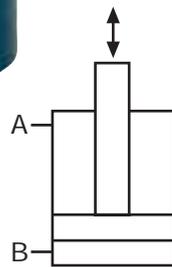


Pull clamping element double-acting



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Applications:

- ▶ integrated in press rams
- ▶ integrated in press bed
- ▶ in machine tools and equipment
- ▶ when the available space is limited

Function:

Double acting pull clamping element for clamping dies on a press bed or press ram. The die must be provided with T-slots for the tie rod. It is important that the die is correctly pushed into the press, and is parallel with the clamping elements. The clamping and unclamping positions are monitored by inductive proximity switches. The tie rod and the piston are hardened and ground, and the hydraulic system is protected against dirt by wiper rings.

Special features:

- ▶ Position monitoring ensures high functional safety
- ▶ Ideal power transmission with centrally arranged clamping elements
- ▶ Compact design
- ▶ Clamping force of between 60 and 164 kN
- ▶ Optimum use of bed and ram surfaces
- ▶ Die clamping in barely accessible positions
- ▶ Compensates for large clamping edge tolerances (± 1.5 mm)

For power units

please see product group 7

For accessories

please see product group 11



Pull clamping elements in the press bed of a double column press. Easy die positioning is ensured by roller blocs in the T-slots of the press bed.



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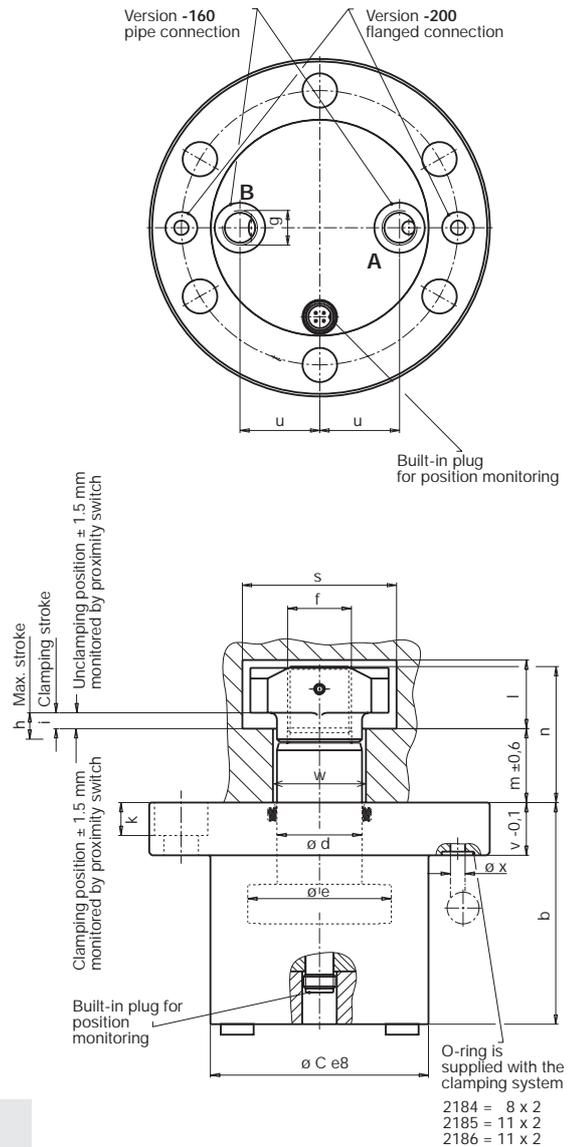


Pull clamping element double-acting

Max. operating pressure 400 bar

Other sizes and special versions are available on request.

Pulling force at 400 bar (kN)	60	104	164
Pulling force at 100 bar (kN)	15	26	41
Piston $\varnothing e$ (mm)	54	70	88
Piston rod $\varnothing d$ (mm)	32	40	50
Max. stroke h (mm)	10	10	10
Oil consumption cl. (cm ³)	10	16	25
Oil consumption uncl. (cm ³)	15	23	37
a (mm)	128	160	192
b (mm)	84	104	122
c (mm)	82	104	126
f (mm)	M24x1,5	M30x1,5	M36 x 1,5
g (mm)	G 1/4	G 3/8	G 3/8
i (mm)	6	6	6
k (mm)	13	17	21
l (mm)	26	35	41
m (mm)	28	37	48
n (mm)	51	68	85
o (mm)	20	26	33
p (mm)	13	18	22
q (mm)	□ 52	∅ 74	□ 84
r (mm)	65	74	95
s (mm)	58	82	92
t (mm)	104	130	156
u (mm)	30	38	45
v (mm)	20	28	35
w (mm)	38	48	58
x (mm)	5,5	7	7
Weight (kg)	4,4	9	15
Part no.			
with pipe connection	2184-160	2185-160	2186-160
with flanged connection	2184-200	2185-200	2186-200

