

ZBI 1611

Standard Hydraulic Cylinder



Description:

Hydraulic standard cylinders **ZBI 1611**

NP 160 bar (16 MPa)

with inductive proximity switches for end position signalling with
Installation dimensions according to ISO 6020/1 and VW 39D 920

The STORZ hydraulic cylinder series ZBI 1611 was developed as a supplement to the cylinder series ZBD 1611. The hydraulic cylinders have built-in proximity switches for end position signalling.

The installation dimensions of these cylinders correspond to the ISO 6020/1 and VW 39D920.

The compact proximity switches are pressure-resistant up to 500 bar and operate contact-free. The electrical connection is made via a Plug connection.

The hydraulic cylinders are designed for a nominal pressure of 160 bar. They are available in 8 designs.

The use of these cylinders allows electrical monitoring of the piston end position, number of strokes or stroke sequence, without additional complex constructions for mounting external limit switches are required.



Technical data:

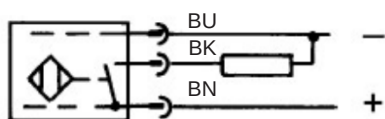
Nominal pressure	160 bar (16 MPa)
Static test pressure	240 bar (24 MPa)
Piston Ø	40 - 125 mm
Area ratio ϕ	1,4 and 2
Temperature range (of the hydraulic fluid) ϑ min. ... ϑ max.	- 20° ... + 80° C
Viscosity range v_{min} v max.	(10... 600) 10^{-6} m ² /s
Stroke speed range v min. ... v max.	0 - 0.5 m/s or 0 - 1 m/s depending on seal variant. Higher speed on request.
Hydraulic fluid	Mineral oil according to DIN 51524, HFD fluids. For HFA, HFB and HFC fluids please consult us.

Electrical data:

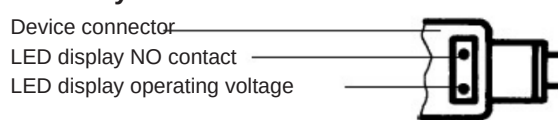
Operating voltage U	10 · 30 V-
Switching distance s_r	= 1.2 ± 0.2 mm
Switching hysteresis H	< 20% of switching distance
No-load current	≤ 10 mA
Current carrying capacity I_A	≤ 200 mA (at 80° C)
Repeatability R	$\leq 5\%$
Switching frequency f	1 kHz
Ambient temperature	- 20 ... + 80° C
Output function	NO contact
Residual current I_R	≤ 80 μ A in load circuit with switch blocked
Voltage drop U_d	$\leq 1,5$ V measured across the conducting switch at I_A max.

Protected against reversal of plus and minus and inductive voltage peaks.

Circuit diagram



Proximity switch

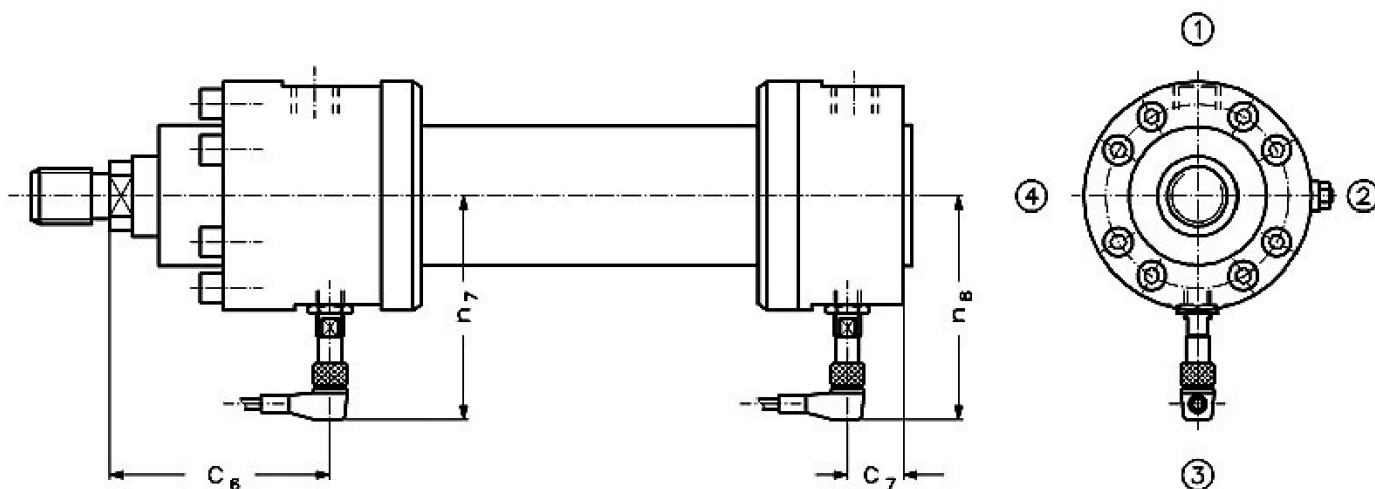


Mechanical data:

