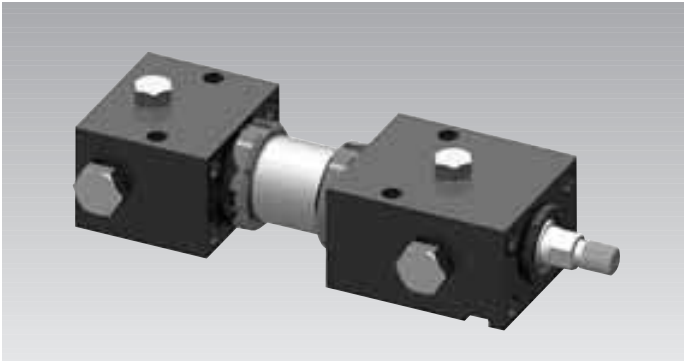
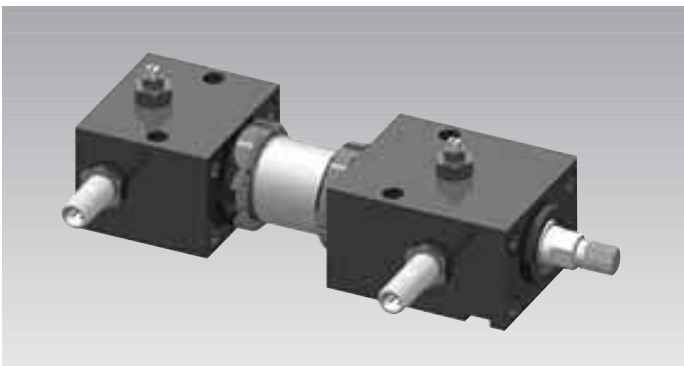


## Hydraulic Block Cylinder block cylinder, design with tube double acting, max. operating pressure 250 bar

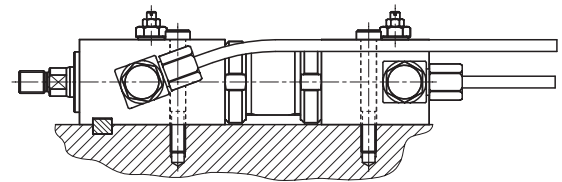


Hydraulic block cylinder in standard version

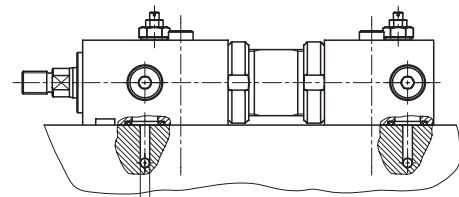


Hydraulic block cylinder with stroke end cushioning and control of the end positions

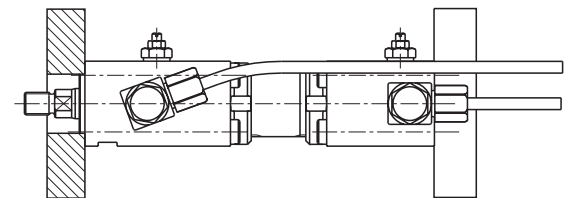
### Connecting and fixing possibilities



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 Roemheld 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

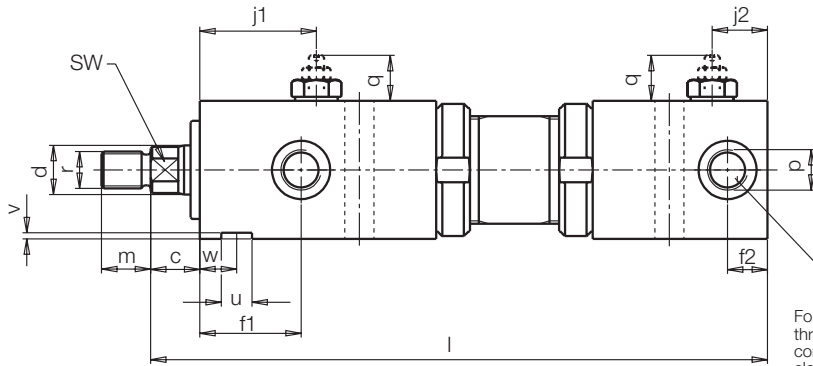
The high-pressure resistant sensors are delivered separately for mounting at place of installation in order to avoid transport damage. Please refer to the installation instructions on page 4.

