

Storz

HYDRAULIKSYSTEME

ZBI 2511

Standard Hydraulic Cylinder



Description:

Hydraulic standard cylinders **ZBI 2511**

NP 250 bar (25 MPa)

with inductive proximity switches for end position signalling with
installation dimensions according to ISO 6022, DIN 24333 and VW 39D921

The STORZ hydraulic cylinder series ZBI 2511 was developed as a supplement to the cylinder series ZBD 2511. The hydraulic cylinders have built-in proximity switches for end position signalling.

The installation dimensions of these cylinders correspond to ISO 6022, DIN 24333 and VW 39D921.

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 250 bar. They are available in 6 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:

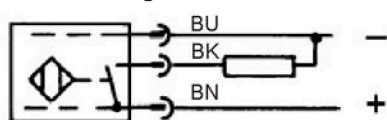
Nominal pressure	250 bar (25 MPa)
Static test pressure	375 bar (37,5 MPa)
Piston Ø	40 - 125 mm
Area ratio ϕ	1,6 and 2
Temperature range (of the hydraulic fluid)	
ϑ min. ... ϑ max.	- 20° ... + 80° C
Viscosity range	
ν min. ... ν max.	(10... 600) 10^{-6} m ² /s
Stroke speed range	
u min. ... u max.	0 - 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	= $1,2 \pm 0,2$ 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	< 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	≤ 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

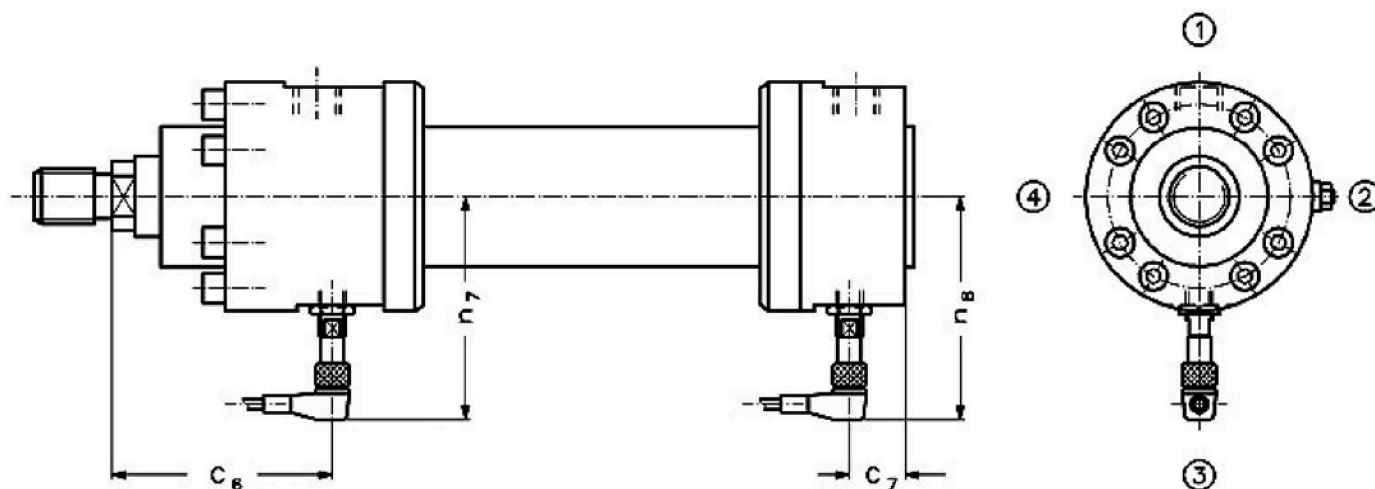


Mechanical data:

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
- 4 ¹⁾ 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
40	25/28	95	22	88	78
50	32/36	107	22	91,5	80
63	40/45	117	26	121,5	108
80	50/56	128	25	127	110,5
100	63/70	141	30	134,5	113,5
125	80/90	165	32	144	116

For the missing dimensions please refer to our brochure 13650.

