



Wedge clamp, double-acting for dies with tapered clamping edge

Application:

- ▶ safe clamping of dies with a tapered clamping edge
- ▶ for clamping of dies on a press bed and slide
- ▶ for clamping of dies in injection moulding machines

Design:

Double-acting wedge clamp for clamping dies on a press bed or slide or for clamping dies in injection moulding machines.

The wedge clamp consists of a hydraulic block cylinder and a piston guided in a housing.

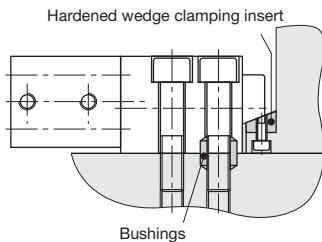
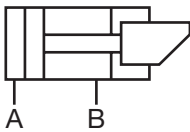
The clamping bolt is provided with 20° bevel to clamp on the bevelled clamping surface of the die.

Based on the internal design of the wedge clamp and the 20° clamping bevel the system is providing internal friction. For reasons of safety and in order to comply with the specifications of the 'Machinery' directive no. ML98/37/EG, hydraulic pressure must always be maintained.

When upper dies are clamped by wedge clamps, they must be secured mechanically when maintenance work is carried out.

Special features:

- ▶ available in sizes between 25 kN and 1250 kN
- ▶ high functional reliability ensured by position monitoring and an automatic cycle
- ▶ rugged and well-proven clamping element with high degree of safety and long service life



Retrofit: In many cases, existing dies can be standardised by adding **wedge inserts**. Max. hardness: 50 HRC.

The occurring transverse forces must be absorbed by **bushings** to be drilled into the fixture plate (see table for accessories)

Please note:

In case of incorrect operation of the wedge clamping element, the clamping bolt may fully retract into the guide housing and thus cause the upper die falling off the slide.

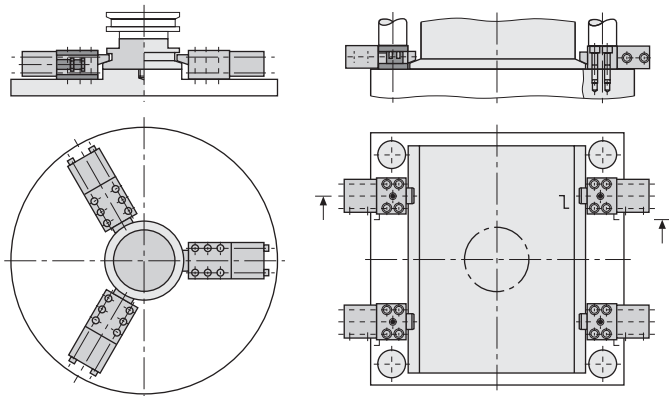
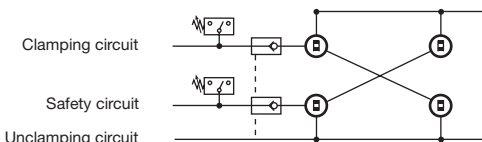
The greasing intervals (high-temperature grease) should be scheduled in accordance with the operating conditions.

Greasing of the clamping bolt should only be made with the elements being retracted.

Clamping elements with wedge clamping bolt must be protected against dirt, scale, swarf, coolant, etc. by means of a suitable covering.

Dies clamped by means of wedge clamping elements are subject to transverse forces which may be strong enough to displace them. Therefore, location pins or suitable limit stops should be provided, in order to keep the dies in their correct position.

When using wedge clamping elements on the press slide, it is recommended that multiple-circuit hydraulic supply of the clamping elements and pilot-controlled check valves are used in the clamping lines for securing hydraulic clamping.



