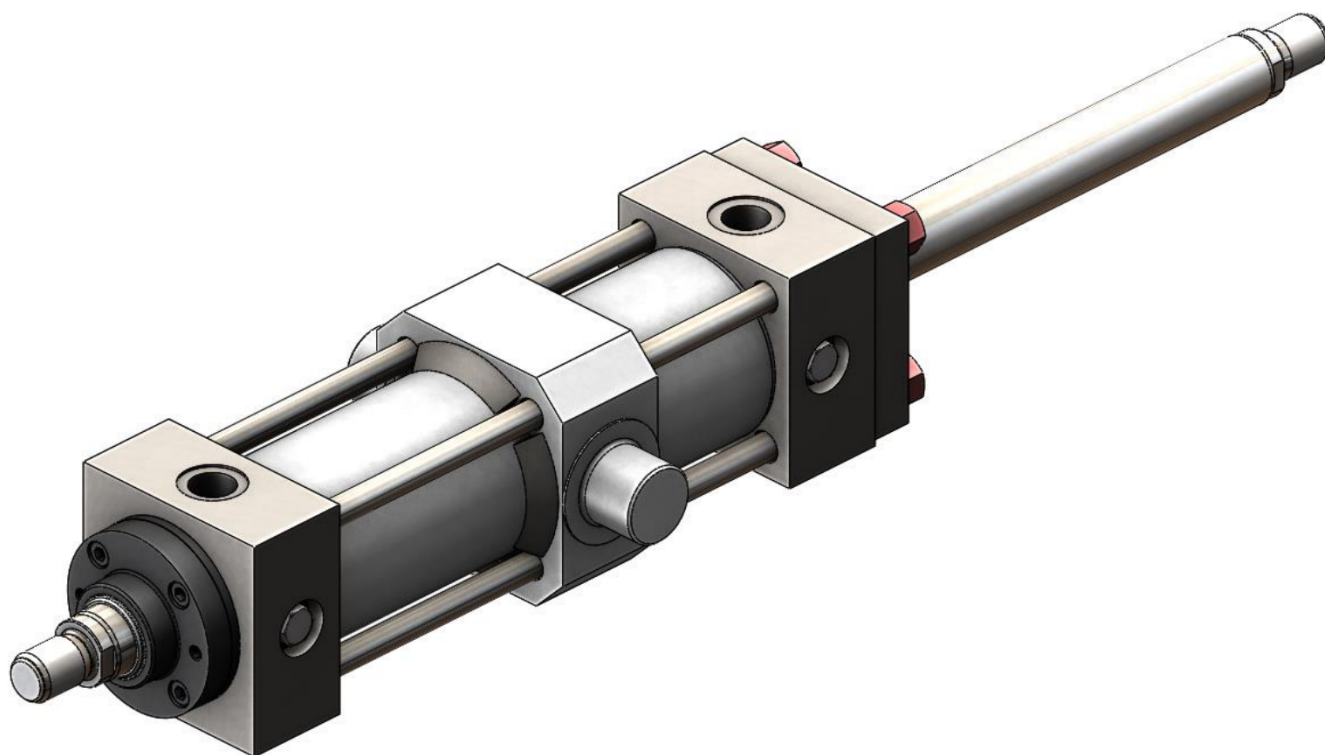


ZG 1605 **Synchronous Cylinder**

Brochure 03.20/DS15420



Synchronous Cylinder ZG 1605

Description:

In addition to the Storz hydraulic cylinder series ZBD 1605 designed to ISO 6020/2 and DIN 24554, the synchronous hydraulic cylinder series ZG 1605 was developed. These hydraulic cylinders have a piston rod extending on both sides. Their components are essentially the same as those of the standardized series ZBD 1605. Two piston rod diameters are assigned to each piston diameter.

The hydraulic cylinder series is of modular design. Cylinder tube, cylinder head and cylinder cap are connected by tie rods. 3 mounting types are available as standard.

