AROS Hydraulik GmbH

Product catalogue – GZD5 series
Double-rod cylinders

Table of Contents

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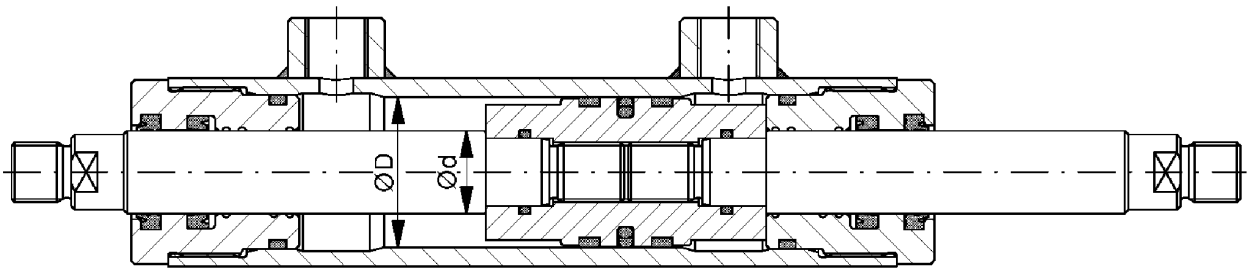
1 General technical data

This is a variant of the series 5 double-acting hydraulic cylinder as shown in dimensioned sheet 5-ZD5. The piston rods at both ends of the cylinder produce the same stroke force and stroke speed in both directions of movement with a constant pump flow rate.
Please note our boundary and use conditions.



Piston rod:	ground, polished and hard-chrome plated
End cushioning:	not possible
Operating temperature:	-20°C to +80°C (other temperatures available on request)
Operating fluid:	mineral-based hydraulic oil (other operating fluids possible on request)
Connections:	for pipe fittings according to DIN 2353 / ISO 8434-1
max. operating pressure:	280 bar
max. piston speed:	0.5 m/s (higher speeds available on request)
Glydring:	smooth-running, stick-slip-free, no retaining function (standard version)
AQ seal:	smooth-running, stick-slip-free, for retaining function
Seals:	Viton available on request
Tolerance:	For stroke tolerance, see 1.6 Angular tolerances of the mounting holes according to EN ISO 13920-BE

1.1 Boundary and use conditions

- The mechanical alignment of the movement axis and, consequently, the mounting points of the AROS cylinder and piston rod must be ensured. Lateral forces on the piston rod and piston guides must be avoided. Where applicable, the self-weight of the AROS cylinder or piston rod must be taken into account.
- The buckling length/buckling load of the piston rod or the AROS cylinder must be noted. The maximum buckling load is calculated on request.
- Note the maximum allowable stroke speeds with regard to the suitability of the seals and their compatibility with the operating fluid used.
- The maximum allowable speeds when moving to the end positions, taking external loads into account, must be observed. If the end positions are approached at a speed > 0.1 m/s (guide value), a cylinder with end cushioning should be provided.

Danger

Overpressurisation

- The maximum allowable operating pressure must be observed in all operating states of the AROS cylinder. Potential pressure intensification resulting from the ratio of the annular area to the piston area and any potential restriction points must be avoided.

- Harmful environmental factors, such as aggressive ultrafine particles, vapours, high temperatures, etc., as well as dirt and damage to the hydraulic fluid, must be avoided.

If you are unsure about media (fluid) compatibility or if the boundary and use conditions are exceeded, please contact us.

1.2 Service life

The AROS GZD5 series cylinders are robust, welded cylinders. Reliability is highly dependent on the application. Because it is welded, its service life is significantly shorter than that of a bolted version. Please contact our engineering department regarding the operating limits for > 300,000 cycles.

1.3 Acceptance

Every cylinder is tested in accordance with the AROS standard and ISO 10100:2001.

1.4 Safety instructions

For the assembly, commissioning and maintenance of AROS cylinders, refer to the “General Operating and Assembly Instructions for Hydraulic Cylinders”!
Servicing and repair work must be carried out by AROS Hydraulik GmbH or by personnel specially trained for this purpose. No warranty is provided for damage resulting from assembly, maintenance or repair.