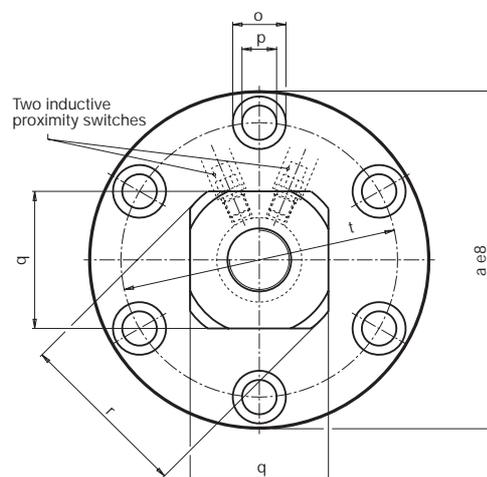


Please note!

The piston rod is made from tempered steel. In the case of aggressive ambient conditions, a special material will be required.



Clamping of a complete die changing table with pull clamping elements.



4.2180

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Subject to technical modification

Pull clamping element double-acting

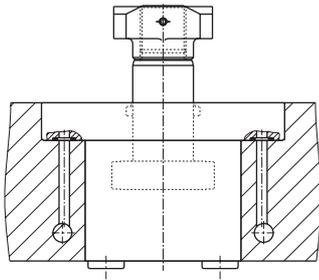


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Recommended installation

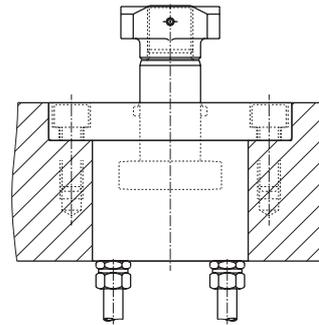
In order to ensure ease of servicing, two alternatives are offered for connecting the pull clamps.

Flanged connection



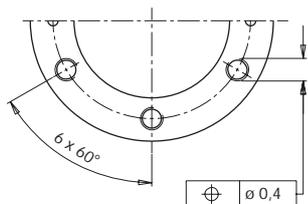
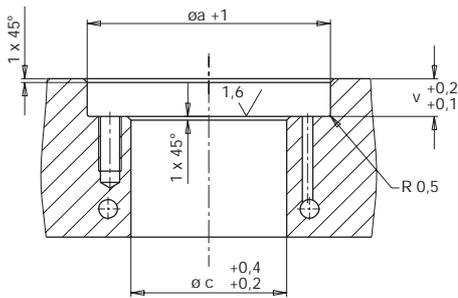
Hydraulic oil is fed through the drilled holes in the bed and in the ram. There are no exposed conduits or screw fittings. O-rings supplied with the clamping element provide for tight fitting. Easy installation, ease of servicing.

Pipe connection



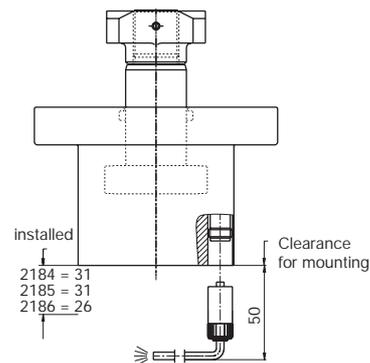
Pipes are recommended in applications where screw fittings are easily accessible and where pipes do not impede installation and dismantling of the pull clamping elements.

Drilled hole for flanged or pipe connection



Flanged connection requires a plain and neat surface.

