AROS Hydraulik GmbH

Product catalogue – ZD0 series
Double-acting hydraulic cylinders

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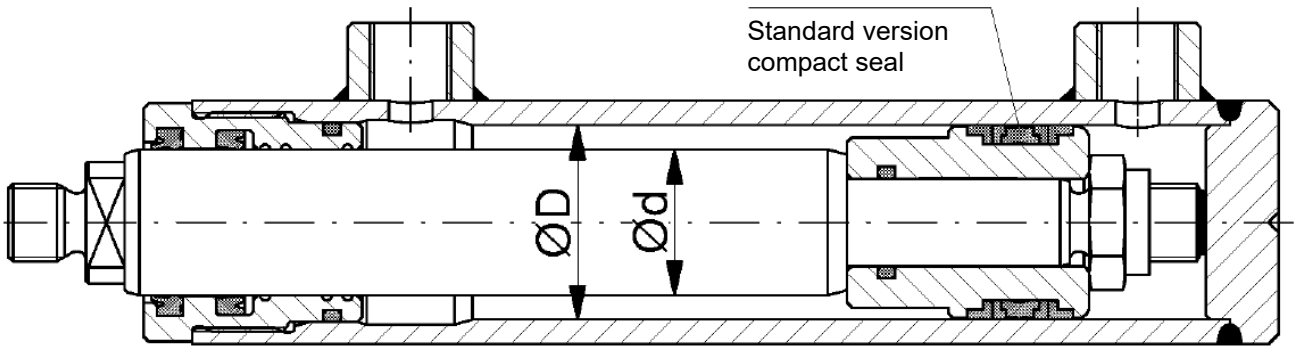
1 General technical data

Robust and universally usable welded-bolted construction for simpler applications. Easy dismantling and replaceability of all wear parts is ensured. 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:	210 bar
max. piston speed:	0.5 m/s (higher speeds available on request)
Compact seal:	achieves retaining function
Seals:	available with Viton or a Glyd-Ring® piston seal 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 the 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 ZD0 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

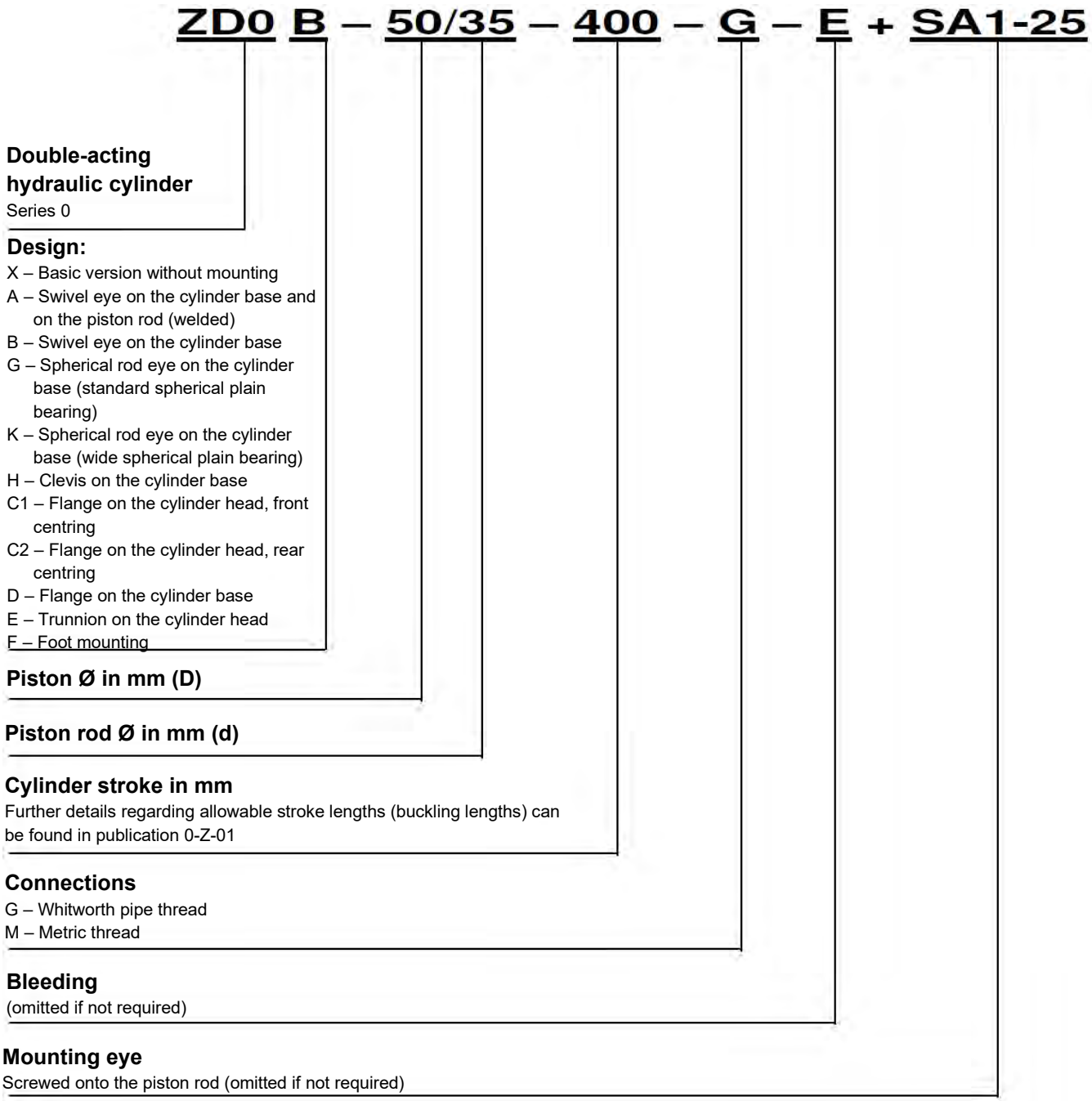
Cylinders whose characteristics and operating data differ from the values stated in the data sheet can only be supplied on request as customised cylinders. For quotations, any deviations from the characteristics and operating data set out in the AROS cylinder specifications must be described.

