

ZG 2511

Standard Hydraulic Cylinder



Description:

Hydraulic standard cylinders **ZG 2511**
NP 250 bar (25 MPa)
with double-ended piston rod

In addition to the cylinders designed according to ISO standard 6022, DIN standard 24333 and VW standard 39D921, designed STORZ hydraulic cylinder series ZBD 2511, the synchronous cylinder series ZG 2511 was developed.

These hydraulic cylinders have a piston rod extending on both sides. Their components are essentially the same as for the standardized series ZBD 2511.

Two piston rod diameters are assigned as standard to each piston diameter with the corresponding area ratios $\phi = 1.6$ and $\phi 2$ assigned.

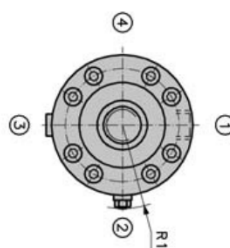
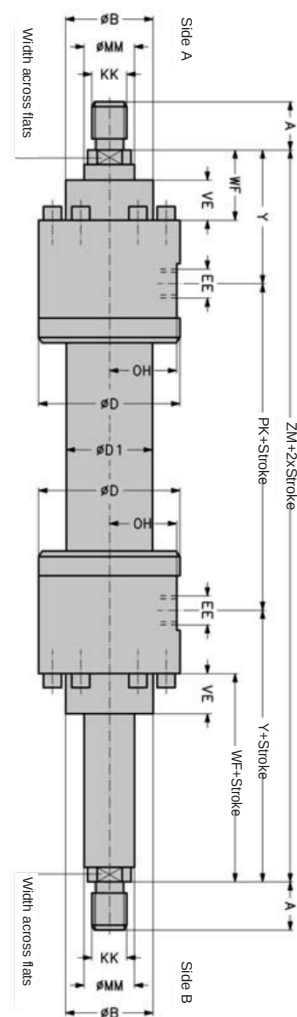
To ensure a wide range of applications for the hydraulic cylinders, 3 mounting types, as well as several seal variants and piston rod materials are available.

Technical data:

Nominal pressure	250 bar (25 MPa)
Static test pressure	375 bar (37.5 MPa)
Piston ϕ	40 - 250 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 m²/s
Stroke speed range v min. ... v max.	0 - 0.5 m/s or 0 - 1 m/s depending on seal variant.
Hydraulic fluid	Mineral oil according to DIN 51524, HFD fluids. For HFA, HFB and HFC fluids please consult us.



Mounting type A - basic design



Position of function bores 1-4 according to model code

① ② ③ ④ side determination

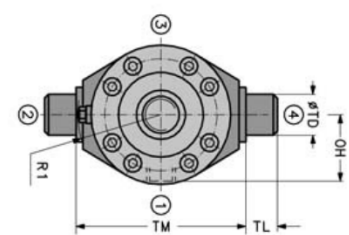
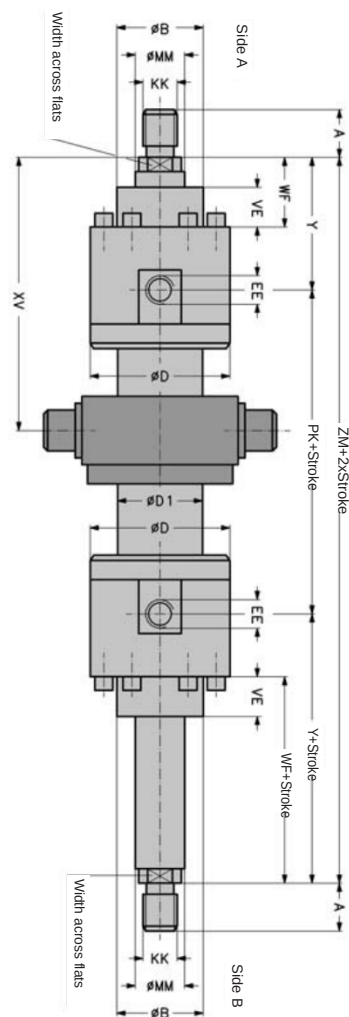
Tolerances	PK	SS	ZM	XS	Y	W	WC	WF	XV	Stroke
Stroke: 0-499	±1,5	±1,5	±2	±2	±2	±2	±2	±2	±2	±2
Stroke: 500-1249	±1,5	±2	±2	±2	±2,8	±2	±2	±2	±2	±2
Stroke: 1250-3149	±3	±3	±4	±4	±4	±4	±4	±4	±4	±5
Stroke: 3150-8000	±5	±5	±8	±8	±8	±8	±8	±8	±8	±8

