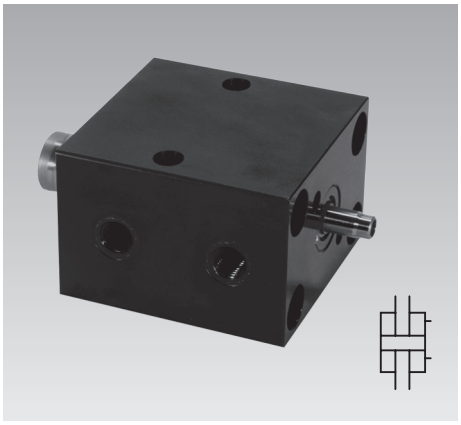
Block Cylinders

double acting, with extended piston rod for position monitoring, max. operating pressure 500 bar



Application

Block cylinders with extended piston rods are used if one or several piston positions have to be controlled. Especially if

- standard inductive proximity switches should be used.
- the piston positions have to be adjusted on the spot.
- control has to be effected at the cylinder bottom due to space restrictions

Description

The piston is equipped with a rod of diameter 10 mm that protrudes at the cylinder bottom. At this rod the customer can fix a control cam that is used to operate any limit switch or sensor.

As an accessory a complete position monitoring system is available. This unit contains a control cam as well as two inductive proximitiy switches. The switches can be displaced in the housing. The housing will be screwed on at the cylinder bottom.

Material

Cylinder body:	high alloy steel, black oxide
Piston:	case-hardening steel,hardened
Sealings:	FKM

Maximum operating temperature

Maximum admissible environmental and cylinder temperature (without accessory): 150 °C. When using accessories, pay attention to the maximum admissible environmental temperature. Especially for limit switches or sensors.

Important notes!

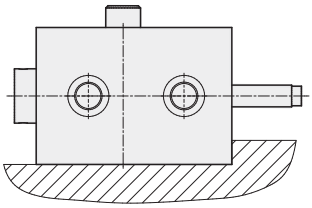
Tolerances, further operating conditions, and other data see data sheet A 0.100.

Advantages

- 8 sizes each with 2 stroke lengths available
- Compact block design
- Many fixing possibilities
- Many connecting possibilities
- Operating temperature up to 150 °C due to standard FKM seals
- Maintenance free
- Complete position monitoring available as accessory
- Position monitoring easily screwable
- Adjustable switching points
- Standard inductive proximity switches with external thread M8x1 can be used
- Inductive proximity switches up to 120 °C available

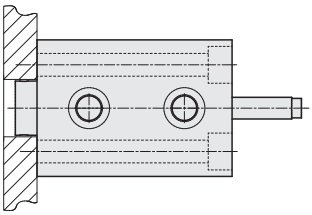
Fixing possibilities

Broad side with 2 cross holes



Cylinders must be backed up for operating pressures exceeding 100 bar.

Rod side with 4 longitudinal holes



Accessories

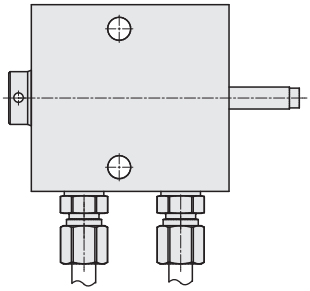
- Contact bolts (see accessories)
- Position monitoring (see page 4)

Available variants

- Stroke reduction by distance bushing
- Keyway at the broad side of the body to support the body
- Internal thread to fix the body at the bottom or front side (instead of longitudinal holes)

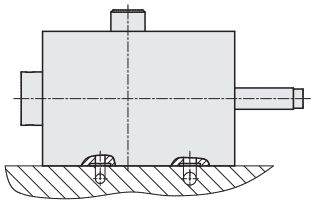
Hydraulic connecting possibilities

Fitting connection

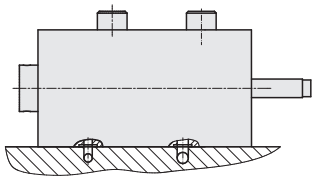


Flange-type version with O-ring sealing

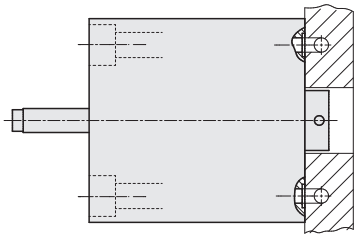
- **Broad side with 2 cross holes**
  Version K - from 20 to 40 mm stroke



