

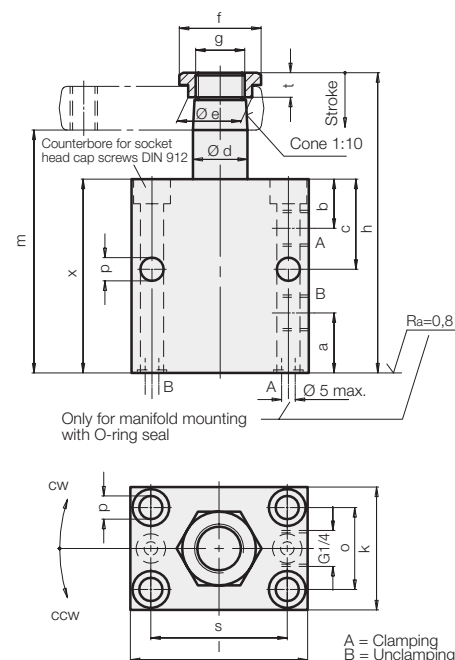


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B 1.890

Swing Clamp

with overload protection device, double acting
max. operating pressure 500 bar



Application

These swing clamps are used when it is required to keep the fixture workpiece area free of straps and clamping components for unrestricted workpiece loading and unloading.

Function

This hydraulic clamping element is a pull-type cylinder, where a part of the total stroke is used to swing the piston (stroke to swing). The larger part of the stroke is available as clamping stroke.

Versions

The units are available in three standard sizes, optionally with clockwise or counterclockwise rotation, and for each size three versions of standard clamping arms are available (see accessories, page 2).

Mounting of these clamping arms at any angle with 360°.

Standard angles of rotation are 45°, 60°, and 90° ±2°. Other variants, as e.g. versions with metallic wiper on request.

All units are equipped with piston rod wipers. These double-acting swing clamps are also available in versions with minimum leakage rate. Please contact us!

Danger of injury

Hydraulic clamping elements can generate considerable forces.

Due to the 90° swing motion, the exact clamping and unclamping position cannot be determined in advance. Considerable injuries can be caused by squashing one's fingers in the effective area of the clamping arm.

Remedy: protection device with electrical locking.

Materials

By nitrating piston and housing, wear is reduced and protection against corrosion increased.

Piston material and cylinder body: High alloy steel.

Overload protection device

An integrated mechanical overload protection device prevents damage to the swivel mechanism when striking an object within 90° rotation, clamping or unclamping alike.

Important notes

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

Total stroke	[mm]	14	16	20
Stroke to swing	[mm]	7	8	9
Stroke to clamp	[mm]	7	8	11
Operating pressure	[bar]	30	30	30
Max. oil flow rate*	[cm ³ /s]	3.2	10	27.7
Oil to clamp	[cm ³]	2.5	7.3	23
Oil to return	[cm ³]	6.8	20	62
a	[mm]	22	25	26
b	[mm]	18	24	30
c	[mm]	33	40	50
Ø d	[mm]	20	32	50
Ø e	[mm]	23.5	33.5	55.5
f	[mm]	30	40	68
g	[mm]	M18x1.5	M28x1.5	M45x1.5
h	[mm]	110	139	174
k	[mm]	45	63	95
l	[mm]	65	85	125
m	[mm]	89	111	134/(137)**
o	[mm]	30	40	65
p	[mm]	8.5	10.5	17
s	[mm]	50	63	95
t	[mm]	9	10	12
x	[mm]	71	91	110
Weight	[kg]	1.5	3.4	7.2
Clockwise rotation	Part-no.	1893-106	1895-106	1897-106
Counterclockwise rotation	Part-no.	1893-206	1895-206	1897-206
0-degree	Part-no.	1893-246	1895-246	1897-246
Type for manifold mounting with O-ring seal				
Clockwise rotation	Part-no.	1893-506	1895-506	1897-506
Counterclockwise rotation	Part-no.	1893-606	1895-606	1897-606
0-degree	Part-no.	1893-646	1895-646	1897-646
Spare O-ring 8x1.5	Part-no.	3000-343		
** (137) for clamping strap	Part-no.	0354-004		

Code numbers of variable angles of rotation

Angle of rotation	Part-no.
90°	189X-X06
60°	189X-X26
45°	189X-X36

* The max. oil flow rate is valid for vertical mounting position in connection with standard clamping arms. In the case that other mounting positions and/or other clamping arms are used, the oil flow rate has to be reduced as necessary. A possibly required flow control **has to be** made by flow control valves in the clamping line as well as in the unclamping line (stroke/return stroke)..


