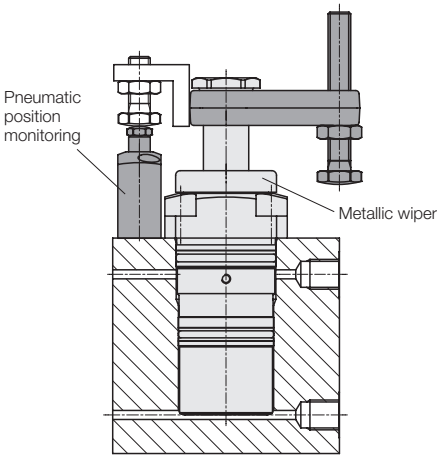
ROEMHELD

B 1.852

Swing Clamp with Sturdy Swing Mechanism
cartridge type, with optional position monitoring,
double acting, max. operating pressure 350 bar

Advantages
- 4 sizes available
- Sturdy swing mechanism
- High clamping force at low pressures
- Pneumatic position monitoring „Clamping“ optional
- Indexing of the clamping arm in a specified position is possible
- Insensitive to high flow rates by integrated orifice in the clamping line
- FKM wiper standard
- Metallic wiper optional
- Mounting position: variable



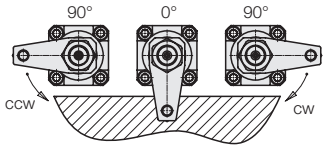
Metallic wiper optional

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.

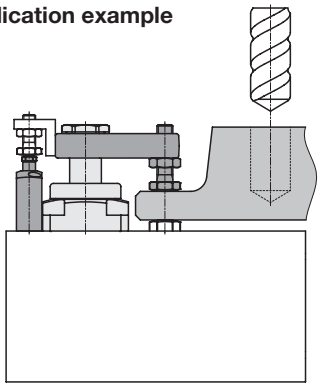
Due to the sturdy swing mechanism and the extended switch rod they are particularly suited for:

- Clamping fixtures with workpiece loading by handling systems
- Transfer lines
- Test systems for motors, gears and axes
- Automatic manufacturing systems
- Assembly lines
- Rotary indexing tables

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



Application example



Description
Due to the fact that no overload protection device is provided the angular position of the clamping arm will be maintained during loading and unloading of the fixture, even in case of a slight collision. Less critical are the weight of the clamping arm or an increased swing speed.

The sturdy swing mechanism endures a collision of the clamping arm with the workpiece during clamping.

An installed orifice limits the swing speed in case of high flow rates at the clamping side.

Due to the favourable diameter ratio piston/piston rod high clamping forces are obtained even with low oil pressure.

An indexing possibility for the clamping arm is available.

The FKM wiper has a high chemical resistance against aggressive cutting fluids.

Options

Pneumatic position monitoring
As accessory a pneumatic position monitoring is available for the control of the swing clamps in the position „Clamped“. The position monitoring consists of a stainless steel housing with a spring-loaded control tappet. To operate the tappet a control vane has to be connected at the clamping arm (see application example).
As soon as the clamping arm gets to the position „Clamped“ (within the vertical clamping stroke) the control vane is operated and the pressure built up at the pneumatic port can be evaluated e.g. by means of a pressure switch.

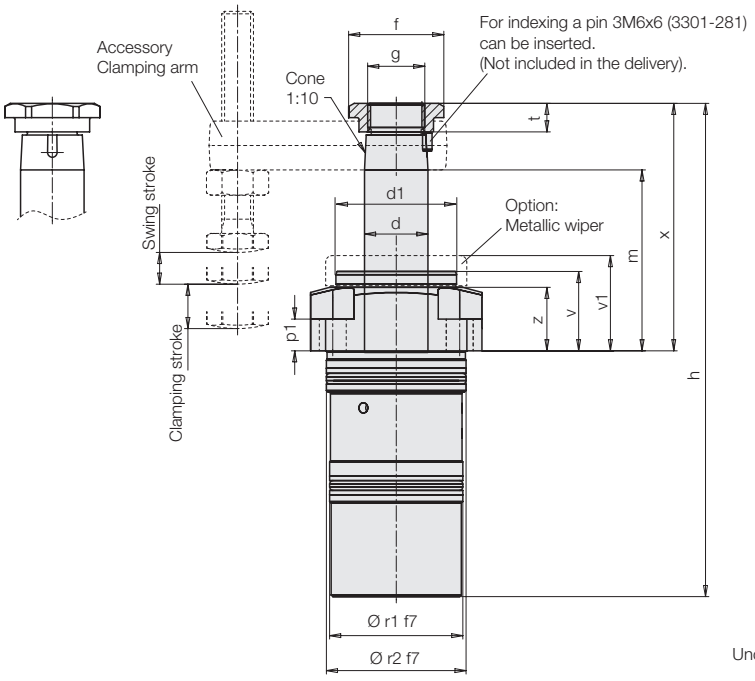
Metallic wiper
In addition to the FKM wiper all double-acting swing clamps can be equipped with a metallic wiper.

