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MEGA

POWER IN ACTION

CATALOGUE 2003

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CYLINDERS

HYDRAULIC TOOLS

PUMPS

COMPONENTS

MAINTENANCE

WORKSHOP EQUIPMENT

PRODUCTCATALOGUE**2003**

MEGA

The high reputation of MEGA abroad has enabled us to consolidate a firm position on the markets of all five continents.

MEGA

We have come a long way, but after more than fifty years our course is still market by the desire to achieve quality and innovation so that we can live up to our permanent commitment to improvement.

We maintain our innovative spirit, high standards of quality and strict checks of material and processes. We are making our tools more powerful, safer, more operative and longer lasting.

Thus we place our experience in your hands.

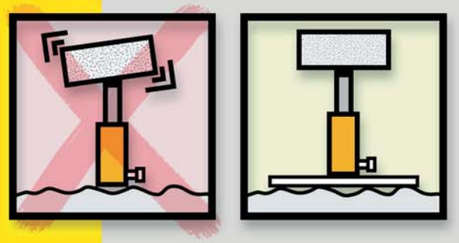
Plate laser cutting and welding facilities. CEGAMA

Head office and factory of hydraulic components. BERRIZ

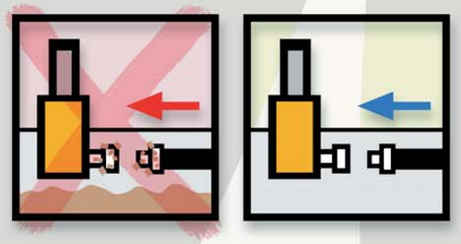
Painting installation, general warehouses and despatching area. BERRIZ.

SAFETY INSTRUCTIONS, USE AND MAINTENANCE

Always use a cylinder of a capacity and hydraulic stroke 25% higher than the weight of the load to be lifted.

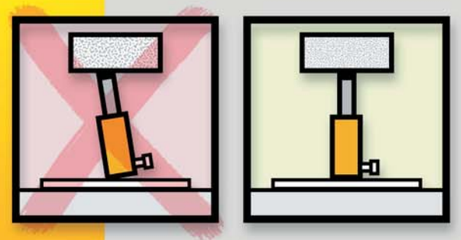


- Position the cylinder on a solid, even and horizontal surface.

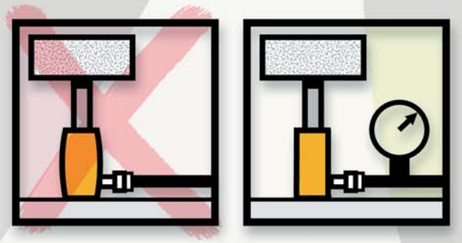


- Clean couplers before connecting and make sure the connections are securely tightened.

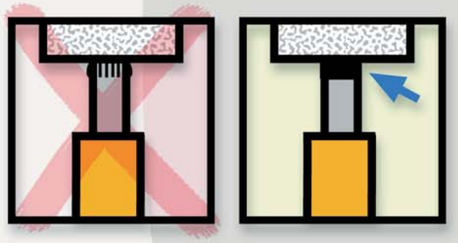
- Avoid extreme heat and temperatures over 65ºC .



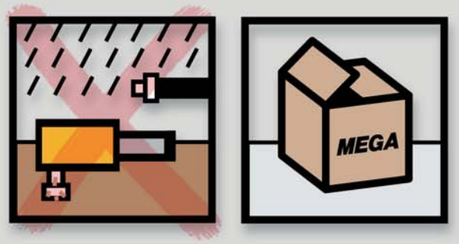
- Never use the cylinder on a slope.



- Never exceed the rated capacity of the cylinder.
  It is strongly recommended the use of a gauge to check the pressure.

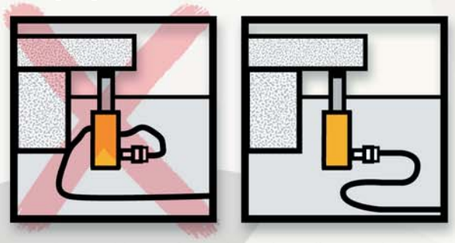


- Never use cylinders without a saddle.
  The saddle helps centre the load.

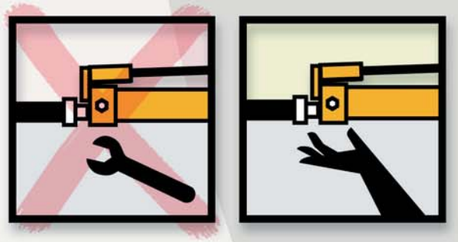


- After use, retract the piston completely, clean the equipment and keep it protected from aggressive environment.

- Keep a safe distance from the load during operation.



- Prevent hoses from sharp bending and do not drop objects on them.



- Never use excessive tightening force that may damage the fittings. Do not use tools.

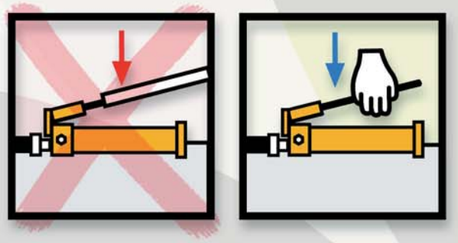
- Use original MEGA oil.

  IMPORTANT. An excess of oil will render the pump inoperative.
  VERY IMPORTANT.- Never use brake fluid.

- Repair kits are available for every item in this calalogue.
  Always indicate the reference of the item for which the kit is intended.

- Never position any part of your body under the load.
  Always secure the load with mechanical stands.

- Never disconnect couplers unless the piston is fully retracted.
  Always use a safety cock to block the cylinder.



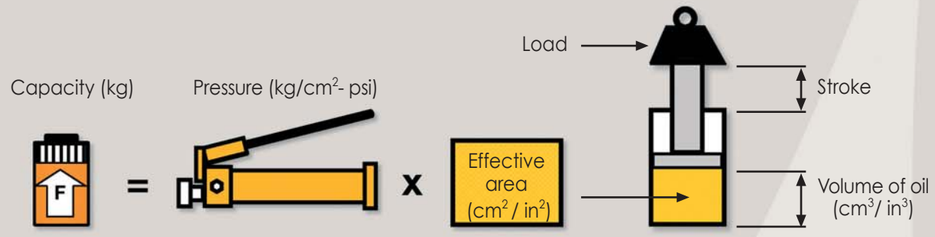
- Never use extensions on hand pumps or jacks. Use only the lever provided.

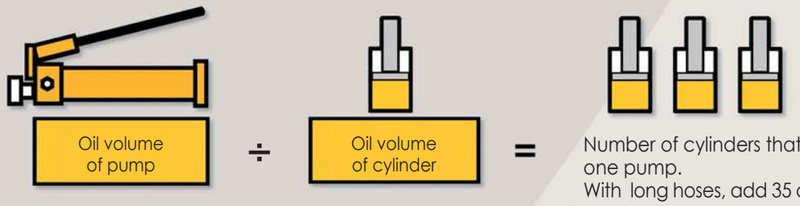
MEGA Information

Read carefully the safety, user and maintenance instructions provided with the equipment. If these basic rules are not followed injury to the user, the hydraulic equipment or the load to be lifted may result.

USEFUL HYDRAULIC FORMULAS

Basic hydraulic calculations for the correct selection of cylinders and pumps.





Number of cylinders that can be used with one pump.
With long hoses, add 35 cm^3 for each meter used.

CONVERSION FACTORS

Pressure:

1 bar = 14,5 psi
1 psi = 0,069 bar
1 bar = 9,8 N/cm^2
1 kPa = 0,145 psi

Volume:

1 cm^3 = 0,061 in^3
1 in^3 = 16,387 cm^3
1 litro = 61,02 in^3
1 litro = 0,264 gal
1 USgal = 3785 cm^3 / 3,785 l / 231 in^3

Weight:

1 kg = 2,205 lbs
1 libra (lb) = 0,4536 kg
1 tonelada = 1000 kg
1 tonelada métrica = 2205 lbs

Area:

1 mm = 0,039 in
1 in = 25,4 mm
1 cm^2 = 0,155 in^2
1 in^2 = 6,452 cm^2

Others:

1 hp = 0,746 kW
1 kW = 1,359 hp
1 Nm = 0,102 kg/m
1 Nm = 0,73756 Ft.lbs
1 Ft.lbs = 1,355818 Nm
1 kN = 225 lbs

Temperature:

Convertir de C° a F°
F° = (C° x 1,8) + 32

Convertir de F° a C°
C° = (F - 32) ÷ 1,8

mm	Inches
1,59	1/16
3,18	1/8
4,76	3/16
6,35	1/4
7,94	5/16
9,53	3/8
11,11	7/16
12,7	1/2
14,29	9/16
15,88	5/8
17,46	11/16
19,05	3/4
20,64	13/16
22,23	7/8
23,81	15/16
25,4	1

Please note that the dimensions of this catalogue are exact in the metric system (mm) and approximate in inches.

BASIC CONFIGURATIONS

MEGA Information

1 Cylinder
To raise the load.
Page 8

2 Pump
Creates the hydraulic flow.
Page 24

3 Hose
Transmits the oil flow.
Page 28

4 A-5507-M
Male quick coupler
Page 28

5 A-5507-H
Female quick coupler
Page 28

6 Gauge
To control pressure.
Page 29

7 Gauge adapter
To mount the gauge.
Page 29

8 A-5510
Safety valve
Locks the load on raised cylinder.
Page 30

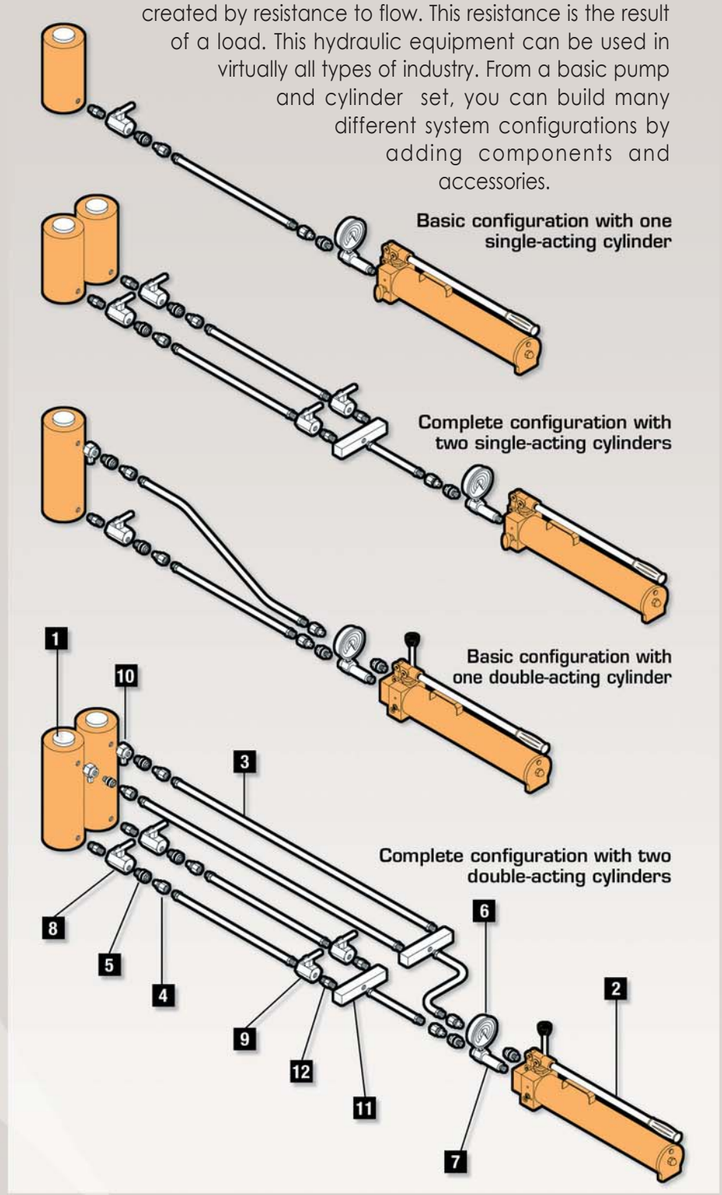
9 A-5509
Shutoff valve
Shuts the oil flow and locks the load on raised cylinder.
Page 30

10 A-5538
Safety relief valve
Avoids accidental overpressure.
Page 30

11 Manifold
To distribute the oil flow.
Page 31

12 12 A-5511
Male connector
To connect different components.
Page 31

A basic hydraulic configuration consists of a single-acting cylinder, a pump and a hose. It is really a small machine with the following components: a) Flow generator = Pump. b) Flexible hose to transmit the oil flow from pump to cylinder. c) Hydraulic cylinder, consisting of a chamber with inlet for the oil and a piston to retain the oil and maintain the pressure that raises or lowers as the oil changes within the chamber. The pressure is created by resistance to flow. This resistance is the result of a load. This hydraulic equipment can be used in virtually all types of industry. From a basic pump and cylinder set, you can build many different system configurations by adding components and accessories.



Mounting applications

Working pressure: 700 kg/cm²/10.000 psi.

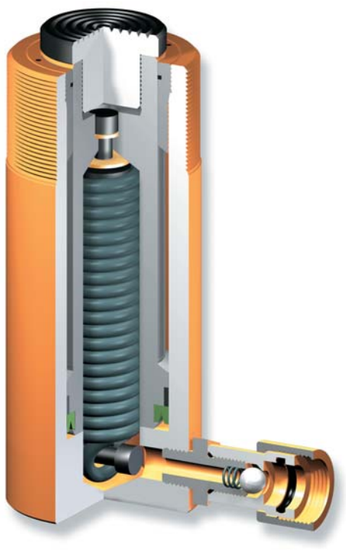
All pistons have a salt bath nitriding treatment or a hard chrome plating, depending on the model, to resist corrosion and for longer life.

With built-in bronze guide for easier sliding of piston.

These cylinders are fitted with a removable grooved saddle, pressure mounted or screwed in the piston head. They are also equipped with a high flow female quick coupler with dust cap, ref. A-5507-H.

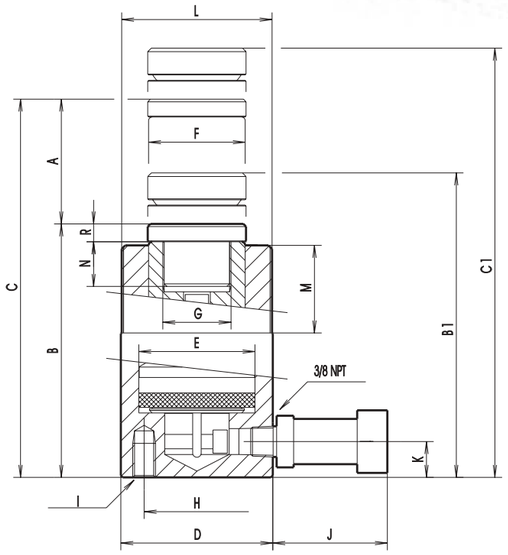
Carry handles on models weighing from 20 kg/44 lbs to 40 kg/88 lbs. Heavier models are fitted with eye hooks for transport.

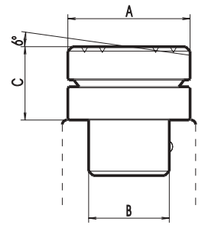
With mounting holes and threaded areas protected against blows for easy coupling or special tooling applications.