1.5 Checklists

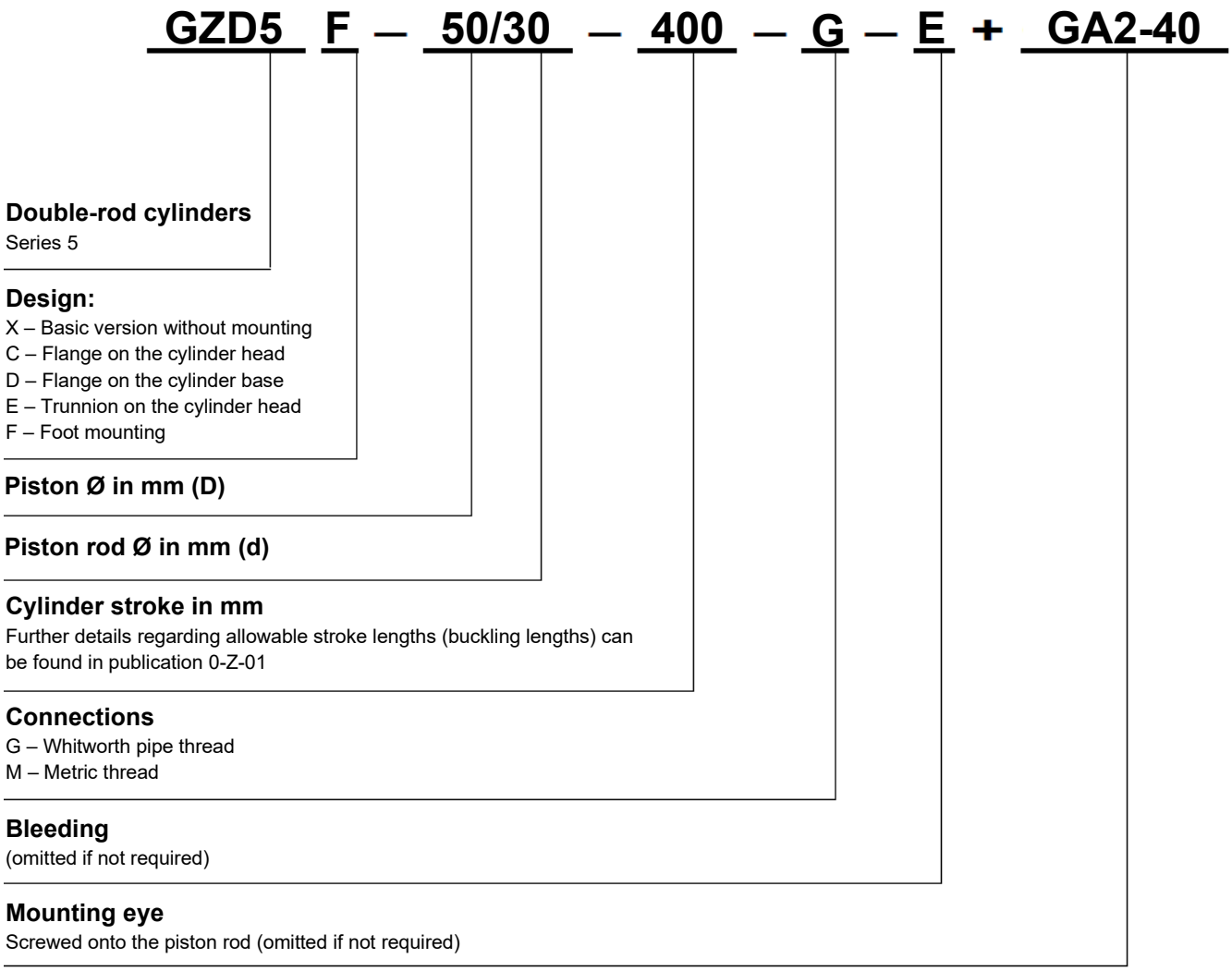
Cylinders whose characteristics and operating data differ from the values stated in the data sheet can only be supplied on request as customised cylinders. For quotations, any deviations from the characteristics and/or operating data set out in the AROS cylinder specifications must be described.

