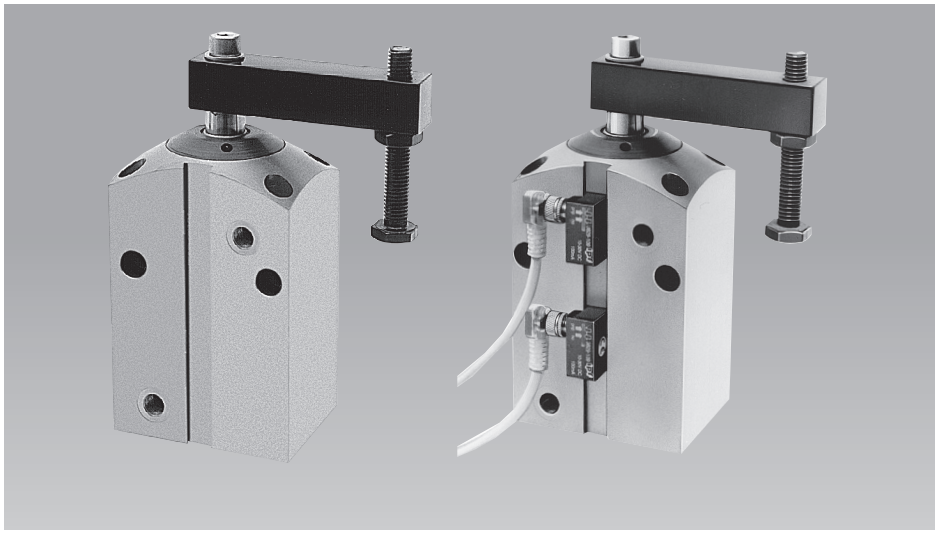
Pneumatic Swiwng Clamp

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



Advantages

- Compact design
- Easy adjustment of switching point positions
- Diverse mounting possibilities
- 5 standard sizes are available
- optionally with thread connection or for manifold mounting with O-ring sealing

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.

Pneumatic accessories

see data sheet J 7.400.

Installation

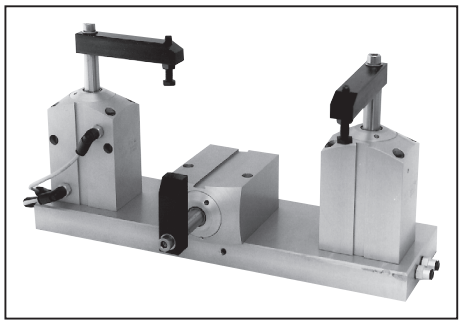
The block-type offers universal mounting possibilities.

Material

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

Important notes

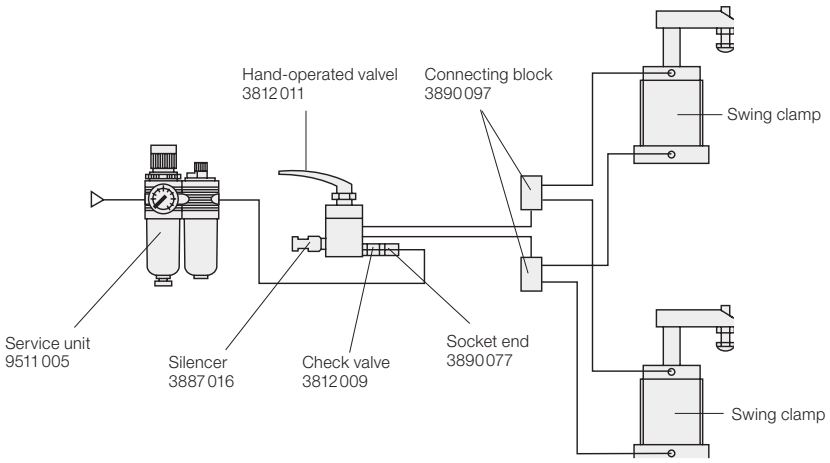
Operating of these pneumatic elements has to be effected with an additional service unit in order to guarantee that the clamping elements are supplied with correctly prepared compressed air.
Operating conditions, tolerances and other data see data sheet A 0.100.