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:

ZD0G – 50/35 – 400 - G ½

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

3 Designs

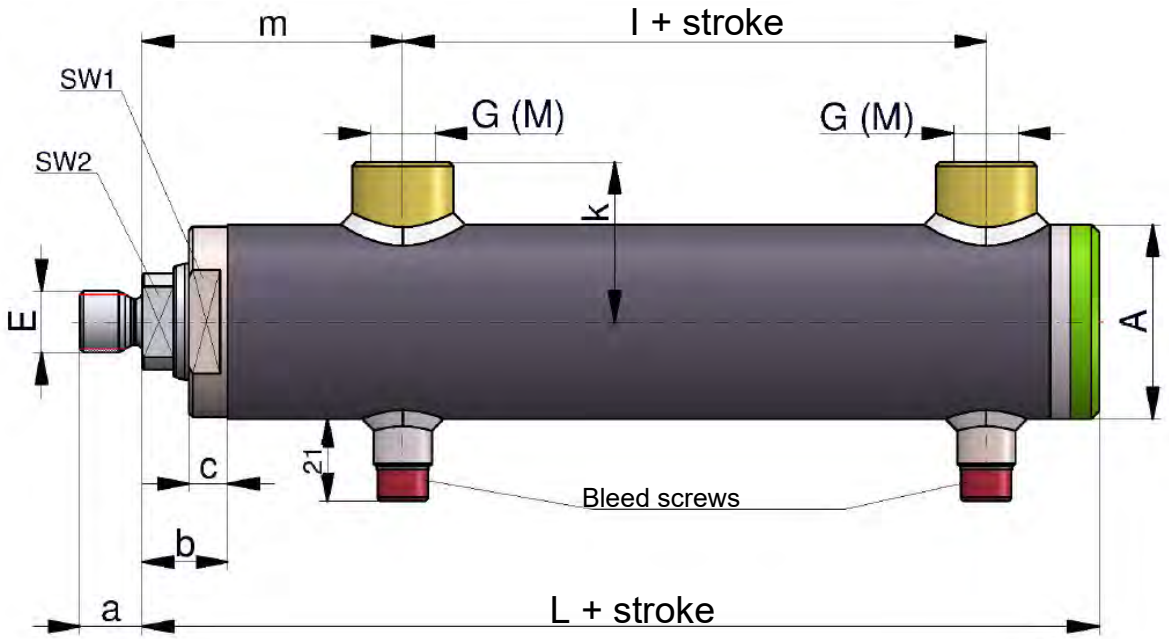
3.1 Design X

Basic version without mounting

If the connections differ (G, M), the dimension ‘k’ changes.