Principle of die clamping

In general, dies with round geometry are clamped using three clamping elements for each half, whereas dies with square or rectangular geometry are clamped using four clamping elements for each half

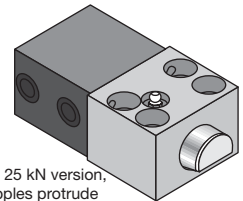
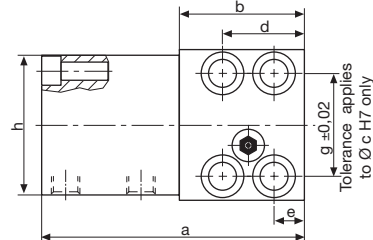
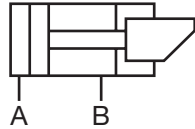
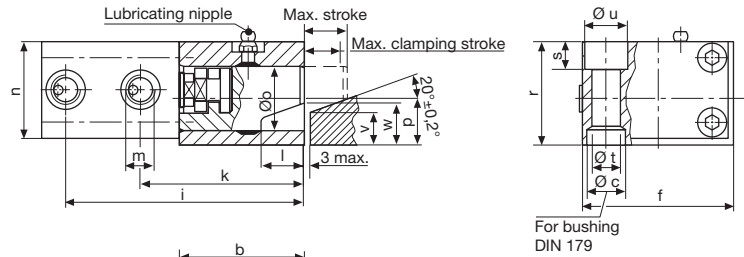


Wedge clamp, double-acting without position monitoring

Wedge clamp, double-acting for dies with tapered clamping edge

Clamping bolt with 20° chamfer, design without proximity switch

Resistant to temperatures of up to 160°C (for higher temperatures, please consult us)



* In the case of the 25 kN version, the lubricating nipples protrude by 5 mm and are offset by 9.5 mm

* Clamping force

This is the force that the clamping element applies to the workpiece at maximum operating pressure. The die is clamped on the fixture plate by means of this force. Under normal conditions, the external forces acting on the die (i.e. the ejecting force or die cushion force) shall not exceed the totality of the clamping forces of the elements.

** Perm. retention force

This is the holding power of clamping element and fastener (screw property class 8.8.). The above data is based on the condition that the appropriate tightening torque has been applied, and that material and geometry of the fixtures are suitable for the purpose. It must be ensured that in cases of emergency, e.g. workpiece jammed in the die, the totality of the retention forces of the elements is not exceeded.

Max. clamping force *	(kN)	25	50	100	160	250	400	630
Perm. retention force**	(kN)	35	65	130	210	320	520	820
Screw property class 8.8								
Max. operating pressure	(bar)	350	275	350	350	350	350	350
Cylinder-Ø	(mm)	25	40	50	63	80	100	125
Max. stroke	(mm)	20	25	25	30	32	40	40
Clamping stroke (from/to)	(mm)	15 - 18	18 - 22	19 - 22	23 - 27	24 - 29	30 - 36	30 - 36
Max. oil consumption	(cm ³)	10	31	49	94	161	314	491
a	(mm)	122	157	190	227	267	310	375
b	(mm)	58	78	100	125	150	180	225
Ø c H7 x depth	(mm)	18/7	26/9	30/11	35/11	48/13	55/16	62/16
d	(mm)	38	46	58	75	78	95	108
e	(mm)	14	16	20	25	26	32	38
f	(mm)	70	95	120	150	200	240	280
g	(mm)	48	65	85	106	140	180	210
h	(mm)	65	85	100	125	160	200	230
i	(mm)	111	146	177	210	246	285	344
k	(mm)	76	102	127	151	184	215	272
l	(mm)	20	25	26	32	40	45	50
m	(mm)	G 1/4	G 1/4	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2
n	(mm)	45	63	75	95	120	150	180
Ø o	(mm)	30	40	55	70	80	100	125
p	(mm)	21,5	28	37	49	55	75	85
r	(mm)	48	65	80	105	125	160	190
s	(mm)	13	18	20	26	32	38	44
Ø t	(mm)	13	17	21	26	33	39	45
Ø u	(mm)	20	26	32	40	48	57	66
v	(mm)	15	18	25	30	30	50	60
w	(mm)	19,5	23,5	30,5	37	38	60	70
Screw DIN 912-8.8 (4 pieces)		M 12	M 16	M 20	M 24	M 30	M 36	M 42
Tightening torque	(Nm)	86	210	410	710	1450	2520	4050
Weight	(kg)	2,4	5,8	10,6	21	40	74	125
Part no.		4604 620	4604 621	4604 622	4604 623	4604 634	4604 635	4604 636
Accessories								
Bushings DIN 179		12 x 12	17 x 16	21 x 20	26 x 20	32 x 25	38 x 30	44 x 30
Part no.		3300 285	3300 287	3300 288	3300 289	3300 420	3300 430	3300 440