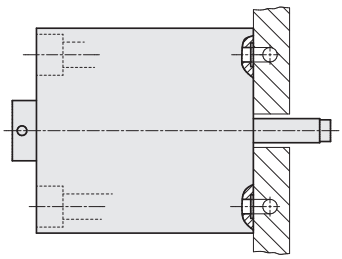
- **Broad side with 4 cross holes**
  Version L - from 50 mm stroke



- **Rod side with 4 longitudinal holes**
  Version S

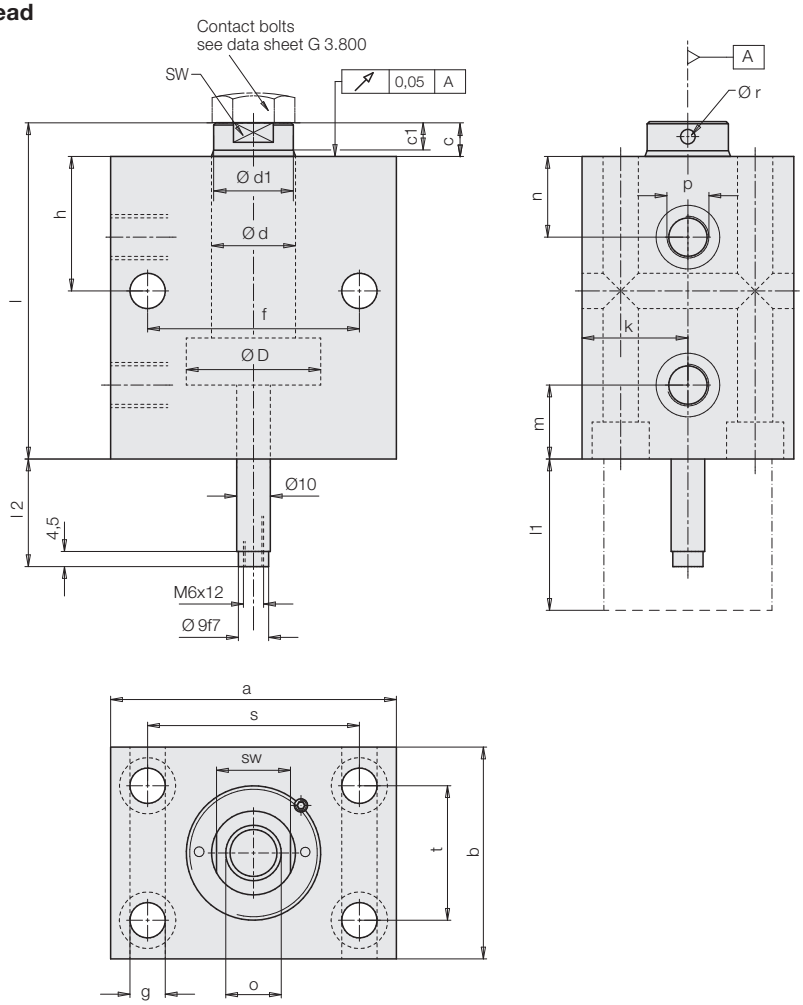


- **Bottom side with 4 longitudinal holes**
  Version B

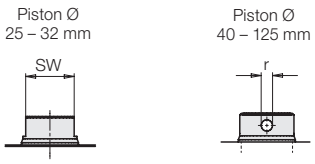


Dimensions

Pipe thread

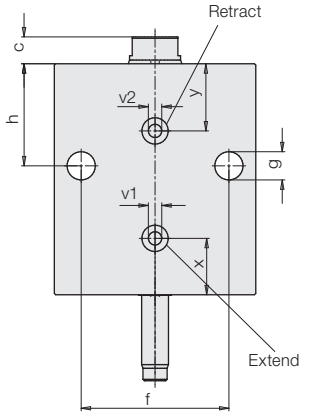


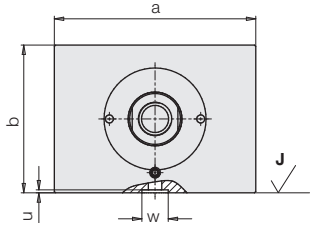
Version of the piston rod