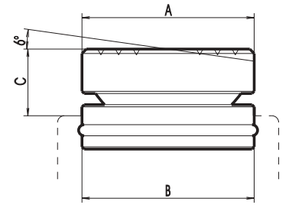


Cross section view

Single-acting, spring return







Tilting saddle (optional)

Ref.	Used with	Dimensions mm/in.					
		A		B		C	
BCSRA-5	CSRA-5	26	1 1/32	17,4	11/16	15	19/32
BCSRA-11	CSRA-11, CSRA-16	40	1 9/16	22,1	7/8	20	25/32
BCSRA-23	CSRA-23, CSRA-31	55	2 11/64	36,3	1 7/16	23	29/32
BCSRA-55	CSRA-55	65	2 9/16	56	2 13/64	25	1
BCSRA-93	CSRA-93	80	3 6/32	73,5	2 7/8	31	1 7/32

Rated capacity tn	Ref.	Stroke A mm.	Stroke A in.	Maximum capacity kN	Effective area cm²	Effective area in²	B, C1 with tilting saddle: B	B1	C	C1	D	E	F	G	H	I	J	K	L	M	N	R	Oil volume cm³	Oil volume in³	Weight Kg.	Weight lbs.
5	CSRA-5A	25	1	48,5	7,06	1,09	110 / 4 11/32	125 / 4 15/16	135 / 5 5/16	150 / 5 7/8	40 / 1 9/16	30 / 1 3/16	26 / 1 1/32	3/4-16UNF	25 / 63/64	1/4-20UNC	70 / 2 3/4	20 / 25/32	1 1/2-16UN	29 / 1 9/64	16 / 5/8	6 / 15/64	18	1,1	1	2,2
	CSRA-5B	75	2 15/16				160 / 6 15/16	175 / 6 7/8	235 / 9 1/4	250 / 9 7/8													54	3,3	1,45	3,2
	CSRA-5C	125	4 15/16				212 / 8 3/8	227 / 8 15/16	337 / 13 1/4	352 / 13 7/8													90	5,5	1,92	4,2
	CSRA-5D	175	6 7/8				273 / 10 3/4	288 / 11 5/16	448 / 17 5/8	463 / 18 1/4													126	7,7	2,48	5,6
	CSRA-5E	225	8 7/8				324 / 12 3/4	339 / 13 11/32	549 / 21 5/8	564 / 22 3/16													162	9,9	2,94	6,5
11	CSRA-11A	25	1	109,1	15,9	2,46	119 / 4 11/16	139 / 5 1/2	144 / 5 11/16	164 / 6 7/16	60 / 2 11/32	45 / 1 49/64	39 / 1 17/32	1-8UNC	40 / 1 9/16	5/16-18UNC	70 / 2 3/4	20 / 25/32	2 1/4-14UNS	27 / 1 1/16	17 / 11/16	6 / 15/64	40	2,45	2,4	5,3
	CSRA-11B	50	2				144 / 5 11/16	164 / 6 7/16	194 / 7 5/8	214 / 8 7/16													80	4,9	2,9	6,4
	CSRA-11C	100	3 15/16				194 / 7 5/8	214 / 9 7/16	294 / 11 9/16	314 / 12 3/8													160	9,75	3,9	8,6
	CSRA-11D	150	5 15/16				244 / 9 5/8	264 / 10 3/8	394 / 15 1/2	414 / 16 5/16													240	14,65	4,9	10,8
	CSRA-11E	200	7 7/8				298 / 11 3/4	318 / 12 1/2	498 / 19 5/8	518 / 20 3/8													320	19,5	6	13,2
	CSRA-11F	250	9 7/8				348 / 13 3/4	368 / 14 1/2	598 / 23 1/2	618 / 24 5/16													400	24,4	7	15,4
16	CSRA-16A	25	1	163	23,75	3,68	124 / 4 7/8	144 / 5 11/16	149 / 5 7/8	169 / 6 11/16	70 / 2 3/4	55 / 2 11/64	46 / 1 13/16	1-8UNC	48 / 1 7/8	3/8-16UNC	70 / 2 3/4	20 / 25/32	2 3/4-16UN	30 / 1 3/16	17 / 11/16	10 / 25/64	60	3,65	3,45	7,6
	CSRA-16B	50	2				149 / 5 7/8	169 / 6 5/8	199 / 7 7/8	219 / 8 5/8													120	7,3	4,15	9,15
	CSRA-16C	100	3 15/16				200 / 7 7/8	220 / 8 11/16	300 / 11 13/16	320 / 12 5/8													240	14,65	5,55	12,2
	CSRA-16D	150	5 15/16				252 / 9 15/16	272 / 10 11/16	402 / 15 7/8	422 / 16 5/8													360	22	7	15,4
	CSRA-16E	200	7 7/8				309 / 12 6/32	329 / 13	509 / 20	529 / 20 7/8													480	29,3	8,6	19
	CSRA-16F	250	9 7/8				362 / 14 1/4	382 / 16	612 / 24 1/64	632 / 24 7/8													600	36,6	10,1	22,3
23	CSRA-23A	25	1	227,7	33,08	5,12	140 / 5 1/2	163 / 6 7/16	165 / 6 1/2	188 / 7 3/8	85 / 3 11/32	65 / 2 9/16	54 / 2 1/8	1 1/2-16UN	59 / 2 5/16	1/2-13UNC	70 / 2 3/4	20 / 25/32	3 5/16-12UNS	49 / 1 15/16	25 / 1	10 / 25/64	83	5,05	5,8	12,8
	CSRA-23B	50	2				165 / 6 1/2	188 / 7 3/8	215 / 8 1/2	238 / 9 3/8													166	10,1	6,8	15
	CSRA-23C	100	3 15/16				216 / 8 1/2	239 / 9 7/16	316 / 12 7/16	339 / 13 5/16													332	20,2	8,95	19,7
	CSRA-23D	150	5 15/16				267 / 10 1/2	290 / 11 7/16	417 / 16 3/8	440 / 17 5/16													498	30,4	11,1	24,5
	CSRA-23E	200	7 7/8				324 / 12 3/4	347 / 13 11/16	524 / 20 5/8	547 / 21 1/2													664	40,5	13	28,7
	CSRA-23F	250	9 7/8				375 / 14 3/4	398 / 15 11/16	625 / 14 5/8	648 / 25 1/2													830	50,6	15,5	34,2
31	CSRA-31B	50	2	303,1	44,18	6,84	194 / 7 5/8	219 / 8 5/8	244 / 9 5/8	269 / 10 5/8	100 / 3 15/16	75 / 2 61/64	57,15 / 2 1/4	1 1/2-16UN	----	----	70 / 2 3/4	37 / 1 7/16	3 5/16-12UNS	51 / 2	25 / 1	10 / 25/64	220	13,4	11	24,2
	CSRA-31D	150	5 15/16				294 / 11 9/16	319 / 12 9/16	444 / 17 1/2	469 / 18 7/16													660	40,3	16,7	36,8
	CSRA-31E	200	7 7/8				344 / 13 9/16	369 / 14 1/2	544 / 21 3/8	569 / 22 3/8													880	53,7	19,5	43
55	CSRA-55B	50	2	539	78,54	12,17	169 / 6 5/8	194 / 7 5/8	219 / 8 5/8	244 / 9 5/8	130 / 5 1/64	100 / 3 15/16	80 / 3 6/32	----	95 / 3 3/4	1/2-13UNC	70 / 2 3/4	20 / 25/32	5-12UN	45 / 1 25/32	----	2 / 6/64	392	23,9	15,9	36
	CSRA-55C	100	3 15/16				219 / 8 5/8	244 / 9 5/8	319 / 12 9/16	344 / 13 9/16													784	47,8	20,6	45,4
	CSRA-55D	150	5 15/16				269 / 10 5/8	294 / 11 9/16	419 / 16 1/2	444 / 17 1/2													1176	71,8	25,3	55,8
93	CSRA-93B	50	2	910,9	132,73	20,57	190 / 7 1/2	221 / 8 11/16	240 / 9 7/16	271 / 10 11/16	175 / 6 7/8	130 / 5 1/8	105 / 4 9/64	----	----	----	70 / 2 3/4	47 / 1 27/32	6 7/8-12UN	50 / 1 31/32	----	2 / 6/64	664	40,5	32,3	71,2
	CSRA-93D	150	3 15/16				290 / 11 7/16	321 / 12 5/8	440 / 17 5/16	471 / 18 9/16													1992	121,6	49,3	108,7

Coupling applications

CC: PUSHING
CT: PULLING

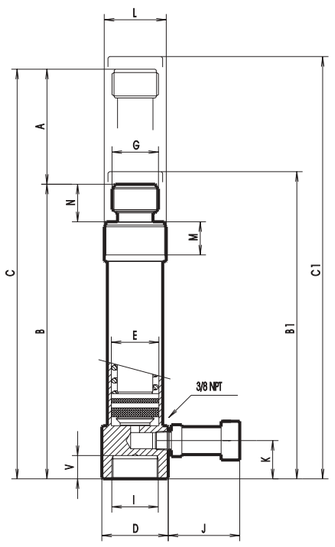
Working pressure: 700 kg/cm²/10.000 psi.

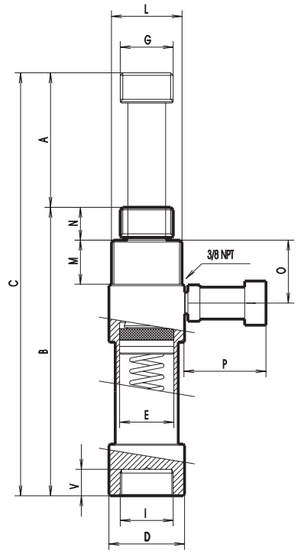
All pistons have an induction hardening treatment or a salt bath nitriding process depending on the model.

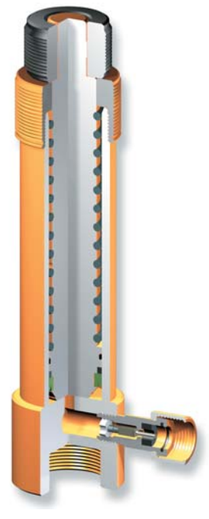
Each ram is equipped with a female quick coupler with air dust cap, ref. A-5507-H.

With mounting holes and protected threaded areas against possible blows for easy coupling or special tooling applications.

Unlike the pushing cylinders, the pulling rams retract toward the base to apply pressure.



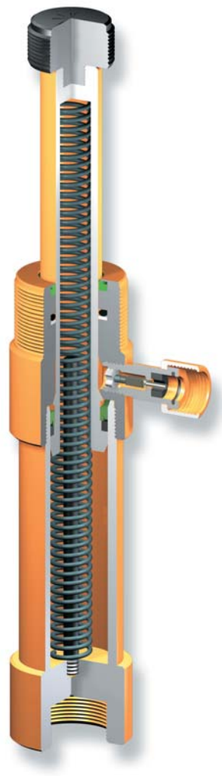




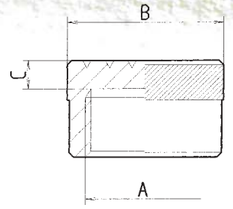
Cross section view (CC)

Single-acting, spring return

These pushing and pulling cylinders can be original components of the Maintenance Kits described on page 35.

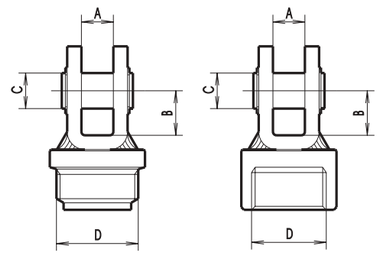


Cross section view (CT)



■ Grooved saddle (optional)

Ref.	Used with	Dimensions mm/in.					
		A	B		C		
A-5142	CC-5 SERIES	M26 x 2	32	1 17/64	8	5/16
A-5042	CC-10 SERIES	M42 x 2,5	54	2 7/8	10	25/64
A-5242	CC-20 SERIES	M60 x 2,5	74	2 29/32	12	15/32



■ Attachments for pulling and pushing pistons (optional)

Ref.	Used with	Dimensions mm/in.											
		A		B		C		D					
A-5188 A-5189	CC-5, CT-2,5 SERIES	18	23/32	25	1	20	25/32	M26 x 2					
A-5088 A-5089	CC-10, CT-5 SERIES	18	23/32	25	1	20	25/32	M42 x 2,5					
A-5288 A-5289	CC-20, CT-10 SERIES	18	23/32	30	1 3/16	20	25/32	M60 x 2,5					

Rated capacity tn	Ref.	Stroke A mm.	Stroke A in.	Maximum capacity kN	Effective area cm²	Effective area in²	B, C1 with tilting saddle B	B1	C	C1	D	E	G	I	J	K	L	M	N	O	P	V	Oil volume cm³	Oil volume in³	Weight Kg.	Weight lbs.
5	CC-5A	50	2	55	8,04	1,24	177 6 15/16	184 7 5/16	227 8 15/16	235 9 1/4	45 1 49/64	32	1 1/4	M26 x 2	M26 x 2	70 2 3/4	33 1 5/16	M38 x 1,5	22 7/8	20 13/16	----	----	18 11/16	40	2,44	1,35	3
	CC-5B	115	4 1/2				284 11 3/16	292 11 1/2	399 15 11/16	407 16						30	1 3/16							92	5,61	2,2	4,9
10	CC-10A	50	2	99,6	14,52	2,25	191 7 1/2	201 7 15/16	241 9 1/2	251 9 7/8	60 2 11/32	43	1 11/16	M42 x 2,5	M42 x 2,5	70 2 3/4	38 1 1/2	M56 x 2	36 1 7/16	26 1 1/32	----	----	21 13/16	73	4,45	2,4	5,3
	CC-10B	135	5 5/16				332 13 1/16	342 13 7/16	467 18 3/8	477 18 3/4						35	1 3/8							196	11,96	4,35	9,6
20	CC-20A	50	2	194	28,27	4,38	216 8 1/2	228 9	266 10 1/2	278 10 15/16	79 3 1/8	60	2 11/32	M60 x 2,5	M60 x 2,5	70 2 3/4	44 1 3/4	M84 x 2	48 1 7/8	30 1 3/16	----	----	23 7/8	141	8,6	5,5	12,1
	CC-20B	130	5 1/8				364 14 5/16	376 14 13/16	494 19 7/16	506 19 15/16						40	1 9/16							368	22,46	10	2,2
2,5	CT-2,5	127	5	29,1	4,24	0,65	270 10 5/8	----	397 15 5/8	---	45 1 49/64	32	1 1/4	M26 x 2	M26 x 2	----	----	M38 x 1,5	24 15/16	21 1 13/16	70 2 3/4	70 2 3/4	16 5/8	54	3,29	2,25	5
5	CT-5	138	5 7/16	51,1	7,45	1,15	311 12 1/4	----	449 17 11/16	---	60 2 11/32	43	1 11/16	M42 x 2,5	M42 x 2,5	----	----	M56 x 2	35 1 3/8	24 15/16	70 2 3/4	70 2 3/4	21 13/16	103	6,28	3,9	8,6
10	CT-10	138	5 7/16	99	14,41	2,23	318 12 1/2	----	456 17 15/16	---	79 3 1/8	60	2 3/8	M60 x 2,5	M60 x 2,5	----	----	M84 x 2	35 1 3/8	27 1 1/16	70 2 3/4	70 2 3/4	21 13/16	199	12,14	8	17,6

General application

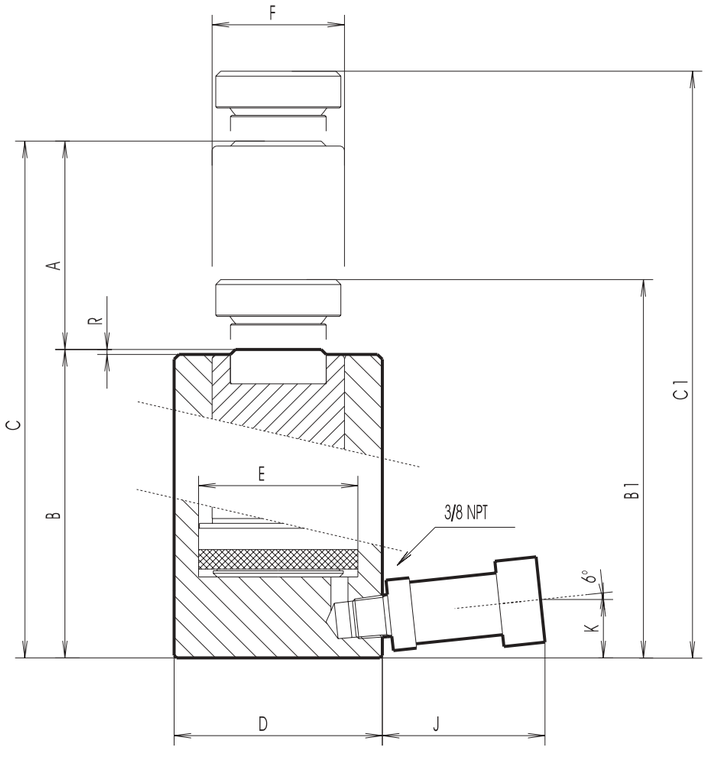
Working pressure: 700 kg/cm²/10.000 psi.