The metallic wiper protects the FKM wiper against mechanical damage, e.g. by hot swarf. The swing clamp body is prepared for mounting of the metallic wiper. The wiper consists of a radially floating wiping disk and a retaining disk which will be pressed onto the existing collar.

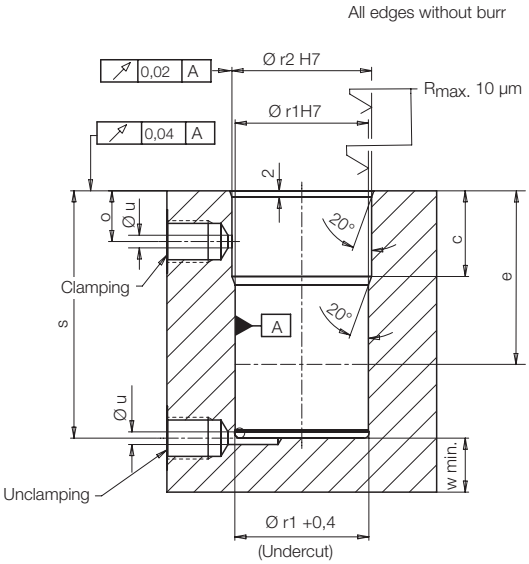
Important notes!
Swing clamps must only be used for clamping of workpieces in industrial applications and may only be operated with hydraulic oil. They can generate very high forces. The workpiece, the fixture or the machine must be in the position to compensate these forces.

In the effective area of piston rod and clamping arm there is the danger of crushing.
The manufacturer of the fixture or the machine is obliged to provide effective protection devices.

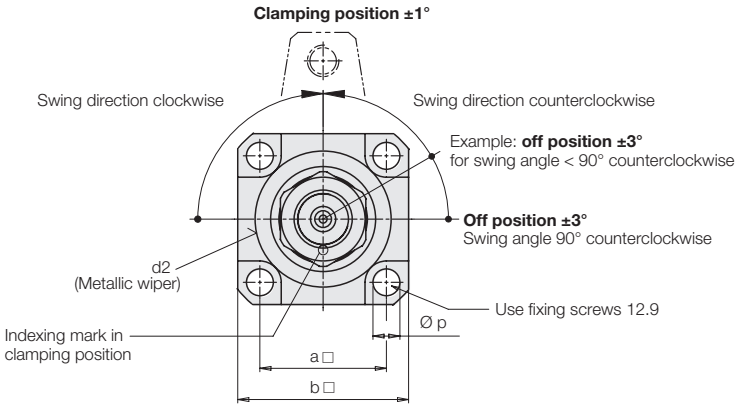
Operating conditions, tolerances and other data see data sheet A 0.100 and A 0.130.

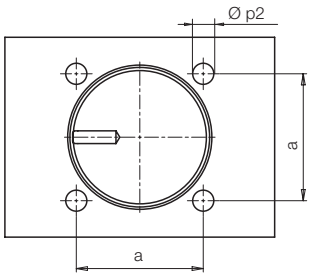


Location hole



Clamping position ±1°





Swing angle

1. Swing angle 90° and 0° (standard)

	Part-no.
90° clockwise	**184X-F090-RXX**
90° counterclockwise	**184X-F090-LXX**
0°	**184X-F000-0XX**

2. Swing angle < 90°

By insertion of a distance plate the return stroke of the piston is reduced and thus the swing angle is reduced.
Clamping stroke and clamping position remain the same.

Available swing angles:
15° to 75° in gradation of 5°

Example: **75° ccw** **184X-F075-LXX**

3. Swing angle > 90°

Available on request

Option - metallic wiper

Part-no.: Add only letter "**M**" to the part number of the swing clamp without metallic wiper.

