

EUROPRESS

HIGH PRESSURE HYDRAULICS

OLEODINAMICA AD ALTA PRESSIONE

HOCHDRUCKHYDRAULIK

HYDRAULIQUE A HAUTE PRESSION



HYDRAULIC CYLINDERS _____

HYDRAULIC PUMPS _____

VALVES AND ACCESSORIES FOR HYDRAULIC SYSTEMS _____

HYDRAULIC TOOLS _____

AUTOMOTIVE EQUIPMENT _____

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This catalogue covers hydraulic high pressure equipment and components, also in customised versions, for any kind of use.

This is an offer from specialists to specialists.

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EUROPRESS SPECIAL PRODUCTS



THE COMPANY



OUR JOURNEY

We can say that the journey of **EURO PRESS PACK** began in 1919, with the creation of the **RAFFAELE RIMASSA COMPANY** who traded high-pressure hydraulic products in all Europe. The company was taken over by EURO PRESS PACK in 1993 and the group is currently a worldwide leader in the manufacturing of high-pressure hydraulic components from 700 to 4000 bars, and has renewed its trademark RARIPRESS as a result of a complete re design of its product range.

Our effort in following the most advanced technology innovations in terms of quality, safety, and reliability are certified since 1996, year in which we were awarded the **ISO 9001 Quality System Certification**, and more recently in 2008 with the **ISO 14001 Quality System Certification**.



NITREG ONC



EURO PRESS PACK products are the only ones in the sector treated with the **Nitreg® ONC®** process which, for many years now, has been carried out exclusively within our plants.

This process is a thermo-chemical treatment applied to steel, that starts with the liquid nitriding phase followed by an oxidation phase, causing a change in the steel's superficial chemical structure. This alteration makes steel exceptionally hard and resistant to corrosion. The already enhanced resistance is further strengthened with the application of a special oil that coats the treated surfaces and makes them immune to corrosion (tests conducted in saline smoked rooms show up to 300 hours of resistance to corrosion according to ASTM B117).

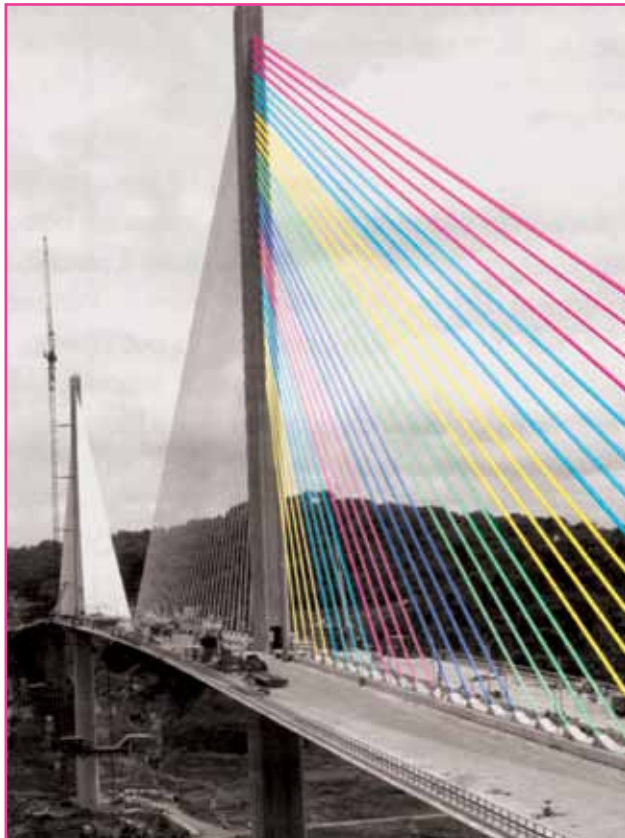
Our products, treated with this process, are therefore especially suitable for applications with high risks of corrosion and mechanical wear.

The black colour of all EURO PRESS PACK products is a direct result of the last phase of this unique treatment and has come to symbolize our long lasting effort towards the pursuit of quality.



THE COMPANY

OUR STRUCTURE



E.P.P. EURO PRESS PACK SpA

Our productive plants are located in Carasco, near the city of Genoa in northern Italy, within a strategic distance from the Genoa port and international airport.

The factory covers a surface of around 6000 sq.m and includes, as well as the productive plants and commercial and technical offices, research departments and a well-stocked warehouse.

EUROPRESS DEUTSCHLAND GmbH (ex E.P.P. ROEMHELD)

Once called E.P.P. ROEMHELD it is the trading company in charge of the German market, located in Nuremberg, Germany, it resulted from the trade agreement between EUROPRESS and the renowned German Group ROEMHELD, specialized in the manufacturing of hydraulic blocking and industrial automation.

The firm is currently independent and works as an essential strategic logistic junction between North-South and East-West of Europe, also thanks to its short distance from the international airports of Nuremberg and Munich.

E.P.P. MAGNUS Ltd

It is the trading company responsible for the United Kingdom market, situated in Norwich near the international airport and only a few km from the North Sea.



OUR VALUES



The EUROPRESS Group has achieved its leadership in the sector of hydraulic high-pressure components thanks to the following values, which have characterized the company from the beginning:

Know-how

Motivated, constantly trained and extensively experienced employers, with a tenacious will to solve whatever problems are faced with innovative and advanced solutions, we ensure our know-how is solid but at the same time flexible.

Innovation

Productive plants are regularly renewed and provided with automated state of the art machines.

Quality

Our exclusive Nitreg ONC® treatment, which makes steel exceptionally hard and resistant to corrosion, is delivered with no price increase on all our range of products. Rigorous screening tests are performed initially on selected components and then on 100% of finished products. To ensure the highest standard all steel is subject to quality control before and after heat treatments.

Autonomy

Our entire production is carried out internally, without no third party intervention, to enable optimum control of quality, cost and service.

Flexibility

In addition to the standard range, tailored products following technical details supplied by the client can be designed and manufactured in a short time.

The EUROPRESS production is easily adaptable to orders of any size.

Internationality

Our sales offices are in all the major Markets, situated in logistically strategic areas.

Customer focus

All standard products are always in stock, packing and markings are designed to optimize storage; logistics solutions are fast and low-priced, and the distribution network acts efficiently anywhere in the world. Our customers can take advantage of ongoing assistance as well as technical and commercial training, either at their own premises or at those of EUROPRESS; an expert design team is always available for the creation of new products produced specifically for individual applications.



OUR MISSION

EPP values are the milestones of a customer-oriented philosophy that has as its main purpose to **maximize the satisfaction of all clients' requirements**; the company

mission is therefore to be always a reliable partner in terms of production, and tailored assistance.



SPECIFIC FEATURES

The manufacturing program of 700 bar components is based on innovative technology and on our longstanding experience in high pressure hydraulics.

The ideal choice of materials combined with surfaces treated and protected against corrosion makes EPP products suitable for use in harsh environments.

Furthermore, EUROPRESS cylinders can withstand off-centred and side load forces up to 8% of their nominal capacity.

Most of our models are in compliance with ANSI (American National Standard Institute) B30.1 Standard.

1-2-3 Cylinder body

The cylinder body, piston and end of stroke nut are in high quality tempered steel and have been treated with a special nitriding process so that these parts have a high wear resistance and are corrosion protected; they have a long outdoor service life even in sea-water and aggressive atmospheres.

4 Wiper

The wiper prevents contamination and thus increases the service life of the cylinder.

5 Return spring

This spring ensures fast piston retraction irrespective of the cylinder position.

6 Seal

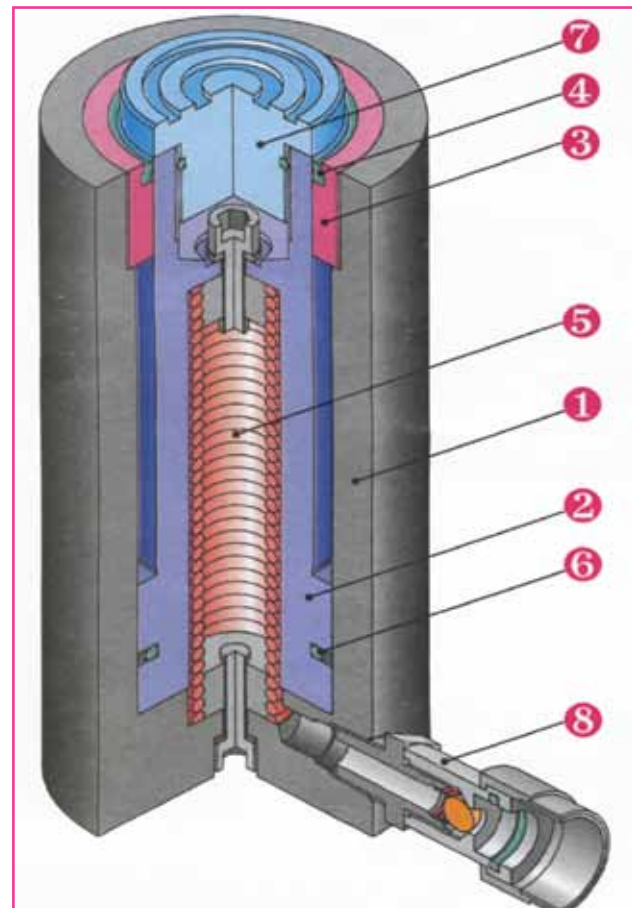
The compact seal provides good resistance to wear and extrusion.

7 Saddle

The saddle is in high tensile and nitrided steel and thus prevents deformation of the piston rod.

8 Quick coupler

The quick coupler mounted on all cylinders (except COD cylinders), is fitted with a dust cap.



HOW TO CHOOSE A CYLINDER

Some essential information is necessary to choose the correct cylinder. This information includes:

- **FORCE**
- **STROKE**
- **CLOSED HEIGHT**

And some supplementary data such as:

- **REQUIRED OIL VOLUME**
- **OPERATIONAL SPEED**

In the Useful pages you may find some calculation examples.

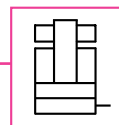
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There are three main types of cylinders: , **spring return and oil return**.

Load return

Load return , in which the piston is retracted by the weight of the load (or any other external force). The minimum force required to retract the piston is approximately 0,2% of the rated cylinder nominal push value. These cylinders are the most economic solution for an application that does not

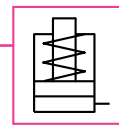
require quick removal of the cylinder after the load has been lowered. The cylinders of the **CGG, CGR, CGS** ranges belong to this group.



Spring return

Spring assisted return , in which the piston is retracted by means of an internal compression or tension spring inside the cylinder . These cylinders are proposed whenever it is necessary to remove the cylinder quickly once the load has been lowered.

The cylinders of the **CMC, CMF, CMI, CML, CMP, CMT** ranges belong to this group.



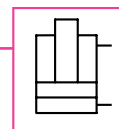
Oil return

Oil Return, (double acting): the piston is retracted hydraulically by pumping oil into the annular chamber of the cylinder. These cylinders are ideal for use in production applications where a fast cycle time is required.

When being used in a lifting application, lowering of the load can be controlled by fitting a pilot check valve and one-way flow distributor into the circuit.

The return pressure can be set at a lower value when it is only

needed to retract the piston. The cylinders of the **COF, COI, COS** ranges belong to this group. When it is necessary also to exert a pulling force, we recommend cylinders belonging to the **COD** ranges . These cylinders are supplied complete with the required threads and connections and may also be operated at the maximum working pressure on both sides of the piston.



Example: cylinder

C	#	#	###	#	###	#
Cylinder	Return type	Series	Pushing force in tons	N = Standard P = Plunging (with no end of stroke nut)	Stroke in mm	F = with base mounting holes T = with mobile integral saddle

CMF20N100

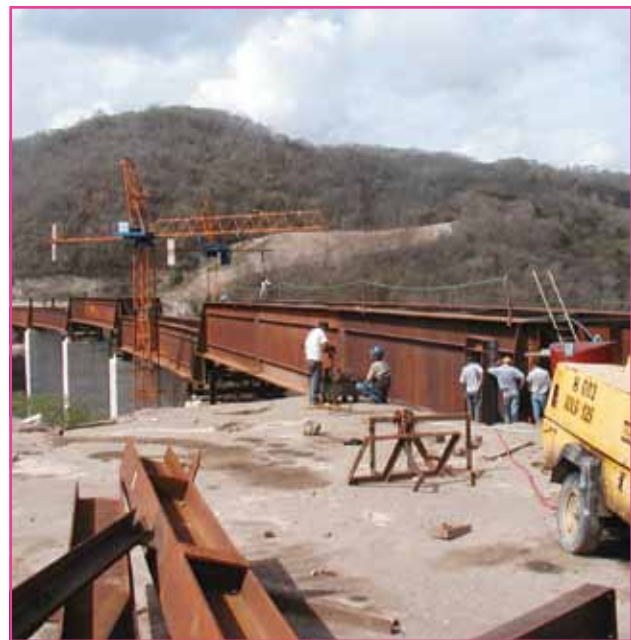
Cylinder, spring return with **20 t.** force, **N** version, **100 mm** stroke.

CGG200N250FT

Load return cylinder with safety nut, **200 t.** force, **N** version, **250 mm** stroke with fixing holes in the base and integral saddle.



Construction of the "Second Bridge over the Panama Canal - Republic of Panama" for which EURO PRESS has supplied the hydraulic components that hold the segments for the construction of the floor system of the bridge (Panama, July 2003)



Construction of "Sistema de Transporte de la Región Central de Venezuela, Primera Etapa Caracas Tuy-Medio" through the development of railway viaducts with metallic floor systems lowered with EURO PRESS hydraulic equipment (Caracas, Venezuela June 2003)



HYDRAULIC CYLINDERS

Single acting cylinders, load return



CGG	p.	12
CGR	p.	16
CGS	p.	18

Single acting cylinders, spring return



CMC	p.	22
CMF	p.	24
CMI	p.	26
CML	p.	28
CMP	p.	30
CMT	p.	32

Double acting cylinders, oil return



COD	p.	34
COF	p.	36
COI	p.	38
COS	p.	40

HIGH TONNAGE CYLINDERS WITH SAFETY RING NUT, LOAD RETURN

FEATURES

These cylinders are particularly suitable for applications in which the load has to be supported for long periods. The lock nut can be screwed down onto the cylinder body to hold the load mechanically. This ensures that **operation under load is absolutely safe**.

CGG cylinders have concentric grooves machined into the end of the rod to improve load grip, models above 30 tonne have lifting eyelets for ease of transport. From 50 tonnes upwards, the cylinders are plunging type and have device which prevents any over-stroke. The rod has a coloured zone which becomes visible 10 mm before the end of the piston stroke.

All models can operate with off-centred load up to **8%** of their nominal capacity.



OPTIONS

- **T - Version**, cylinder with **integrated tilt saddle**.
- **F - Version** cylinder with base mounting **holes** for fixing purposes.
- **N - Version**, (optional starting from 50 t) cylinders with end of stroke ring nut. This version is in compliance with **ANSI B30.1**.
- **M - Version**, cylinder with spring return. This version is available for N - version cylinders up to 150 tons (i.e., CMG50N100)



OPERATIONAL AREAS

These cylinders are ideal for use in the Construction Industry, e.g. Bridge repair and construction, foundations and underpinning etc.

The anti-corrosion treatment applied to these cylinders during manufacture makes them suitable for use in harsh and aggressive environments.



ACCESSORIES

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- **Separate ZTT tilt saddle** to help combat possible side loading.



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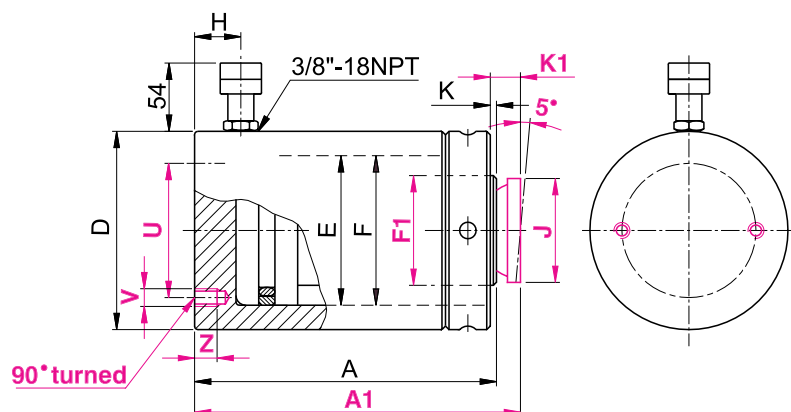


Whenever working space is restricted, **CGR** low profile cylinders offer a perfect solution.



For **P version** cylinders without end of stroke nut, it is very important that the operator is in a position to observe when the coloured zone of the piston appears, indicating the end of the piston stroke.

