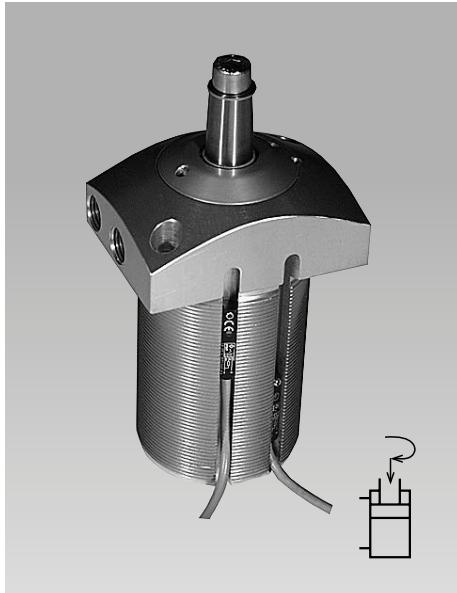


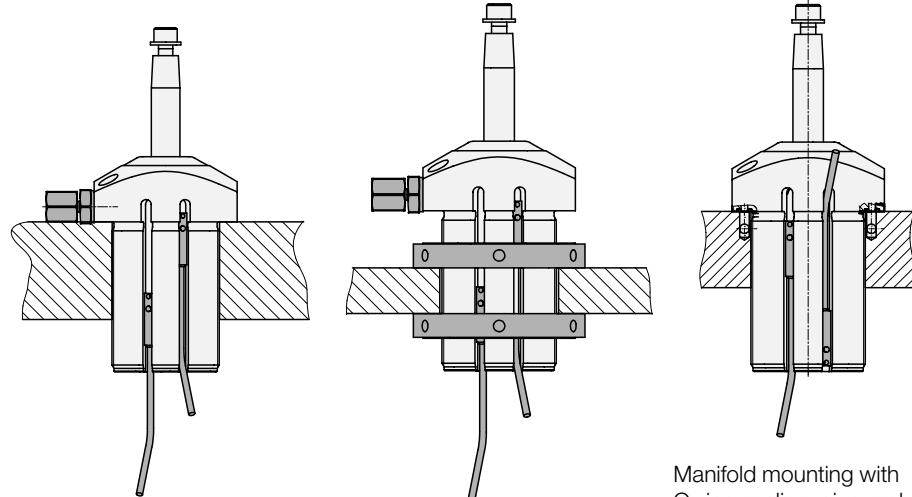


Pneumatic Swing Clamp

top flange-type, for adjustable magnetic sensors
double acting, max. operating pressure 7 bar



Installation examples



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

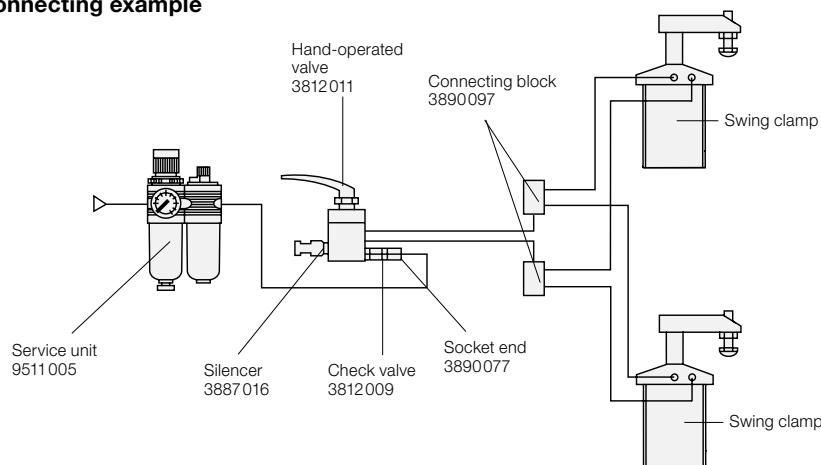
Versions

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

Pneumatic accessories

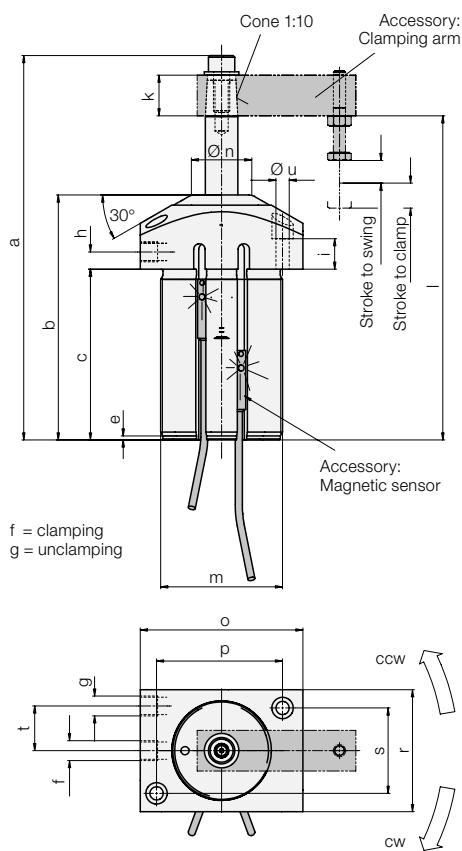
see data sheet J 7.400.