Housing material	Material no. 4104
Connection type	Plug connection
Cable type	3 m cable 3 x 0.34 mm ²

Protection class according to DIN 40050 IP 68

Dimensions:



- 1 Pipe connection
- 2 Throttle screw
- 3 Proximity switch
- 4¹⁾ Start-up valve (head end only)
Air bleed/gauge coupling (cap end only)

1) with head end cushioning and Proximity switch none air bleed possible

Piston Ø (mm)	Rod Ø (mm)	c_6	c_7	n_7	n_8
25	14/18	63	17	82,5	77
32	18/22	71	18	84	77
40	22/28	87	27	89	78
50	28/36	89	25	93	81
63	36/45	98	30	122	108
80	45/56	107	25	126	110,5
100	56/70	133	30	134,5	113,5
125	70/90	145	41	144	116

For the missing dimensions please refer to our brochure 13450.

Remarks

Further sizes on request.

ZBI 1611 -	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Double-acting hydraulic cylinder																				
Nominal pressure 160 bar (16MPa) with inductive proximity switch for end position signalling optionally with or without end position cushioning, installation dimensions according to ISO 6020 part 1, VW 39D920																				
Piston diameter in mm																				
Piston rod diameter in mm																				
Mounting types																				
A	Basic design																			
MT 4	Trunnion (state dimension XV when ordering)																			
MF 3	Round flange, head end																			
MF 4	Round flange, cap end																			
MF 1	Rectangular flange, head end																			
MF 2	Rectangular flange, cap end																			
MP 4	Swivel eye at cylinder cap																			
MP 6	Spherical eye at cylinder cap																			
MS 2	Foot mounting (not standardized)																			
Cylinder stroke in mm																				
Seal variant																				
RG	Standard version, U-cup seal / Teflon seal																			
	Option:																			
FG	U-cup seal + Teflon slide ring/Teflon seal (from piston Ø 40)																			
RH	U-cup seal / compact seal																			
TG	Teflon slide ring in tandem version/Teflon seal(from p-Ø 40)																			
KVGV	U-cup seal / Teflon seal (Viton version)																			
TVGV	Teflon slide ring in tandem version / Teflon seal (Viton version) (from piston Ø 40)																			
End position cushioning, head end																				
Yes	Position of throttle screw standard version side 2										Option: side 1;3;4									
No	0																			
End position cushioning, cap end																				
Yes	Position of throttle screw standard version side 2										Option: side 1;3;4									
No	0																			
Piston rod surface																				
B	Standard version, hard chrome-plated																			
	Option																			
C	induction-hardened and hard chrome-plated																			
D	nickel-plated and hard chrome-plated																			
E	multi-layer hard chrome-plated																			
Piston rod end																				
1	External thread																			
3	External thread with mounted rod end spherical eye KG, see brochure 19112																			
4	External thread with mounted rod end plain eye KS, see brochure 19112																			
Piston rod material																				
C	Standard version, structural/tempered steel										Option: N stainless steel (only with surface B)									
Version of pipe connection																				
G	Standard version, Whitworth pipe thread, option: M										metric ISO thread									
Pipe connection, position head end																				
Standard version side 1 Option: side 2;3;4																				
Pipe connection, position cap end																				
Standard version side 1 Option: side 2;3;4																				
Air bleed Attention: With cushioning and switch at head end, no air bleed/gauge coupling possible!																				
E	Standard version; bleed screw										Option: M gauge coupling									
Air bleed, position head end																				
Standard version side 4 Option: 1;2;3																				
0 no air bleed																				
Air bleed, position cap end																				
Standard version side 4 Option: 1;2;3																				
Proximity switch																				
J	Standard version, proximity switch																			
Proximity switch, position head end																				
Standard version side 3 Option: 1;2;4 0 no proximity switch																				
Proximity switch, position cap end																				
Standard version side 3 Option: 1;2;4 0 no proximity switch																				
Version code (specified by the manufacturer)																				

Type: ZBI 1611 - 63/36 - MT4 - 300 - RG - 22 - B1C - G11 - E04 - J33.1

Notes - remarks - comments - special requests

Notes section with horizontal lines for writing.