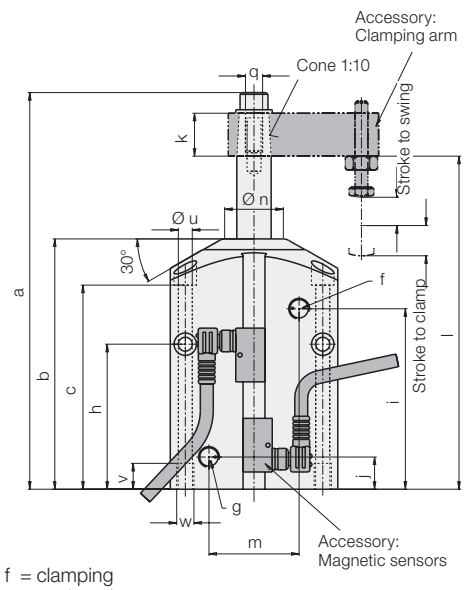


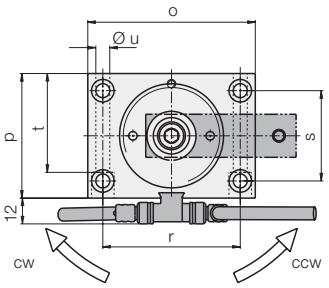
Versions

- Versions with pipe thread (Figure at the left-hand side) see page 2
- Manifold mounting with O-ring sealing Version **K** (Figure in the centre), see page 3
- Manifold mounting with O-ring sealing Version **B** (Figure at the right-hand side), see page 3

Connection example



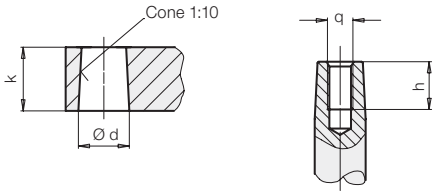




Piston Ø	[mm]	20	32	40	50	63
Pistron rod Ø	[mm]	8	12	16	20	25
Stroke to swing	[mm]	7.5	9.5	17	18	23
Stroke to clamp	[mm]	7	9	15	15	18
Pulling force at 4 bar	[N]	105.5	276.4	422.2	659.7	1050.5
* air 5 bar	[N]	131.9	345.5	527.7	824.6	1313.1
pressure 6 bar	[N]	158.3	414.6	633.3	989.6	1575.8
Min. operating pressure	[bar]			3		
Max. operating pressure	[bar]			7		
Angle of rotation	[°]			90° ± 2°		
Weight	[kg]	0.35	0.8	1.3	2.0	3.33
a	[mm]	120.5	143	189.5	203.5	239.5
b	[mm]	76	94.5	120.5	130	150
c	[mm]	55.5	72	99	104	118
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]	41	59.5	71.5	76	80
i	[mm]	53.5	63	88	95	100
j	[mm]	17	20	19	17.5	18
□ k	[mm]	12	16	20	25	30
l	[mm]	103.5	119.5	159	164	197
m	[mm]	22	28	42	44	58
Ø n	[mm]	14	24	30	38	42
o	[mm]	54	68	80	90	106
p	[mm]	35	52	60	70	85
q	[mm]	M4	M6	M8	M12	M10
r	[mm]	40	55	64	72	86
s	[mm]	22	38	42	48	66
t	[mm]	25	40	46	50	70
Ø u	[mm]	5.5	6.5	6.5	8.5	8.5
v	[mm]	10	12	12	15	15
w	[mm]	M8	M8	M8	M10	M10
Clockwise rotation						
Part no.		**1873106**	**1874106**	**1875106**	**1876106**	**1877106**
Counterclockwise rotation						
Part no.		**1873206**	**1874206**	**1875206**	**1876206**	**1877206**

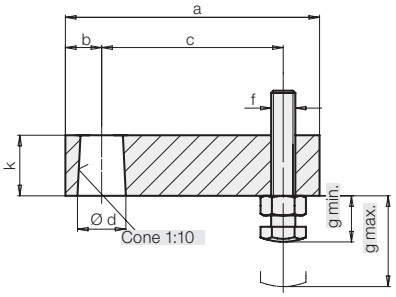
***** Effective clamping force see diagram (page 3, column 1)

