GCH HYDRAULIC

PRODUCT
CATALOGUE

GCHYDRAULIC.COM

HYDRAULIC

At GCH we are professionals in **manufacturing and supplying hydraulic pumps and cylinders,** and we have the goal of providing our clients with the highest level of quality and efficiency in every single item we make.

This commitment is certified by the UNE-EN ISO: 9001:2015 standard, granted to us by Lloyd´s Register Quality Assurance.

We are determined to stay at the forefront of cutting-edge technology, thanks to a program of constant innovation carried out by our technical team. This allows us to deliver an unmatched level of product assurance.

What mainly accounts for our success as a company is our ability to implement

2 ideas and system solutions quickly and safely. We provide professional consultancy and engineering design services, as well as complex systems so as to offer low-cost solutions to specialized tasks.

Our goal-oriented, experienced team focuses on delivering a maximum level of quality.

Our expertise in complex systems and a profound awareness of our clients needs and of the industry requirements guarantee a consistent development of our products and standards.

At GCH, we focus on the industry 4.0 in order to leverage emergent technology and capabilities and use them on our products and processes. The main reason behind this approach is to play a part in the development of new products, the integration of new materials and the improvement of manufacturing processes on specialized fields.

At GCH we are committed to giving our clients a trustworthy service that has been carefully monitored and maintained throughout all the design and manufacturing process, and that it is tailored to their particular needs.

¿Where are we?

Calle Orense, 85
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28020 Madrid

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comercial@gchydraulic.com

OUR MISSION

GCHydraulic mission is about **turning our expertise on hydraulic services and industrial projects into value** for the benefit of our clients, shareholders, staff and the general public.

OUR VISION

To become the benchmark company within the scope of GCHydraulic activities:

To reply effectively to our customers' needs while playing a role in the development of industrial projects.

The professional and personal development of our employees and a sustainable profit to shareholders.

OUR VALUES

- Client-oriented
- Help for the comprehensive development of the members of our team
- Interdisciplinary team work that keeps on innovating
- Result-oriented

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Contents

Hydraulic **Cylinders**

GCH has a wide range of **more than 300 settings for different standard products** that will provide solutions for any type of industry application: hoisting, thrust, traction, restraint, etc. With a large choice of cylinder types, tonnages and strokes.

We select materials carefully and we coat and protect surfaces against rust and wear, which make our products an ideal choice for harsh environments.

At GCH, we do not simply offer a warranty for our processing, design, manufacturing, assembly, delivery and after-sales services, but we also take charge of providing a safe work environment by supplying the necessary resources to the activities defined in the Health & Safety Management Systems for work environments, according to OHSAS 18001:2007 and in the Quality Management Systems, according to UNE-EN ISO 9001:201.

After-sales Service

Safe Environment

Design

Innovation

Steel Cylinders

- High-quality materials. High-resistance, steel alloy elements.
- All materials, manufacturing stages, as well as treatment, assembling and testing processes can be fully tracked.
- All cylinders are designed with a 1.5 safety factor.
- All units have been tested under a pressure of 1000 bar.
- The top head restricts the piston stroke on the limit switch and it can withstand all the load. That provides a high level of resistance to side loads, which allows the operation of the cylinder to the complete length of the stroke.
- Equipped with nitrated pistons for a highly effective protection against rust and a very good protection against wear.
- Additionally, they are also furnished with a scraper to prevent the infiltration of dirt in the piston, which extends their service life.
- High-quality sealing gaskets for fine resistance against wear and extrusion.
- Bearings provide an additional protection against side loads and extend the cylinders' service life.
- The return spring ensures a quick retraction of the piston regardless of the position of the cylinder.
- All cylinders have hardened and removable saddles that can be tilting on demand.
- High-flow quick plug coupling with dust cover in all models.
- Heavy cylinders include one or several handles or eyebolts for transport.

Quality and **Innovation**

At GCH we are committed to addressing our customers' needs while adhering to high quality standards and to the development and maintenance of a range of cutting-edge products based on constant innovation and a focus on the emergent requirements of the industry.

To that end, we have a technical team fully capable of taking on any projects related to the use of cylinders and special systems, adapting the latest technology to the manufacturing and monitoring of our products.

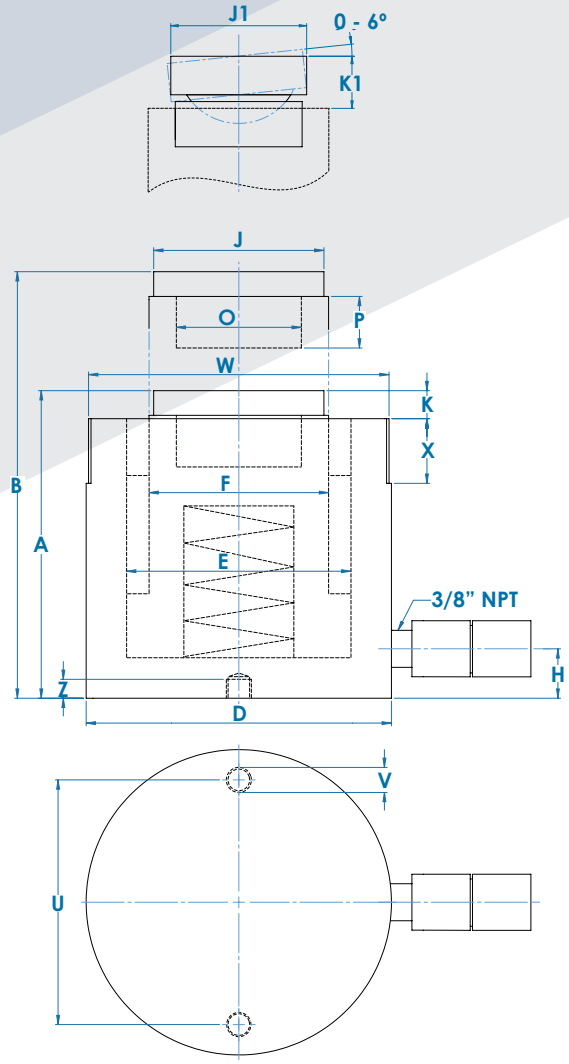
GENERAL PURPOSE

R SERIES

SINGLE-ACTING
SPRING RETURN

Stroke
Up to 350 mm

Thrust
5 to 93 Tn



There are tilt **saddles available** for a safer use with non-centred loads or uneven ground. See page 14.

Aluminium, Single-Acting Cylinders — **RA** » Page 38.

GENERAL PURPOSE **SINGLE-ACTING CYLINDER** WITH SPRING RETURN

R

- Designed to be used in any position.
- The brass bearing absorbs the off-centred load and reduces the cylinder wear.
- All parts in the cylinder are built with high-resistance steel alloy materials.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Furnished with a removable and grooved Optional tilt saddles.
- Threaded plunger and collar plus mounting holes on the base of all cylinders so as to fit in a wide range of accessories.
- Thread protector.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Heavy cylinders include handles or eyebolts for transport.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maxi-mun Force	Usable Cross Section	Size (mm)																	Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	H	J	J1	K	K1	O	P	U	V	W	X	Z	cm^3	Kg.
4,9	**R00502**	25	48,5	7,1	110	135	40	30	26	23	26	32	8	21	3/4-16 UNF	18	25	1/4-20 UNC	1 1/2-16 UN	29	13	18	1,0
	R00507	75			160	235																53	1,4
	R00512	125			212	337																89	1,7
	R00517	175			273	448																124	2,2
	R00522	225			324	549																160	2,6
11,1	**R01102**	25	109,2	15,9	119	144	60	45	39	24	39	39	8	25	1-8 UNC	19	40	5/16 - 18 UNC	2 1/4-14 UNS	27	16	40	2,2
	R01105	50			144	194																80	2,6
	R01110	100			194	294																159	3,4
	R01115	150			244	394																239	4,2
	R01120	200			296	496																318	5,0
	R01125	250			346	596																398	5,8
	R01130	300			396	696																477	6,5
	R01135	350			446	796																557	7,3
16,6	**R01602**	25	163,1	23,8	124	149	70	55	46	23	45	39	12	25	1-8U NC	19	48	3/8 - 16 UNC	2 3/4-16 UN	30	16	60	3,1
	R01605	50			149	199																119	3,6
	R01610	100			199	299																238	4,6
	R01615	150			249	399																357	5,5
	R01620	200			309	509																476	6,6
	R01625	250			359	609																595	7,6
	R01630	300			409	709																714	8,5
	R01635	350			459	809																833	9,5
23,2	**R02302**	25	227,8	33,2	140	165	85	65	54	24	54	55	12	32	1 1/2-16UN	27	59	1/2 - 13 UNC	3 5/16-12 UNS	49	18	83	4,9
	R02305	50			165	215																166	5,7
	R02310	100			215	315																332	7,1
	R02315	150			265	415																498	8,5
	R02320	200			324	524																664	10,1
	R02325	250			374	624																830	11,5
	R02330	300			424	724																996	12,9
	R02335	350			474	824																1162	14,3
30,9	**R03005**	50	303,3	44,2	194	244	99	75	57,15	37,5	54	55	11	32	1 1/2-16UN	27	---	---	3 5/16 - 12 UNS	48	---	221	9,0
	R03010	100			244	344																442	11,1
	R03015	150			294	444																663	12,8
	R03020	200			344	544																884	14,6
	R03025	250			394	644																1105	16,5
55	**R05505**	50	539,1	78,5	169	219	130	100	80	29	55	60	6	28	---	---	95	1/2 - 13 UNC	5 - 12 UN	45	20	393	13,9
	R05510	100			219	319																785	17,3
	R05515	150			269	419																1178	20,7
	R05520	200			326	526																1570	24,6
	R05525	250			376	626				26												1963	27,9
	R05530	300			426	726																2355	31,2
92,9	**R10005**	50	911,2	132,7	190	240	175	130	105	45	74	78,5	6	35	---	---	---	---	6 7/8 - 12 UN	50	---	664	29,4
	R10015	150			290	440				46,5												1991	43,0
	R10020	200			344	544																2654	51,3
	R10025	250			394	644																3318	57,8
	R10030	300			444	744																3981	64,2

LOW-HEIGHT

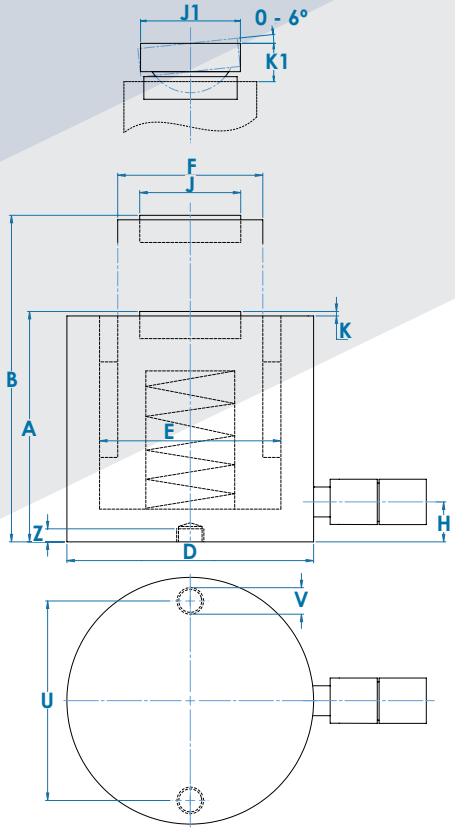
RL

SERIES

SINGLE-ACTING
SPRING RETURN

Stroke
Up to 60 mm

Thrust
11 to 93 Tn



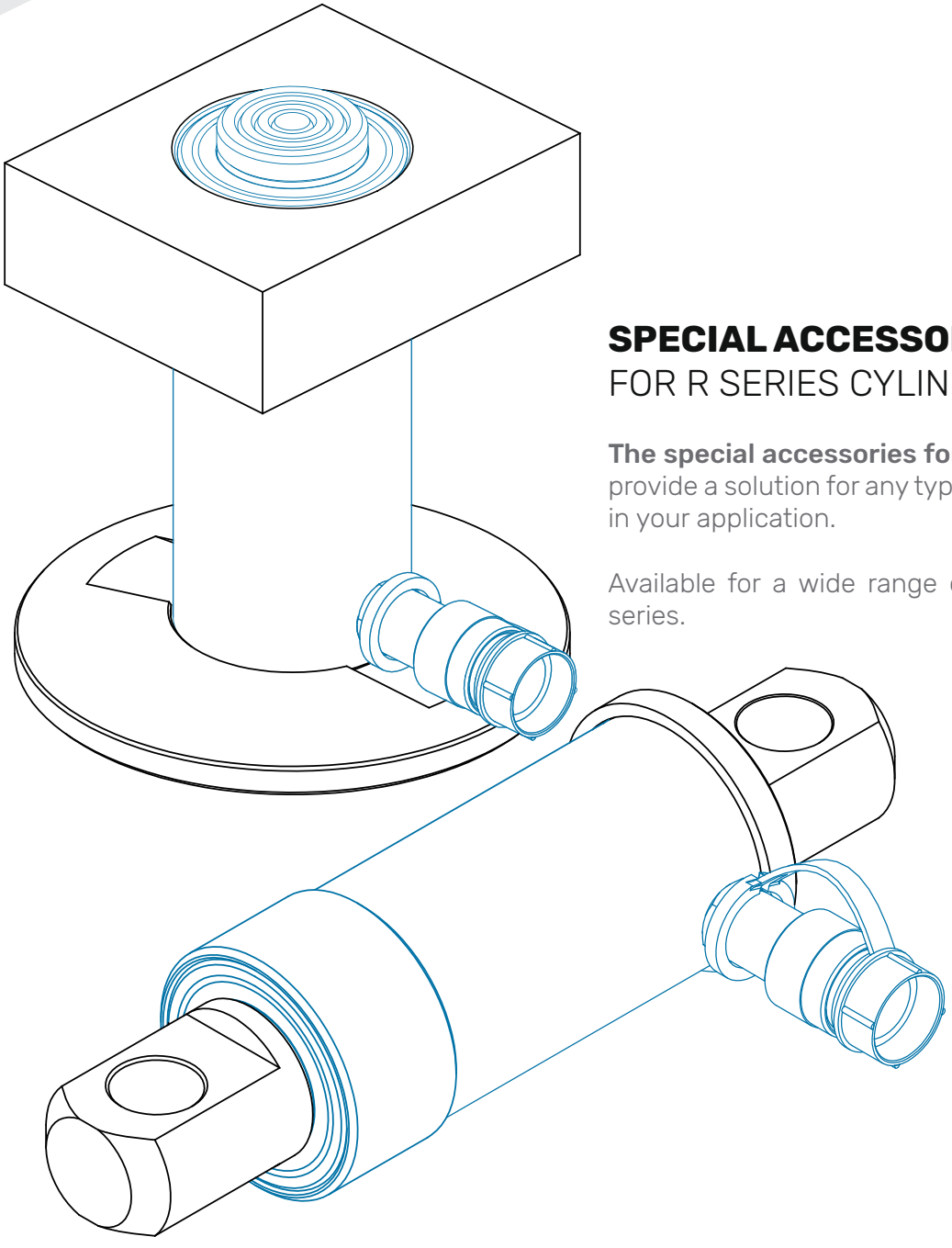
There are tilt **saddles available** for 10 a safer use with non-centred loads or uneven ground. See page 14.

LOW-HEIGHT CYLINDER
SPRING RETURN, SINGLE-ACTING

RL

- Low profile for use in tight spaces.
- Furnished with strong return springs that speed up retraction.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- High-flow female quick plug coupling with dust cover as standard in all models.
- The plug on the 11 and 30 ton models faces upward on a 6° angle for a greater clear distance.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximun Force	Usable Cross Section	Size (mm)										Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	H	J	J1	K	K1	cm³	Kg.
11,1	**RL01104**	38	109,2	15,9	90	128	75	45	39	18	27	40	2	18	60	3,0
23,2	**RL02304**	41	227,8	33,2	99	140	94	65	54	18	39	55	2	23	136	4,8
30,9	**RL03006**	60	303,3	44,2	120	180	104	75	57,15	18	39	55	2,5	23	265	6,7
55	**RL05505**	53	539,1	78,5	127	180	136	100	80	22	55	60	2,5	28	416	12,1
92,9	**RL10005**	56	911,2	132,7	142	198	174	130	105	22	74	79	2,5	35	743	22,7



SPECIAL ACCESSORIES
FOR R SERIES CYLINDERS

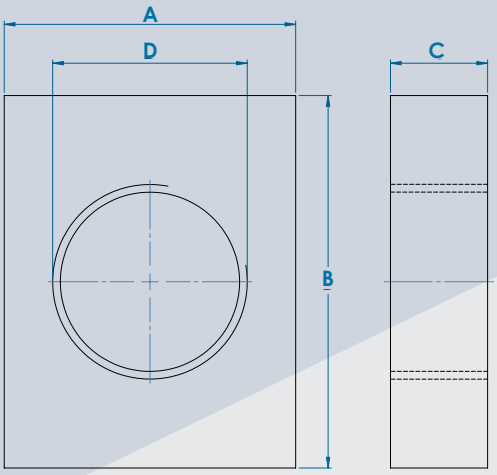
The special accessories for R series cylinders provide a solution for any type of additional need in your application.

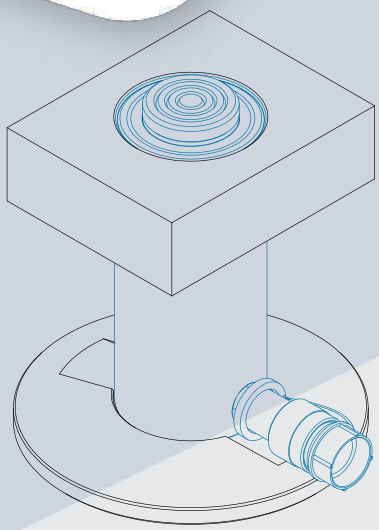
Available for a wide range of cylinders in that series.

FOR R SERIES CYLINDERS

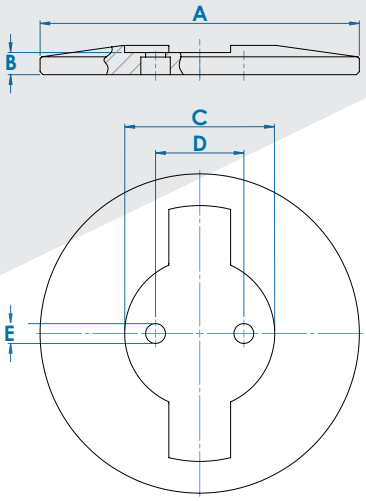
APC-APB
ACCESSORIES

APC





APB



BODY PLATES AND BASE
SPECIAL ACCESSORIES FOR R SERIES

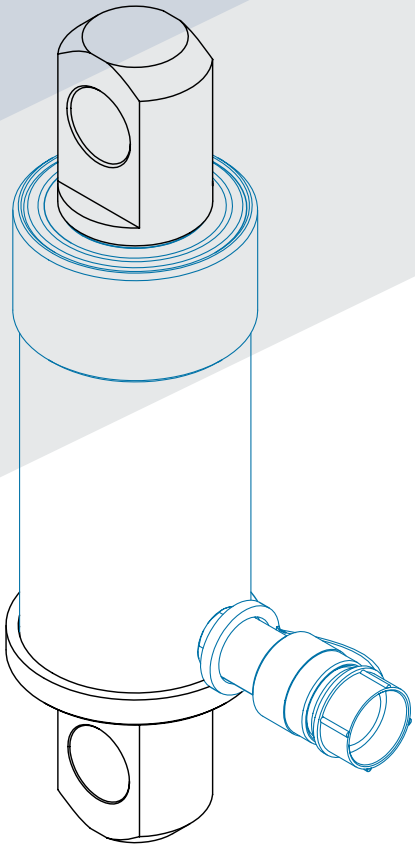
R | APCXX - R | APBXX

- The APC body plates and the APB base plates increase the features of the cylinder.
- The body plates are available for 5-30 ton cylinders.
- The APB base plates ensure the stability of the cylinders in weight-hoisting applications.
- Available for 23-93 tons.