HIGH TONNAGE CYLINDERS WITH SAFETY RING NUT, LOAD RETURN



Force	30 - 500 t
Stroke	25 - 300 mm
Max working pressure	700 bar

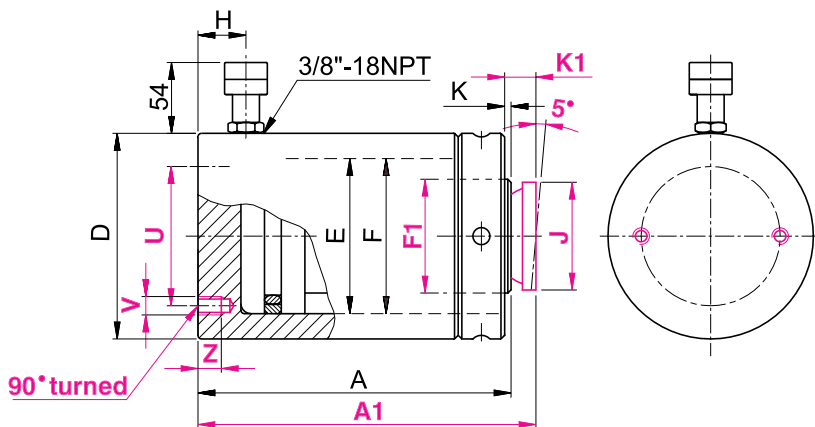
Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	P rod version Dia.	N rod version Dia.	Coupler height	Integrated tilt saddle Dia.	Rod projection	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight
				A	A1	D	E	F	F1	H	J	K	K1	U	V / Z	kg
t* kN	mm	cm ³		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
30 309	100	442	CGG30N100	189	193	102	75	-	Tr 65x6	19	53	1	5	65	2xM10 13	11
	50 496	100	709	CGG50P100	208	213	127	95	Tr 95x6	Tr 85x6	22	68	1	6	95	2xM12 15
150		1063	CGG50P150	258	263	23										
100 929	100	1327	CGG100P100	236	243	175	130	Tr 130x10	Tr 110x10	22	88	2	9	130	2xM12 17	38
	150	1991	CGG100P150	286	293											45
150 1407	25	503	CGG150P25	184	193	213	160	Tr 160x10	Tr 130x10	30	118	3	12	130	4xM12 17	47
	50	1005	CGG150P50	209	218											52
	100	2011	CGG150P100	259	268											66
	150	3016	CGG150P150	309	318											74
	200	4021	CGG150P200	359	368											85
	250	5026	CGG150P250	409	418											95
200 1984	25	709	CGG200P25	205	214	252	190	Tr 190x10	Tr 165x10	32	148	3	12	140	4xM16 20	75
	50	1418	CGG200P50	230	239											84
	100	2835	CGG200P100	280	289											100
	150	4253	CGG200P150	330	339											116
	200	5670	CGG200P200	380	389											133
	250	7088	CGG200P250	430	439											149
	300	8506	CGG200P300	480	489											165

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS WITH SAFETY RING NUT, LOAD RETURN



- Force **30 - 500 t**
- Stroke **25 - 300 mm**
- Max working pressure **700 bar**

Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	P rod version Dia.	N rod version Dia.	Coupler height	Integrated tilt saddle Dia.	Rod projection	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight	
				A	A1	D	E	F	F1	H	J	K	K1	U	V/Z	kg	
t* kN	mm	cm ³		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
250 2424	25	866	CGG250P25	224	233												95
	50	1732	CGG250P50	249	258												104
	100	3464	CGG250P100	299	308												127
	150	5195	CGG250P150	349	358	280	210	Tr 210x10	Tr 175x10	34	158	3	12	150	4xM16 20		140
	200	6927	CGG250P200	399	408												158
	250	8659	CGG250P250	449	458												176
300 2908	25	1039	CGG300P25	240	249												126
	50	2077	CGG300P50	265	274												137
	100	4155	CGG300P100	315	324												160
	150	6232	CGG300P150	365	374	305	230	Tr 230x10	Tr 195x10	38	158	3	12	170	4xM16 20		183
	200	8310	CGG300P200	415	424												205
	250	10387	CGG300P250	465	474												228
350 3436	25	1227	CGG350P25	250	262												149
	50	2454	CGG350P50	275	287												162
	100	4909	CGG350P100	325	337												188
	150	7363	CGG350P150	375	387	332	250	Tr 250x10	Tr 215x10	42	196	3	15	200	4xM16 20		215
	200	9817	CGG350P200	425	437												241
	250	12272	CGG350P250	475	487												267
300	14726	CGG350P300	525	537												293	

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS WITH SAFETY RING NUT, LOAD RETURN

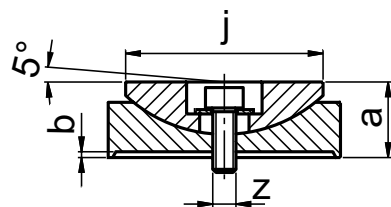
SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	P rod version Dia.	N rod version Dia.	Coupler height	Integrated tilt saddle Dia.	Rod projection	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight
				A mm	A1 mm	D mm	E mm	F mm	F1 mm	H mm	J mm	K mm	K1 mm	U mm	V/Z mm	kg
400 4008	25	1431	CGG400P25	260	272	356	270	Tr 270x10	Tr 235x10	42	196	3	15	230	4xM16 20	187
	50	2863	CGG400P50	285	297											203
	100	5726	CGG400P100	335	247											234
	150	8588	CGG400P150	385	397											266
	200	11451	CGG400P200	435	447											298
	250	14314	CGG400P250	485	497											330
	300	17177	CGG400P300	535	547											362
500 4948	25	1767	CGG500P25	275	287	396	300	Tr 300x10	Tr 260x10	50	196	3	15	250	4xM16 20	257
	50	3534	CGG500P50	300	312											278
	100	7069	CGG500P100	350	362											319
	150	10603	CGG500P150	400	412											360
	200	14137	CGG500P200	450	462											402
	250	17651	CGG500P250	500	512											443
	300	21206	CGG500P300	550	562											484

* Nominal value, see kN for the exact force

ACCESSORIES: ZTT TILT SADDLES

MODEL	For use with	a	b	j	z	kg
ZTT30	CGG30N100	19	1	53	M5	0,3
ZTT50	CGG50 #####	25		68	M8	0,9
ZTT100	CGG100 #####	34		88	M10	1,7
ZTT150	CGG150 #####	45	118	3,4		
ZTT200	CGG200 #####	54	148	7,0		
ZTT250	CGG250 #####	58	158	9,5		
ZTT300	CGG300 #####		11,3			
ZTT350	CGG350 #####	71	3	196	M12	18,0
ZTT400	CGG400 #####					20,7
ZTT500	CGG500 #####					23,8



MODEL CODING

C#G	30	N	###	#
Series G (gravity) Series M (spring)	Pushing force in tonne	N = With end of stroke nut P = With no end of stroke nut (Plunging)	Stroke in mm	F = with base mounting holes T = with integrated tilt saddle**

** Cylinders with a force below 100 tonne can be supplied subject to a minimum production batch, to be advised

LOW PROFILE CYLINDERS WITH SAFETY RING NUT, LOAD RETURN

FEATURES

Pancake lock ring cylinders have an overflow port to limit stroke. The rod on these cylinders has a coloured area which appears 10mm before the maximum stroke has been reached. This version does not conform to ANSI B30.1.

These cylinders are particularly suited to applications where the load has to be left in a raised position for long periods. The load can be supported by the safety lock nut, this allows the pressure to be released and the pumps and hoses can be disconnected until it is necessary to lower the load.

All cylinders are supplied with integrated tilt saddle and eyelets for ease of transport.

OPERATIONAL AREAS

CGR cylinders are ideal for use in the construction and maintenance of bridges, viaducts, building sites and industrial maintenance where working space is limited.

The protective nitriding treatment on these cylinders gives excellent resistance to corrosion making them suitable for use in aggressive environments.



STANDARD

Integrated tilt saddle, reducing the effects of possible off-centred loads.



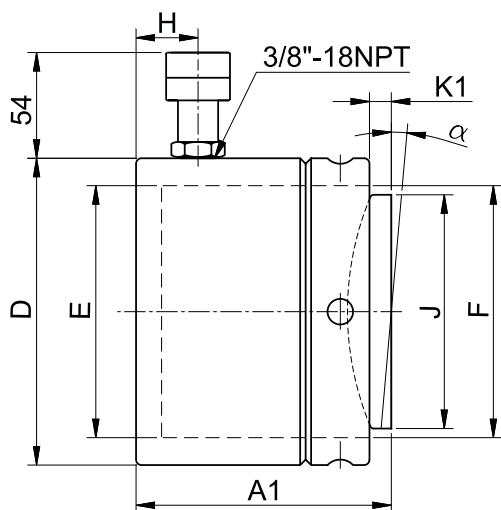
CGR cylinders have been designed for use in applications where space is limited and to stand the full load even without a pressure distribution plate below. It is anyhow recommended that pressure plates are placed both under the base and on top of the saddle to distribute the load if the support resistance is not compatible with the pressure shown in the chart.

Non compliance with this notice could result in damage to the cylinder and/or the load being lifted.



During the lifting operation the operator must always be in a position to observe when the coloured end of stroke section of the rod appears.

LOW PROFILE CYLINDERS WITH SAFETY RING NUT, LOAD RETURN



- Force 110 - 900 t
- Stroke 50 mm
- Max working pressure 700 bar

SELECTION CHART

Pushing force t* kN	Stroke mm	Oil volume cm ³	Cylinder bottom pressure MPa	Saddle pressure MPa	MODEL	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	Rod Dia.	Coupler height	Tilt saddle Dia.	Rod projection with integrated tilt saddle	Tilt saddle angle	Weight
						A1 mm	D mm	E mm	F mm	H mm	J mm	K1 mm	α	kg
110 1078	50	770	46	113	CGR110N50	137	178	140	Tr 140x10	19	118	8	5°	26
160 1589		1135	45	102	CGR160N50	148	218	170	Tr 170x10	19	148	9	5°	42
200 1985		1418	45	87	CGR200N50	154	242	190	Tr 190x10	20	176	10	5°	54
250 2424		1732	45	84	CGR250N50	159	268	210	Tr 210x10	22	196	11	5°	68
400 4008		2863	44	89	CGR400N50	178	347	270	Tr 270x10	27	248	11	4°	128
500 4948		3534	44	81	CGR500N50	192	385	300	Tr 300x10	30	285	10	3°	171
700 6735		4811	44	85	CGR700N50	200	445	350	Tr 350x10	30	325	10	3°	238
900 8796		6283	47	83	CGR900N50	216	495	400	Tr 400x10	30	375	12	3°	315

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS, LOAD RETURN

FEATURES

CGS cylinders also have concentric grooves machined into the end of the rod to improve load grip, models above 30 tonne have lifting eyelets for ease of transport.

From 50 tonnes upwards, the cylinders are plunging type and have device which prevents any over-stroke. The rod has a coloured zone which becomes visible 10 mm before the end of the piston stroke.

All models can operate with off-centred load up to **8%** of their nominal capacity.



OPTIONS

- **T - Version**, cylinder with integrated tilt saddle.
- **F - Version**, cylinder with base mounting holes for fixing purposes.
- **N - Version**, (optional starting from 50 t) cylinders with end of stroke ring nut. This version is in compliance with **ANSI B30.1**.



OPERATIONAL AREAS

Extremely solid robust cylinders suitable for use in the civil and marine engineering industry for lifting and lowering heavy loads.

The anti corrosive finish makes them particularly suitable for use in harsh environments such as salt water, chemical industry etc.



ACCESSORIES p. 21

- **Separate ZTT tilt saddle** to help combat possible side loading.

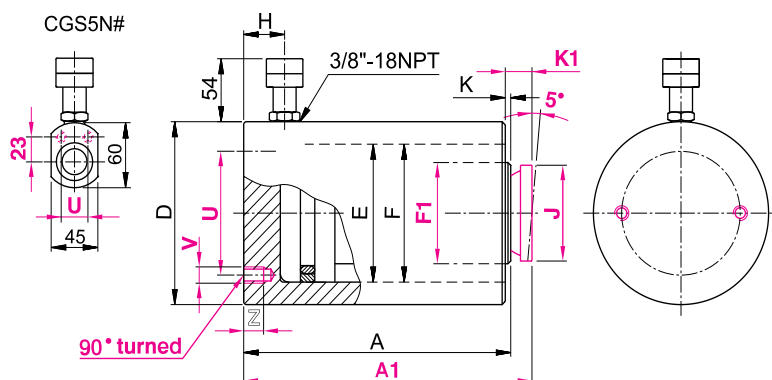
Follow our safety instructions
see useful pages

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Where **P version** cylinders are being used the operator must always be in a position to observe when the coloured end of stroke section of the rod appears.

HIGH TONNAGE CYLINDERS, LOAD RETURN



- Force **5 - 500 t**
- Stroke **15 - 300 mm**
- Max working pressure **700 bar**

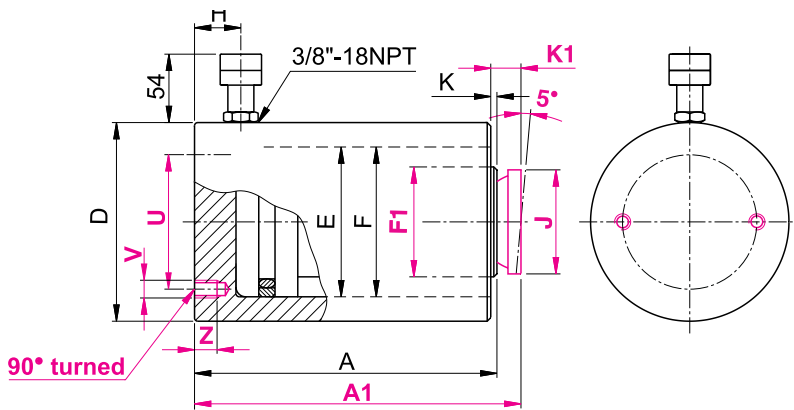
Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	P rod version Dia.	N rod version Dia.	Coupler height	Integrated tilt saddle Dia.	Rod projection	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight
				A	A1											
5 49,5	15	11	CGS5N15	45												1,0
	50	35	CGS5N50	80	-	60/45	30	-	24	19	-	1	-	30	2xM5 10	1,6
	80	56	CGS5N80	120												2,4
10 111	25	40	CGS10N25	72	75											2,8
	50	80	CGS10N50	97	100	75	45	-	35	19	34	1	4	25	2xM8 8	3,6
20 198	25	71	CGS20N25	75	80											3,7
	50	141	CGS20N50	100	105	88	60	-	45	19	43	1	6	60	2xM10 10	4,7
	100	283	CGS20N100	150	155											6,6
30 309	25	110	CGS30N25	86	90											5,5
	50	221	CGS30N50	111	115	102	75	-	55	19	53	1	5	65	2xM10 13	6,7
	100	442	CGS30N100	161	165											9,1
50 496	50	354	CGS50P50	122	127											11,6
	100	709	CGS50P100	172	177	127	95	95	80	22	68	1	6	95	2xM12 15	15,8
	150	1063	CGS50P150	222	227											20,0
100 929	50	664	CGS100P50	141	148											24,8
	100	1327	CGS100P100	191	198	175	130	130	100	22	88	2	9	130	2xM12 17	32,0
	150	1991	CGS100P150	241	248											39,3
150 1407	25	503	CGS150P25	137	146											36,5
	50	1005	CGS150P50	162	171											41,8
	100	2011	CGS150P100	212	221											52,4
	150	3016	CGS150P150	262	271	213	160	160	120	30	118	3	12	130	4xM12 17	62,9
	200	4021	CGS150P200	312	321											73,4
	250	5026	CGS150P250	362	371											83,9

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS, LOAD RETURN



- Force 5 - 500 t
- Stroke 15 - 300 mm
- Max working pressure 700 bar

Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	P rod version Dia.	N rod version Dia.	Coupler height	Integrated tilt saddle Dia.	Rod projection	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight
				A	A1	D	E	F	F1	H	J	K	K1	U	V/Z	kg
200 1984	25	709	CGS200P25	151	160											57
	50	1418	CGS200P50	176	185											65
	100	2835	CGS200P100	226	235											81
	150	4253	CGS200P150	276	285	252	190	190	150	32	148	3	12	140	4xM16 20	95
	200	5670	CGS200P200	326	335											111
	250	7088	CGS200P250	376	385											126
	300	8506	CGS200P300	426	435											141
250 2424	25	866	CGS250P25	167	176											79
	50	1732	CGS250P50	192	201											88
	100	3464	CGS250P100	242	251											108
	150	5195	CGS250P150	292	301	280	210	210	170	34	158	3	12	150	4xM16 20	127
	200	6927	CGS250P200	342	351											146
	250	8659	CGS250P250	392	401											166
	300	10391	CGS250P300	442	451											186
300 2908	25	1039	CGS300P25	173	182											96
	50	2077	CGS300P50	198	207											108
	100	4155	CGS300P100	248	257											132
	150	6232	CGS300P150	298	307	305	230	230	190	38	158	3	12	170	4xM16 20	155
	200	8310	CGS300P200	348	357											178
	250	10387	CGS300P250	398	407											202
	300	12464	CGS300P300	448	457											225

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS, LOAD RETURN

SELECTION CHART

Pushing force t* kN	Stroke mm	Oil volume cm ³	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	P rod version Dia.	N rod version Dia.	Coupler height	Integrated tilt saddle Dia.	Rod projection	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight
				A mm	A1 mm	D mm	E mm	F mm	F1 mm	H mm	J mm	K mm	K1 mm	U mm	V / Z mm	kg
350 3436	25	1227	CGS350P25	180	192											119
	50	2454	CGS350P50	205	217											132
	100	4909	CGS350P100	255	267											162
	150	7363	CGS350P150	305	317	332	250	250	210	39	196	3	15	200	4xM16 20	190
	200	9817	CGS350P200	355	367											218
	250	12272	CGS350P250	405	417											247
	300	14726	CGS350P300	455	467											274
400 4008	25	1431	CGS400P25	187	199											142
	50	2863	CGS400P50	212	224											159
	100	5726	CGS400P100	262	274											192
	150	8588	CGS400P150	312	324	356	270	270	230	42	196	3	15	230	4xM16 20	225
	200	11451	CGS400P200	362	374											257
	250	14314	CGS400P250	412	424											290
	300	17177	GS400P300	462	474											323
500 4948	25	1767	GS500P25	195	207											184
	50	3534	CGS500P50	220	232											204
	100	7069	GS500P100	270	282											243
	150	10603	GS500P150	320	332	396	300	300	250	50	196	3	15	250	4xM16 20	284
	200	14137	CGS500P200	370	382											323
	250	17651	GS500P250	420	432											363
	300	21206	CGS500P300	470	482											402

* Nominal value, see kN for the exact force

ACCESSORIES: ZTT TILT SADDLES

MODEL	For use with	a	b	j	z	kg
ZTT10	CGS10N ###	16	1	34	M4	0,1
ZTT20	CGS20N ###	18		43	M5	0,2
ZTT30	CGS30N ###	19		53		0,3
ZTT50	CGS50 ###	25	68	M8	0,9	
ZTT100	CGS100 ###	34	2	88	M10	1,7
ZTT150	CGS150 ###	45	3	118		3,4
ZTT200	CGS200 ###	54	3	148		7,0
ZTT250	CGS250 ###	58		158	9,5	
ZTT300	CGS300 ###			11,3		
ZTT350	CGS350 ###	71	3	196	M12	18,0
ZTT400	CGS400 ###					20,7
ZTT500	CGS500 ###					23,8

** Cylinders with non standard force and stroke can be supplied upon request

MODEL CODING

CGS	5	N	###	#
Series	Pushing force in tonne	N = With end of stroke nut P = With no end of stroke nut (Plunging)	Stroke in mm	F = with base mounting holes T = with integrated tilt saddle**

EXTRA FLAT CYLINDERS, SPRING RETURN

FEATURES

The **CMC** range of cylinders have grooves machined into the rod end to improve load grip, models over 20 tonne also have two threaded holes in the rod end to facilitate the fitting of a tilt saddle.