1.6 Stroke tolerances

Nominal stroke	Tolerance
≤ 1,250	+2 0
> 1,250 ≤ 3,150	+5 0
> 3,150 ≤ 8,000	+8 0

Dimensions in millimetres

2 Type code



Smaller and larger connections are also possible as custom versions; these must then be specified in the type designation as shown in the following example:

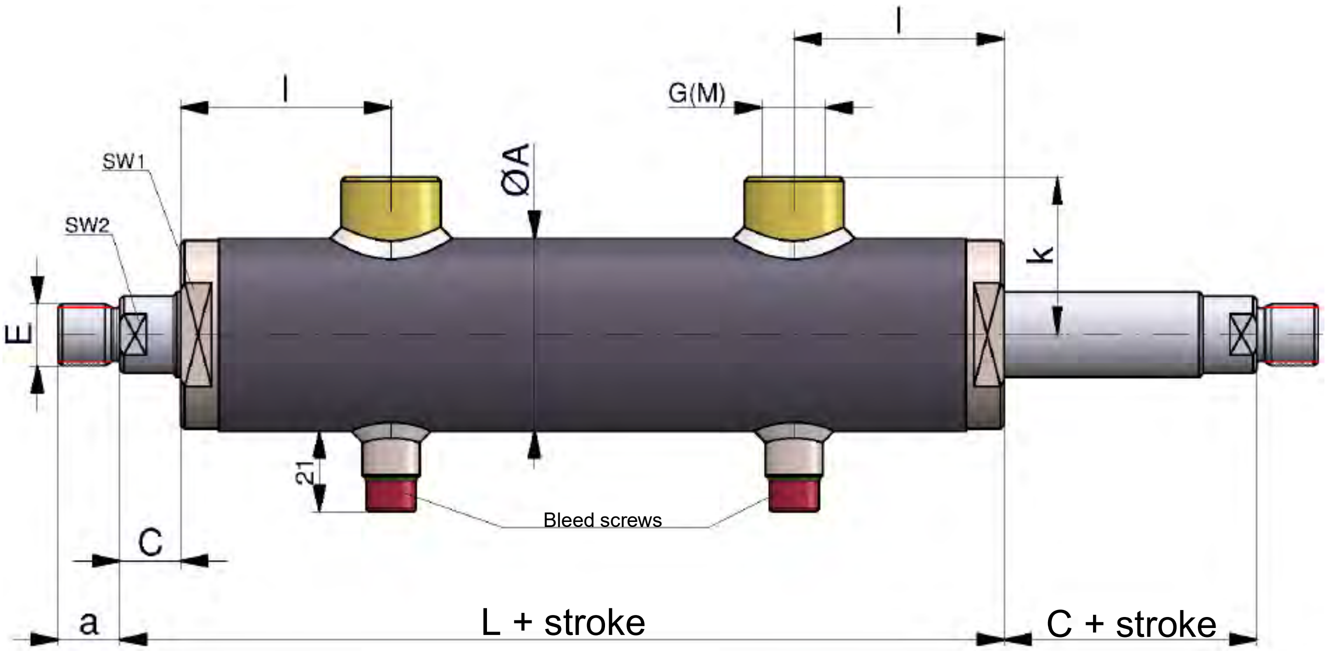
GZD5G – 50/35 – 400 - G ½

The max. possible connection thread is shown in the dimension table for design X.