Example of ordering:

Swing clamp 1843-F090-R23
with metallic wiper: **1843-F090-R23M**

Accessories

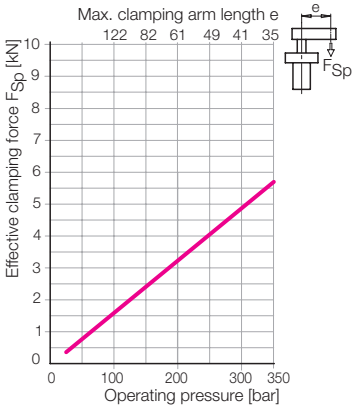
● Metallic wiper (spare part)	**Part-no.**
for 1843	**0341-104**
for 1844	**0341-106**
for 1845	**0341-105**
for 1846	**0341-100**

- Index pin Ø 3x6 mm **3301-281**
- Clamping arms see page 4
- Position monitoring see page 4

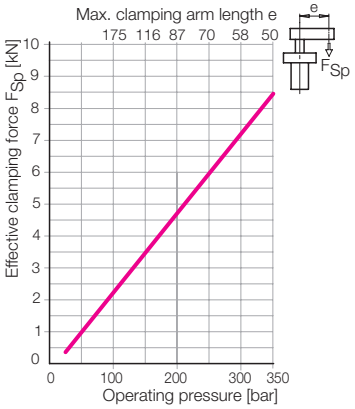
Force to pull max.	[kN]	7,5	10,5	18,4	27,5
Effective clamping force	[kN]		see diagram		
Clamping stroke	[mm]	12	12	15	15
Swing stroke	[mm]	11	12	15	21
Total stroke	[mm]	23	24	30	36
Min. operating pressure	[bar]	30	30	30	30
Max. flow rate					
Clamping	[cm³/s]	10	14	32	57
Unclamping	[cm³/s]	20	28	60	110
Effective piston area					
Clamping	[cm²]	2,14	3,01	5,27	7,86
Unclamping	[cm²]	4,15	6,15	10,17	15,90
Oil volume/stroke	[cm³]	4,9	7,2	15,8	28,3
Oil volume/return stroke	[cm³]	9,6	14,8	30,5	57,2
Piston Ø	[mm]	23	28	36	45
a □	[mm]	33	40	50	57
b □	[mm]	43	54	67	77
c	[mm]	23	27	25	32
Ø d	[mm]	16	20	25	32
Ø d1	[mm]	28	38	45	48
Ø d2	[mm]	34,0	44,5	54,0	54,9
e (fit depth)	[mm]	45	50	53	53
Ø f	[mm]	27	30	36	40
g		M14 x 1.5	M18 x 1.5	M20 x 1.5	M28 x 1.5
h +1	[mm]	150,5	161,5	188,5	217,0
m +1	[mm]	56	57	68	77,5
o	[mm]	16	16	20	25
Ø p	[mm]	6,6	8,5	10,5	13,0
p1	[mm]	13	10	14	16
Ø p2		M6	M8	M10	M12
Ø r1	[mm]	35	42	52	63
Ø r2	[mm]	36	44	55	65
s ±0.2	[mm]	73	78	89	101
t	[mm]	7,5	9	10	10
Ø u max.	[mm]	4	4	4	4
v	[mm]	25	25	29	34
v1 metallic wiper	[mm]	30	30	34	39
w min. [thickness of the bottom]	[mm]	14	16	16	20
x +1	[mm]	78	84	100	116,5
z	[mm]	20	20	24,4	28,4
Weight, approx.	[kg]	0,9	1,4	2,3	3,65
Part-no.					
Swing direction 90° cw		**1843-F090-R23**	**1844-F090-R24**	**1845-F090-R30**	**1846-F090-R36**
Swing direction 90° ccw		**1843-F090-L23**	**1844-F090-L24**	**1845-F090-L30**	**1846-F090-L36**
0 degree		**1843-F000-023**	**1844-F000-024**	**1845-F000-030**	**1846-F000-036**

Effective clamping force and length of the clamping arm as a function of the oil pressure