Seat of clamping arm



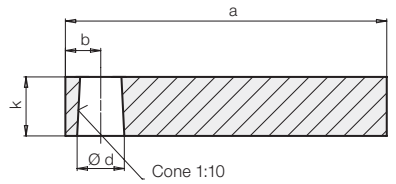
Swing clamp	Ø d +0.05	□ k	h	q
1873X06	7.85	12	9	M 4
1874X06	11.85	16	15	M 6
1875X06	15.85	20	19	M 8
1876X06	19.85	25	18	M 12
1877X06	24.85	30	25	M 10

Clamping arm



Swing clamp	a	b	c	Ø d +0.05	f	g min.	g max.	□ k	Part no.
1873X06	54	7	42	7.85	M 4	8	28	12	**0187326**
1874X06	68	10	52	11.85	M 6	12	27	16	**0187426**
1875X06	78	12	58	15.85	M 6	12	42	20	**0187526**
1876X06	90	14	68	19.85	M 8	15	42	25	**0187626**
1877X06	110	18	80	24.85	M10	19	56	30	**0187726**

Clamping arms for special versions



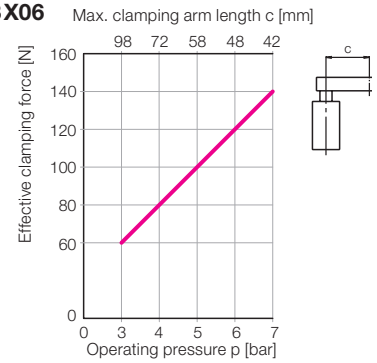
Swing clamp	a	b	Ø d +0.05	□ k	Part no.
1873X06	62	7	7.85	12	**3548355**
1874X06	72	10	11.85	16	**3548356**
1875X06	95	12	15.85	20	**3548357**
1876X06	116	14	19.85	25	**3548353**
1877X06	143	18	24.85	30	**3548358**

Contact bolt, dome head

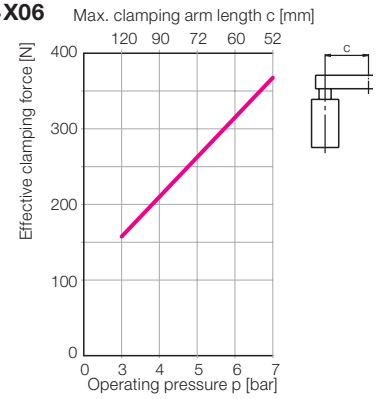
Swing clamp	a	b	f	R	SW	Part no.
1873X06	32.5	30	M 4	15	7	**3614141**
1874X06	33.5	30	M 6	20	10	**3614137**
1875X06	48.5	45	M 6	20	10	**3614138**
1876X06	50	45	M 8	20	13	**3614139**
1877X06	66.5	60	M 10	35	17	**3614140**