3 Designs

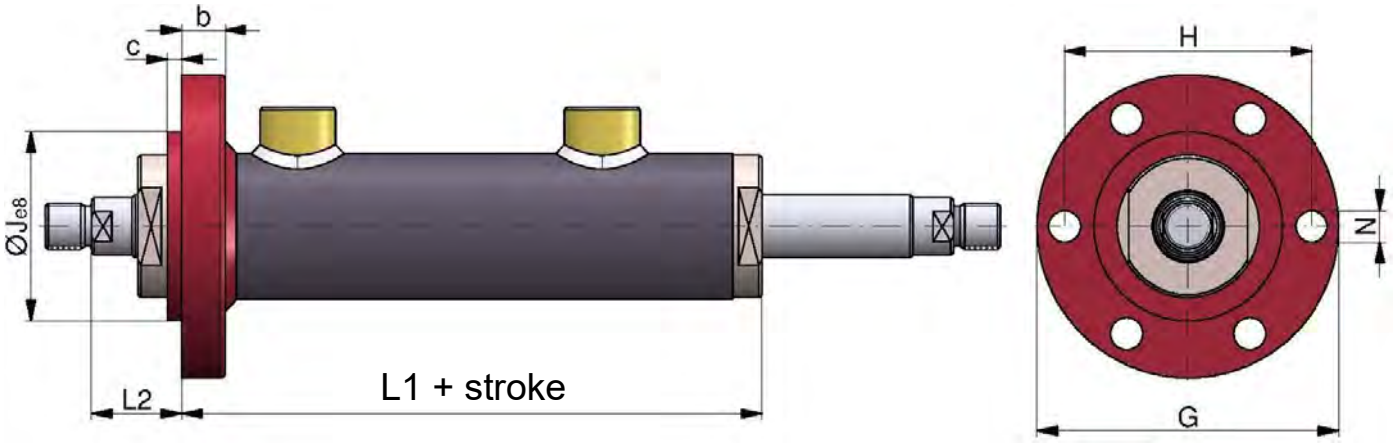
3.1 Design X

Basic version without mounting
If the connections differ (G, M), the dimension ‘k’ changes. For larger connections, dimension “l” may increase slightly in designs C, D and E. Bleed screws can be installed on request. They are located opposite the barrel connections.
Exception: Design F (see dimensioned drawing)