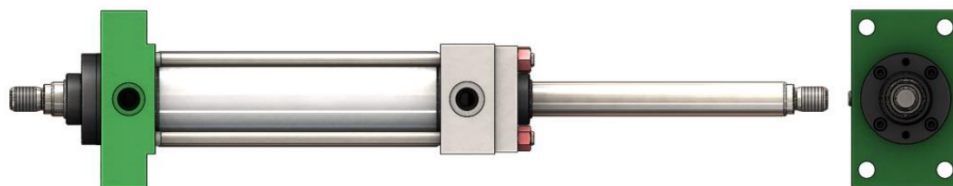
To ensure a wide range of applications for the hydraulic cylinders, several seal variants are available. We thus offer the user a cylinder series that is a consistent supplement to the internationally standardized 160 bar tie rod cylinder series. A high level of availability, stock spare parts and the assurance of a future-proof design are some of the distinctive features of this cylinder series.

Technical data:

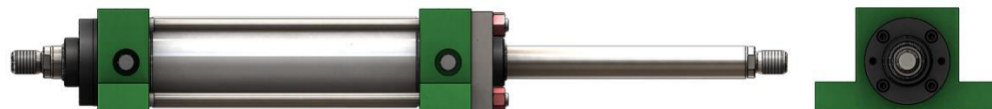
Nominal pressure:	160 bar (16 MPa)
Static test pressure:	240 bar (24 MPa)
Piston Ø:	25 – 200 mm
Temperature range:	-20 °C ... +80 °C (by hydraulic fluid)
Viscosity range:	(10 ... 600) 10 ⁻⁶ m ² /s
Stroke speed range:	0 – 0,5 m/s
Hydraulic fluid:	Mineral oil according to DIN 51524, HFD fluids



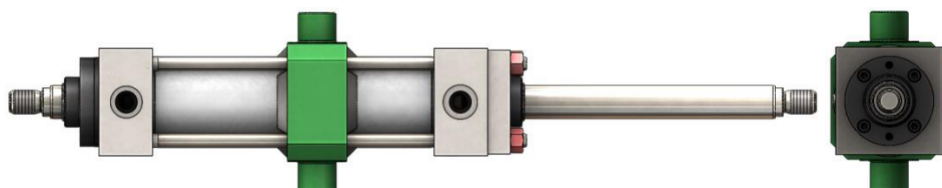
Mounting types:



