ROTARY LEVER CLAMPS WITH CONTROL

hydraulically/pneumatically, double-acting, with pneumatic position control

Description:

The rotary lever clamp with pneumatic position control is especially suited for clamping fixtures with only little space for the installation of workholding elements. Its construction and compact design allows flexible solutions at various installation conditions.

The double-acting rotary lever clamps are used in clamping fixtures whose oil supply is made through drilled channels.

To swing down the clamping lever, the linear motion is used pro rata which clamps the workpiece. To unclamp, the clamping lever swings back to where the workpiece can be safely taken out.

Clamping levers are not included in scope of supply! You can order standard clamping levers from different materials and various lengths as accessories. The rotary lever clamp can also be assembled with special and self made clamping levers (see page 4). The clamping force depends on the length of the clamping lever.

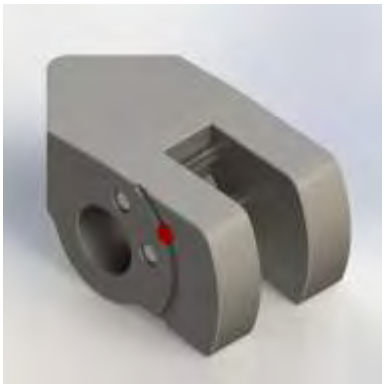
The rotary lever clamps with position control are simular to the double-acting rotary lever clamps on data sheet 250-10. Both differently operating variants are interchangeable due the same installation dimensions.

Pneumatic position control:

The clamping levers are equipped with elastic sealing plugs on both sides.

The rotary lever clamp has two drilled channels through which compressed air can be condact into the clamping lever guide of the housing. The bore holes are arranged in a way that they are sealed in the clamping position or in the declamping position by the sealing plug of the clamping lever. This generates a pressure increase in the pneumatic line, which can be monitored by using standard pneumatic pressure switches in the respective position.

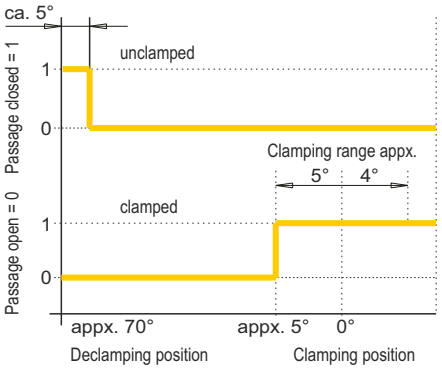
The pressure switch registers the pneumatic pressure rise and generates an electrical signal which is forwarded to the connected control unit.

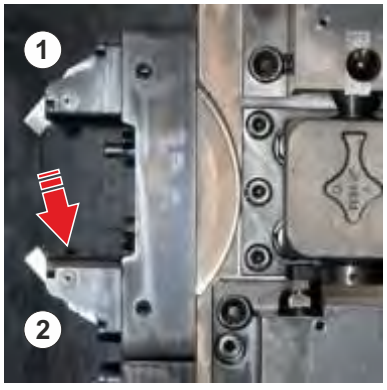


Operating conditions:

The clamping lever is coupled with the piston rod. On the double-acting rotary lever clamps, the clamping lever is unclamped by the pressure medium.

When installing the rotary lever clamps, the flange surface should be adjusted to the height of the workpiece. The clamping point should be in a horizontal position. Workpiece tolerances can be compensated in spite of the short clamping stroke.





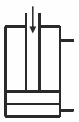
Installation note:

The rotary lever clamp is basically suitable for any mounting position. However, it must be ensured that the chosen installation position does not enable the accumulation of metal shavings in the swing range of the clamp arm during the operation (see picture).

1. suitable installation position
2. unsuitable installation position,
● metal shavings could be accumulated.

Webcode: 025020

We also design and manufacture special designs



Connections:

- **Drilled channels**

Advantages:

- **Clamping without shear forces**
- **Pipeless oil supply**
- **Partial retractable housing**
- **Individual clamping levers mountable**
- **Control of the clamping lever position**

Safety instructions:

Rotary lever clamps can generate high forces. Workpieces and fixtures must be designed for such loads. During operation, danger of crushing is given.

The **accident prevention regulations** must be observed. The rotary lever clamps must regularly be checked for contamination and cleaned when necessary.