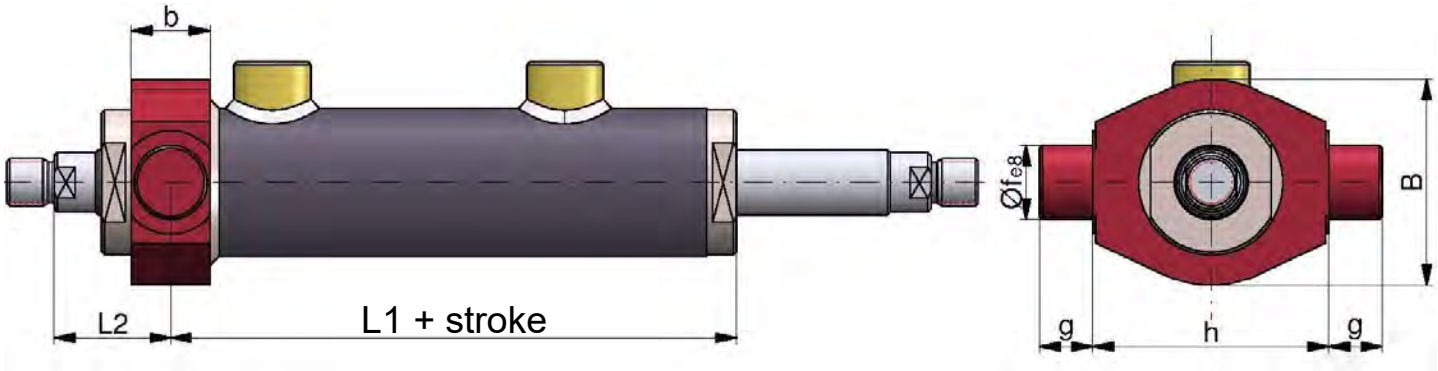
<table>
<tr><th colspan="27">Type GZD5X</th></tr>
<tr><th>Piston</th><td>30</td><td colspan="3">40</td><td colspan="3">50</td><td colspan="3">60</td><td colspan="3">80</td><td colspan="3">100</td><td colspan="2">120</td><td colspan="2">140</td><td colspan="2">160</td><td colspan="2">180</td><td colspan="2">200</td></tr>
<tr><th>Rod</th><td>22</td><td>22</td><td>25</td><td>30</td><td>25</td><td>30</td><td>35</td><td>30</td><td>35</td><td>40</td><td>40</td><td>50</td><td>55</td><td>55</td><td>60</td><td>70</td><td>70</td><td>85</td><td>85</td><td>100</td><td>90</td><td>110</td><td>110</td><td>125</td><td>125</td><td>140</td></tr>
<tr><th>A</th><td>40</td><td colspan="3">50</td><td colspan="3">60</td><td colspan="3">75</td><td colspan="3">95</td><td colspan="3">120</td><td colspan="2">140</td><td colspan="2">170</td><td colspan="2">190</td><td colspan="2">210</td><td colspan="2">245</td></tr>
<tr><th>C</th><td>12</td><td colspan="3">16</td><td colspan="3">16</td><td colspan="3">16</td><td colspan="3">25</td><td colspan="3">27</td><td colspan="2">32</td><td colspan="2">35</td><td colspan="2">37</td><td colspan="2">42</td><td colspan="2">47</td></tr>
<tr><th>E</th><td>M16x1.5</td><td colspan="3">M16x1.5</td><td colspan="3">M22x1.5</td><td colspan="3">M28x1.5</td><td colspan="3">M35x1.5</td><td colspan="3">M45x1.5</td><td colspan="2">M58x1.5</td><td colspan="2">M65x1.5</td><td colspan="2">M80x2</td><td colspan="2">M100x2</td><td colspan="2">M110x2</td></tr>
<tr><th>L</th><td>162</td><td colspan="3">181</td><td colspan="3">196</td><td colspan="3">218</td><td colspan="3">255</td><td colspan="3">287</td><td colspan="2">362</td><td colspan="2">399</td><td colspan="2">467</td><td colspan="2">528</td><td colspan="2">585</td></tr>
<tr><th>AF1</th><td>36</td><td colspan="3">41</td><td colspan="3">50</td><td colspan="3">65</td><td colspan="3">85</td><td colspan="3">100</td><td colspan="10">Grooves on the circumference</td></tr>
<tr><th>AF2</th><td>17</td><td>17</td><td>19</td><td>24</td><td>19</td><td>24</td><td>27</td><td>24</td><td>27</td><td>32</td><td>32</td><td>41</td><td>46</td><td>46</td><td>50</td><td>60</td><td>60</td><td>75</td><td>75</td><td>85</td><td>80</td><td>95</td><td>100</td><td>110</td><td>110</td><td>120</td></tr>
<tr><th>a</th><td>16</td><td colspan="3">16</td><td colspan="3">22</td><td colspan="3">28</td><td colspan="3">35</td><td colspan="3">45</td><td colspan="2">58</td><td colspan="2">65</td><td colspan="2">80</td><td colspan="2">100</td><td colspan="2">110</td></tr>
<tr><th>k</th><td>36</td><td colspan="3">41</td><td colspan="3">46</td><td colspan="3">56</td><td colspan="3">66</td><td colspan="3">78</td><td colspan="2">91</td><td colspan="2">106</td><td colspan="2">119</td><td colspan="2">129</td><td colspan="2">147</td></tr>
<tr><th>l</th><td>47</td><td colspan="3">55</td><td colspan="3">60</td><td colspan="3">66</td><td colspan="3">76</td><td colspan="3">84</td><td colspan="2">106</td><td colspan="2">112</td><td colspan="2">140</td><td colspan="2">165</td><td colspan="2">190</td></tr>
<tr><th>G</th><td>G ¼</td><td colspan="3">G ⅜</td><td colspan="3">G ⅜</td><td colspan="3">G ½</td><td colspan="3">G ½</td><td colspan="3">G ½</td><td colspan="2">G ¾</td><td colspan="2">G ¾</td><td colspan="2">G 1</td><td colspan="2">G 1</td><td colspan="2">G 1</td></tr>
<tr><th>M</th><td>M14x1.5</td><td colspan="3">M18x1.5</td><td colspan="3">M18x1.5</td><td colspan="3">M22x1.5</td><td colspan="3">M22x1.5</td><td colspan="3">M22x1.5</td><td colspan="2">M27x2</td><td colspan="2">M27x2</td><td colspan="2">M33x2</td><td colspan="2">M33x2</td><td colspan="2">M33x2</td></tr>
<tr><th>G max.
M max.</th><td>G ½
M22x1.5</td><td colspan="3">G ¾
M27x2</td><td colspan="3">G ¾
M27x2</td><td colspan="3">G 1
M33x2</td><td colspan="3">G 1
M33x2</td><td colspan="3">G 1
M33x2</td><td colspan="2">G 1¼
M42x2</td><td colspan="2">G 1¼
M42x2</td><td colspan="2">G 1½
M48x2</td><td colspan="2">G 1½
M48x2</td><td colspan="2">G 1½
M48x2</td></tr>
</table>

