [mm]

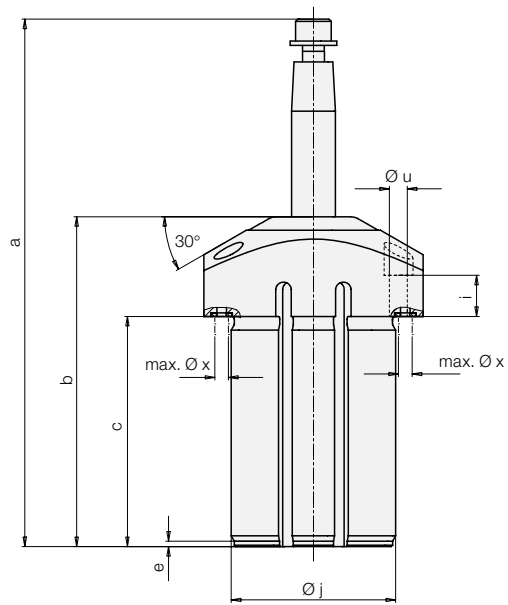
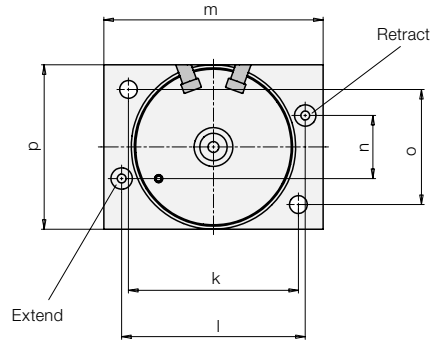
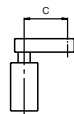
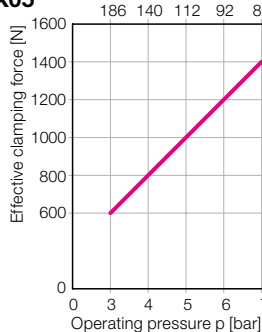
**1876X05**



**1877X03**

Max. clamping arm length c [mm]

**1877X05**



### Clamping force Schwenkspanner

	<b>1873 105</b>	<b>1874 105</b>	<b>1875 105</b>	<b>1876 105</b>	<b>1877 105</b>
Clockwise rotation	<b>1873 205</b>	<b>1874 205</b>	<b>1875 205</b>	<b>1876 205</b>	<b>1877 205</b>
Counter-clockwise rotation					
Piston Ø	[mm] 20	32	40	50	63
Piston rod Ø	[mm] 8	12	16	20	25
a	[mm] 120	143	189	202	239.5
b	[mm] 76	94.5	120.5	130	150
c	[mm] 48	61	84	85	91
e	[mm] 2	2	2	2	2
i	[mm] 7.5	11	15	19	27
Ø j	[mm] 40	52	60	70	85
k	[mm] 44	54	62	72	86
l	[mm] 47	56	67	76	90
m	[mm] 60	68	80	90	106
n	[mm] 18	27	23	36	40
o	[mm] 25	36	42	48	66
p	[mm] 40	52	60	70	85
Ø u	[mm] 5.5	6.5	6.5	8.5	8.5
max. Ø x	[mm] 3.5	3.5	3.5	5	5
Piston rod Ø	4.47x1.78	4.47x1.78	4.47x1.78	7x1.5	7x1.5
<b>Part no. spare O-ring</b>	<b>3000968</b>	<b>3000968</b>	<b>3000968</b>	<b>3000342</b>	<b>3000342</b>

O-rings are included in delivery. Other dimensions see page 2.

## Accessory: Magnetic sensors

Compared with traditional reed switches the electronic magnetic sensors offer the following advantages:

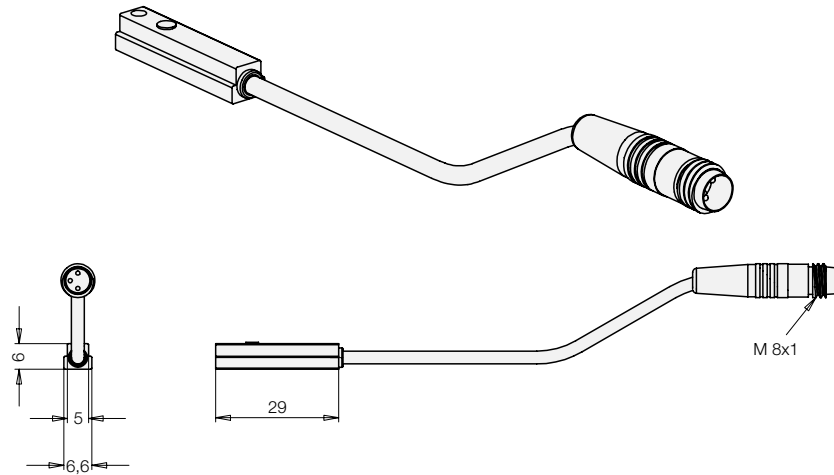
- Indifference to shock and vibration
- Bounce-free output signal
- Only one switching point
- Wear resistant
- Protection against reverse battery
- Protected against short circuits

Electric connection is made as per traditional inductive proximity switches; up to four magnetic sensors can be connected in series.

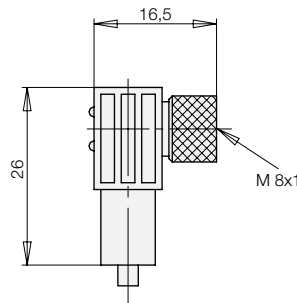
### Important notes

Steel can influence the magnetic field of the magnetic piston and thereby the position of the switching point. If the pneumatic swing clamp is flange mounted on a steel plate, the sensor has to be adjusted by displacement in the mounted condition. If the magnetic sensor is outside of a protecting bore hole and is exposed to changing influences of adjacent steel parts, e.g. swarf, protection for 30 mm has to be provided.

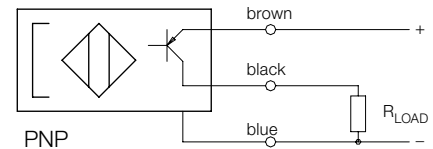
### Electronic magnetic sensor



### Connecting cable with coupling



### Connecting scheme



### Technical data

	Electronic magnetic sensor	Connecting cable with coupling
Cylinder body material	PA 6	
Voltage	10 – 30 V DC	10 – 30 V DC
Residual ripple	max. 10%	
Current load $I_{LOAD}$	200 mA	
Current consumption	≤ 25 mA	
Protected against short circuits	yes	
Protection against reverse battery	installed	
Switching hysteresis	typ. 1.5 mm	
Protection as per IEC 529	IP 65	IP 67
Environmental temperature	-25°C up to +70°C	-25°C up to +90°C
Plug connection	M8 plug	M8 coupling
Function display	LED (yellow)	LED (yellow)
Voltage	no	LED (green)
Cable, length of cable	0.26 m	PUR, 5 m
Output	pnp	
<b>Part no. (1 off))</b>	<b>3829147</b>	<b>3829099</b>

### Further accessories

see data sheet G 2.140

- Pin-and-socket connector
- Y-distributor
- Reversing plug
- Voltage regulator