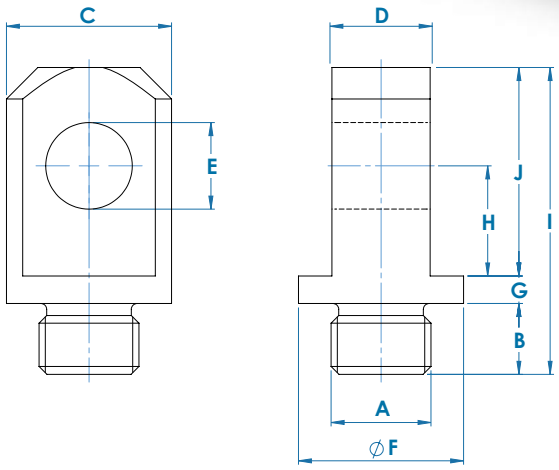
Rated Force	REF.	Size (mm)				Weight
tn		A	B	C	D	Kg.
5	**APC005**	75	90	25	1 1/2-16 UN	1,1
11	**APC011**	90	115	30	2 1/4-14 UNS	1,9
16	**APC016**	115	100	30	2 3/4-16 UN	1,8
23	**APC023**	130	160	50	3 5/16 -12 UNS	6
31	**APC023**	130	160	50	3 5/16-12 UNS	6

Rated Force	REF.	Size (mm)					Weight
tn		A	B	C	D	E	Kg.
23	**APB023**	198	15	87	59	13,5	3,5
31	**APB031**	217	15	102	60	13,5	4,3
55	**APB055**	295	22	132	95	13,5	11,2
93	**APB093**	395	35	177	115	17,5	36,3

ARP-ARB ACCESSORIES



ARP

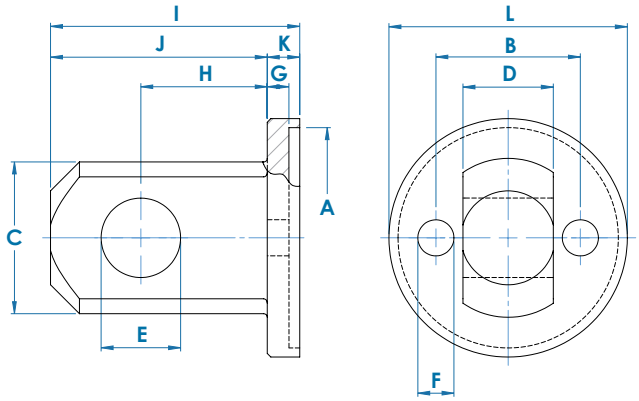


PISTON BALL JOINTS AND BASE SPECIAL ACCESSORIES FOR R SERIES

R | ARPXX - R | ARBXX

- The ARP and ARB ball joints for the R series cylinders substantially increase their range of applications.
- Available for 5-23 ton cylinders.

ARB



Rated Force	REF.	Size (mm)										Weight
tn		A	B	C	D	E	F	G	H	I	J	Kg.
5	**ARP005**	3/4-16 UNF	15	28	14	16	28	5	19	55	35	0.13
11	**ARP011**	1 - 8 UNC	18	42	25	22	42	7	28	78	53	0.48
16	**ARP011**	1 - 8 UNC	18	42	25	22	42	7	28	78	53	0.48
23	**ARP023**	1 1/2-16 UN	26	57	38	31	57	8	35	100	66	1.18

Rated Force	REF.	Size (mm)												Weight
tn		A	B	C	D	E	F	G	H	I	J	K	L	Kg.
5	**ARB005**	41	25	28	14	16	8	6	25	50	41	9	25	0,2
11	**ARB011**	61	40	42	25	22	10	6	25	69	60	9	25	0,5
16	**ARB016**	71	48	42	25	22	11	6	35	69	60	9	35	0,6
23	**ARB023**	86	59	57	38	31	14	7	41	84	72	12	41	1,3

S
ACCESSORIES

FIGURE 1

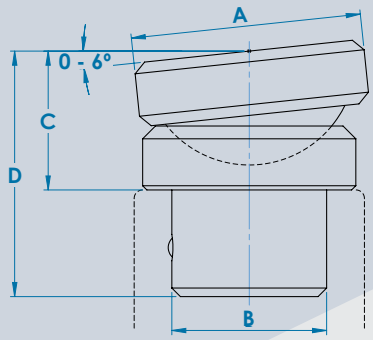
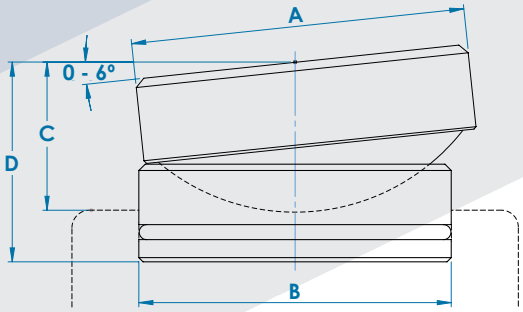


FIGURE 2



TILT SADDLES
ACCESSORIES

- Specially recommended for non-centred loads and on uneven ground.
- Tilting angle of up to 6°.
- Other special sizes and features available on demand.

REF.	SIZE				FIG. #	Weight	Cylinder model with which it is used
	A	B	C	D		Kg	
SR005	31,5	17,25	21,5	37,5	1	0,12	R005
SR011	40	22	25	42	1	0,24	R011, R016,
SG011	40	27	21,5	37,5	1	0,2	RL011, G011, L011
SR023	55	36	32	57	1	0,7	R023, R030, D023,D030
SG023	54	39	22,5	34,5	2	0,44	RL023, RL030, G023, G030, L023, L030, T030, RA030, DA030, RTA030
SR055	60	56	28	40	2	0,75	R055, RL055, G055, L055, T055, 0030,T0030, RA050, DA050, RTA050
SD055	60	23	39	75	1	0,9	D055
SR100	78,5	73,5	35	47	2	1,5	R100, RL100, G100, L100, T100, 0050, T0050
SD100	78,5	42,1	46	96	1	2,3	D100
SG100	93	94	33	47	2	2,2	0100, T0100, RA100, DA100
SG200	138	113	52	65	2	5,8	G200, T200, D200, 0140, T0140
SG300	155	130	71	96	2	8,2	G300, T300, D300
SG400	185	160	91	116	2	14,7	G400, T400, D400, 0300, T0300
SG500	205	180	104	129	2	20,5	G500, T500, D500, 0400, T0400

FIGURE 3

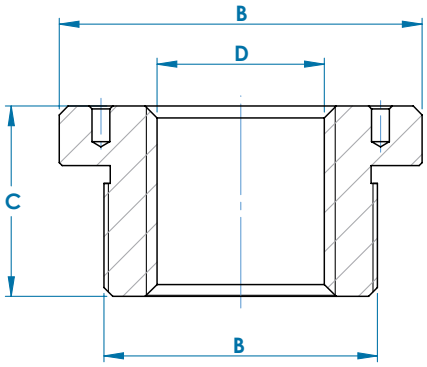
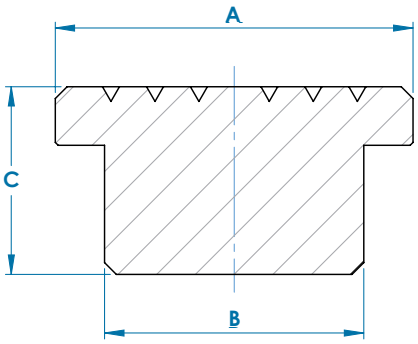


FIGURE 4



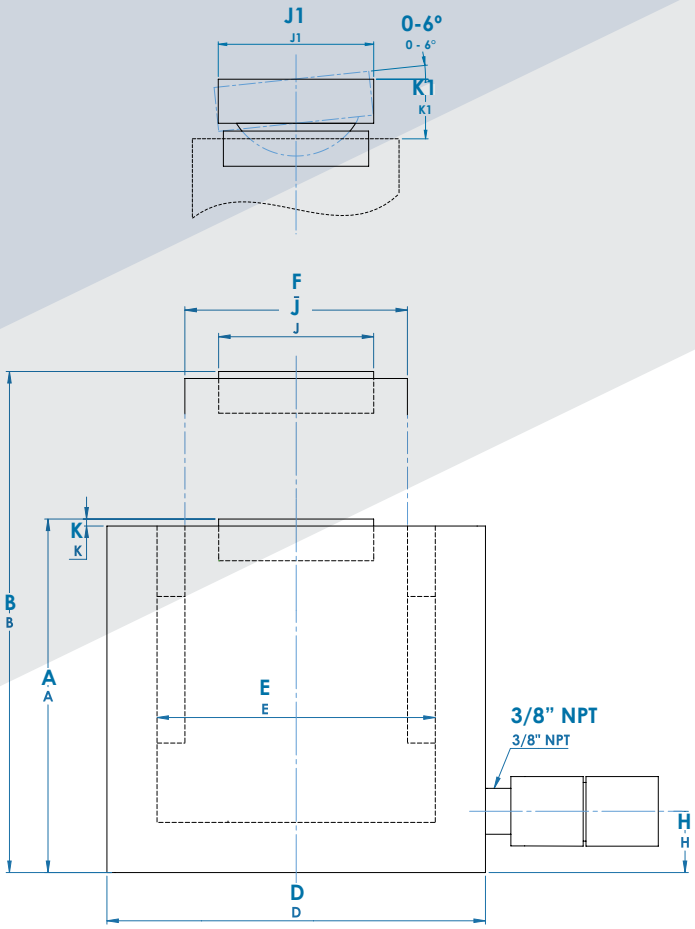
THREADED HOLLOW AND GROOVED SOLID SADDLES
ACCESSORIES

- They are used in hollow single and double acting cylinders both in steel and aluminium.

REF.	SIZE				FIG.	Weight	Cylinder model with which it is used
	A	B	C	D		Kg	
SRRH012	38	M29x1,5	28	3/4 - 16UNF	3	0,1	RH012
SMRH012	38	27,2	28		4	0,15	RH012
SRRH020	50	M37x1,5	30	1 - 8 UNF	3	0,22	RH020
SMRH020	50	35,2	30		4	0,3	RH020
SRRH030	61	M46 x 1,5	32	1 - 1/4 UNF	3	0,33	RH030, DH030, RHA030, DHA030
SMRH030	61	44,2	32		4	0,47	RH030, DH030, RHA030, DHA 030
SRRH060	93,5	M72 x 1,5	37	1 5/8 -5 1/2 UNF	3	1,12	RH060, DH060, RHA060, DHA060
SMRH060	93,5	70,2	37		4	1,4	RH060, DH060, RHA060, DHA060
SMRH100	127	102,2	42		4	3	RH100, DH100, RHA100, DHA100

HIGH-TONN AGE

G SERIES



There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14.

HIGH-TONNAGE CYLINDER LOAD RETURN, SINGLE-ACTING

G

- Specially suitable for hoisting applications.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Longer strokes on demand.

SINGLE-ACTING
LOAD RETURN

Stroke
Up to 250 mm

Thrust
11 to 500 Tn

Safety First: Best practices recommend not to go beyond **80%** of the rated capacity, nor beyond **80%** of the stroke length.

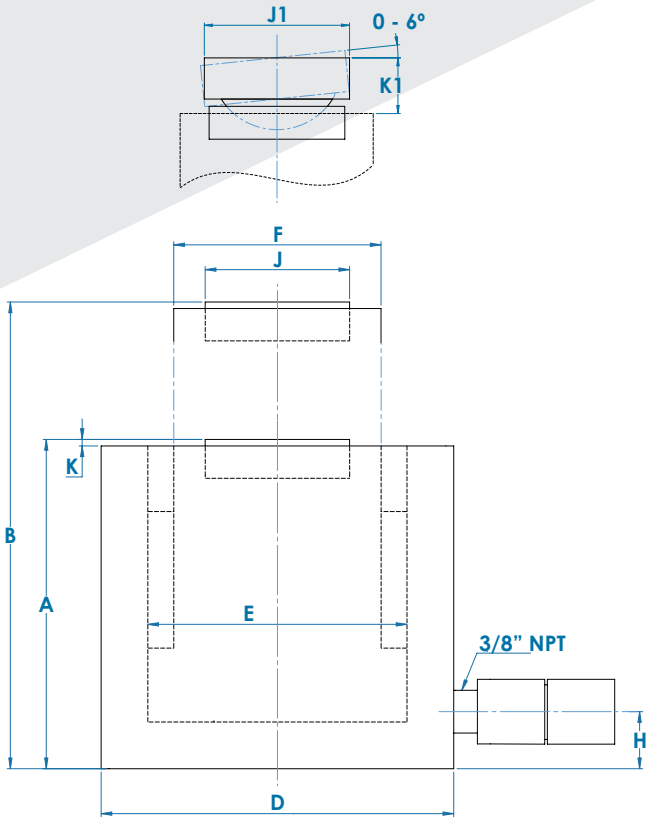
High-Tonnage and Low-Height Cylinders – **O**
» Page 28.

Accessories: **Valves, distributors, fittings**, etc.
» pages 56-63.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)										Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	J	J1	H	K	K1	cm³	Kg.
11,1	**G01104**	38	109,2	15,9	109	147	60	45	39	27	40	25,5	2	19	60	2,3
23,2	**G02305**	50	227,8	33,2	124	174	85	65	54	39	55	25,5	2	23	166	5
30,9	**G03005**	50	303,3	44,2	125	175	100	75	57,1	39	55	23	2	23	221	6,9
55	**G05505**	50	539,1	78,5	138	188	130	100	80	55	60	27	3	28	393	12,5
92,9	**G10005**	50	911,2	132,7	130	180	160	130	105	73,5	78,5	23	3	35	664	18,4
198,5	**G20005**	50	1946,3	283,5	195	245	242	190	150	113	138	40	5	52	1.418	64
	G20015	150			295	445									4.253	91,4
303,6	**G30015**	150	2977,4	433,7	327	477	304	235	170	130	155	52	5	71	6.506	159
	G30025	250			456	706						78			10.843	215
400,8	**G40015**	150	3930,4	572,6	368	518	349	270	210	160	185	60	5	91	8.589	243
	G40025	250			494	744						83			14.315	319
511,4	**G50015**	150	5015,4	730,6	414	564	394	305	240	180	205	88	5	104	10.959	351
	G50025	250			514	764									18.265	425

LOW-HEIGHT

L SERIES



LOW-HEIGHT CYLINDER
LOAD RETURN, SINGLE-ACTING

L

- Nitrated piston and lead-in top to prevent rust and increase wear resistance.

There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14.

SINGLE-ACTING
LOAD RETURN

Stroke
Up to 150 mm

Thrust
11 to 93 Tn

LOW-HEIGHT

L SERIES

High-Tonnage and Low-Height Cylinders — **O** » Page 28.

Low-Height and Spring Return Cylinders — **RL** » Page 10.

Extra-Flat Cylinders — **S** » Page 20

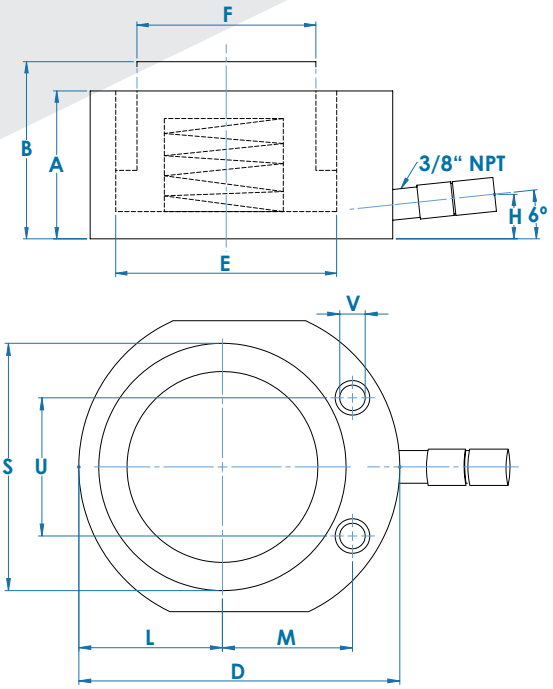
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- High-flow female quick plug coupling with dust cover as standard in all models.
- The plug on the 11 and 55 ton models faces upward on a 6° angle for a greater clear distance.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	SIZE (mm)										Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	J	J1	H	K	K1	cm^3	Kg.
11,1	**L01104**	38	109,2	15,9	90	128	75	45	39	27	40	17	2	18	60	3,1
23,2	**L02304**	41	227,8	33,2	97	138	94	65	54	39	55	17	2	23	136	5,0
30,9	**L03006**	60	303,3	44,2	120	180	104	75	57,1	39	55	18	2,5	23	265	7,1
55	**L05505**	53	539,1	78,5	127	180	136	100	80	55	60	19	2,5	27	416	13,0
92,9	**L10005**	56	911,2	132,7	142	198	174	130	105	73,5	78,5	22	2,5	35	743	23,9

EXTRA-FLAT

S

SERIES



EXTRA-FLAT CYLINDERS

SPRING RETURN, SINGLE-ACTING

S

- Extra-Flat cylinders for jobs in tight spaces.
- Two parallel sides to work in a horizontal position.
- Mounting through holes for fastening.
- All parts nitrated to prevent rust and increase wear resistance.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Pistons are ribbed on the ends so that saddles are not needed.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Longer strokes on demand.

SINGLE-ACTING
SPRING RETURN

Stroke
Up to 16 mm

Thrust
5 to 140 Tn

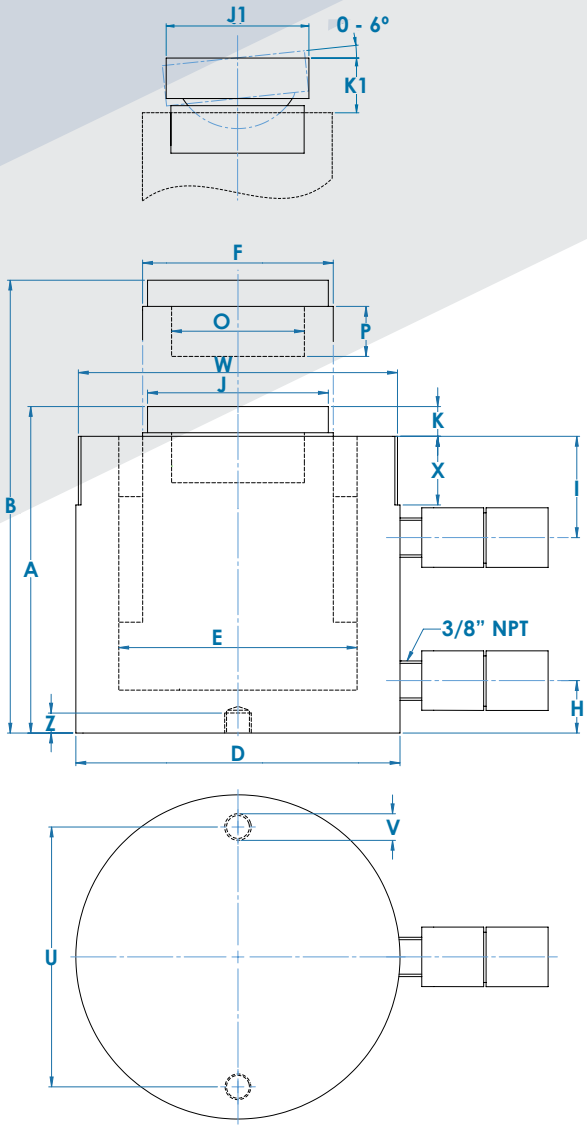
BS manual pump series is recommended for **supplying power** to cylinders in the S series. See page 50.