All pistons have a salt bath nitriding treatment or a hard chrome plating, depending on the model, to resist corrosion and for longer life.

With built-in bronze guide for easier sliding of piston.

These cylinders are fitted with a removable grooved saddle, pressure mounted or screwed in the piston head. They are also equipped with a female quick coupler with dust cap, ref. A-5507-H.

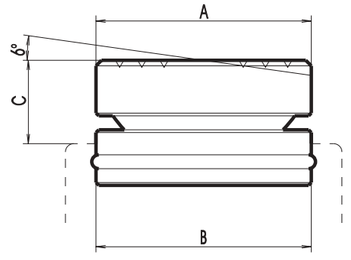
Carry handles on models weighing from 20 kg/44 lbs to 40 kg/88 lbs Heavier models are fitted with eye hooks for transport.



Single-acting, load return

Ideal for a wide range of applications in civil engineering, heavy fabrication, construction, maintenance and lifting of very heavy loads.

Cross section view



■ Tilting saddle (optional)

Ref.	Used with	Dimensions mm/in.					
		A		B		C	
BCSB-11	CSB-11	40	1 9/16	27	1 1/16	14	35/64
BCSB-23	CSB-23	55	2 11/64	39	1 17/32	16	5/8
BCSB-31	CSB-31	55	2 11/64	39	1 17/32	22	55/64
BCSRA-55	CSB-55	65	2 9/16	56	2 13/64	25	1
BCSRA-93	CSB-93	80	3 6/32	73,5	2 7/8	31	1 7/32
BCSB-200	CSB-200	138	5 7/16	124	4 7/8	50	2
BCSB-300	CSB-300	155	6 1/64	130	5 1/8	65	2 9/16
BCSB-400	CSB-400	185	7 9/32	160	6 5/16	78	3 5/64
BCSB-500	CSB-500	205	8 1/16	180	7 3/32	88	3 15/32

Rated capacity	Ref.	Stroke A		Maximum capacity	Effective area		B1, C1 with tilting saddle						Dimensions mm/in.												Oil volume		Weight	
							B		B1		C		C1		D		E		F		J		K		R					
tn		mm.	in.	kN	cm²	in²																			cm³	in³	Kg.	lbs.
11	CSB-11A	38	1 1/2	109,1	15,9	2,46	109	4 5/16	123	4 7/8	147	5 13/16	161	6 5/16	60	2 11/32	45	1 49/64	39	1 17/32	70	2 3/4	23	15/16	2	5/64	60	3,66	2,2	4,8
23	CSB-23B	50	2	227,7	33,18	5,14	124	4 7/8	140	5 1/2	174	6 7/8	190	7 1/2	85	3 3/8	65	2 9/16	54	2 1/8	70	2 3/4	23	15/16	2	5/64	166	10,1	5	11
31	CSB-31B	50	2	303,1	44,18	6,84	125	4 15/16	147	5 13/16	175	6 7/8	197	7 3/4	100	3 15/16	75	2 61/64	57,15	2 1/4	70	2 3/4	23	15/16	2	5/64	220	13,4	6,9	15,2
55	CSB-55B	50	2	539	78,54	12,17	138	5 7/16	163	6 7/16	188	7 7/16	213	8 3/8	130	5 1/8	100	3 15/16	80	3 6/32	70	2 3/4	23	15/16	2	5/64	392	23,9	12,9	28,4
93	CSB-93B	50	2	910,9	132,73	20,57	130	5 1/8	160	6 5/16	180	7 1/16	210	8 1/4	163	6 7/16	130	5 1/8	105	4 9/64	70	2 3/4	23	15/16	2	5/64	664	40,5	20	44
200	CSB-200B	50	2	1945,8	283,52	43,95	219	8 5/8	269	10 5/8	269	10 5/8	319	12 9/16	242	9 9/16	190	7 1/2	150	5 15/16	70	2 3/4	62	2 7/16	5	3/16	1417	86,5	70,8	156
	CSB-200D	150	5 15/16				319	12 9/16	369	14 1/2	469	18 7/16	519	20 7/16													4252	259,6	95,3	210
300	CSB-300D	150	5 15/16	2976,5	433,73	67,24	371	14 9/16	436	17 3/16	521	20 1/2	586	23 1/16	302	11 7/8	235	9 1/4	170	6 11/16	70	2 3/4	78	3 1/16	5	3/16	6506	397,2	183	403
	CSB-300F	250	9 7/8				481	18 15/16	546	21 1/2	731	28 13/16	796	31 5/16													10843	662	234	515
400	CSB-400D	150	5 15/16	4017,1	585,35	90,75	381	15	459	18 1/16	531	20 7/8	609	24	349	13 3/4	270	10 5/8	210	8 1/4	70	2 3/4	88	3 7/16	5	3/16	8780	536	259	570
	CSB-400F	250	9 7/8				491	19 5/16	569	22 3/8	741	29 3/16	819	32 1/4													14633	894	322	710
500	CSB-500D	150	5 15/16	5014	730,6	113,27	400	15 3/4	488	19 3/16	550	21 5/8	638	25 1/8	392	15 7/16	305	12	240	9 7/16	70	2 3/4	91	3 9/16	5	3/16	10960	669	343	755
	CSB-500F	250	9 7/8				510	20 1/16	598	23 9/16	760	29 15/16	848	33 3/8													18265	1115	424	935

With security lock nut

Working pressure: 700 kg/cm²/10.000 psi.

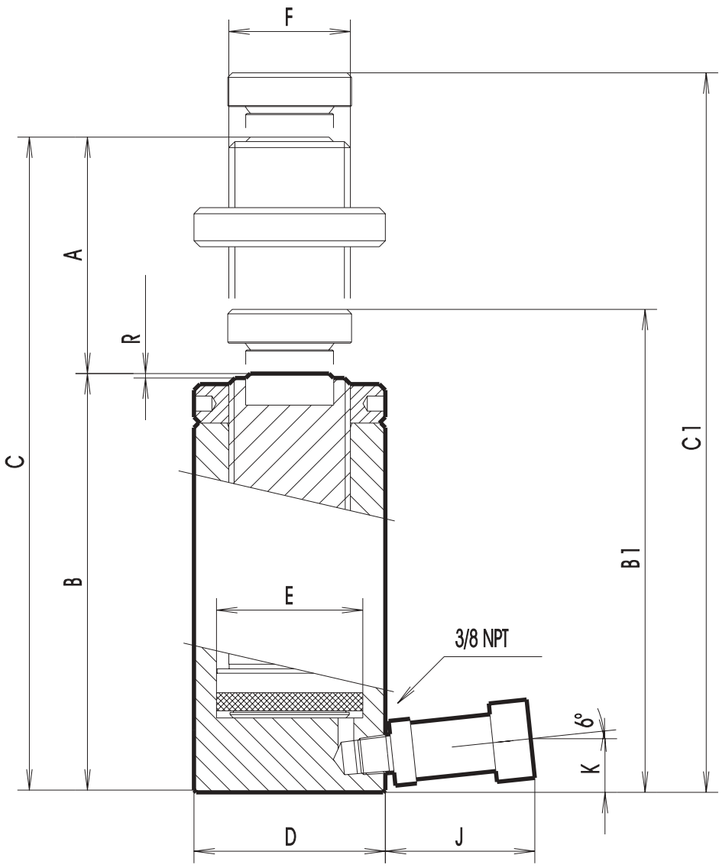
All pistons have a salt bath nitriding treatment to resist corrosion.

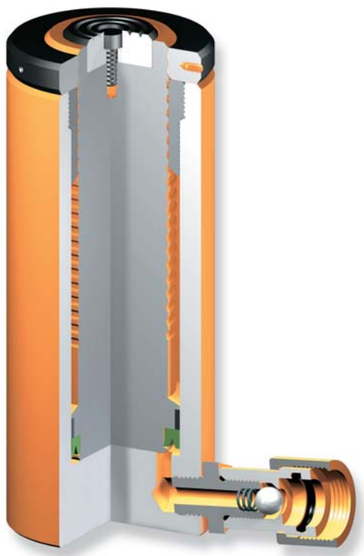
With built-in bronze guide for easier sliding of piston.

These cylinders are fitted with a removable grooved saddle, pressure mounted or screwed in the piston head. They are also equipped with a high flow female quick coupler with dust cap, ref. A-5507-H.

Carry handles on models weighing from 20 kg/44 lbs to 40 kg/88 lbs Heavier models are fitted with eye hooks for transport.

The mechanical lock of load is effected by a safety lock nut at the piston extension desired.



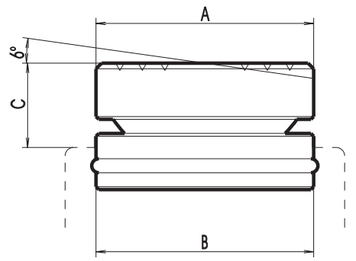


Cross section view

Single-acting, load return

Particularly recommended for foundations support in construction, bridge building and maintenance of heavy machinery in public works or steel industry, specially when load must be kept on hold for long periods.

The safety lock nut allows disconnection of the pump and ensure total safety conditions when operating under the load.



■ With tilting saddle (optional)

Ref.	Used with	Dimensions mm/in. A		B		C	
BCSB-31	CSF-31 SERIES	55	2 11/64	39	1 17/32	22	55/64
BCSRA-55	CSF-55 SERIES	65	2 9/16	56	2 13/64	25	1
BCSRA-93	CSF-93 SERIES	80	3 6/32	73,5	2 7/8	31	1 7/32
BCSB-200	CSF-200 SERIES	138	5 7/16	124	4 7/8	50	2
BCSB-300	CSF-300 SERIES	155	6 1/64	130	5 1/8	65	2 9/16
BCSB-400	CSF-400 SERIES	185	7 9/32	160	6 5/16	78	3 5/64
BCSB-500	CSF-500 SERIES	205	8 1/16	180	7 3/32	88	3 15/32

Nominal capacity tn	Ref.	Stroke A mm.	Stroke A in.	Maximum capacity kN	Effective area cm²	Effective area in²	B1, C1 with tilting saddle Dimensions mm/in. B	B1	C	C1	D	E	F	J	K	R	Oil volume cm³	Oil volume in³	Weight Kg.	Weight lbs.
31	CSF-31D	150	5 15/16	303,1	44,18	6,84	272 10 11/16	294 11 9/16	422 16 5/8	444 17 1/2	100 3 15/16	75 2 61/64	TR 2 1/4 x 5	70 2 3/4	23 15/16	2 5/64	660	40,3	14,5	32
55	CSF-55D	150	5 15/16	539	78,54	12,17	293 11 1/2	318 12 1/2	443 17 7/16	468 18 7/16	130 5 1/8	100 3 15/16	TR 80 x 5	70 2 3/4	23 15/16	2 5/64	1176	71,8	27,2	60
93	CSF-93D	150	5 15/16	910,9	132,73	20,57	326 12 13/16	356 14	476 18 3/4	506 19 15/16	175 6 7/8	130 5 1/8	TR 105 x 5	70 2 3/4	47 1 27/32	2 5/64	1992	121,6	56,4	125
200	CSF-200D	150	5 15/16	1945,8	283,52	43,95	374 14 3/4	424 16 11/16	524 20 5/8	574 22 5/8	242 9 9/16	190 7 1/2	TR 160 x 5	70 2 3/4	62 2 7/16	5 3/16	4252	259,6	125	275
300	CSF-300D	150	5 15/16	2976,5	433,73	67,24	435 17 1/8	500 19 11/16	585 23	650 25 5/8	302 11 7/8	235 9 1/4	TR 180 x 5	70 2 3/4	78 3 1/16	5 3/16	6506	397,2	222	490
	CSF-300F	250	9 7/8				545 21 7/16	610 24	795 31 5/16	860 33 7/8							10843	662	269	593
400	CSF-400D	150	5 15/16	4017,1	585,35	90,75	450 17 11/16	528 20 3/4	600 23 5/8	678 26 11/16	349 13 3/4	270 10 5/8	TR 220 x 5	70 2 3/4	88 3 7/16	5 3/16	8780	536	315	695
	CSF-400F	250	9 7/8				560 22	638 25 1/8	810 31 7/8	888 35							14633	894	383	845
500	CSF-500D	150	5 15/16	5014	730,6	113,27	475 18 11/16	563 22 3/16	625 24 5/8	713 28 1/16	392 15 7/16	305 12	TR 260 x 5	70 2 3/4	91 3 9/16	5 3/16	10960	669	427	940
	CSF-500F	250	9 7/8				585 23	673 26 1/2	835 32 7/8	923 36 5/16							18265	1115	515	1135

Flat cylinders

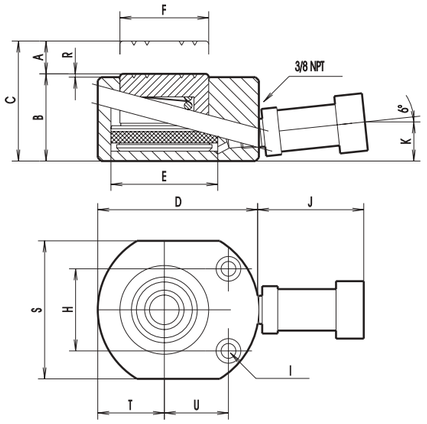
Working pressure: 700 kg/cm²/10.000 psi.

All pistons have a salt bath nitriding treatment to resist corrosion.

Grooved piston ends make optional grooved saddle unnecessary.

All are equipped with high flow female quick couplers with dust cap, ref A-5507-H, except model CSE-5 fitted with a female quick coupler, ref. A-5506-H.

With mounting holes in the base.



Cross section view

Single-acting, spring-return

These CSE cylinders have been designed to combine minimum collapsed height with optimum stroke.