Effective clamping force

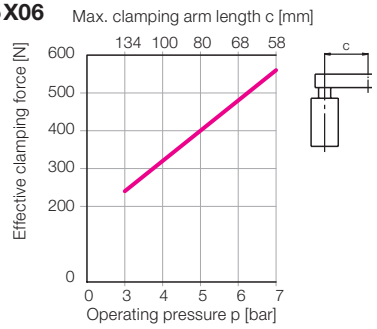
1873 X06



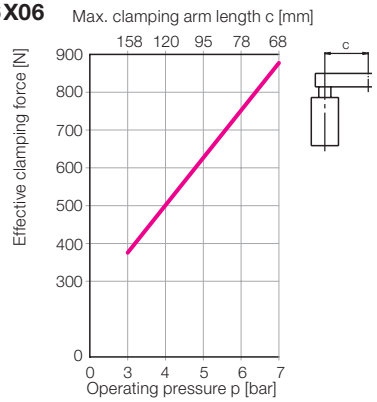
1874 X06



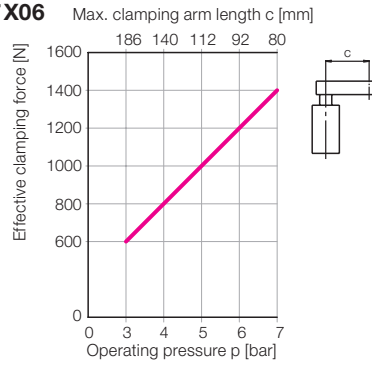
1875 X06



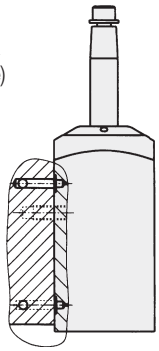
1876 X06



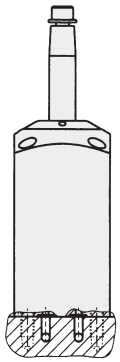
1877 X06

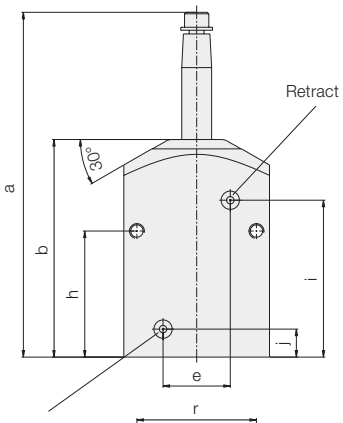


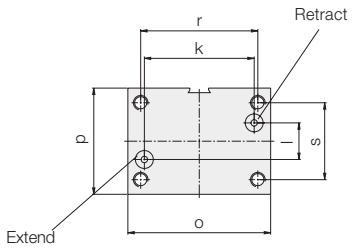
Version K
(Broad side)

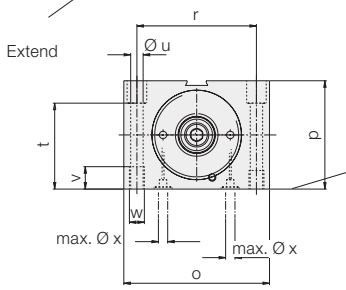


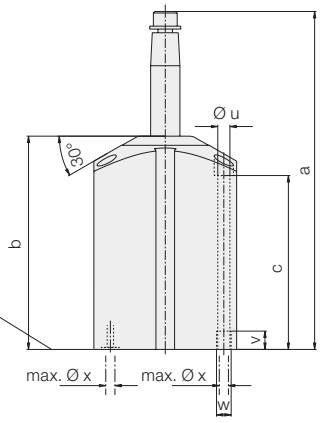
Version B
(Bottom side)











Ra ≤ 0,8

Swing clamp

Clockwise rotation		**1873 106X**	**1874 106X**	**1875 106X**	**1876 106X**	**1877 106X**
Counterclockwise rotation		**1873 206X**	**1874 206X**	**1875 206X**	**1876 206X**	**1877 206X**
Piston Ø	[mm]	20	32	40	50	63
Piston rod Ø	[mm]	8	12	16	20	25
a	[mm]	120.5	143	189.5	203.5	239
b	[mm]	76	94.5	120.5	130	150
c	[mm]	55.5	72	99	104	118
e	[mm]	16	28	36	44	58
h	[mm]	41	59.5	71.5	76	80
i	[mm]	53.5	63	88	95	100
j	[mm]	20	20	19	17.5	18
k	[mm]	39	53	60	72	86
l	[mm]	–	14	20	20	20
o	[mm]	54	68	80	90	106
p	[mm]	35	52	60	70	85
r	[mm]	40	55	64	72	86
s	[mm]	22	38	42	48	66
t	[mm]	25	40	46	50	70
Ø u	[mm]	5.5	6.5	6.5	8.5	8.5
v	[mm]	10	12	12	15	15
w	[mm]	M8	M8	M8	M10	M10
max. Ø x	[mm]	5	5	5	5	5
Dimensions O-ring	[mm]	7x1.5	7x1.5	7x1.5	7x1.5	7x1.5
Part no., spare O-ring		**3000342**	**3000342**	**3000342**	**3000342**	**3000342**

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

Order:

Please add the corresponding identification letter to the **Part no.** of the required pneumatic block-type swing clamp: **K** or **B**