3.2 Design C



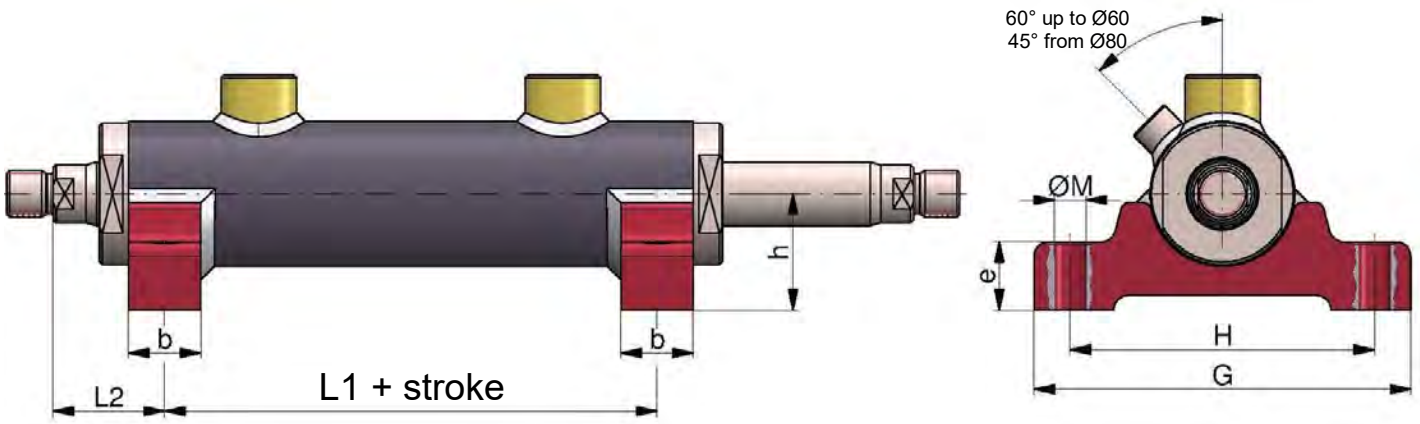
Type GZD5C												
Piston	30	40	50	60	80	100	120	140	160	180	200	
Rod	22	22 25 30	25 30 35	30 35 40	40 50 55	55 60 70	70 85	85 100	90 110	110 125	125 140	
G	94	104	118	138	178	205	245	280	335	360	420	
H	75	85	95	115	145	170	205	240	275	300	345	
J	60	65	75	90	115	140	165	200	225	250	285	
L1	135	150	165	187	215	245	313	347	405	461	503	
L2	27	31	31	31	40	42	49	52	62	67	82	
N	9	11	11	13	17	17	21	21	30	30	33	
b	12	15	18	22	25	35	40	45	55	60	70	
c	5	5	5	5	5	5	5	5	10	10	10	

3.3 Design E



Type GZD5E											
Piston	30	40	50	60	80	100	120	140	160	180	200
Rod	22	22 25 30	25 30 35	30 35 40	40 50 55	55 60 70	70 85	85 100	90 110	110 125	125 140
B	60	70	80	100	125	150	175	210	235	255	295
L1	130	142	155	174.5	200	225	288	320	375	429	465
L2	32	39	41	43.5	55	62	74	79	92	99	120
b	20	26	30	35	40	50	60	65	80	85	95
f	20	25	30	35	40	50	60	65	75	80	90
g	15	18	20	20	25	30	35	40	50	55	55
h	70	80	90	115	140	170	190	230	245	275	320

3.4 Design F

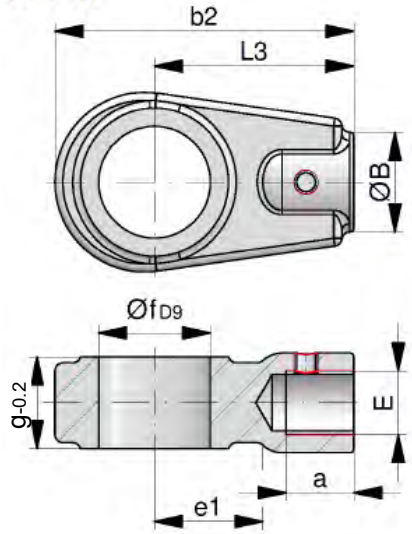


Type GZD5F																						
Piston	30	40			50			60			80			100			120		140		160		180		200	
Rod	22	22	25	30	25	30	35	30	35	40	40	50	55	55	60	70	70	85	85	100	90	110	110	125	125	140
G	110	130			150			175			215			265			295		340		400		450		510	
H	90	105			120			140			175			215			240		280		330		380		430	
L1	110	120			130			147			170			190			251		280		330		376		398	
L2	32	38.5			41			43.5			55			62			71.5		77		87		97		117	
M	9	11			13			13			17			21			25		28		31		37		37	
b	20	25			30			35			40			50			55		60		70		80		90	
e	18.5	23.5			28.5			33.5			39			50			50.5		60		70		80		90	
h	35	40			45			55			68			80			100		115		130		145		165	

