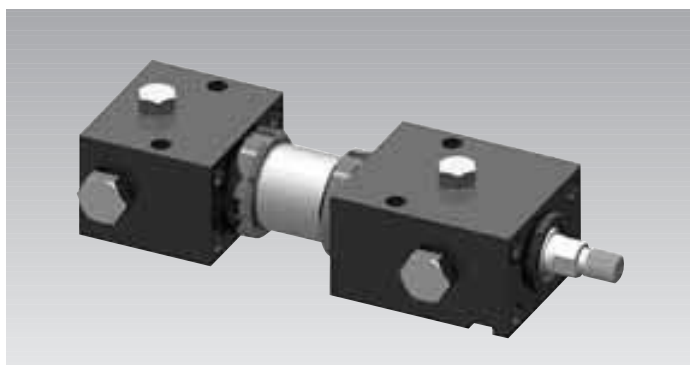
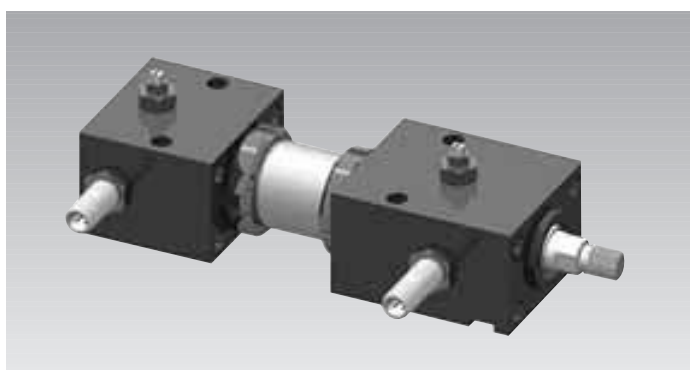




Hydraulic Block Cylinder block cylinder, design with tube double acting, max. operating pressure 250 bar

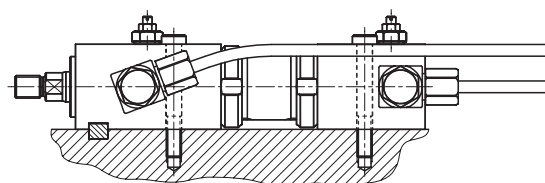


Hydraulic block cylinder in standard version

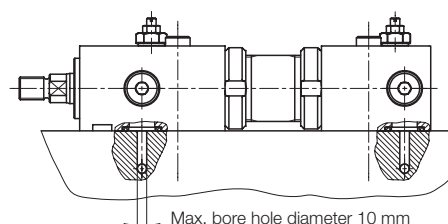


Hydraulic block cylinder with stroke end cushioning and control of the end positions

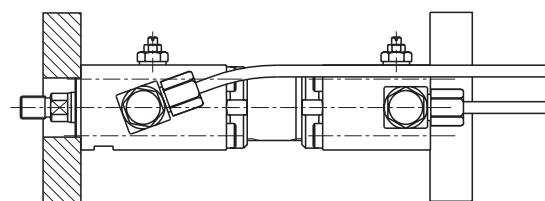
Connecting and fixing possibilities



Oil supply through high-pressure hoses or tubes



Oil supply through drilled channels



Fixing at the front or at the bottom with oil supply through high-pressure hoses or tubes

Application

Over years the RÖMHELD block cylinder has proved a building block in hydraulic systems. The hydraulic block cylinder completes this programme by the following characteristics:

- Piston stroke up to 1200 mm
- Installation possibility of high-pressure resistant sensors for the stroke end control
- Adjustable stroke end cushioning available

The application possibilities in machine and apparatus construction are considerably extended, especially in mould construction for operation of core-pullers and slides.

Description

The hydraulic block cylinder as linear drive combines the advantages of two series

- Hydraulic cylinders with long strokes and optional stroke end cushioning,
- Block cylinders with diverse fixing and oil supply possibilities and optional stroke end control.

The two cylinder heads in block form are connected by a HP tube, in which the piston is guided. The HP tube and the chromium-plated piston rod material are cut goods, which allows manufacturing of any piston strokes in a very short time. The different connecting and fixing possibilities are shown in the above examples. The hydraulic block cylinder can be delivered with and without adjustable stroke end cushioning.

Two high-pressure resistant sensors, which can be selected according the cylinder size (see table) are available for the stroke end control.

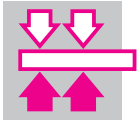
Important notes

The high-pressure resistant sensors are delivered separately for mounting at place of installation in order to avoid transport damage. Please refer to the installation instructions on page 4.