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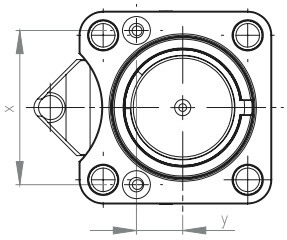
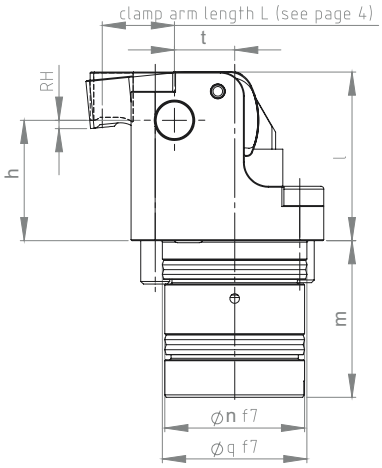
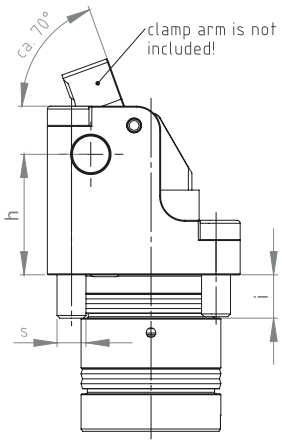
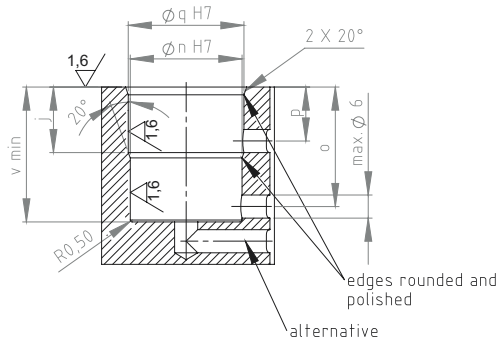
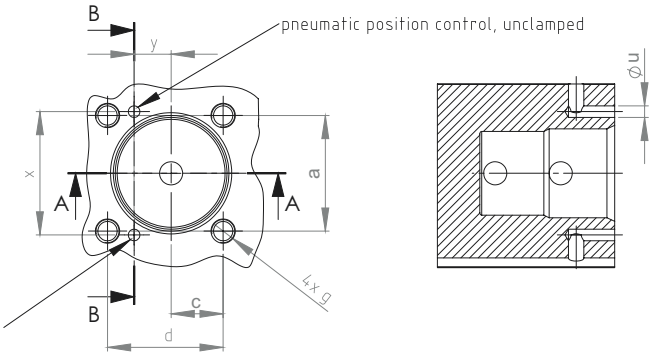
Rotary lever clamps with pneumatic position control, hydraulically, double-acting

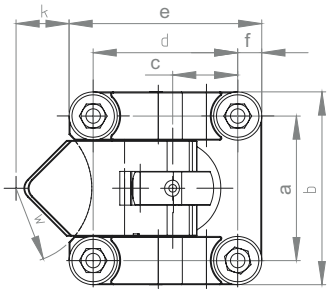










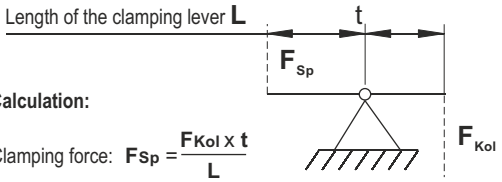


Clamping levers
are available as accessories.

RH = dimensions for residual stroke
(see page 4)

Materials:
housing made of burnished steel
piston made of tempered steel

Effective clamping force F_{Sp} in relation to piston force F_{Kol} and length of the clamping lever L



Calculation:

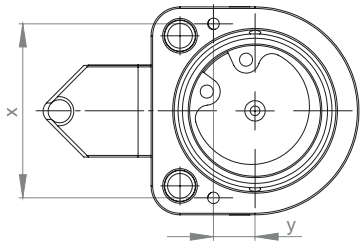
Clamping force: $F_{Sp} = \frac{F_{Kol} \times t}{L}$