All models have two through holes to allow for the cylinder to be bolted down onto a work surface; flat sides also allow them to be used horizontally. Models over 5 tonne are fitted with a wiper seal and from 75 tonne onwards they are fitted with a removeable carry handle.

The **CMC5N6** model is supplied with a **K71F** coupler (1/4" NPT connection).

OPERATIONAL AREAS

These extra compact lightweight cylinders are the ideal solution to operate in the narrowest working areas.

They are used to precision level machinery, transformers, bridge sections etc. and in the ship building industry can be used to raise engines into position and remove propellers.

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ACCESSORIES



ZTT tilt saddle, reduces the effects of any possible off-centred load.



STANDARD

Tilt saddle mounting **holes**.



For lifting machinery from very low positions the **UJ** claw lifters can also be used, the claw has three different levels.



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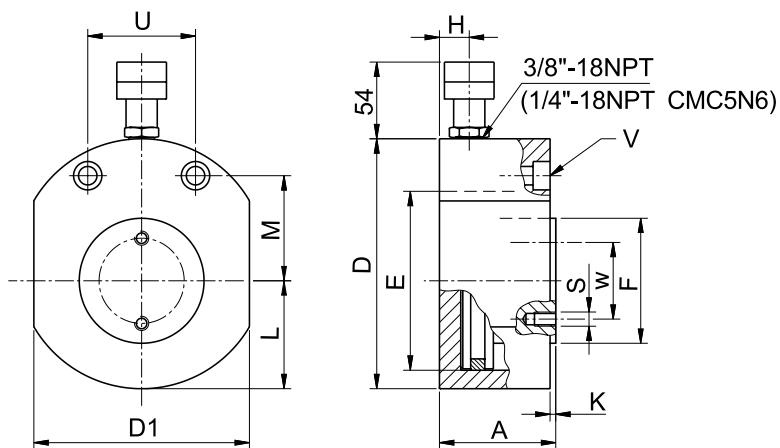


Due to the small oil capacity of these cylinders the small **PS** hand pumps are recommended to operate these cylinders.



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EXTRA FLAT CYLINDERS, SPRING RETURN



- Force 5 - 150 t
- Stroke 6 - 15 mm
- Max working pressure 700 bar

SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	External Dia.	External dimension	Piston Dia.	Rod Dia.	Coupler height	Rod projection	Distance from rod axis to the external Dia.	Distance from the mounting holes to the rod axis	Distance between the mounting holes centres	Through holes for ISO-4762 screws	PCD mounting holes for the tilt saddle	Mounting holes for tilt saddle	Weight
				A	D	D1	E	F	H	K	L	M	U	V	W	S	kg
t* kN	mm	cm ³		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
5 49,5	6	4	CMC5N6 **	33	59	41	30	24	16	1	20,5	22,5	28,5	M5	-	-	0,6
	15	11	CMC5N15	42					19								
10 111	10	16	CMC10N10	43	78	58	45	35	19	1	29	34	37	M6	-	-	1,6
20 198	10	28	CMC20N10	52	100	76	60	45	19	1	39	40	50	M10	-	-	2,8
30 309	10	44	CMC30N10	59	115	95	75	55	19	1	48	44	52	M10	44	2xM5	4,2
50 496	15	106	CMC50N15	68	143	120	95	80	19	1	60	54	67	M12	65	2xM6	6,9
75 727	15	156	CMC75N15	80	166	142	115	100	19	2	71	67	76	M12	65	2xM6	12,0
100 929	15	199	CMC100N15	86	178	160	130	100	20	2	80	75	76	M12	65	2xM6	14,5
150 1407	15	302	CMC150N15	100	217	194	160	120	23	2	97	83	117	M12	80	2xM6	24,5

* Nominal value, see kN for the exact force ** CMC5N6 with K71F (1/4" NPT) quick coupler

ACCESSORIES: ZTT TILT SADDLES

MODEL	For use with	a	b	j	z	w	kg
		ZTT30	CMC30N10	19	1	53	5,5
ZTT50	CMC50N15	25	1	68	6,5	65	0,9
ZTT100	CMC75N15 CMC100N15	34	2	88			1,7
ZTT150	CMC150N15	45	3	118			80

STEEL AND ALUMINIUM HOLLOW PISTON CYLINDERS, SPRING RETURN

FEATURES

All **CMF** cylinders are supplied as standard with a smooth hollow bore saddle which screws into the bore of the rod. The body has a metric collar thread and there are base mounting holes to allow for the fitting of accessories.

The end of stroke nut has a wiper seal to prevent the penetration of dirt.

Cylinders are supplied with anti-corrosive treatment, which is very effective to protect the central bore.

OPERATIONAL AREAS

These cylinders are recommended for tensioning, pulley and bush extracting, hot and cold pulling etc.

They can also be used in both pull and push operations by inserting either a bar or a cable through the hollow saddle. These cylinders are also supplied with the UE pullers.

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ACCESSORIES



■ **ZTE threaded saddle**, for use with threaded bar and extension screws.



STANDARD

■ **Smooth hollow saddle**, prevents any risk of rod deformation.

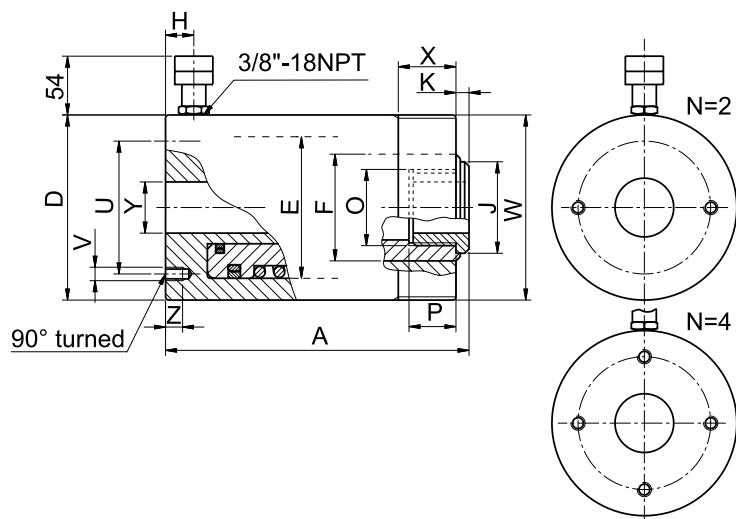
OPTIONS

■ **L Version**, cylinders with aluminium body (CMF###L###).



Our technical department is available to design **special customised solutions**.

STEEL AND ALUMINIUM HOLLOW PISTON CYLINDERS, SPRING RETURN



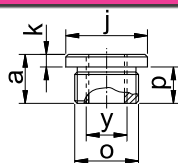
- Force **10 - 100 t**
- Stroke **50 - 160 mm**
- Max working pressure **700 bar**

SELECTION CHART

Pushing force t* kN	Stroke mm	Oil volume cm ³	MODEL	Closed height	Ø External Dia./External Dia. L version	Piston Dia.	Rod Dia.	Coupler height	Hollow saddle Dia.	Rod projection	Rod internal thread	Rod thread depth	PCD mounting holes	Base mounting holes... Holes depth	Collar thread	Collar thread length	Through hole Dia.	Weight	Weight L version
				A	D	E	F	H	J	K	O	P	U	V/Z	W	X	Y	kg	kg
10 123	50	88	CMF10N50	132	74/75	55	40	19	34,5	1	M30x1,5	16	50,8	2xM8 8	M74x2	20	21	3,8	2,5
	80	141	CMF10N80	176														4,8	3,1
20 230	50	164	CMF20N50	150	100/105	75	56	19	47,5	2	M40x1,5	24	82,6	2xM8 10	M100x2	20	28	7,8	5,3
	100	328	CMF20N100	221														10,7	7,4
	160	525	CMF20N160	305														14,1	9,5
30 334	50	239	CMF30N50	160	115/125	90	65	21	57,5	2	M48x1,5	32	92,2	2xM10 12	M115x2	20	34	10,5	8,1
	100	477	CMF30N100	233														14,5	11
	150	716	CMF30N150	303														18,1	13,6
60 590	75	632	CMF60N75	219	165/180	125	90	26	81,5	2	M72x1,5	40	130,2	2xM12 16	M165x4	25	54,5	28,9	21,4
	150	1264	CMF60N150	331														39,9	28,6
100 947	75	1015	CMF100N75	270	215/235	165	125	36	117,5	4	M102x1,5	55	130	4xM12 15	M215x4	35	80,5	59,3	44,6

* Nominal value, see kN for the exact force

ACCESSORIES: ZTE THREADED SADDLES



MODEL	For use with	a	k	j	p	y	o	kg
ZTE10	CMF10 # # # #	20	4	34,5	16	3/4" - 16 UNC	M30x1,5	0,1
ZTE20	CMF20 # # # #	30	6	47,5	24	1" - 8 UNC	M40x1,5	0,25
ZTE30	CMF30 # # # #	39	7	57,5	32	1 1/4" - 7 UNC	M48x1,5	0,32
ZTE60	CMF60 # # # #	47	7	81,5	40	1 5/8" - 5 1/2 UNS	M72x1,5	0,85

MODEL CODING

CMF	10	N	###
Series	Pushing force in tonne	N = In steel L = in aluminium	Stroke in mm

MULTI-PURPOSE CYLINDERS, SPRING RETURN

FEATURES

All cylinders have collar threads on the cylinder body and mounting holes in the base.

They are supplied with an interchangeable grooved pushing saddle and models above 30 tonne are supplied with a carry handle.

A wiper seal is fitted to models above 5 tonne to prevent the penetration of dirt and to extend cylinder life.

OPERATIONAL AREAS

These cylinders can be operated in any position and are extremely versatile and suitable for different applications, including industrial body shops, steel structural works, presses and special applications.

The nitride treatment gives these cylinders an excellent resistance to corrosion and makes them particularly suitable to operate in the open air or in aggressive environments.



ACCESSORIES

ZTT tilt saddle, reduces the effects of any possible off-centred load.



STANDARD

Base mounting holes.

Pushing saddle, prevents any risk of rod deformation.



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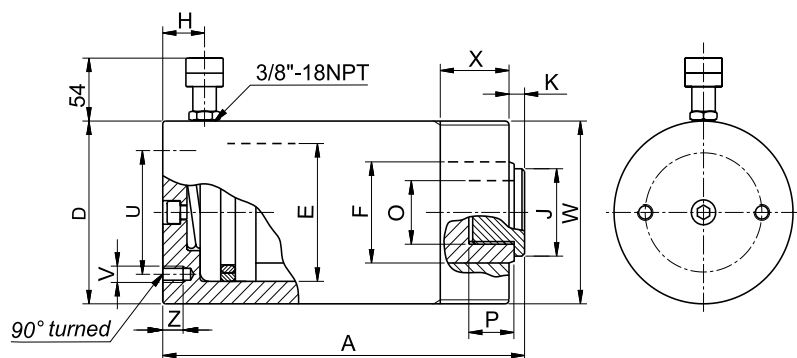


To operate these cylinders the **MD** power units are particularly suitable.

ACCESSORIES: ZTT TILT SADDLES

	MODEL	For use with	a	b	c	j	u	z	w	kg
	ZTT10	CMI10N25	16	1	-	34	-	5,5	24	0,1
	ZTT11	CMI10N ###	9	21	12	34	M24x2	-	-	0,1
	ZTT31	CMI25N ### CMI30N210	16	30	14	53	M32x2	-	-	0,3
	ZTT51	CMI50N ###	18	26	8	68	65	5,5	45	0,8
	ZTT101	CMI100N ###	22	32	10	88	85	6,5	65	1,6

MULTI-PURPOSE CYLINDERS, SPRING RETURN



- Force **5 - 100 t**
- Stroke **25 - 350 t**
- Max working pressure **700 bar**

SELECTION CHART

Pushing force t* kN	Stroke mm	Oil volume cm ³	MODEL	Closed height	External Dia.	Piston Dia.	Rod Dia.	Coupler height	Hollow saddle Dia.	Rod projection	Rod internal thread	Rod thread depth	PCD mounting holes	Base mounting holes_Holes depth	Collar thread_Thread length	Weight
				A mm	D mm	E mm	F mm	H mm	J mm	K mm	O mm	P mm	U mm	V/Z mm	W/X mm	kg
5 49,5	25	18	CMI5N25	92												1,1
	50	35	CMI5N50	117												1,3
	75	53	CMI5N75	142	40	30	25	19	24,5	2	M16x1,5	14	25	M6 10	M40x1,5 28	1,5
	125	88	CMI5N125	202												1,9
	175	124	CMI5N175	252												2,3
	225	159	CMI5N225	302												2,7
10 111	25	40	CMI10N25	83					33 [⊗]	1 [⊗]	-	-				2,0
	50	80	CMI10N50	120												2,6
	100	159	CMI10N100	170												3,5
	150	238	CMI10N150	245	60	45	35	19	34	5	M24x2	15	39	M8 12	M60x1,5 28	4,7
	200	318	CMI10N200	295												5,6
	250	398	CMI10N250	345												6,5
	300	477	CMI10N300	408	65			33							M65x2 28	9,03
	350	557	CMI10N350	458												10
25 232	25	83	CMI25N25	119												4,6
	50	166	CMI25N50	144												5,3
	100	332	CMI25N100	214												7,5
	150	498	CMI25N150	264	85	65	55	19	53	9	M32x2	16	58	M10 14	M85x2 40	8,8
	200	664	CMI25N200	314												10,2
	250	830	CMI25N250	364												11,6
	300	996	CMI25N300	414												13,0
	350	1161	CMI25N350	464												15,0
30 309	210	928	CMI30N210	386	102	75	55	47	53	9	M32x2	16	-	-	3 5/16"-12 49	18,4
50 496	50	354	CMI50N50	164												14,2
	100	709	CMI50N100	214	127	95	80	25	65	4	M16	12	95	M12 18	M125x2 40	17,4
	150	1063	CMI50N150	264												20,8
	325	2304	CMI50N325	439												32,6
100 929	100	1327	CMI100N100	246												39,6
	150	1991	CMI100N150	296	175	130	100	26	85	4	M16	17	140	M12 18	M168x2 51	46,0

* Nominal value, see kN for the exact force ⊗ Mounting holes for ZTT10 tilt saddle

ALUMINIUM CYLINDERS, SPRING RETURN

FEATURES

Five models manufactured in a high resistance aluminium alloy complete with a protective treatment, to increase resistance to corrosion. Wiper seals are fitted to prevent the penetration of dirt.

All models are supplied with interchangeable grooved pushing saddle and have two lateral threaded holes to enable the mounting of a tilt saddle to reduce the effects of any side loading.

They are also fitted with a removable carry handle.

OPERATIONAL AREAS

Because of their extremely low weight and dimensions these cylinders are particularly suitable for use in applications where lightness and ease of handling are paramount.

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ACCESSORIES



■ **Separate ZTT tilt saddle**, reduces the effects of possible off-centred loads.

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Follow our safety instructions.
See useful pages.



STANDARD

■ **Pushing saddle**, prevents any risk of rod deformation.

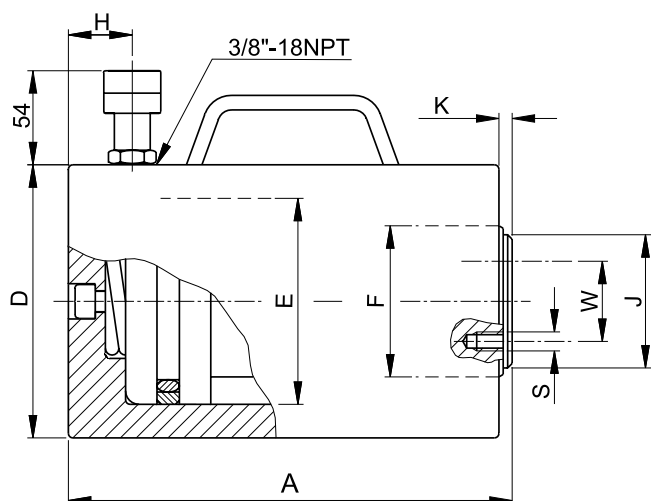


CML cylinders and lightweight PL pumps make an extremely light and easy to use pump and cylinder set.



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ALUMINIUM CYLINDERS, SPRING RETURN



Force	50 - 100 t
Stroke	50 - 150 mm
Max working pressure	700 bar

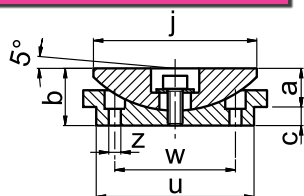
Cylinders with non standard **force** and **stroke** can be supplied upon request.

SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	External Dia.	Piston Dia.	Rod Dia.	Coupler height	Saddle Dia.	Rod projection	PCD mounting holes for the tilt saddle	Mounting holes for tilt saddle	Weight
				A	D	E	F	H	J	K	W	S	kg
t* kN	mm	cm ³		mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
50 496	50	354	CML50N50	158	130	95	80	25	65	4	45	2xM5	7,0
	100	709	CML50N100	208									8,6
	150	1063	CML50N150	258									10,3
100 929	100	1327	CML100N100	246	178	130	100	25	85	4	65	2xM6	18,8
	150	1991	CML100N150	296									21,4

* Nominal value, see kN for the exact force

ACCESSORIES: ZTT TILT SADDLES



MODEL	For use with	a	b	c	j	u	z	w	kg
ZTT51	CML50N ###	18	26	8	68	65	5,5	45	0,8
ZTT101	CML100N ###	22	32	10	88	85	6,5	65	1,6

LOW PROFILE CYLINDERS, SPRING RETURN

FEATURES

Low closed height compared to stroke. **CMP** cylinders have the longest stroke in the spring return pad jack range.

All cylinders have a grooved rod top for improved load grip and there are two threaded holes for mounting a tilt saddle. This is recommended where there is a danger of sideloading. Wiper seals are fitted to prevent the penetration of dirt. Base mounting holes are also available as an optional extra.

OPERATIONAL AREAS

The small dimensions and the complete treatment against corrosion makes these cylinders ideal for all lifting, levelling, support and pressing operations in restricted working areas and/or tough environments.

General maintenance work, industrial assembly and construction are among the most common applications for this type of cylinder.

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ACCESSORIES



- **Separate ZTT tilt saddle**, reduces the effects of possible off-centred loads.



STANDARD



- Tilt saddle mounting **holes**.

OPTIONS



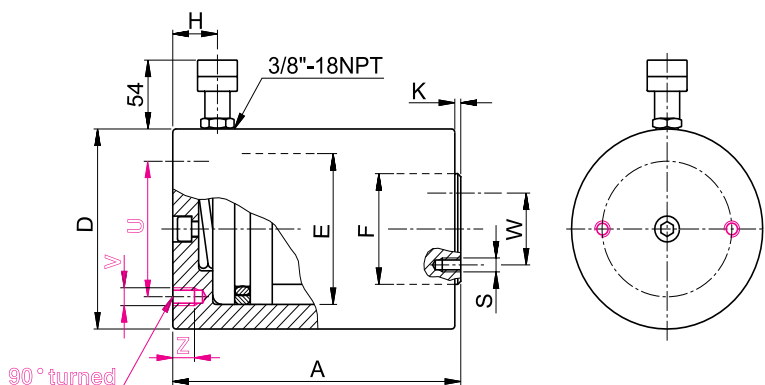
- **F - Version**, cylinder with base mounting **holes** for fixing purposes.



Follow our safety instructions.
See useful pages.

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LOW PROFILE CYLINDERS, SPRING RETURN



Force	10 - 100 t
Stroke	25 - 50 mm
Max working pressure	700 bar

Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force t* kN	Stroke mm	Oil volume cm ³	MODEL	Closed height	External Dia.	Piston Dia.	Rod Dia.	Coupler height	Rod projection	PCD mounting holes	Mounting holes_Depth	PCD mounting holes for the tilt saddle	Mounting holes for tilt saddle	Weight
				A mm	D mm	E mm	F mm	H mm	K mm	U mm	V/Z mm	W mm	S mm	kg
10 111	25	40	CMP10N25	72	75	45	35	19	1	25	2xM8	24	2xM5	2,5
	50	80	CMP10N50	97							3,2			
20 198	25	71	CMP20N25	75	88	60	45	19	1	60	2xM10	34	2xM5	3,4
	50	141	CMP20N50	100							4,2			
30 309	25	110	CMP30N25	86	102	75	55	19	1	65	2xM10	44	2xM5	5,0
	50	221	CMP30N50	111							6,1			
50 496	25	177	CMP50N25	97	127	95	80	22	1	95	2xM12	65	2xM6	7,6
	50	354	CMP50N50	122							9,1			
100 929	25	332	CMP100N25	116	175	130	100	22	2	140	2xM12	65	2xM6	17,6
	50	664	CMP100N50	141							20,5			

* Nominal value, see kN for the exact force

ACCESSORIES: ZTT TILT SADDLES

MODEL	For use with	a	b	j	z	w	kg
ZTT10	CMP10N # #	16	1	34	5,5	24	0,1
ZTT20	CMP20N # #	18		43		34	0,2
ZTT30	CMP30N # #	19		53	44	0,3	
ZTT50	CMP50N # #	25	2	68	6,5	65	0,9
ZTT100	CMP100N # #	34		88			1,7

MODEL CODING

CMP	10	N	# #	#
Series	Pushing force in tonne	N = standard	Stroke in mm	F = with base mounting holes

PULLING CYLINDERS, IN STEEL AND ALUMINIUM SPRING RETURN

FEATURES

Range in steel

Have a thread on the body, on the rod and in the base to mount the proper accessories.
The internal and external nitriding treatment gives them a good resistance to wear and corrosion.

Range in aluminium

Manufactured completely in aluminium (apart from the rod) these cylinders have been given an anodizing treatment to protect them against corrosion.
They have a bellows to protect the rod and from 30 tonne models carrying handles.

OPERATIONAL AREAS

Range in steel

Used in assembling, building and in laboratories to test the resistance of materials.

Range in aluminium

These are used in shipbuilding and in steel structural works to pull together plates, or prefabricated parts which have to be welded together.



ACCESSORIES



ZAS Set of eyelets for series N cylinders.

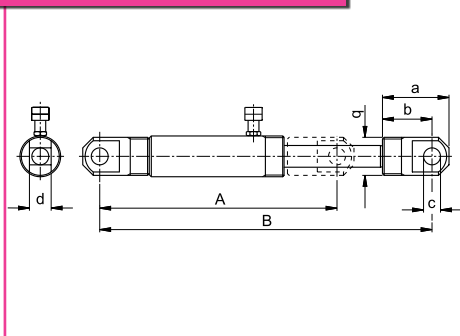


These cylinders can be used with the **PL** lightweight hand pumps with which they make a handy hydraulic set.



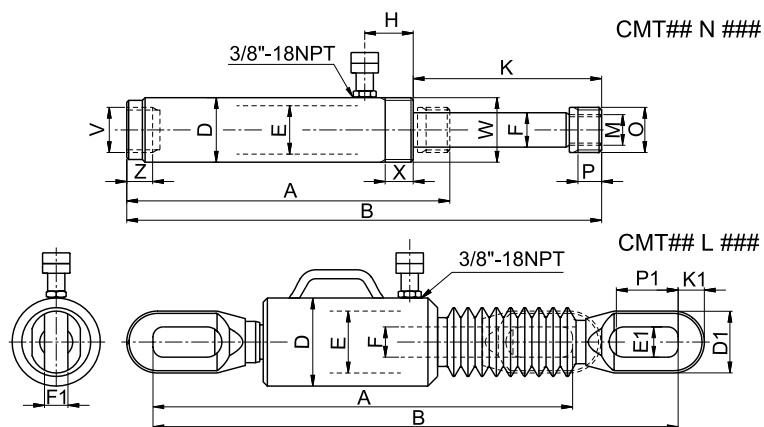
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ACCESSORIES: ZAS EYELETS SET



For use with	MODEL	Closed height		Extended height						
		A	B	a	b	c	d	q		
		mm	mm	mm	mm	mm	mm	mm	mm	
CMT2N127	ZAS2	290	417	62	46	16	16	M35x1,5		
CMT5N140	ZAS5	403	543	98	73	25	32	M56x2		
CMT10N150	ZAS10	394	544							

PULLING CYLINDERS, IN STEEL AND ALUMINIUM SPRING RETURN



- Force **2-60 t**
- Stroke **127 - 150 mm**
- Max working pressure **700 bar**

Cylinders with non standard **force** and **stroke** can be supplied upon request

STEEL CYLINDERS SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Extended height	External Dia.	Piston Dia.	Rod Dia.	Coupler distance	Rod projection	Rod thread	Saddle thread	Saddle thread length	Internal base thread	Internal base thread length	Bodythread_Thread length	Weight
				A	B												
2 22,9	127	41	CMT2N127	244	371	48	30	22	39	155	M18x1,5	3/4" NPT	18	3/4" NP	20	M40x1,5 20	2,9
5 55	140	110	CMT5N140	301	441	60	45	32	45	175	M30x2	1 1/4" NPT	22	1 1/4" NPT	24	M60x1,5 26	4,9
10 110	150	236	CMT10N150	302	452	80	55	32	39	189	M30x2	-	30	M30x2	25	M80x2 20	8,0

ALUMINIUM CYLINDERS SELECTION CHART

Pushing force	Stroke	Oil volume	MODEL	Closed height	Extended height	External Dia.	Piston Dia.	Rod Dia.	Eyelet width	Slit width	Eyelet thickness	Eyelet top thickness	Slit length	Weight
				A	B									
10 110	150	236	CMT10L150	526	676	75	55	32	55	32	20	20	100	4,4
30 334		716	CMT30L150	612	762	128	90	45	90	44	34	38	100	13,2
60 559		1199	CMT60L150	734	884	168	120	65	107	61	40	50	140	33,5

* Nominal value, see kN for the exact force

MODEL CODING

CMT	10	N	###
Series	Pulling force in tonne	N = In steel L = In aluminium	Stroke in mm

INDUSTRIAL CYLINDERS, DOUBLE ACTING

FEATURES

All **COD** cylinders have a thread on the body, in the rod and in the base which makes them very versatile.

A complete range of accessories are available for use with various applications.

The guide and end of stroke nut has a wiper to prevent the ingress of dirt and to improve the working life of the cylinder.

OPERATIONAL AREAS

These cylinders are used in industrial applications where a large number of cycles are required.

Used in blocking operations, in laboratories for tests needing push and pull forces.

The nitride anti-corrosive treatment makes them suitable for use in harsh environments and in the open air.

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ACCESSORIES



ZAE Clevis eyes To be mounted on the rod or in the base.

ZAF Flange To be mounted on the machined ends of the body.

ZAP Plate To be mounted on the machined ends of the body as alternative to the flange.

ZAA Nut To block either flange or plate.

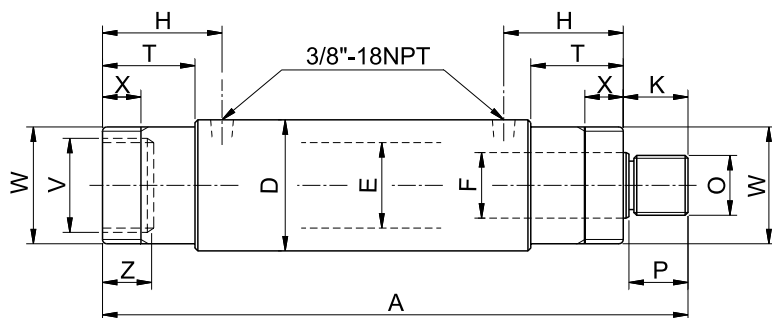


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Due to their unusual mounting, these cylinders are supplied without the female **K73F** half-couplers which can be ordered separately if required.

INDUSTRIAL CYLINDERS, DOUBLE ACTING



- Force 5 - 25 t
- Stroke 30 - 260 mm
- Max working pressure 700 bar

SELECTION CHART

Pushing force t* kN	Pulling force t* kN	Stroke mm	Pushing oil volume cm ³	Pulling oil volume cm ³	MODEL	Closed height	External Dia.	Piston Dia.	Rod Dia.	Couplers height	Rod prjection	Rod thread	Rod thread length	Collar length	Internal base thread	Internal base thread depth	Collar thread	Collar thread length	Weight
						A	D	E	F	H	K	O	P	T	V	Z	W	X	kg
5 49,5	3 27,5	30	21	12	COD5N30	185													2,1
		80	57	31	COD5N80	235	50	30	20	45	22	M18x1,5	19	26	M35x1,5	13	M42x1,5	9	2,8
		160	113	63	COD5N160	315													3,8
10 97	6 62	30	42	27	COD10N30	204													3,6
		80	111	72	COD10N80	254	63	42	25	54	23	M22x1,5	20	35	M42x1,5	15	M56x2	15	4,5
		160	222	143	COD10N160	334													5,8
		260	360	233	COD10N260	434													7,3
15 137	8 81	160	314	185	COD15N160	376	80	50	32	71	31	M30x2	28	52	M56x2	27	M70x2	16	10,8
		260	511	301	COD15N260	476													13,9
25 232	12 121	160	531	276	COD25N160	412	92	65	45	84	41	M42x1,5	38	65	M70x2	30	M85x2	20	15,5
		260	863	449	COD25N260	512													19,4

* Nominal value, see kN for the exact force

ACCESSORIES FOR COD CYLINDERS: ZAE - ZAF - ZAP - ZAA

MODEL	a	b	c	d	e	f	h	m	q	kg
ZAE5	62	46	16	16	-	-	-	M18x1,5	M35x1,5	0,3
ZAE10	77	58	20	25	-	-	-	M22x1,5	M42x1,5	0,6
ZAE15	98	73	25	32	-	-	-	M30x2	M56x2	1,2
ZAE25	112	80	32	38	-	-	-	M42x1,5	M70x2	2,0
ZAF5	42	98	78,6	11	17	-	-	-	-	0,8
ZAF10	56	118	99	11	23	-	-	-	-	1,5
ZAF15	70	145	116	17	35	-	-	-	-	3,4
ZAF25	85	168	136	17	45	-	-	-	-	6,0
ZAP5	42	80	58	10,5	17	60	32	-	-	0,4
ZAP10	56	110	82,6	13	23	82	45	-	-	1,1
ZAP15	70	135	100	21	35	100	52	-	-	2,6
ZAP25	85	160	118	26	45	125	63,5	-	-	5,1
ZAA5	58	9	-	-	-	-	-	-	M42x1,5	0,1
ZAA10	78	12	-	-	-	-	-	-	M56x2	0,3
ZAA15	95	16	-	-	-	-	-	-	M70x2	0,6
ZAA25	108	20	-	-	-	-	-	-	M85x2	0,8

CYLINDERS WITH HOLLOW PISTON, OIL RETURN

FEATURES

All **COF** cylinders are supplied with a smooth hollow saddle and have a centre hole, thread on the body, in the rod and in the base to mount them easily and enable them to be used with accessories.

A safety valve connected to the retract chamber prevents any overpressure.

The end of stroke nut has a wiper to prevent the ingress of dirt.

The anti-corrosive nitride treatment makes these cylinders suitable for use in harsh environments and in the open air

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ACCESSORIES



■ **ZTE threaded saddle**, enables the mounting of threaded bars.



STANDARD

■ **Smooth hollow saddle**, avoids any risk of rod deformation.



OPERATIONAL AREAS

The through hole makes them particularly suitable for tensioning, mounting and extracting of pulleys, bushings and heat exchanger pipes.

They can be used in push and pull operations by putting a bar or a cable attached to the saddle.



Cylinders in **aluminium** or with non standard **strokes** or centre **holes** can be supplied on request.



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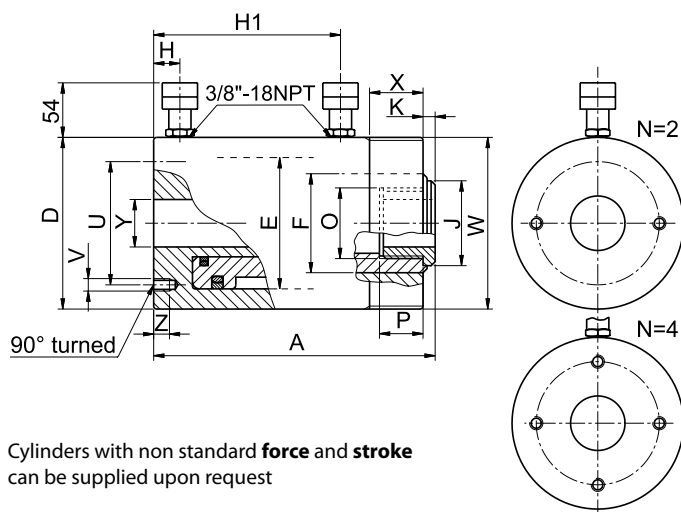


The **PL262**, **PL264** e **PL268** hand pumps which have a 4 way valve can be used to operate oil return cylinders.

Follow our safety instructions.
See useful pages.

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CYLINDERS WITH HOLLOW PISTON, OIL RETURN



Cylinders with non standard **force** and **stroke** can be supplied upon request

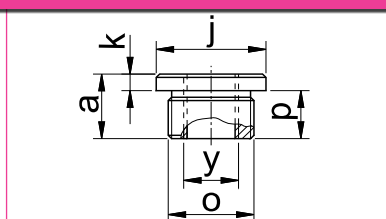
- Force **30 - 200 t**
- Stroke **75 - 250 mm**
- Max working pressure **700 bar**

SELECTION CHART

Pushing force	Pulling force	Stroke	Pushing oil volume	Pulling oil volume	MODEL	Closed height	External Dia.	Piston Dia.	Rod Dia.	Couplers height		Hollow saddle Dia.	Rod projection	Rod internal thread	Rod thread depth	PCD mounting holes	Base mounting holes_ Holes depth	Collar thread	Collar thread lenght	Trough hole Dia.	Weight													
						A	D	E	F	H	H1	J	K	O	P	U	V/Z	W	X	Y	kg													
t* kN	t* kN	mm	cm ³	cm ³		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg													
30 334	18 176	100	477	251	COF30N100	196					152										13													
		150	716	377	COF30N150	246	115	90	70	21	202	57,5	2	M48x1,5	32	65	2xM10 12	M115x2	20	34	16													
		250	1193	628	COF30N250	346					302											21												
60 590	31 309	75	632	331	COF60N75	186					134										26													
		100	842	442	COF60N100	211	165	125	100	26	159	81,5	2	M72x1,5	40	90	4xM10 16	M165x4	25	54,5		28												
		150	1264	663	COF60N150	261					209																							34
		250	2106	1104	COF60N250	361					309																							
100 947	58 568	75	1015	608	COF100N75	214					155										47													
		150	2029	1216	COF100N150	289	215	165	130	36	230	117,5	4	M102x1,5	55	130	4xM12 15	M215x4	35	80,5	61													
		250	3382	2027	COF100N250	389					330											79												
150 1435	76 748	200	4100	2136	COF150N200	349	247	190	150	36	284	127,5	4	M112x2	60	-	-	-	-	80,5	100													
200 1979	94 924	200	5655	2639	COF200N200	380	305	230	190	37	305	167,5	5	M135x2	70	-	-	-	-	103	160													

* Nominal value, see kN for the exact force

ACCESSORIES: ZTE THREADED SADDLES



MODEL	For use with	a	k	j	p	y	o	kg
ZTE30	COF30N ###	39	7	57,5	32	1 1/4" - 7 UNC	M48x1,5	0,32
ZTE60	COF60N ###	47	7	81,5	40	1 5/8" - 5 1/2 UNS	M72x1,5	0,85

MULTIPURPOSE CYLINDERS, OIL RETURN

FEATURES

These cylinders have: collar thread, internal rod thread and base mounting holes.