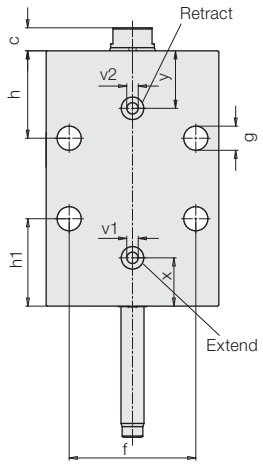
Flange-type version with O-ring sealing

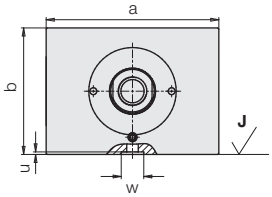
Version K
Broad side with 2 cross holes
from 20 to 40 mm stroke



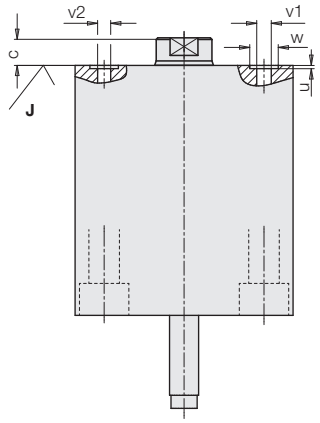


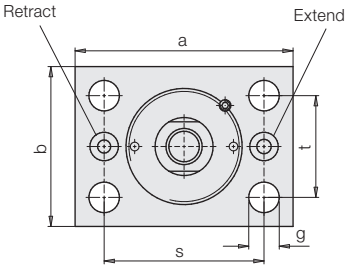
Version L
Broad side with 4 cross holes
from 50 mm stroke



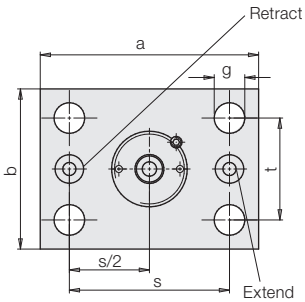


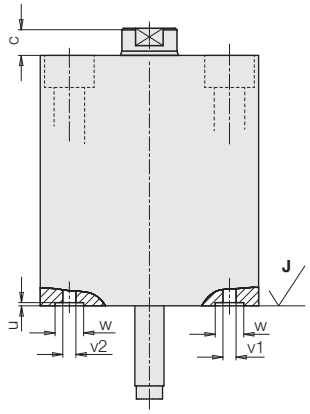
Version S
Rod side
with 4 longitudinal holes