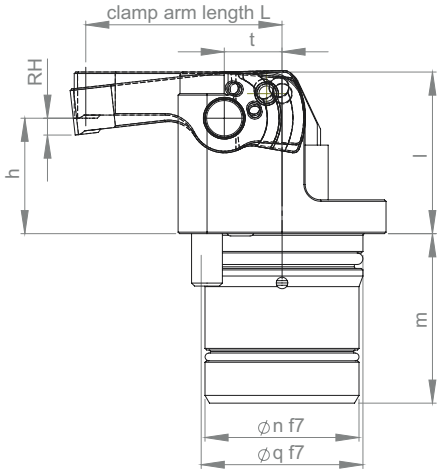
Example: $F_{Sp} = \frac{2.5\ kN \times 10\ mm}{18\ mm} = 1.39\ kN$

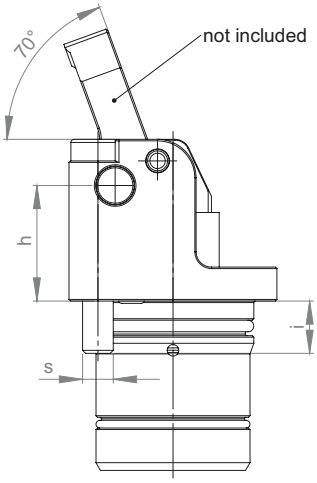
Size		12	16	20	25	32	40	50
Piston force at 100 bar	[kN]	1,7	2,8	4,5	6,15	10,1	15,9	23,7
Piston force at pmax. 400 bar	[kN]	7	11,3	18	24,6	40,6	63,6	95
Volume	[cm³]	1,06	2,03	4,52	8,82	16,27	31,8	58,2
Effective piston surface	[cm²]	1,77	2,83	4,52	6,15	10,17	15,9	23,75
a	[mm]	19,5	25	30	38,5	49	59	74
b	[mm]	27	34	40	52	66	78	98
c	[mm]	8,75	9,5	13,5	14,75	18,5	21,5	25,75
d	[mm]	18,5	23	30	35,5	45	55	68
e	[mm]	26	32	40	49	62	74	92
f	[mm]	3,75	4,5	5	6,75	8,5	9,5	12
g	[mm]	M4x8	M5x11	M6x10	M8x12	M10x15	M12x18	M16x23
h	[mm]	15	20	25	31,25	40	50	62,5
i	[mm]	8	11	10	12	12	18	23
j	[mm]	14	17	17	20	23	25	30
k	[mm]	7,5	10	11	11	9	12	14,5
l	[mm]	21	28	35	43,75	56	70	87,5
m	[mm]	21	26	32,5	37	42	47	57,5
n Ø	[mm]	19,4	23	29	35	43	53	64
o	[mm]	23	26	31	33	38	40	53
p	[mm]	11	13	14	15	17	19	24
q Ø	[mm]	20	24	30	36	45	55	66
s (acc. to DIN 6912)	[mm]	M4x10/4x25	M5x16/5x35	M6x16/6x40	M8x20/8x50	M10x25/10x65	M12x30/12x80	M16x40/16x100
t	[mm]	7,5	10	12,5	15,63	20	25	31,25
u Ø	[mm]	1,5	3	3	3	5	5	5
v	[mm]	21,5	26,5	33	38	43	48	58,5
w Radius	[mm]	10,6	14,2	15,7	18,7	19,7	24,7	31
x	[mm]	22,6	27	32	42	53	64	80
y	[mm]	5,4	7,2	9,6	11	13	14	17,5
Weight	[kg]	0,12	0,27	0,55	0,86	1,76	2,63	5,33
Order number	**DHSP-DHS...**	**-012-001-P**	**-016-001-P**	**-020-001-P**	**-025-001-P**	**-032-001-P**	**-040-001-P**	**-050-001-P**
Mounting tool rod seal:		9000-270	9000-271	9000-272	9000-273	9000-274	9000-275	9000-276
Rod seal sparepart:		6012-037	6016-038	6020-065	6025-077	6032-059	6040-023	6050-017