Piston Ø (mm)	Rod Ø (mm) MM	Annular areas A ₂ (cm ²)	ZM + 2 x stroke	Pipe connection EE Whitworth pipe thr./ Metric thread	Rod thread KK	A max.	Ø B 18	Ø D 18	Ø D1 max. 1)	PK + R 1) Stroke	VE Stroke	WF/WF + stroke	OH Stroke	VY + stroke	Minimum stroke ²⁾	Width across flats
40	25	7,66	280	G ½ M 22x1,5	M 20x1,5	28	56	88	55	98	58	40	41	91	10	21
50	32	11,59	316	G ¾ M 22x1,5	M 27x2	36	63	102	65	120	60	47	49	98	5	27
63	40	18,61	357	G ¾ M 27x2	M 33x2	45	75	120	83	133	76	53	56	112	0	32
80	50	30,63	395	G ¾ M 27x2	M 42x2	56	90	145	100	155	83	60	69	120	0	41
100	63	47,37	439	G 1 M 33x2	M 48x2	63	110	170	125	171	95	68	81	134	0	55
125	80	72,45	511	G 1 M 33x2	M 64x3	85	132	206	160	205	120	76	100	153	0	65
140 ⁴⁾	90	90,32	545	G 1 ½ M 42x2	M 72x3	90	145	226	180	229	130	80	109	158	0	75
160	100	122,52	605	G 1 ½ M 42x2	M 80x3	95	160	265	200	235	150	85	128	185	0	85
180 ⁴⁾	110	159,44	648	G 1 ½ M 42x2	M 90x3	106	185	290	220	252	160	93	141	198	0	95
200	125	191,44	718	G 1 ½ M 42x2	M 100x3	112	200	306	254	278	170	101	150	220	0	110
220 ⁴⁾	140	226,19	787	G 1 ½ M 50x2	M 125x4	125	225	350	273	307	200	106	171	240	0	120
250	160	289,81	835	G 1 ½ M 50x2	M 125x4	125	250	385	324	335	210	113	189	250	0	135
	180	236,40														150

Remarks:

- 1) Not standardized dimensions
- 2) Minimum stroke due to production. Shorter stroke length possible by using a spacer bush.
- 4) Not standardized piston Ø