They are suitable for lifting, clamping, levelling or positioning jobs where space is tight.

The spring return piston allows easy removal from working place.

Nominal capacity	Ref.	Stroke A		Maximum capacity	Effective area		Dimensioes mm/in.																		Oil volume		Weight	
							B		C		D		E		F		H		I		J		K		R		S		T		U					
tn		mm.	in.	kN	cm²	in²																											cm³	in³	Kg.	lbs.
5	CSE-5	6,5	1/4	48,5	7,06	1,09	34	1 3/8	40,5	1 19/32	60	2 11/32	30	1 3/16	26	1 1/32	28	1 3/32	5,5	7/32	60	2 11/32	17	11/16	1	3/64	41	1 5/8	20	13/16	22	7/8	5	0,77	0,75	1,65
11	CSE-11	11	7/16	109,1	15,9	2,46	44,5	1 3/4	55,5	2 3/16	79	3 1/8	45	1 49/64	39	1 17/32	37	1 29/64	6,6	1/4	70	2 3/4	23	15/16	1	3/64	56	2 13/64	28	1 1/64	34	1 5/16	18	2,8	1,75	3,85
23	CSE-23	11	7/16	227,7	33,08	5,12	54	2 1/8	65	2 9/16	98	3 7/8	65	2 9/16	54	2 1/8	50	2	9	23/64	70	2 3/4	23	15/16	1	3/64	80	3 1/8	40	1 9/16	37	1 7/16	37	5,73	3,2	7,05
31	CSE-31	12	15/32	303,1	44,18	6,84	60	2 11/32	72	2 27/32	115	4 17/32	75	2 61/64	57,15	2 1/4	52	2 3/64	9	23/64	70	2 3/4	23	15/16	1	3/64	94	3 11/16	47	1 13/16	44	1 3/4	53	8,2	4,8	10,5
55	CSE-55	16	5/8	539	78,54	12,17	72	2 27/32	88	3 15/32	147	5 25/32	100	3 15/16	80	3 6/32	70	2 3/4	11	7/16	70	2 3/4	23	15/16	1	3/64	124	4 7/8	62	2 7/16	58	2 5/16	125	19.4	9.4	20,7
93	CSE-93	16	5/8	910,9	132,73	20,57	88	3 15/32	104	4 3/32	180	7 3/32	130	5 1/64	105	4 9/64	76	3	14	9/16	70	2 3/4	23	15/16	1	3/64	160	6 5/16	80	3 1/8	75	2 15/16	212	32,8	17,2	37,9

Pulling cylinders

Working pressure: 700 kg/cm²/10.000 psi.

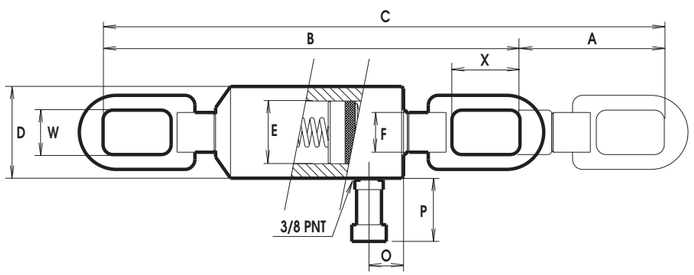
All pistons have a hard chrome plating treatment to resist corrosion.

Equipped with high flow female quick coupler with dust cap, ref. A-5507-H and carrying handle.

Designed for pulling and tensioning applications, they can be used in those operations where two heavy pieces have to be put one near the other.

They are normally used in industrial assembling, testing, welding operations of plates or heavy steel frame works.

They are fitted with clevis eyes on both ends which are linked to attachments welded onto the plates to join or weld.



Single-acting, spring return

Nominal capacity	Ref.	Stroke A		Maximum capacity	Effective area		Dimensions mm/in.																				Oil volume		Weight	
							B		C		D		E		F		O		P		W		X							
tn		mm.	in.	kN	cm²	in²																					cm³	in³	Kg.	lbs.
10	CTN-10	127	5	98,95	14,42	2,23	475	18 11/16	625	24 9/16	85	3 11/32	60	2 11/32	42	1 21/32	35	1 3/8	70	2 3/4	40	1 9/16	75	2 15/16	183	11,15	9,6	21,1
30	CTN-30	150	5 15/16	331,8	48,34	7,49	625	24 9/16	775	30 1/2	125	4 15/16	100	3 15/16	62	2 7/16	40	1 9/16	70	2 3/4	50	2	100	3 15/16	725	44,3	22,1	48,6
50	CTN-50	150	5 15/16	497,2	72,45	11,23	770	30 5/16	920	36 7/32	155	6 1/8	125	4 15/16	80	3 6/32	44	1 3/4	70	2 3/4	60	2 11/32	150	5 15/16	1085	66,2	37	81,4

Double-acting cylinders

Working pressure: 700 kg/cm²/10.000 psi.

All pistons have a salt bath nitriding treatment or a hard chrome plating, depending on the model, to resist corrosion and for longer life.

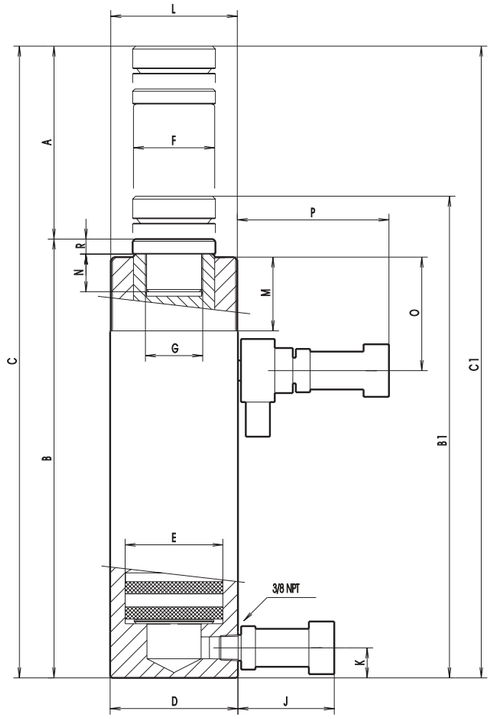
With built-in bronze guide for easier sliding of piston.

Fitted with a relief safety valve, ref. A-5538 on the piston retract side, to prevent accidental overpressure.

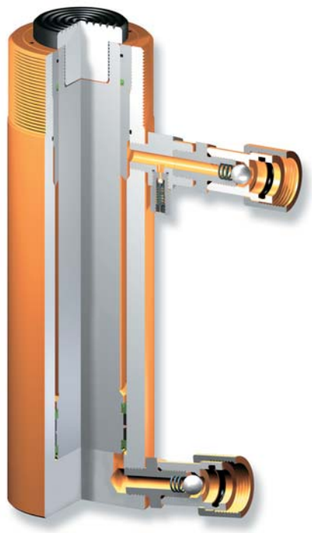
These cylinders are fitted with a removable grooved saddle, pressure mounted or screwed in the piston head. Are also equipped with a high flow female quick coupler with dust cap, ref. A-5507-H.

Carry handles on models weighing from 20 kg/44 lbs to 40 kg/88 lbs. Heavier models are fitted with eye hooks for transport.

With mounting holes and threaded areas protected against blows for easy coupling or special tooling applications.



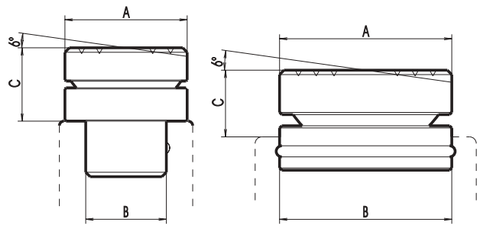
***E= Pushing**
***T= Pulling**



Cross section view

Hydraulic return

The hydraulic force being applied in both directions, these cylinders are very solid and used where a precision operation is required to move or position loads accurately on the assembly place. Widely demanded in public works and big structure manufacture.



Tilting saddle (optional)

Ref.	Used with	Dimensions mm/in.					
		A		B		C	
BCSRA-11	CDRA-9	40	1 9/16	22,1	7/8	20	25/32
BCSRA-23	CDRA-23, CDRA-31	55	2 11/64	36,3	1 7/16	23	29/32
BCDRA-55	CDRA-55	65	2 9/16	22,7	57/64	40	1 9/16
BCDRA-93	CDRA-93	80	3 6/32	42,2	21/32	46	1 13/16
BCSB-200	CD-200	138	5 7/16	124	4 7/8	50	2
BCSB-300	CD-300	155	6 1/64	130	5 1/8	65	2 9/16
BCSB-400	CD-400	185	7 9/32	160	6 5/16	78	3 5/64
BCSB-500	CD-500	205	8 1/16	180	7 3/32	88	3 15/32

Nominal capacity	Ref.	Stroke A		Maximum capacity	Effective area				B1, C1 with tilting saddle						Dimensions mm/in.																		Oil volume		Weight	
tn		mm.	in.	kN	cm²		in²		B		B1		C		C1		D		E		F		G	J		K		L	M		N		O		P		R		cm³		in³		Kg.	lbs.
9	CDRA-9D	150	5 15/16	E 86,24 T 31,72	E 12,56 T 4,62	E	1,94 0,71	285	11 3/16	305	12	435	17 1/8	455	17 15/16	60	2 11/32	40	1 37/64	31,8	1 1/4	1 - 8 UNC	70	2 3/4	23	15/16	2 1/4 - 14 UNS	27	1 1/16	17	11/16	47	1 7/8	113	4 7/16	6	15/64	E 190 T 53	E	11,6 3,23	5,8	12,7
23	CDRA-23D	150	5 15/16	E 227,7 T 70,54	E 33,18 T 10,28	E	5,12 1,6	315	12 7/16	338	13 5/16	465	18 5/16	488	19 7/32	85	3 3/8	65	2 9/16	54	2 1/8	1 1/2 - 16 UN	70	2 3/4	23	15/16	3 5/16 - 12 UNS	49	1 15/16	25	1	70	2 3/4	113	4 7/16	10	25/64	E 500 T 155	E	30,5 9,46	10,4	22,9
31	CDRA-31D	150	5 15/16	E 303,1 T 127,3	E 44,18 T 18,55	E	6,84 2,87	338	13 5/16	363	14 9/32	488	19 7/32	513	20 3/16	100	3 15/16	75	2 61/64	57,15	2 1/4	1 1/2 - 16 UN	70	2 3/4	37	1 7/16	3 5/16 - 12 UNS	49	1 15/16	25	1	75	2 7/8	113	4 7/16	10	25/64	E 665 T 280	E	40,6 17,1	19,8	43,5
55	CDRA-55D	150	5 5/16	E 539 T 194,07	E 78,54 T 28,28	E	12,17 4,38	321	12 5/8	361	14 7/32	471	18 17/32	511	20 1/64	130	5 1/8	100	3 15/16	80	3 6/32	1 - 12 UNF	70	2 3/4	23	15/16	5 - 12 UN	45	1 3/4	38	1 1/2	65	2 9/16	113	4 7/16	15	19/32	E 1175 T 425	E	71,8 26	28,2	62
	CDRA-55F	250	9 7/8					421	16 9/16	461	18 9/64	671	26 13/32	711	28																							E 1965 T 707	E	120 43,1	37	81,4
93	CDRA-93D	150	5 5/16	E 910,9 T 316,6	E 132,73 T 46,14	E	20,57 7,15	355	14	401	15 3/4	505	19 7/8	551	21 11/16	175	6 7/8	130	5 1/8	105	4 9/64	1 3/4 - 12 UN	70	2 3/4	47	1 27/32	6 7/8 - 12 UN	50	2	50	2	70	2 3/4	113	4 7/16	15	19/32	E 1992 T 692	E	121,6 42,2	60,3	132,6
	CDRA-93F	250	9 7/8					455	17 7/8	501	19 3/4	705	27 3/4	751	29 9/16																							E 3318 T 1154	E	202,5 70,5	77,3	170
200	CD-200D	150	5 5/16	E 1945,8 T ----	E 283,52	E	43,95	356	14	406	16	506	19 15/16	556	21 7/8	242	9 9/16	190	7 1/2	150	5 15/16	----	70	2 3/4	62	2 7/16	----	----		----		65	2 9/16	113	4 7/16	5	3/16	E 4253 E 7088	E	260 432,7	135 173	297 380
	CD-200F	250	9 7/8					456	17 7/8	506	10 1/8	706	27 3/4	756	29 3/4																												
300	CD-300D	150	5 5/16	E 2976,5 T ----	E 433,73	E	67,24	412	16 7/32	477	18 3/4	562	19 15/16	627	24 11/16	302	11 7/8	235	9 1/4	170	6 11/16	----	70	2 3/4	78	3 1/16	----	----		----		82	3 1/4	113	4 7/16	5	3/16	E 6506 E 10845	E	397 662	210 261	462 574
	CD-300F	250	9 7/8					512	20 6/32	577	22 11/16	762	30	827	32 9/16																												
400	CD-400D	150	5 5/16	E 4017,1 T ----	E 585,35	E	90,75	417	16 13/32	495	19 1/2	567	22 5/16	645	25 3/8	349	13 3/4	270	10 5/8	210	8 1/4	----	70	2 3/4	84	3 5/16	----	----		----		90	3 9/16	113	4 7/16	5	3/16	E 8590 E 14315	E	525 87,4	301 373	662 820
	CD-400F	250	9 7/8					517	20 11/32	595	23 7/16	767	30 3/16	845	33 1/4																												
500	CD-500D	150	5 5/16	E 5014 T ----	E 730,6	E	113,27	439	17 9/32	527	20 3/4	589	23 3/16	677	26 5/8	392	15 7/16	305	12	240	9 7/16	----	70	2 3/4	90	3 17/32	----	----		----		92	3 5/8	113	4 7/16	5	3/16	E 10960 E 18265	E	670 115	388 476	853 1047
	CD-500F	250	9 7/8					539	21 7/32	627	24 11/16	789	31 1/16	877	34 1/2																												

Hollow piston cylinders

CSH: SINGLE-ACTING
CDH: DOUBLE-ACTING

Working pressure: 700 kg/cm²/10.000 psi.

All pistons have a salt bath nitriding treatment to resist corrosion.

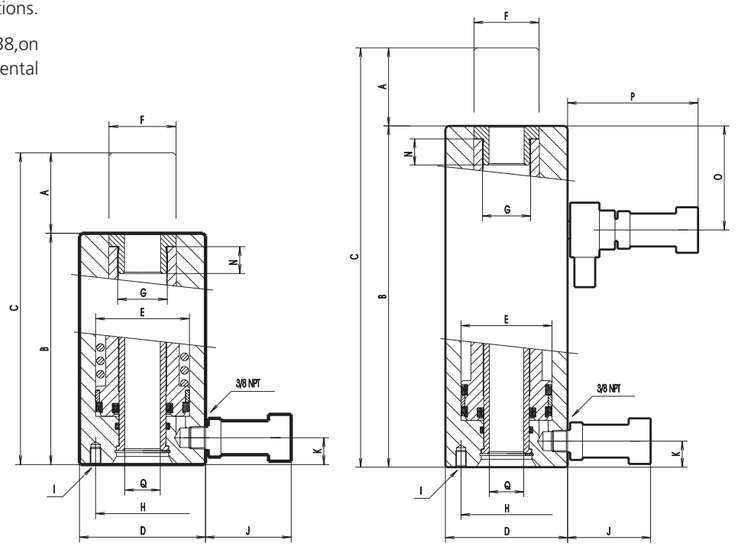
With built-in bronze guide for easier sliding of piston.