Extra-Flat Cylinders with Locking Nut – **TOS**. » Page 32.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)											Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	H	L	M	S	U	V	cm³	Kg.
4,9	**S00506**	6,5	48,5	7,1	35,5	42	60	30	26	17	20	22	41	28	5,5	5	0,6
	S00516	16	48,5	7,1	45	61	60	30	26	17	20	22	41	28	5,5	11	0,9
11,1	**S01111**	11	109,2	15,9	45,5	56,5	79	45	39	17	28	34	56	37	6,6	17	1,5
23,2	**S02311**	11	227,8	33,2	55	66	98	65	54	23	40	37	80	50	9	37	2,7
30,9	**S03113**	13	303,3	44,2	60	73	115	75	57,2	23	47	44	95	52	9	57	4,2
55	**S05516**	16	539,1	78,5	75	91	147	100	80	23	62	58	124	70	11	126	8,3
72,7	**S07516**	16	713	103,9	80	96	165	115	85	23	70	65	139	76	14	166	11,2
92,9	**S10016**	16	911,2	132,7	88	104	178	130	105	23	80	74	160	76	14	212	14,5
140,7	**S14016**	16	1380,2	201,1	101	117	216	160	115	23	96	82	194	117	14	322	25,3

DOUBLE- ACTING

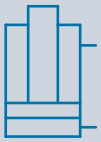
D SERIES



DOUBLE-ACTING CYLINDER
HIGH-TONNAGE

D

- Designed to withstand up to 10 % of its maximum capacity with side load.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.
- Built-in safety valve to prevent overpressure.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- Threaded plunger and collar for an easier fastening of the cylinder.
- High-flow female quick plug couplings with dust cover as standard in all models.
- Longer strokes on demand.



DOUBLE-ACTING
QUICK AN CONTROLLED RETRACTION

Stroke
Up to 350 mm

Thrust and traction
23 to 500 Tn

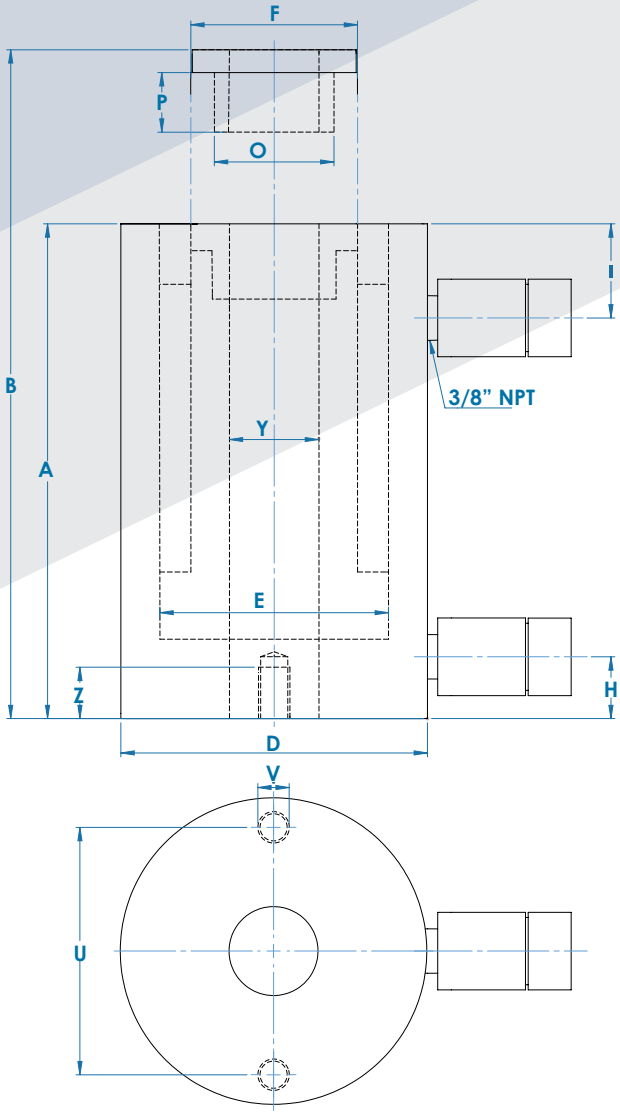
There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14.

Aluminium Double-Acting Cylinders - **DA**.
» página 40.

Rated Force	REF.	Stroke	Maxi-mum Forces	Usable Cross-Section	Size (mm)														Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	C	D	F	H	I	J	J1	K	K1	O	W	X	cm³	Kg.
23,2	**D02315**	150	227,8	33,2	318	468	84	65	54	22	70	54	55	10	32	1 1/2 - 16 UN	3 5/16-12UNS	49	498	12,9
30,9	**D03005**	50	303	44,2	237	287	100	75	57,15	37	79	54	55	12	34	1 1/2 - 16 UN	3 5/16-12UNS	49	221	14,1
	D03010	100			287	387													442	15,3
	D03015	150			337	487													663	16,6
	D03020	200			387	587													884	18,9
	D03025	250			437	687													1.105	21,2
	D03030	300			487	787													1.326	23,5
	D03035	350			537	887													1.547	25,8
55	**D05515**	150	539,1	78,5	323	473	130	100	80	26	65	78	60	15	39	1 - 12 UNF	5 - 12 UN	45	1.178	28,6
	D05520	200			373	573													1.570	32,8
	D05525	250			423	673													1.963	36,6
	D05530	300			473	773													2.355	40,9
	D05535	350			523	873													2.748	44,8
92,9	**D10015**	150	911,2	132,7	355	505	175	130	105	46	70	96	79	15	46	1 3/4 - 12 UN	6 7/8 - 12 UN	50	1991	59,0
	D10025	250			455	705													3318	73,8
198,5	**D20015**	150	1946,3	283,5	356	506	242	190	150	61	65	113	138	5	52	-	-	-	4253	135,0
	D20025	250			456	706													7088	173,0
303,6	**D30015**	150	2977,4	433,7	412	562	304	235	170	78	82	130	155	5	71	-	-	-	6.506	210,0
	D30025	250			512	762													10.843	261,0
400,8	**D40015**	150	3930,4	572,6	417	567	349	270	210	84	90	160	185	5	91	-	-	-	8.589	301,0
	D40025	250			517	767													14.315	373,0
511,4	**D50015**	150	5015,4	730,6	439	589	392	305	240	90	92	180	205	5	104	-	-	-	10.959	388,0
	D50025	250			539	789													18.265	476,0

HOLLOW DOUBLE- ACTING

DH
SERIES



HOLLOW CYLINDER
DOUBLE-ACTING

DH

- Hollow piston cylinder.
- Built-in safety valve to prevent overpressures.
- Nitrated piston, central tube and lead-in top to prevent rust and increase wear resistance.

Threaded hollow saddles and **grooved solid saddles** available. See page 15.

DOUBLE-ACTING
HOLLOW PISTON

Stroke
150 mm

Thrust and traction
30 to 93 Tn

Aluminium Hollow Double-Acting Cylinders — **DHA**.
» Page 42.

Accessories: **Valves, distributors, fittings**, etc.
» Pages 56 -63.

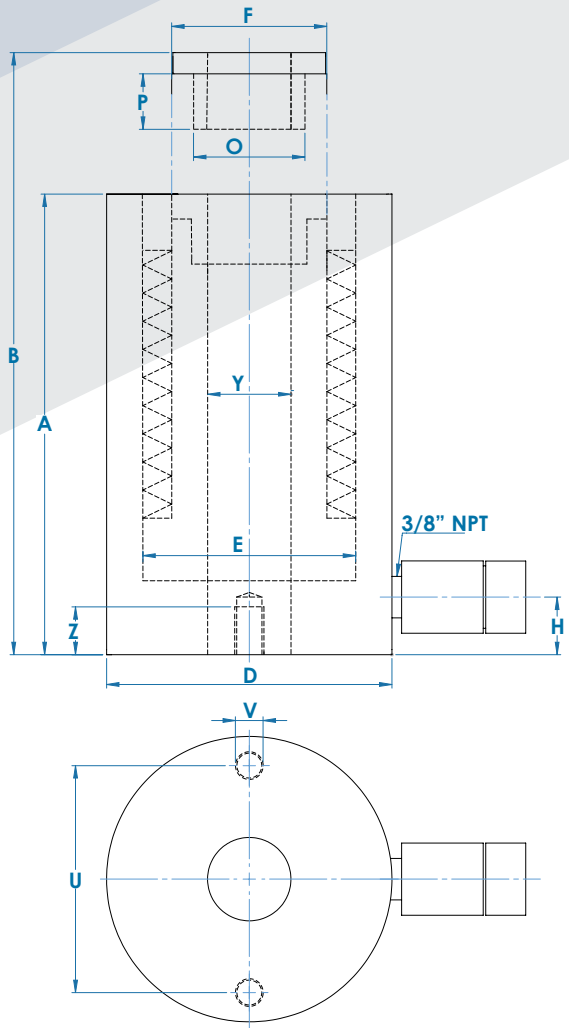
Double-Acting Cylinders — D » Page 22.

- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Interchangeable saddles — flat, threaded or solid.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Special stroke lengths on demand.

Rated Force	REF.	Stroke	Maxi-mum Force	Usable Cross-Section	Size (mm)													Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	H	I	O	P	U	V	Y	Z	cm^3	Kg.
28,9	**DH03015**	150	283,1	41,24	296	446	114	85	65	23	47	M46X1,5	22	92,1	3/8 - 16 UNC	33,6	20	619	17,4
59,1	**DH06015**	150	579,5	84,42	302	452	155	125	94	23	48	M72X1,5	25	130,2	1/2 -18 UNC	54	20	1266	32
93,2	**DH10015**	150	914	133,17	313	463	200	165,1	130	38	50	M104x1,5	30	-----	-----	79	----	1998	52

HOLLOW SINGLE- ACTING

RH
SERIES



HOLLOW CYLINDER
SINGLE-ACTING

RH

- Hollow piston cylinder designed for traction and thrust jobs. Wire and bolt tensioning, removal of sleeves and bearings.
- Nitrated piston, central tube and lead-in top to prevent rust and increase wear resistance.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Interchangeable saddles — flat, threaded or solid.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Longer strokes on demand.

SINGLE-ACTING
SPRING RETURN

Stroke
Up to 150 mm

Thrust
12 to 93 Tn

Threaded hollow saddles and **grooved solid saddles** available. See page 15.

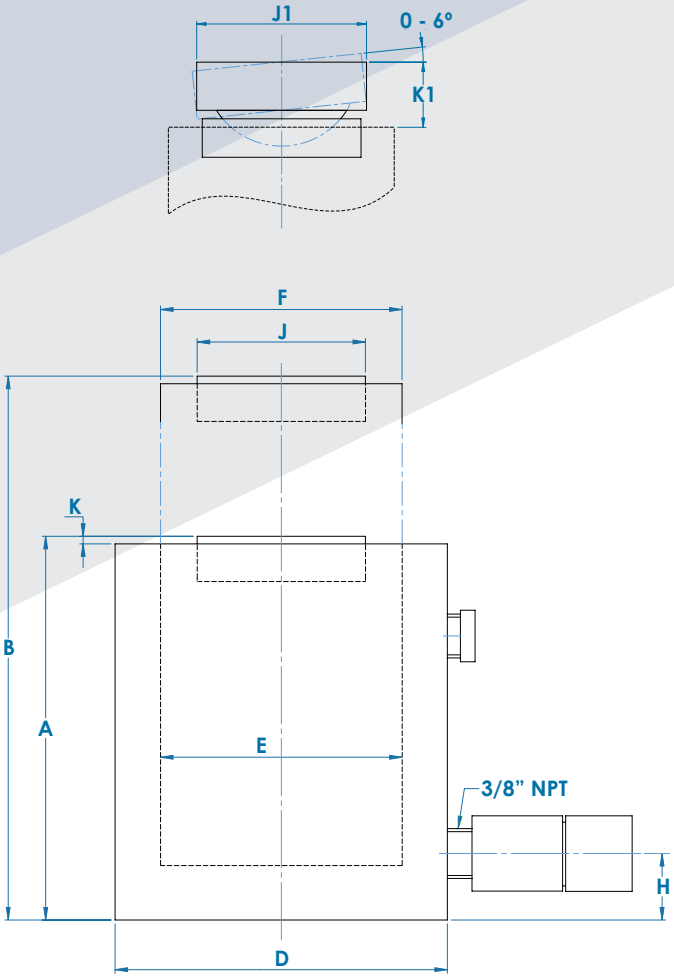
Aluminium Hollow Single-Acting Cylinders – **RHA**. » Page 44.

Accessories: **Valves, distributors, fittings**, etc. » Pages 56 -63.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)												Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	H	O	P	U	V	Y	Z	cm³	Kg.
12,6	**RH01204**	41	123,6	18,03	145	186	70	55	38,5	20	M29x1,5	20	50,8	5/16 - 18 UNC	19,6	16	74	3,5
	RH01208	76			191	267											137	4,5
20,2	**RH02005**	48	198,1	28,86	172	220	95	70	50,5	20	M37x1,5	20	82,6	3/8 - 16 UNC	27,5	20	139	7,1
	RH02015	150			321	471	95										433	13
28,9	**RH03006**	63	283,1	41,24	200	263	110	85	62	23	M46X1,5	22	92,1	3/8 - 16 UNC	33,6	20	260	10,5
	RH03015	150			340	490	110										619	17,2
59,1	**RH06008**	76	579,6	84,45	245	321	155	125	94	34	M72x1,5	25	130,2	1/2 - 18 UNC	54	20	642	26,2
	RH06015	150			358	508	155			23							1267	36,4
93,2	**RH10008**	76	914	133,17	272	348	200	165,1	127	38	M104x1,5	30	----	----	79	----	1012	46,2
	RH10015	150			399	549											1998	66

HIGH-TONNAGE

O SERIES



LOW-HEIGHT & HIGH-TONNAGE CYLINDER

LOAD RETURN, SINGLE-ACTING

O

- Reduced height for hard-to-reach areas.
- All parts nitrated to prevent rust and increase wear resistance.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Flush or overflow hole working as a limit switch.
- Longer strokes on demand.

There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14.

Safety First: Best practices recommend not to go beyond **80 %** of the rated capacity, nor beyond **80 %** of the stroke length.

SINGLE-ACTING
LOAD RETURN

Stroke
Up to 300 mm

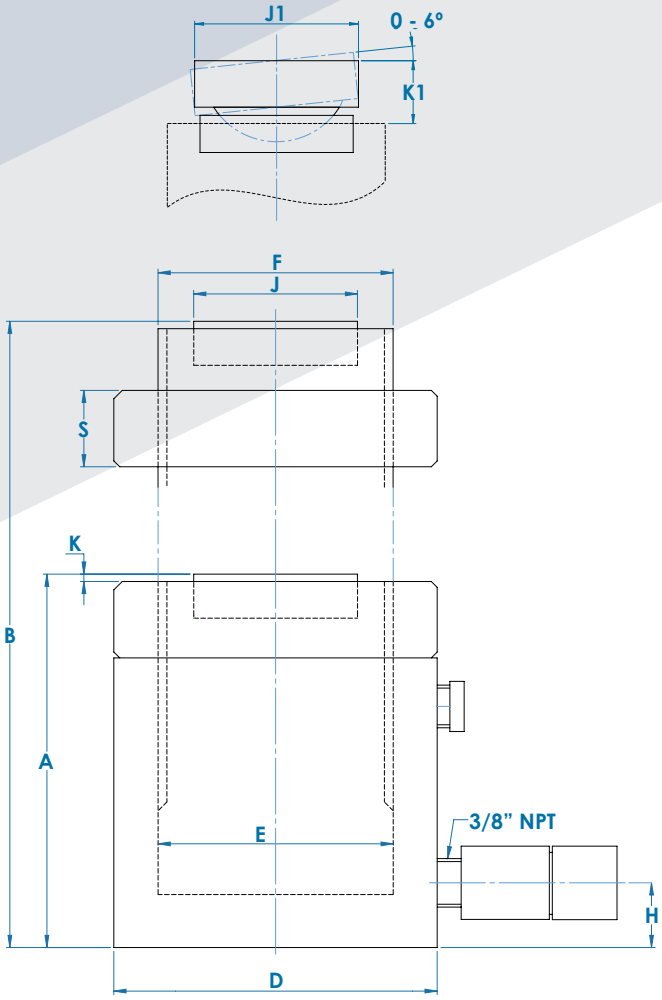
Thrust
30 to 500 Tn

Rated Force	REF.	Stroke	Maximum Forcea	Usable Cross-Section	Size (mm)										Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	J	J1	H	K	K1	cm^3	Kg.
	O03005	50			130	180									221	7,9
	O03010	100			180	280									442	11,0
30,9	**O03015**	150	309,3	44,2	230	380	100	75	75	56	60	23	2	27	663	14,0
	O03020	200			280	480									884	17,1
	O03030	300			380	680									1.326	23,2
	O05005	50			133	183									355	12,8
	O05010	100			183	283									709	17,3
49,6	**O05015**	150	486,6	70,9	233	383	125	95	95	74	78	25	2	34	1.064	22,2
	O05020	200			283	483									1.418	26,9
	O05030	300			383	683									2.127	36,4
	O10005	50			145	195									664	25,2
	O10010	100			195	295									1.327	34,0
92,9	**O10015**	150	911,2	132,7	245	395	170	130	130	89	94	30	2	42	1.991	42,8
	O10020	200			295	495									2.654	51,6
	O10030	300			395	695									3.981	69,3
	O14005	50			165	215									1.006	41,7
	O14010	100			215	315									2.011	54,5
140,7	**O14015**	150	1380,2	201,1	265	415	205	160	160	113	138	35	2	49	3.017	67,4
	O14020	200			315	515									4.022	80,2
	O14030	300			415	715									6.033	105,8
	O20005	50			176	226									1.418	63,4
198,5	**O20015**	150	1946,3	283,5	276	426	245	190	190	130	155	45	3	69	4.253	100,1
	O20030	300			426	726									8.505	155,1
	O30005	50			207	257									2.262	118,7
316,7	**O30015**	150	3105,5	452,4	307	457	310	240	240	160	185	53	5	91	6.786	177,4
	O30030	300			457	757									13.572	265,5
	O40005	50			260	310									2.863	189,5
400,8	**O40015**	150	3930,4	572,6	360	510	349	270	270	180	205	86	5	104	8.589	263,9
	O40030	300			510	810									17.178	375,6
	O50005	50			269	319									3.653	250,3
511,4	**O50015**	150	5015,4	730,6	369	519	394	305	305	230	260	88	5	115	10.959	345,2
	O50030	300			519	819									21.918	487,6

LOCKING NUT

TO

SERIES



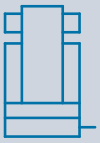
There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14.

LOW-HEIGHT CYLINDER WITH LOCKING NUT LOAD

RETURN, SINGLE-ACTING

TO

- Safety nut to mechanically restrain the load.
- Designed to withstand up to 10 % of side load with up to 90 % of the complete length of the stroke
- All parts nitrated to prevent rust and increase wear resistance.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Flush or overflow hole working as a limit switch.
- Longer strokes on demand.