VersionB
Bottom side
with 4 longitudinal holes





J = 0,8 | 0,04 | 100

Piston Ø D		[mm]	25	32	40	50	63	80	100	125
Rod Ø d		[mm]	16	20	25	32	40	50	63	80
Force to push at	100 bar	[kN]	4.1	7.2	11.8	18.9	30.4	49.5	77.8	122
	500 bar	[kN]	20.6	36.2	58.9	94.2	152	247	389	610
Force to pull at	100 bar	[kN]	2.9	4.9	7.7	11.6	18.6	30.6	47.4	72.4
	500 bar	[kN]	14.5	24.5	38.3	58	93	153	237	362
Oil volume per 10 mm stroke										
Stroke to extend		[cm^3]	4.1	7.2	11.8	18.9	30.4	49.5	77.8	122
Stroke to retract		[cm^3]	2.9	4.9	7.7	11.6	18.6	30.6	47.4	72.4
a		[mm]	65	75	85	100	125	160	200	230
b		[mm]	45	55	63	75	95	120	150	180
c		[mm]	7	10	10	10	14	14	15	16
Ø d1 x c1		[mm]	15x5	19x8.6	24x7.1	30.5x6.4	38.7x9.2	48x9.2	61x10.7	78x11.2
f		[mm]	50	55	63	76	95	120	158	180
g		[mm]	8.5	10.5	10.5	13	17	21	25	32
h		[mm]	33	38	40	44	50	60	64	82
h1		[mm]	38	38	38	40	49	-	-	-
k		[mm]	22.5	27.5	31.5	37.5	47.5	60	75	90
m		[mm]	23	22	22	23	25	24	25	31
n		[mm]	18	22	24	27	26	34	35	47
o x depth of thread		[mm]	M10x15	M12x15	M16x25	M20x30	M27x40	M30x40	M42x60	M48x70
p			G1/4	G1/4	G1/4	G1/4	G1/2	G1/2	G1/2	G1/2
r		[mm]	-	-	4	4	4	5	6	8
s		[mm]	50	55	63	76	95	120	158	180
t		[mm]	30	35	40	45	65	80	108	130
u ± 0.05		[mm]	1.1	1.1	1.1	1.1	1.5	1.5	1.5	1.5
v1 extend		[mm]	4	5	6	6	8	8	8	8
v2 retract		[mm]	4	4.5	4.5	6	6	8	8	8
w +0.2		[mm]	9.8	9.8	9.8	10.8	13.8	13.8	13.8	13.8
x		[mm]	19.5	21	21	23	24	24	25	31
y		[mm]	21	25	27	29.5	32	39	40	47
SW		[mm]	13	17	-	-	-	-	-	-
Dimensions O-ring			7x1.5	7x1.5	7x1.5	8x1.5	10x2	10x2	10x2	10x2
Part no. O-ring			**3001077**	**3001077**	**3001077**	**3000275**	**3001078**	**3001078**	**3001078**	**3001078**
Stroke ±1		**[mm]**	**20**	**25**	**25**	**25**	**30**	**32**	**40**	**40**
Total length l±1		[mm]	83	96	100	110	124	134	145	166
l1		[mm]	45	45	45	45	45	65	65	65
l2		[mm]	27	32	32	32	37	47	47	47
Weight		[kg]	1.4	2.3	3.1	4.8	8.3	14.8	24.9	39.1
Part no.										
Version with pipe thread			**1543407**	**1544407**	**1545407**	**1546407**	**1547407**	**1548407**	**1549407**	**1550407**
Flange-type version			**1543407X**	**1544407X**	**1545407X**	**1546407X**	**1547407X**	**1548407X**	**1549407X**	**1550407X**
Stroke ±1		**[mm]**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**
Total length l±1		[mm]	113	121	125	135	144	152	155	176
l1		[mm]	65	65	65	65	65	65	65	65
l2		[mm]	57	57	57	57	57	57	57	57
Weight		[kg]	2	2.9	4.0	6.0	9.7	16.8	26.7	41.5
Part no.										
Version with pipe thread			**1543408**	**1544408**	**1545408**	**1546408**	**1547408**	**1548408**	**1549408**	**1550408**
Flange-type version			**1543408X**	**1544408X**	**1545408X**	**1546408X**	**1547408X**	**1548408X**	**1549408X**	**1550408X**

Code for part numbers for flange-type version

15XX XXXX

Basic number (from the chart)

- **K** = Broad side with 2 cross holes, version from 20 to 40 mm stroke
- **L** = Broad side with 4 cross holes, version from 50 mm stroke*
- **S** = Rod side with 4 longitudinal holes
- **B** = Bottom side with 4 longitudinal holes

Order:
Please add the identification letters **K, L, S, B** to the part-number of the required block cylinder.

Example of ordering:
Double-acting block cylinder 1545407 with oil supply at the broad side **Part no. 1545407K**

* Sizes 1548 up to 1550408L only with 2 cross holes available.

Accessory: Position monitoring

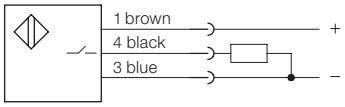
Description

The position monitoring will be screwed on at the cylinder bottom and can also be mounted in a position rotated by 180°. Different versions are available according to the application conditions. A control cam is provided at the extended piston rod causing the activation of the proximity switches. Adjustment of the switching position is effected by displacement of the proximity switches in the lateral groove. The proximity switches are switched on in a stroke range of approx. 6 mm by means of the control cam. The minimum distance to the positions to be monitored depends on the switch type and is indicated in the chart.
The position monitoring can alternatively be supplied with or without proximity sensors.