Connection of the monitoring system for clamping and unclamping position

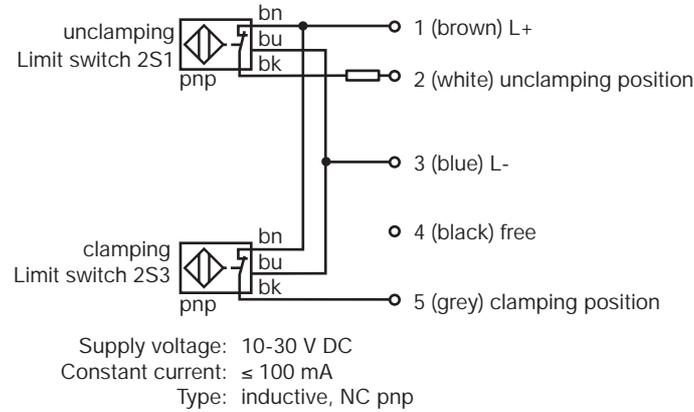


Both proximity switches are connected to the base of the pull clamp through a connecting lead with a screw coupling [IP 67]. The connecting lead must be ordered separately. Further installation may be carried out using a distribution block with an LED display, see page 4

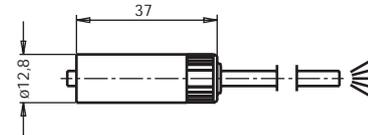


Electrical installation

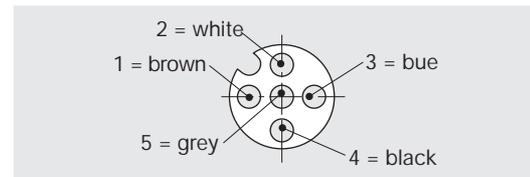
Pin assignment for three-wire proximity switches



5-pole connecting lead with screw coupling



Cable length 5 m **Part no. 5700-013**
Cable length 10 m **Part no. 5700-014**



Distribution block with LED display for connecting 4 clamping elements

Easy installation!

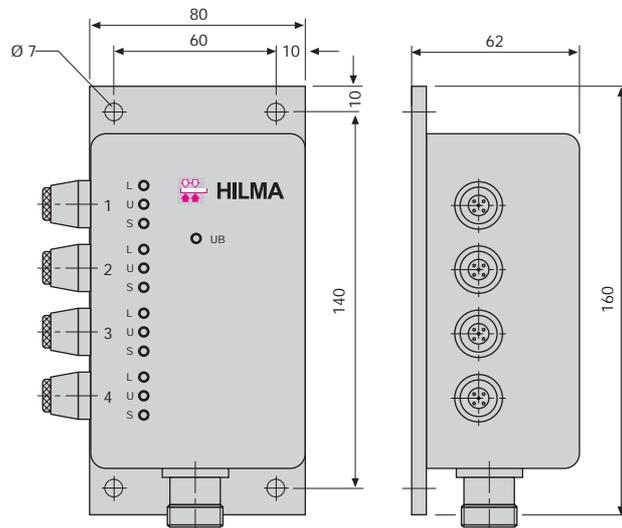
LED display of the unclamping, change-over and clamping position of each clamping element.

Scope of delivery: 1 distribution block
4 coupler plugs, 5 poles
1 coupler plug, 16 poles

Wiring of output plug:

- | | |
|---------------------|---------------|
| Pin 1 = L+ | Pin 15 = free |
| Pin 2 = L- | Pin 16 = free |
| Pin 3 = 1L | |
| Pin 4 = do not use | |
| Pin 5 = 1S | |
| Pin 6 = 2L | |
| Pin 7 = do not use | |
| Pin 8 = 2S | |
| Pin 9 = 3L | |
| Pin 10 = do not use | |
| Pin 11 = 3S | |
| Pin 12 = 4L | |
| Pin 13 = do not use | |
| Pin 14 = 4S | |

L = Unclamping position
U = not assigned
S = Clamping position



Part no. 5700-015

Hydraulic installation

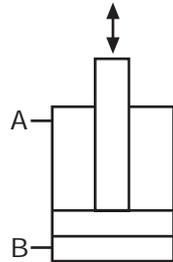
Read the operating instructions before commissioning the system.

Other parameters and recommendations are given in chapter no. 1 "General information".

