



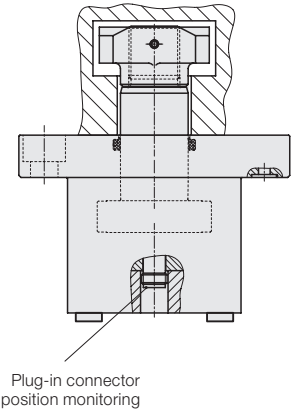
Pull Clamps

Clamping force from 60 up to 164 kN
 double acting, max. operating pressure 400 bar



Advantages

- Ideal force transmission with centrally arranged clamping elements
- Compact design
- High operational safety by position monitoring
- Suitable for large clamping edge tolerances (± 1.5 mm)
- No colliding edges when inserting the dies
- Optimum use of bed and ram surfaces
- Clamping at difficultly accessible points



Application

Double-acting pull clamps for clamping dies on a press bed or press ram. Thanks to the compact design, they are particularly suitable for use in machine tools and plants where space is limited.

Description

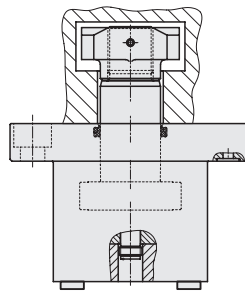
The die must be provided with T-slots for the tie rod. The die must be inserted in the correct position and in parallel with the clamping elements.

Monitoring of the clamping and unclamping position by inductive proximity switches. Tie rod and piston are hardened and ground. The hydraulic system is protected against dirt by wiper rings.

Connecting possibilities

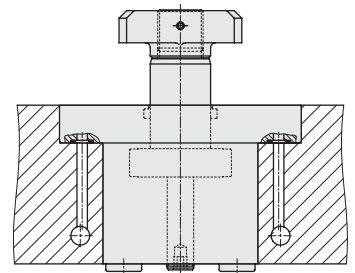
Two alternatives are offered for connecting the pull clamps.

Pipe connection



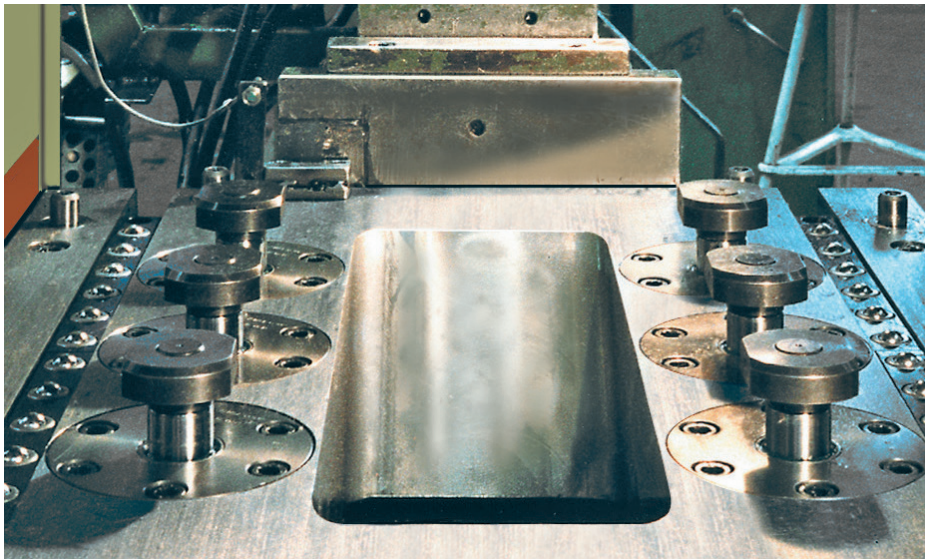
Pipes are recommended in applications where fittings are easily accessible and where pipes do not impede installation and dismantling of the pull clamps.

Manifold-mounting connection



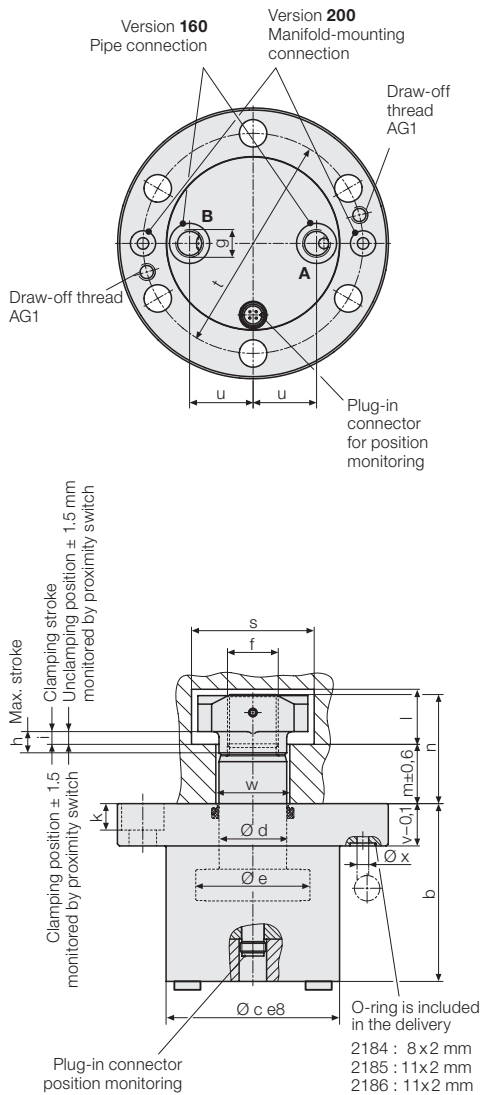
Hydraulic oil is fed through the drilled holes in the bed and in the ram. There are no exposed pipes or fittings. The sealing is made by O-rings supplied with the clamp. Easy installation, ease of servicing.