Function

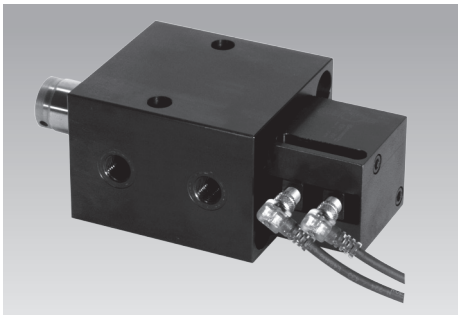
Electrical acknowledgement of both end positions or also intermediate positions.

Electric circuit diagram



Important notes

- Position monitoring systems are not suitable for applications where coolants are used.
- Additional covers also have to be provided against swarf.



Block cylinder with position monitoring

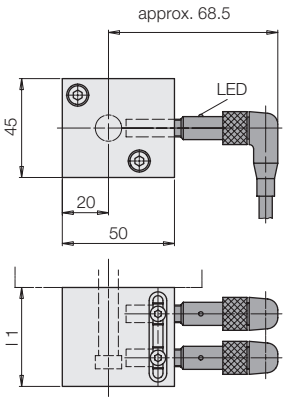
Material of the body

Steel

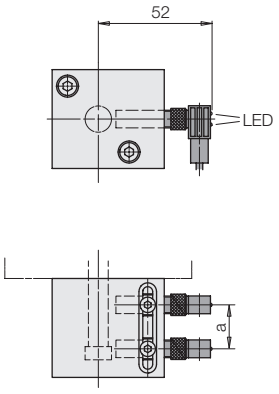
Technical data/dimensions

Operating voltage UB	10 ... 30 V DC
Ripple	max. 15%
Switching function	Interlock
Basic technology	PNP
Material of housing	stainless steel
Code class as per DIN 40050	IP 67

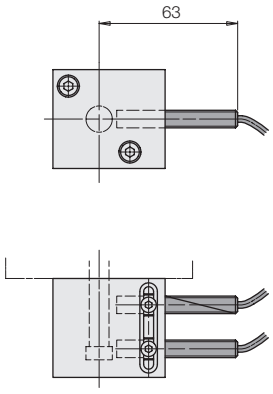
Type A
Standard version



Type B
Compact version



Type C
for high environmental temperature



		Type A	Type B	Type C
Environmental temperature TA		– 25° ... +70°C	– 25° ... +70°C	– 25° ... +120°C
Min. distance of the switching positions	[mm]	13	8	8
Connection type		Plug	Plug	Teflon cable 3 x 0.14 mm²
LED function display		in the switch	in the plug	No
Max. constant current	[mA]	200	100	200 – exceeding 70°:100
Nominal switch distance	[mm]	1.5	1.5	2
Short circuit proof		Yes	Yes	No
Connecting cable	[m]	5	5	3

Position monitoring with proximity switches

Piston stroke 20...30 mm	**Part no.**	**0382300**	**0382301**	**0382302**
Body length l1	[mm]	45	45	45
Fixing screws DIN 912-8.8*		M5 x 50	M5 x 50	M5 x 50
Piston stroke 32...50 mm	**Part no.**	**0382310**	**0382311**	**0382312**
Body length l1	[mm]	65	65	65
Fixing screws DIN 912-8.8*		M5 x 70	M5 x 70	M5 x 70

Accessories/spare proximity switch

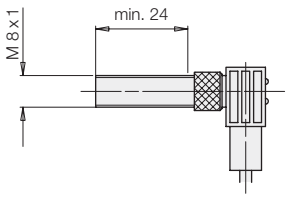
Plug with cable	**Part no.**	**3829088**	**3829099**	**–**
Proximity switch	**Part no.**	**3829077**	**3829263**	**3829087**

Position monitoring without proximity switches

Piston stroke 20...30 mm	**Part no.**	**0382303**
Piston stroke 32...50 mm	**Part no.**	**0382313**

***** Included in our delivery

Required dimensions for own inductive proximity switches:



On request, the cylinders can also be equipped with a stroke measuring system.