Pull clamping element with T-slot double-acting



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Applications:

- ▶ installation in press rams
- ▶ installation in press beds
- ▶ integrated in a spacer plate
- ▶ when the available space is limited

Function:

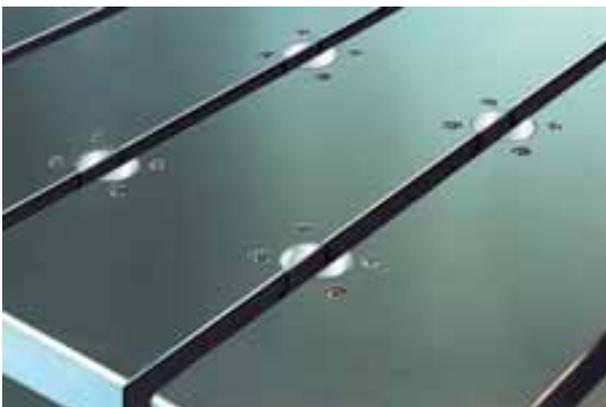
The pull clamping element with a T-slot facilitates the standardisation of dies using T-slot bars or T-nuts which are fastened to the die. The hydraulic oil is fed either through the drilled holes in the bed and the ram or through pipes.

The tie rod and the piston are hardened and ground, and the hydraulic system is protected against dirt by wiper rings.

Special features:

- ▶ Compact design
- ▶ The bed and ram can also be used for manual clamping
- ▶ Ideal power transmission with centrally arranged clamping elements
- ▶ Optimum use of bed and ram surfaces

For power units
please see product group 7



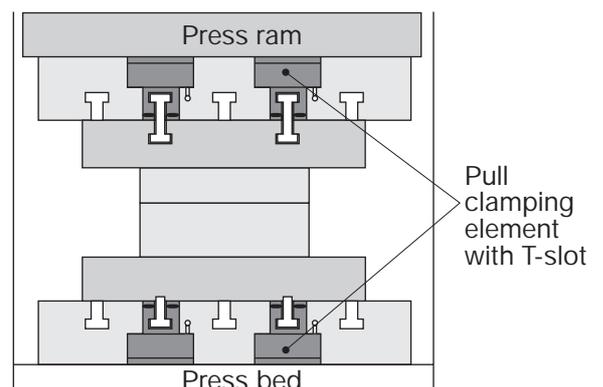
Pull clamping elements with T-slot installed in a press bed

Example of application:

Die clamping in a press

Ram: Clamping of the upper die using double T-slot bars

Bed: Clamping of the lower die using firmly mounted T-slot bars





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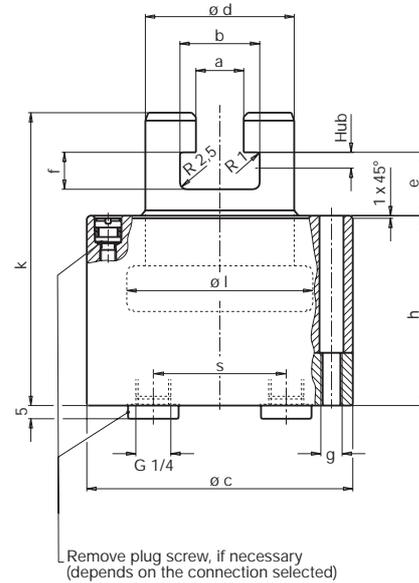
Pull clamping element with T-slot double-acting

Max. operating pressure 400 bar

Other sizes and special versions are available on request.

For T-slot to DIN 650	18	22	28
Clamping force at 400 bar (kN)	55,2	76	144
Clamping force at 100 bar (kN)	13,8	19	36
Piston Ø l (mm)	70	80	105
Piston rod Ø d H7/f7 (mm)	56	63	80
Stroke (mm)	6	6	6
Oil consumption cl. (cm ³)	9	12	22
Oil consumption uncl. (cm ³)	23	30	52
a (mm)	18	22	28
b (mm)	30	37	46
c (mm)	100	115	150
e (mm)	24	28	32
f (mm)	14	18	22
g (mm)	M8	M10	M12
h (mm)	72	78	78
k (mm)	111	125	135
n (mm)	15,5	19,5	25,5
o ± 0,05 (mm)	42	47,5	62,5
p (mm)	29,7	33,6	44,2
s (mm)	50	56	70
Weight (kg)	4,1	5,8	10
Part no	2354-050	2355-050	2356-050

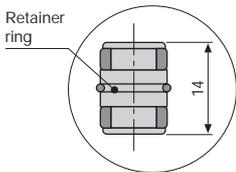
Pull clamping element



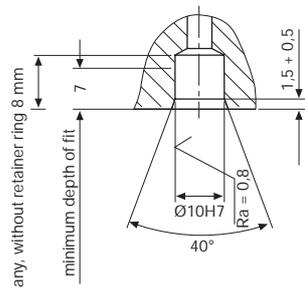
Accessories (for ordering with the clamping elements):