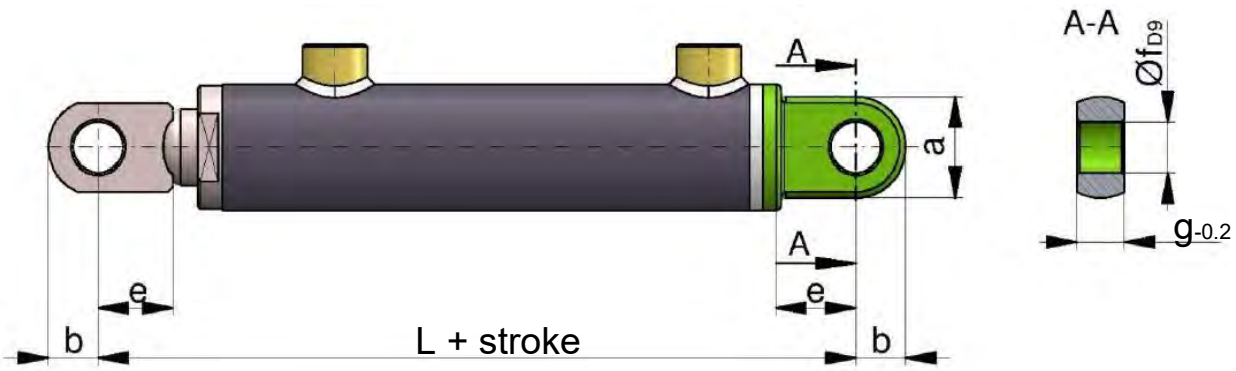
The bleed screws are located opposite the barrel connections.

Exception: Design F (see dimension table) max. tightening torque 30 Nm.



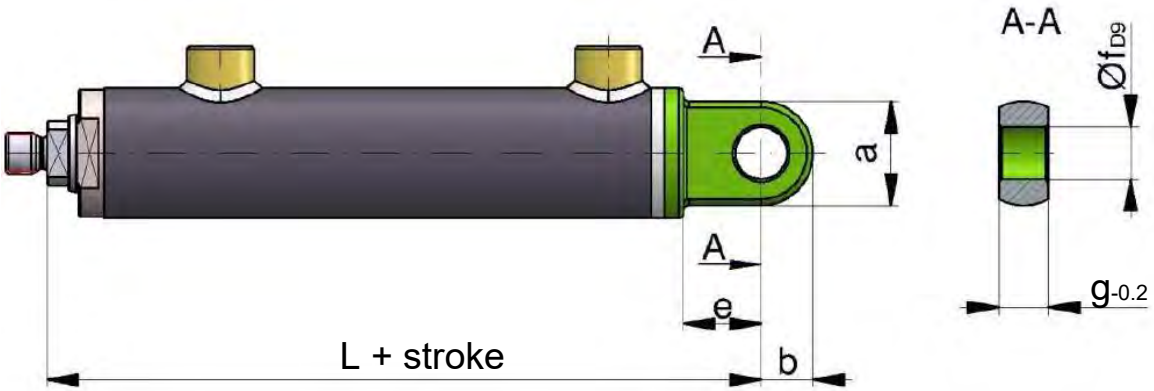
Type ZD0X													
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
A	42	50		60		75			95		115		140	
E	M14 x 1.5	M16 x 1.5		M16 x 1.5		M22 x 1.5			M28 x 1.5		M35 x 1.5		M45 x 1.5	
L	133	146		165		179			199		207		250	
AF1	36	41		50		65			85		100		Grooves on the circumference	
AF2	17	17		17		27			32		41		50	
a	14	16		16		22			28		35		45	
b	20	22		25		26			27		27		37	
c	10	10		10		10			10		10		12	
k	37	41		46		56			66		76		91	
l	53	50		59		65			71		67		74	
m	60	67		75		82			93		101		131	
G	G ¼	G ⅜		G ⅜		G ½			G ½		G ½		G ¾	
M	M14 x 1.5	M18 x 1.5		M18 x 1.5		M22 x 1.5			M22 x 1.5		M22 x 1.5		M27 x 2	
G max. M max.	G ⅜ M18 x 1.5	G ½ M22 x 1.5		G ½ M22 x 1.5		G ¾ M27 x 2			G ¾ M27 x 2		G 1 M33 x 2		G 1¼ M42 x 2	

3.2 Design A



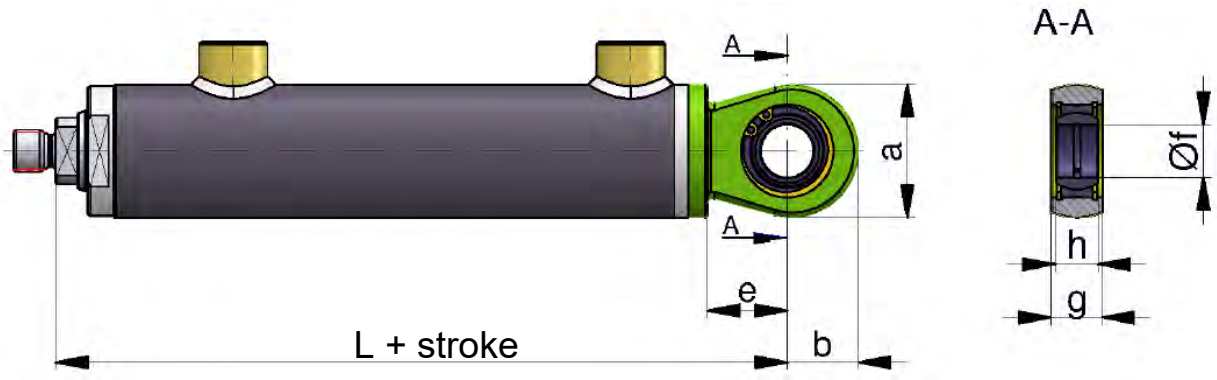
Type ZD0A													
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
L	183	204		230		255			294		325		380	
a	30	40		48		55			65		75		95	
b	15	20		25		30			35		40		50	
e	25	30		35		40			50		60		70	
f	15	20		25		30			35		40		50	
g	15	19		23		28			30		35		40	