### Advantages

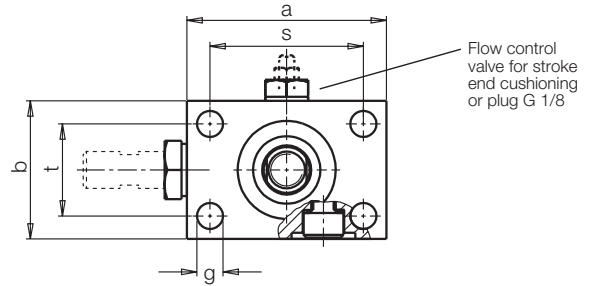
- Diverse fixing possibilities
- Tenon slot
- Oil supply through fittings or drilled channels with O-ring sealing
- Piston rod hardened and chromium-plated
- Piston rod sealing with minimum leakage
- Standard VITON® seals
- Piston stroke up to 1200 mm
- Adjustable stroke end cushioning on request
- Stroke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



Piston rod with exterior thread

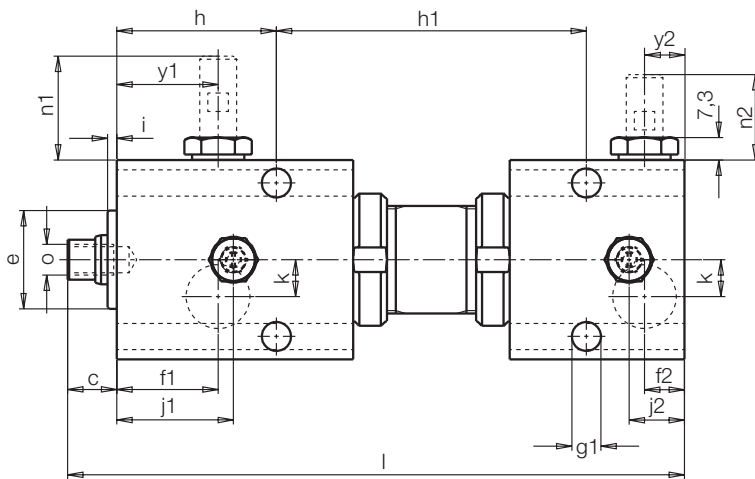


View for 1593 up to 1596

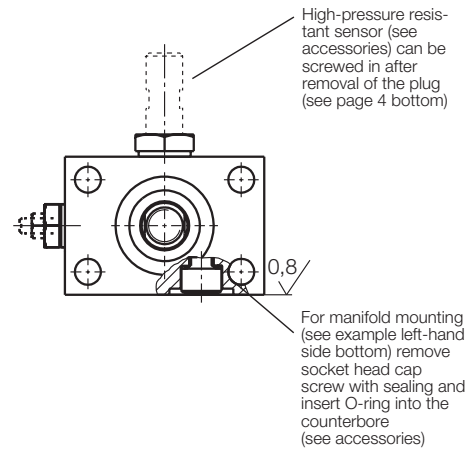


For manifold mounting "oil supply through drilled channels" the connecting threads have to be closed (see plug in chart 3)!

