Spring clamping cylinder pulling, with hydraulic return

For power units,
please see product group 7
For accessories,
please see product group 11

Application:

- long-term clamping of moveable machine parts, dies, fixtures, pallets and workpieces

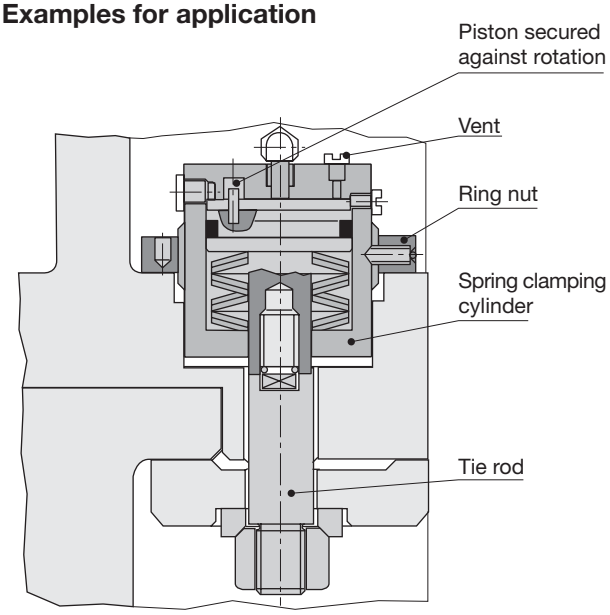
Function:

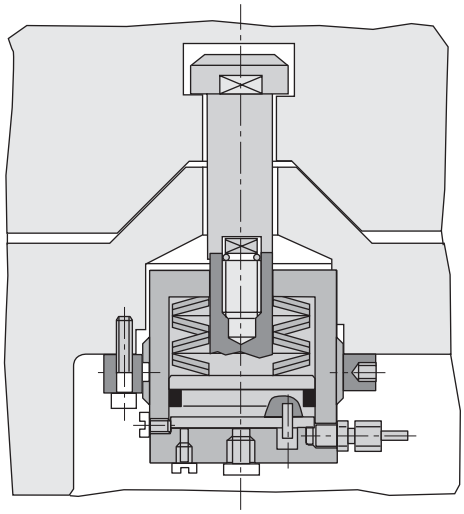
The force of the spring clamping cylinder is mechanically transmitted to the tie rod or the clamping spindle by a preloaded Belleville spring assembly. Hydraulic power is only required for unclamping the clamping cylinder.

Special features:

- large choice of clamping forces
- low-friction Belleville springs placed between hardened and ground thrust washers
- piston secured against rotation
- radial and axial oil ports
- rapid and easy installation

Examples for application





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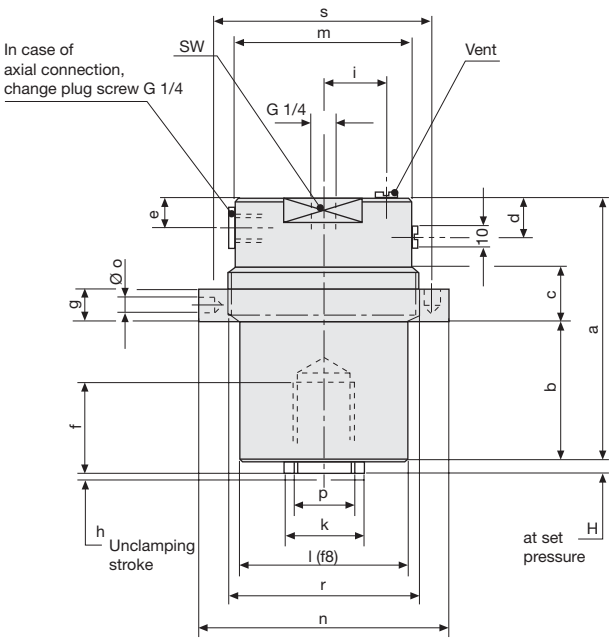
Adjustment of clamping force, clamping and unclamping

1. Apply set pressure to spring clamping cylinder.
2. Adjust clamping position to be free from play by means of ring nut.
3. Secure ring nut against torsion. If necessary, secure cylinder against sliding. See examples for application.
4. For clamping, reduce set pressure.
5. For unclamping, apply unclamping pressure.
6. Check play of clamping point after approx. 1000 load changes at set pressure. If necessary, retighten ring nut and secure again.



Clamping force (kN)	16	25	40	63	100	160
Set pressure (bar)	165	165	185	215	250	230
Uncl. pressure h = 0,5 mm (bar)	210	200	210	235	275	265
Uncl. pressure h = 1,0 mm (bar)	255	235	235	255	315	300
Oil consum./1 mm stroke (cm^3)	1,3	2,0	2,9	3,9	5,0	9,5
a (mm)	95	105	120	132	147	170
b (mm)	45	50	60	70	80	75
c (mm)	20	20	25	25	30	45
d (mm)	22	22	22	23	23	33
e (mm)	11	11	11	12	12	28
f (mm)	24	30	36	45	45	50
g (mm)	13	14	14	16	16	18
i (mm)	18	20,5	27	32	36	34
k (mm)	20	25	30	40	40	50
l (f8) (mm)	55	65	75	85	95	142
m (mm)	55	65	75	89	99	137
n (mm)	85	95	110	125	140	180
o (mm)	6	8	8	8	8	10
p (mm)	M 14 x 1,5	M 18 x 1,5	M 22 x 1,5	M 30 x 1,5	M 30 x 1,5	M 38 x 1,5
r (mm)	M 58 x 1,5	M 68 x 1,5	M 78 x 1,5	M 92 x 1,5	M 102 x 1,5	M 140 x 2
H (mm)	4	4	4	6	6	6
SW (mm)	50	60	70	80	90	130
s (mm)	72	82	94	109	121	165
Weight (kg)	1,8	2,6	3,9	5,7	7,8	18,7
Part no.	**1401 010**	**1402 010**	**1403 010**	**1404 010**	**1405 010**	**1406 010**

Please consult our technical sales staff
- if clamping forces have changed
- in case of an unclamping stroke > 1 mm
- in case of load cycles > 1 min.
- if aggressive fluids are used
- in case of temperatures below -15°C or above +60°C
- if the unclamping stroke must be limited
- if you require special versions

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