SINGLE ACTING
LOAD RETURN

Stroke
Up to 300 mm

Thrust
30 to 500 Tn

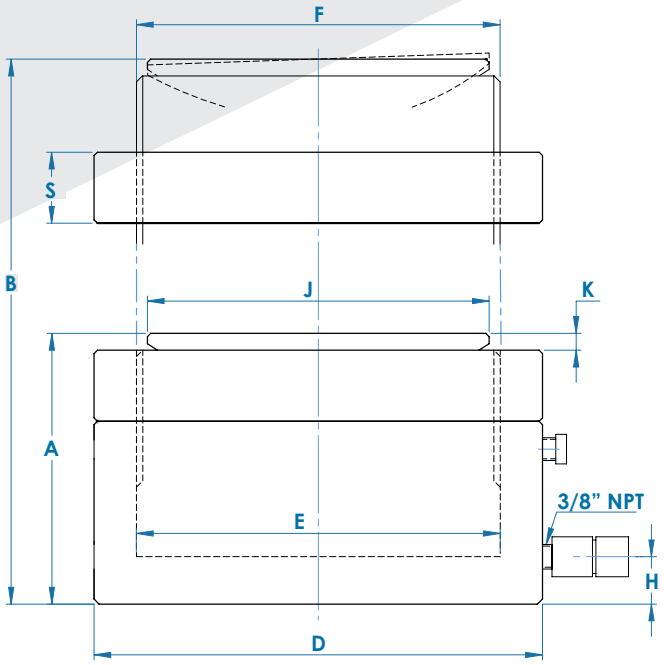
LOCKING NUT

TO SERIES

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)											Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	J	J1	H	K	K1	S	cm^3	Kg.
30,9	**TO03005**	50	303,3	44,2	155	205	100	75	TR 75 x4	56	60	23	2	27	25	221	9,3
	TO03010	100			205	305										442	12,3
	TO03015	150			255	405										663	15,3
	TO03020	200			305	505										884	18,2
	TO03030	300			405	705										1.326	24,2
49,6	**TO05005**	50	486,6	70,9	164	214	125	95	TR 95 x 4	74	78	25	2	34	28	355	15,4
	TO05010	100			214	314										709	20,1
	TO05015	150			264	414										1.064	24,7
	TO05020	200			314	514										1.418	29,4
	TO05030	300			414	714										2.127	38,7
92,9	**TO10005**	50	911,2	132,7	180	230	170	130	TR 130 x 6	89	94	30	2	42	36	664	31,1
	TO10010	100			230	330										1.327	39,6
	TO10015	150			280	430										1.991	48,1
	TO10020	200			330	530										2.654	56,6
	TO10030	300			430	730										3.981	73,5
140,7	**TO14005**	50	1380,2	201,1	203	253	205	160	TR 160 x 6	113	138	35	2	49	38	1.006	51,0
	TO14010	100			253	353										2.011	63,4
	TO14015	150			303	453										3.017	75,8
	TO14020	200			353	553										4.022	88,2
	TO14030	300			453	753										6.033	113,1
198,5	**TO20005**	50	1946,3	283,5	216	266	245	190	TR 190 x 6	130	155	45	3	69	44	1.418	77,5
	TO20015	150			316	466										4.253	113,2
	TO20030	300			466	766										8.505	166,7
316,7	**TO30005**	50	3105,5	452,4	258	308	310	240	TR 240 x 6	160	185	53	5	91	50	2.262	147,8
	TO30015	150			358	508										6.786	205,1
	TO30030	300			508	808										13.572	291,6
400,8	**TO40005**	50	3930,4	572,6	318	368	349	270	TR 270 x 6	180	205	86	5	104	58	2.863	231,7
	TO40015	150			418	568										8.589	304,8
	TO40030	300			568	868										17.178	414,5
511,4	**TO50005**	50	5015,4	730,6	337	387	394	305	TR 305 x 6	230	260	88	5	115	68	3.653	313,1
	TO50015	150			437	587										10.959	406,4
	TO50030	300			587	887										21.918	546,3

EXTRA-FLAT WITH
LOCKING NUT

TOS
SERIES

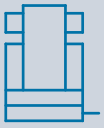


EXTRA-FLAT CYLINDER WITH LOCKING NUT
LOAD RETURN, SINGLE-ACTING

TOS

- Extra-flat cylinders for jobs in very tight spaces.
- Safety nut to mechanically restrain the load.

EPS5A | EPS5AE electric pumps are recommended for **supplying** power to TOS cylinders, see page 53. Up to 150 Tn, we recommend manual pumps from the **BS** series, see page 50.



SINGLE-ACTING
LOAD RETURN

Stroke
Up to 50 mm

Thrust
50 to 500 Tn

EXTRA-FLAT WITH LOCKING NUT

TOS SERIES

Safety First: Best practices recommend not to go beyond **80%** of the rated capacity, nor beyond **80%** of the stroke length.

Low-height cylinders **with locking nut** – **TO** » Page 30.

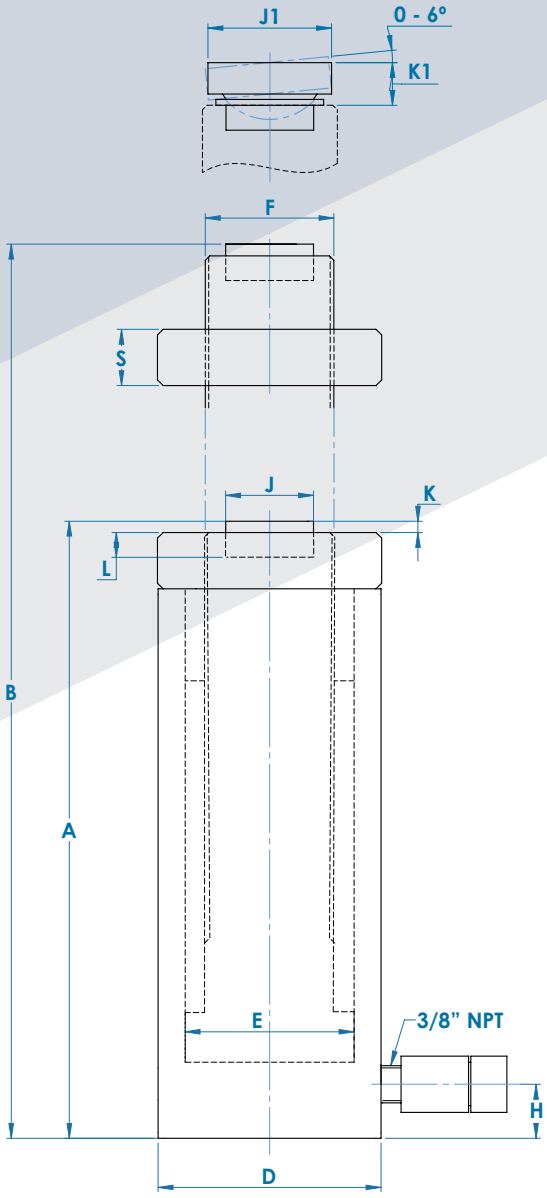
Extra-Flat Cylinders – **S** » Page 20.

- All parts nitrated to prevent rust and increase wear resistance.
- Furnished with a removable and grooved tilt saddle
- High-flow female quick plug coupling with dust cover as standard in all models.
- Flush or overflow hole working as a limit switch.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)									Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	J	H	K	S	cm³	Kg.
49,6	**TOS05050**	50	486,6	70,9	125	175	123	95	TR 95 x 4	88	22	6	23	355	11,2
92,9	**TOS10045**	45	911,2	132,7	138	183	165	130	TR 130 x 6	117	22	8	31	597	22,2
149,7	**TOS15045**	45	1467,8	213,8	152	197	205	165	TR 165 x 6	148	25	8	38	962	37,8
254,1	**TOS25045**	45	2492,2	363,1	160	205	265	215	TR 215 x 6	202	28	10	42	1.634	71,5
343,6	**TOS35045**	45	3369,7	490,9	175	220	305	250	TR 250 x 6	232	32	10	50	2.209	96,0
511,4	**TOS50045**	45	5015,4	730,6	192	237	375	305	TR 305 x 6	292	40	12	60	3.288	160,0

LOCKING NUT

T SERIES



34

There are **tilt saddles** available for a safer use with non-centred loads or uneven ground.
See page 14.

CYLINDER WITH LOCKING NUT
LOAD RETURN, SINGLE-ACTING

T

- Safety nut to mechanically restrain the load.
- Nitrated piston, nut and lead-in top to prevent rust and increase wear resistance.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Longer strokes on demand.

SINGLE-ACTING
LOAD RETURN

Stroke
Up to 350 mm

Thrust
10 to 500 Tn

Aluminium, Single-Acting Cylinders with Locking Nut – **RTA** » Page 46.

Low-Height Cylinders **with Locking Nut** – **TO** » Page 30.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)												Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	H	J	J1	K	K1	L	S	cm³	Kg.
30,9	**T03015**	150	303,3	44,2	272	422	99	75	TR 2 1/4 x 5	24	39	55	3	23	11	25	663	14,1
55	**T05010**	100	539,1	78,5	237	337	130	100	TR 80 x 5	24	55	60	4	28	11	31	785	21,8
	T05015	150			293	443				24							1178	26,2
	T05020	200			337	537				24							1570	29,9
	T05025	250			407	657				26							1963	35,5
	T05030	300			457	757				26							2355	39,4
	T05035	350			507	857				26							2748	43,3
92,9	**T10005**	50	911,2	132,7	205	255	175	130	TR 105 x 5	30	74	79	4	35	11	38	664	35,4
	T10010	100			255	355				30							1327	42,8
	T10015	150			326	476				30							1991	54,7
	T10020	200			355	555				47							2654	57,6
	T10025	250			435	685				47							3318	71,4
	T10030	300			485	785				47							3981	78,9
198,5	**T20015**	150	1946,3	283,5	349	499	242	190	TR 160 x 5	40	113	138	5	52	13	57	4253	125
303,6	**T30015**	150	2977,4	433,7	435	585	302	235	TR 180 x 5	78	130	155	5	71	13	65	6506	222
	T30025	250			545	795											10843	269
400,8	**T40015**	150	3930,4	572,6	450	600	349	270	TR 220 x 5	88	160	185	5	90	25	77	8589	315
	T40025	250			560	810											14315	383
511,4	**T50015**	150	5015,4	730,6	475	625	396	305	TR 255 x 5	91	180	205	5	105	25	80	10959	427
	T50025	250			585	835											18265	515

TRACTION

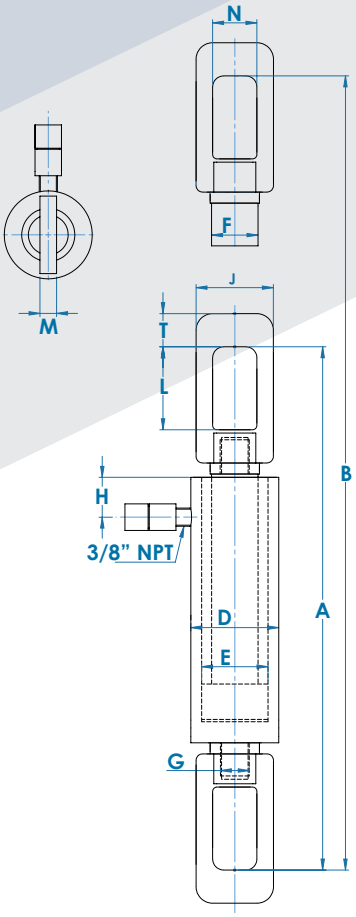
PR

SERIES

SINGLE ACTING
SPRING RETURN

Stroke
Up to 150 mm

Traction
10 to 50 Tn



EPS5A | EPS5AE electric pumps are recommended for supplying **power** to PR cylinders. See pages 52-53.

TRACTION CYLINDERS

SPRING RETURN, SINGLE-ACTING

PR

- All parts in the cylinder are built with high-resistance steel alloy materials.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Removable eyebolts on ends.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)												Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	G	H	J	L	M	N	T	cm^3	Kg.
10,1	**PR01014**	140	99	14,4	471	611	80	60	42	M 26 x 2	36	70	75	15	40	30	202	9,2
30,5	**PR03015**	150	299,3	43,6	599	749	126,5	100	66,7	1 3/4 - 12 UN	37	95	100	30	50	45	654	24,0
50,7	**PR05015**	150	497,4	72,5	749	899	155	125	80	M 60 x 2,5	37,5	125	150	40	60	65	1.088	41,0

STEEL
Cylinders

GCHydraulic aluminium components increase the scope of applications for cylinders and feature the latest alloy technology, lead-in parts, high-resistance lining and an advanced design. These products combine steel resistance with aluminium lightness and ease of transport/positioning.

Features and **advantages**

Cylinders 40 % lighter than corresponding steel cylinders. They are specially suitable for applications in which lightness and ease of handling are essential.

Manufactured in aircraft-grade aluminium to optimize resistance and reduce weight.

The design of the rails provides a level of resistance to side loads of up to 10 % of the rated load, which increases service life.

Critical elements are lined with a hard anodizing coat that supplies high resistance to wear and rust.

Most cylinders feature a transport handle.

They also have a base plate and a steel top saddle as a protection against abrasive surfaces and load-caused damage.

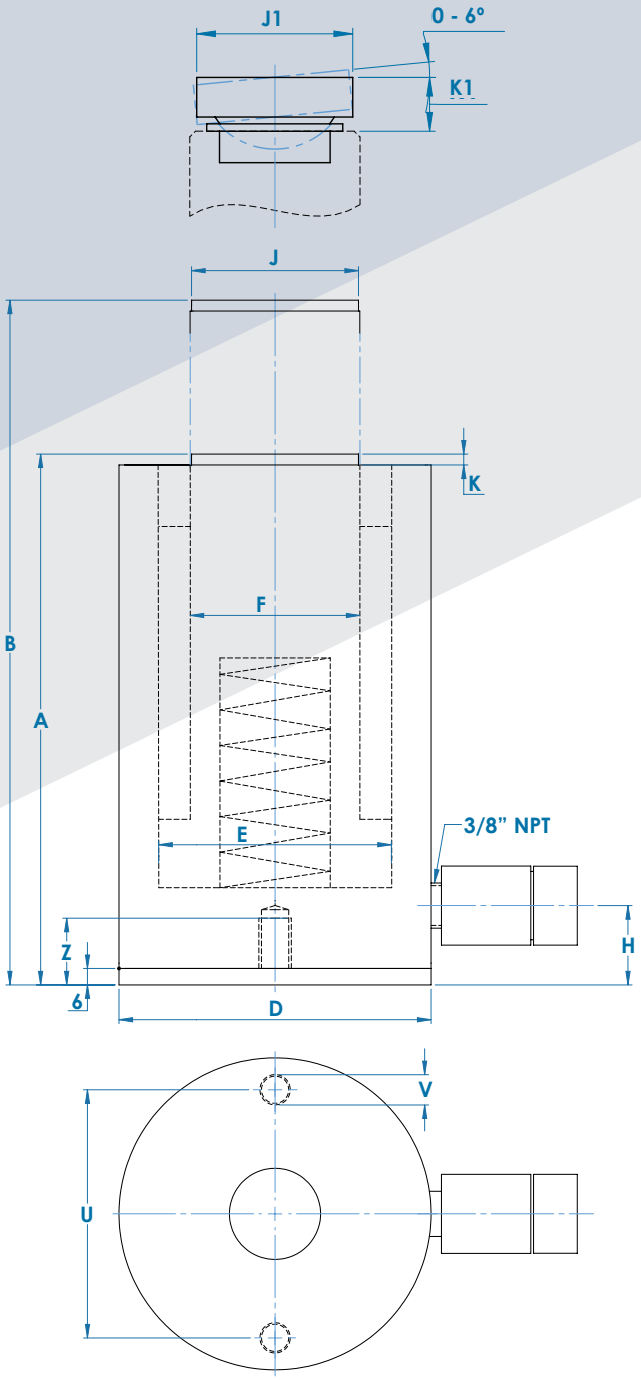
Aluminium **VS** Steel

Aluminium cylinders are a lighter substitute for steel cylinders and they are easier to handle. They also have some disadvantages due to material properties, since aluminium has a lower finite fatigue life.
That means that aluminium cylinders should not be used in applications with a high number of cycles.

GCHydraulic aluminium cylinders are designed to withstand up to 5000 cycles at maximum operating pressure, which makes them a very good choice for simple hoisting applications with a number of cycles below this figure.

SINGLE-ACTING

RA
SERIES



There are **tilt saddles** available for a safer use with non-centred loads or uneven ground. See page 14.

ALUMINIUM CYLINDERS
SPRING RETURN, SINGLE-ACTING

RA

- Light cylinders for general purpose industrial applications.
- Up to 40 % lighter than corresponding steel cylinders.
- Light, easy to carry and install; better weight/capacity ratio.

BA manual pump series is recommended for supplying **power** to 30 and 50 Tn cylinders with up to 100 mm stroke lengths in the RA series. See page 51. For the rest, use an electric pump from the **EPS5A | EPS5AE** series. See pages 52-53.

SINGLE-ACTING
SPRING RETURN

Stroke
Up to 150 mm

Thrust
30 to 100 Tn

SINGLE-ACTING
RA
SERIES

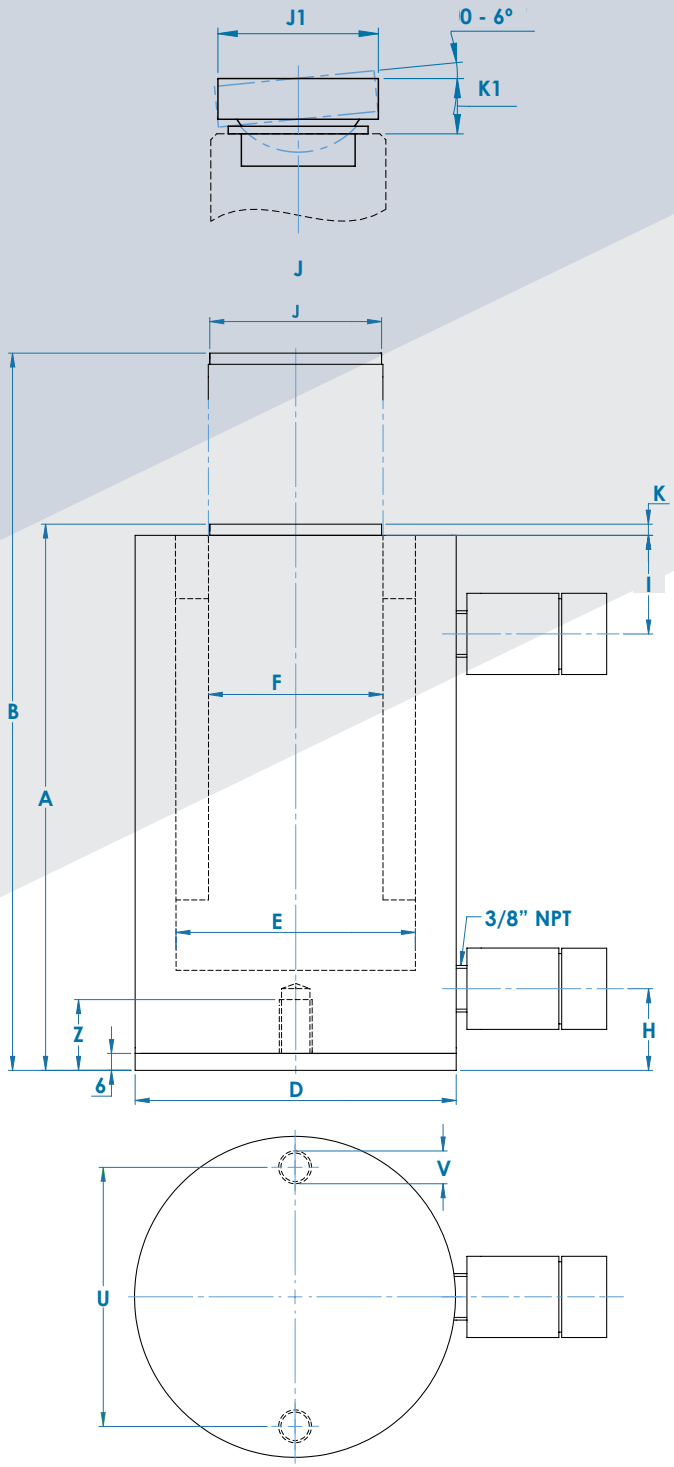
Safety First: Best practices recommend not to go beyond **80%** of the rated capacity, nor beyond **80%** of the stroke length.