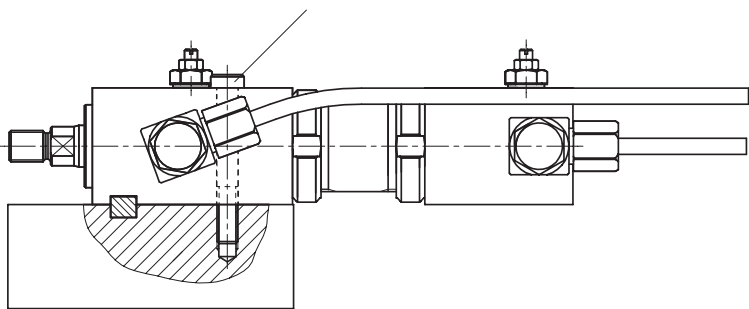
Piston rod with interior thread



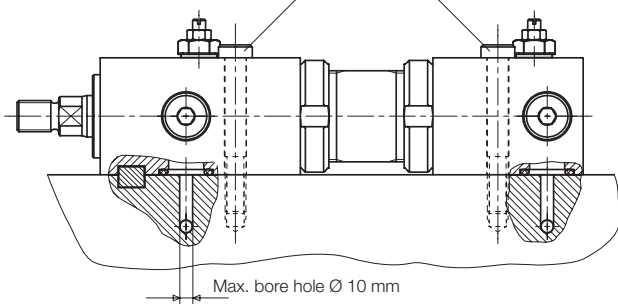
View for 1597 up to 1598



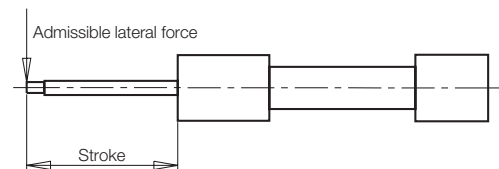
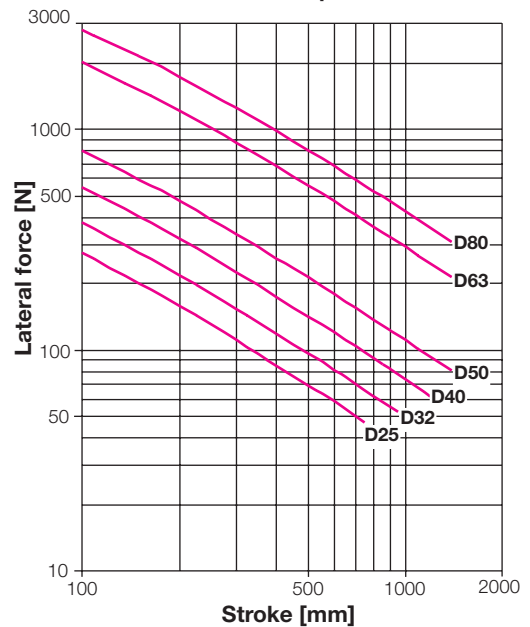
When fixing with 2 screws (property class 12.9) and a pressure exceeding 100 bar, the cylinder must be backed up in the slot.



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	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
Piston area	[cm <sup>2</sup> ]	4.9	8.04	12.56	19.63	31.17	50.26	
Annulus area	[cm <sup>2</sup> ]	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	18.72x2.62	18.72x2.62
Part-no. O-ring (VITON®) (spare part)	<b>3000-103</b>	<b>3000-103</b>	<b>3000-103</b>	<b>3000-103</b>	<b>3001-061</b>	<b>3001-061</b>
Part-no. Plug	<b>3610-006</b>	<b>3610-006</b>	<b>3610-006</b>	<b>3610-006</b>	<b>3610-000</b>	<b>3610-000</b>

### Code for part-no.

**159X - X X - XXXX**

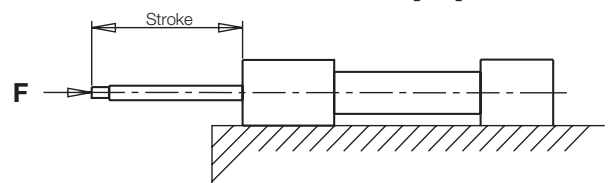
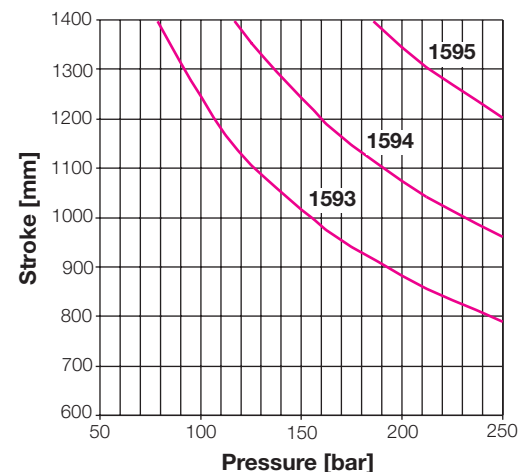
- 0XXX = stroke in mm up to 999 mm
  - 1XXX = stroke in 1000 mm and over
- } min. and max. strokes  
see end of the chart
- 1 = without cushioning
  - 3 = with cushioning
- 1 = piston rod with exterior thread
  - 2 = piston rod with interior thread
- 3 = piston Ø D 25 mm
  - 4 = piston Ø D 32 mm
  -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

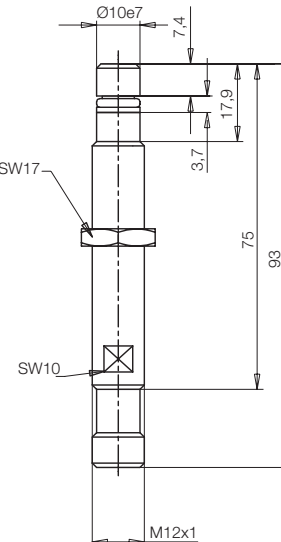
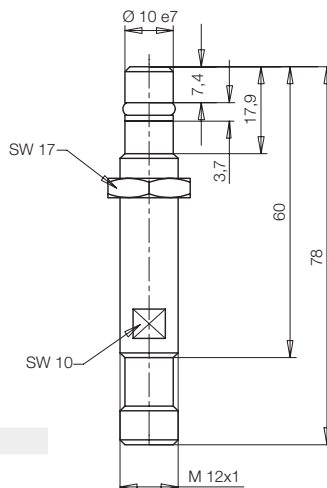
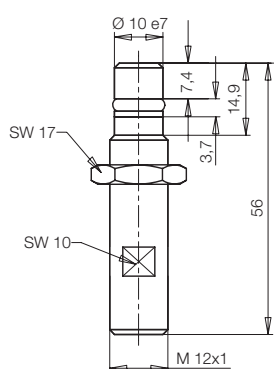
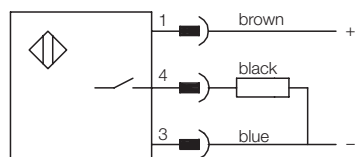
### Limit values for stroke and operating pressures at buckling load (safety against buckling = 3.5)