Mounting type MT4 - cylinder with trunnion



Position of function bars 1-4
according to model code

① ② ③ ④ side determination

Piston Ø (mm)		Rod Ø (mm) MM		Annular areas A ₂ (cm ²)		ZM + 2 x stroke		Pipe connection EE Whitworth pipe thr./ Metric thread		Rod thread KK		A max.		Ø B ₁₈		Ø D		Ø D ₁ max. ¹⁾		PK + stroke		R ₁ ¹⁾⁵⁾		Ø TD ₁₈		TL _{JS16}		TM _{h12}		VE		WFWF + stroke		OH		XV ³⁾⁵⁾ min.		XV+stroke max.		Y/ Y + stroke		Minimum stroke ²⁾		Width across flats	
40	25	7.66	280	G ½ M 22x1,5	M 20x1,5	28	56	88	55	98	58	25	20	100	25	40	41	165	97	91	68	21	27	32	40	32	125	29	47	49	185	120	98	65	27	30									
50	32	11.59	316	G ¾ M 22x1,5	M 27x2	36	63	102	65	120	60	32	25	112	29	47	49	185	120	98	65	32	40	46	50	36	133	32	53	56	205	133	112	72	36	41									
63	40	18.61	357	G ¾ M 27x2	M 33x2	45	75	120	83	133	76	40	32	125	32	53	56	205	133	112	72	41	50	56	60	150	36	60	69	227	158	120	69	46	55										
80	50	30.63	395	G ¾ M 27x2	M 42x2	56	90	145	100	155	83	50	40	150	36	60	69	227	158	120	69	55	60	68	81	261	155	41	68	81	261	155	134	106	60	65									
100	63	47.37	439	G 1 M 33x2	M 48x2	63	110	170	125	171	95	63	50	180	41	68	81	261	155	134	106	60	75	80	100	280	202	45	76	100	297	218	158	79	75	85									
125	80	72.45	511	G 1 M 33x2	M 64x3	85	132	206	160	205	120	80	63	224	45	76	100	297	218	158	79	75	80	80	109	297	218	48	80	109	297	218	158	79	75	85									
140 ⁴⁾	90	90.32	545	G 1 ¼ M 42x2	M 72x3	90	145	226	180	229	130	90	70	240	48	80	109	297	218	158	79	85	85	85	128	330	240	50	85	128	330	240	185	90	85	95									
160	100	122.52	605	G 1 ¼ M 42x2	M 80x3	95	160	265	200	235	150	100	80	280	50	85	128	330	240	185	90	85	85	85	128	330	240	50	85	128	330	240	185	90	85	95									
180 ⁴⁾	110	159.44	648	G 1 ½ M 42x2	M 90x3	106	185	290	220	252	160	110	90	305	55	93	141	390	255	198	135	95	110	110	140	290	61	101	150	430	290	220	140	110	120										
200	125	191.44	718	G 1 ½ M 42x2	M 100x3	112	200	306	254	278	170	125	100	335	61	101	150	430	290	220	140	110	120	120	140	290	66	106	171	470	315	240	155	135	135										
220 ⁴⁾	140	226.19	787	G 1 ½ M 42x2	M 125x4	125	225	350	273	307	200	140	110	390	66	106	171	470	315	240	155	120	120	120	140	290	66	106	171	470	315	240	155	120	120										
250	160	289.81	835	G 1 ½ M 50x2	M 125x4	125	250	385	324	335	210	160	125	425	71	113	189	495	340	250	155	135	135	135	140	290	66	106	171	470	315	240	155	120	120										

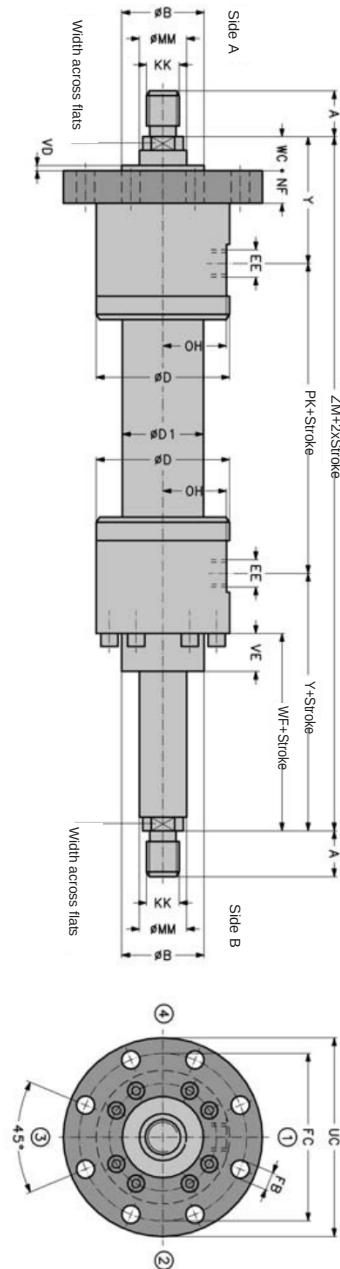
Remarks:

- 1) Not standardized dimensions
- 2) Minimum stroke due to production. Shorter stroke length possible by using a spacer bush.
- 3) **State XV dimension in plain text when ordering!**
- 4) Not standardized piston Ø
- 5) If position 2 or 4 of the throttle screw is selected, there is a risk of collision between trunnion bracket and throttle screw. This must be checked by the user.