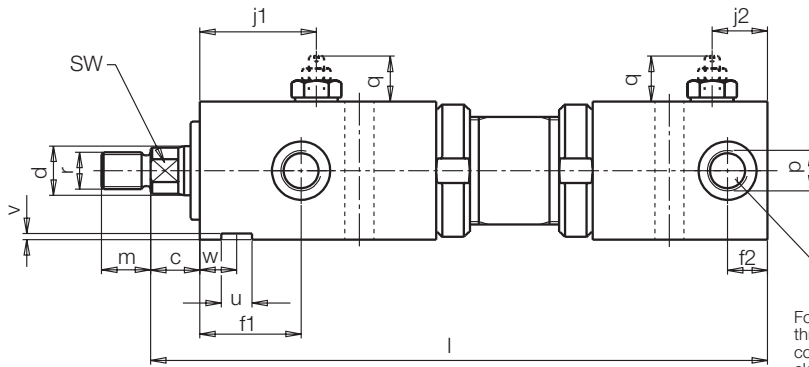
Advantages

- Diverse fixing possibilities
- Tenon slot
- Oil supply through fittings or drilled channels with O-ring sealing
- Piston rod hardened and chromium-plated
- Piston rod sealing with minimum leakage
- Standard VITON® seals
- Piston stroke up to 1200 mm
- Adjustable stroke end cushioning on request
- Stroke end control can be retrofitted with high-pressure resistant sensors

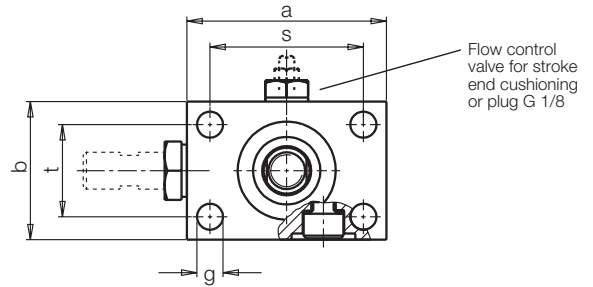




Piston rod with exterior thread



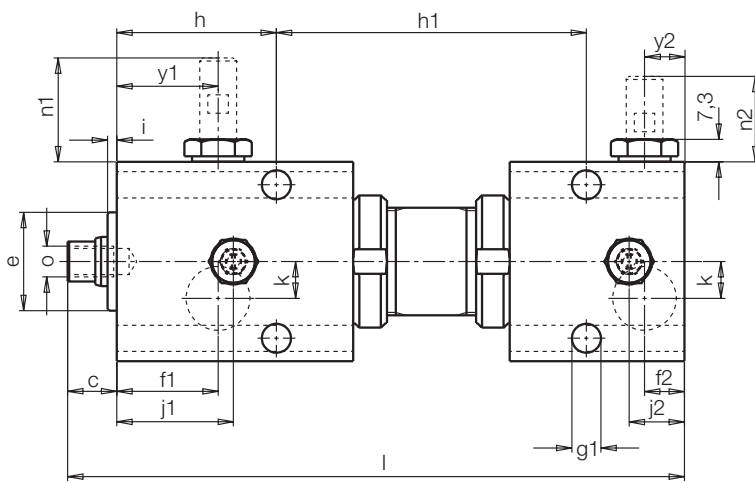
View for 1593 up to 1596



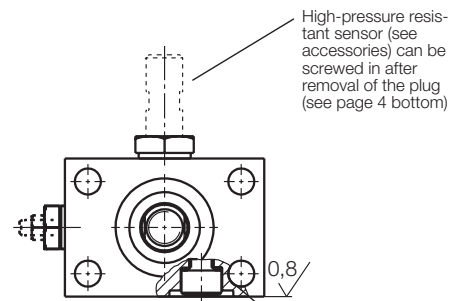
Flow control valve for stroke end cushioning or plug G 1/8

For manifold mounting "oil supply through drilled channels" the connecting threads have to be closed (see plug in chart 3)!