3.3 Design B



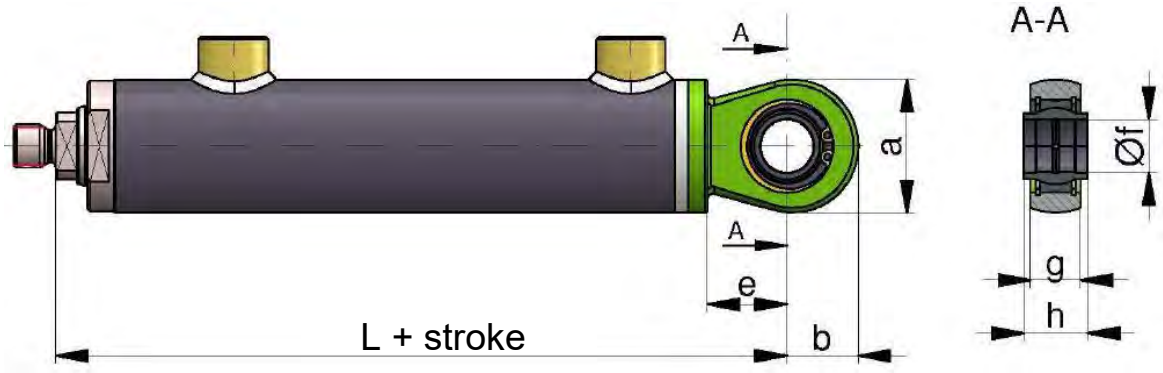
Type ZD0B													
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
L	158	176		200		219			249		267		320	
a	30	40		48		55			65		75		95	
b	15	20		25		30			35		40		50	
e	25	30		35		40			50		60		70	
f	15	20		25		30			35		40		50	
g	15	19		23		28			30		35		40	

3.4 Design G



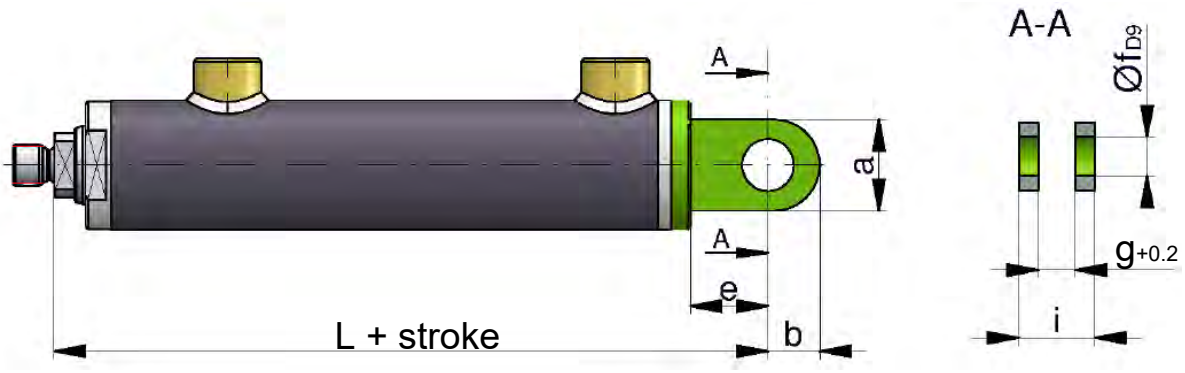
Type ZD0G													
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
L	158	176		200		219			249		267		320	
a	40	50		58		65			80		94		116	
b	20	27		32		33			44		50		63	
e	25	30		35		40			50		60		70	
f	15	20		25		30			35		40		50	
g	15	19		23		28			30		35		40	
h	12	16		20		22			25		28		35	