Application example



Pull clamps in the press bed of a double-column press.

Technical data Dimensions



Technical data

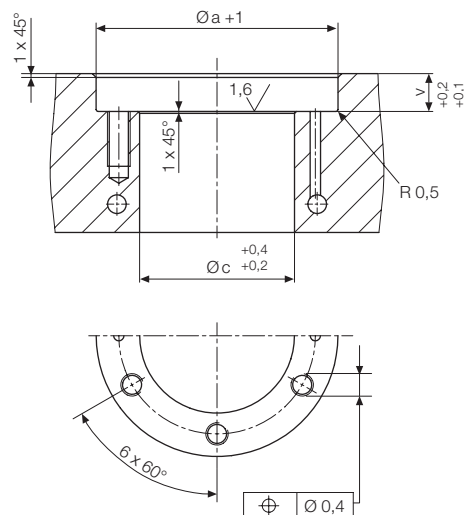
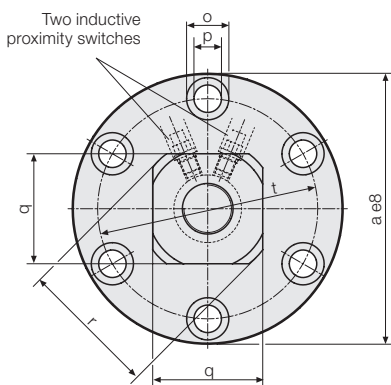
Max. operating pressure 400 bar

Pulling force at 400 bar	[kN]	60	104	164
Pulling force at 100 bar	[kN]	15	26	41
Piston Ø e	[mm]	54	70	88
Rod Ø d	[mm]	32	40	50
Max. stroke h	[mm]	10	10	10
Oil volume clamping	[cm ³]	10	16	25
Oil volume unclamping	[cm ³]	15	23	37
a	[mm]	128	160	192
b	[mm]	84	104	122
c	[mm]	82	104	126
f	[mm]	M24 x 1.5	M30 x 1.5	M36 x 1.5
g		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	Ø 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
Draw-off thread AG1		M8	M10	M12
Weight	[kg]	4.4	9	15
with pipe connection	Part no.	2184 160	2185 160	2186 160
with manifold-mounting connection	Part no.	2184 200	2185 200	2186 200

Further sizes and special versions are available on request

Mounting hole

for manifold-mounting or pipe connection



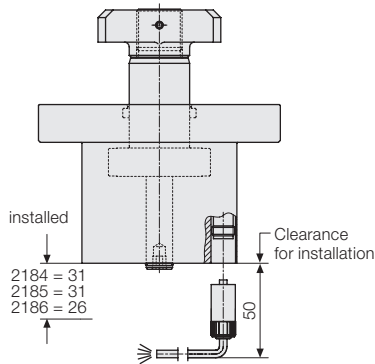
Important note!

The piston rod is made of high alloy steel.
In the case of aggressive ambient conditions, a special version is required.

Manifold-mounting connection requires a plain and neat surface.

Electrical installation

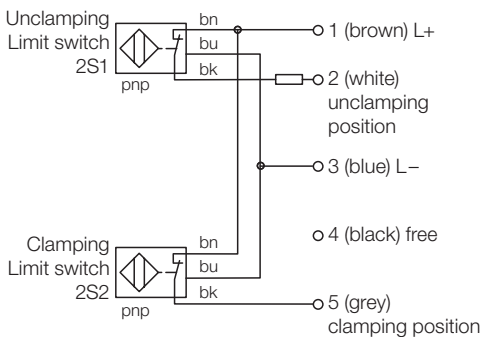
Connection of the monitoring system for clamping and unclamping position



Both proximity switches are connected to the base of the pull clamp through a connecting cable with screw coupling [IP 67]. Please order the connecting cable separately. Further installation may be carried out using a distribution board with an LED display.

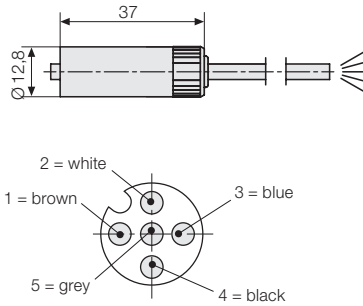
Pin assignment for three-wire proximity switches

Supply voltage	10 – 30 V DC
Constant current	≤ 100 mA
Type	inductive, break contact pnp



Accessories

5-pole connecting cable with screw coupling



Cable length 5 m	Part no. 5700013
Cable length 10 m	Part no. 5700014

Accessories

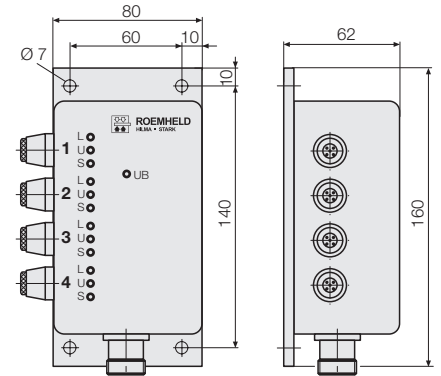
Distribution boards with LED display for the connection of 4 clamps

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

Delivery

- 1 distribution board
- 4 5-pole coupling plug
- 1 16-pole coupling plug

Part no. 5700015



Pin assignment of output plug:

- Pin 1 = L+
- Pin 2 = L-
- 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
- Pin 15 = free
- Pin 16 = free

L = unclamping position
U = not assigned
S = clamping position

Application example



Clamping of a die changing table with pull clamps