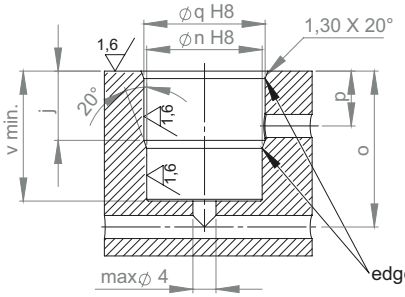
The order number begins with DHSP-DHS to be completed. Example: DHSP-DHS-012-001-P

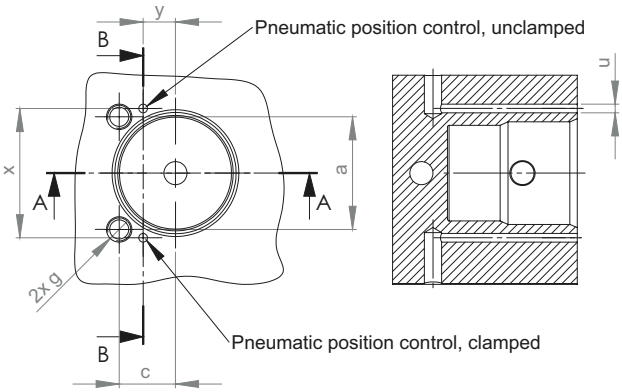
Rotary lever clamps with pneumatic position control, pneumatically, double-acting

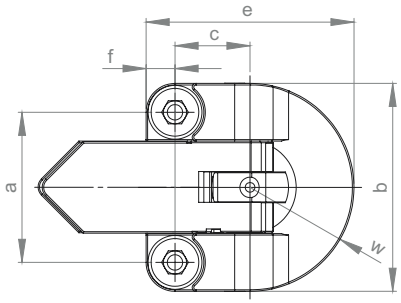










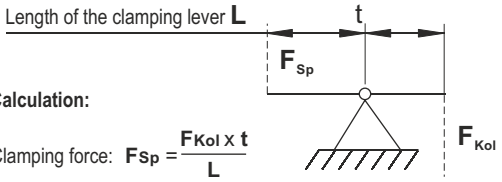


Clamping lever
are available as accessories.

RH = dimensions for residual stroke
(see page 4)

Materials:
housing made of burnished steel
piston made of tempered steel

Effective clamping force F_{Sp} in relation to piston force F_{Kol} and length of the clamping lever L



Calculation:

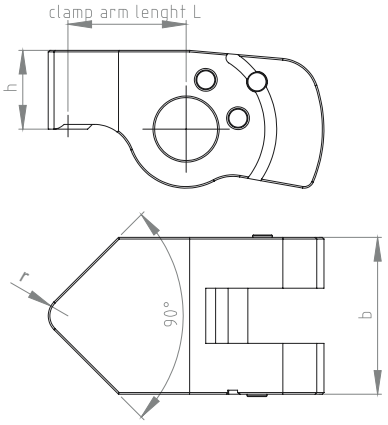
Clamping force: $F_{Sp} = \frac{F_{Kol} \times t}{L}$

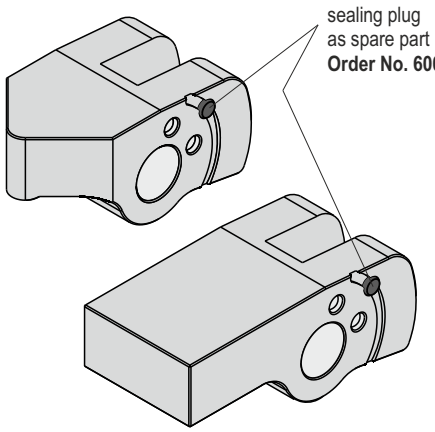
Example: $F_{Sp} = \frac{3.010\ kN \times 31.25\ mm}{56\ mm} = 1.68\ kN$