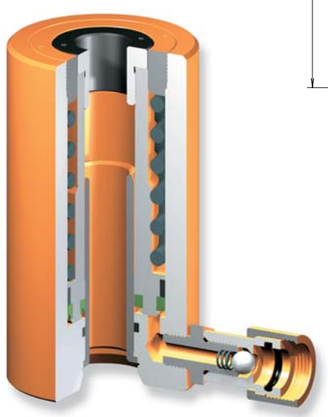
These cylinders are fitted with a removable saddle, and are also equipped with a high flow female quick coupler with dust cap, ref. A-5507-H.

Carry handles on models weighing from 20 kg/44 lbs to 40 kg/88 lbs. Heavier models are fitted with eye hooks for transport.

With mounting holes and threaded areas for easy coupling or special tooling applications.

Fitted with a relief safety valve, ref. A-5538,on the piston retract side, to prevent accidental overpressure.





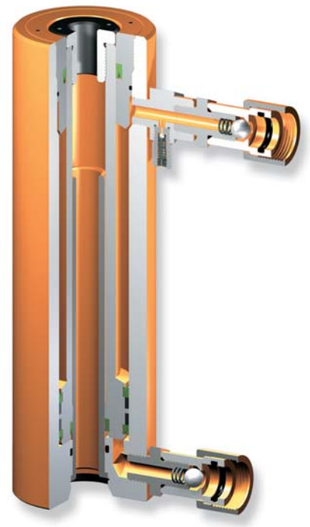
Cross section view (CSH)

CSH: Single-acting, spring return
CDH: Double-acting, hydraulic return

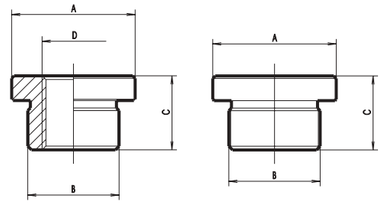
The hollow cylinders can be used for general applications of pushing or lifting forces.

Additionally, they feature a centre-hole piston which allows the insertion of a rod or screw, attachable to the threaded saddle, that travels through the cylinder for pulling or pushing operations.

Ideal for tensioning, extracting, gear and pin removal etc.



Cross section view (CDH)



■ Threaded saddle (optional)
Grooved saddle (optional)

Ref.	Used with	Dimensions mm/in.							
		A		B		C		D	
BRCSH-12	CSH-12	38	1 1/2	M29 x 15		28	1 1/64	3/4 - 16 UNF	
BMCSH-12				27,2	1 6/64			----	
BRCSH-20	CSH-20	50	2	M37 x 1,5		30	1 3/16	1 - 8 UNC	
BMCSH-20				35,2	1 25/64			----	
BRCSH-30	CSH-30, CDH-30	61	2 13/32	M46 x 1,5		32	1 1/4	1 1/4 - 7 UNC	
BMCSH-30				44,2	1 3/4			----	
BRCSH-60	CSH-60, CDH-60	93	3 21/32	M72 x 1,5		37	1 29/64	1 5/8 - 5 1/2 UNS	
BMCSH-60				70,2	2 49/64			----	
BMCSH-90	CSH-90, CDH-90	127	5	M104 x 1,5		42	1 21/32	----	

Nominal capacity	Ref.	Stroke A		Maximum capacity	Effective area		Dimensions mm/in.																				Oil volume		Weight	
							B		C		D		E		F		G	H		I	J		K		N		O		P		Q					
tn		mm.	in.	kN	cm²	in²																									cm³	in³	Kg.	lbs.
12	CSH-12	41	1 5/8	119,3	18,03	2,8	145	5 11/16	186	7 5/16	70	2 3/4	55	2 11/64	38,5	1 23/64	M29 x 1,5	50,8	2	5/16 - 18 UNC	70	2 3/4	20	25/32	20	25/32	----		----		19,5	49/64	74	4,5	3,8	8,3
20	CSH-20	48	1 7/8	196,6	28,86	4,5	172	6 3/4	220	8 11/16	95	3 3/4	70	2 3/4	50,5	2	M37 x 1,5	82,6	3 1/4	3/8 - 16 UNC	70	2 3/4	20	25/32	20	25/32	----		----		26,5	1 3/64	140	8,5	8	17,6
30	CSH-30	63	2 1/2	291,7	42,51	6,6	200	7 7/8	263	10 3/8	110	4 5/16	85,72	3 3/8	62	2 7/16	M46 x 1,5	92,1	3 5/8	3/8 - 16 UNC	70	2 3/4	20	25/32	22	7/8	----		----		33	1 19/64	270	16,5	13	28,6
60	CSH-60	76	3	578,8	84,34	13	245	9 5/8	321	12 5/8	155	6 1/8	125	4 15/16	94	3 45/64	M72 x 1,5	130,2	5 1/8	1/2 - 13 UNC	70	2 3/4	20	25/32	25	1	----		----		53,5	2 1/64	640	39	26,6	58,5
90	CSH-90	76	3	867	133	20,6	272	10 11/16	348	13 11/16	200	7 7/8	165,1	6 1/2	128	5 3/64	M104 x 1,5	----	----	----	70	2 3/4	38	1 1/2	30	1 3/16	----		----		79	3 1/64	1010	61,6	65	143
30	CDH-30	150	5 15/16	291,7	42,51	6,6	296	11 11/16	446	17 9/16	110	4 5/16	85,72	3 3/8	62	2 7/16	M46 x 1,5	92,1	3 5/8	3/8 - 16 UNC	70	2 3/4	20	25/32	22	7/8	47	1 27/32	113	4 7/16	33	1 19/64	638	39	19,2	42,2
60	CDH-60	150	5 15/16	578,8	84,34	13	302	11 7/8	452	17 13/16	155	6 1/8	125	4 15/16	94	3 45/64	M72 x 1,5	130,2	5 1/8	1/2 - 13 UNC	70	2 3/4	20	25/32	25	1	48	1 7/8	113	4 7/16	53,5	2 1/64	1265	77,2	32,7	72
90	CDH-90	150	5 15/16	880	133	20,6	310	12 3/16	460	18 1/64	200	7 7/8	165,1	6 1/2	128	5 3/64	M104 x 1,5	----	----	----	70	2 3/4	38	1 1/2	30	1 3/16	50	2	113	4 7/16	79	3 1/64	1995	121,8	74	163

Spread cylinder

SH-1

Spring return

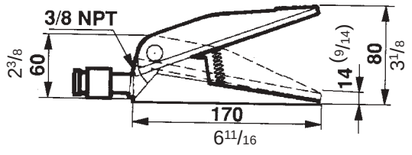
Capacity: 1 t

Weight: 3,5kg / 7,7lbs

Fitted with female quick coupler, ref. A-5506-H.

Widely used for spreading operations in tight spaces where a high force is required.

This hydraulic tool is a component of the Maintenance Kits described on page 35.



Load cells

TDM-10 - 10t

Tension load cell

Designed for measuring applications and pull test.

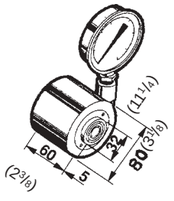
Precision: ± 2,5%.

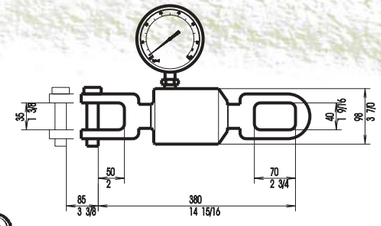
CDM-10 - 10t

Compression load cell

Widely used as a load cell in presses, clamps etc.

Precision: ± 2,5%.





Hydraulic bolt tensioners

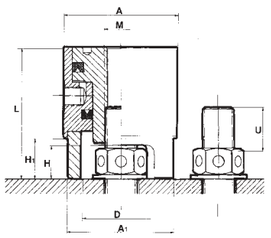
Working pressure: 1.500 kg/cm²/21.430 psi.

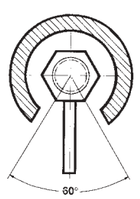
A bolt tensioner is a hydraulic hollow cylinder with an internally threaded piston which is attached into a bolt.

The application of a hydraulic force to the cylinder stretches the bolt.

The nut can be then tightened with the aid of a rod inserted in a hole previously drilled on the nut.

The supporting ring of the bolt tensioner has an opening for an easier tightening operation.

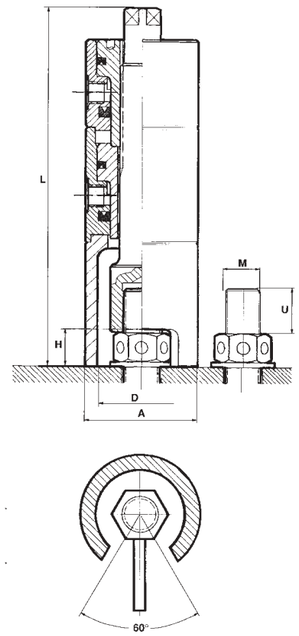




Ref.	Metric thread	Stroke A mm. in.	Maximum capacity kN	Effective area cm² in²	Dimensions mm/in. A	A1	D	H	H1	L	U	Weight Kg.	lbs.
THS-20	M-20	8 5/16	321,3	21,85 3,38	77 3 3/64	72 2 13/16	54 2 1/8	23 29/32	27 1 1/16	90 3 9/16	20 13/16	2,5	5,5
THS-22	M-22										22 7/8	2	4,4
THS-24	M-24										24 15/16	1,8	4
THS-27	M-27										27 1 1/16	1,6	3,5
THS-30	M-30	8 5/16	692,45	47,12 7,3	112 4 13/32	100 3 15/16	77 3 1/32	30 1 3/16	40 1 9/16	104 4 3/32	30 1 3/16	6	13,2
THS-33	M-33										33 1 5/16	5,5	12,1
THS-36	M-36										36 1 7/16	5	11
THS-39	M-39										39 1 9/16	4,5	9,9
THS-42	M-42	8 5/16	1302,2	88,56 13,73	153 6 1/32	136 5 3/8	102 4 1/64	40 1 9/16	54 2 1/8	128 5 3/64	42 1 11/16	13	28,6
THS-45	M-45										45 1 13/16	12,5	27,5
THS-48	M-48										48 1 15/16	11,5	25,3
THS-52	M-52										52 2 3/64	10,5	23,1
THS-56	M-56	8 5/16	2057,6	139,92 21,7	198 7 13/16	187 7 3/8	131 5 6/32	52 2 3/64	74 2 15/16	160 6 5/16	56 2 7/32	26	57,3
THS-60	M-60										60 2 3/8	25	55,1
THS-64	M-64										64 2 9/16	24	53
THS-68	M-68										68 2 11/16	23	50,7
THS-72	M-72										72 2 13/16	22	48,5
THS-76	M-76	10 25/64	2642	179,66 27,85	227 8 15/16	208 8 3/16	152 6	58 2 5/16	85 3 3/8	186 7 5/16	76 3	37,5	82,6
THS-80	M-80										80 3 3/16	36	79,3
THS-85	M-85										85 3 3/8	34,5	76
THS-90	M-90	10 25/64	3638,2	247,4 38,35	263 10 3/8	245 9 5/8	185 7 9/32	70 2 3/4	102 4 1/64	216 8 1/2	90 3 9/16	57	125
THS-95	M-95										95 3 3/4	55	121
THS-100	M-100										100 3 15/16	53	116

THS: Single cylinder / THD: Double cylinder

The THD bolt tensioners feature same characteristics as those of the THS series, although they have a double cylinder for use where space is tight.



Ref.	Metric thread	Stroke A mm. in.	Maximum capacity kN	Effective area cm² in²	Dimensions mm/in. A	A1	D	H	H1	L	U	Weight Kg.	lbs.
THD-20	M-20	8 5/16	365,14	24,83 3,85	65 2 9/16	–	52 2 3/64	23 29/32	–	227 8 15/16	20 13/16	5	11
THD-22	M-22										22 7/8	4,5	10
THD-24	M-24										24 15/16	4	8,8
THD-27	M-27										27 1 1/16	3,5	7,7
THD-30	M-30	8 5/16	779,4	53 8,21	95 3 3/4	–	75 2 15/16	30 1 3/16	–	269 10 19/32	30 1 3/16	11	24,2
THD-33	M-33										33 1 5/16	10	22
THD-36	M-36										36 1 7/16	9,5	21
THD-39	M-39										39 1 9/16	8,8	19,4
THD-42	M-42	8 5/16	1495,6	101,7 15,76	130 5 1/64	–	96 3 3/4	40 1 9/16	–	308 12 1/8	42 1 11/16	24	53
THD-45	M-45										45 1 13/16	22,5	49,6
THD-48	M-48										48 1 15/16	21	46,3
THD-52	M-52										52 2 3/64	19,5	43
THD-56	M-56	8 5/16	2099	142,73 22,12	160 6 19/64	–	130 5 1/8	52 2 3/64	–	386 15 3/16	56 2 7/32	40	88,2
THD-60	M-60										60 2 3/8	38	83,8
THD-64	M-64										64 2 9/16	36	79
THD-68	M-68										68 2 11/16	35	77
THD-72	M-72										72 2 13/16	33	72,7
THD-76	M-76	10 25/64	2858,5	194,38 30,13	188 7 3/8	–	152 6	58 2 5/16	–	423 16 5/8	76 3	60	132
THD-80	M-80										80 3 3/16	57	125
THD-85	M-85										85 3 3/8	54	119

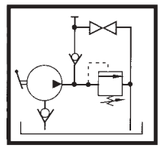
Single-acting hand pumps

BM-04, BM-1, BM-2 and BMPA-1

All are single acting, one-speed hand pumps, and can be used as a portable hydraulic tool or in a fixed position. They can operate both in a horizontal or vertical position. In this case, the pump head should be placed downwards.

Their light weight and small oil volume make them a very useful pump where a quick action is required.

They are fitted with a safety relief valve, factory rated at the maximum working pressure.



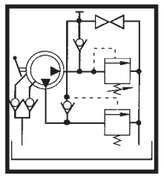
Hydraulic diagram

BM-3, BMAP-3, BM-6 and BM-12

Single-acting, two-speed hand pumps. The two-stage automatic system allows the operation of both pistons for a quick approach of the cylinder to load.

The larger pump piston cuts out when the cylinder activated by the pump is under high pressure.

All fitted with a safety relief valve, factory rated at the maximum working pressure.



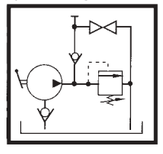
Hydraulic diagram

BK-05, BK-09

Vertical hand pumps. Single and two-speed.

Fitted with holes in the pump base to be used as a fixed hydraulic tool.

Hydraulic diagram



Vertical pump

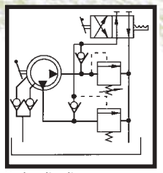
Double-acting hydraulic hand pumps

BMD-3, BMD-6 and BMD-12

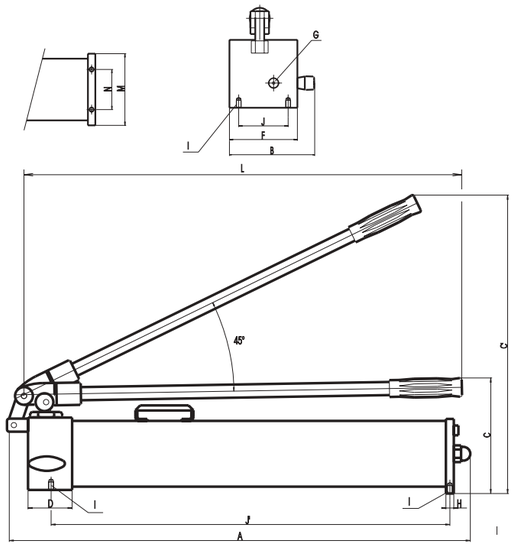
These are double acting and two-speed hand pumps.