Piston rod with interior thread



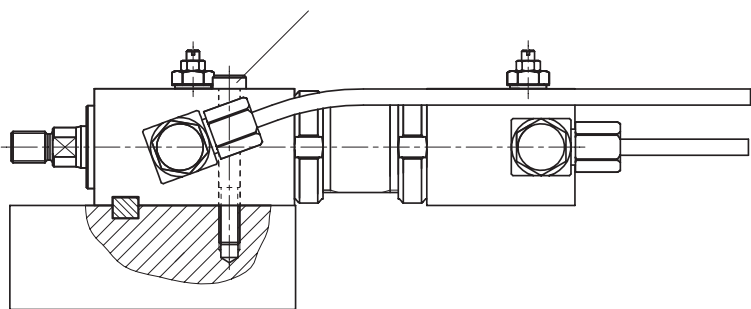
View for 1597 up to 1598



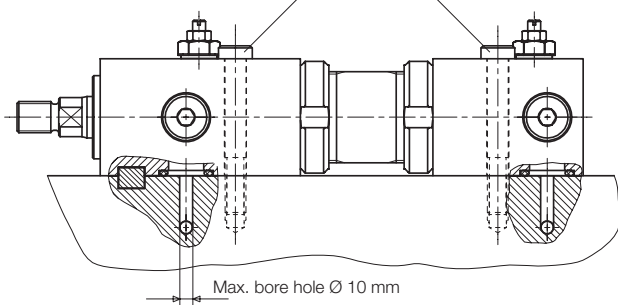
High-pressure resistant sensor (see accessories) can be screwed in after removal of the plug (see page 4 bottom)

For manifold mounting (see example left-hand side bottom) remove socket head cap screw with sealing and insert O-ring into the counterbore (see accessories)

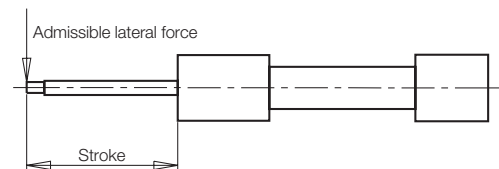
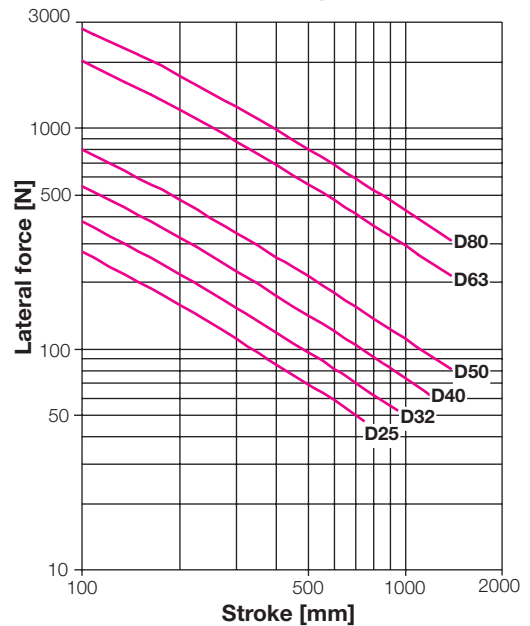
When fixing with 2 screws (property class 12.9) and a pressure exceeding 100 bar, the cylinder must be backed up in the slot.



When fixing with 4 screws (property class 12.9) and a pressure exceeding 200 bar, the cylinder must be backed up in the slot.



Admissible lateral force with extended piston rod





Hydraulic block cylinder (see code for part-nos.)	1593-	1594-	1595-	1596-	1597-	1598-		
Piston Ø D	[mm]	25	32	40	50	63	80	
Rod Ø d	[mm]	16	20	25	32	40	50	
Nominal force at 250 bar	Extending stroke	[kN]	12.3	20.1	31.4	49.1	77.9	125.7
	Retracting stroke	[kN]	7.25	12.3	19.1	29	46.5	76.6
Piston area	[cm ²]	4.9	8.04	12.56	19.63	31.17	50.26	
Annulus area	[cm ²]	2.89	4.9	7.65	11.59	18.6	30.6	
Cushioning stroke	[mm]	16	16	20	25	32	40	
L ± 0.75 = desired stroke +	[mm]	111	124	153	166	193	230	
a	[mm]	65	75	85	100	125	160	
b	[mm]	45	55	63	75	95	120	
c	[mm]	16	16	16	18	20	22	
Ø e f7	[mm]	32	40	50	60	70	85	
f1	[mm]	33	38.5	46	54	66	79	
f2	[mm]	13	14	18	21	26	36	
Ø g	[mm]	8.5	8.5	10.5	13	17	21	
Ø g1 for (MXX)	[mm]	9.5 (M8)	11.5 (M10)	11.5 (M10)	14 (M12)	18 (M16)	22 (M20)	
h	[mm]	52	56	64.5	74	94	105	
h1 = desired stroke +	[mm]	11	21	38.5	33	23	42.5	
i	[mm]	3	4	4	4	4	5	
j1	[mm]	38	45	57	64	58	72	
j2	[mm]	18	20	26.5	31	18	26	
k	[mm]	12	14.5	16	20	30	32	
m	[mm]	16	18	22	28	36	45	
n1	[mm]	34	31	29	47	31	45	
n2	[mm]	28	25	23	39.5	22	34.5	
o x depth of thread (interior thread)	[mm]	M10x15	M12x15	M16x25	M20x30	M27x40	M30x40	
p		G1/4	G1/4	G1/4	G1/4	G1/2	G1/2	
q	[mm]	15	14	14	12.5	11	11	
r (external thread)	[mm]	M12x1.25	M14x1.5	M16x1.5	M20x1.5	M27x2	M33x2	
SW	[mm]	13	17	22	27	36	46	
s	[mm]	50	58	66	80	99	124	
t	[mm]	30	38	44	55	69	84	
u H11	[mm]	10	12	12	14	20	22	
v	[mm]	2	3	3	3	4	5	
w	[mm]	12	16	24	32	35	50	
y1	[mm]	33	38.5	46	50.5	60.5	69	
y2	[mm]	13	14	18	16.5	20.5	21	
minimum stroke* ± 1.5	[mm]	70	70	60	70	80	80	
minimum stroke** ± 1.5	[mm]	130	140	150	170	190	210	
maximum stroke ± 1.5	[mm]	750	950	1200	1200	1200	1200	