They are supplied with interchangeable grooved saddle and models over 30 tonne have eyelets for transport.

A safety valve connected to the retract chamber avoids any overpressure.

The guide nut has a wiper ring to prevent the ingress of dirt and to extend the working life of the cylinder.

OPERATIONAL AREAS

Highly versatile and heavy duty cylinders designed to be used in industrial applications with a high number of working cycles.

They are also used in pushing of underpass construction, in piling operations and because of their collar thread they can be used in presses.

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ACCESSORIES



■ **Separate ZTT tilt saddle**, reduces the effects of possible off-centred loads.

STANDARD



■ **Base mounting holes**.

■ **Pushing saddle**, prevents any risk of rod deformation.

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Follow our safety instructions.
See useful pages.



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In case of occasional operation the cylinders of the COS range could be a more economical solution.

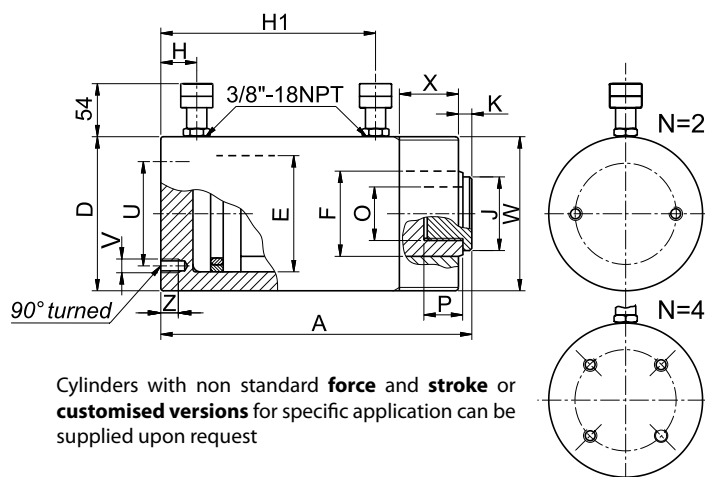


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The modular power packs with **4 way valves** are particularly suitable to operate these cylinders.

MULTIPURPOSE CYLINDERS, OIL RETURN



Cylinders with non standard **force** and **stroke** or **customised versions** for specific application can be supplied upon request



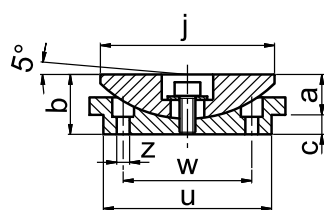
- Force **10 - 500 t**
- Stroke **150 - 325 mm**
- Max working pressure **700 bar**

SELECTION CHART

Pushing force t* kN	Pulling force t* kN	Stroke mm	Pushing oil volume cm ³	Pulling oil volume cm ³	MODEL	Closed height A mm	External Dia. D mm	Piston Dia. E mm	Rod Dia. F mm	Coupler height		Saddle Dia. J mm	Rod projection K mm	Rod internal thread O mm	Rod thread depth P mm	PCD mounting holes U mm	Mounting holes_Depth V/Z mm	Collar thread_Tread length W/X mm	Weight kg
										H mm	H1 mm								
10 111	5 55	150	239	118	COI10N150	258	60	45	32	19	213	34	6	M24x2	15	39	2xM8 12	M60x1,5 20	5,2
		250	398	197	COI10N250	358				313	6,8								
30 309	10 111	150	663	239	COI30N150	279	100	75	60	23	221	53	9	M32x2	16	50	2xM10 15	M100x2 30	15,5
		250	1104	398	COI30N250	379				331	20,5								
50 496	15 144	150	1063	309	COI50N150	288	127	95	80	25	234	65	4	M16	17	75	2xM12 18	M125x2 31	26,5
		325	2304	670	COI50N325	463				409	41,0								
100 929	38 379	150	1991	813	COI100N150	323	175	130	100	33	250	85	4	M16	17	100	4xM12 23	M168x2 50	55
		300	3982	1626	COI100N300	473				400	77								
150 1407	62 616	150	3016	1319	COI150N150	336	215	160	120	40	255	105	6	M16	17	130	4xM16 23	M215x4 56	85
		300	6032	2639	COI150N300	486				405	118								
200 1984	76 748	150	4253	1602	COI200N150	355	255	190	150	48	268	135	7	M16	17	140	4xM16 23	M255x4 60	129
		300	8506	3204	COI200N300	505				418	177								
300 2908	94 923	150	6232	1979	COI300N150	391	305	230	190	60	290	175	7	M16	17	200	4xM16 30	M305x4 74	208
		300	12464	3958	COI300N300	541				440	278								
400 4008	112 1099	150	8588	2356	COI400N150	421	355	270	230	70	310	215	7	M16	17	250	4xM20 33	M355x4 84	307
		250	14314	3927	COI400N250	521				410	373								
500 4948	154 1512	150	10603	3240	COI500N150	462	395	300	250	80	330	235	12	M16	17	280	4xM20 40	M395x4 100	416
		250	17671	5400	COI500N250	562				430	495								

* Nominal value; see kN for the exact force

ACCESSORIES: ZTT TILT SADDLES



MODEL	For use with	a	b	c	j	u	z	w	kg
ZTT11	COI10N ###	9	21	12	34	M24x2	-	-	0,1
ZTT31	COI30N ###	16	30	14	53	M32x2	-	-	0,3
ZTT51	COI50N ###	18	26	8	68	65	5,5	45	0,8
ZTT101	COI100N ###	22	32	10	88	85	6,5	65	1,6
ZTT151	COI150N ###	32	42		118	105		80	3,2
ZTT201	COI200N ###	39	51	12	148	135	8,5	110	6,5
ZTT301	COI300N ###	43	55		158	175		150	11,0
ZTT401	COI400N ###	56	68		196	215		190	20,2
ZTT501	COI500N ###	56	68		235			210	23,2

HIGH TONNAGE CYLINDERS, OIL RETURN

FEATURES

Solidly designed, the rod end has concentric grooves to improve load grip. Models above 30 tonne have lifting eyes, all models have anti-corrosive nitride treatment making them suitable for use in harsh environments.

A safety valve connected to the return chamber prevents any overpressure.

The end of stroke nut has a wiper to prevent the ingress of dirt.

They can operate with off-centred loads up to **8%** of their nominal capacity.



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ACCESSORIES

- **Separate ZTT tilt saddle**, to help combat possible side loading.



OPTIONS

- **T - Version**, cylinder with **integrated tilt saddle**.

F - Version, cylinder with base mounting **holes** for fixing purposes.



OPERATIONAL AREAS

Extremely solid hydraulic cylinders highly recommended for lifting, holding and lowering operations.

Ideally suited for use in civil and marine engineering applications and also in the construction industry.



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Where repetitive working cycles are needed or for use in presses, we recommend cylinders from the **COI** range.

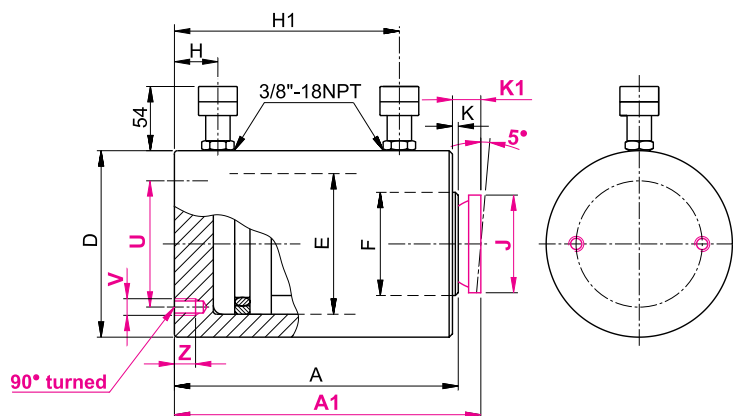


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To ensure positive load holding we recommend installing the **VRP38** pilot check valve between the pump and cylinder.

HIGH TONNAGE CYLINDERS, OIL RETURN



- Force 50 - 500 t
- Stroke 25 - 300 mm
- Max working pressure 700 bar

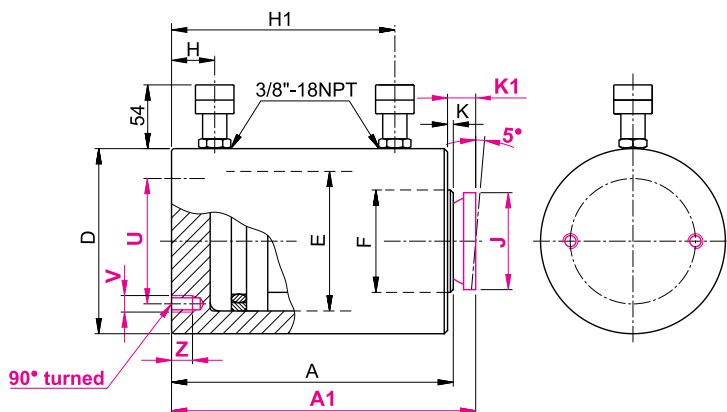
Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force	Pulling force	Stroke	Pushing oil volume	Pulling oil volume	MODEL	Closed height	Closed height with integrated tilt saddle	External Dia.	Piston Dia.	Rod Dia.	Coupler height		Integrated tilt saddle Dia.	Rod projection with integrated tilt saddle	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight
											H	H1						
t* kN	t* kN	mm	cm ³	cm ³		A mm	A1 mm	D mm	E mm	F mm	mm		J mm	K mm	K1 mm	U mm	V/Z mm	kg
50 496	15 144	50	354	103	COS50N50	149	154					104						14
		100	709	206	COS50N100	199	204	127	95	80	20	154	68	1	6	95	2xM12 15	18
		150	1063	309	COS50N150	249	254					204						22
100 929	38 379	50	664	271	COS100N50	171	178					124						30
		100	1327	542	COS100N100	221	228	175	130	100	28	174	88	2	9	130	2xM12 17	38
		150	1991	813	COS100N150	271	278					224						45
		200	2655	1084	COS100N200	321	328					274						52
150 1407	62 616	25	503	220	COS150N25	167	176					106						45
		50	1005	440	COS150N50	192	201					131						50
		100	2011	880	COS150N100	242	251	213	160	120	30	181	118	3	12	130	4xM12 17	61
		150	3016	1319	COS150N150	292	301					231						71
		200	4021	1759	COS150N200	342	351					281						82
		250	5027	2199	COS150N250	392	401					331						93

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS, OIL RETURN



- Force 50 - 500 t
- Stroke 25 - 300 mm
- Max working pressure 700 bar

Cylinders with non standard **force** and **stroke** can be supplied upon request

SELECTION CHART

Pushing force	Pulling force	Stroke	Pushing oil volume	Pulling oil volume	MODEL	Closed height		External Dia.	Piston Dia.	Rod Dia.	Coupler height		Integrated tilt saddle Dia.	Rod projection with integrated tilt saddle	Rod projection with integrated tilt saddle	PCD mounting holes	Mounting holes_Depth	Weight	
						A	A1				H	H1							J
t* kN	t* kN	mm	cm ³	cm ³		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
200 1984	76 748	25	709	267	COS200N25	181	190					117						69	
		50	1418	534	COS200N50	206	215					142						76	
		100	2835	1068	COS200N100	256	265					192						92	
		150	4253	1602	COS200N150	306	315	252	190	150	32	242	148	3	12	140	4xM16 20	107	
		200	5671	2136	COS200N200	356	365					292							123
		250	7088	2670	COS200N250	406	415					342							138
		300	8506	3204	COS200N300	456	465					392							153
250 2424	85 835	25	866	298	COS250N25	197	206					128						92	
		50	1732	597	COS250N50	222	231					153						102	
		100	3464	1194	COS250N100	272	281					203						122	
		150	5195	1791	COS250N150	322	331	280	210	170	34	253	158	3	12	150	4xM16 20	141	
		200	6927	2388	COS250N200	372	381					303							161
		250	8659	2985	COS250N250	422	431					353							180
		300	10391	3581	COS250N300	472	481					403							200
300 2908	94 923	25	1039	330	COS300N25	203	212					130						113	
		50	2077	660	COS300N50	228	237					155						125	
		100	4155	1319	COS300N100	278	287					205						148	
		150	6232	1979	COS300N150	328	337	305	230	190	38	255	158	3	12	170	4xM16 20	172	
		200	8310	2639	COS300N200	378	387					305							195
		250	10387	3299	COS300N250	428	437					355							219
		300	12464	3958	COS300N300	478	487					405							242

* Nominal value, see kN for the exact force

HIGH TONNAGE CYLINDERS, OIL RETURN

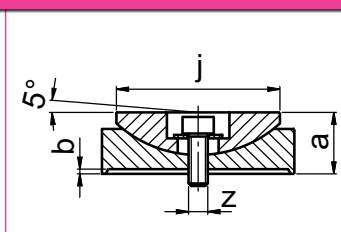
SELECTION CHART

Pushing force t* kN	Pulling force t* kN	Stroke mm	Pushing oil volume cm ³	Pulling oil volume cm ³	MODEL	Closed height A mm	Closed height with integrated tilt saddle A1 mm	External Dia. D mm	Piston Dia. E mm	Rod Dia. F mm	Coupler height H mm	Integrated tilt saddle Dia. H1 mm	Integrated tilt saddle Dia. J mm	Rod projection with integrated tilt saddle K mm	Rod projection with integrated tilt saddle K1 mm	PCD mounting holes U mm	Mounting holes_Depth V/Z mm	Weight kg
350 3436	103 1011	25	1227	361	COS350N25	210	222					132						138
		50	2454	723	COS350N50	235	247					157						153
		100	4909	1445	COS350N100	285	297					207						183
		150	7363	2168	COS350N150	335	347	332	250	210	39	257	196	3	15	200	4xM16 20	213
		200	9817	2890	COS350N200	385	397					307						242
		250	12272	3613	COS350N250	435	447					357						272
400 4008	112 1099	25	1431	393	COS400N25	217	229					135						165
		50	2863	785	COS400N50	242	254					160						182
		100	5726	1571	COS400N100	292	304					210						215
		150	8588	2356	COS400N150	342	354	356	270	230	42	260	196	3	15	230	4xM16 20	248
		200	11451	3142	COS400N200	392	404					310						281
		250	14314	3927	COS400N250	442	454					360						313
500 4948	154 1512	25	1767	540	COS500N25	225	237					140						212
		50	3534	1080	COS500N50	250	262					165						232
		100	7069	2160	COS500N100	300	312					215						271
		150	10603	3240	COS500N150	350	362	396	300	250	50	265	196	3	15	250	4xM16 20	312
		200	14137	4320	COS500N200	400	412					315						352
		250	17671	5400	COS500N250	450	462					365						391
		300	21206	6480	COS500N300	500	512				415						431	

* Nominal value, see kN for the exact force

ACCESSORIES: ZTT TILT SADDLES

MODEL	For use with	a	b	j	z	kg
ZTT50	COS50N ###	25	1	68	M8	0,9
ZTT100	COS100N ###	34	2	88	M10	1,7
ZTT150	COS150N ###	45	3	118		3,4
ZTT200	COS200N ###	54	3	148		7,0
ZTT250	COS250N ###	58		158	9,5	
ZTT300	COS300N ###			11,3		
ZTT350	COS350N ###	71	3	196	M12	18,0
ZTT400	COS400N ###					20,7
ZTT500	COS500N ###					23,8



MODEL CODING

COS	50	N	###	#
Series	Pushing force in tonne	N = standard	Stroke in mm	F = with base mounting holes T = with integrated tilt saddle **

** Cylinders with a force below 100 tonne can be supplied subject to a minimum production batch, to be advised

HOW TO CHOOSE A PUMP

Some essential information is necessary to choose the correct pump. This information is:

- **Reservoir capacity**
- **Cylinder plunger speed**

PUMP SELECTION BASED ON ITS TANK CAPACITY

After having selected the most suitable cylinder and determined the oil volume required for the stroke, it is now necessary to choose the most suitable pump based upon the required oil volume.

This volume can be defined by 1.1 multiplication of the oil

volume required for the selected cylinder(s). In the case of double acting cylinders the retraction oil volume shall be subtracted from the volume of oil required to extend the cylinder. Finally, the quantity of oil needed to fill the flexible hoses, i.e. 32 cm³ per meter length, needs to be taken into account.

The following tables will permit an easy choice.

The coloured zones represent the maximum utilisation limits for each pump type.