ME5 Rectangular flange



MS2 Foot mounting

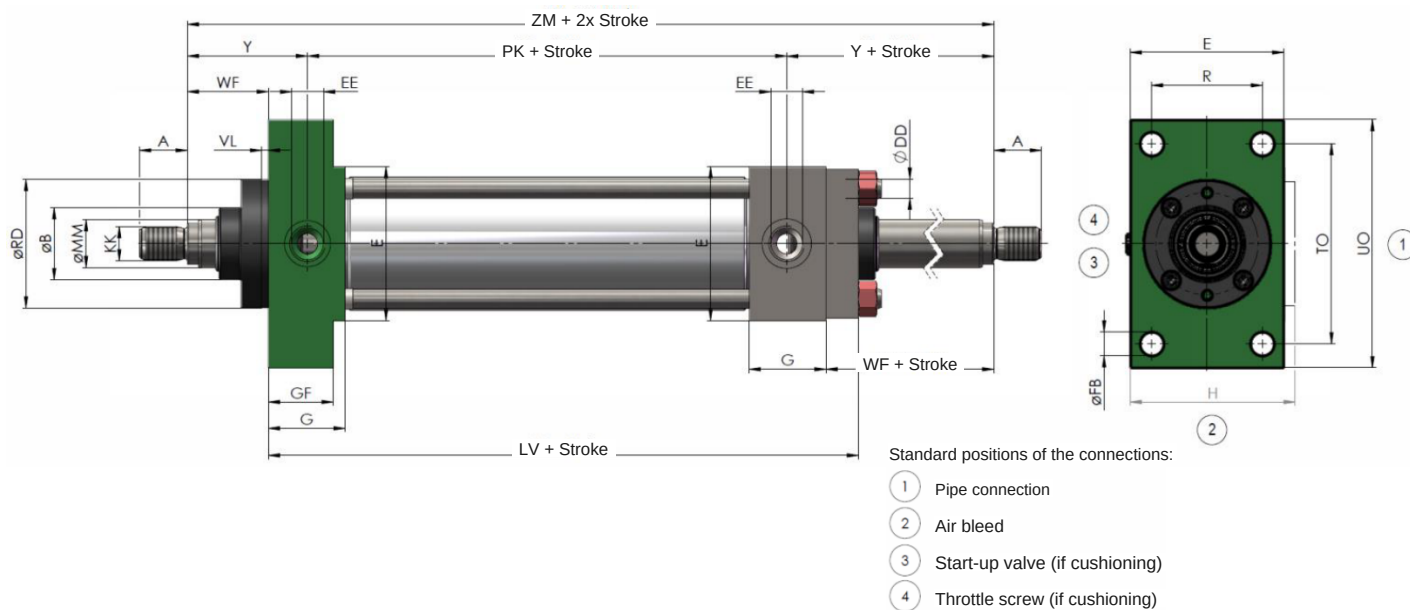


MT4 Trunnion

further mounting types on request

Synchronous Cylinder ZG 1605

Mounting type ME5 – rectangular flange at cylinder head



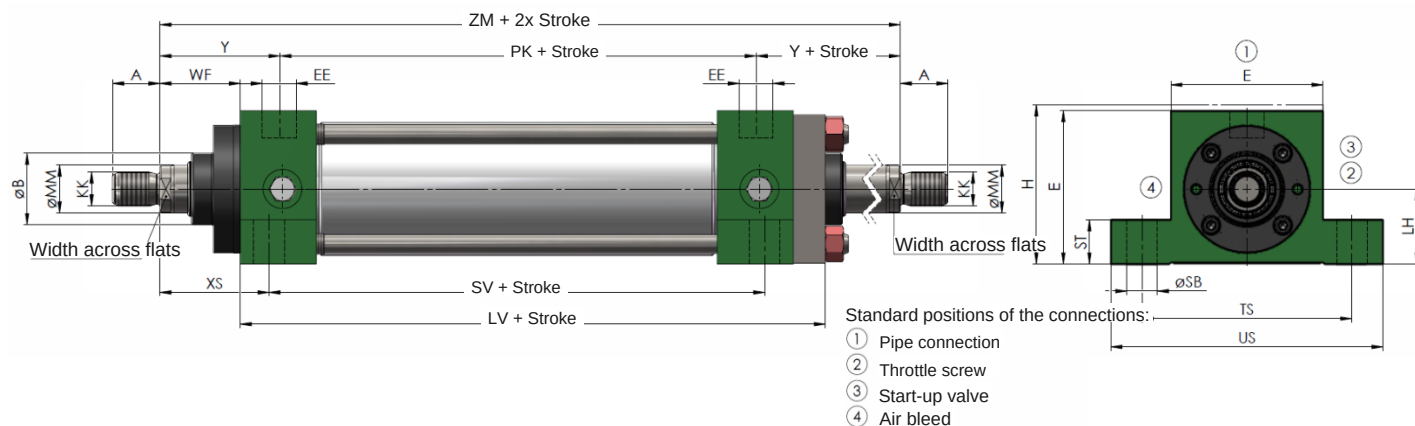
Piston Ø (mm)	Rod Ø MM(mm)	Annular area A2 (cm²)	ZM + 2 x Stroke	Pipe connection EE Whitworth pipe thread/ Metric thread	Rod thread KK	A h15	ØB	DD	E	ØFB H13	G	GF	H ¹⁾	LV + Stroke	PK + Stroke ±1,25	Rjs13	Ø RDf8	TO js13	UO	VL	WF ±2	Y±2	Cushioning length	Width across flats
25	12 18	3,8 2,4	226	G1/4	M10x1,25	14	24 30	M5x0,8	40	5,5	40	25	45	114	54	27	38	51	65	3	25	50	14	10 15
32	14 22	6,5 4,2	233	G1/4	M12x1,25	16	26 34	M6x1	45	6,6	40	25	50	124	58	33	42	58	70	3	35	60	16 16 ²⁾	12 19
40	18 28	10,0 6,4	262	G3/8	M14x1,5	18	30 42	M8x1	63	11	45	38	-	135	71	41	62	87	110	3	35	62	18 18 ²⁾	15 24
50	22 36 45	15,8 9,4	280	G1/2	M16x1,5	22	34 50	M12x1,25	75	14	45	38	-	141	73	52	74	105	130	4	41	67	20 20 ²⁾	19 30
63	28 45	25,0 15,3	330	G1/2	M20x1,5	28	42 60	M12x1,25	90	14	45	38	-	146	81	65	75 88	117	145	4	48	71	22	24 36
80	36 56	40,1 25,6	382	G3/4	M27x2	36	50 72	M16x1,5	115	18	50	45	-	164	92	83	82 105	149	180	4	51	77	25	30 46
100	45 70	62,6 40,1	420	G3/4	M33x2	45	60 88	M16x1,5	130	18	50	45	-	173	101	97	92 125	162	200	5	57	82	28	36 60
125	56 90	98,1 59,1	475	G1	M42x2	56	72 108	M22x1,5	165	22	58	58	-	197	117	126	105 150	208	250	5	57	86	30	46 75
160	70 110	162,5 106,0	515	G1	M48x2	63	88 133	M27x2	205	26	58	58	-	213	130	155	125 170	253	300	5	57	86	32	60 95
200	90 140	250,5 160	535	G1 1/4	M64x3	85	108 163	M30x2	245	33	76	76	-	267	160	190	150 210	300	360	5	57	98	40	75 120