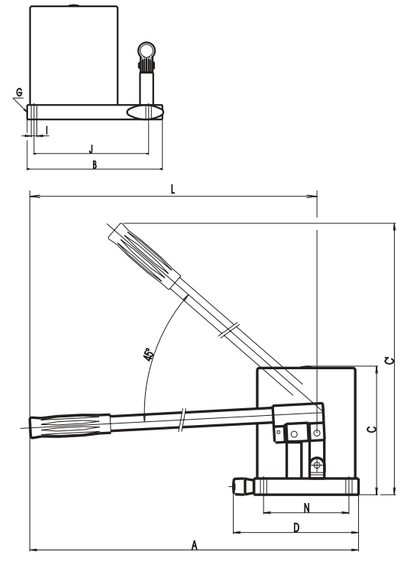
They all feature same technical advantages as the single acting one-speed pumps.

With a safety relief valve, factory rated at the maximum working capacity.



Hydraulic diagram





Ref.	Working pressure		Effective oil volume		Oil flow per stroke				Dimensions mm/in.																						Weight	
					1st stage		2nd stage		A		B		C		C'		D		F		G	H		I		J		J'		L		M		N			
	kg/cm²	psi	cm³	in³	cm³	in³	cm³	in³																											Kg.	lbs.
BM-04	700	10000	400	24,4	–	–	2,5	0,15	460	18 1/64	127	5	137	5 13/32	440	17 5/16	30	1 3/16	97	3 13/16	3/8-18NPT	33	1 5/16	8,5	11/32	–	–	–	–	400	15 3/4	–	–	50	2	4,25	9,4
BM-1	700	10000	1250	76,3	–	–	2,5	0,15	590	23 7/32	133	5 1/4	155	6 1/64	610	24	30	1 3/16	104	4 1/64	3/8-18NPT	33	1 5/16	8,5	11/32	–	–	–	–	600	23 5/8	–	–	80	3 6/32	6,7	14,8
BM-2	700	10000	2000	122	–	–	2,5	0,15	570	22 7/16	155	6 1/64	175	6 7/8	630	14 13/16	30	1 3/16	140	5 1/2	3/8-18NPT	33	1 5/16	8,5	11/32	–	–	–	–	600	23 5/8	–	–	90	3 9/16	12	26,5
BMAP-1	1500	21430	1250	76,3	–	–	1	0,06	590	23 7/32	142	5 5/8	155	6 1/64	610	24	30	1 3/16	112	4 7/16	1/4-19GAS	33	1 5/16	8,5	11/32	–	–	–	–	600	23 5/8	–	–	80	3 6/32	7,2	15,9
BK-05	700	10000	650	39,7	–	–	2,5	0,15	625	24 5/8	180	7 3/32	144	5 11/16	610	24	140	5 1/2	–	–	3/8-18NPT	–	–	8,5	11/32	–	–	–	–	600	23 5/8	–	–	96	3 3/4	7	15,4
BKD-09	700	10000	1100	67,1	8	0,5	2,5	0,15	625	24 5/8	228	8 15/16	233	9 3/16	610	24	140	5 1/2	–	–	3/8-18NPT	–	–	8,5	11/32	–	–	–	–	600	23 5/8	–	–	96	3 3/4	9,5	20,9
BM-3	700	10000	3000	183	19	1,15	2,5	0,15	700	27 9/16	135	5 5/16	185	7 9/32	595	23 7/16	67	2 5/8	110	4 5/16	3/8-18NPT	12	15/32	M8x1,25		80	3 6/32	607	23 7/8	665	26 3/16	80	3 6/32	65	2 9/16	14	30,9
BMAP-3	1500	21430	3000	183	18	1,1	1,15	0,07	700	27 9/16	135	5 5/16	185	7 9/32	595	23 7/16	67	2 5/8	110	4 5/16	1/4-19GAS	12	15/32	M8x1,25		80	3 6/32	607	23 7/8	665	26 3/16	80	3 6/32	65	2 9/16	14	30,9
BM-6	700	10000	6000	366	19	1,15	2,5	0,15	700	27 9/16	168	6 5/8	185	7 9/32	595	23 7/16	67	2 5/8	110	4 5/16	3/8-18NPT	10	25/64	M6x1		130	5 1/8	–	–	665	26 3/16	165	6 1/2	–	–	20	44,1
BM-12	700	10000	12000	732	19	1,15	2,5	0,15	700	27 9/16	290	11 7/16	185	7 9/32	595	23 7/16	67	2 5/8	110	4 5/16	3/8-18NPT	10	25/64	–		–	–	–	–	665	26 3/16	290	11 7/16	–	–	25	55,1
BMD-3	700	10000	3000	183	19	1,15	2,5	0,15	730	27 9/16	146	5 3/4	185	7 9/32	595	23 7/16	125	4 15/16	110	4 5/16	3/8-18NPT	12	15/32	M8x1,25		80	3 6/32	607	23 7/8	665	26 3/16	80	3 6/32	65	2 9/16	17	37,5
BMD-6	700	10000	6000	366	19	1,15	2,5	0,15	730	27 9/16	168	6 5/8	185	7 9/32	595	23 7/16	125	4 15/16	110	4 5/16	3/8-18NPT	10	25/64	M6x1		130	5 1/8	–	–	665	26 3/16	165	6 1/2	–	–	23	50,7
BMD-12	700	10000	12000	732	19	1,15	2,5	0,15	730	27 9/16	290	11 7/16	185	7 9/32	595	23 7/16	125	4 15/16	110	4 5/16	3/8-18NPT	10	25/64	–		–	–	–	–	665	26 3/16	290	11 7/16	–	–	28	61,7

Air hydraulic pumps

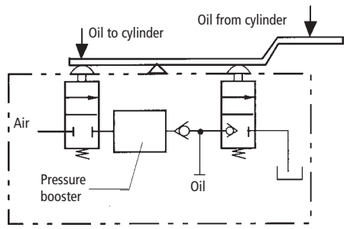
NS-1, NS-21, NS-22 and NAP-3

Single-acting, one-speed air pumps.

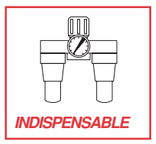
Air driven pumps for operation where electric power is not available or dangerous.

With safety relief valve, factory rated at the maximum working pressure.

Once the NS-1, NS-21 and NS-22 air pumps are connected to the air line, press down on the back section of pedal for operation. Descent or pressure release is effected by pressing down on the front section.



Recommended air pressure:
7-10 kg/cm^2. / 100-140 psi
Minimum air flow:
270 l./min. / 59,39 gpm



Important. It is recommended the use of an air filter-regulator-lubricator unit with these pumps to resist corrosion and for longer life.

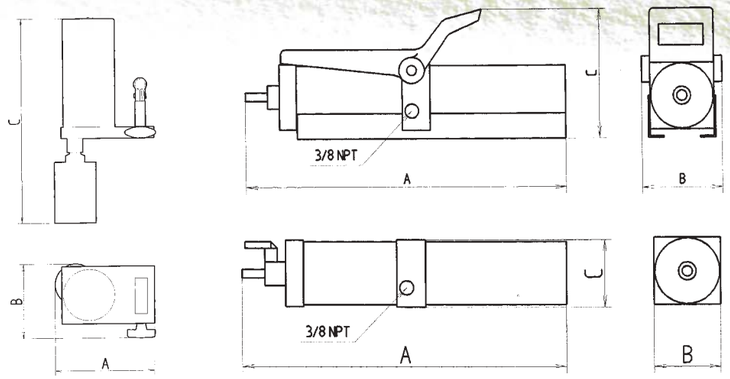
Single-acting

BKN-09

Manual and air powered pump.

The pneumatic operation allows for a faster movement of the piston.

The manual operation is required for precision pressing jobs or when compressed air supply is not available.



Ref.	Working pressure		Effective oil volume		Oil flow		Oil flow per stroke		Dimensions mm/in.						Weight	
									A		B		C			
	kg/cm^2	psi.	cm^3	in^3	cm^3/min	in^3/min	cm^3	in^3							Kg.	lbs.
NS-1	700	10000	500	30,5	50	3,05	–	–	440	17 5/16	120	4 3/4	150	5 7/8	7	15,5
NS-21	700	10000	1250	76,3	50	3,05	–	–	697	27 7/16	120	4 3/4	150	5 7/8	8	17,6
NS-22	225	3215	1000	61	155	9,45	–	–	606	23 7/8	120	4 3/4	150	5 7/8	7,6	16,7
NAP-3	1500	21430	3000	183	43	2,6	–	–	800	31 1/2	120	4 3/4	120	4 3/4	15	33
BKN-09	700	10000	1100	67,1	50	3,05	2,5	0,15	193	7 5/8	140	5 1/2	407	16	8,2	18

Electric pumps

BES-5, BES-10, BES-20 and BES-30: SINGLE-ACTING

BED-5,BED-10, BED-20 and BED-30: DOUBLE ACTING

They have a two-stage, radial pump that provides a working pressure of 700 kg/cm^2/10.000 psi.

The first stage allows a quick approach of piston to load and the second stage gives the effective working pressure.

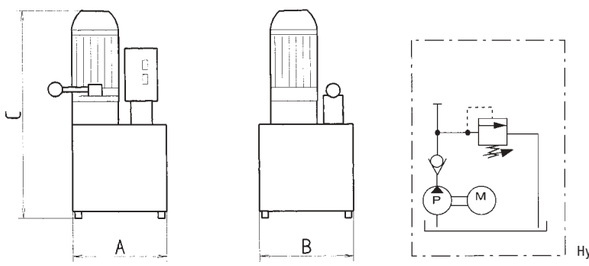
With precision made components, electric power provides improved operation for applications requiring high pressure.

With safety relief valve, factory rated at the maximum working pressure. For a continuous operation, pressure should not exceed 560 kg/cm^2/8.000 psi.

Frequency: 50 Hz.: 220/380 V - 1,5 kW - 2 HP - 1400 rpm.

Frequency: 60 Hz.: 265/460 V - 1,7 kW - 2,3 HP - 1700 rpm.

BES: single-acting
BED: double-acting



Hydraulic diagram

Ref.	Working pressure		Effective oil volume		Power	R.p.m.	Oil flow				Dimensions mm/in.						Weight	
							1st stage		2nd stage		A		B		C			
	kg/cm^2	psi.	l.	Gal.	kW		l/min	in^3/min	l/min	in^3/min							Kg.	lbs.
BES-5	700	10000	5	1,32	0,552	1390	0,8	48,8	0,5	30,5	215	8 1/2	250	9 7/8	443	17 7/16	36	79
BES-10	700	10000	10	2,65	0,736	1400	1,1	67	0,7	42,7	285	11 1/4	255	10	485	19 3/32	48	106
BES-20	700	10000	20	5,3	1,472	1390	2,1	128	1,3	79,3	325	12 3/4	325	12 3/4	615	24 3/16	73	161
BES-30	700	10000	30	7,95	1,472	1390	2,1	128	1,3	79,3	365	14 3/	365	14 3/8	625	24 5/8	95	210
BED-10	700	10000	10	2,65	0,736	1400	1,1	67	0,7	42,7	285	11 1/4	255	10	485	19 3/32	48	106
BED-20	700	10000	20	5,3	1,472	1390	2,1	1,28	1,3	79,3	325	12 3/4	325	12 3/4	615	24 3/16	73	161
BED-30	700	10000	30	7,95	1,472	1390	2,1	1,28	1,3	79,3	365	14 3/8	365	14 3/8	625	24 5/8	95	210

Thermoplastic hoses

The references MAP and MCE are high pressure flexible hoses made of a polyester eslastomer tube, reinforced with a braid of polyaramid yarn, a polyester interlay, a single braid of carbon steel wire and an outer polyurethane cover.

Minimum burst pressure: 2.800 kg/cm² / 40.000 psi

MAPS-1,5 flexible hose is made of an inner polyethylene tube (POM), with four spiral steel wire braids and a polyamide cover.

Minimum burst pressure: 4.400 kg/cm² / 63.800 psi

As an option, the 1,5 m hoses are supplied with a quick coupler included.

The MEC-3 and MEC-6 hoses are specially designed for operation with electric powered pumps.

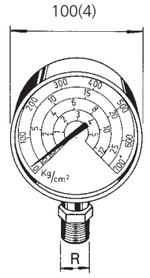
Ref.	Working pressure		Interior		Interior		Connection thread	Quick coupler
	kg/cm²	psi.	Ø mm	in.	m.	in.		Ref.
MAP-06	700	10000	6,4	1/4	0,6	23,6	3/8 x 18 NPT	----
MAP-1	700	10000	6,4	1/4	1	39,4	3/8 x 18 NPT	----
MAP-1,5	700	10000	6,4	1/4	1,5	59	3/8 x 18 NPT	----
MAP-2	700	10000	6,4	1/4	2	78,8	3/8 x 18 NPT	----
MAP-3	700	10000	6,4	1/4	3	118	3/8 x 18 NPT	----
MAP-6	700	10000	6,4	1/4	6	236	3/8 x 18 NPT	----
MAPS-1,5	1760	25520	5	13/16	1,5	59	1/4 x 19 GAS	----
MCE-3	700	10000	9,8	3/8	3	118	3/8 x 18 NPT	----
MCE-6	700	10000	9,8	3/8	6	236	3/8 x 18 NPT	----
A-5555	700	10000	6,4	1/4	1,5	59	3/8 x 18 NPT	A-5507-M
A-5588	700	10000	6,4	1/4	1,5	59	3/8 x 18 NPT	A-5506-M
A-5559	1760	25520	5	13/16	1,5	59	1/4 x 19 GAS	A-5537-H

Glycerine gauges

The gauges permit the reading of the pressure generated by the pump or the force applied by the cylinder, which provides safety of use, avoids damage to the equipment and guarantees longer life.

Precision: ± 2,5%.

The pressure and force are indicated in kg/cm², psi and tonnes.



Ref.	Used with	Interior	Connection thread R
A-5580G	CSRA-5/CSRA-11/CSB-11/CSE-5/CSE-11 SERIES	5-11 TNS	3/8 GAS
A-5581G	CSRA-16/CSRA-23/CSB-23/CSE-23/CDRA-23 SERIES	16-23 TNS	3/8 GAS
A-5582G	CSRA-31/CSRA-55/CSB-31/CSB-55/CSE-31/CSE-55/CSF-31/CSF-55/CDRA-31/CDRA-55 SERIES	31-55 TNS	3/8 GAS
A-5583G	CSRA-93/CSB-93/CSE-93/CSF-93/CDRA-93/CSE-31/CSE-55 SERIES	93 TNS	3/8 GAS
A-5584G	CSH-12/CSH-20 SERIES	12-20 TNS	3/8 GAS
A-5585G	CSH-30/CSH-60/CDH-30/CDH-60 SERIES	30-60 TNS	3/8 GAS
A-5586G	GENERAL APPLICATIONS	0-700 kg/cm²	3/8 GAS
A-5587G	USO GENERAL APPLICATIONS	0-1600 kg/cm²	1/2 NPT

Coupling

The high flow quick couplers allow a fast and safe connection of the different components in the hydraulic applications. They consist of two halves, oil tight, called male and female, and have dust caps to prevent entry of dirt.