SINGLE ACTING CYLINDERS

Stroke mm	Force in tons											
	5	10	20	25	30	50	60	100	150	200	250	
15												
25												
50												
75	PF120											
100												
125												
150												
175												
200												
225		PL130										
250		PL140	PL131	PL141								
275	PS100											
300									PV1810 PVL1810			
325												
350	PF150	PS101	PL132	PL142	PL162	PL164	PL168			PV1820		

DOUBLE ACTING CYLINDERS

Stroke mm	Force in tons											
	5	10 - 15	25	30	50	60	100	150	200	250	300	
25												
50												
75												
100												
125												
150												
175												
200												
225												
250												
275												
300												
325												
350												
			PL262				PL264	PL268	PV2810		PV2820	

HOW TO CHOOSE A PUMP

PUMP SELECTION BASED ON CYLINDER SPEED

HAND PUMPS

The data in the following graphs refer to the piston stroke in mm for each pump handle stroke.

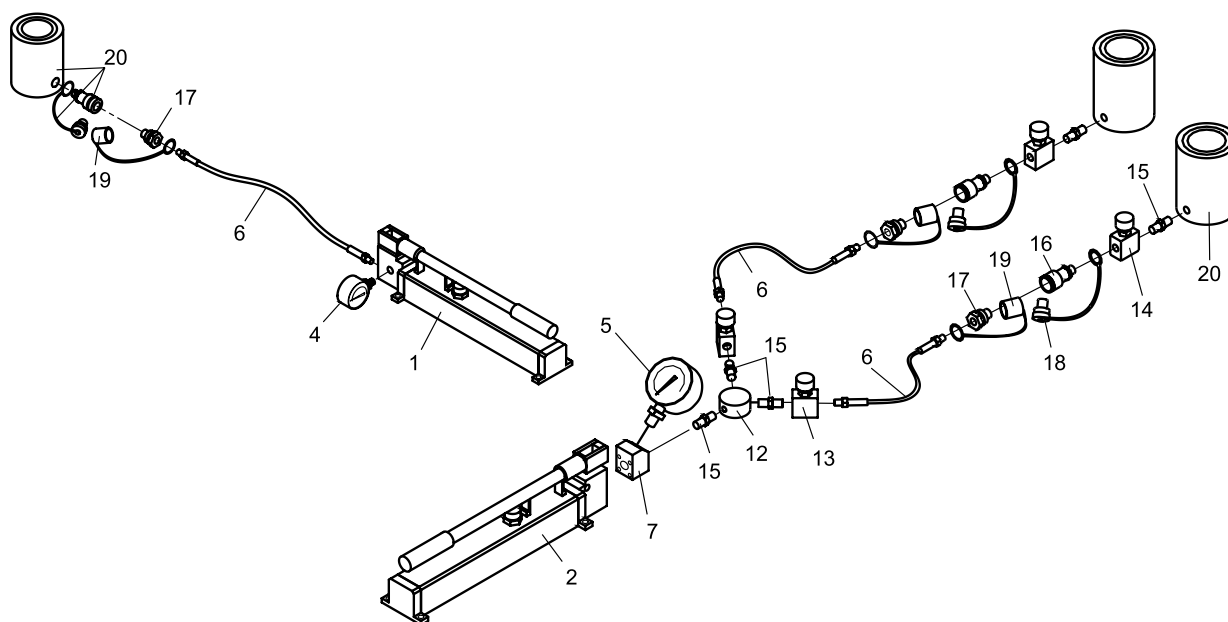
PUMP TYPE	Pressure stage	Force in tons										
		5	10	20	25	30	50	60	100	150	200	250
PS100	Single stage	1,4	0,6	0,4	0,3	0,2	0,1	-	-	-	-	-
PL130	Single stage	2,0	0,9	0,5	0,4	0,3	0,2	-	-	-	-	-
PF120	Single stage	3,1	1,4	0,8	0,7	0,5	0,3	0,3	0,2	-	-	-
PS101	Single stage	3,3	1,4	0,8	0,7	0,5	0,3	0,3	0,2	-	-	-
PL13#	Single stage	4,8	2,1	1,2	1,0	0,8	0,5	0,4	0,3	0,2	-	-
PL140	1°	20,8	9,2	5,2	4,4	3,3	2,1	-	-	-	-	-
	2°	1,6	0,7	0,4	0,3	0,2	0,2	-	-	-	-	-
PF150	1°	14,6	6,5	3,6	3,1	2,3	1,5	1,2	0,8	-	-	-
	2°	3,1	1,4	0,8	0,7	0,5	0,3	0,3	0,2	-	-	-
PL14#	1°	19,4	8,6	4,8	4,1	3,1	1,9	1,6	1,0	-	-	-
	2°	3,0	1,3	0,7	0,6	0,5	0,3	0,2	0,2	-	-	-
PL16#	1°	45,3	20,1	11,3	9,6	7,2	4,5	3,8	2,4	1,6	-	-
	2°	4,2	1,9	1,1	0,9	0,7	0,4	0,4	0,2	0,1	-	-
PV18# PVL18#	1°	176,8	78,6	44,2	37,7	28,3	17,6	14,8	9,4	6,2	4,4	3,6
	2°	6,8	3,0	1,7	1,4	1,1	0,7	0,6	0,4	0,2	0,2	0,1

MOTOR DRIVEN PUMPS

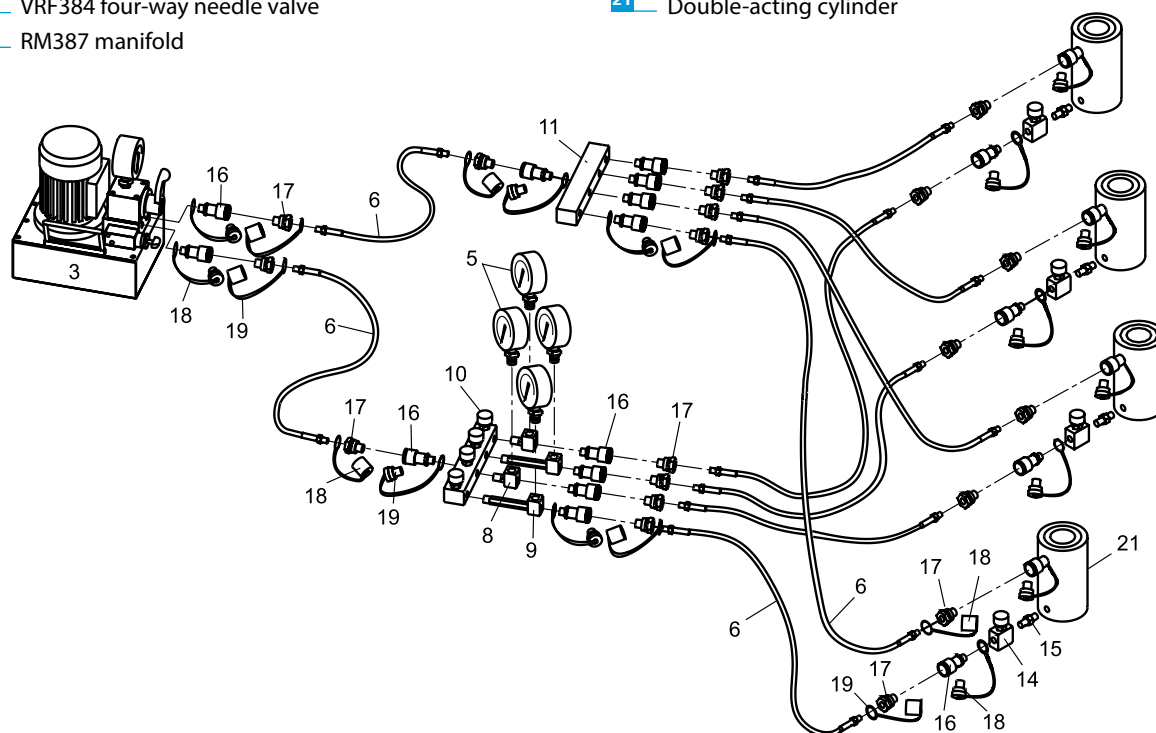
The data in the following chart refer to the piston speed in mm per second.

PUMP TYPE	Pressure stage	Force in tons														
		5	10	20	25	30	50	60	100	150	200	250	300	350	400	500
MC	Single stage	5,0	2,2	1,2	1,1	0,8	0,5	0,4	0,3	0,2	-	-	-	-	-	-
MD	1°	56,6	25,2	14,1	12,1	9,1	5,6	4,7	3,0	2,0	1,4	1,2	1,0	0,8	0,7	0,6
	2°	9,4	4,2	2,4	2,0	1,5	0,9	0,8	0,5	0,3	0,2	0,2	0,2	0,1	0,1	0,1
MD # H	1°	141,5	62,9	35,4	30,1	22,6	14,1	11,9	7,5	5,0	3,5	2,9	2,4	2,0	1,7	1,4
	2°	14,1	6,3	3,5	3,0	2,3	1,4	1,2	0,8	0,5	0,4	0,3	0,2	0,2	0,2	0,1
A	1°	21,2	9,4	5,3	4,5	3,4	2,1	1,8	1,1	0,7	0,5	0,4	0,4	0,3	0,3	0,2
	2°	10,6	4,7	2,7	2,3	1,7	1,1	0,9	0,6	0,4	0,3	0,2	0,2	0,2	0,1	0,1
B	1°	110,8	49,3	27,7	23,6	17,7	11,1	9,3	5,9	3,9	2,8	2,3	1,9	1,6	1,4	1,1
	2°	10,6	4,7	2,7	2,3	1,7	1,1	0,9	0,6	0,4	0,3	0,2	0,2	0,2	0,1	0,1
C	Single stage	21,2	9,4	5,3	4,5	3,4	2,1	1,8	1,1	0,7	0,5	0,4	0,4	0,3	0,3	0,2
D	1°	42,4	18,9	10,6	9,0	6,8	4,2	3,6	2,3	1,5	1,1	0,9	0,7	0,6	0,5	0,4
	2°	21,2	9,4	5,3	4,5	3,4	2,1	1,8	1,1	0,7	0,5	0,4	0,4	0,3	0,3	0,2
H	1°	56,6	25,2	14,1	12,1	9,1	5,6	4,7	3,0	2,0	1,4	1,2	1,0	0,8	0,7	0,6
	2°	21,2	9,4	5,3	4,5	3,4	2,1	1,8	1,1	0,7	0,5	0,4	0,4	0,3	0,3	0,2
E	1°	221,6	98,5	55,4	47,2	35,5	22,1	18,6	11,8	7,8	5,5	4,5	3,8	3,2	2,7	2,2
	2°	21,2	9,4	5,3	4,5	3,4	2,1	1,8	1,1	0,7	0,5	0,4	0,4	0,3	0,3	0,2
F	Single stage	42,4	18,9	10,6	9,0	6,8	4,2	3,6	2,3	1,5	1,1	0,9	0,7	0,6	0,5	0,4
G	1°	110,8	49,3	27,7	23,6	17,7	11,1	9,3	5,9	3,9	2,8	2,3	1,9	1,6	1,4	1,1
	2°	42,4	18,9	10,6	9,0	6,8	4,2	3,6	2,3	1,5	1,1	0,9	0,7	0,6	0,5	0,4
L	Single stage	37,7	16,8	9,4	8,0	6,0	3,8	3,2	2,0	1,3	0,9	0,8	0,6	0,5	0,5	0,4
K	1°	273,5	121,6	68,4	58,3	43,8	27,3	22,9	14,6	9,6	6,8	5,6	4,7	3,9	3,4	2,7
	2°	37,7	16,8	9,4	8	6	3,8	3,2	2	1,3	0,9	0,8	0,6	0,5	0,5	0,4
T	1°	235,7	104,8	59,0	50,2	37,7	23,5	19,8	12,6	8,3	5,9	4,8	4,0	3,4	2,9	2,4
	2°	42,4	18,9	10,6	9,0	6,8	4,2	3,6	2,3	1,5	1,1	0,9	0,7	0,6	0,5	0,4
V	1°	235,7	104,8	59,0	50,2	37,7	23,5	19,8	12,6	8,3	5,9	4,8	4,0	3,4	2,9	2,4
	2°	58,9	26,2	14,7	12,6	9,4	5,9	4,9	3,1	2,1	1,5	1,2	1,0	0,8	0,7	0,6

COMPONENTS OF AN HYDRAULIC SYSTEM



- | | |
|--|------------------------------------|
| 1 Hand pump with side mounted gauge | 12 RK383 radial manifold |
| 2 Hand pump with front mounted gauge | 13 VRF38 needle valve |
| 3 Power pack | 14 VRU38 flow control valve |
| 4 G106L gauge | 15 RN38 nipple |
| 5 G10 gauge | 16 K73F female coupler |
| 6 SN# hose, 3/8" NPT | 17 K73M male coupler |
| 7 ZPF12 gauge adapter (flange connection) | 18 K73C female dust cap |
| 8 RP50 gauge block | 19 K73D male dust cap |
| 9 RP502 gauge block | 20 Single-acting cylinder |
| 10 VRF384 four-way needle valve | 21 Double-acting cylinder |
| 11 RM387 manifold | |





HYDRAULIC PUMPS



Manual and foot pumps

PF p. 48	PP p. 52	PV p. 54
PL p. 49	PS p. 53	PVL p. 55



Air-hydraulic pumps

MLP p. 56



Compact electric pumps

MC p. 60	MDW p. 65
MD p. 62	



Modular hydraulic power packs.....p. 67

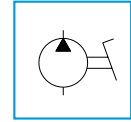
ME/MM-PP p. 69	MP p. 73	VMS-VMP p. 76
ME p. 70	MS p. 74	Accessori p. 77
MM p. 72	VMM-VME p. 75	



Synchronous lifting systems

Synchrolift p. 78
Split Flow p. 80

LIGHTWEIGHT ALLOY FOOT PUMPS 700 BAR



■ Reservoir Capacity	0,24 - 0,5 l
■ Oil delivery per stroke in HP	2,2 cm³
■ Max Pressure	700 bar

FEATURES

This aluminium pump is lightweight simple to use, strong and easy to maintain.
Available in single-stage and double-stage versions to reduce approaching times.

It is equipped with:

- Externally adjustable relief valve
- Steel base plate with antislip pads which may be removed, if the pump is mounted onto a flat surface
- 1/4" NPT gauge port for direct installation of a pressure gauge on the pump head

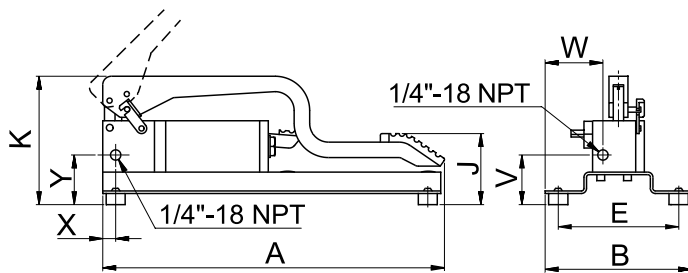
APPLICATIONS

This pump is for use with small tools for folding, drilling and pressing of pipes, and metal sheets.
This pump is recommended when the operator needs to keep his hands free.



OPTION

- **G version** pump with pressure gauge **G106L** directly mounted on pump head (**PF120G**).



STANDARD

- **1/4" NPT** gauge port for direct fitting of the pressure gauge on the pump head.

SELECTION CHART

Pressure 1 st stage	Pressure 2 nd stage	Oil Delivery 1 st stage	Oil Delivery 2 nd stage	Effort on pedal	For use with	Reservoir capacity	Usable oil volume	MODEL	Dimensions mm							Weight kg	
									A	B	J	K	V	X	Y		W
-	700	-	2,2	490	Single acting	0,24	0,19	PF120 PF150	400	200	56-350	155	56	15	56	83	3,5
20	-	10,3	560	0,50		0,40	175					75				4,5	

LIGHTWEIGHT HAND PUMPS 700 - 1000 - 1600 - 2800 BAR

FEATURES

The main quality of PL is their lightness (**their weight is reduced of over 50% when compared to traditional products**) They are made from light alloy metal that is normally used in the aviation field due to its mechanical resistance. Because of this, PL pumps are extremely handy and stand out because of a **very low effort on their handle**.

All 700 bar models have:

- Externally adjustable relief valve.
- Side port for the direct fitting of the gauge (PL26# range excluded).
- Carry handle and fixing holes .

Available with 0,7 - 1,3 – 2,3 - 4,3 e 7,8 lt. tank.

All 1000/1600/2800 bar models have:

- Double stage
- Externally adjustable low and high pressure relief valves
- Second port (also usable as gauge port) only PL16#28.
- Carry handle and fixing holes.

Available with 2,3 - 4,3 e 7,8 lt. tank.

All **PL** pumps can work vertically with the pumping head pointing downward.

APPLICATIONS

• PL13# Series

Single stage pumps with 0,7 – 1,3 – 2,3 lt. reservoirs, for **single acting** cylinders with short strokes and small/medium oil capacities.

• PL14# Series

Double stage pumps with 0,7 – 1,3 – 2,3 lt. reservoirs, pressure relief valve in the first stage, for **single acting** cylinders with medium strokes and medium oil capacities.

• PL16# Series

Double stage pumps with 2,3 – 4,3 – 7,8 lt. reservoirs, unloading valve for ease of pumping in the second stage; for **single acting** cylinders with long strokes and large oil capacities.

• PL26# Series

Double stage pumps with 2,3 – 4,3 – 7,8 lt. reservoirs, unloading valve for ease of pumping in the second stage; with **4 way** valve, for **double acting** cylinders with long strokes and large oil capacities.

• PL16#10 Series

Used in extracting operations, in lab tests and to operate hydraulic bolt tensioners model **UTN** and **UTH**

• PL16#16 Series

Used in all bearings extractions and to operate hydraulic bolt tensioners model **UTV**.

• PL16#28 Series

Particularly useful in pressing on and pulling off drive elements, crimping operations, when pretensioning of studs, in burst and calibration tests.

It has an innovative and special pre-storage device of the internal pressure® which enables them to use fluids with a **viscosity up to 1200 cSt**. This device is an Europresspack patent



STANDARD

1/4" NPT side port for direct connection of the gauge in the pump body of 700 bar pumps (apart from the PL26# series).



OPTION

G Version 700 bar pump with **G106L** gauge, already fitted in the body (apart from the PL26# series).