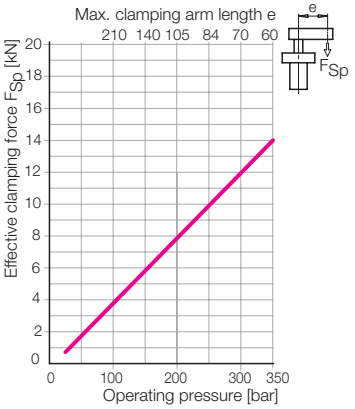
1843



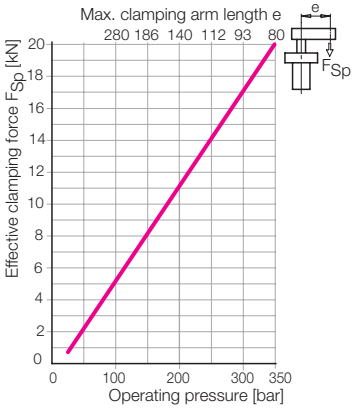
1844



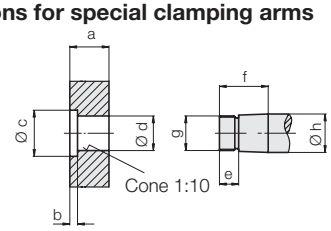
1845



1846

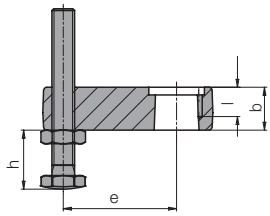


Dimensions for special clamping arms



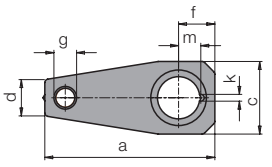
Swing clamp	a	b	Ø c	Ø d $^{+0,10}_{+0,05}$	e	f	g	Ø h_{f7}
1843	17	2.5	20	15.8	8.5	22	M 14x1.5	16
1844	22	4	24.5	19.8	10	27	M 18x1.5	20
1844	26	4	31	24,8	11	32	M 20x1.5	25
1846	32	4,5	34,5	31,8	12	39	M 28x1.5	32

Clamping arm, max. 350 bar



with thread

For	a	b	c	d	e	f	g	h max.	h min.	Øk	l	m	Weight [kg]	Part-no.
1843	58	17	28	14	35	16	M8	45	5	3	9	7,8	0,2	**0354-152**
1844	75	22	36	16	50	16	M10	64	6	3	9	9,8	0,7	**0354-153**
1845	93	26	45	23	60	22	M12	70	7	3	10	12		**0354-154**
1846	120	32	60	28	80	26	M16	85	9	3	10,5	15		**0354-155**



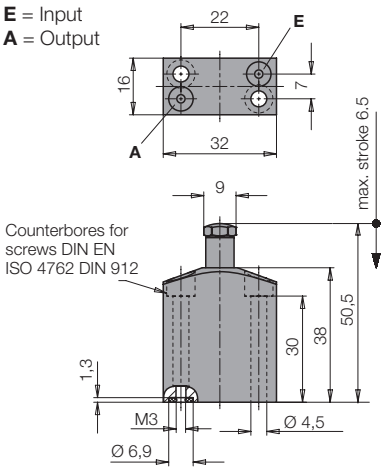
without thread

For	a	b	c	d	f	Øk	l	m	Weight [kg]	Part-no.
1843	58	17	28	14	16	3	9	7,8	0,2	**3548-660**
1844	75	22	36	16	16	3	9	9,8	0,7	**3548-661**
1845	93	26	45	23	22	3	10	12		**3548-803**
1846	120	32	60	28	26	3	10,5	15		**3548-804**

If you manufacture the clamping arm yourself, only the dimensions k, l and m are required for indexing!

Pneumatic position monitoring

E = Input
A = Output



Technical characteristics

Connection		Thread M3 or O-ring
Nominal diameter	[mm]	2
Max. air pressure	[bar]	10
Range of operating pressure	[bar]	3 ... 5
Differential pressure* at 3 bar system pressure	[bar]	min. 1.5
Differential pressure* at 5 bar system pressure	[bar]	min. 3.5
Air flow**	[l/min]	10 ... 20
Operating force***	[N/bar]	approx. 5
Spring force	[N]	max. 33
Part-no.		**0353-889**
Spare O-ring 3.68x1.78		**3000-274**
Insertion nipple fitting		**3890-188**

* Pressure drop when controlling the function „Clamped“, if one or several position monitorings are not operated.

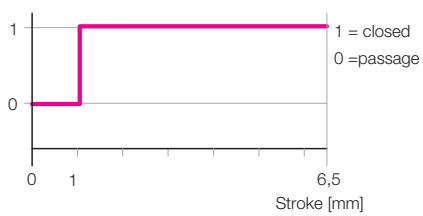
** For measuring the air flow rate appropriate devices are available. Please contact us.

*** Port A closed

Important notes!

When adjusting the control cam it has to be considered that the valve tappet will only be operated after completion of the swing stroke. Within the clamping range the valve tappet should have a stroke reserve of approx. 1 mm also for idle strokes (without workpiece) to avoid mechanical damage.
For the evaluation of the pneumatic pressure built-up standard pneumatic pressure switches can be used. It is possible to control with one pressure switch up to 8 position monitorings connected in series (see circuit diagram).
It has to be considered that process-safe functioning of pneumatic position monitorings is only guaranteed with throttled air and system pressure. The nominal values are indicated below technical characteristics.

Function chart



Control by pneumatic pressure switch