Accessories

Part-no. High-pressure resistant sensor (s. page 4)	3829-180	3829-180	3829-180	3829-030	3829-180	3829-030	
Dimensions O-ring	[mm]	15.54x2.62	15.54x2.62	15.54x2.62	15.54x2.62	18.72x2.62	18.72x2.62
Part-no. O-ring (VITON®) (spare part)	3000-103	3000-103	3000-103	3000-103	3001-061	3001-061	
Part-no. Plug	3610-006	3610-006	3610-006	3610-006	3610-000	3610-000	

Code for part-no.

159X - X X - XXXX

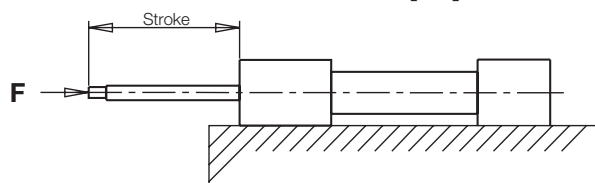
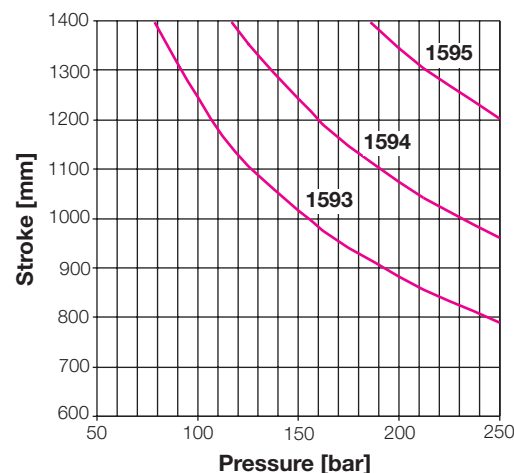
- 0XXX = stroke in mm up to 999 mm
 - 1XXX = stroke in 1000 mm and over
- } min. and max. strokes see end of the chart
- 1 = without cushioning
 - 3 = with cushioning
- 1 = piston rod with exterior thread
 - 2 = piston rod with interior thread
- 3 = piston Ø D 25 mm
 - 4 = piston Ø D 32 mm
 - 5 = piston Ø D 40 mm
 - 6 = piston Ø D 50 mm
 - 7 = piston Ø D 63 mm
 - 8 = piston Ø D 80 mm

Order example:

- Hydraulic block cylinder Ø 40 x 755 stroke without cushioning and piston rod with interior thread: **1595-21-0755**
- Hydraulic block cylinder Ø 63 x 1015 stroke with cushioning and piston rod with exterior thread: **1597-13-1015**

- * minimum stroke with fixing at the broad side
- ** minimum stroke with fixing at the front by flange

Limit values for stroke and operating pressures at buckling load (safety against buckling = 3.5)