Tolerances	PK	SS	ZM	XS	Y	W	WC	WF	XV	Stroke
Stroke: 0-499	±1,5	±1,5	±2	±2	±2	±2	±2	±2	±2	+2
Stroke: 500-1249	±1,5	±2	±2	±2	±2,8	±2	±2,8	±2	±2	+2
Stroke: 1250-3149	±3	±3	±3	±4	±4	±4	±4	±4	±4	+5
Stroke: 3150-8000	±5	±5	±5	±8	±8	±8	±8	±8	±8	+8

Mounting type MF3 - cylinder with round flange at cylinder head

Piston Ø (mm)		Rod Ø (mm) MM		Annular areas A ₂ (cm ²)		ZM + 2 x stroke		Pipe connection EE Whitworth pipe thr./ Metric thread		Rod thread KK		A max.		Ø B ₁₈		Ø D		Ø D1 max. ¹⁾		Ø FB ^{H13} FC _{JS13}		NF		VD		PK + stroke		R1 ¹⁾⁶⁾		UC		VE		WC		WF + stroke		OH		V/Y + stroke		Minimum stroke ²⁾		Width across flats	
40	25	7,66	280	G ^{1/2} M 22x1,5	M 20x1,5	28	56	88	55	11	122	22	3	98	58	145	25	18	40	41	91	10	21	24																					
50	32	11,59	316	G ^{3/4} M 22x1,5	M 27x2	36	63	102	65	14	132	25	4	120	60	155	29	22	47	49	98	5	30	37																					
63	40	18,61	357	G ^{3/4} M 27x2	M 33x2	45	75	120	83	14	150	28	4	133	76	175	32	25	53	56	112	0	32	36																					
80	50	30,63	395	G ¹ M 27x2	M 42x2	56	90	145	100	18	180	32	4	155	83	210	36	28	60	69	120	0	41	46																					
100	63	47,37	439	G ¹ M 33x2	M 48x2	63	110	170	125	22	212	36	5	171	95	250	41	32	68	81	134	0	55	60																					
125	80	72,45	511	G ¹ M 33x2	M 64x3	85	132	206	160	22	250	40	5	205	120	290	45	36	76	100	153	0	65	75																					
140 ⁴⁾	90	90,32	545	G ^{1 1/4} M 42x2	M 72x3	90	145	226	180	26	285	43	5	229	130	330	48	37	80	109	158	0	75	85																					
160	100	122,52	605	G ^{1 1/4} M 42x2	M 80x3	95	160	265	200	26	315	45	5	235	150	360	50	40	85	128	185	0	85	95																					
180 ⁴⁾	110	159,44	648	G ^{1 1/4} M 42x2	M 90x3	106	185	290	220	30	348	50	5	252	160	400	55	43	93	141	198	0	95	110																					
200	125	191,44	718	G ^{1 1/4} M 42x2	M 100x3	112	200	306	254	33	385	56	5	278	170	440	61	45	101	150	220	0	110	120																					
220 ⁴⁾	140	226,19	787	G ^{1 1/4} M 42x2	M 125x4	125	225	350	273	36	415	60	6	307	200	490	66	46	106	171	240	0	120	135																					
250	160	289,81	835	G ^{1 1/2} M 50x2	M 125x4	125	250	385	324	39	475	63	8	335	210	540	71	50	113	189	250	0	135	150																					



Position of function bores 1-4
according to model code

① ② ③ ④ side determination

Tolerances	PK	SS	ZM	XS	Y	W	WC	WF	XV	Stroke
Stroke: 0-499	±1,5	±1,5	±2	±2	±2	±2	±2	±2	±2	±2
Stroke: 500-1249	±1,5	±2	±2	±2	±2	±2	±2	±2	±2	±2
Stroke: 1250-3149	±3	±3	±3	±4	±4	±4	±4	±4	±4	±4
Stroke: 3150-8000	±5	±5	±5	±8	±8	±8	±8	±8	±8	±8

Remarks:

- 1) Not standardized dimensions
- 2) Minimum stroke due to production. Shorter stroke length possible by using a spacer bush.
- 4) Not standardized piston Ø
- 6) For dimension R1 see basic design A