3.5 Design K



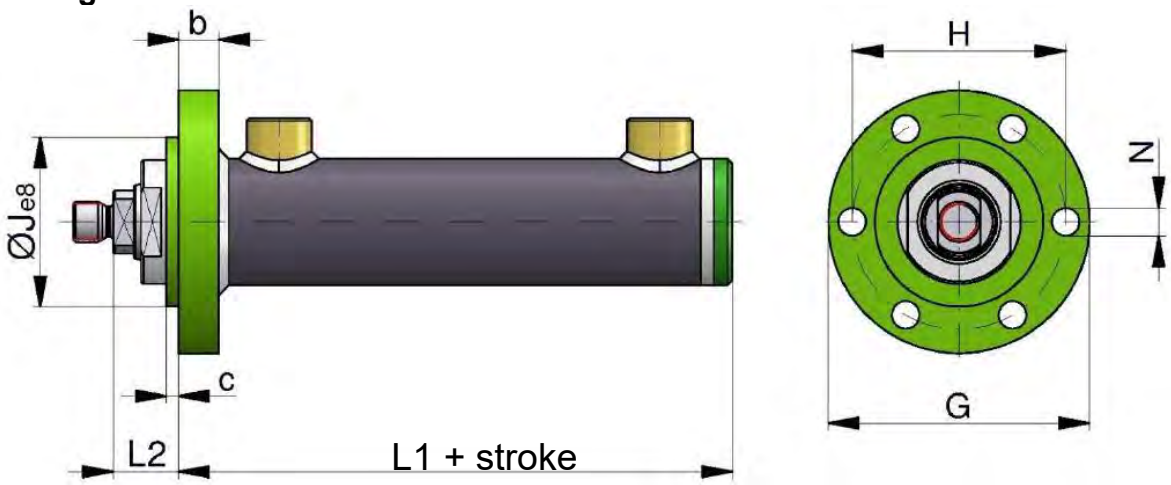
Type ZD0K												
Piston	40		50		63			80		100		120	
Rod	22	30	25	35	32	40	45	40	55	55	70	70	85
L	176		200		219			249		267		320	
a	50		58		65			80		94		116	
b	27		32		33			44		50		63	
e	30		35		40			50		60		70	
f	20		25		30			35		40		50	
g	19		23		28			30		35		40	
h	24		29		30			35		38		43	

3.6 Design H



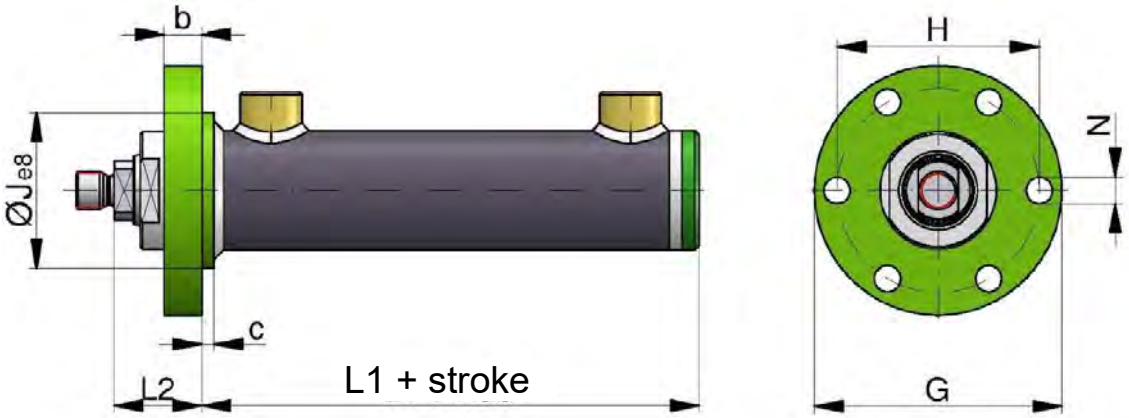
Type ZD0H													
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
L	158	176		200		219			249		267		320	
a	30	35		45		55			65		75		95	
b	18	20		25		30			35		40		51	
e	25	30		35		40			50		60		70	
f	15	20		25		30			35		40		50	
g	15	19		23		28			30		35		40	
i	31	39		47		56			62		71		80	