Supplied according to the reference on the chart.

A-5507

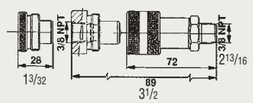
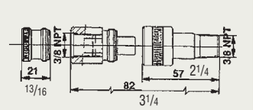
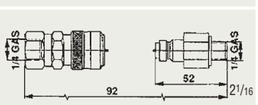
Maximum flow: 17 l/min/1.038 in³/min. Pressure: up to 700 kg/cm²/10.000 psi.

A-5506

Maximum flow: 2 l/min/122 in³/min. Pressure: up to 700 kg/cm²/10.000 psi.

A-5537

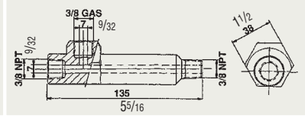
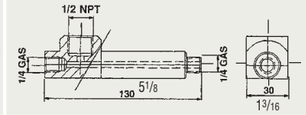
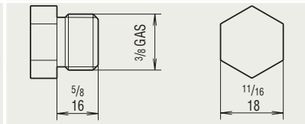
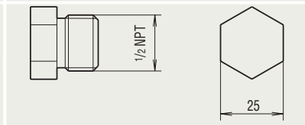
Maximum flow: 7 l/min/427 in³/min. Pressure: up to 1.500 kg/cm²/21.430 psi.

Referencia	Description	Characteristics
A-5507	Complete coupler	
A-5507-M	Male quick coupler	
A-5507-H	Female quick coupler	
A-5506	Complete coupler	
A-5506-M	Male quick coupler	
A-5506-H	Female quick coupler	
A-5537	Complete coupler	
A-5537-H	Male quick coupler	
A-5537-M	Female quick coupler	

Adapters

These adapters allow an easy way of fitting the gauge into cylinder or pump.

On page 7 of this catalogue, instructions are given for better information and use of the accessories described. Read pages 4 and 5, carefully.

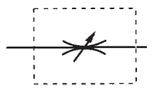
Ref.	Description	Working pressure kg/cm²	Working pressure psi.	Characteristics
A-5501	Gauge adapter	700	10000	
A-5558	Gauge adapter	1500	21430	
MGK-15	Gauge adapter plug	700	10000	
NAP-3	Gauge adapter plug	1500	21430	

Valves

A hydraulic application can be effected through several configurations, some of which are indicated on page 7 of this catalogue. None of the configurations described could be carried out without the accessories and fittings described.

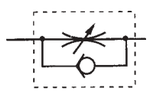
A-5509 Shutoff valve

Shuts the oil flow. It also locks the load on a raised cylinder.



A-5510 Safety valve

Locks the load on a raised cylinder.

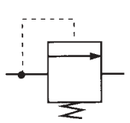


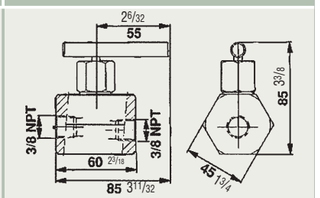
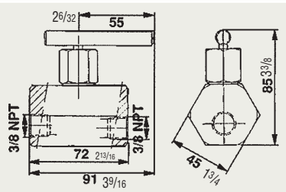
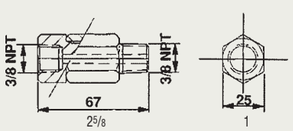
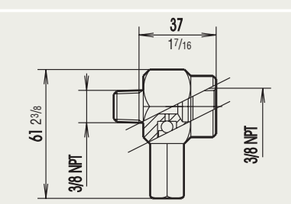
A-5570 Lowering control valve

Prevents sudden lowering of load by producing a resistance to the oil flow.

A-5538 Safety relief valve

Avoids accidental overpressure.



Reference	Description	Working pressure kg/cm²	Working pressure psi.	Characteristics
A-5509	Shutoff valve	700	10000	
A-5510	Safety valve	700	10000	
A-5570	Lowering control valve	700	10000	
A-5538	Safety relieve valve	700	10000	

Connectors. Spares

A-5583 and A-5574. Manifolds

Although only two manifolds are described in this catalogue, we can manufacture and supply other manifolds with the number of ways required

MEGA hydraulic oil

High quality hydraulic oil for the essential parts of the hydraulic tools

Indispensable for a continuous or intensive use of the MEGA pumps and cylinders.

Delivered in 2 and 5 litre plastic container.

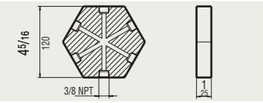
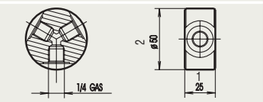
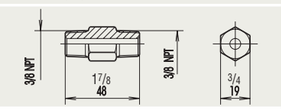
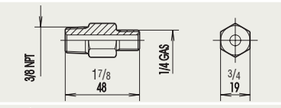
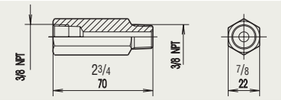
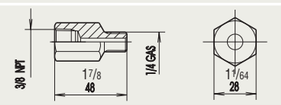
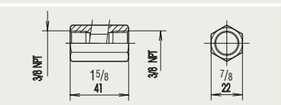
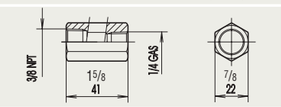
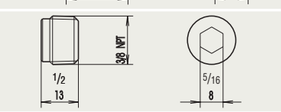
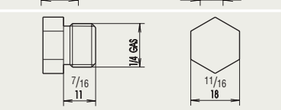
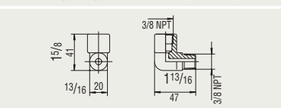
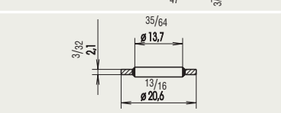
A-5535. 2 litre plastic container

A-5536. 5 litre plastic container

Repair kits

A repair kit is available for every hydraulic item in this catalogue.

The reference of the article for which the kit is intended should be clearly indicated.

Reference	Description	Working pressure kg/cm²	Working pressure psi.	Characteristics
A-5583	Five-way manifold	700	10000	
A-5574	Two-way manifold	1500	21430	
A-5511	Male connector	700	10000	
A-5579	Male connector	700	10000	
A-5513	Mixed connector	700	10000	
A-5589	Mixed connector	700	10000	
A-5512	Female connector	700	10000	
A-5590	Female connector	700	10000	
Y-2/1160	Coned plug	700	10000	
A-5591	Male plug	700	10000	
A-5514	Elbow	1500	21430	
A-5566	Metallplastic washer	1500	21430	

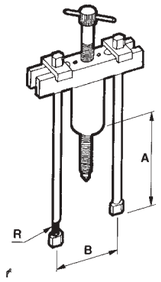
Grip and rod pullers

Rod pullers

The rod end is threaded into the part to be removed.

When used with a bearing pulling attachment, the load to be applied should not exceed 2/3 of the nominal capacity of the cylinder.

As an option, we can supply legs of the dimensions indicated.

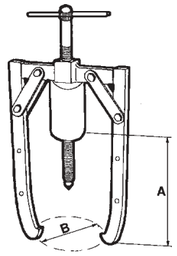


Nominal capacity tn	Ref.	Dimensions mm./in A		B Max.		B Min.		R	Length of leg mm.	Length of leg in.	Mechanical set Ref.	Cylinder Ref.	Pump Ref.	Hose Ref.	Weight Kg.	Weight lbs.
10	TF-1	140	5 1/2	240	9 7/16	115	4 9/16	5/8 x 18	180	7 3/32	TFM-1	CSH-12	BM-04	A-5555	17	37,5
20	TF-2	280	11 1/16	325	12 13/16	135	5 5/16	5/8 x 18	209	8 1/4	TFM-2	CSH-20	BM-04	A-5555	24	52,9
30	TF-3	305	12	450	17 11/16	200	7 7/8	1 x 14	328	12 15/16	TFM-3	CSH-30	BM-04	A-5555	43	94,8
50	TF-5	410	16 1/8	580	22 13/16	230	9 1/16	1 1/4 x 12	504	19 13/16	TFM-4	CSH-60	BM-1	A-5555	34	207,3

Grip pullers

As the G-12 is supplied with the triple crosshead, it may be turn into a three-grip puller with the addition of one grip.

The rest of the two-grip pullers require a triple crosshead and a leg to become a three-grip puller.

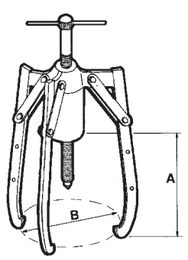


Nominal capacity tn	Ref.	Dimensions mm./in A Max.		B Max.		Mechanical set Ref.	Cylinder Ref.	Pump Ref.	Hose Ref.	Weight Kg.	Weight lbs.
10	G-12	230	9 1/16	200	7 7/8	GM-12	CSH-12	BM-04	A-5555	16	35,3
20	G-22	310	12 3/16	270	10 5/8	GM-22	CSH-20	BM-04	A-5555	22	48,5
30	G-32	400	15 3/4	380	15	GM-32	CSH-30	BM-04	A-5555	36	79,4
50	G-52	500	19 11/16	500	19 11/16	GM-52	CSH-60	BM-1	A-5555	85	187,4

Three-grip pullers

The G-13 model is supplied with double crosshead and triple crosshead.

All the other three-grip pullers require one double crosshead to be used as a two-grip puller.

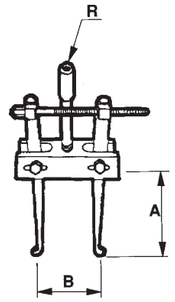


Nominal capacity tn	Ref.	Dimensions mm./in A Max.		B Max.		Mechanical set Ref.	Cylinder Ref.	Pump Ref.	Hose Ref.	Weight Kg.	Weight lbs.
10	G-13	230	9 1/16	200	7 7/8	GM-13	CSH-12	BM-04	A-5555	18	39,7
20	G-23	310	12 3/16	270	10 5/8	GM-23	CSH-20	BM-04	A-5555	27	59,5
30	G-33	400	15 3/4	380	15	GM-33	CSH-30	BM-04	A-5555	45	99,2
50	G-53	500	19 11/16	500	19 11/16	GM-53	CSH-60	BM-1	A-5555	103	227,1

Complete puller sets

Bearing cup puller

They are used in combination with the rod pulling sets. Their legs are located with the grip outward for an easy removal of bushings, bearings, oil seals and other parts located in blind holes.

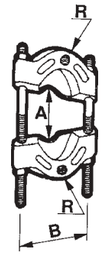


Nominal capacity tn	Ref.	Dimensions mm./in A		B Max.		B Min.		R	Weight Kg.	Weight lbs.
10	IF-1	102	4 1/64	153	6 1/64	38	1 1/2	3/4 x 16 UNF	2,5	5,5
20	IF-2	102	4 1/64	153	6 1/64	38	1 1/2	1 x 8 UNC	2,5	5,5
30	IF-3	149	5 7/8	230	9 1/16	76	3	1 1/4 x 7 UNC	6	13,2
50	IF-5	149	5 7/8	230	9 1/16	76	3	1 5/8 x 5 1/2 UNS	6	13,2

Bearing pulling attachment

These are also used in combination with the rod pulling sets.

The thickness of the edges have been flattened to permit placing this attachment behind the bearing to be pulled out.



Nominal capacity tn	Ref.	Dimensions mm./in A Max.		A Min.		B	R	Weight Kg.	Weight lbs.
10	A-5519	117	4 5/8	20	25/32	110	4 5/16	5/8 x 18	2,6	5,7
20	A-5502	152	6	25	1	152	6	5/8 x 18	6,5	14,3
30	A-5503	340	13 3/8	35	1 3/8	255	10 3/64	1 x 14	24	52,9
50	A-5504	350	13 3/4	50	1 31/32	330	3	1 1/4 x 12	80	176,4

Complete puller sets

They consist of a pump, hose, cylinder, three-grip puller, bearing cup puller, double crosshead, bearing pulling attachment screw, screw cap and gauge

Each component can be supplied separately.

Nominal capacity tn	Ref.	2-grip Ref.	3-grip Ref.	Rod puller Ref.	Bearing cup puller Ref.	Bearing cup attachment Ref.	Cylinder Ref.	Pump Ref.	Hose Ref.	Gauge Ref.	Weight Kg.	Weight lbs.
10	EHM-10	GM-12	GM-13	TFM-1	IFM-1	A-5519	CSH-12	BM-04	A-5555	A-5584G	32	70,5
20	EHM-20	GM-22	GM-23	TFM-2	IFM-2	A-5502	CSH-20	BM-04	A-5555	A-5584G	50	110,2
30	EHM-30	GM-32	GM-33	TFM-3	IFM-3	A-5503	CSH-30	BM-04	A-5555	A-5585G	100	220
50	EHM-50	GM-52	GM-53	TFM-5	IFM-5	A-5504	CSH-60	BM-1	A-5555	A-5585G	255	562

Hydraulic Bottle jacks

They are the adequate and safe hydraulic tool for any lifting or pushing operation.

The base, pressure cylinder and oil deposit form one integral part and provide more strength and safety to the jacks

Any pressure loads produced by the vehicle axle tilting are absorbed as the piston never comes into contact with the cylinder. therefore the jack will not be damaged even if the vehicle tilts.

Fitted with a safety relief valve (optional up to 5 t).

With hydraulic stroke limitation.

With carry handle for models MG-20 on.

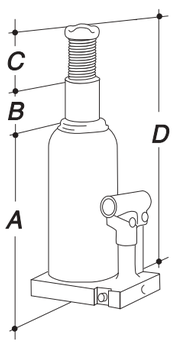
The MGD-50 MGD-100 have two operating pumps: for approach and operation.

The MGD-100 includes pressure gauge.

All jacks can be manufactured with a gauge, upon request.

The MGT series combines low minimum height with higher lift because of the telescopic piston.

The MEGA jacks can be used horizontally with the pump downward as shown in the illustration.