Plug-in connector for flanged connection
Part no. 9210-132

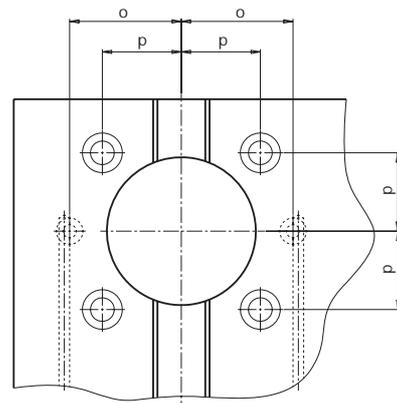
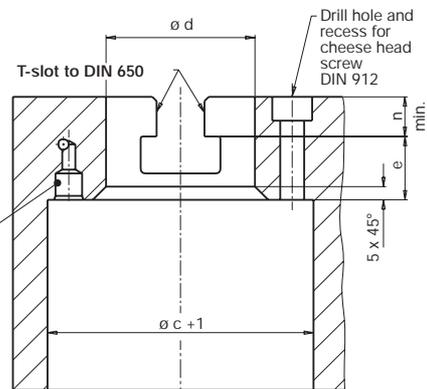
Plug-in connector



Accommodation space



Drilled location hole



Important information

Make sure that the T-slot of the clamping piston is subject to an axial load only. The T-nut must be in contact over its complete surface. Transverse loads must be avoided.

In view of the surface ratio of the pull clamping elements, only check valves having a minimum ratio of 3.5 : 1 may be used for maintaining the clamping force.

4.2350

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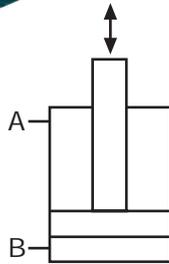
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Subject to technical modification

Pull clamping element with T-slot double-acting



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Applications:

- ▶ installation in press rams
- ▶ installation in press bed
- ▶ integrated in spacer plate
- ▶ when the available space is limited

Function:

The pull clamping element with a T-slot facilitates significantly the standardisation of dies using T-slot bars or T-nuts which are fastened to the die. The hydraulic oil is fed either through the drilled holes in the bed and the ram or through pipes. The tie rod and the piston are hardened and ground, and the hydraulic system is protected against dirt by wiper rings.

Special features:

- ▶ Installation directly in the bed or in the ram
- ▶ Compact design
- ▶ Dies are easily adaptable
- ▶ The bed and ram can also be used for manual clamping
- ▶ Ideal power transmission with centrally arranged clamping elements
- ▶ Optimum use of bed and ram surfaces

For power units

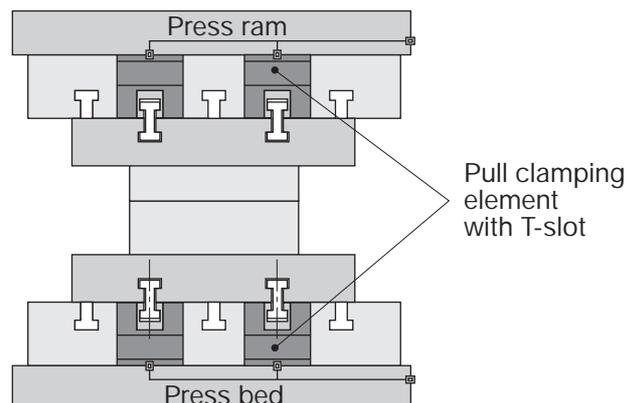
please see product group 7

Example of application:

Die clamping in a press

Ram: Clamping of the upper die using double T-slot bars

Bed: Clamping of the lower die using firmly mounted T-slot bars





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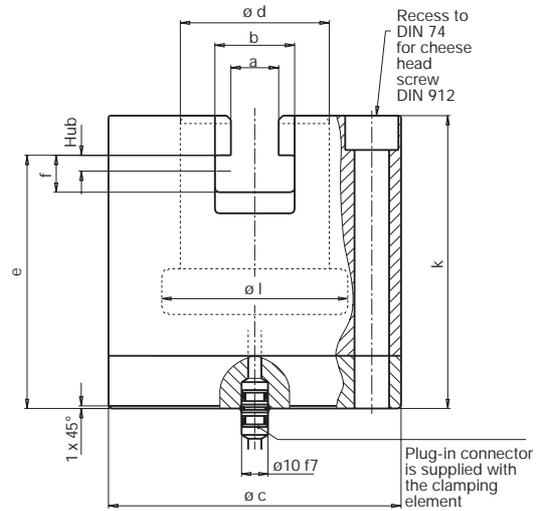
Pull clamping element with T-slot double-acting