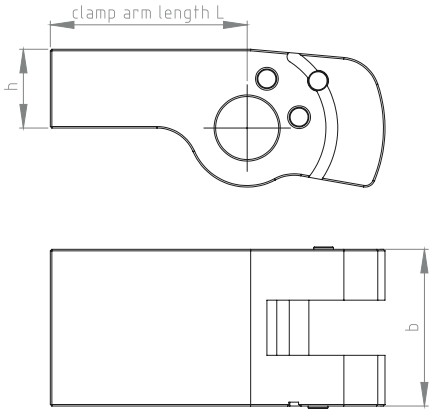
Size		**12**	**16**	**20**	**25**	**32**	**40**	**50**
Piston force at 6 bar	[kN]	0,14	0,27	0,42	0,68	1,27	1,99	3,01
Effective piston surface	[cm³]	2,27	4,52	7,06	11,34	21,23	33,18	50,26
a	[mm]	19,5	25	30	38,5	49	59	74
b	[mm]	27	34	40	52	66	78	98
c	[mm]	9,75	13,5	16,5	20,75	26,5	33,5	42,25
e	[mm]	27	35	41,5	53,5	68	82	103,25
f	[mm]	3,75	4,5	5	6,75	8,5	9,5	12
g	[mm]	M4x8	M5x11	M6x10	M8x12	M10x16	M12x18	M16x23
h	[mm]	15	20	25	31,25	40	50	62,5
i	[mm]	7	10,5	9	11,5	10,5	17,5	22,5
j	[mm]	12	13	15	19	21	28	35
l	[mm]	21	28	35	43,75	56	70	87,5
m	[mm]	22	24	27,5	32	37	46	55
n Ø	[mm]	20	27	34	43	57	71	89
o	[mm]	26,5	28,5	32	37	42	51	60
p	[mm]	9,5	10	11	13	14,5	18,5	22,5
q Ø	[mm]	21	28	35	44	58	72	90
s (acc. to DIN 6912)	[mm]	M4x25	M5x35	M6x40	M8x50	M10x65	M12x80	M16x100
t	[mm]	7,5	10	12,5	15,63	20	25	31,25
u Ø	[mm]	1,5	1,5	1,5	3	3	3	3
v	[mm]	22,5	24,5	28	33	38	47	56
w Radius	[mm]	13,5	17	20	26	33	39	49
x	[mm]	22,6	29	35	44	57	68	85
y	[mm]	5,4	7,2	9,6	13	17	22,5	28
Weight	[kg]	0,06	0,12	0,22	0,41	0,82	1,5	3
Order number:	**DHSP-DPA...** →	**-012-001-P**	**-016-001-P**	**-020-001-P**	**-025-001-P**	**-032-001-P**	**-040-001-P**	**-050-001-P**
Mounting tool rod seal:		9000-270	9000-271	9000-272	9000-273	9000-274	9000-275	9000-276
Rod seal sparepart:		6012-014	6015-017	6020-024	6025-024	6032-025	6040-053	6050-046

The order number begins with DHSP-DPA to be completed. Example: DHSP-DPA-012-001-P

Clamping levers for rotary lever clamps with position control (accessories)







[1] For easier handling, the blanks are made of unhardened steel.
To prevent deformation during the operation, the clamp arms must be case-hardened by the customer after completion. (hardening depth: 0,3 +0,2, hardening: HRC 50 +/-2)