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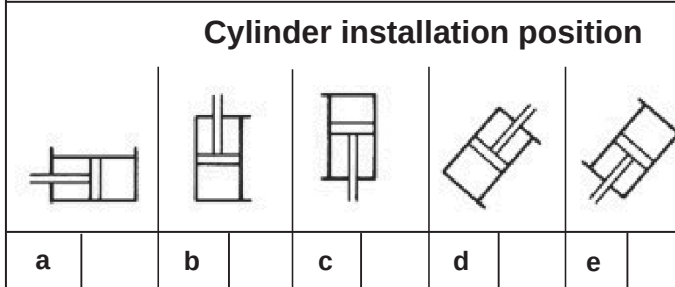
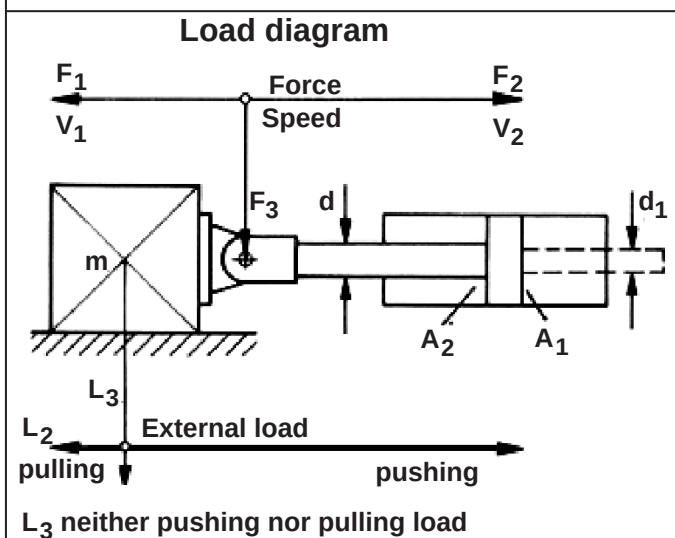
Type: ZG 2511 - 80/56 - MT4 - 300 - FG - 22 - B1C - G11 - E33.2

Requirements list for hydraulic cylinders

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

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

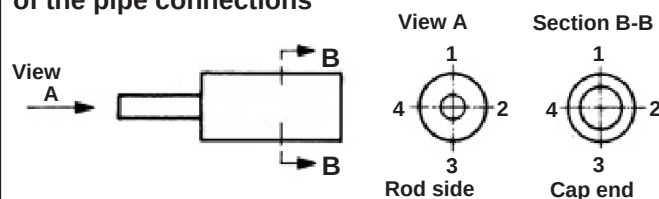
..... Department.....



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	M 8x1 R 1/4"	no
12	End position cushioning		Cap end	
			Rod side	

13	Required Cylinder forces	F_1	N
		F_2	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



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

Position measuring system

stating the
Pos. accuracy

inductive

digital

Ultrasonic

potentiometric

capacitive

yes no

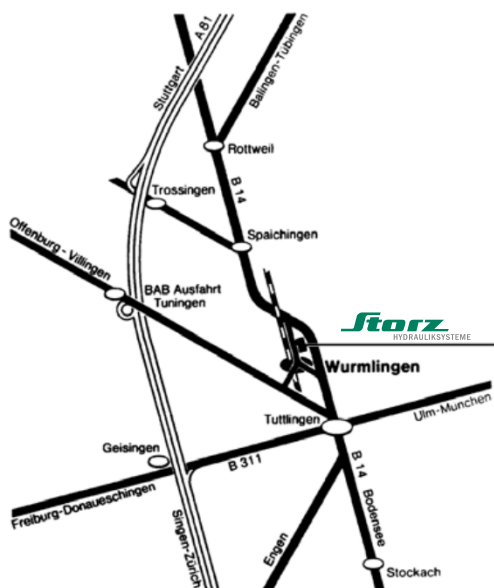


Remarks and notes on the application or special requests please with date and signature!

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
HYDRAULIKSYSTEME

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