3.7 Design C1



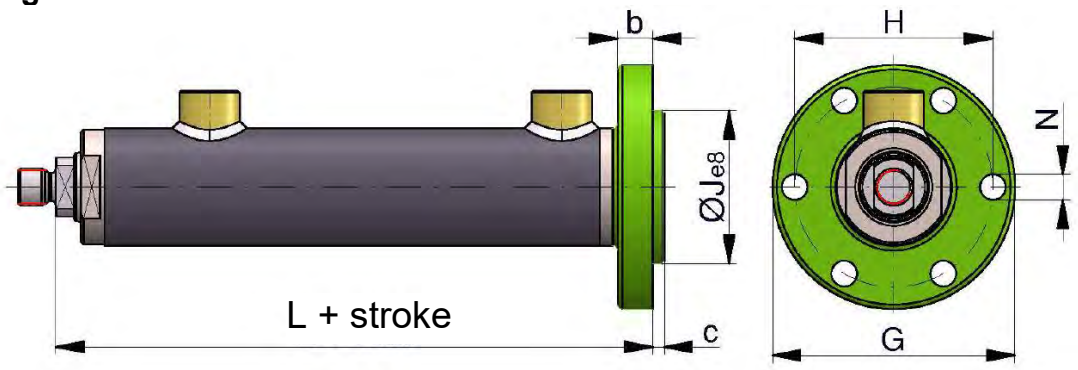
Type ZD0C1													
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
G	94	104		118		138			178		205		245	
H	75	85		95		115			145		170		205	
J	60	65		75		90			115		140		165	
L1	108	119		135		148			167		175		208	
L2	25	27		30		31			32		32		42	
N	9	11		11		13			17		17		21	
b	12	15		18		22			25		35		40	
c	5	5		5		5			5		5		5	

3.8 Design C2



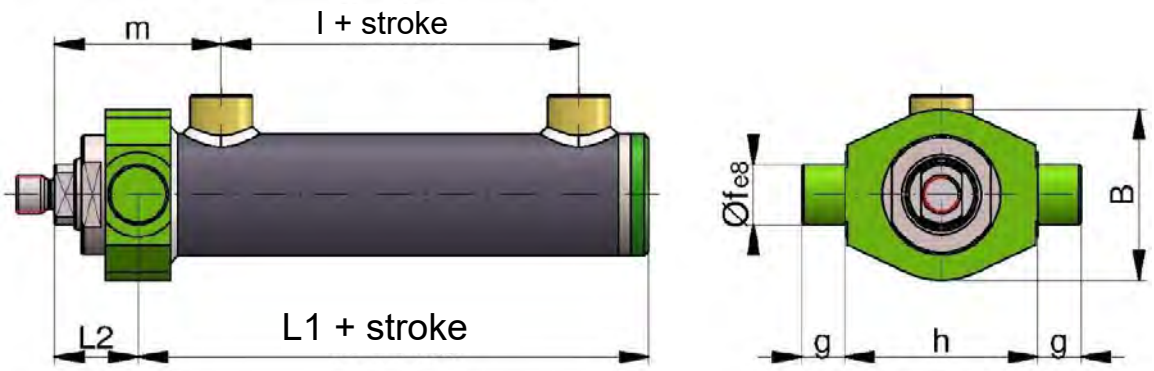
Type ZD0C2														
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
G	94	104		118		138			178		205		245	
H	75	85		95		115			145		170		205	
J	60	65		75		90			115		140		165	
L1	101	109		122		131			147		145		173	
L2	32	37		43		48			52		62		77	
N	9	11		11		13			17		17		21	
b	12	15		18		22			25		35		40	
c	6	6		6		6			6		6		6	

3.9 Design D



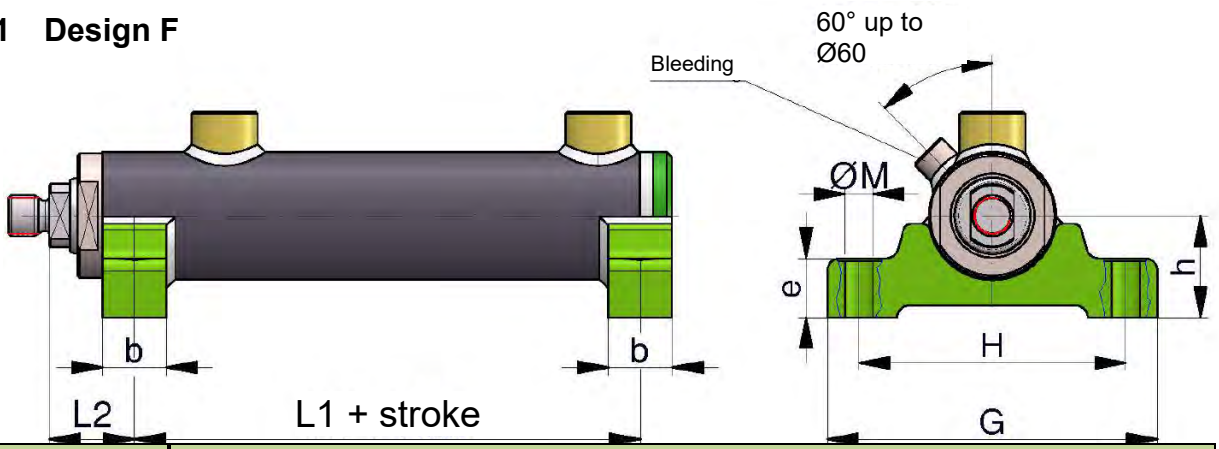
Type ZD0D														
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
G	94	104		118		138			178		205		245	
H	75	85		95		115			145		170		205	
J	60	65		75		90			115		140		205	
L	145	156		178		196			218		235		283	
N	9	11		11		13			17		17		21	
b	12	15		18		22			25		35		40	
c	5	5		5		5			5		5		5	