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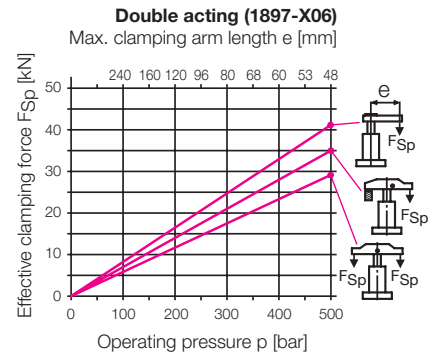
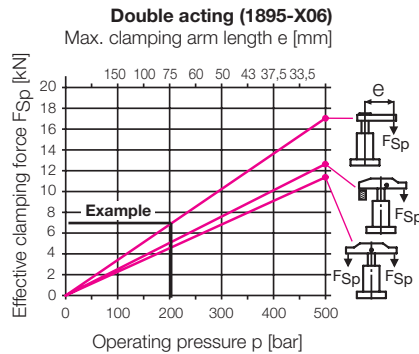
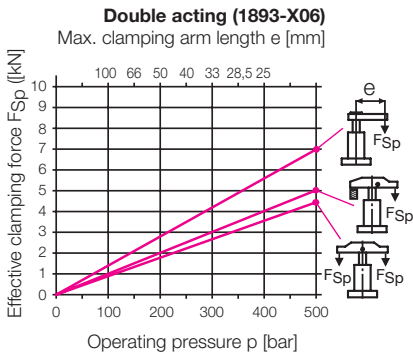
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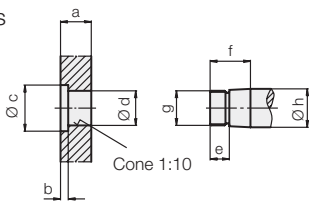
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Effective clamping force F_{Sp} as a function of max. operating pressure p



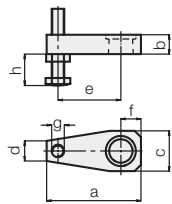
Example: 1895-106. An operating pressure p of 200 bar in connection with standard clamping arm 0354-003 of arm length $L = 75$ mm results in an effective clamping force F_{Sp} of 7 kN.

Dimensions for special clamping arms



Swing clamp	a	b	$\varnothing c$	$\varnothing d_{+0.10/-0.05}$	e	f	g	$\varnothing h_{f7}$
1893-XX6	16	4	24	19.8	10	21	M 18x1.5	20
1895-XX6	23	5	34	31.8	12	28	M 28x1.5	32
1897-XX6	34	6	56	49.8	13	40	M 45x1.5	50

Clamping arm assembly, complete max. 200 bar

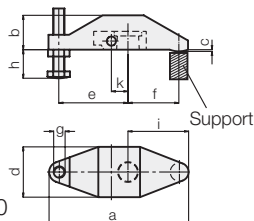


with thread
without thread

Swing clamp	a	b	c	d	e	f	g	h max.	h min.	Weight [kg]	Part-no.
1893-XX6	75	16	32	16	50	16	M10	64	6	0.2	0354-001
1895-XX6	115	23	48	22	75	25	M16	79	9	0.7	0354-003
1897-XX6	178	34	78	40	120	40	M20	98	12	2.55	0354-005

Swing clamp	a	b	c	d	f	Weight [kg]	Part-no.
1893-XX6	75	16	32	16	16	0.18	3921-016
1895-XX6	115	23	48	22	25	0.65	3921-017
1897-XX6	178	34	78	40	40	2.3	3921-018

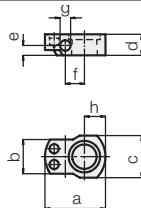
Clamping strap assembly, complete, with carrier, max. 500 bar



Material: GGG-40

Swing clamp	a	b	c	d	e	f	g	h max.	h min.	i	k	Weight [kg]	Part-no.
1893-XX6	122	30	1.5	44	60	45	M10	64	6	53	14.5	0.57	0354-000
1895-XX6	185	45	2	58.5	83	75	M16	79	9	87	21	1.58	0354-002
1897-XX6	223	59	2.5	98	100	90	M20	98	12	105	33	4.75	0354-004

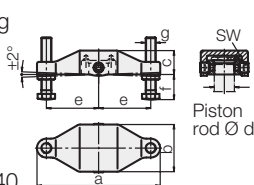
Carrier for special clamping strap



Material: C 45

Swing clamp	$a_{\pm 0.1}$	b	c	d	e	f	g^{H7}	h	Weight [kg]	Part-no.
1893-XX6	46	26	32	16	7.5	14.5	8	16	0.08	3542-093
1895-XX6	59	32	40	23	13	21	10	22	0.16	3542-094
1897-XX6	90	56	68	34	21	33	14	36	0.65	3542-096

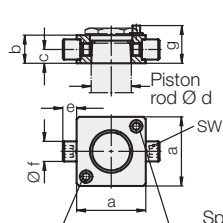
Double clamping arm assembly, complete, with carrier, max. 500 bar



Material: GGG-40

Swing clamp	a	b	c	$\varnothing d$	e	f min.	f max.	g	SW	Weight (kg)	Part-no.
18X3-XXX	138	59	28.5	20	60	10	64	M 10	5	0.83	0354-131
18X5-XXX	196	75	38	32	83	15	79	M 16	8	2.11	0354-132
18X7-XXX	236	105	56	50	100	19	98	M 20	8	5.24	0354-134

Carrier, complete with threaded bolt and spring clamping elements



Material: C 45

Swing clamp	a	b	c	$\varnothing d$	e	$\varnothing f^{g6}$	g^*	SW	Part-no.
18X3-XXX	43	16	7,5	20	9	10	21.5	5	0354-141
18X5-XXX	55	23	11	32	11	16	29	8	0354-142
18X7-XXX	77	34	17	50	15	20	41	8	0354-144

* Stop surface for spring elements