Connecting example



Threaded body

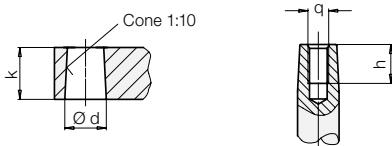
Technical characteristics • Accessories



Piston Ø	[mm]	20	32	40	50	63
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
* air	[N]	131.9	345.5	527.7	824.6	1313.1
pressure	5 bar	[N]	158.3	414.6	633.3	989.6
	6 bar	[N]				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						
Part no.	1873 103	1874 103	1875 103	1876 103	1877 103	
Direction of rotation ccw						
Part no.	1873 203	1874 203	1875 203	1876 203	1877 203	

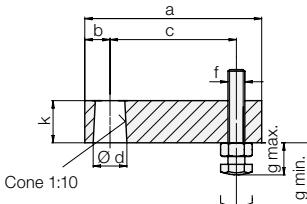
* Effective clamping force see diagram (page 3)

Seat of clamping arm



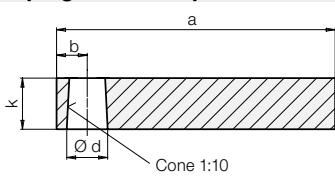
Swing clamp	$\varnothing d + 0.05$	$\square k$	h	q
1873X03/ -X05	7.85	12	9	M 4
1874X03/ -X05	11.85	16	15	M 6
1875X03/ -X05	15.85	20	19	M 8
1876X03/ -X05	19.85	25	18	M 12
1877X03/ -X05	24.85	30	25	M 10

Clamping arm



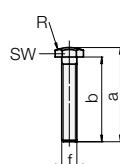
Swing clamp	a	b	c	$\varnothing d + 0.05$	f	g min.	g max.	$\square k$	Part no.
1873X03/ -X05	54	7	42	7.85	M 4	8	28	12	0187326
1874X03/ -X05	68	10	52	11.85	M 6	12	27	16	0187426
1875X03/ -X05	78	12	58	15.85	M 6	12	42	20	0187526
1876X03/ -X05	90	14	68	19.85	M 8	15	42	25	0187626
1877X03/ -X05	110	18	80	24.85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

Clamping arms for special versions



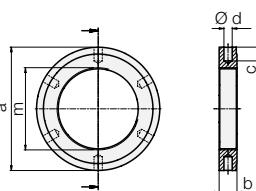
Swing clamp	a	b	$\varnothing d + 0.05$	$\square k$	Part no.
1873X03/ -X05	62	7	7.85	12	3548355
1874X03/ -X05	72	10	11.85	16	3548356
1875X03/ -X05	95	12	15.85	20	3548357
1876X03/ -X05	116	14	19.85	25	3548353
1877X03/ -X05	143	18	24.85	30	3548358

Contact bolts, dome head



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

Flange nut



Swing clamp	$\varnothing a$	b	c	$\varnothing d$	m	Part no.
1873X03	62	12	8	4x6	M 40x1.5	3527040
1874X03	80	13	10	6x6	M 52x1.5	3527082
1875X03	90	13	10	6x6	M 60x1.5	3527042
1876X03	100	14	12	6x8	M 70x1.5	3527083
1877X03	120	16	12	6x8	M 85x2.0	3527084

Manifold mounting with O-ring sealing

Technical data

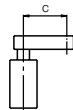
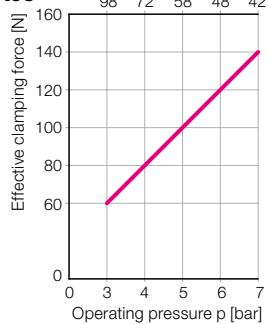
Effective clamping force

1873X03

Max. clamping arm length c [mm]

1873X05

98 72 58 48 42

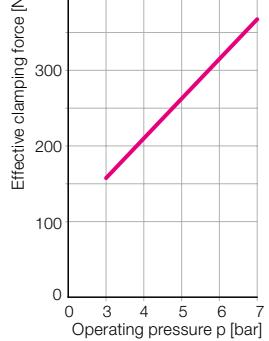


1874X03

Max. clamping arm length c [mm]

1874X05

120 90 72 60 52

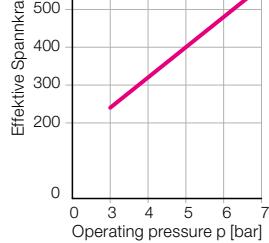


1875X03

Max. clamping arm length c [mm]