Maximum capacity	Ref.	Effective area		Dimensions mm/in.								Oil volume		Weight	
				A		B		C		D					
tn		cm^2	in^2									cm^3	in^3	Kg.	lbs.
2	MG-2	3,8	0,59	160	6 5/16	100	3 15/16	50	2	310	12 3/16	70	4,3	3,6	7,9
3	MG-3	5,3	0,82	168	6 5/8	105	4 1/8	65	2 9/16	338	13 5/16	85	5,2	3,9	8,6
3	MG-3-A	5,3	0,82	210	8 1/4	150	5 15/16	65	2 9/16	425	16 3/4	110	6,7	4,2	9,3
5	MG-5	8,04	1,26	212	8 11/32	150	5 15/16	75	2 15/16	437	17 3/16	160	9,75	5	11
8	MG-8	11,34	1,75	219	8 5/8	150	5 15/16	75	2 15/16	444	17 1/2	225	13,75	5,9	13
10	MG-10	14,52	2,25	219	8 5/8	150	5 15/16	75	2 15/16	444	17 1/2	275	16,75	6,5	14,3
12	MG-12	17,34	2,68	226	8 7/8	150	5 15/16	75	2 15/16	451	17 3/4	340	20,75	8	17,7
15	MG-15	21,23	3,29	228	8 15/16	150	5 15/16	75	2 15/16	453	17 13/16	410	25	9	19,8
20	MG-20	28,27	4,38	234	9 7/32	150	5 15/16	75	2 15/16	459	18 1/16	525	32	11,5	25,3
25	MG-25	38,48	5,96	240	9 7/16	150	5 15/16	75	2 15/16	465	18 5/16	740	45,1	15	33
30	MG-30	44,17	6,84	242	9 1/2	150	5 15/16	75	2 15/16	467	18 3/8	800	48,8	15,5	34,1
40	MG-40	58,08	9	246	9 11/16	150	5 15/16	----	----	396	15 9/16	1100	67,1	23,5	51,8
50	MG-50	73,89	11,45	252	9 15/16	150	5 15/16	----	----	402	15 13/16	1350	82,4	28,5	62,8
50	MGD-50	73,89	11,45	270	10 5/8	150	5 15/16	----	----	420	16 1/2	1350	82,4	40	88,2
100	MGD-100	165,1	25,6	300	11 13/16	150	5 15/16	----	----	450	17 3/4	3300	201,5	87	191,8
5	MGS-5	8,04	1,26	135	5 5/16	70	2 3/4	40	1 9/16	145	9 5/8	95	5,8	4,3	9,5
10	MGS-10	14,52	2,25	131	5 6/32	62	2 7/16	30	1 3/16	223	8 3/4	150	9,2	5,5	12,1
15	MGS-15	21,23	3,29	150	5 15/16	75	2 15/16	40	1 9/16	265	10 7/16	250	15,3	7,5	16,5
20	MGS-20	28,27	4,38	190	7 1/2	105	4 1/8	55	2 3/16	350	13 3/4	400	24,5	10	22
5	MGT-5	7,06	1,1	215	8 1/2	300	11 13/16	----	----	515	20 9/32	400	24,4	8,5	18,7
8	MGT-8	11,34	1,75	235	9 1/4	316	12 7/16	----	----	551	21 11/16	750	45,8	12	26,5
12	MGT-12	16,6	2,57	245	9 5/8	326	12 13/16	----	----	571	22 1/2	1050	64,1	17	37,5
20	MGT-20	28,27	4,38	180	7 3/32	205	8 1/16	----	----	385	15 6/32	1150	70,2	22	48,5

Body repair kits

These kits are the indispensable tool for many hydraulic applications, specially for rescues and roadside service, spreading, lifting and pulling jobs where hydraulic force is required.

From a basic set consisting of a pump, hose and cylinder, the components supplied can be easily assembled to become the ideal hydraulic tool in spreading, straightening, pulling, pushing lifting and many other applications.

IMPORTANT:

As the cylinders have a higher capacity than the components of the kit, specially chains, cylinder toes, tube extensions etc., they should never exceed half their nominal capacity when used with these accessories.

The SH-1 spreader should not be used beyond 1 t. Note that the maximum working load for the chain is : 1t on GC-10 and 500 kg on GC-5

All the technical information related to pumps and cylinders of this chart is described on other pages of this catalogue.

Components

Nº	Description	Capacity in t		
		5	10	20
		References		
		GC-5-S	GC-10-S	GC-20-M
1	PUMP	BM-04	BM-04	BM-04
2	CYLINDER	CC-5B	CC-10-B	CC-20-B
3	METAL BOX	A-5167	A-5067	A-5067
4	HOSE	A-5541	A-5541	A-5541
5	EXTENSION TUBE Nº1	A-5133	A-5033	A-5233
6	EXTENSION TUBE Nº2	A-5134	A-5034	A-5234
7	EXTENSION TUBE Nº3	A-5135	A-5035	A-5235
8	RUBBER SADDLE	A-5148	A-5048	----
9	SADDLE	A-5142	A-5042	A-5242
10	THREADED CONNECTOR	A-5138	A-5038	A-5238
11	V HEAD	A-5153	A-5053	----
12	WEDGE HEAD	A-5154	A-5054	----
13	FLAT BASE	A-5155	A-5055	A-5284*
14	PISTON TOE	A-5150	A-5050	A-5280*
15	TUBE CONNECTORS	A-5139	A-5039	A-5239
16	EXTENSION TUBE Nº4	A-5136	A-5036	----
17	LOCK PINS	A-5149	A-5049	----
18	SPREADER	SH-1	SH-1	----
19	SLIP LOCK EXTENSION	A-5143	A-5043	----
20	CHAIN	A-5186	A-5086	----
21	CHAIN PLATE	A-5157	A-5057	----
22	CLAMP HEAD	A-5158	A-5058	----
23	CHAIN YOKE	A-5156	A-5056	----
24	SLIP CLAM TOE	A-5151	A-5051	A-5252*
25	COLLAR TOE	A-5152	A-5052	----
WEIGHT kg/lbs		30 / 66,1	45/99	45/99

* The components market with * are different on GC-20-M

Optional components

	CYLINDER	CC-5-A	CC-10-A	CC-20-A
	PULLING CYLINDER	CT-2,5	CT-5	CT-10
	FOOT PUMP	BMP-1	BMP-1	BMP-1
	AIR HYDRAULIC PUMP	NS-1	NS-1	NS-1

Presses

We manufacture a wide range of frame and bench presses, designed for the application of a high force. Their compact and functional design integrates all the hydraulic elements within the chassis, thus ensuring protection in transport and saving space in the workshop.

They are fitted with workbench adjustable for height and winch to assist easy and rapid handling of the work bench , models KSC-15 A and AN excluded.

The KP-100 is equipped with a double-acting hydraulic cylinder, ref. CDRA-93F. For this configuration we recommend the use of the electric pump, ref. BED-20.

KPD and KP-100 models have two-speed hand pump, ref. BKD-09 and BMD-6.

As an option, all KPD models can be equipped with a manual and air powered pump, ref.BKN-09.

A set of two V blocks is included and the legs have holes to mount the press to the workshop floor. Supplied fully assembled and ready for use.

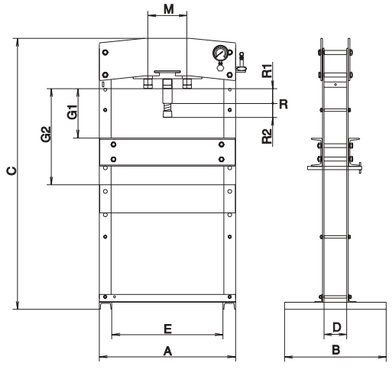
With pressure gauge and damper, positioned at the eye level to make for easy reading.

Sliding cylinder along the press head on KPD models.

Set of plate, adapter and punches (optional)

A-5552/ 15 for 15t presses.
A-5552/ 30 for 30 and 50t presses.

Ø 12 - 15/32	Ø 22 - 55/64
Ø 16 - 5/8	Ø 25 - 63/64
Ø 18 - 45/64	Ø 30 - 1 7/32
Ø 20 - 25/32	



	Capacity in t							
	15		30		50		100	
	References							
With hand pump	KSC-15A		KPD-30A		KPD-50A		KP-100	
With manual/air pump	KSC-15AN		KPD-30AN		KPD-50AN			
With electric pump			KPD-30AE		KPD-50AE		KP-100E	
	Dimensions mm/in.							
A	605	23 13/16	880	34 5/8	880	34 5/8	1250	49 7/32
B	420	16 1/2	650	25 5/8	650	25 5/8	1000	39 3/8
C	940	37	1770	69 11/16	1810	71 1/4	2000	78 3/4
D	120	4 3/4	145	5 11/16	145	5 11/16	300	11 13/16
E	500	19 11/16	710	27 15/16	710	27 15/16	1000	39 3/8
G1 Minimum	150	5 7/8	165	6 1/2	165	6 1/2	130	5 1/8
G2 Maximum	450	17 11/16	615	24 7/32	615	24 7/32	930	36 5/8
R1 Hydraulic stroke	95	3 3/4	120	4 3/4	120	4 3/4	250	9 13/16
R2 Extension stroke	75	2 15/16	75	2 15/16	75	2 15/16	----	----
R Total stroke	170	6 11/16	195	7 11/16	195	7 11/16	250	9 13/16
M Side stroke	----	----	250	9 13/16	250	9 13/16	----	----
Weight kg/lbs	77 / 170		203,5 / 448		239 / 527		939 / 2070	

Cranes

Foldable and portable. These cranes require only a small space, are quickly foldable, and easily movable thanks to the fixed auxiliary wheels which, made from polyamide, facilitate manoeuvrability, do not damage garage floors, do not rust and are quiet in operation.

They feature safety relief valve, dead man's principle operation, automatic, lowering control system and hydraulic limitation of stroke.

They included other important features such as a 135° swivel hydraulic unit to facilitate users' s position and extendable jib with handle to make easy the position of the arm.

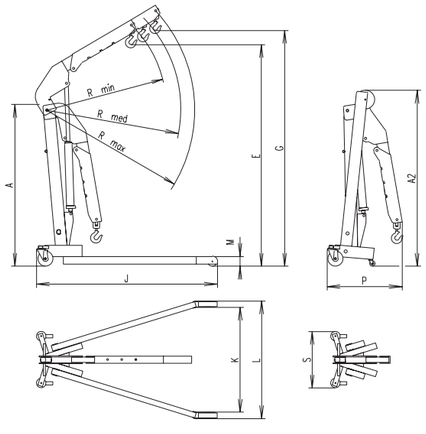
The legs on FC-5A and FC-10A have a height of 80 mm to be used where space is tight.

1. Swivel hydraulic unit up to 135° to facilitates user's position with respect to load. Pump piston spring improves operation.

2. Lifting and lowering ergonomic pump handle, with dead man's principle operation.

3. Legs of 80 mm minimum height on FC-5A and FC-10A for use in areas of very low clearance.

4. Extendable jib with handle to facility its position on the lifting arm. With openings which indicate lifting capacity on each point.



	References					
	FC-5A		FC-10A		FC-20A	
	Capacity in kg / lbs					
POSITION 1	500	1102	1000	2204	2000	3306
POSITION 2	400	882	800	1764	1750	3858
POSITION 3	325	716	700	1543	1650	3638
	Dimensions mm/in.					
A	1400	55 1/64	1675	66	1720	67 3/4
A2	1400	55 1/64	1675	66	1790	70 1/2
E	1970	77 9/16	2275	89 1/2	2340	92 1/8
G	2080	81 7/8	2416	95	2500	98 7/16
J	1500	59	1695	66 3/4	1900	74 13/16
K	820	32 1/4	935	36 13/16	1035	40 3/4
L	970	38 3/16	1085	42 3/4	1160	45 11/16
M	80	3 6/32	80	3 6/32	200	7 7/8
R Min.	1050	41 5/16	1260	49 5/8	1275	50 3/16
R Med.	1150	45 1/4	1405	55 5/16	1420	55 7/8
R Max.	1250	49 7/32	1550	61	1570	61 13/16
P	465	18 5/16	545	21 7/16	635	25
S	450	17 11/16	450	17 3/4	570	22 7/6
Weight kg / lbs	92 / 203		121 / 267		173 / 381	

Hydraulic pipe benders

For Din 2440 and DIN 2441 GAS pipes

Bending angles up to 180º.

Supplied with tripod stand, wooden cases and the following set of formers:

CVT-2: 1/2" - 3/4" - 1 - 1 1/4" - 1 1/2" and 2".

CVT-3: 1/2" - 3/4" - 1 - 1 1/4" - 1 1/2" - 2" - 2 1/2" and 3".

Fitted with retractable bending frames, permanently marked, to facilitate easier position of bending supports and pipe to bend.

Equipped with safety relief valve and hydraulic limitation of stroke.

Piston retracts automatically when the release valve is opened.

Complete instructions for use, maintenance and bending jobs are supplied with the machine.

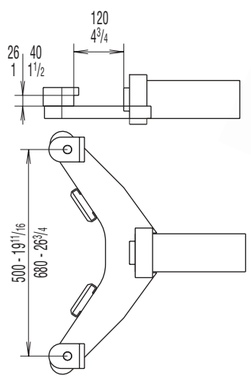
Any bending job can be carried out without physical effort thanks to the high force deployed by the hydraulic unit: 15t on CVT-2 and 20t on CVT-3.

Capacity tn	Reference	Pipes up to	Weight Kg.	Weight lbs.
15	CVT-2	2"	71	157
20	CVT-3	3"	28	283

Rail benders

The set consists of pump, hose and cylinder and is manufactured to bend rails of 20 kg/m and 30 kg/m.

Spring return



Capacity tn	Reference	Cylinder Ref.	Pump Ref.	Weight Kg.
25	CVR-25	CSA-25-C	BM-1	38
50	CVR-50	----	BM-1	51

Hydraulic lifting tables

Widely used in workshop and industry for maintenance jobs.

They are equipped with dead man's principle operation, safety relief valve, automatic lowering control system and hydraulic limitation of stroke.

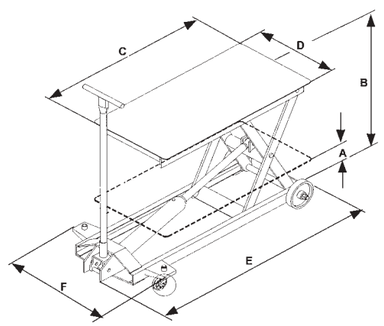
Can be locked at different heights with the safety bolts provided.

With foot pedal for quick approach to load, ME-650 excluded.

Table wheels fitted with foot protection and brakes.

Foot pedal for quick approach to load, ME-650 excluded.

Safety distance between scissors and between the lifting platform and chassis.



	Capacity Kg./lbs.									
	650	1433	650	1433	1200	2646	1500	3307	2500	5512
	References									
	MEP-650		ME-650		ME-1200		ME-1500		ME-2500	
	Dimensions in mm / in									
A	320	12 9/16	215	8 7/16	250	9 7/8	210	8 1/4	300	11 13/16
B	755	29 3/4	645	25 3/8	840	33	880	34 5/8	880	34 5/8
C	830	32 11/16	830	32 11/16	1020	40 6/32	1020	40 6/32	1060	41 3/4
D	500	19 11/16	500	19 11/16	500	19 11/16	500	19 11/16	540	21 1/4
E	1060	41 3/4	1060	41 3/4	1380	54 5/16	1380	54 5/16	1440	56 11/16
F	570	22 7/16	530	20 7/8	690	27 3/16	690	27 3/16	795	31 5/16
Weight kg./lbs.	74,5 / 164		71 / 57		98 / 216		135 / 298		187 / 412	

SPECIAL EQUIPMENT

Custom-made equipment, featuring characteristics different from those indicated in this catalogue,can be supplied on request. We also manufacture hydraulic equipment for special applications such as telescopic cylinders, aircraft jacks, shaft propeller hydraulic pullers for use in naval industy etc.

We always have a hydraulic solution for your specific problem.

Technical information to be given with your request.

Cylinder:

Capacity:	☐ t	Single-acting	☐	Telescopic	☐
Stroke:	☐ mm	Double-acting	☐	Compression load cell	☐
Working pressure:	☐ bar	Safety nut	☐	Tension load cell	☐
Quantity:	☐	Hollow cylinder	☐	Others	☐
		Spring return	☐	Minimum height:	☐ mm
		Pulling cylinder	☐	Outside diameter:	☐ mm
				Type of saddle	☐

Note: Other type of equipment not included above will require a sketch.

GARAGE EQUIPMENT

We also manufacture a great variety of hydraulic lifting equipment for garage and general industry. We have a comprehensive catalogue covering these items which is available upon request or at our web site: **www.mega.es**