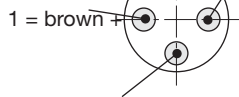
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Wedge clamp, double-acting with position monitoring (lateral fastening)

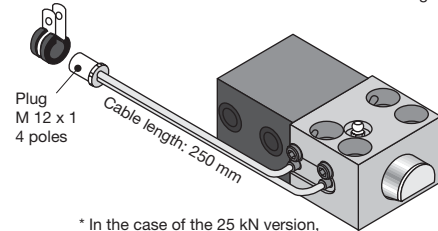
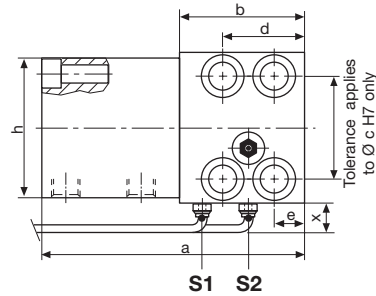
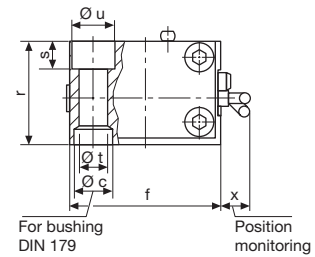
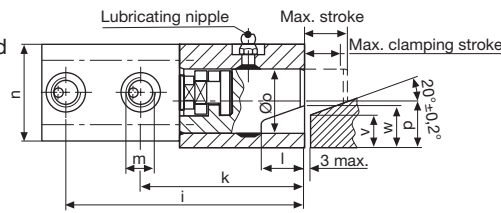
The inductive proximity switches are installed in the guide housing. They are activated by the clamping bolt. The contact areas are designed in such a way that one signal each is provided for the bolt in its initial position and for the bolt in the clamping position. Resistant to temperatures of up to 100°C. Cable length: 250 mm 4-pole plug

Pin assignment for three-wire proximity switches:

2 = white, S2



4 = black, S1



* In the case of the 25 kN version, the lubricating nipples protrude by 5 mm and are offset by 9.5 mm

Connecting lead with screw coupling:
cable length 5 m **part no. 5700013**
cable length 10 m **part no. 5700014**

* Clamping force ** Perm. retention force (for details, please see 2.2400, page 2), 120°C for 1000 working hours.

Max. clamping force *	(kN)	25	50	100	160	250	400	630
Perm. retention force**	(kN)	35	65	130	210	320	520	820
Screw property class 8.8								
Max. operating pressure	(bar)	350	275	350	350	350	350	350
Cylinder-Ø	(mm)	25	40	50	63	80	100	125
Max. stroke	(mm)	20	25	25	30	32	40	40
Clamping stroke (from/to)	(mm)	15 - 18	18 - 22	19 - 22	23 - 27	24 - 29	30 - 36	30 - 36
Max. oil consumption	(cm ³)	10	31	49	94	161	314	491
a	(mm)	122	157	190	227	267	310	375
b	(mm)	58	78	100	125	150	180	225
Ø c H7 x depth	(mm)	18/7	26/9	30/11	35/11	48/13	55/16	62/16
d	(mm)	38	46	58	75	78	95	108
e	(mm)	14	16	20	25	26	32	38
f	(mm)	70	95	120	150	200	240	280
g	(mm)	48	65	85	106	140	180	210
h	(mm)	65	85	100	125	160	200	230
i	(mm)	111	146	177	210	246	285	344
k	(mm)	76	102	127	151	184	215	272
l	(mm)	20	25	26	32	40	45	50
m	(mm)	G 1/4	G 1/4	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2
n	(mm)	45	63	75	95	120	150	180
Ø o	(mm)	30	40	55	70	80	100	125
p	(mm)	21,5	28	37	49	55	75	85
r	(mm)	48	65	80	105	125	160	190
s	(mm)	13	18	20	26	32	38	44
Ø t	(mm)	13	17	21	26	33	39	45
Ø u	(mm)	20	26	32	40	48	57	66
v	(mm)	15	18	25	30	30	50	60
w	(mm)	19,5	23,5	30,5	37	38	60	70
x	(mm)	12	5	0	0	0	0	0
Screw DIN 912-8.8 (4 pieces)		M 12	M 16	M 20	M 24	M 30	M 36	M 42
Tightening torque	(Nm)	86	210	410	710	1450	2520	4050
Weight	(kg)	2,4	5,8	10,6	21	40	74	125
Part no.		8.2403.0500	8.2404.0500	8.2405.0500	8.2406.0500	8.2407.0500	8.2408.0500	8.2409.0500
Accessories								
Bushings DIN 179		12 x 12	17 x 16	21 x 20	26 x 20	32 x 25	38 x 30	44 x 30
Part no.		3300 285	3300 287	3300 288	3300 289	3300 420	3300 430	3300 440