¹⁾ Dimension H applies only to piston Ø 25 and 32

²⁾ Cushioning not adjustable

Synchronous Cylinder ZG 1605

Mounting type MS2 – foot mounting



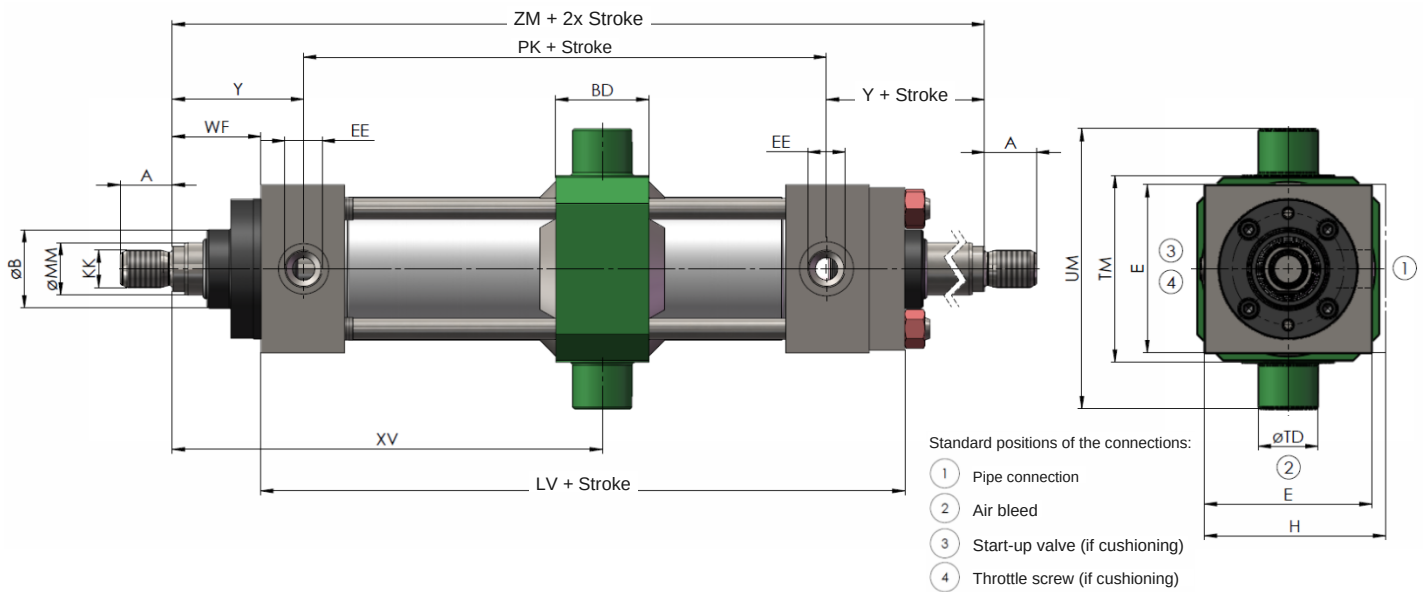
Piston Ø (mm)	Rod Ø MM (mm)	Annular area A2 (cm ²)	ZM + 2 x Stroke	Pipe connection EE Whitworth pipe thread/ Metric thread	Rod thread KK	A h15	Ø B	E	H ¹⁾	LH h10	LV + Stroke	PK + Stroke ±1,25	Ø SB H13	ST	SV + Stroke	TS js13	US	WF ±2	XS ±2	Y ±2	Cushioning length	Width across flats
25	12 18	3,8 2,4	154	G1/4	M10x1,25	14	24 30	40	45	19	114	54	6,6	8,5	88	54	72	25	33	50	14	10 15
32	14 22	6,5 4,2	178	G1/4	M12x1,25	16	26 34	45	50	22	124	58	9	12,5	88	63	84	35	45	60	16 16 ²⁾	12 19
40	18 28 22	10,0 6,4	195	G3/8	M14x1,5	18	30 42	63	-	31	135	71	11	12,5	105	83	103	35	45	62	18 18 ²⁾	15 24
50	36 45 28	15,8 9,4	207	G1/2	M16x1,5	22	34 50	75	-	37	141	73	14	19	99	102	127	41	54	67	20 20 ²⁾	19 30
63	45 56	25,0 15,3	223	G1/2	M20x1,5	28	42 60	90	-	44	146	81	18	26	93	124	161	48	65	71	22	24 36
80	56 70	40,1 25,6	246	G3/4	M27x2	36	50 72	115	-	57	164	92	18	26	110	149	186	51	68	77	25	30 46
100	70 90	62,6 40,1	265	G3/4	M33x2	45	60 88	130	-	63	173	101	26	32	107	172	216	57	79	82	28	36 60
125	90 110	98,1 59,1	289	G1	M42x2	56	72 108	165	-	82	197	117	26	32	131	210	254	57	79	86	30	46 75
160	110 140	162,5 106,0	302	G1	M48x2	63	88 133	205	-	101	213	130	33	38	130	260	318	57	86	86	32	60 95
200	140	250,5 160	356	G1 1/4	M64x3	85	108 163	245	-	122	267	160	39	44	172	311	381	57	92	98	40	75 120