Remarks

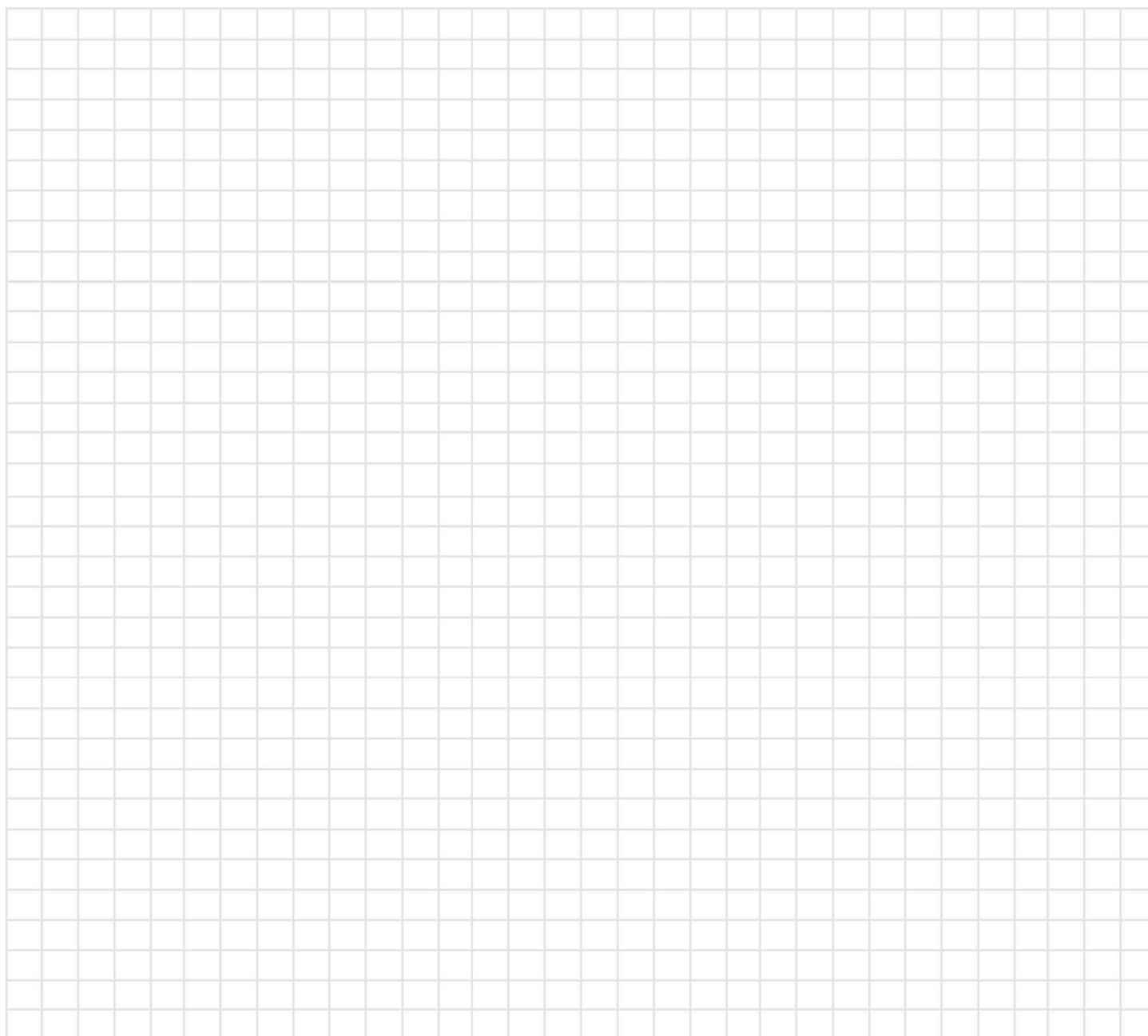
Further sizes on request.

[illegible]

Double-acting hydraulic cylinder 250 bar nominal pressure with the following data:
Piston Ø 80 mm, rod Ø 56 mm, mounting type MT4, stroke 300 mm, seal variant FG.
End position cushioning yes, position of throttle screw head end side 2, cap end side 2.
Piston rod surface B, piston rod end 1, piston rod material C. Version of pipe connection G.
Pipe connection position head end side 1, cap end side 1. Air bleed E, position of bleed screw head end side 4, cap end side 3. Proximity switch J, position head end side 3, cap end side 3.