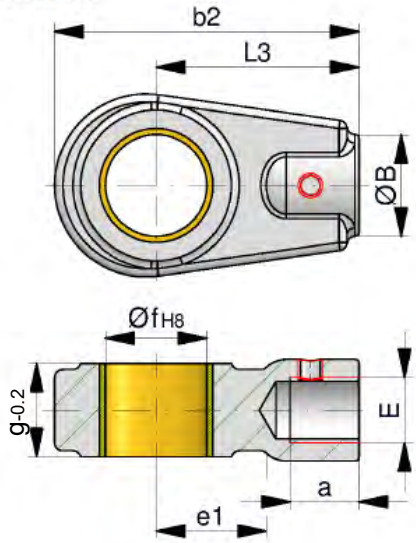
4 Mounting eyes

Type					Cyl.	Dimensions (mm)													
					Ø	B	E	L3	a	b1	b2	e1	e2	f	g	h1	h2	i	k
SA1-20	-	GK1-20	GA2-20	GA2-20 B	30	25	M16 x 1.5	50	17	80	70	25	25	20	19	16	24	39	M8
SA1-25	SA2-25	GK1-25	GA2-25	GA2-25 B	40	25	M16 x 1.5	50	17	80	75	28	30	25	23	20	29	47	M8
SA1-30	SA2-30	GK1-30	GA2-30	GA2-30 B	50	34	M22 x 1.5	60	23	94	90	30	35	30	28	22	30	56	M8
SA1-35	SA2-35	GK1-35	GA2-35	GA2-35 B	60	44	M28 x 1.5	70	29	112	106	38	40	35	30	25	35	62	M10
SA1-40	SA2-40	GK1-40	GA2-40	GA2-40 B	80	55	M35 x 1.5	85	36	135	126	45	47	40	35	28	38	71	M10
SA1-50	SA2-50	GK1-50	GA2-50	GA2-50 B	100	61	M45 x 1.5	105	46	168	168	55	60	50	40	35	43	80	M12
SA1-60	SA2-60	GK1-60	GA2-60	GA2-60 B	120	75	M58 x 1.5	130	59	200	189	65	67	60	50	44	54	100	M10
SA1-70	-	GK1-70	GA2-70	GA2-70 B	140	86	M65 x 1.5	150	66	232	220	75	80	70	55	49	65	111	M12
SA1-80	-	GK1-80	GA2-80	GA2-80 B	160	102	M80 x 2	170	81	265	251	80	80	80	60	55	74	120	M16
SA1-90	-	GK1-90	GA2-90	-	180	124	M100 x 2	210	101	323	302	90	95	90	65	60	-	125	M16
SA1-100	-	GK1-100	GA2-100	-	200	138	M110 x 2	235	111	360	338	105	105	100	70	70	-	140	M20

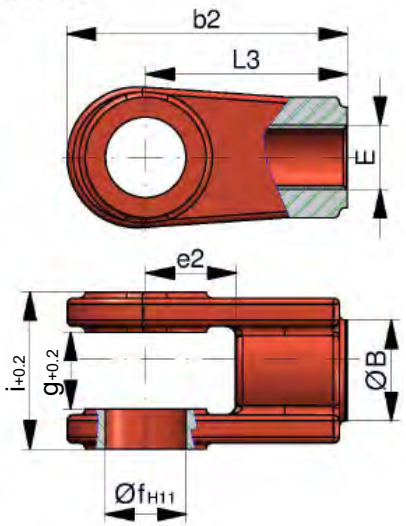
SA1-...



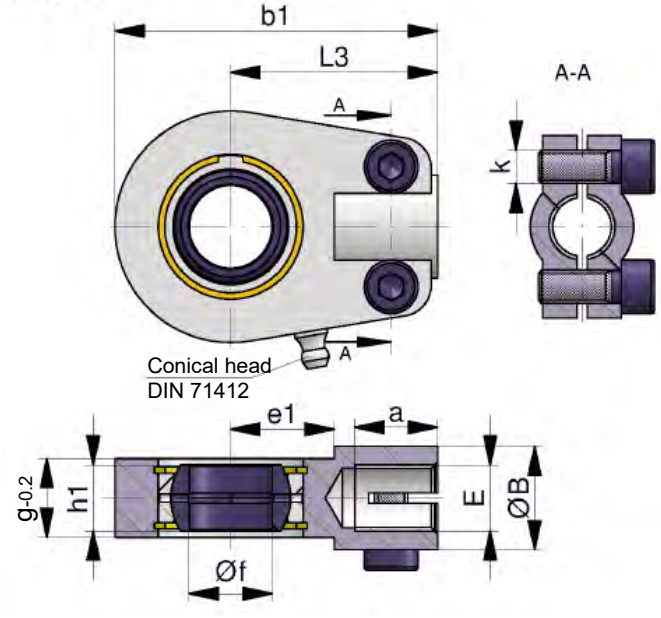
SA2-...