- Made of a hard anodizing aluminium alloy. Suitable for caustic environments.
- All aluminium parts have been treated so as to increase resistance, lengthen service life and prevent rust.
- Furnished with strong return springs that speed up retraction.
- Composite metal bearings on moving surfaces are added in order to make sure that there will NOT be any metal-metal contact, which will help in withstanding side loads and in increasing the service life of the cylinder.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- Furnished with a removable and grooved saddle. Optional tilt saddles.
- The steel base plate protects the cylinder's base against abrasive surfaces, increasing its resistance to wear.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Not recommended for applications with a large number of cycles.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)											Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	J	J1	H	K	K1	Z	cm^3	Kg.
30,9	**RA03005**	50	309,3	44,2	173	223	100	75	60	39	55	32	5	23	21	221	4,3
	RA03010	100			223	323										442	5,1
	RA03015	150			273	423										663	5,9
49,6	**RA05005**	50	486,6	70,9	183	233	130	95	80	55	60	33	5	28	21	355	7,3
	RA05010	100			233	333										709	8,6
	RA05015	150			283	433										1.064	10,0
100,2	**RA10005**	50	982,6	143,1	215	265	180	135	110	93	98	44	5	35	21	716	17,1
	RA10010	100			265	365										1.431	20,1
	RA10015	150			315	465										2.147	22,5

DOUBLE-ACTING

DA
SERIES



ALUMINIUM CYLINDER
DOUBLE-ACTING

DA

- Double-acting light cylinders, quick and controlled retraction.
- Up to 40 % lighter than corresponding steel cylinders.

There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14.

EPD5A | EPD5AE electric pumps are recommended for **supplying power** to DA cylinders. See pages 52-53.

DOUBLE-ACTING
QUICK AND CONTROLLED RETRACTION

Stroke
Up to 150 mm

Thrust and traction
30 to 100 Tn

Accessories: **Valves, distributors, fittings**, etc.
» Pages 56 -63.

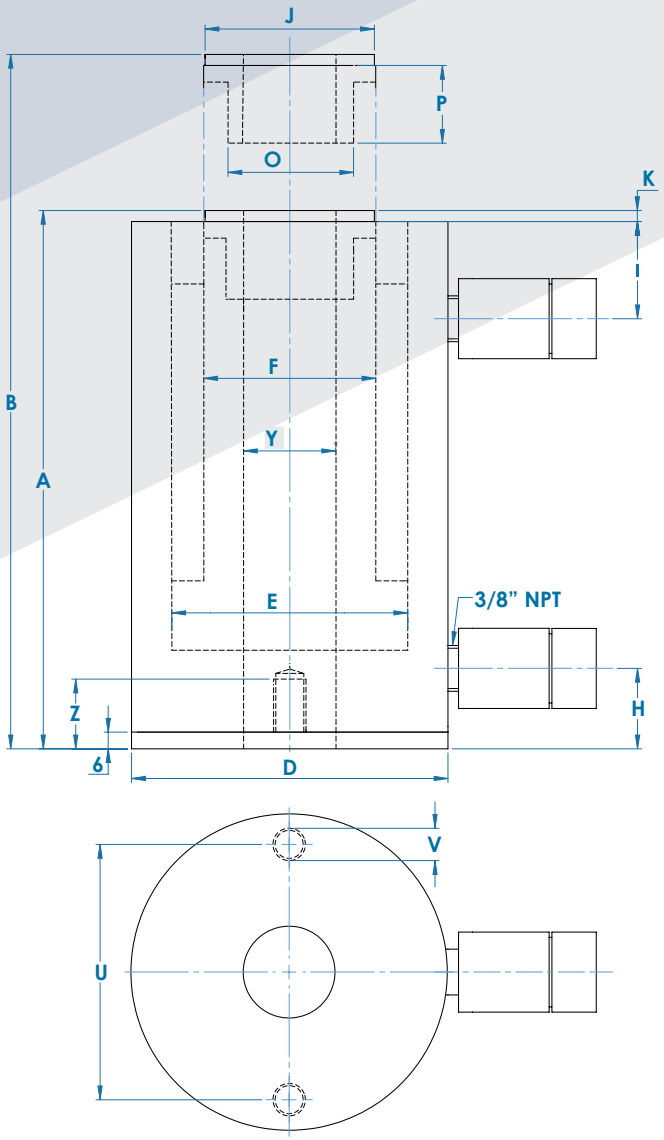
- All aluminium parts have been treated so as to increase resistance, lengthen service life and prevent rust.
- Built-in safety valve to prevent overpressures.
- Composite metal bearings to withstand side loads and increase the service life of the cylinder.
- Handles included in most models.
- Base plate and steel saddle for protection against load-caused damage.
- Furnished with a removable and grooved steel saddle. Optional tilt saddles.
- High-flow female quick plug couplings with dust cover as standard in all models.
- Not recommended for applications with a large number of cycles.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Dimensiones (mm)												Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	J	J1	H	I	K	K1	Z	cm³	Kg.
30,9	DA03005	50	309,3	44,2	171	221	100	75	60	39	55	24	43	5	23	21	221	4,8
	DA03010	100			221	321											442	5,6
	DA03015	150			271	421											663	6,5
49,6	DA05005	50	486,6	70,9	185	235	130	95	80	55	60	32	50	5	28	21	355	8,3
	DA05010	100			235	335											709	9,8
	DA05015	150			285	435											1.064	11,4
100,2	DA10005	50	982,6	143,1	225	275	180	135	110	93	98	40	61	5	35	21	716	18,4
	DA10010	100			275	375											1.431	21,2
	DA10015	150			325	475											2.147	24,1

HOLLOW DOUBLE-ACTING

DHA

SERIES



ALUMINIUM CYLINDER

HOLLOW DOUBLE-ACTING

DHA

- Light, hollow-piston cylinders designed for traction and thrust jobs.
- Double-acting for quick retraction.

Threaded hollow saddles and g**rooved solid saddles** available. See page 15.

EPD5A | EPD5AE electric pumps are recommended for supplying power to DHA cylinders. See pages 52-53

HOLLOW DOUBLE-ACTING
QUICK AND CONTROLLED RETRACTION

Stroke
Up to 150 mm

Thrust and traction
30 to 100 Tn

HOLLOW DOUBLE-ACTING

DHA
SERIES

Safety First: Best practices recommend not to go beyond **80%** of the rated capacity, nor beyond **80%** of the stroke length.

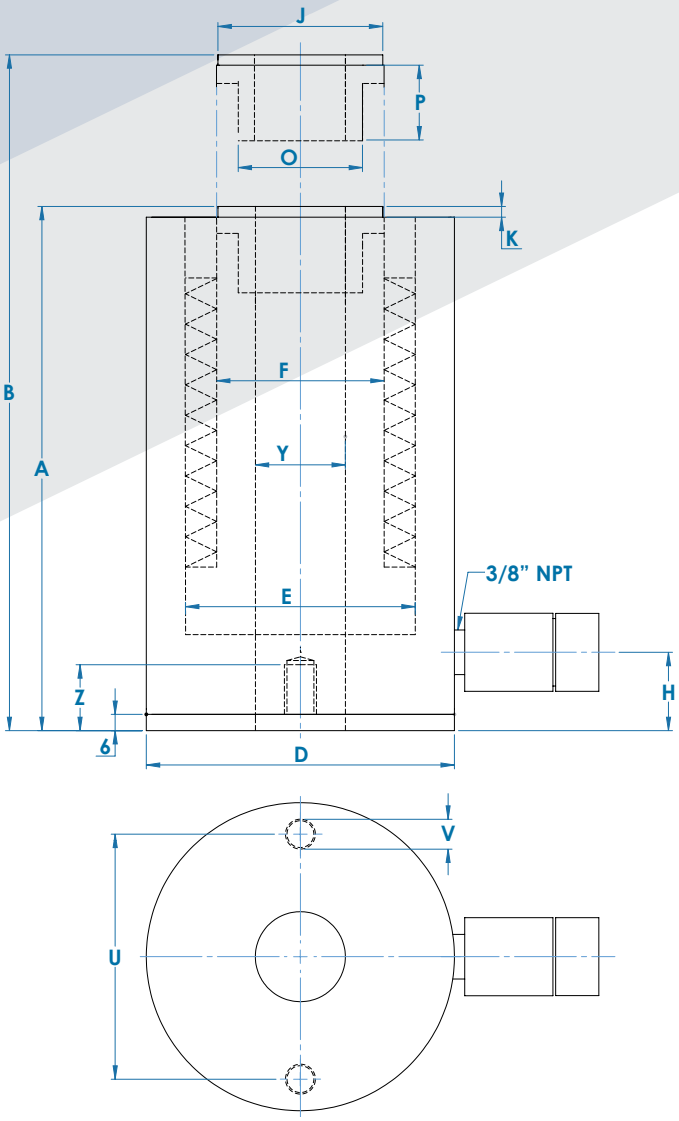
- Up to 40 % lighter than corresponding steel cylinders.
- All aluminium parts have been treated so as to increase resistance, lengthen service life and prevent rust.
- Built-in safety valve to prevent overpressures.
- Composite metal bearings to withstand side loads and increase the service life of the cylinder.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Handles included in most models.
- Base plate and steel saddle for protection against load-caused damage.
- Interchangeable steel saddles — flat, threaded or solid.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Not recommended for applications with a large number of cycles.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)																Oil Capacity	Weight
tn		mm.	kN	cm²	A	B	D	E	F	H	I	J	K	O	P	U	V	Y	Z	cm³	Kg.
33,7	DHA03005	50	330,4	48,1	189	239	129	90	68	35	45	55	5	M-46x1,5	25	100	M6	33,6	26	241	8,0
	DHA03010	100			239	339														481	9,4
	DHA03015	150			289	439														722	10,9
59,1	DHA06005	50	579,7	84,40	204	254	175	125	95	42	47	79	5	M70x1,5	25	130	M6	54	26	422	15,0
	DHA06010	100			254	354														844	17,5
	DHA06015	150			304	454														1266	20,2
102,2	DHA10005	50	1002	146	233	283	235	170	130	45	55	116	5	M103x1,5	34	170	M6	79	26	730	30,5
	DHA10010	100			283	383														1460	35,1
	DHA10015	150			333	483														2190	39,8

HOLLOW SINGLE-ACTING

RHA

SERIES



ALUMINIUM CYLINDERS

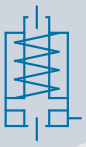
SPRING RETURN, SINGLE-ACTING

RHA

- Light, hollow-piston cylinders designed for traction and thrust jobs.
- Furnished with strong return springs that speed up retraction.

Threaded hollow saddles and grooved **solid saddles available**. See page 15.

BA manual pump series is recommended for supplying power to 30 and 60 Tn cylinders with up to 100 mm stroke lengths in the RHA series. See Page 51. For the rest, use an electric pump from the **EPS5A | EPS5AE** series. See pages 52-53.



SINGLE-ACTING
HOLLOW SPRING RETURN

Stroke
Up to 150 mm

Thrust
30 to 100 Tn

HOLLOW SINGLE-ACTING

RHA

SERIES

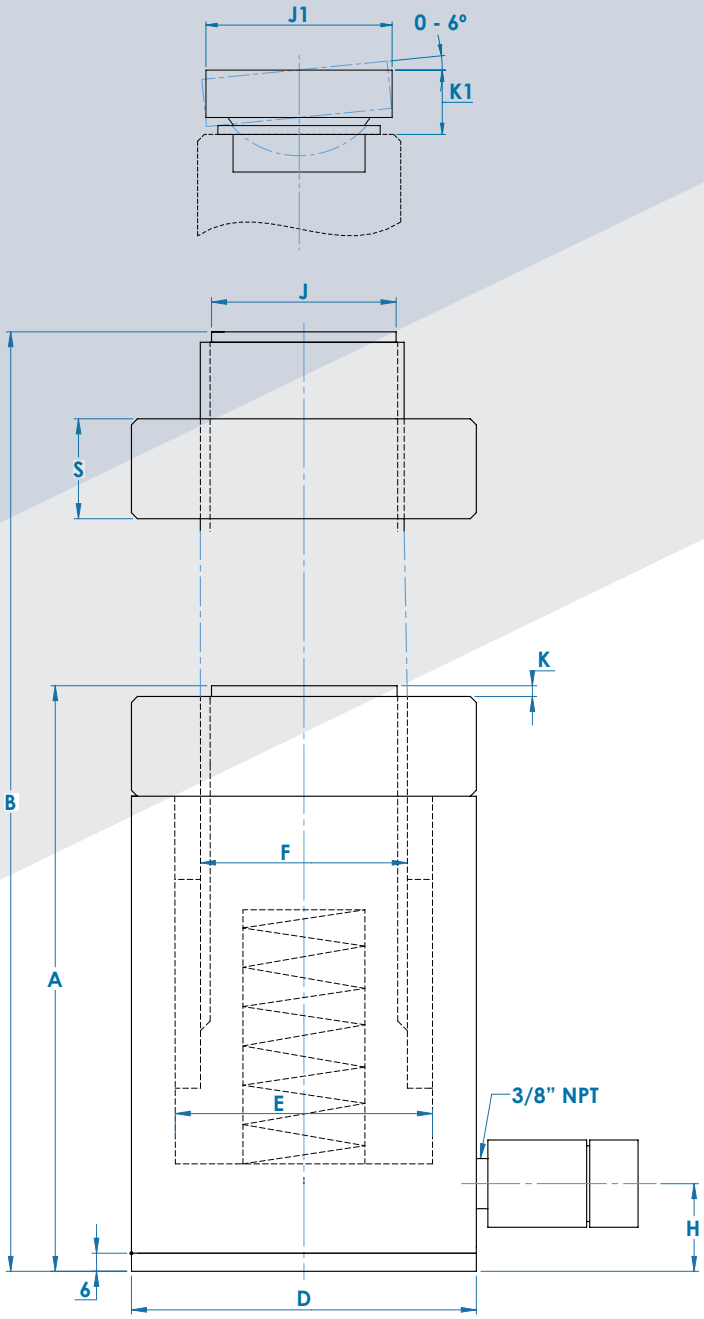
Accessories: **Valves, distributors, fittings,** etc.
» Pages 56 -63.

- Up to 40 % lighter than corresponding steel cylinders.
- All aluminium parts have been treated so as to increase resistance, lengthen service life and prevent rust.
- Composite metal bearings to withstand side loads and increase the service life of the cylinder.
- Equipped with a scraper in the piston to reduce the infiltration of dirt and to extend the cylinder service life.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Handles included in most models.
- Base plate and steel saddle for protection against load-caused damage.
- Interchangeable steel saddles — flat, threaded or solid.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Not recommended for applications with a large number of cycles.
- Longer strokes on demand.

Rated Force	REF.	Stroke	Maxi-mum Force	Usable Cross-Section	Size (mm)														Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	H	J	K	O	P	U	V	Y	Z	cm^3	Kg.
33,7	**RHA03005**	50	330,4	48,1	208	258	129	90	68	35	55	5	M46x1,5	25	100	M6	33,6	26	241	7,6
	RHA03010	100			277	377													481	9,5
	RHA03015	150			349	499													722	11,6
59,1	**RHA06005**	50	579,7	84,4	244	294	175	125	95	42	79	5	M70x1,5	26	130	M6	54,0	26	422	16,7
	RHA06010	100			301	401													844	19,7
	RHA06015	150			369	519													1266	23,4
102,2	**RHA10005**	50	1002	146	261	311	235	170	130	45	116	5	M103x1,5	34	170	M6	79	26	730	32,5
	RHA10010	100			327	427													1460	39,0
	RHA10015	150			395	545													2190	46,8

LOCKING NUT

RTA
SERIES



ALUMINIUM CYLINDER WITH LOCKING NUT
SPRING RETURN, SINGLE-ACTING

RTA

- Aluminium safety nut to mechanically restrain the load.
- Up to 40 % lighter than corresponding steel cylinders.

There are **tilt saddles** available for a safer use with non-centred loads and on uneven ground. See page 14

BA manual pump series is recommended for supplying **power** to 30 and 50 Tn cylinders with up to 100 mm stroke lengths in the RTA series. See Page 49. For the rest, use an electric pump from the **EPS5A | EPS5AE** series. See pages 52-53.

SINGLE-ACTING
SPRING RETURN

Stroke
Up to 150 mm

Thrust
30 to 100 Tn

LOCKING NUT

RTA

SERIES

Low-height cylinders **with locking nut** – **TO**
» Page 30.

Extra-Flat Cylinders with Locking Nut – **TOS**
» Page 32.

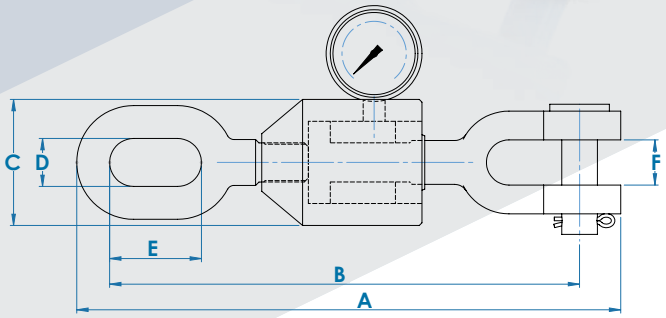
- Made of a hard anodizing aluminium alloy.
- Treatment on piston, nut and lead-in top to prevent rust and increase wear resistance.
- Furnished with strong return springs that speed up retraction.
- The top head prevents the piston extraction and withstands all the power of the cylinder.
- Furnished with a removable and grooved steel saddle. Optional tilt saddles.
- Base plate and steel saddle for protection against load-caused damage.
- High-flow female quick plug coupling with dust cover as standard in all models.
- Longer strokes on demand.

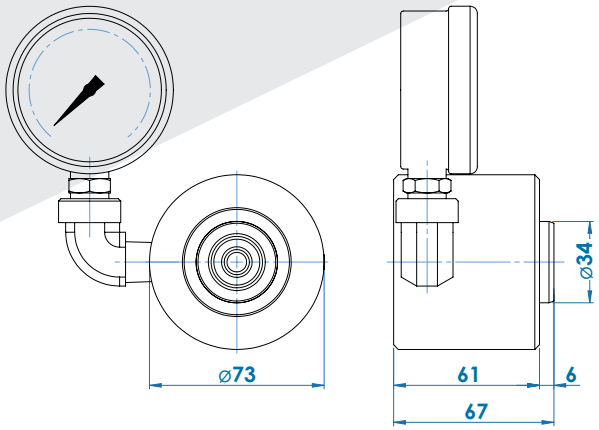
Rated Force	REF.	Stroke	Maximum Force	Usable Cross-Section	Size (mm)											Oil Capacity	Weight
tn		mm.	kN	cm^2	A	B	D	E	F	J	J1	H	K	K1	S	cm^3	Kg.
30,9	**RTA03005**	50	309,3	44,2	198	248	100	75	Tr 60x4	39	55	32	3	23	35	221	5,0
	RTA03010	100			248	348										442	5,8
	RTA03015	150			298	448										663	6,6
49,6	**RTA05005**	50	486,6	70,9	221	271	130	95	Tr 80x4	55	60	33	3	28	40	355	8,8
	RTA05010	100			271	371										709	10,1
	RTA05015	150			321	471										1.064	11,5
100,2	**RTA10005**	50	982,6	143,1	252	302	180	135	Tr 110x6	93	98	44	3	35	50	716	19,6
	RTA10010	100			302	402										1.431	22,6
	RTA10015	150			352	502										2.147	25,0

DYNAMOMETRIC

DYT-DYK
SERIES

TRACTION **DYNAMOMETRIC**	COMPRESSION **DYNAMOMETRIC**
Accuracy ±3%	**Accuracy** ±3%
Traction De 10 a 20 Tn	**Compression** 10 Tn





TRACTION **DYNAMOMETRIC CYLINDER**

DYT

- They measure tension on the load.
- Accuracy of ±3 %.
- 0 and 20 Tn dynamometers available. Please, contact us for additional capacities.
- Ideal as a wire tension gauge, in traction tests and as a weighing device.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.