### For block cylinders:

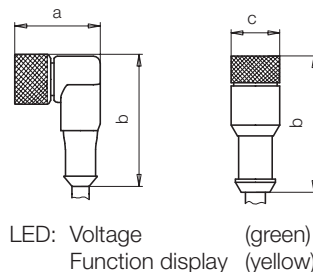
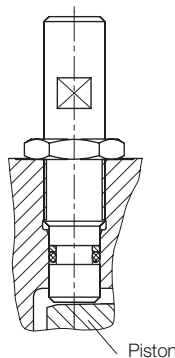
	1593-XXX 1594-XXX 1595-XXX 1597-XXX		1596-XXX 1598-XXX		
<b>General and technical characteristics</b>					
<b>Environmental temperature</b>	-25...+80		-25...+120		
Rated operating distance S <sub>n</sub>	mm	1.5	1.5	1.5	1.5
Assured operating distance S <sub>a</sub>	mm	0...1.2	0...2	0...1.2	0...2
Repeatability	%	≤ 5	≤ 5	≤ 5	≤ 5
Hysteresis	%	≤ 15	≤ 15	≤ 15	≤ 15
Dimension DxT	mm	M12x1 x 56	M12x1 x 56	M12x1x78	M12x1 x 78
Material of the body		1.4104	1.4104	1.4104	1.4104
Material of sensing face		EP (duroplastic)	ceramics	EP (duroplastic)	ceramics
Code class	IP	68	68	68	68
Type of connection		Connector S4	Connector S4	Connector S4	Connector S4
<b>Electrical characteristics</b>					
Voltage		DC	DC	DC	DC
Wiring		3 wires	3 wires	3 wires	3 wires
Switching function		interlock	interlock	interlock	interlock
Output signal		pnp	pnp	pnp	pnp
Rated operating voltage	V	24 DC	24 DC	24 DC	24 DC
Rated operating current	mA	200	200	200	200
Voltage	V	10...30 DC	10...30 DC	10...30 DC	10...30 DC
Residual ripple	%	≤ 15	≤ 15	≤ 15	≤ 15
Switching frequency	Hz	1000	2000	1000	2000
No-load current	mA	≤ 10/≤ 2	≤ 8	≤ 10/≤ 1	≤ 8
Voltage drop	V	≤ 1.5/-	≤ 2.5	≤ 1.5/-	≤ 2.5
Protection against short circuit		yes	yes	yes	yes
Protection against reverse battery		yes	yes	yes	yes
<b>Part-no. sensor</b>		<b>3829-180</b>	<b>3829-228</b>	<b>3829-030</b>	<b>3829-227</b>
<b>Part-no. O-ring</b> (included in the delivery)		<b>3001-550</b>	<b>3001-550</b>	<b>3001-551</b>	<b>3001-551</b>
<b>Part-no. Back-up ring</b> (included in the delivery)		<b>3001-552</b>	<b>3001-552</b>	<b>3001-552</b>	<b>3001-552</b>



### Mounting and adjustment of sensors

#### Front sensor:

1. Extend piston rod completely
2. Carefully, screw the sensors in to the stop at the piston  
Turn back the sensor:  
Rotation | Switching point before the final position  
1/4 | approx. 4 mm  
1 1/4 | approx. 1 mm
3. Lock the sensor in this position by means of a nut
4. Wire the switch electrically and check the function



#### Rear sensor:

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

### Accessories for sensors

	a	b	c	Code class	Environmental temperature	LED	Part-no.
Plug-type connector pnp M12, knee-type	25	39	-	IP68	-25...+70°C	yes	<b>3829-049</b>
Plug-type connector pnp M12, straight	-	41	14.5	IP68	-25...+70°C	no	<b>3829-078</b>
Plug-type connector pnp M12, knee-type	31.5	38	-	IP67	-40...+105°C	no	<b>3829-230</b>
Plug-type connector pnp M12, straight	-	35.5	14.5	IP67	-40...+105°C	no	<b>3829-229</b>

All plug-type connectors with 3 meters cable