Max. operating pressure 400 bar

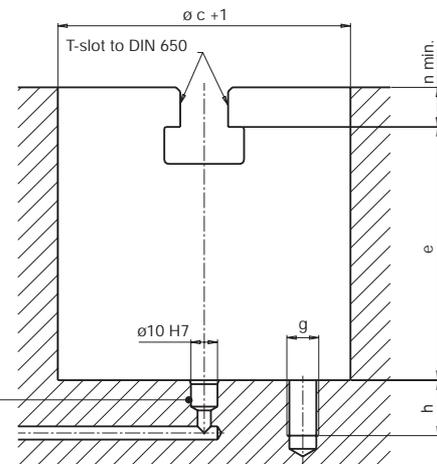
Other sizes and special versions are available on request.

For T-slot to DIN 650	18	22	28
Clamping force at 400 bar (kN)	55,2	76	144
Clamping force at 100 bar (kN)	13,8	19	36
Piston Ø l (mm)	70	80	105
Piston rod Ø d H7/f7 (mm)	56	63	80
Stroke (mm)	6	6	6
Oil consumption cl. (cm ³)	9	12	22
Oil consumption uncl. (cm ³)	23	30	52
a (mm)	18	22	28
b (mm)	30	37	46
c e 8 (mm)	110	130	166
e (mm)	96	106	110
f (mm)	14	18	22
g (mm)	M12	M16	M20
h (mm)	21	23	27
k (mm)	111	125	135
n (mm)	15,5	19,5	25,5
o (mm)	31,1	36,2	46,7
p ± 0,05 (mm)	15	15	15
Weight (kg)	6,1	9,5	16,6
Part no.	2354-060	2355-060	2356-060
Connection lengthways to the T-slot			
Part no.	2354-065	2355-065	2356-065
Connection crosswise to the T-slot			

Pull clamping element

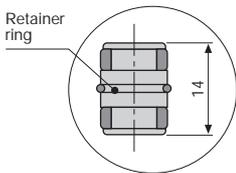


Drilled location hole

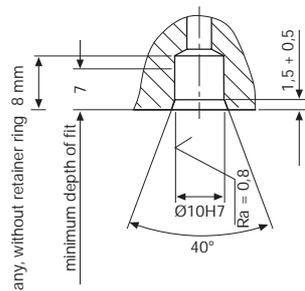


Plug-in connector for flanged connection
Part no. 9210-132
(is supplied with the clamping element)

Plug-in connector



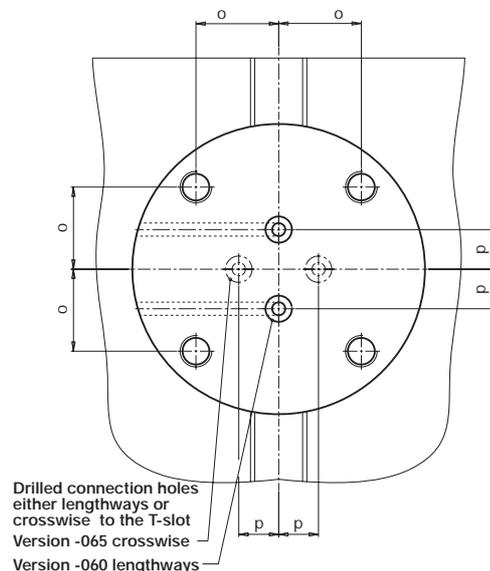
Accommodation space



Type of drilled connection hole for plug-in connector

Important information

Make sure that the T-slot of the clamping piston is subject to an axial load only. The T-nut must be in contact over its complete surface. Transverse loads must be avoided. In view of the surface ratio of the pull clamping elements, only check valves having a minimum ratio of 3.5 : 1 may be used for maintaining the clamping force.



4.2351

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