COMPRESSION **DYNAMOMETRIC CYLINDER**

DYK10

- They measure compression on the load.
- Accuracy of ±3 %.
- 10 Tn dynamometers available. Please, contact us for additional capacities.
- Ideal as a weighing device or as a load cell in presses, etc.
- Nitrated piston and lead-in top to prevent rust and increase wear resistance.

Maximum Force	REF.	Size (mm)						Weight
tn		A	B	C	D	E	F	Kg.
10	**DYT010**	397	343	92	95	67	33	8,1
20	**DYT020**	564	486	115	44	88	50	20,9

Hydraulic Pumps
Manual and Electric Pumps

We have single-stage and double-stage **manual pumps.** Both of them in steel or aluminium and with 600 cm^3 or 1200 cm^3 tanks. They are designed to operate under a pressure of 700 bar.

We also have single-acting or double-acting **electric pumps.** In both cases, there are 700 bar or 1000 bar pressure models available. Different capacity options for all — from 5 l to 30 l. In 700 bar models, solenoid valves for controlling functions are available as an option.

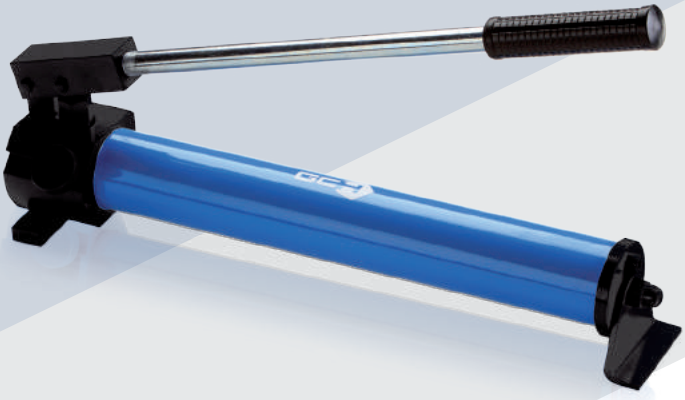
MANUAL PUMP

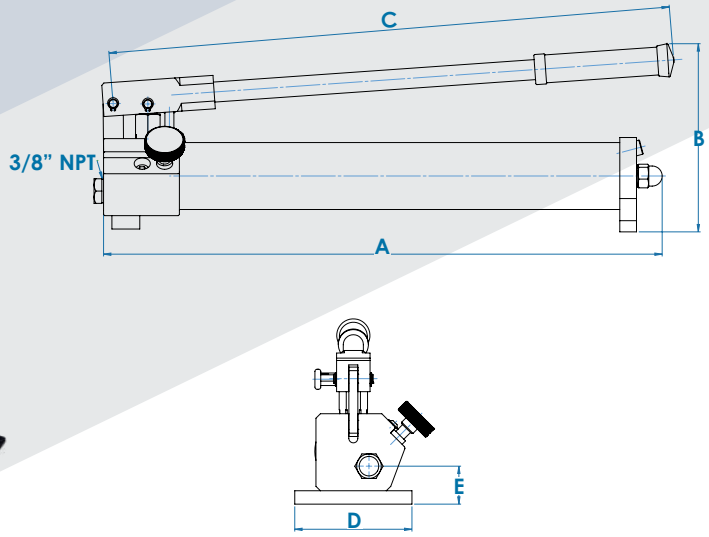
BS SERIES

SINGLE AND DOUBLE STAGE

Connection thread
3/8" -NPT female

Accurate





MANUAL PUMP
SINGLE AND DOUBLE STAGE

BS

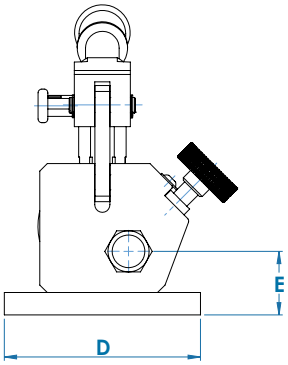
- Single or double stage pumps available. Double stage models are used for quickly approaching the plunger to the load.
- Connection thread 3/8"-NPT, female.
- All models include an internal safety valve to prevent overpressure.
- The cap gasket in the filling port functions as a safety valve to prevent overpressure in the tank.
- A relief valve over the check valve prevents the loads from going down.
- A large valve controller offers a greater degree of control to drop loads slowly and accurately.
- Completely made of steel, nitrated plunger and cleaning system to provide a reliable performance over a long period of time.

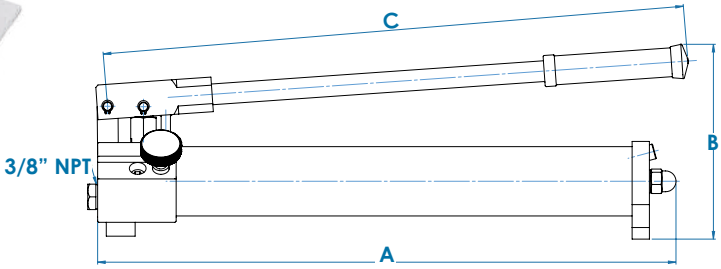
REF.	Effective Oil	Material	Stages	Flow per Displacement		Trigger Pressure	Size (mm)					Weight
	cm3			1ª etapa cm3	2ª etapa cm3	BAR	A	B	C	D	E	Kg.
BS106	600	Acero	1	--	2,6	700	500	170	510	105	34	6,5
BS112	1200	Acero	1	--	2,6	700	850	170	510	105	34	8,2
BS206	600	Acero	2	8,1	2	700	515	170	510	105	34	6,5
BS212	1200	Acero	2	8,9	2,1	700	865	170	510	105	34	8,2

SINGLE AND DOUBLE STAGE

Connection thread
3/8" -NPT female

Weight Reduction
More than 40%





ALUMINIUM MANUAL PUMP
SINGLE AND DOUBLE STAGE

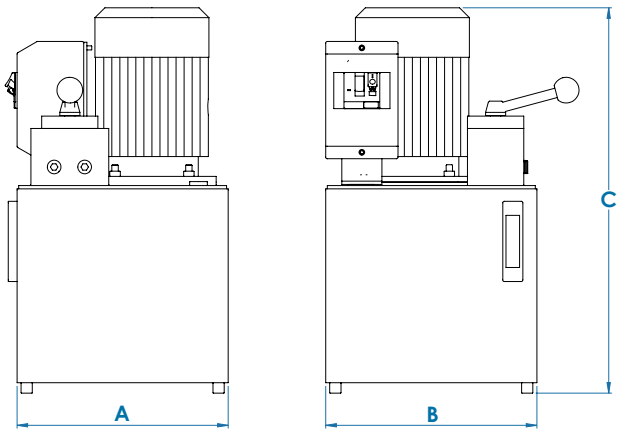
BA

- Up to 40 % lighter than corresponding steel cylinders.
- Single or double stage pumps available. Double stage models are used for quickly approaching the plunger to the load.
- Connection thread 3/8"-NPT, female.
- All models include an internal safety valve to prevent overpressure.
- The cap gasket in the filling port functions as a safety valve to prevent overpressure in the tank.
- A relief valve over the check valve prevents the loads from going down.
- A large controller offers a greater degree of control to drop loads slowly and accurately.
- Made of steel, treated piston and cleaning system to provide a reliable performance over a long period of time.

REF.	Effective Oil	Material	Stages	Flow per Displacement		Trigger Pressure	Size (mm)					Weight
	cm3			1ª etapa cm3	2ª etapa cm3	BAR	A	B	C	D	E	Kg.
BA106	600	Aluminio	1	--	2,6	700	500	170	510	105	34	3,4
BA112	1200	Aluminio	1	--	2,6	700	850	170	510	105	34	5,2
BA206	600	Aluminio	2	8,1	2	700	515	170	510	105	34	3,4
BA212	1200	Aluminio	2	8,9	2,1	700	865	170	510	105	34	5,2

ELECTRIC PUMP

EPS - EPD
SERIES



700 BAR ELECTRIC PUMP
SINGLE AND DOUBLE ACTING

EPS | EPD > 700 BAR

- Operating Pressure = 700 bar.
- Control by manual valve or solenoid valve available for 700 bar.
- Internal safety valve set at maximum operating pressure to prevent overpressure.
- Manual valve easily adjustable from double to single acting and vice versa.
- User-adjustable external pressure limiting valve.
- Noise level considerably lower.

EPS - EPD SERIES

SINGLE AND DOUBLE ACTING

Control
Through manual valve or solenoid valve

Operating pressure
700 BAR

REF.	Capacity litres	Operating pressure	OIL FLOW Stage 1 l/min	OIL FLOW Stage 2 l/min	Power kW	R.p.m	Size (mm) A	Size (mm) B	Size (mm) C	Weight Kg.
EPS5A	5	700	0,8	0,5	0,55	1390	216	252	436	38
EPS5AE										
EPS10A	10		1,1	0,7	0,73	1400	263	263	480	50
EPS10AE										
EPS20A	20		2,1	1,3	1,47	1390	308	308	576	75
EPS20AE										
EPS30A	30		2,1	1,3	1,47	1390	375	375	586	94
EPS30AE										
EPD5A	5		0,8	0,5	0,73	1400	216	252	436	38
EPD5AE										
EPD10A	10		1,1	0,7	1,47	1390	263	263	480	50
EPD10AE										
EPD20A	20		2,1	1,3	1,43	1390	308	308	576	75
EPD20AE										
EPD30A	30		2,1	1,3	1,43	1390	375	375	576	94
EPD30AE										

Pump with solenoid valve optional in 700 Kg/cm² groups. ADD “E” at the end of the reference number.
Example: EPS5AE.

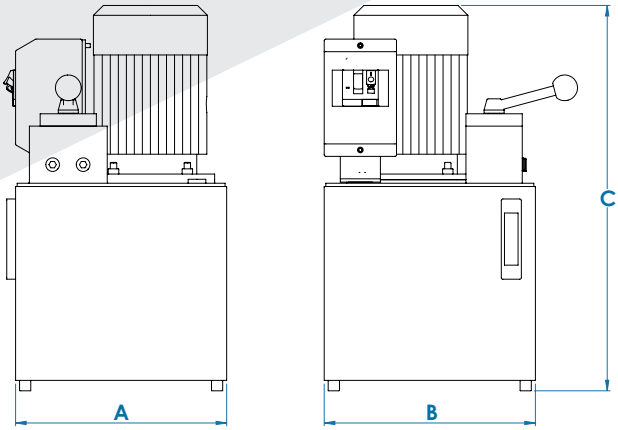
ELECTRIC PUMP

EPS - EPD
SERIES

SINGLE AND DOUBLE ACTING

Valve Control
Manual

Operating pressure
1000 BAR



1000 BAR ELECTRIC PUMP
SINGLE AND DOUBLE ACTING

EPS | EPD > 1000 BAR

- Operating Pressure = 1000 bar.
- Internal safety valve set at maximum operating pressure to prevent overpressure.
- Manual valve easily adjustable from double to single acting and vice versa.
- User-adjustable external pressure limiting valve.
- Noise level considerably lower.

REF.	Capacity	Operating pressure	Oil Flow		Potencia	R.p.m	Size (mm)			Weight
	litres		Stage 1 l/min	Stage 2 l/min	kW		A	B	C	Kg.
EPS10B	10	1000	1,6	0,7	1,1	1390	263	263	480	50
EPD10B						1390	263	263	480	50

Hydraulic Accessories

GCH offers a wide range of hydraulic accessories designed to comply with the most rigorous standards. We have all types of hoses, quick plug couplings, valves, fittings, distributors and pressure gauges.

There are **Hoses** available in different lengths, from 1.5 to 6 m (longer units on demand) and for different operating pressures, 700, 1000 and 1500 bar.

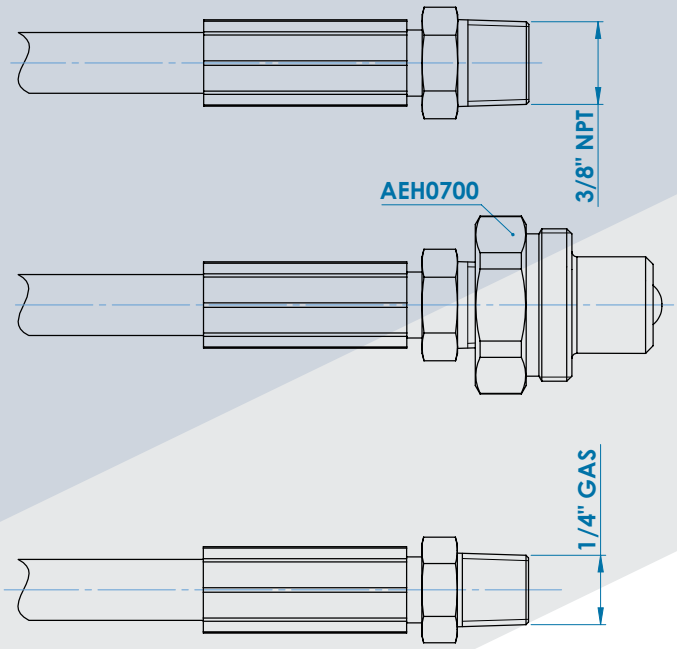
We offer **quick plug** couplings for several operating pressures with low-flow or high-flow option. All of them available as a set or in parts, male or female.

We have **pressure and flow control valves**: Flow control valves with single and multiple outlets, non-return valves, piloted check valves, safety valves and pressure regulating valves.

GCH offers a wide range of **fittings and distributors** for many different applications. Special designs tailored to client's needs available on demand.

Pressure gauges with a variety of features, from 700 to 1500 bar, to measure the operating pressure or the force exerted.

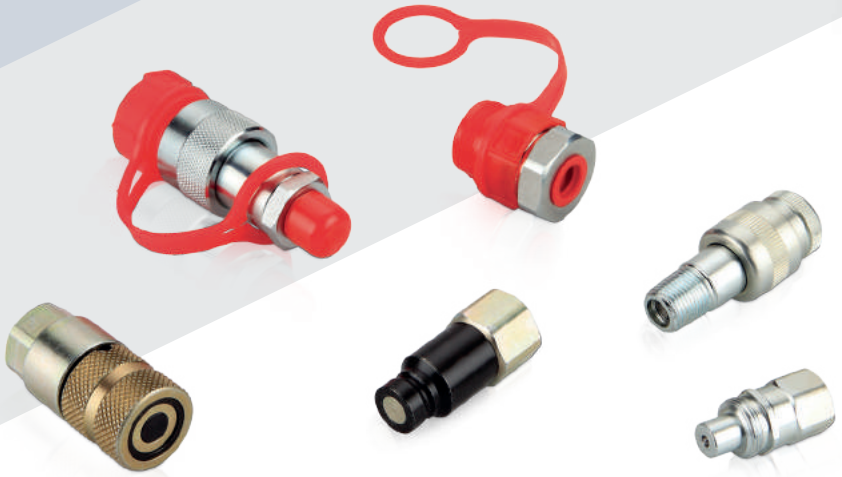
AMH
ACCESSORIES



HOSES
700 BAR • 1000 BAR • 1500 BAR

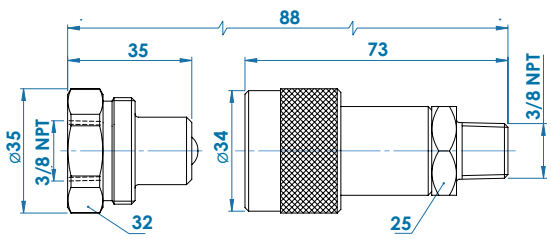
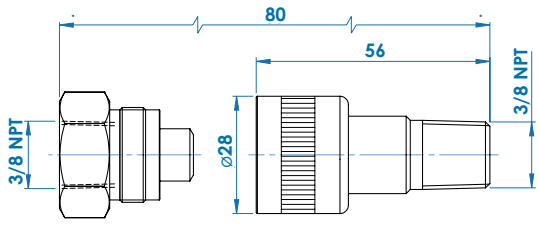
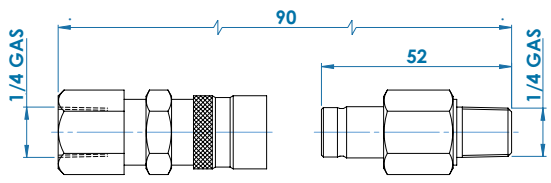
- High-pressure flexible hoses, available for 700, 1000, and 1500 bar operating pressures.
- With 2 steel wire coils, depending on the operating pressure.
- Suitable for demanding applications, very high safety factor.
- Low expansion coefficient during operation, which increases system efficiency.
- Resistant to extremely high traction forces.

REF.	Description
AMH1115	1,5m 700 Bar, 3/8" NPT hydraulic hose
AMH1120	2m 700 Bar, 3/8" NPT hydraulic hose
AMH1130	3m 700 Bar, 3/8" NPT hydraulic hose
AMH1160	6m 700 Bar, 3/8" NPT hydraulic hose
AMH1215	1,5m. 700 Bar hydraulic hose, 3/8" NPT ends and AEH0700 plug
AMH1220	2m. 700 Bar, hydraulic hose 3/8" NPT ends and AEH0700 plug
AMH1230	3m. 700 Bar hydraulic hose, 3/8" NPT ends and AEH0700 plug
AMH1260	6m. 700 Bar, hydraulic hose 3/8" NPT ends and AEH0700 plug
AMH1315	1,5m. 700 Bar, hydraulic hose and 2 plugs AEH0700
AMH1320	2m. 700 Bar, hydraulic hose and 2 plugs AEH0700
AMH1330	3m. 700 Bar, hydraulic hose and 2 plugs AEH0700
AMH1360	6m. 700 Bar, hydraulic hose and 2 plugs AEH0700
AMH2115	1,5m 1000 Bar hydraulic hose, 1/4" GAS
AMH2120	2m 1000 Bar hydraulic hose, 1/4" GAS
AMH2130	3m 1000 Bar hydraulic hose, 1/4" GAS
AMH2160	6m 1000 Bar hydraulic hose, 1/4" GAS
AMH3115	1,5m 1500 Bar hydraulic hose, 1/4" GAS
AMH3120	2m 1500 Bar hydraulic hose, 1/4" GAS
AMH3130	3m 1500 Bar hydraulic hose, 1/4" GAS
AMH3160	6m 1500 Bar hydraulic hose, 1/4" GAS



QUICK PLUG
ACCESSORIES

- They feature a threaded joint so as to replace cylinders quickly.
- High and low flow quick plug couplings — from 2 l min to 16 l/min.
- 700 bar plug couplings have a 3/8"-NPT thread. 1,500 bar plug couplings have a 1/4"-GAS thread.
- All the cylinders in the catalogue are supplied with a female plug, most of them with the AEM0700 model and the rest with the AEM0701 model.
- All male and female plugs come with a dust cover.
- Male and female plugs can be supplied separately.
- Every half has a valve with a precision ball to achieve leak-tight closure when they are disengaged.