3.10 Design E



Type ZD0E														
Piston	32	40		50		63			80		100		120	
Rod	22	22	30	25	35	32	40	45	40	55	55	70	70	85
B	60	70		80		100			125		150		175	
L1	103	111		125		135.5			152		155		183	
L2	30	35		40		43.5			47		52		67	
f	20	25		30		35			40		50		60	
g	15	18		20		20			25		30		35	
h	70	80		90		115			140		170		190	
l	50	47		55		60			68		62		72	
m	63	70		79		87			96		106		133	

3.11 Design F

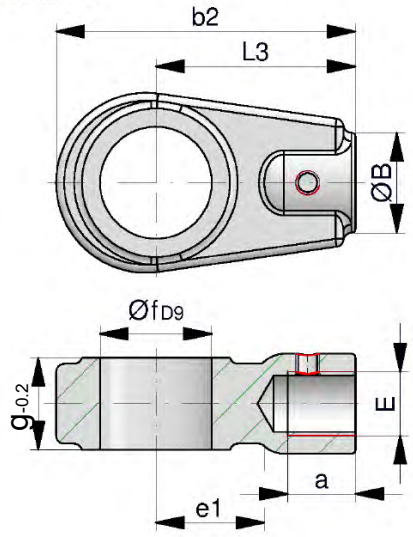


	Type ZD0F													
	32	40		50		63			80		100		120	
	22	22	30	25	35	32	40	45	40	55	55	70	70	85
G	110	130		150		175			215		265		295	
H	90	105		120		140			175		215		240	
L1	93	99		110		118			132		130		158	
L2	30	34.5		40		43.5			47		52		64.5	
M	9	11		13		13			17		21		25	
b	20	25		30		35			40		50		55	
e	18.5	23.5		28.5		33.5			38.5		47.5		50.5	
h	36	40		45		55			67.5		77.5		100	

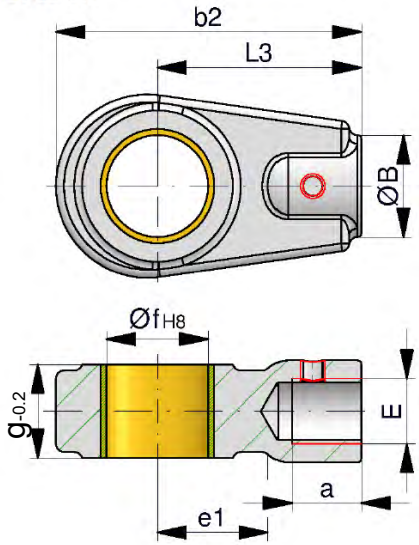
4 Mounting eyes

Type					Cyl. Ø D	Dimensions (mm)												
						B	E	L3	a	b1	b2	e1	e2	f	g	h1	h2	i	k
SA1-15	-	GK1-15	GA2-15	-	32	22	M14 x 1.5	47	15	69	64	20	20	15	15	12	-	31	M6
SA1-20	-	GK1-20	GA2-20	GA2-20 B	40	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	50	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	63	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	80	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	100	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	120	61	M45 x 1.5	105	46	168	168	55	60	50	40	35	43	80	M12