		Values are valid for double-acting cylinders									
for Size	Type	Clamping force at 6 bar pneumatically	Clamping force at 100 bar hydraulically	Clamping force at 400 bar hydraulically	Residual stroke RH	b	h	L	r	s	Order No.
12	Standard	0,112 kN	1,416 kN	5,833 kN	0,98 mm	12	6,0	9,0	1,5	–	**5012-013**
	Standard	0,075 kN	0,944 kN	3,888 kN	1,12 mm	12	6,0	13,5	1,5	–	**5012-014**
	Standard	0,056 kN	0,708 kN	2,916 kN	1,97 mm	12	6,0	18,0	1,5	–	**5012-011**
	Standard	0,045 kN	0,566 kN	2,333 kN	2,45 mm	12	6,0	22,5	1,5	–	**5012-015**
	Blank	–	–	–	1,64 mm	12	6,0	15,0	–	9,00	**5012-016**
	Blank	–	–	–	2,62 mm	12	6,0	24,0	–	9,00	**5012-017**
16	Standard	0,225 kN	2,333 kN	9,416 kN	0,78 mm	16	8,0	12,0	2,0	–	**5016-016**
	Standard	0,150 kN	1,555 kN	6,277 kN	1,16 mm	16	8,0	18,0	2,0	–	**5016-017**
	Standard	0,112 kN	1,166 kN	4,708 kN	1,6 mm	16	8,0	24,0	2,0	–	**5016-018**
	Standard	0,090 kN	0,933 kN	3,766 kN	1,94 mm	16	8,0	30,0	2,0	–	**5016-019**
	Blank	–	–	–	1,29 mm	16	8,0	20,0	–	10,00	**5016-020**
	Blank	–	–	–	2,07 mm	16	8,0	32,0	–	10,00	**5016-021**
20	Standard	0,350 kN	3,750 kN	15,000 kN	1,48 mm	20	10,0	15,0	2,5	–	**5020-038**
	Standard	0,233 kN	2,500 kN	10,000 kN	2,21 mm	20	10,0	22,5	2,5	–	**5020-039**
	Standard	0,175 kN	1,875 kN	7,500 kN	2,95 mm	20	10,0	30,0	2,5	–	**5020-040**
	Standard	0,140 kN	1,500 kN	6,000 kN	3,68 mm	20	10,0	37,5	2,5	–	**5020-041**
	Blank	–	–	–	2,45 mm	20	10,0	25,0	–	12,50	**5020-042**
	Blank	–	–	–	3,92 mm	20	10,0	40,0	–	12,50	**5020-043**
25	Standard	0,558 kN	5,058 kN	20,236 kN	1,26 mm	25	12,5	19,0	3,0	–	**5025-017**
	Standard	0,379 kN	3,432 kN	13,731kN	1,86 mm	25	12,5	28,0	3,0	–	**5025-018**
	Standard	0,279 kN	2,529 kN	10,118 kN	2,52 mm	25	12,5	38,0	3,0	–	**5025-019**
	Standard	0,225 kN	2,045 kN	8,180 kN	3,12 mm	25	12,5	47,0	3,0	–	**5025-020**
	Blank	–	–	–	2,1 mm	25	12,5	31,0	–	15,63	**5025-021**
	Blank	–	–	–	3,32 mm	25	12,5	50,0	–	15,63	**5025-022**
32	Standard	1,058 kN	8,416 kN	33,833 kN	2,56 mm	32	16,0	24,0	4,0	–	**5032-020**
	Standard	0,705 kN	5,611 kN	22,555 kN	3,85 mm	32	16,0	36,0	4,0	–	**5032-021**
	Standard	0,529 kN	4,208 kN	16,916 kN	5,13 mm	32	16,0	48,0	4,0	–	**5032-022**
	Standard	0,423 kN	3,366 kN	13,533 kN	6,4 mm	32	16,0	60,0	4,0	–	**5032-023**
	Blank	–	–	–	4,28 mm	32	16,0	40,0	–	20,00	**5032-024**
	Blank	–	–	–	6,84 mm	32	16,0	64,0	–	20,00	**5032-025**
40	Standard	1,658 kN	13,250 kN	53,000 kN	3,05 mm	40	20,0	30,0	5,0	–	**5040-036**
	Standard	1,105 kN	8,833 kN	35,333 kN	4,6 mm	40	20,0	45,0	5,0	–	**5040-037**
	Standard	0,829 kN	6,625 kN	26,500 kN	6,1 mm	40	20,0	60,0	5,0	–	**5040-038**
	Standard	0,663 kN	5,300 kN	21,200 kN	7,6 mm	40	20,0	75,0	5,0	–	**5040-039**
	Blank	–	–	–	5,08 mm	40	20,0	50,0	–	25,00	**5040-040**
	Blank	–	–	–	8,1 mm	40	20,0	80,0	–	25,00	**5040-041**
50	Standard	2,475 kN	19,490 kN	78,125 kN	3,46 mm	50	25,0	38,0	6,0	–	**5050-035**
	Standard	1,679 kN	13,225 kN	53,013 kN	5,1 mm	50	25,0	56,0	6,0	–	**5050-036**
	Standard	1,254 kN	9,874 kN	39,583 kN	6,83 mm	50	25,0	75,0	6,0	–	**5050-037**
	Standard	0,839 kN	6,612 kN	26,506 kN	10,19 mm	50	25,0	112,0	6,0	–	**5050-038**
	Blank	–	–	–	5,64 mm	50	25,0	62,0	–	31,25	**5050-039**
	Blank	–	–	–	10,74 mm	50	25,0	118,0	–	31,25	**5050-040**

Special sizes and designs are available on request.