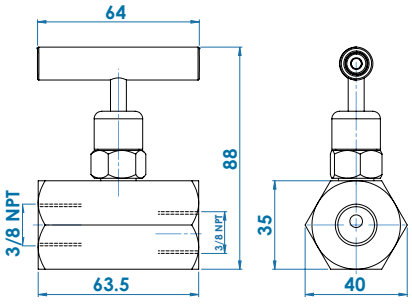
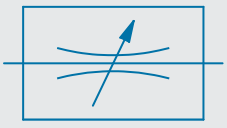
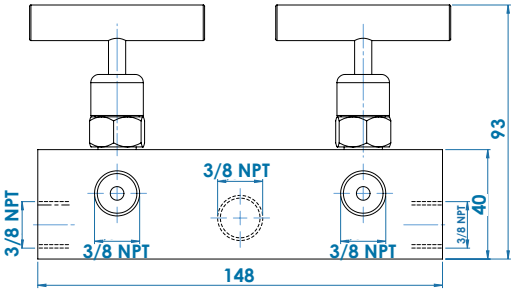
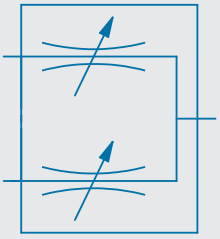
REF.	Name	Characteristics	Detall
AE0700	Plug Set	Max. Flow: 16 l/min Pressure: 700 bar	
AEH0700	Female Quick Plug Coupling		
AEM0700	Male Quick Plug Coupling		
AE0701	Plug Set	Max. Flow: 2 l/min Pressure: 700 bar	
AEH0701	Female Quick Plug Coupling		
AEM0701	Male Quick Plug Coupling		
AE1500	Plug Set	Max. Flow: 7 l/min Pressure: 1500 bar	
AEH1500	Female Quick Plug Coupling		
AEM1500	Male Quick Plug Coupling		

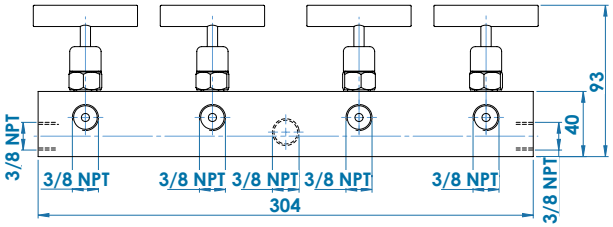
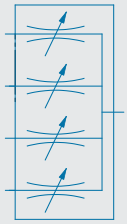
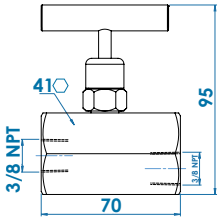
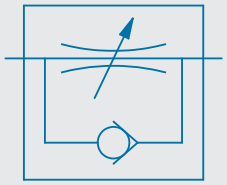
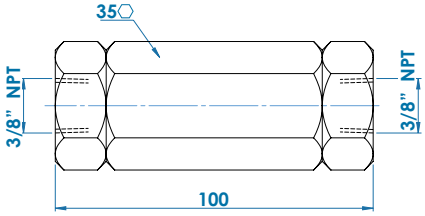
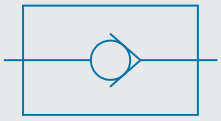
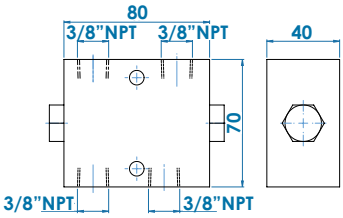
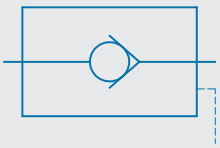
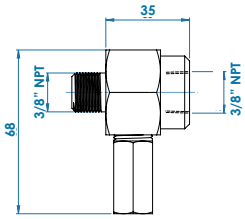
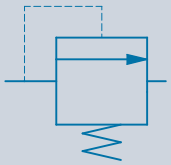
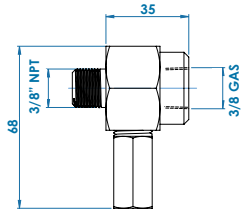
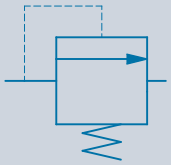
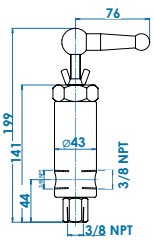
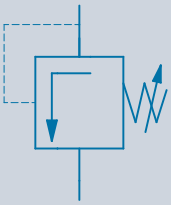
AV
ACCESSORIES

VALVES
ACCESSORIES

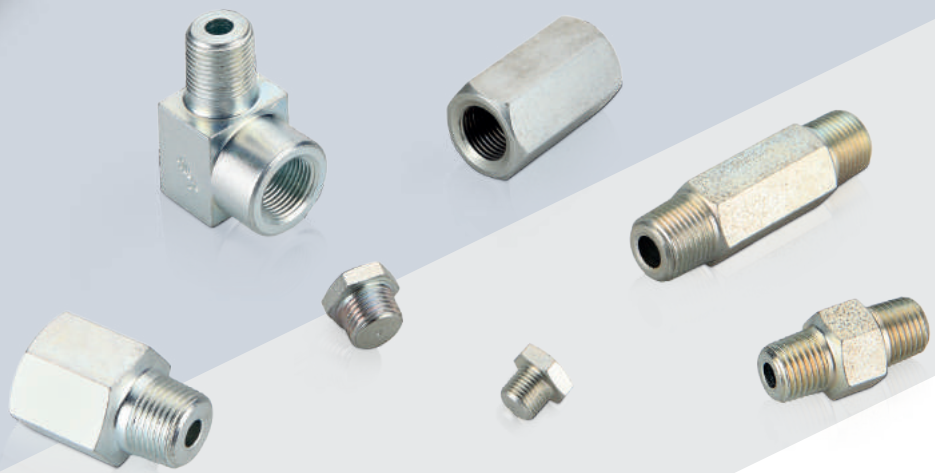
- All valves have been tested to operate under a pressure of 700 bar.
- All connections are 3/8" NPT so as to ensure protection against oil leaks.
- They can be combined to adapt to systems of any size.
- All parts are lined to increase rust resistance.
- Special valves available on demand.

Your solution for hydraulic control
Optimize control and safety factor in your system's position thanks to our in-line valves.

REF.	Name	Description	Detal	Hydraulic Symbol
AV701	Flow-Regulating Valve	It controls the speed of the cylinder, monitors flow accurately and restraints load temporarily when the valve is completely closed. It may also be used to protect pressure gauges. Female 3/8" NPT connections.		
AV702	Válvula reguladora de caudal de 2 salidas	It controls the flow in both outlets accurately and separately and it can even block it. Female 3/8" NPT connections.		

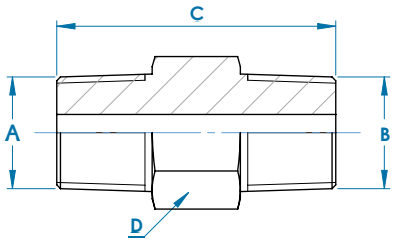
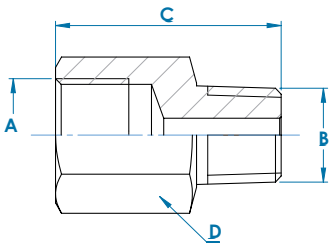
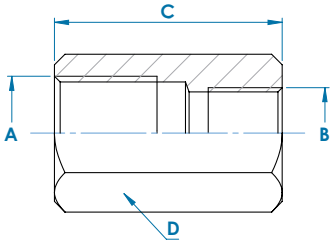
REF.	Name	Description	Detall	Hydraulis Symbol
AV704	4-Outlet Flow-Regulating Valve	It controls the flow in the 4 outlets accurately and separately and it can even block it. Female 3/8" NPT connections.		
AVS700	One-Way Non-Return Valve	For load-retention in single-acting or double-acting cylinders. It serves as a protection If there is a pressure drop in the supply tube. It allows oil flow in one direction. In the opposite direction, it controls the flow until it is completely closed. Female 3/8" NPT connections.		
AVS701	Non-Return Valve	Sturdy design to withstand shocks and to function even if there is a pressure drop. It allows oil flow in one direction and it controls the flow until it is completely closed in the opposite direction. Female 3/8" NPT connections		
AVS702	Piloted Check Valve	Typically used for load-retention in double-acting cylinders. When the piloted connection receives the backpressure, the valve allows the cylinder to retract. Female 3/8" NPT connections.		
AVS703	Safety Valve	Used to prevent accidental overpressures. Female and male 3/8" NPT connections.		
AVS704	Safety Valve with 3/8 GAS	Used to prevent accidental overpressures. Male 3/8" NPT and female 3/8 GAS connections		
AVP11	Pressure-Regulating Valve	It controls the pressure in the hydraulic circuit. 60 to 700 bar adjustment range. When the set pressure is reached, the valve opens. Turn the lever clockwise to increase the pressure setting.		

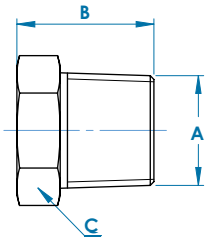
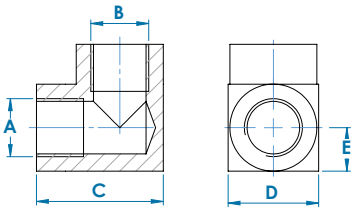
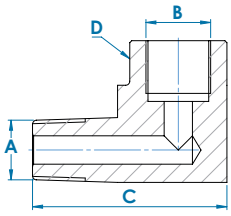
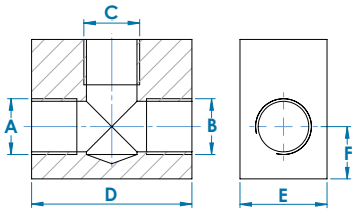
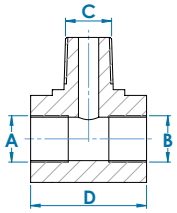
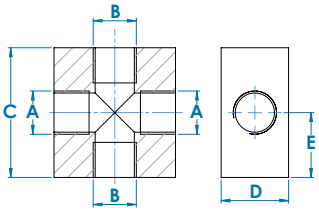
AR
ACCESSORIES



FITTINGS
ACCESSORIES

- Wide range of fittings and distributors for many different applications.
- Other accessories available on demand for special thread and size needs.

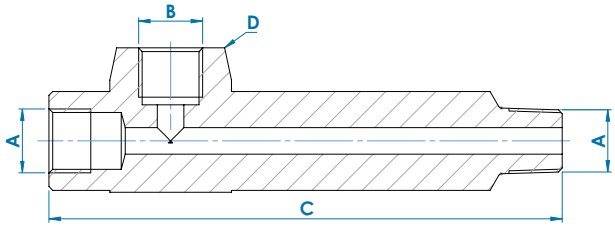
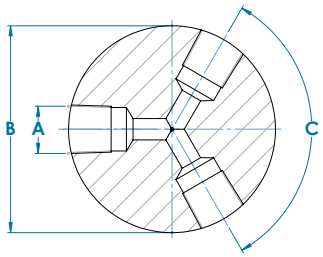
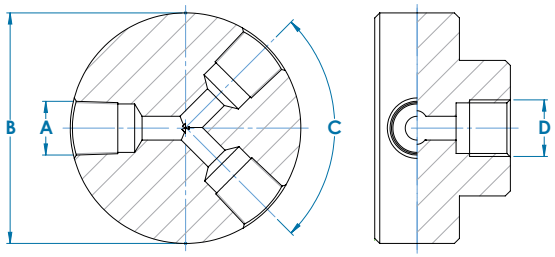
REF.	Size						Name	Detail
	A	B	C	D	E	F		
AR101	1/4" NPT	1/4" NPT	34	18	---	---	Joint Fitting	
AR102	3/8" NPT	3/8" NPT	38	18	---	---		
AR103	3/8" NPT	3/8" NPT	66	18	---	---		
AR104	3/8" NPT	3/8" NPT	100	18	---	---		
AR121	1/4" BSP	3/8" BSPT	40	24	---	---	Female to Male Adapter	
AR122	1/2" BSP	3/8" BSPT	40	24	---	---		
AR123	3/8" NPT	1/4" NPT	40	24	---	---		
AR124	1/2" NPT	1/4" NPT	40	24	---	---		
AR125	1/2" NPT	3/8" NPT	40	24	---	---		
AR126	1/4" NPT	3/8" NPT	21,5	19	---	---		
AR127	3/8" NPT	3/8" NPT	40	24	---	---		
AR141	3/8" NPT	1/4" NPT	40	24	---	---	Female Adapter	
AR142	3/8" NPT	3/8" NPT	40	24	---	---		
AR143	1/2" NPT	3/8" NPT	40	24	---	---		

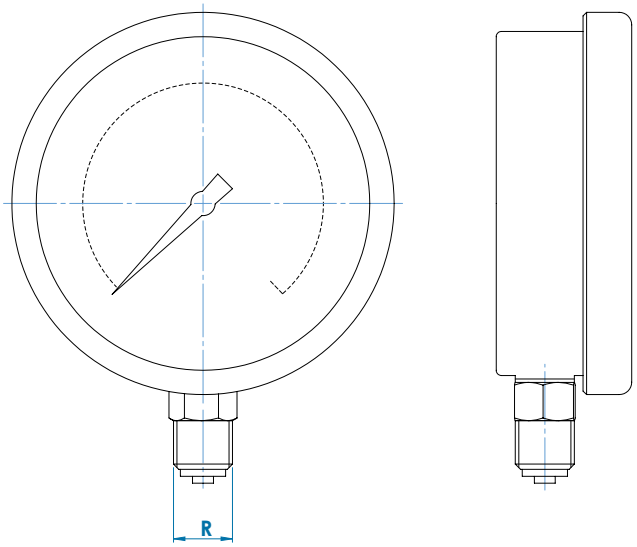
REF.	Size						Name	Detall
	A	B	C	D	E	F		
AR180	3/8" NPT	12,5	18	---	---	---	Cap	
AR181	1/4" NPT	19	18	---	---	---		
AR182	3/8" NPT	19	18	---	---	---		
AR183	1/2" NPT	19	24	---	---	---		
AR184	3/8" BSPT	19	18	---	---	---		
AR201	1/4" NPT	1/4" NPT	35	25	12	---	Female Elbow	
AR202	3/8" NPT	3/8" NPT	35	25	12	---		
AR221	1/4" NPT	1/4" NPT	44	24	---	---	Male Female Elbow	
AR222	3/8" NPT	3/8" NPT	48	24	---	---		
AR223	3/8" NPT	3/8" GAS	47,5	25	---	---		
AR241	1/4" NPT	1/4" NPT	1/4" NPT	40	25	12	Female T-Adaptera	
AR242	3/8" NPT	3/8" NPT	3/8" NPT	46	25	15		
AR261	1/4" NPT	1/4" NPT	1/4" NPT	40	---	---	Male Female Cross Adapter	
AR262	3/8" NPT	3/8" NPT	3/8" NPT	40	---	---		
AR281	1/4" NPT	1/4" NPT	42	25	21	---	Female Cross Adapter	
AR282	3/8" NPT	3/8" NPT	48	25	24	---		

AAM AD-ADM ACCESSORIES

DISTRIBUTORS
ACCESSORIES

- Wide range of fittings and distributors for many different applications.
- Other accessories available on demand for special thread and size needs.

REF.	Size				Outlets	Name	Detall
	A	B	C	D			
AAM0701	3/8 18 NPT	3/8 19 GAS	135	28,4	---	Pressure Gauge Adapter	
AAM0702	1/4 GAS	1/2 NPT	135	34	---		
AAM0703	1/4 GAS	1/2 GAS	135	24	---		
AAM0704	3/8 NPT	1/2 GAS	135	24			
AD0702	3/8 NPT	Ø68	120	---	2	Distributor X Outlets	
AD0704	3/8 NPT	Ø88	60	---	4		
AD0706	3/8 NPT	Ø108	48	---	6		
AD1502	1/4 GAS	40 HEXA.	120	---	2		
AD1504	1/4 GAS	Ø83	60	---	4		
AD1506	1/4 GAS	Ø97	48	---	6		
ADM0702	3/8 NPT	Ø68	90	3/8 BSP	2	Distributor X Outlets and Pressure Gauge	
ADM0704	3/8 NPT	Ø88	60	3/8 BSP	4		
ADM0706	3/8 NPT	Ø108	48	3/8 BSP	6		



PRESSURE GAUGES
ACCESSORIES

- An essential instrument to know operating pressure or force.
- They help extend the service life of your systems, since they allow you to control their operating pressure.
- Pressure gauges calibrated both in bar and psi.
- All pressure-sensitive parts are sealed and cushioned with glycerine to extend their service life.

REF.	Connection SERIES	Pressure Range
AM07	3/8"NPT	0-700 bar
AM15	1/2" NPT	0-1500 bar

Operating Components for **1500 bar**

We have a range of products designed to work at a **1500 bar** pressure, featuring electric pumps and tensioners for bolts.

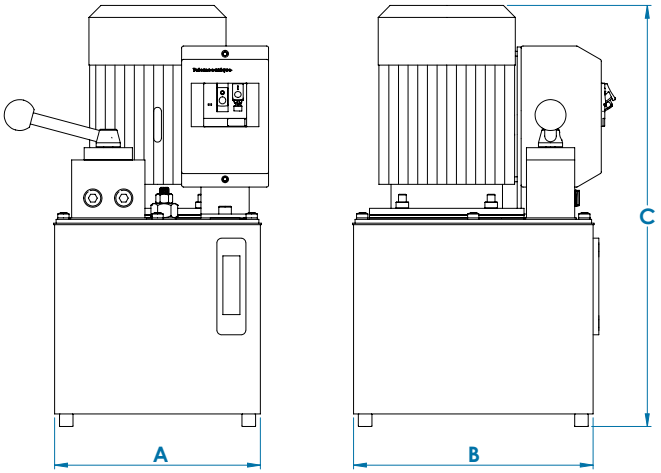
Electric pumps are single-stage pumps with a 5 l tank.

Bot tensioners can be used for M16 to M68 bolts. Special designs available on demand to meet specific needs.

SINGLE-ACTING

Valve Control
Manual

Operating pressure
1500 BAR



1500 BAR ELECTRIC PUMP
SINGLE-ACTING

EPS | 1500 BAR

- Operating Pressure = 1500 bar.
- Internal safety valve set at maximum operating pressure to prevent overpressure.
- User-adjustable external pressure limiting valve.
- Noise level considerably lower.

REF.	Capacity	Operating pressure	Oil Flow		Power	R.p.m	Size (mm)			Weight
	litros		Stage 1 l/min	Stage 2 l/min	kW		A	B	C	Kg.
EPS5C	5	1500	0,4	--	1,1	1390	216	253	436	38

TENSIONER

BT SERIES

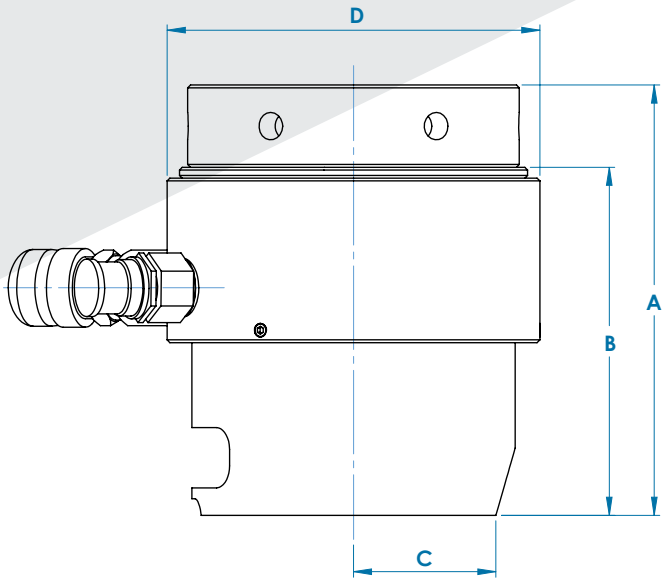
TENSION CYLINDER

Maximum Operating Pressure 1500 Bar

Connecting plugs G ¼"

For bolts from M16

Stroke Maximunt 10mm



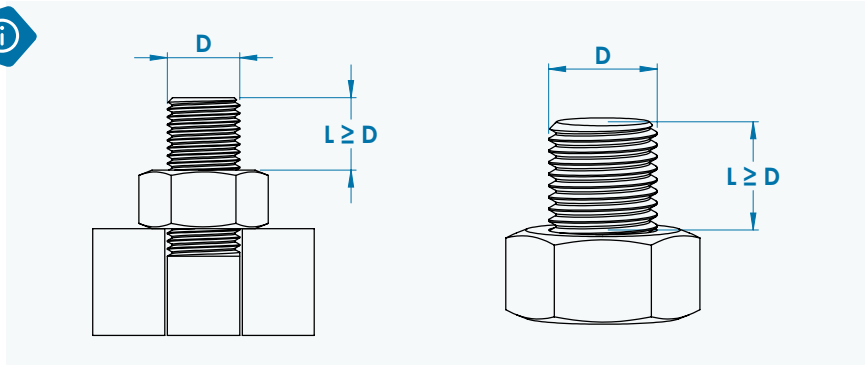
BOLT TENSIONERS
1500 BAR TENSION CYLINDER

BT

- All-purpose and general tool.
- Piston stroke limit indicator.
- For bolt sizes, from M16 to M68. Contact us for other sizes.
- Piston/cylinder misalignment offset.
- All parts nitrated to prevent rust and increase wear resistance.
- High-flow quick plug couplings as a standard in all models.