Notes - remarks - comments - special requests

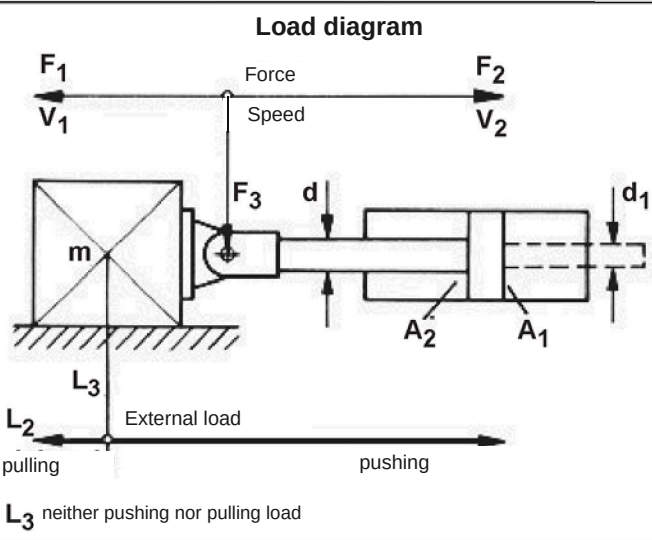
Sketch



Requirements list for hydraulic cylinders

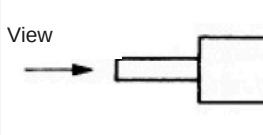
Customer address		Telephone/Fax	
.....		Contact person	
.....		Department	

Load diagram

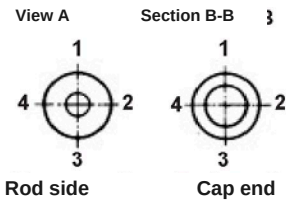


13	Required cylinder forces	F_1	N
		F_2	N
14	max. Side force	F_3	N
15	Switching frequency	Double strokes per min.	
		Double strokes per sec.	
16	min. + max. Amplitude (α_{min} ; α_{max}) + associated frequency (f)	$\alpha_{min} + f$	
		$\alpha_{max} + f$	
17	Moving mass		kg
18	Temperature range of hydraulic fluid $\vartheta_{min} \dots \vartheta_{max}$	°C	
	Ambient temperature range $\vartheta_{min} \dots \vartheta_{max}$	°C	

desired radial position of the pipe connections



View A Section B-B



Rod side Cap end

19	Size of pipe connections	Cap end	Rod side
20	Piston rod material	Standard	Stainless
21	Painting	Standard	without
		Special	

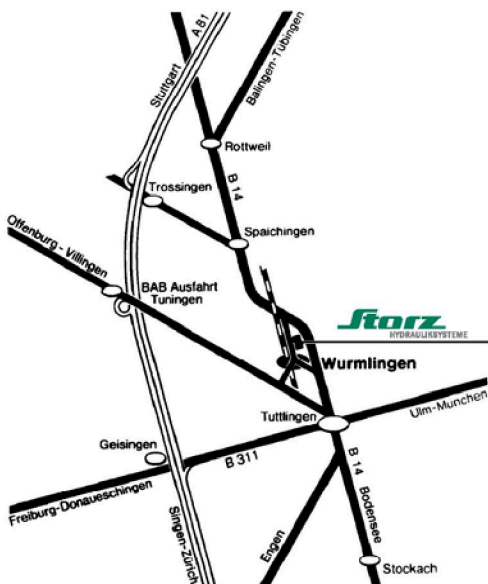
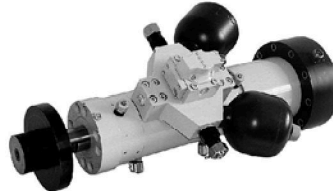
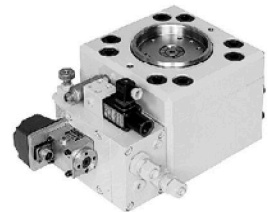
Cylinder data					
1	Operating pressure	min	bar		
		max	bar		
2	Piston Ø	D	mm		
3	Rod Ø	d	mm		
		d ₁	mm		
4	Mounting type				
5	Stroke	S	mm		
6	Stroke speed max.	V_{1max}	m/s		
		V_{2max}	m/s		
7	Pressure medium				
8	Rod seal Wiper				
9	Piston seal				
10	Piston rod end				
11	Air bleed	yes	no	M 8x1 R 1/4"	
12	End position cushioning	Cap end			
		Rod side			

Accessories																			
End positions																			
Position feedback																			
Clamping head																			
Position measuring system with indication of the Pos. accuracy	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;"></th> <th style="width: 50%; text-align: center;">yes</th> <th style="width: 50%; text-align: center;">no</th> </tr> <tr> <td style="text-align: center;">inductive</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">digital</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Ultrasonic</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">potentiometric</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">capacitive</td> <td></td> <td></td> </tr> </table>		yes	no	inductive			digital			Ultrasonic			potentiometric			capacitive		
	yes	no																	
inductive																			
digital																			
Ultrasonic																			
potentiometric																			
capacitive																			
Remarks and notes on the application or special re-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 applications
Standardized mounting parts
Hydraulic power units and components
Plant engineering



Storz
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