2.24001

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Subject to technical modification



Wedge clamp, with position monitoring (rear side fastening)

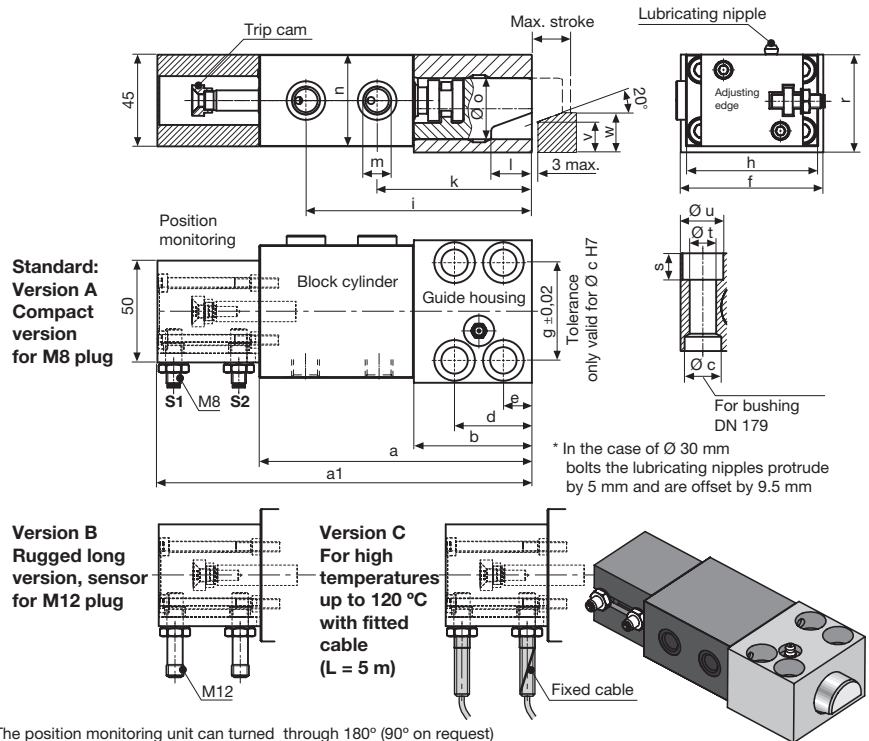
Wedge clamp with adjustable electronic position monitoring, rear side fastening.

Inductive proximity switches installed in the flanged housing. The proximity switches are activated by a trip cam which is connected to the piston rod.

The housing can be turned through 180°.

Position monitoring is available in 3 versions:

- as a compact version for M8 plug
- as a rugged long version for M12 plug
- as a version for high temperatures up to 120°C with fitted cable (L = 5 m).