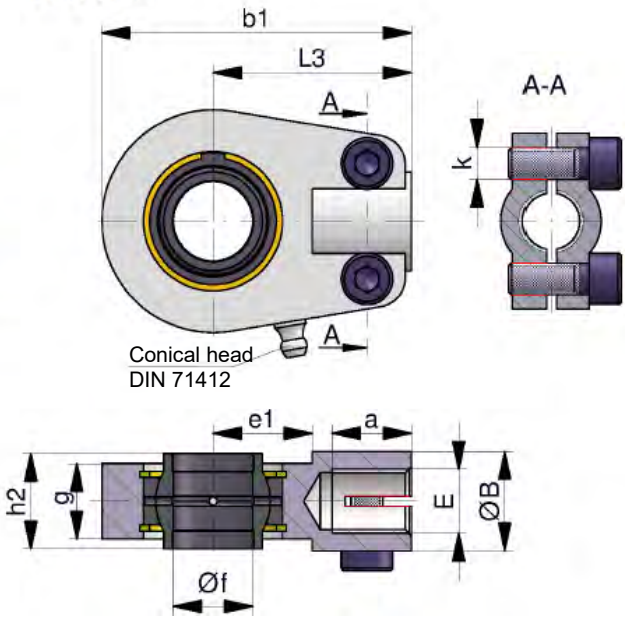
GK1-...



GA2-...



GA2-... B



5 Weight table (kg)

Cylinder type		Designs (stroke = 0)				50 mm	Mounting eyes					Ø f
		X	C,D	E	F	Stroke	SA1-	SA2-	GK1-	GA2-	GA2-B	mm
GZD5.-30/	22	1.10	1.60	1.40	1.40	0.28	0.25	--	0.25	0.37	0.37	20
GZD5.- 40/	22	2.05	2.85	2.65	3.05	0.45	0.30	0.45	0.35	0.43	0.43	25
	25	2.10	2.90	2.70	3.10	0.48						
	30	2.20	3.00	2.80	3.20	0.55						
GZD5.- 50/	25	2.96	4.16	3.96	4.56	0.50	0.50	0.75	0.65	0.70	0.70	30
	30	3.07	4.27	4.07	4.67	0.65						
	35	3.20	4.40	4.20	4.80	0.68						
GZD5.- 60/	30	5.51	7.51	7.11	8.11	0.65	0.90	1.15	1.00	1.11	1.13	35
	35	5.65	7.65	7.25	8.25	0.72						
	40	5.81	7.81	7.41	8.41	0.78						
GZD5.- 80/	40	9.90	13.40	12.70	14.10	1.35	2.00	1.40	1.70	1.32	1.34	40
	50	10.40	13.90	13.20	14.60	1.60						
	55	10.70	14.20	13.50	14.90	1.80						
GZD5.-100/	55	19.30	25.60	23.90	27.30	1.95	2.20	3.40	3.50	3.28	3.32	50
	60	19.60	25.90	24.20	28.00	2.20						
	70	20.40	26.70	25.00	28.40	2.50						
GZD5.-120/	70	29.34	39.14	36.14	41.34	3.10	5.00	5.20	5.50	5.47	5.53	60
	85	31.04	40.48	37.84	43.04	3.80						
GZD5.-140/	85	43.60	58.60	54.50	59.60	5.00	8.10	--	8.60	8.57	8.68	70
	100	46.00	61.00	56.90	62.00	5.95						
GZD5.-160/	90	73.70	99.20	89.60	105.2	5.73	12.00	--	12.40	12.18	12.35	80
	110	78.70	104.2	94.60	110.2	6.95						
GZD5.-180/	110	114.00	146	135.6	159.2	6.68	18.50	--	19.50	21.41	--	90
	125	119.00	151	140.6	164.2	8.40						
GZD5.-200/	125	166.3	217	198.9	231.1	10.96	26.00	--	26.80	27.46	--	100
	140	172.7	223	205.3	237.5	12.19						