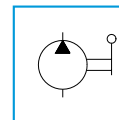
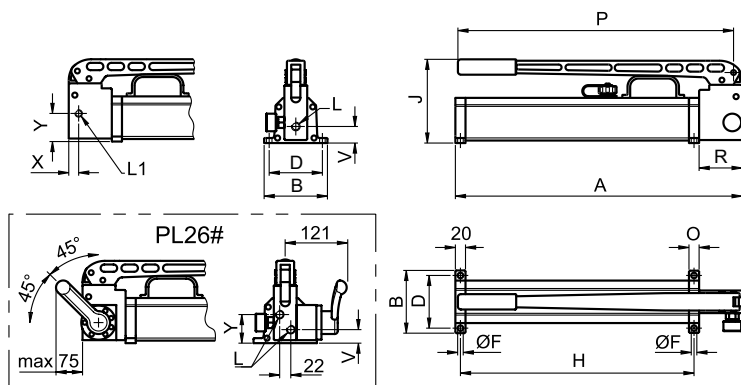
Please refer to the paragraph "How to choose a pump" for a better pump-cylinder matching.

p. 44



On request versions to be used with fluids other than mineral oil can be supplied.

LIGHTWEIGHT HAND PUMPS 700 - 1000 - 1600 - 2800 BAR



- Reservoir capacity **0,7 - 7,8 l**
- Oil delivery **0,9 - 3,4 cm³**
per stroke in HP
- Max working pressure **700 - 1000 - 1600 - 2800 bar**

SELECTION CHART

Pressure 1 st stage bar	Pressure 2 nd stage bar	Oil delivery per stroke 1 st stage cm ³	Oil delivery per stroke 2 nd stage cm ³	Handle effort N	For use with cylinders	Reservoir capacity litres	Usable oil volume litres	MODEL	Dimensions mm											weight kg					
									A	B	D	H	F	J	L	L1	O	P	R		V	X	Y		
-	-	-	-	426	Single acting	0,7	0,5	PL130	342	110	90	275	11	135	3/8"-18 NPT	1/4"-18 NPT	67	330	-	30	14	44	3,4		
						1,3	1,1	PL131	563					147			20	544	80	34	19,5	47	5,0		
						2,3	1,9	PL132	563	125	105	461	167	54	19,5	67	6,4								
						0,7	0,5	PL140	342	110	90	275	11	135	3/8"-18 NPT	1/4"-18 NPT	67	330	-	30	14	44	3,4		
						1,3	1,1	PL141	563					147			20	544	80	34	19,5	47	5,0		
						2,3	1,9	PL142	563	125	105	461	167	54	19,5	67	6,4								
		2,3	1,9	PL162	566	125	105	461	11	167	3/8"-18 NPT	1/4"-18 NPT	20	544	85	33	19,5	56	6,8						
		4,3	3,8	PL164	576	190	176	471	9	177									10,0						
		7,8	7,2	PL168	656	270	256	551	9	177	3/8"-18 NPT	1/4"-18 NPT	20	544	85	33	19,5	56	14,7						
		70	-	14,7	1,1	455	Double acting	2,3	1,9	PL262	566	125	105	461	11	167	3/8"-18 NPT	1/4"-18 NPT	20	544	85	27	-	57	7,6
								4,3	3,8	PL264	576	190	176	471	9	177									10,8
								7,8	7,2	PL268	656	270	256	551	9	177									15,5
70	32	3,0	3,0	363	Not suitable for lifting	2,3	1,9	PL16210	566	125	105	461	11	167	1/4" BSP 120°	1/4"-18 NPT	20	544	85	33	-	-	6,8		
						4,3	3,8	PL16410	576	190	176	471	9	177									10,0		
						7,8	7,2	PL16810	656	270	256	551	9	177									14,7		
20	1000	32	1,6	385	Not suitable for lifting	2,3	1,9	PL16216	566	125	105	461	11	167	1/4" BSP 120°	1/4"-18 NPT	20	544	85	33	-	-	6,8		
						4,3	3,8	PL16416	576	190	176	471	9	177									10,0		
						7,8	7,2	PL16816	656	270	256	551	9	177									14,7		
15	1600	32	1,6	522	Not suitable for lifting	2,3	1,9	PL16228	566	125	105	461	11	167	3/4"-16 UNF	3/4"-16 UNF	20	544	85	47	26,5	47	7,0		
						4,3	3,8	PL16428	576	190	176	471	9	177									10,2		
						7,8	7,2	PL16828	656	270	256	551	9	177									14,9		

MODEL CODING

PL	13	#	-		G
SERIES	Pump type	Reservoir capacity - litres	- Max pressure 700 bar 16 Max pressure 1600 bar	10 Max pressure 1000 bar 28 Max pressure 2800 bar	Gauge (only for 700 bar pumps)

LIGHTWEIGHT HAND PUMPS 700 – 1000 – 1600 – 2800 BAR



ACCESSORIES 700 bar

- ZPS12** Adapter for **G10** gauge with screw connection.
- ZPF12** Adapter for **G10** gauge with flange connection.
- ZPF121** Adapter for **G10** with plate connection.



ACCESSORIES 1000 - 1600 - 2800 bar

- ZPS53** Adapter for gauge with screw connection.
- ZPF14** Adapter for gauge with flange connection.
- ZPF73** Adapter for gauge with flange connection.
- ZPD16** Flanges double needle valve to split the flow in two ways.
- ZPD28** Flanges double needle valve to split the flow in two ways.

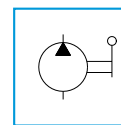
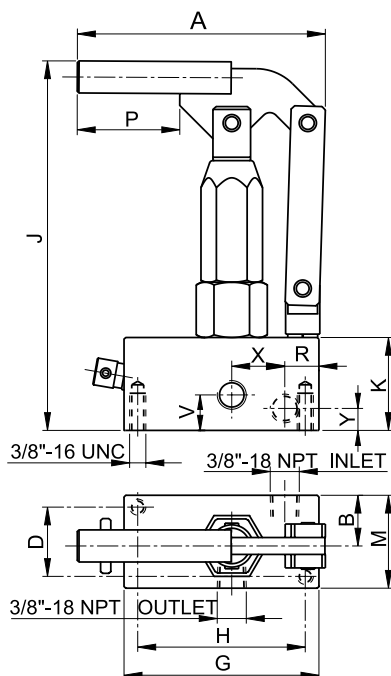
ACCESSORIES: ZPS - ZPF GAUGE ADAPTORS - 700 BAR

	MODEL	For pumps	a	b	c	d	e	kg
	ZPS12 (screw connection)	SERIES PL13# PL14# PL16#	50	30	48	3/8" NPT	1/2" BSP	0,25
	ZPF12 (flange connection)	SERIES PL16#	45	45	60	3/8" NPT	1/2" BSP	0,90
	ZPF121 (plate connection)	SERIES PL26#	83	30	70	-	1/2" BSP	0,37

ACCESSORIES: ZPS - ZPF GAUGE ADAPTORS - ZPD VALVES - 1000/1600/2800 BAR

	MODEL	For pumps	For gauge	Max. press.	a	b	c	d	e	kg
	ZPS53 (screw connection gauge adapter)	SERIES PL16#10 PL16#16	G10	1000	50	30	48	3/8" NPT	1/2" BSP	0,9
	ZPF14 (Flanged gauge adapter)	SERIES PL16#10 PL16#16	G10 G16	1600	45	45	60	1/4" BSP 120°	1/2" BSP	0,9
	ZPF73 (Flanged gauge adapter)	SERIES PL16#28	G30 / G40+RN28	2800	40	45	85	3/4" -16UNF	1/2" BSP swivelling	1,0
	ZPD16 (Double needle flanged valve)	SERIES PL16#10 PL16#16	G10 G16	1600	40	155	112	1/4" BSP 120°	1/2" BSP swivelling	1,0
	ZPD28 (Double needle flanged valve)	SERIES PL16#28	G30 / G40+RN28	2800						

HAND PUMPS FOR DIVERSIFIED APPLICATIONS 700 - 1400 BAR



- Oil Delivery per stroke in HP **2,1 - 4,5 cm³**
- Max working pressure **700 - 1400 bar**

FEATURES

Single-stage, tankless Hand Pumps, are lightweight and easy to handle (their weight is less than 5kg for the standard version and 6kg for the INOX version).

All Models are equipped with:

- 490 mm removable activation handle, used to turn the bypass valve on through the front connection.
- Fixing holes on the base.
- 3/8"-18 NPT side ports for oil inlet and outlet.
- All standard pump components, either internal or external, undergo the EUROPRESS exclusive thermo-chemical treatment, named Nitreg-ONC[®], which makes steel exceptionally hard, resistant to corrosion and mechanical wear.

The PP113 Pump is also available in stainless steel for use with water, and with different pump heads to be used at pressures lower than 700 bar (on demand)

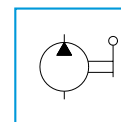
OPERATIONAL FEATURES

Particularly functional to be used with small assembly room applications, and to be installed either on machines or in circuits already equipped with their own reservoir.

SELECTION CHART

Max Pressure bar	Oil Delivery per stroke cm ³	Handle Effort N	To be used with	To use with	MODEL	Dimensions mm											Weight kg		
						A	B	D	G	H	J	K	M	P	R	V		X	Y
1400	2,1	649	Oil	Single and double acting cylinders	PP109	145	30	41	114	98	219	55	55	60	20	21	31	13	4,8
700	4,5	677	Oil	Single and double acting cylinders	PP113	145	30	41	114	98	219	55	55	60	20	21	31	13	4,8
700	4,5	677	Water	Single and double acting cylinders	PP113SS	145	30	41	114	98	219	60	60	60	20	26	31	18	5,6

STEEL HAND PUMPS 400 - 700 - 1000 BAR



- Reservoir Capacity **0,42 - 0,8 l**
- Oil Delivery per Stroke in HP **1,0 - 2,3 cm³**
- Max working pressure **400 - 700 - 1000 bar**

FEATURES

Easy to use robust hand pumps in steel requiring moderate handle effort.

They are available in four models, with three pressure ratings, 400 - 700 - 1000 bar.

These pumps can also operate in vertical position with head downwards.

All models are equipped with:

- External adjustable safety valve
- Wide feet for ease of mounting
- Handle locking mechanism for ease of carrying

Available with 0,42 - 0,8 lt. reservoirs depending on the model.

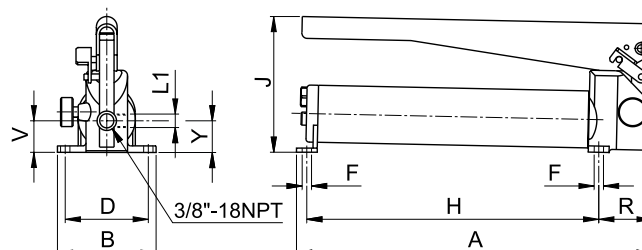
APPLICATIONS

These pumps are ideal to be used with small hydraulic tools and / or single acting cylinders that require a small amount of oil.



STANDARD

- All PS pumps have the head drilled to accept pressure gauge **G106L**.



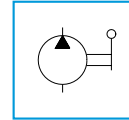
SELECTION CHART

Max pressure bar	Oil delivery per stroke cm ³	Handle Effort N	For use with	Reservoir Capacity cm ³	Usable Oil Volume cm ³	MODEL	Dimensions mm									Weight kg	
							A	B	D	F	H	J	L1	R	V		Y
700	1,0	280	Single acting	420	300	PS100	340	95	80	9	280	130	1/4" NPT	50	32,5	32,5	3,2
1000		380				PS10010	280										
400	2,3	350		420	300	PS10004	340				280						
700		390		800	700	PS101	565				505						

MODEL CODE

PS	10	0	##
Series	Pump type	Reservoir capacity in litres	Pressure if other than 700 bar

STEEL HAND PUMPS WITH LARGE OIL DELIVERY 700 BAR



- Reservoir Capacity **9,3 - 19,4 l**
- Oil Delivery per Stroke in HP **4,8 cm³**
- Max Pressure **700 bar**

FEATURES

Two-stage hand pumps with automatic change-over from the 1st to the 2nd stage that require a moderate effort on the handle to reach maximum working pressure.

All models are equipped with:

- Relief valve
- Carry handle
- 1/2" BSP connection for pressure gauge

Available with 10 or 20 litre reservoirs and 3-way, 4-way and 4-way with controlled check valves.

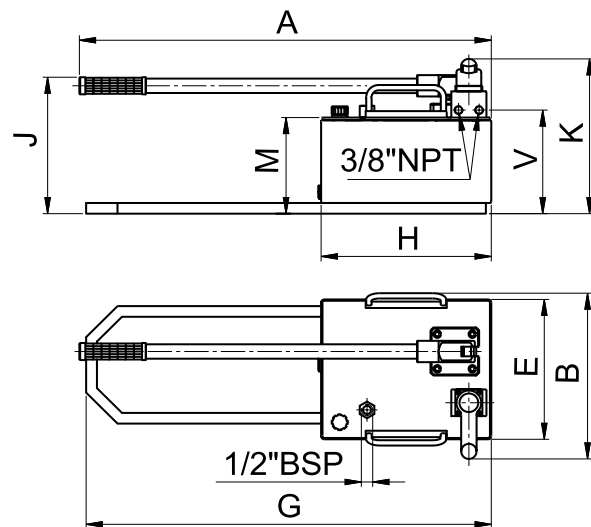
OPERATIONAL AREAS

These pumps are ideal in all those applications where both cheapness and handiness as well as higher flow and tank capacity are required, if compared to electric or pneumatic power packs and to PL hand pumps.



OPTIONS

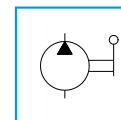
- Version G** Pump with pressure gauge **G10 (PV # G)**.



SELECTION CHART

Pressure 1 st stage bar	Pressure 2 nd stage bar	Oil Delivery 1 st stage cm ³	Oil Delivery 2 nd stage cm ³	Handle Effort N	For use with	Reservoir Capacity litri	Usable Oil Volume litri	MODEL	Dimensions mm								Weight without oil kg	Weight with oil kg		
									A	B	E	G	H	J	K	M			V	
20	700	125	4,8	450	Single acting	9,3	7,7	PV1810	763	261	245	750	315	257	290	180	194	20,9	29	
								PV1820				-	650	245	278	168	182	23,1	40	
						Double acting	9,3	7,7				PV2810	750	315	257	290	180	194	20,9	29
												PV2820	-	650	245	278	168	182	23,1	40
					Double acting with controlled check valve	9,3	7,7	PV4810		750		315	257	290	180	194	20,9	29		
								PV4820		-		650	245	278	168	182	23,1	40		

STEEL HAND PUMPS WITH LARGE OIL DELIVERY AND LIGHTWEIGHT ALLOY RESERVOIR 700 BAR



- Reservoir Capacity **10 l**
- Oil Delivery per stroke **4,8 cm³** in HP
- Max Pressure **700 bar**

FEATURES

Two-stage hand pumps with a valve that allows automatic change from 1st to 2nd stage. It requires only a moderate effort on the handle to reach the maximum working pressure.

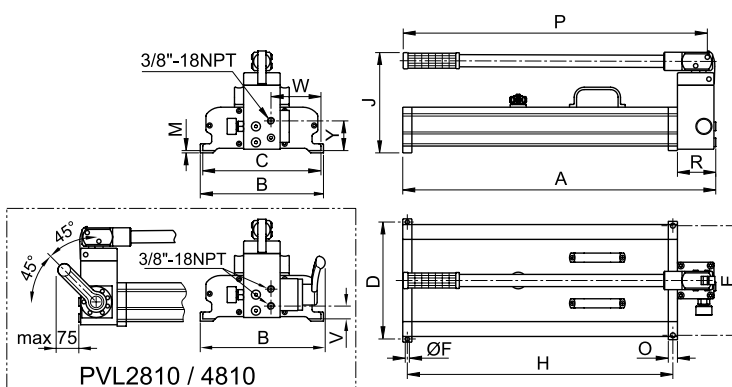
All models are equipped with:

- Relief valve
- Carrying handle
- Light alloy reservoir (it helps reduce considerably pump weight)
- 1/2" BSP connection for pressure gauge

Available with 3-way, 4-way, and 4-way with controlled check valves.

OPERATIONAL AREAS

These pumps have a bigger flow and capacity compared to the PL hand pumps but they are also a very good alternative to the PV hand pumps when weight is a significant factor of choice.



SELECTION CHART

Pressure 1 st stage bar	Pressure 2 nd stage bar	Oil Delivery 1 st stage cm ³	Oil Delivery 2 nd stage cm ³	Handle Effort N	To be used with	Reservoir Capacity Litres	Usable Oil volume Litres	MODEL	Dimensions mm											Weight without oil kg	Weight with oil kg				
									A	B	C	D	E	F	H	J	M	O	P			R	V	W	Y
20	700	125	4,8	420	Single acting cylinders	9,5	8,3	PVL1810	270														15,7	24	
					Double acting cylinders			PVL2810	790	274	259	256	240	9	686	223	5	20	770	84	28	110	65	16,2	24,5
					Double acting cylinders with controlled check valve			PVL4810		306															

ACCESSOIRES: MANOMETER ADAPTERS



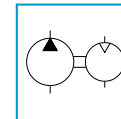
ACCESSOIRES

■ **ZPS12** Gauge adapter (for gauge **G10**) with screw connection.

■ **ZPF121** Gauge adapter (for gauge **G10**) with plate connection.

MODEL	For pumps	a	b	c	d	e	kg
ZPS12 (screw connection)	PVL1810 PVL2810 PVL4810	50	30	48	3/8" NPT	1/2" BSP	0,25
ZPF121 (plate connection)	PVL2810 PVL4810	83	30	70	-	1/2" BSP	0,37

AIR-HYDRAULIC PUMPS FROM 80 TO 2100 BAR



■ Reservoir Capacity	2,4 - 5 - 10 l
■ Max Pressure	80 - 350 - 700 - 1000 - 1500 - 2100 bar
■ Inlet Air Pressure	2,8 - 8,5 bar
■ Air Consumption	500 - 2100 l/min

FEATURES

Air- hydraulic pumps are extremely light and versatile. Tests results show how exceptionally reliable and suitable they are for the most difficult uses thanks to their unique design (series SA, MA, HA, TA, VA, made of plastic material outside and metal alloy inside).