The position monitoring unit can be turned through 180° (90° on request)
The block cylinder can be turned through 180°

Technical data for position monitoring

Operating voltage:	10 ... 30 V DC
Constant current:	200 mA
Tripping function:	NO
Type:	PNP
Nominal tripping distance:	1.5 mm
Ambient temperature:	-25 +70°C
Variante C	up to +120°C
Protective system:	IP 67

* Clamping force ** Permanent retention force (Explanations see 2.2400 page 2)

Max. clamping force *	(kN)	25	50	100	160	250	400	630
Perm. retention force**	(kN)	35	65	130	210	320	520	820
Screw property class 8.8								
Max. operating pressure	(bar)	350	275	350	350	350	350	350
Cylinder Ø	(mm)	25	40	50	63	80	100	125
Max. stroke	(mm)	20	25	25	30	32	40	40
Clamping stroke	(mm)	15-18	18-22	19-22	23-27	24-29	30-36	30-36
a	(mm)	134	168	200	235	270	310	375
a1	(mm)	184	218	250	285	330	370	435
b	(mm)	58	78	100	125	150	180	225
Ø c H7 x depth	(mm)	18/7	26/9	30/11	35/11	48/13	55/16	62/16
d	(mm)	38	46	58	75	78	95	108
e	(mm)	14	16	20	25	26	32	38
f	(mm)	70	95	120	150	200	240	280
g	(mm)	48	65	85	106	140	180	210
h	(mm)	65	85	100	125	160	200	230
i	(mm)	111	146	177	210	246	285	344
k	(mm)	76	102	127	151	184	215	272
l	(mm)	20	25	26	32	40	45	50
m (connecting thread)	(mm)	(4x) G 1/4	(4x) G 1/4	(4x) G 1/4	(4x) G 1/2	(2x) G 1/2	(2x) G 1/2	(2x) G 1/2
n	(mm)	45	63	75	95	120	150	180
Ø o	(mm)	30	40	55	70	80	100	125
p	(mm)	21,5	28	37	49	55	75	85
r	(mm)	48	65	80	105	125	160	190
s	(mm)	13	18	20	26	32	38	44
Ø t	(mm)	13	17	21	26	33	39	45
Ø u	(mm)	20	26	32	40	48	57	66
v	(mm)	15	18	25	30	30	50	60
w	(mm)	19,5	23,5	30,5	37	38	60	70
Screw DIN 912-8.8 (4 pieces)		M 12	M 16	M 20	M 24	M 30	M 36	M 42
Tightening torque	(Nm)	86	210	410	710	1450	2520	4050
Weight	(kg)	3,0	6,5	11,4	21,7	41	74,7	126
Part no.		4604 670	4604 671	4604 672	4604 673	4604 674	4604 675	4604 676
Always add the desired sensor version to the part no., e.g., 4604 670 B								
Accessories Bushings DIN 179		12 x 12	17 x 16	21 x 20	26 x 20	32 x 25	38 x 30	44 x 30
Part no.		3300 285	3300 287	3300 288	3300 289	3300 420	3300 430	3300 440



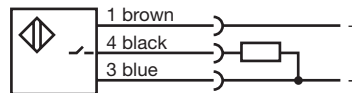
Description

The position monitoring unit is fixed to the cylinder bottom by means of screws. It can be fastened in a position turned by 180°. Various versions are available to suit different applications. The trip cam for activating the proximity switches is positioned on the continuous piston rod. The tripping position is adjusted by displacing the proximity switches in the lateral slot. The proximity switches are activated by the trip cam within a stroke of approx. 6 mm. The minimum distance of the tripping positions depends on the type of switch and is indicated in the table.

Function

1. Function message of the unclamped position, i.e. the piston rod has retracted.
2. Message of the clamped position, i.e. the piston rod has extended and is in the clamping range.

Wiring diagram



Important information

The position monitoring unit is not suitable for use in areas with coolant. Also, additional covers must be provided to protect the system from any swarf.

Planning - Conditions of application - Protective measures

Careful planning is of great importance. The conditions of application and the protective measures must be taken into consideration and ensured.

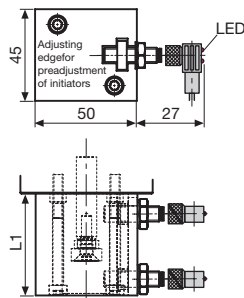
Please contact us for more detailed information.