Example of ordering:

Pneumatic block-type swing clamp 1875-106 with air supply on the broad side
Part no. 1875-106 K

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

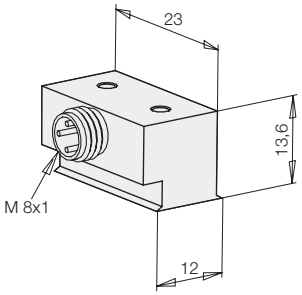
Electric connection is made as per traditional inductive proximity switches; up to four magnetic sensors can be connected in series.
Minimum distance of the switching points: 6 mm.

Important notes

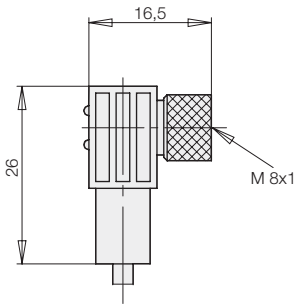
Steel can influence the magnetic field of the magnetic piston and thereby the position of the switching points. If there is the same influence for each stroke (e.g. because of adjoining steel components) it can be compensated by displacing the magnetic sensors. But if the influence differs from stroke to stroke, as e.g. in the case of swarf, a cover has to be provided 30 mm over the magnetic sensors. Covers have to be provided to protect the cylinders against ferritic swarf.

Further information about voltage supply for position controls see data sheet A 0.120.

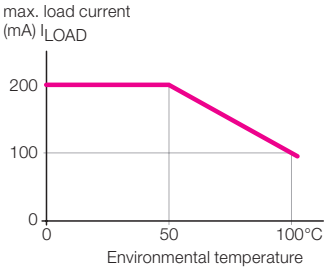
Electronic magnetic sensor



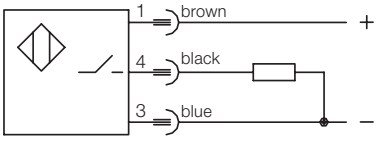
Connecting cable with right angle plug



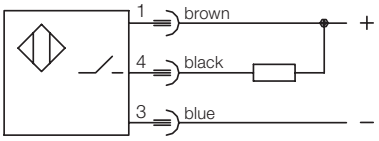
Temperature curve



Connecting scheme



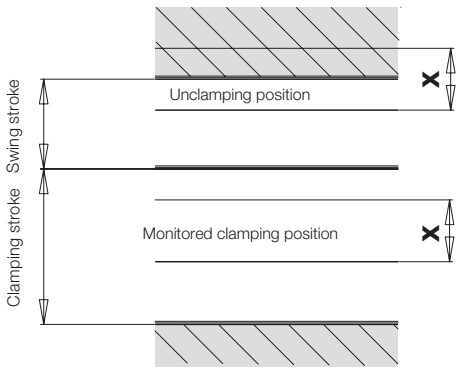
pnp (+) switching



npn (–) switching

Technical data	Electronic magnetic sensor		Connection cable with right angle plug	
Cylinder body material	aluminium black lacquered			
Voltage	10 – 30 V DC		10 – 30 V DC	
Residual ripple	max. 10%			
Current load I_{LOAD}	200 mA – up to 50 °C 150 mA – at 75 °C 100 mA – at 100 °C			
Current consumption	< 15 mA			
Voltage drop (max. load)	< 2 V			
Protected against short circuits	yes			
Protection against reverse battery	installed			
Switching frequency	1 kHz			
Switching hysteresis	3 mm			
Protection as per 40050	IP 67		IP 67	
Environmental temperature	–25 °C up to +100 °C		–25 °C up to +90 °C	
Plug connection	M8 plug		M8 plug	
LED	no		Voltage (green) Function display (yellow)	
Cable, length of cable			PUR, 5 m	
Output (interlock)	**pnp**	**npn**	**pnp**	**npn**
Part no.	**3829234**	**3829240**	**3829099**	**3829124**

Range of magnetic signal



Type	≈ x [mm]
1873 X06	4
1874 X06	4
1875 X06	5
1876 X06	6
1877 X06	7

Further accessory

see data sheet G 2.140

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