¹⁾ Dimension H applies only to piston Ø 25 and 32

²⁾ Cushioning not adjustable

Synchronous Cylinder ZG 1605

Mounting type MT4 – trunnion



Piston Ø (mm)	Rod Ø MM (mm)	Annular area A2 (cm²)	ZM + 2 x Stroke	Pipe connection EE Whitworth pipe thread/ Metric thread	Rod thread KK	A h15	Ø B	BD	E	H ¹⁾	LV + Stroke	PK + Stroke ±1,25	Ø TD f8	TM h14	UM	WF ±2	XV min.	XV max. = Stroke + ³⁾	Minimum stroke	Y±2	Cushioning length	Width across flats
25	12 18	3,8 2,4	154	G1/4	M10x1,25	14	24 30	20	40	45	114	54	12	48	68	25	82	72	10	50	14	10 15
32	14 22	6,5 4,2	178	G1/4	M12x1,25	16	26 34	25	45	50	124	58	16	55	79	35	96	82	14	60	16 16 ²⁾	12 19
40	18 28 22	10,0 6,4	195	G3/8	M14x1,5	18	30 42	30	63	-	135	71	20	76	108	35	107	88	19	62	18 18 ²⁾	15 24
50	36 45	15,8 9,4	207	G1/2	M16x1,5	22	34 50	40	5	-	141	73	25	89	129	41	117	90	7	67	20 20 ²⁾	19 30
63	28 45	25,0 15,3	223	G1/2	M20x1,5	28	42 60	50	90	-	146	81	32	100	150	48	132	91	41	71	22	24 36
80	36 56	40,1 25,6	246	G3/4	M27x2	36	50 72	60	115	-	164	92	40	127	191	51	147	99	48	77	25	30 46
100	45 70	62,6 40,1	265	G3/4	M33x2	45	60 88	70	130	-	173	101	50	140	220	57	158	107	51	82	28	36 60
125	56 90	98,1 59,1	289	G1	M42x2	56	72 108	90	165	-	197	117	63	178	278	57	180	109	71	86	30	46 75
160	70 110	162,5 106,0	302	G1	M48x2	63	88 133	110	205	-	213	130	80	215	341	57	198	104	94	86	32	60 95
200	90 140	250,5 160	356	G1 1/4	M64x3	85	108 163	130	245	-	267	160	100	279	439	57	226	130	96	98	40	75 120