Technical data of inductive proximity switches

Operating voltage:	10 ... 30 V DC
Residual ripple:	max. 15%
Tripping function:	NO
Type:	PNP
Material of housing:	corrosion-proof steel
Protective system (DIN 40050):	IP 67

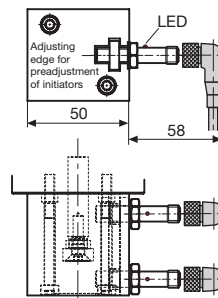
Version A (standard)

Compact version M8



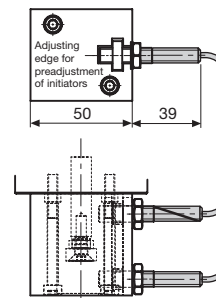
Version B

Long version M12



Version C

High ambient temperatures



Ambient temperature TA	-25° ... +70°C	-25° ... +70°C	-25° ... +120°C
Min. distance of tripping position (mm)	8	13	8
Type of connection	plug	plug	Teflon cable 3 x 0.14 mm ²
LED visualisation of function	in the plug	yes	no
Max. constant current (mA)	200	200	200 - (from 70°C) 100
Nominal tripping distance (mm)	1.5	1.5	2
Short-circuit proof	yes	yes	no
Connecting cable (m)	5	5	3
Proximity switch	Part no. 6.3829.0980	2.5012.0064	6.3829.0870
Plug with cable	Part no. 3829099	2.0975.0024	fixed

L1 complete	(mm)	50	50	50
Position monitoring up to 30 mm total stroke (without a plug) up to type 4604 673	Part no.	7.6282.0010 A	7.6282.0010 B	7.6282.0010 C
L1 complete	(mm)	60	60	60
Position monitoring up to 50 mm total stroke (without a plug) from type 4604 674	Part no.	7.6282.0011 A	7.6282.0011 B	7.6282.0011 C



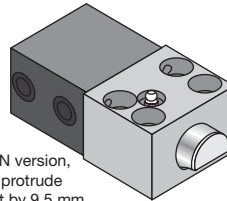
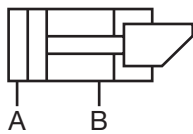
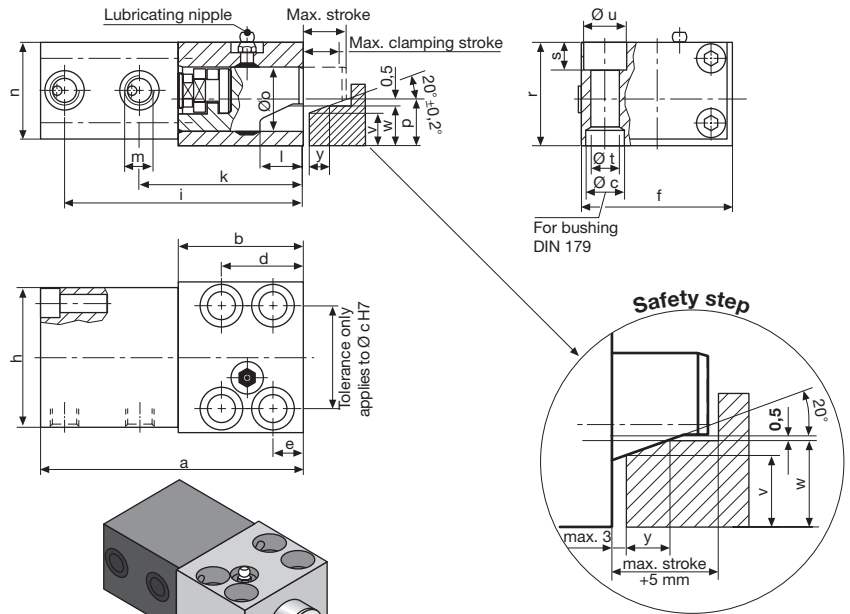
Wedge clamp with safety step

A high degree of safety:

This design features a clamping bolt with an additional accommodation surface, which is parallel to the clamping edge.