EPS5C electric pumps are recommended for supplying **power** to BT cylinders.
See page 65.

These products operate under extremely high pressures. Use only **accessories and hoses** specific to those pressures.



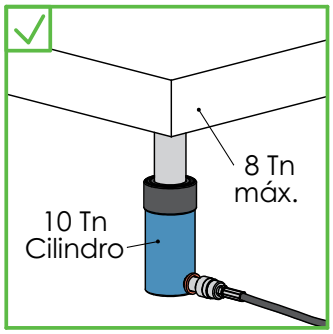
Rated Force	REF.	Thread Size	Stroke	Maximum Force	Usable Cross-Section	Size (mm)				Oil Capacity	Weight
tn			mm.	kN	cm^2	A	B	C	D	cm^3	Kg.
23,4	**BT116**	M16 X 2	10	229,6	16,4	111	91	26	84	16	20
	BT118	M18 X 2,5									
	BT120	M20 X 2,5									
	BT122	M22 X 2,5									
	BT124	M24 X 3									
	BT127	M27 X 3									
	BT130	M30 X 3,5									
46,6	**BT230**	M30 X 3,5	10	457,1	31	143	118	36	103	31	4,9
	BT233	M33 X 3,5									
	BT236	M36 X 4									
	BT239	M39 X 4									
76,9	**BT339**	M39 X 4	10	754,4	51,3	165	135	46	136	51	10,5
	BT342	M42 X 4,5									
	BT345	M45 X 4,5									
	BT348	M48 X 5									
	BT352	M52 X 5									
147,8	**BT452**	M52 X 5	10	1449,9	98,6	175	140	64	183	99	19
	BT456	M56 X 5,5									
	BT460	M60 X 5,5									
	BT464	M64 X 6									
	BT468	M68 X 6									

SAFETY
INSTRUCTIONS

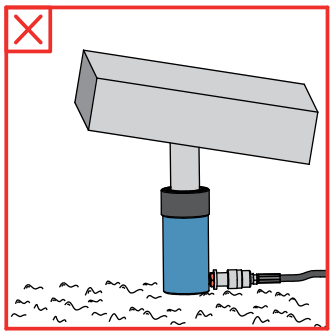
Read carefully the following safety instructions and warnings, as well as any operating and maintenance instructions supplied with the equipment. You must understand the operating instructions before using the equipment. Perform some test jobs with the equipment before operating it.

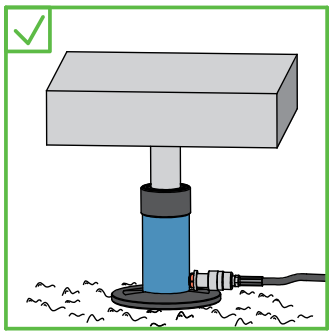
Always verify that the necessary safety measures have been implemented, so as to avoid any personal injuries or any damages to the hydraulic equipment.

Use suitable Personal Protective Equipment (PPE). Safety glasses, footwear and clothing.
Never use hydraulic equipment at an operating pressure higher than the one specified. Use control devices, such as pressure gauges, to be aware of the operating pressure. Safety accessories and valves are recommended. Check that all tools and accessories are suitable for working under the specified maximum operating pressure. Once you have finished using the tolls, clean them and store them properly. Do not use damaged or worn equipment.

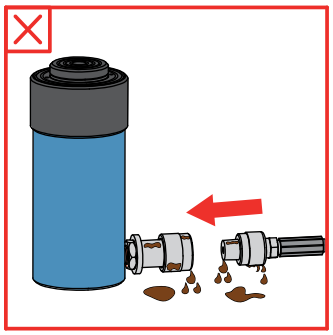


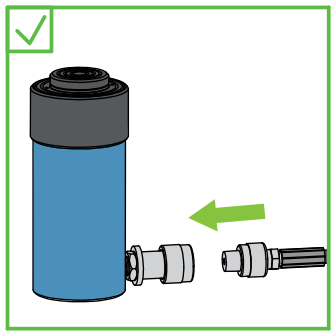
You must know the weight to lift and select a cylinder accordingly, so as not to go beyond 80 % of its rated capacity nor beyond its stroke length.



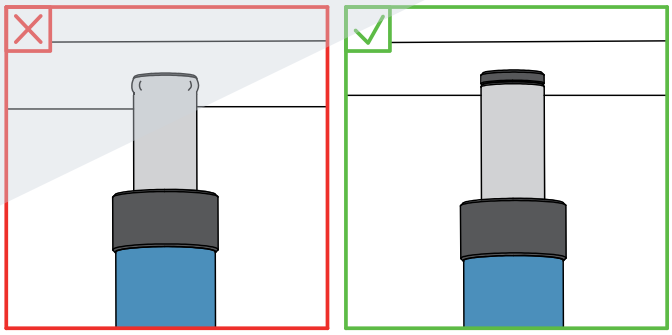


All the tools should be placed on stable, even and flat ground. To achieve a higher level of stability, use the coupling on the base of the cylinder. The load should be centred over the cylinder. Use all the cylinder's useful support surface, both on the saddle and the base. Be prepared to use tilt saddles if applying lateral loads. If necessary, balance the load with several cylinders.

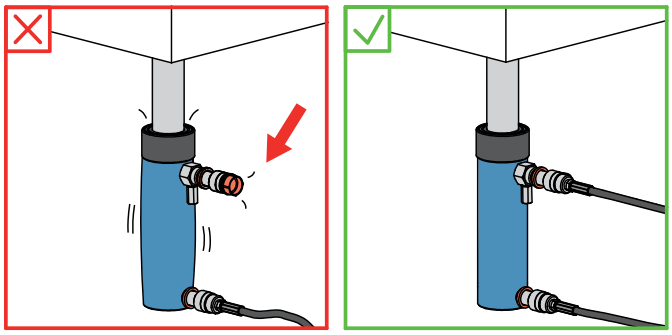




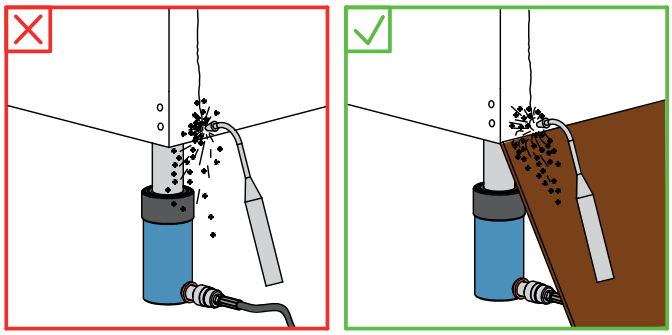
Clean both ends of the couplings before attaching anything to them. When using quick couplings, make sure that they are properly connected – tight and with no leaks. Do not use a torque so high that it could actually deform connections or wear down the threads. Use dust covers when the parts in the couplings are not connected.



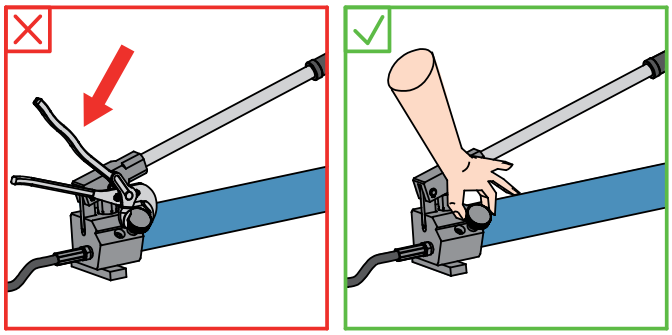
Do not use cylinders without the saddle. Otherwise, the piston will be deformed. Saddles are designed to distribute the load evenly over the piston so that it is not affected.



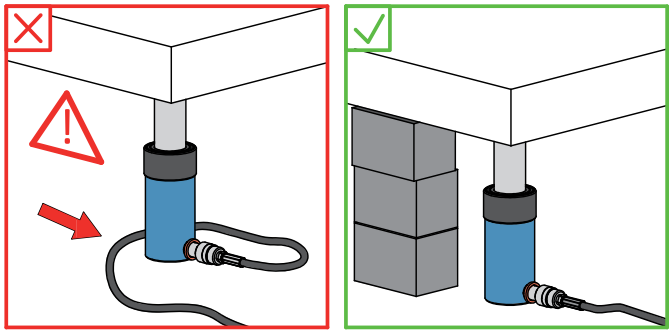
In double-acting cylinders both plugs should be attached when the cylinder is being used.



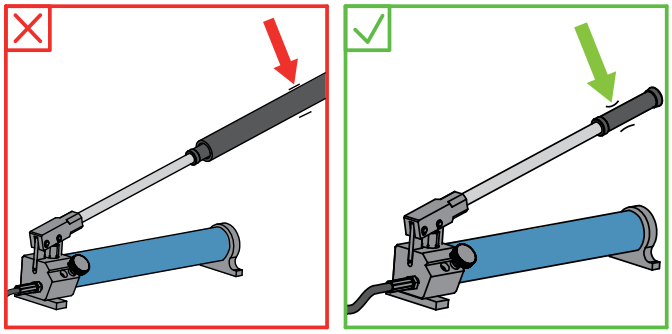
Do not expose the equipment to fire or extreme heat sources, such as welding. Avoid temperatures over 65°C (150°F).



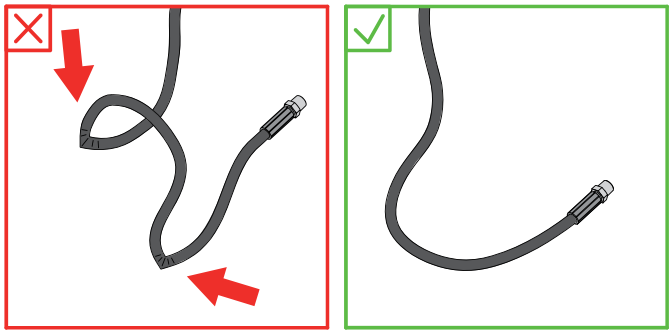
Close the discharge valve in the manual pump manually and without straining it. The use of tools would damage it.



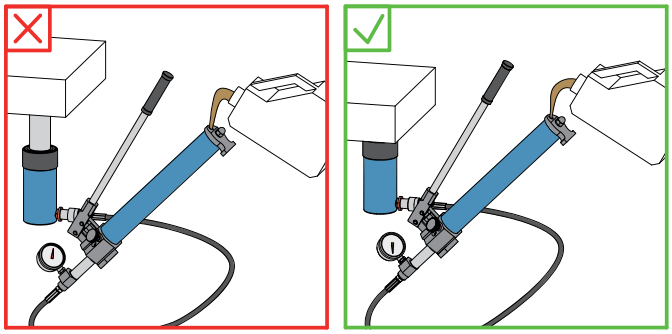
Do not use the cylinder as a permanent support. If you need to hold loads for a specific period of time or to work under them, hold the loads with supports or use cylinders with a fastening nut. Keep the hoses away from the work area.



Do not use any extension devices or bars on manual pumps to lift the load. A proper use of the pump do not require any special effort. Do not lift the equipment by pulling the hose. Use the tank instead.



Do not strain the hydraulic hoses. Avoid twists and tight bends. Replace damaged hoses immediately. Do not run over them with a vehicle and do not place any objects on top of them. Do not lift or move hydraulic equipment by pulling hoses. Disengage the hoses only while cylinder is retracted and the system is not under pressure.



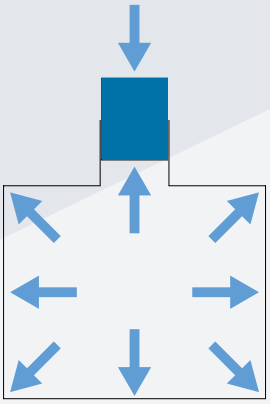
Fill the pump only while the cylinder is completely retracted.
Do not fill the tanks excessively.
Use high-quality hydraulic oil.
The oil temperature should not be higher than 60 °C.

BASIC **HYDRAULICS** INSTRUCTIONS

BASIC **HYDRAULIC**

In the following pages you will find information and advice regarding the safe use and correct choice of GCHydraulic high-pressure hydraulic equipments.

If you need a more detailed help, our technical service team is more than willing to study any special projects or to offer a cost-effective and efficient solution.

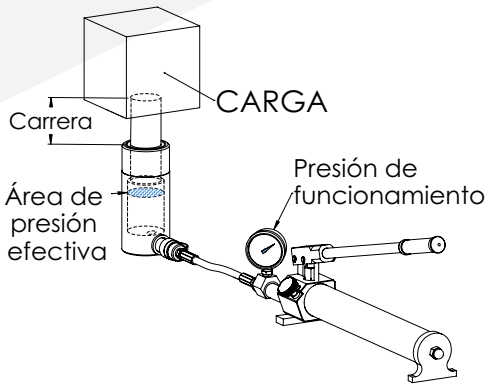


PASCAL´S LAW

A pressure change occurring anywhere in a confined incompressible fluid within a container with non-deformable walls is transmitted throughout the fluid such that the same change occurs everywhere.

Hydraulic pressure is the physical quantity that measures the instantaneous force in a unit of surface:

kg / cm² = bar



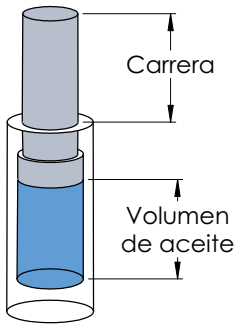
FORCE

The force exerted by a cylinder equals the hydraulic pressure multiplied by the effective pressure area of the piston.

Force (Kg) = Operating Hydraulic Pressure (bar) x Effective Pressure Area of the Piston (cm²).

F =P x A

This formula can be used to determine force, pressure or area when two of the three variables are known.



OIL VOLUME IN THE CYLINDER

The necessary oil volume for a cylinder can be calculated by multiplying the effective area of the piston by the stroke length.

V (cm³) = A (cm²) x S (cm)

CONVERSION TABLES

The figures in this catalogue are given using the measure units of the International System currently in place.
The table below helps n the conversion to a unit normally used in equivalen metering systems.

PRESSURE

1 bar	=	1,01972 kg/cm^2
1 bar	=	10 N/cm^2
1 bar	=	100 kPa
1 bar	=	14,5038 psi
1 kg/cm^2	=	0,980665 bar
1 N/cm^2	=	0,1 bar
1 kPa	=	0,01 bar
1 psi	=	0,06894 bar

VOLUME

1 cm^3	=	0,06102 in^3
1 m^3	=	1000 l
1 m^3	=	1,30795 yard^3
1 l	=	1000 cm^3
1 l	=	61,0237 in^3
1 l	=	0,26417 gal
1 l	=	0,0353147 ft^3
1 in^3	=	16,3871 cm^3
1 in^3	=	0,0163871 l
1 gal	=	3785,41 cm^3

MASS

1 kg	=	2·20462 lb
1 kg	=	35,274 oz
1 tn	=	1000 kg
1 tn	=	9806,65 N
1 lb	=	0,453592 kg
1 tn (corta)	=	907,185 kg
1 tn (corta)	=	2000 lb

TEMPERATURE

Convertir °C a °F:	=	T°F = (T°C x 1.8) + 32
Convertir °F a °C:	=	T°C = (T°F – 32) ÷ 1.8

IMPERIAL TO METRIC

Fraction (in)	Decimales	Millimetres (mm)
1/16	0,0625	1,588
1/8	0,1250	3,175
3/16	0,1875	4,763
1/4	0,2500	6,350
5/16	0,3125	7,938
3/8	0,3750	9,525
7/16	0,4375	11,113
1/2	0,5000	12,700
9/16	0,5625	14,288
5/8	0,6250	15,875
11/16	0,6875	17.46
3/4	0,7500	19.05
13/16	0,8125	20.64
7/8	0,8750	22.23
15/16	0,9375	23.81
1	1	25.4

FORCE

1 kg	=	9,8066 N
1 kg	=	2,20462 lb
1 N	=	0,1019 kg
1 lb	=	4,44822 N
1 kN	=	0,1019 tn
1 N	=	0,2248 lb

AREA

1 cm^2	=	0,155 in^2
1 m^2	=	10,7639 ft^2
1 in^2	=	6,451 cm^2
1 ft^2	=	929,03 cm^2

LENGTH

1 cm	=	0,393701 in
1 m	=	3,28084 ft
1 in	=	25,4 mm
1 in	=	0,0833333 ft
1 ft	=	30,48 cm
1 ft	=	12 in

FLOW

1 l/min	=	0,26417 gal/min
1 cm^3/min	=	0,06102 in^3/min
1 in^3/min	=	16,3871 cm^3/min
1 gal/min	=	3785,41 l/min

Tailor-Made Projects

At GCH we are experts in hydraulics and stay at the forefront of cutting-edge technology, with our technical team always innovating. **We offer professional consultancy** and engineering design services, and we provide complex systems that bring about **low-cost solutions** to specialised jobs.

We have a **dynamic**, innovative and interdisciplinary team that is able to implement ideas and solutions fast and safely.

Hoisting, thrust, dragging, traction, unloading or weighing systems, swivelling or horizontal movement; whatever you require, we collaborate with you in the decision-making process so as to find the **right solution** for your needs.

Allow us to inspire and challenge you to find a solution to your specific problem.

EQUIVALENCES WITH OTHER

Page	GCH Reference	Enerpac Reference	POWER TEAM eference	LARZEP Reference	MEGA Reference
8	**R**	RC	C_C	SM	CSRA
10	**RL**	RCS	RSS	SMP	CSR
16	**G**	HCG	RGG	SPR	CSB
18	**L**	--	--	SP	CSM
20	**S**	RSM	RLS	SX, SMX	CSE
22	**D**	RR, HCR (HCR: previously CLRG)	R_D, RC_D, RSS_D, RDG	D/DDR	CDRA, CD
24	**DH**	RRH	RH_D	DH	CDH
26	**RH**	RCH	RH	SH	CSH
28	**O**	HCG Previously CLS	R_C	SSR	--
30	**TO**	HCL Previously CLL	R_L	STR	--
32	**TOS**	LPL Previously CLP	RC_P	STX	--
34	**T**	--	R_L, RC_L	--	CSF
36	**PR**	BRP	--	TE	CTN
38	**RA**	RAC	RA	SAM	--
40	**DA**	RAR	RA_D	DDA	--
42	**DHA**	--	RHA_D	DAH	--
44	**RHA**	RACH	RHA	SAH	--
46	**RTA**	RACL	RA_L	SAT	--
48	**DYT**	TM	--	CT	TDM
48	**DYK**	LH	--	C	CDM
50	**BS**	P-39, P-77	P12, P23, P19...	W, X	BM
51	**BA**	P-141, P-142,...	P19L, P59L	WA	--
52	**EPS**	PU, PE, ZE	PE	HBM, HBE	BES
52	**EPD**	PU, PE, ZE	PED	HBM, HBE	BED
66	**BT**	GT	MRT	--	THS

This catalogue has been prepared and written very carefully. All figures and data have been double-checked before printing.

In spite of that, and due to the continuous production improvement strategy in **GCHydraulic**, we reserve the right to modify or discontinue any products in this catalogue.

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Notes

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