¹⁾ Dimension H applies only to piston Ø 25 and 32

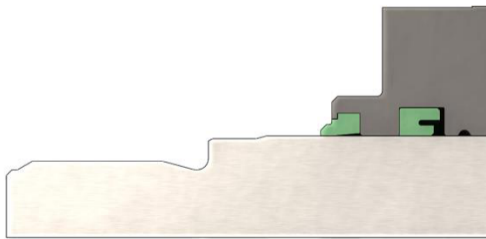
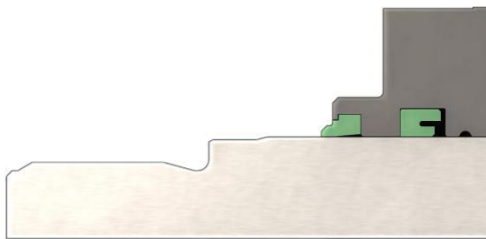
²⁾ Cushioning not adjustable

³⁾ The required value XV must be stated when ordering. Tolerance ±2

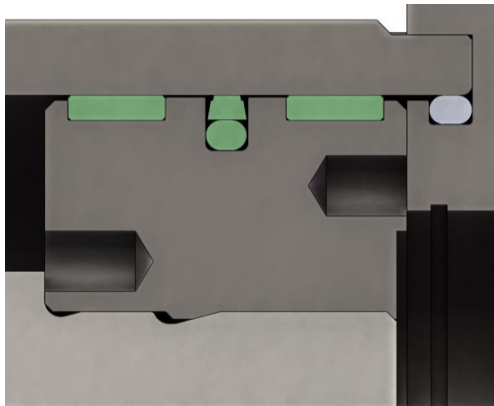
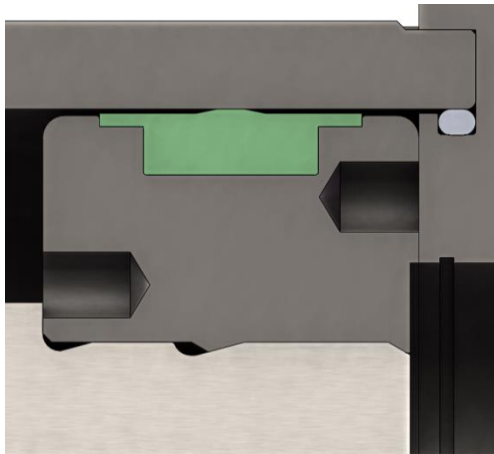
Synchronous Cylinder ZG 1605

Seal variants – schematic representation

Rod seal

Code letter	Schematic representation	Features
R (standard version)		U-cup seal made of polyurethane Temperature range: -30 °C to +80 °C Hydraulic fluid: mineral oil Universal industrial use Very high wear resistance
K and KV (Viton)		U-cup seal made of Perbunan Temperature range: -30 °C to +100 °C Applications in which smooth running combined with minimum leakage is required (e.g. machine tools) This seal profile is also available in Viton (for high temperatures and HFD fluids)

Piston seal

Code letter	Schematic representation	Features
G (standard version) GV (Teflon-Viton)		Teflon seal Temperature range: -10 °C to +80 °C Hydraulic fluid: mineral oil Stick-slip-free stroke motion, low wear, insensitive to aerated systems Optimum seal for all applications in which absolute tightness is not required As GV version, with Viton O-ring, for high temperatures (up to +200 °C) and for fire-resistant HFD fluids
H Compact seal kit		Compact seal made of Perbunan Temperature range: -10 °C to +80 °C Suitable for applications in which absolute tightness at the piston is required (e.g. support cylinders); and for general industrial applications, as long as no stick-slip-free feed motion has to be guaranteed