1875X05

134 100 80 68 58

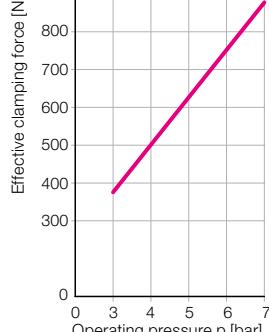


1876X03

Max. clamping arm length c [mm]

1876X05

158 120 95 78 68

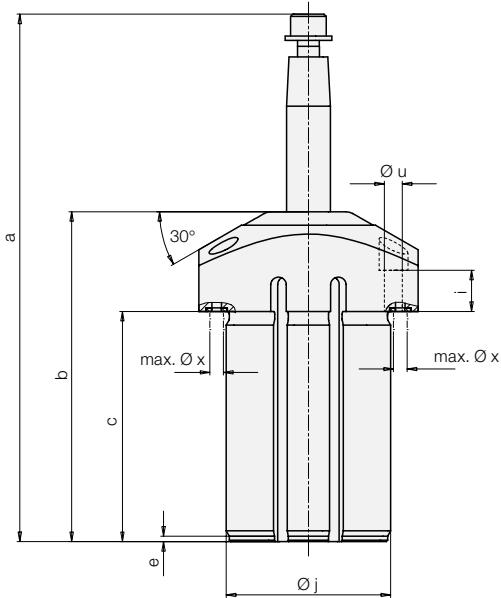
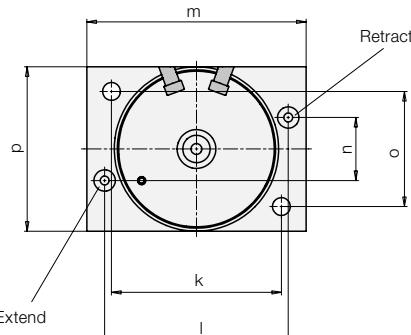
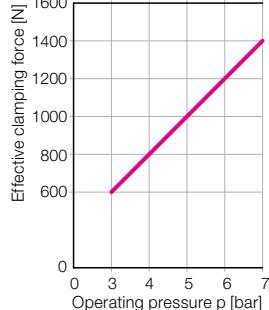


1877X03

Max. clamping arm length c [mm]

1877X05

186 140 112 92 80



Clamping force Schwenkspanner

Clockwise rotation
Counterclockwise rotation

	1873 105 1873 205	1874 105 1874 205	1875 105 1875 205	1876 105 1876 205	1877 105 1877 205
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

Part no. spare O-ring **3000968** **3000968** **3000968** **3000342** **3000342**

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:

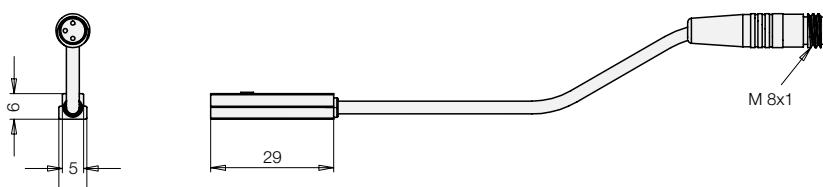
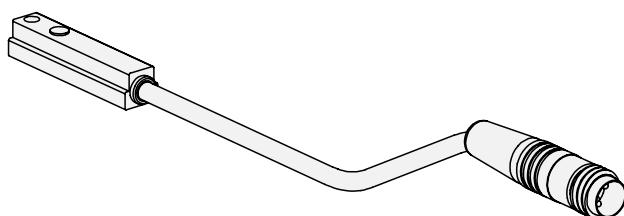
- Indifference to shock and vibration
- Bounce-free output signal
- Only one switching point
- Wear resistant
- Protection against reverse battery
- Protected against short circuits

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

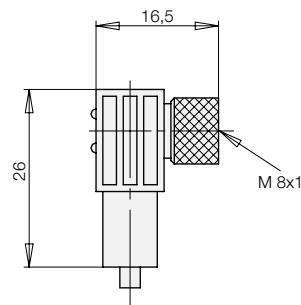
Important notes

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.

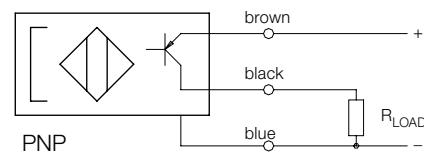
Electronic magnetic sensor



Connecting cable with coupling



Connecting scheme



Technical data

Cylinder body material

Electronic magnetic sensor

PA 6

Voltage

10 – 30 V DC

Connecting cable with coupling

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

Part no. (1 off)

3829147

3829099

Further accessories

see data sheet G 2.140

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