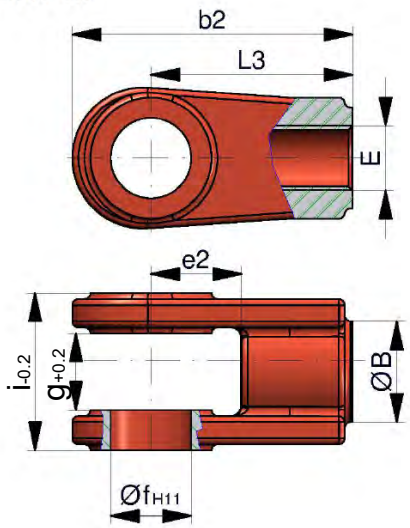
SA1-…



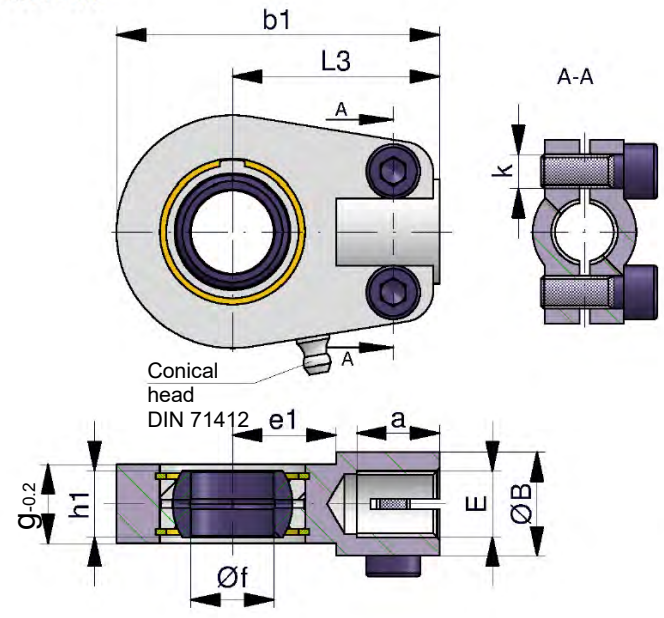
SA2-…



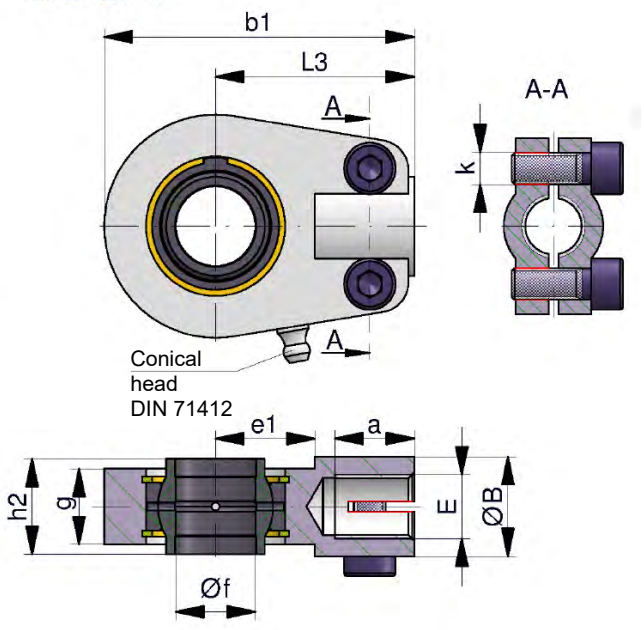
GK1-…



GA2-…



GA2-… B



5 Weight table (kg)

Cylinder type		Designs (Stroke = 0)								50 mm Stroke	Mounting eyes					Ø f
		X	A	B	G,K	H	C,D	E	F		SA1-	SA2-	GK1-	GA2-	GA2-B	mm
ZD0.- 32/	22	1.10	1.32	1.20	1.45	1.30	1.60	1.40	1.40	0.28	0.12	--	0.16	0.22	--	15
ZD0.- 40/	22	1.65	1.94	1.82	1.90	1.82	2.45	2.20	2.85	0.45	0.25	--	0.25	0.37	0.37	20
	30	1.95	2.27	2.15	2.20	2.15	2.75	2.50	3.15	0.55						
ZD0.- 50/	25	2.20	3.05	2.75	2.75	2.70	4.60	2.95	4.20	0.50	0.30	0.45	0.35	0.43	0.43	25
	35	2.60	3.50	3.20	3.15	3.20	5.00	3.40	4.60	0.65						
ZD0.- 63/	32	4.00	5.35	4.85	4.70	4.85	6.00	5.75	7.00	0.65	0.50	0.75	0.65	0.70	0.70	30
	40	4.30	5.65	5.15	5.00	5.15	6.30	6.05	7.30	0.80						
ZD0.- 80/	40	7.55	9.60	8.70	8.70	9.40	11.15	10.10	12.30	1.35	0.90	1.15	1.00	1.11	1.13	35
	55	8.75	10.9	9.95	9.90	10.35	12.35	11.95	13.55	1.80						
ZD0.-100/	55	11.60	16.40	13.90	14.10	13.60	18.10	14.20	19.60	1.95	2.00	1.40	1.70	1.32	1.34	40
	70	13.30	18.10	15.60	15.80	15.30	19.80	15.90	21.30	2.50						
ZD0.-120/	70	19.50	26.10	23.50	26.10	25.50	29.30	26.30	31.50	3.10	2.20	3.40	3.50	3.28	3.32	50
	85	20.20	26.80	24.20	26.80	26.20	30.80	27.00	32.20	3.80						