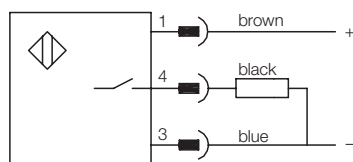
General and technical characteristics

Rated operating distance S_n	[mm]	1.5	1.5
Assured operating distance S_a	[mm]	0...1.2	0...1.2
Repeatability	[%]	≤ 5	≤ 5
Hysteresis	[%]	≤ 15	≤ 15
Environmental temperature	[°C]	-25...+80	-25...+80
Special characteristics		pressure rated to 500 bar	pressure rated to 500 bar
Dimensions BxHxT or DxT	[mm]	M12x1 x 56	M12x1 x 78
Material of the body		1.4104	1.4104
Material of sensing face		EP [Duroplast]	EP [Duroplast]
Code class	[IP]	68 as per BWN Pr 20	68 as per BWN Pr 20
Type of connection		Connector	Connector

Electrical characteristics

Voltage		DC	DC
Wiring		3 wires	3 wires
Switching function		interlock	interlock
Output signal		PNP	PNP
Rated operating voltage	[V]	24 DC	24 DC
Rated operating current	[mA]	200	200
Voltage	[V]	10...30 DC	10...30 DC
Residual ripple	[%]	≤ 15	≤ 15
Switching frequency	[Hz]	1000	1000
No-load current	[mA]	≤ 10/≤ 2	≤ 10/≤ 1
Cutoff current	[μA]	≤ 80	≤ 10
Voltage drop	[V]	≤ 1.5/-	≤ 1.5/-
Protection against short circuit		yes	yes
Protection against reverse battery		yes	yes

Part-no. High-pressure resistant sensor	3829-180	3829-030
Part-no. O-ring VITON® (spare part)	3001-550	3001-551
Part-no. Back-up ring (spare part)	3001-552	3001-552

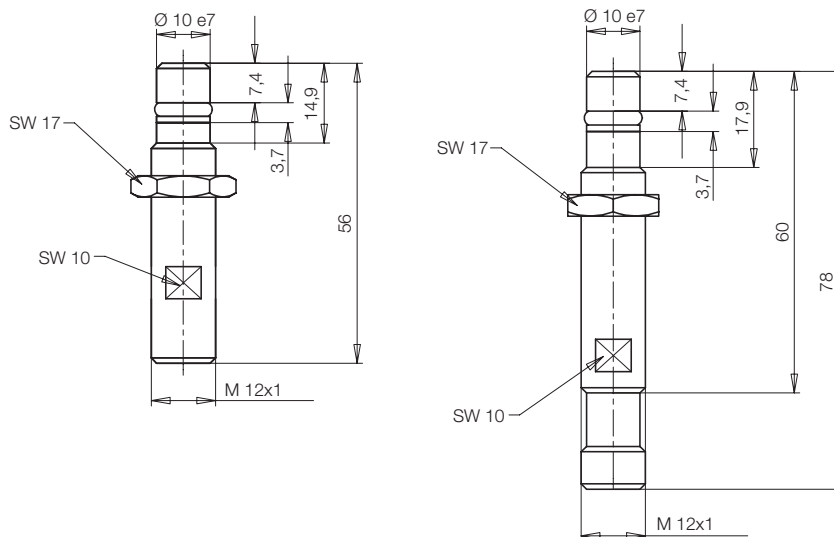


Accessory for sensors

Pull-type connector pnp

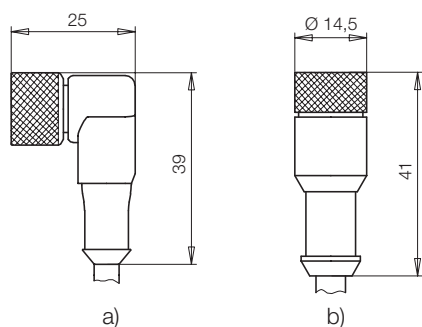
a) M12 knee-type, 2 LEDs, 3 m
Part-no. 3829-049

b) M12 straight, without LED, 3 m
Part-no. 3829-078



Technical characteristics

Voltage	10 -30 V DC
Protection DIN 40050	IP 67
Environmental temperature	-25°C up to 90°C
LED: Voltage	(green)
Function display	(yellow)



Mounting of sensors

Front sensor:

1. Extend piston rod completely
2. Screw in carefully up to the stop at the cushioning spigot of the piston
3. Turn back the sensor by a 1/2 rotation, so that there is a switching distance of approx. 0.5 mm (see figure at the right-hand side)
4. Lock the sensor in this position by means of a nut
5. Wire the switch electrically and check the function

Rear sensor:

1. Retract completely the piston rod
2. Further steps see front sensor