Should the pressure drop (machine failure or standstill), the upper die will lower onto the safety step where it is safely held in position.

Resistant to temperatures of up to 160°C (higher temperatures on request)



* In the case of the 25 kN version, the lubricating nipples protrude by 5 mm and are offset by 9.5 mm

Preferably to be used on the slide!

*Clamping force **permissible retention force (for details, see 2-2400, page 2)

Max. clamping force*	(kN)	25	50	100	160	250	400	630
Perm. operating pressure**	(kN)	35	65	130	210	320	520	820
Screw property class 8.8								
Max. operating pressure	(bar)	350	275	350	350	350	350	350
Cylinder Ø	(mm)	25	40	50	63	80	100	125
Max. stroke	(mm)	20	25	25	30	32	40	40
Clamping stroke	(mm)	15 - 18	18 - 22	19 - 22	23 - 27	24 - 29	30 - 36	30 - 36
Max. oil consumption	(cm ³)	10	31	49	94	161	314	491
a	(mm)	122	157	190	227	267	310	375
b	(mm)	58	78	100	125	150	180	225
Ø c H7 x depth	(mm)	18/7	26/9	30/11	35/11	48/13	55/16	62/16
d	(mm)	38	46	58	75	78	95	108
e	(mm)	14	16	20	25	26	32	38
f	(mm)	70	95	120	150	200	240	280
g	(mm)	48	65	85	106	140	180	210
h	(mm)	65	85	100	125	160	200	230
i	(mm)	111	146	177	210	246	285	344
k	(mm)	76	102	127	151	184	215	272
l	(mm)	20	25	26	32	40	45	50
m	(mm)	G 1/4	G 1/4	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2
n	(mm)	45	63	75	95	120	150	180
Ø o	(mm)	30	40	55	70	80	100	125
p	(mm)	21,5	28	37	49	55	75	85
r	(mm)	48	65	80	105	125	160	190
s	(mm)	13	18	20	26	32	38	44
Ø t	(mm)	13	17	21	26	33	39	45
Ø u	(mm)	20	26	32	40	48	57	66
v	(mm)	15	18	25	30	30	50	60
w	(mm)	17,5	21,2	28,2	34,7	35,8	57,8	67,8
y	(mm)	7	9	10	14	14	20	21
Screw DIN 912-8.8 (4 pcs.)		M 12	M 16	M 20	M 24	M 30	M 36	M 42
Tightening torque	(Nm)	86	210	410	710	1450	2520	4050
Weight	(kg)	2,4	5,8	10,6	21	40	74	125
Part no.		8.2403.1000	8.2404.1000	8.2405.1000	8.2406.1000	8.2407.1000	8.2408.1000	8.2409.1000
Accessories								
Bushings DIN 179		12 x 12	17 x 16	21 x 20	26 x 20	32 x 25	38 x 30	44 x 30
Part no.		3300 285	3300 287	3300 288	3300 289	3300 420	3300 430	3300 440



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Wedge clamp with safety step + position monitoring

A high degree of safety:

This design features a clamping bolt with an additional accommodating surface which is parallel to the clamping edge. Should the pressure drop (machine failure or standstill), the upper die will lower onto the safety step where it is safely held in position.

Resistant to temperatures of up to 100°C***

Cable length: 250 mm

4-pole plug

Pin assignment:

2 = white, S2

3 = blue -

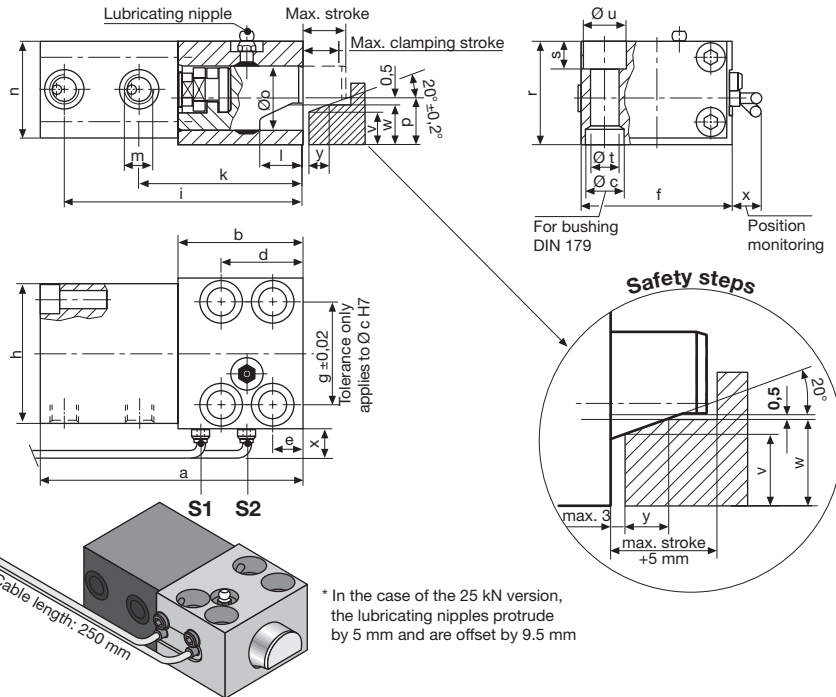
1 = brown +

4 = black, S1

Connecting lead with screw coupling:

Cable length 5 m - **part no. 5700013**

Cable length 10 m - **part no. 5700014**



*Clamping force **permissible retention force (for details, see 2.2400, page 2), *** 120°C for 1000 working hours

Max. clamping force*	(kN)	25	50	100	160	250	400	630
Perm. operating pressure**	(kN)	35	65	130	210	320	520	820
Screw property class 8.8								
Max. operating pressure	(bar)	350	275	350	350	350	350	350
Cylinder Ø	(mm)	25	40	50	63	80	100	125
Max. stroke	(mm)	20	25	25	30	32	40	40
Clamping stroke	(mm)	15 - 18	18 - 22	19 - 22	23 - 27	24 - 29	30 - 36	30 - 36
Max. oil consumption	(cm ³)	10	31	49	94	161	314	491
a	(mm)	122	157	190	227	267	310	375
b	(mm)	58	78	100	125	150	180	225
Ø c H7 x depth	(mm)	18/7	26/9	30/11	35/11	48/13	55/16	62/16
d	(mm)	38	46	58	75	78	95	108
e	(mm)	14	16	20	25	26	32	38
f	(mm)	70	95	120	150	200	240	280
g	(mm)	48	65	85	106	140	180	210
h	(mm)	65	85	100	125	160	200	230
i	(mm)	111	146	177	210	246	285	344
k	(mm)	76	102	127	151	184	215	272
l	(mm)	20	25	26	32	40	45	50
m	(mm)	G 1/4	G 1/4	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2
n	(mm)	45	63	75	95	120	150	180
Ø o	(mm)	30	40	55	70	80	100	125
p	(mm)	21,5	28	37	49	55	75	85
r	(mm)	48	65	80	105	125	160	190
s	(mm)	13	18	20	26	32	38	44
Ø t	(mm)	13	17	21	26	33	39	45
Ø u	(mm)	20	26	32	40	48	57	66
v	(mm)	15	18	25	30	30	50	60
w	(mm)	17,5	21,2	28,2	34,7	35,8	57,8	67,8
x Position monitoring	(mm)	12	5	0	0	0	0	0
y	(mm)	7	9	10	14	14	20	21
Screw DIN 912-8.8 (4 pcs.)		M 12	M 16	M 20	M 24	M 30	M 36	M 42
Tightening torque	(Nm)	86	210	410	710	1450	2520	4050
Weight	(kg)	2,4	5,8	10,6	21	40	74	125
Part no.		8.2403.2000	8.2404.2000	8.2405.2000	8.2406.2000	8.2407.2000	8.2408.2000	8.2409.2000
Accessories								
Bushings DIN 179		12 x 12	17 x 16	21 x 20	26 x 20	32 x 25	38 x 30	44 x 30
Part no.		3300 285	3300 287	3300 288	3300 289	3300 420	3300 430	3300 440

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Subject to technical modification