Model code:

ZG 1605

Double-acting hydraulic cylinders

Nominal pressure 160 bar (16 MPa)

optionally with or without end position cushioning

Piston diameter in mm**Piston rod diameter in mm****Mounting type**

- ME5** rectangular flange at cylinder head
- MS2** side foot mounting
- MT4** trunnion (state dimension XV when ordering)

Cylinder stroke in mm**Rod seal**

- R** U-cup seal (material polyurethane AU) standard version
- K** U-cup seal (material Perbunan NBR)
- KV** U-cup seal (material Viton)

Piston seal

- G** Teflon seal standard version
- GV** Teflon seal (material PTFE + Viton)
- H** Compact seal

End position cushioning

- 0** without
- 1** both sides
- 2** side B (right side of the dimension drawing)
- 3** side A (left side of the dimension drawing)

Piston rod surface

- C** induction-hardened and hard chrome-plated

Piston rod end

- 1** external thread
- 3** special version (identified by additional specifications)

Piston rod material

- C** tempered steel

Pipe connection

- G** Whitworth pipe thread (preferably)
- M** metric ISO thread

Version code

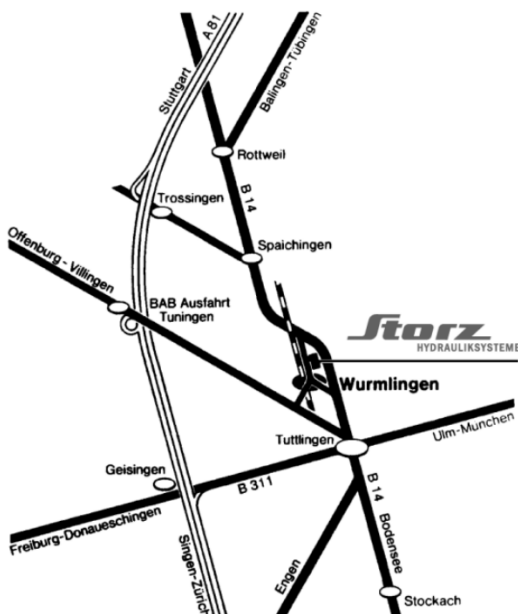
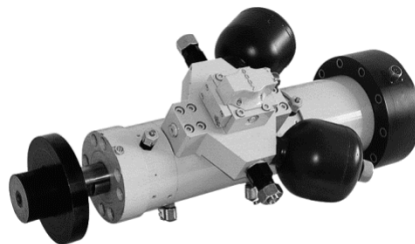
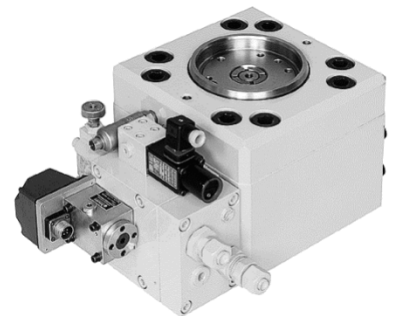
(specified by the manufacturer)

Example: Double-acting hydraulic cylinder with double-ended piston rod (tie rod design), 160 bar nominal pressure, with the following data:
 piston Ø 80 mm; piston rod Ø 36 mm; rectangular flange at cylinder head, stroke 200 mm; rod seal: U-cup seal of polyurethane,
 piston seal: Teflon seal, end position cushioning on both sides, induction-hardened and hard chrome-plated piston rod of tempered steel with
 external thread, pipe connection with Whitworth pipe thread

ZG 1605-80/36-ME5-200-RG1C1CG.



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



Storz
HYDRAULIKSYSTEME

Storz · Hydrauliksysteme GmbH · Postfach 70 · D-78571 Wurmlingen
Verwaltung und Betrieb:
Obere Hauptstraße 64 · D-78573 Wurmlingen
Telefon: 07461 96653-0 · Telefax: 07461 96653-29
Internet: www.storz-hydraulik.de · info@storz-hydraulik.de