Sketch

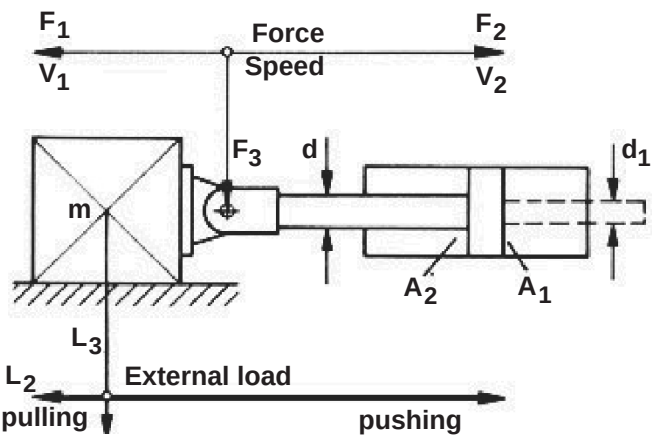
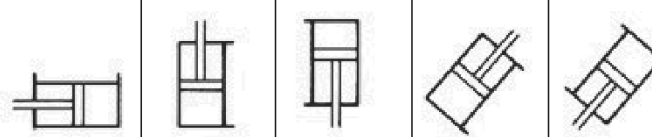
Sketch section with a grid for drawing.

Requirements list for hydraulic cylinders

Customer address..... =Telephone/fax.....

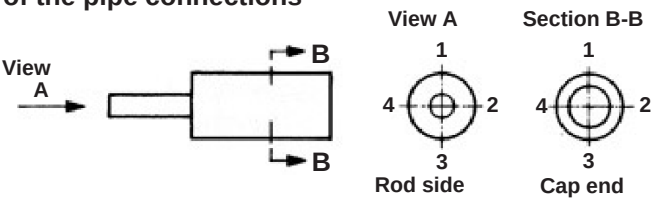
..... Person in charge.....

..... Department.....

Load diagram			
 F_1 V_1 Force Speed F_2 V_2 F_3 d d_1 m A_2 A_1 L_2 External load L_3 pulling pushing L_3 neither pushing nor pulling load			
Cylinder installation position			
 a b c d e			
Cylinder data			
1	Operating pressure	min max	bar bar
2	Piston Ø	D	mm
3	Rod Ø	d d ₁	mm mm
4	Mounting type		
5	Stroke	S	mm
6	Stroke speed max.	V_{1max} V_{2max}	m/s m/s
7	Pressure medium		
8	Rod seal Wiper		
9	Piston seal		
10	Piston rod end		
11	Air bleed	yes	no
12	End position cushioning	Cap end Rod side	

13	Required Cylinder forces	F ₁ F ₂	N N
14	max. Lateral force	F ₃	N
15	Switching frequency	Double strokes per min. Double strokes per sec.	
16	min. + max. Amplitude (α min; α max) + associated frequency (f)	$\alpha_{min} + f$ $\alpha_{max} + f$	
17	Moving Mass		kg
18	Temperature range of hydraulic fluid ϑ m min.... ϑ m max	°C	
	Ambient temperature range ϑ m min.... ϑ m max	°C	

desired radial position of the pipe connections



View A

View A

Section B-B

Rod side

Cap end

19	Size of Port connections	Cap end	Rod side
20	Piston rods Material	Standard	Stainless
21	Painting	Standard	without
		Special	

Accessories

End positions

Position feedback

Clamping head

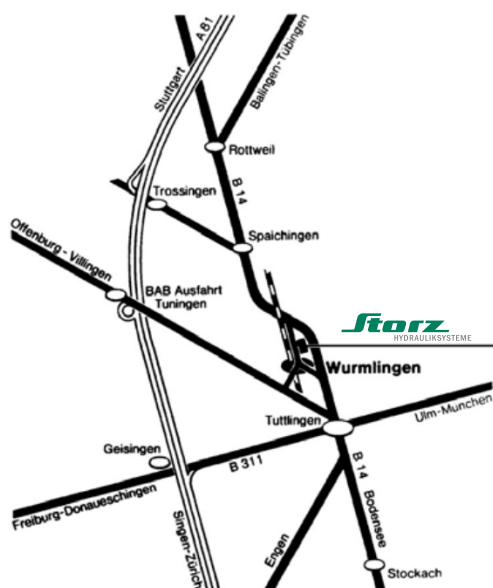
	yes	no
Position measuring system		
stating the Pos. accuracy		
inductive		
digital		
Ultrasonic		
potentiometric		
capacitive		

Remarks and notes on the application or special requests please with date and signature!

Product range



Hydraulic cylinders to DIN/ISO
Hydraulic standard cylinders
Hydraulic telescopic cylinders
Hydraulic cylinders with position measuring systems
Test-machine cylinders
Special cylinders for all fields of application
Standardized mounting parts
Hydraulic power units and components
Plant engineering



Storz
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