There are six multiplying factors: 19:1, 60:1, 122.1, 196:1, 278:1, 345:1 for maximum oil pressure values respectively of 80, 350, 700, 1000, 1500, 2100 bar.

All the pumps (version KA excluded) have a maximum pressure valve non adjustable from the outside. The outward pressure can be adjusted varying the inward air pressure.

The four basic version are:

- **MLP0** with P and T outlets, to be used with on-line valves.
- **MLP1** with Cetop 3 plate
- **MLP2** with three-way valve (with control pedal) for single acting cylinders
- **MLP4** with four-way valve (with hand lever) four double acting cylinders.

A series of options can be added to the basic version to complete the pump action. See table page 57.

APPLICATIONS

In the rapid exchange of the equipments on machine tools (80 bar), in hydraulic clamping (80 and 350 bar), in the industrial sector (350 bar), for lifting, maintenance, automotive sector (700 bar) together with bolt tensioner cylinders and hydraulic nuts (1000 and 1500 bar), bearings press fitting, for laboratory and burst tests (1500 and 2100 bar).



STANDARD

- **C cage** on model MLP23KAG.
- **G gauge** on model MLP23KAG.
- **Pressure reducer** for air supply on model MLP21VAG and MLP23KAG.



ACCESSORIES

- **ZML14 pressure reducer** for air supply.
- **ZMB7 pressure booster**, adaptable to the MLP21# to multiply outgoing pressure (Ratio 4:1). Inlet 3/8" NPT, outlet 3/4" -16 UNF.
- **RP52 gauge adaptor** for gauge type G106L.



The 2,4l reservoir is made of plastics, while the 5 and 10 l ones are made of steel.

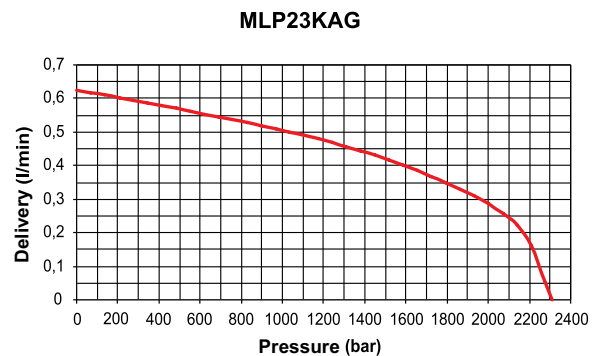
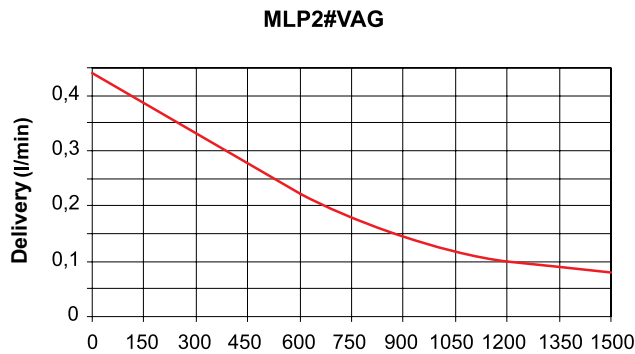
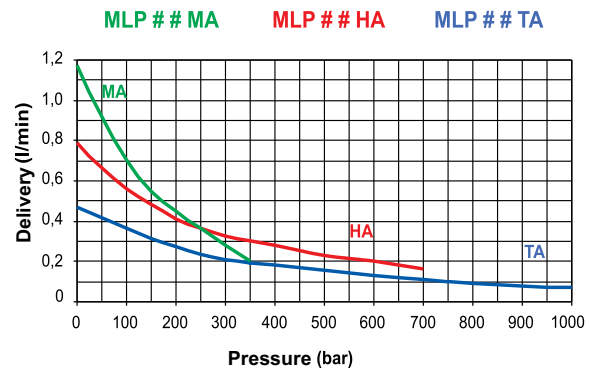
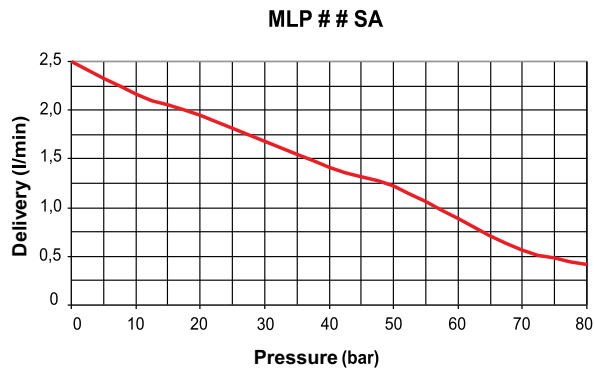
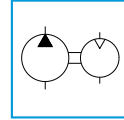
Follow EUROPRESS safety instructions. See useful pages

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AIR-HYDRAULIC PUMPS FROM 80 TO 2100 BAR

MODEL COMPOSITION CHART

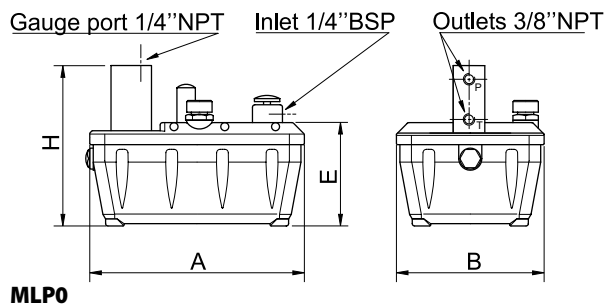
Description	MODEL	basic versions			
		MLP0	MLP1	MLP2	MLP4
Tank					
Tank 2,4 l (excluded KAG)	1	•	•	•	•
Tank 5 l (excluded KAG)	2	•	•	•	•
Tank 10 l	3	•	•	•	•
Working pressure (Delivery)					
Working pressure 2100 bar (0,62 - 0,24 l/min)	KA	-	-	•	-
Working pressure 1500 bar (0,44 - 0,08 l/min)	VA	-	-	•	-
Working pressure 1000 bar (0,5 - 0,1 l/min)	TA	-	-	•	-
Working pressure 700 bar (0,8 - 0,16 l/min)	HA	•	-	•	•
Working pressure 350 bar (1,2 - 0,2 l/min)	MA	•	•	•	•
Working pressure 100 bar (2,5 - 0,3l/min)	SA	•	•	•	•
Options					
Ready for air remote control	B	-	-	•	•
With gauge inserted on the pump (standard VAG and KAG)	G	•	-	-	-
With remote control (excluded VAG and KAG)	R	-	-	•	•



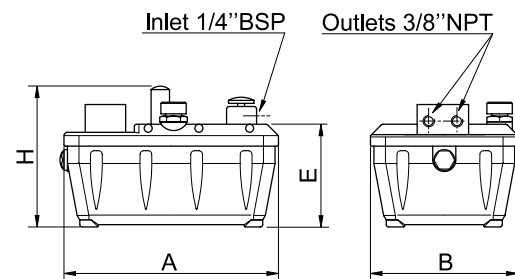
MODEL CODING

Pump version	Tank capacity	Working pressure	Options
MLP2	1	HA	R

AIR-HYDRAULIC PUMPS FROM 80 TO 1000 BAR



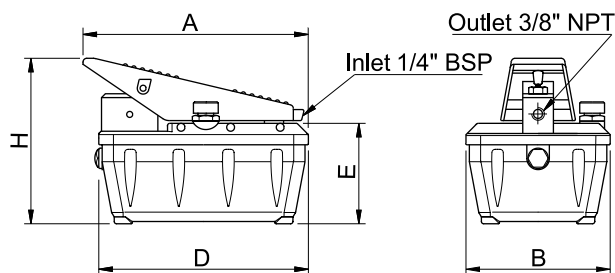
MLP0



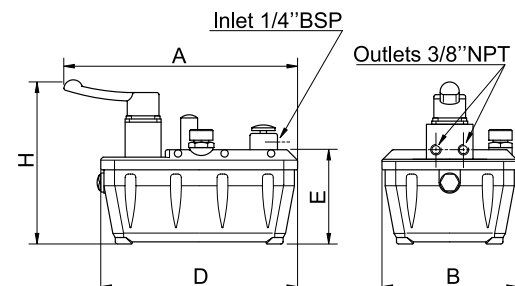
MLP1

CHARACTERISTICS AND DIMENSIONS

Version	Suitable for cylinders	Oil tank litres	Usable oil volume litres	MODEL	Dimensions mm				Weight kg
					A	B	D	H	
With P and T block	according to the chosen on-line valve	2,4	1,9	MLP01##	280	190	136	201	4,7
		5	4	MLP02##	315	270	156	221	13,1
		10	8	MLP03##	420	385	156	221	20,5
With Cetop 03 base plate	according to the chosen valve	2,4	1,9	MLP11##	280	190	136	171	4,7
		5	4	MLP12##	315	270	156	191	13,1
		10	8	MLP13##	420	385	156	191	20,5



MLP2

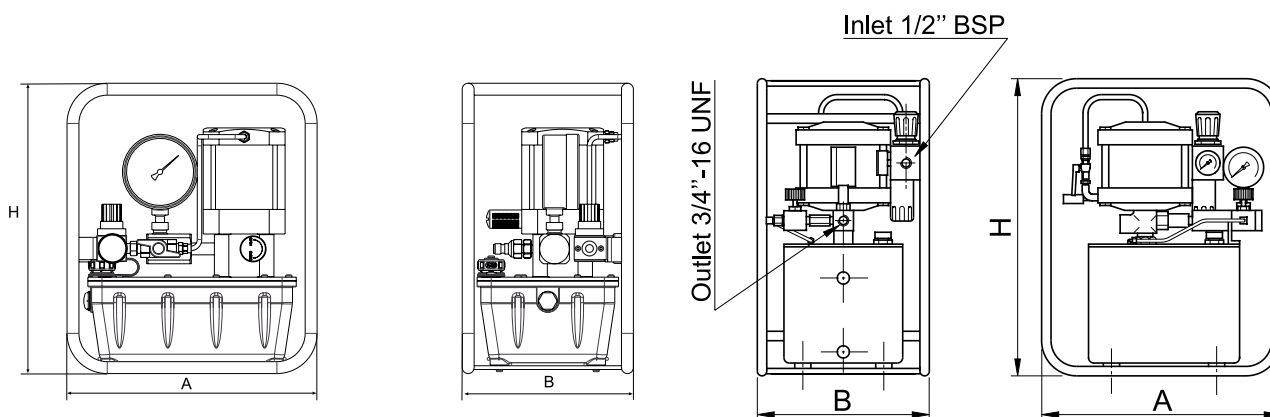


MLP4

CHARACTERISTICS AND DIMENSIONS

Version	Suitable for cylinders	Oil tank litres	Usable oil volume litres	MODEL	Dimensions mm					Weight kg
					A	B	D	E	H	
3/3 control pedal valve	Single acting	2,4	1,9	MLP21##	300	190	280	136	220	5,5
		5	4	MLP22##	325	270	315	156	237	13,9
		10	8	MLP23##	420	385	410	156	237	21,3
4/3 manual control valve	Double acting	2,4	1,9	MLP41##	335	190	280	136	240	5,1
		5	4	MLP42##	350	270	315	156	257	13,5
		10	8	MLP43##	420	385	410	156	257	20,9

AIR-HYDRAULIC PUMPS AT 1500 AND 2100 BAR



MLP2#VAG

MLP23KAG

CHARACTERISTIC AND DIMENSIONS

Valve	Tank litres	Usable volume litres	MODEL	Dimensions mm					Weight kg
				A	B	D	E	H	
3/2 valve manual control	2,4	1,9	MLP21VAG	340	230	-	-	390	15
	5	4	MLP22VAG	495	325	-	-	500	25,7
	10	8	MLP23VAG	580	440	-	-	500	34,3

CHARACTERISTIC AND DIMENSIONS

Valve	Tank litres	Usable volume litres	MODEL	Dimensions mm			Weight kg
				A	B	H	
3/2 valve manual control	10	8	MLP23KAG	495	325	580	30

MICRO POWER PACKS 700 BAR

FEATURES

These very small single stage power packs have been specifically designed for small tools.

Their design keeps in consideration the user friendliness. Lightness, compactness and easiness to use are the best characteristics of this unit.

All models are complete with:

- Single-phase electric motor 230V - 50Hz - 0,25 kW
- 3-way 2 position solenoid.
- Relief Valve.
- Plastic tank
- Plastic casing with integrated handle
- Oil level indicator
- Electric cable 2,5 m. length with Schuko plug
- 3 m. remote control

Power packs with different voltage motors can be supplied upon request.

APPLICATIONS

Micro pumps are ideals to control small tools like mini-presses, shears and nut-cutters.

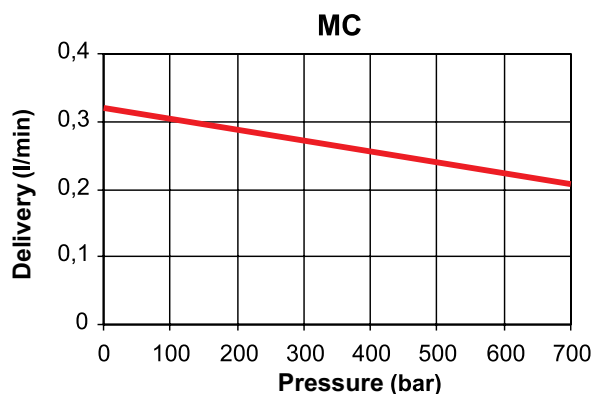
They are compact and lightweight only 9 kilos therefore perfect in all applications where the pump must be easy to carry.



OPTION

MC5# series series power units with 500 bar setting.

DELIVERY DIAGRAM



ACCESSORIES

ZMT Carry belt.

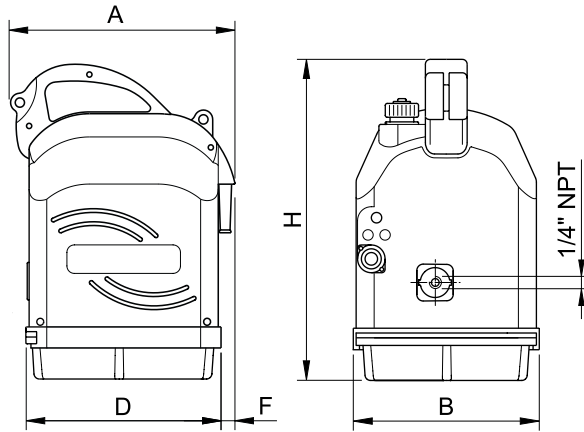


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US series nut cutters when used with Micro power packs form a practical and handy set.

MICRO POWER PACKS 700 BAR

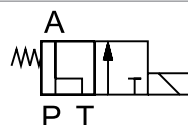
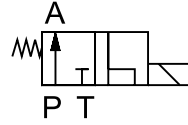
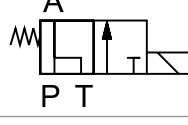


- Reservoir Capacity **1,0 l**
- Delivery at 700 bar **0,21 l/min**
- Power Rating **0,25 kW**
- Max pressure. **700 bar**

SELECTION CHART

Maximum Pressure	Delivery at Minimum Pressure	Delivery at Maximum Pressure	Reservoir Capacity	Usable Oil Volume	MODEL	Dimensions mm					Weight
						bar	l/min	l/min	litres	litres	
700	0,32	0,21	1,0	0,8	MC71 MC72 MC73	245	197	212	15	345	9

FUNCTION CHART

MODEL	For use with	Remote Control Function	Symbol
MC71	Single acting	Advance - Return (1 push button)	
MC72		Advance - Hold - Return (2 push buttons)	
MC73		Advance - Return (1 push button) Integrated control located at the end of the hose assembly	

MODEL CODING

MC	7	#
Series	Pressure setting	Control type

MIDI HYDRAULIC POWER PACKS 700 - 1000 - 1500 BAR

FEATURES Series 700 bar

Two-stage Hydraulic Power Packs particularly light and compact with excellent technical characteristics.

A large range of manual and electric controlled valves, allows them to be used with single and double acting cylinders.

All models are equipped with either:

- Single phase electric motor 230V - 50Hz and 0,75 kW, 2800 rpm
- Plastic reservoir.
- Two-stage piston pump.
- Manual or electric 3 or 4-ways valves with or without pilot check.
- Relief valve.
- Electric cable 5 m.
- Remote control 3 m. (for electric valve)
- Plastic frame with carrying handle (excluding version H)
- Protective cage (only version H) dim. AxBxH 400x250x420e.
- Oil level gauge



FEATURES Series 1000 and 1500 bar

Same characteristics of the 700 bar series a part for:

- Manual or electric 3 ways - 2 positions valve.
- Pressure regulation valve.
- Manometer G16

The following can be requested on demand

- Different voltage motor
- Air operated Motor
- Different capacity Reservoir

APPLICATIONS

700 bar Series: Ideal for medium size tools and very easy to handle.

Particularly suitable to be used with cutters, small presses, pipe bending machines, spreaders etc.

1000 bar Series: Suitable to be used with tensioner mod. **UTN** e **UTH**.

p. 112

1500 bar Series: Suitable to be used with tensioner mod. **UTV**.



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OPTIONS series 700 bar

Version R 3m remote control to activate only the motor, in power packs with manual valve series MDM##.

Version H Power pack with high flow pump:

1st stage 6,0 l/min

2nd stage 0,6 l/min

Motor 1,1 kW

Version J with pressure regulation valve.

OPTIONS series 1000 and 1500 bar

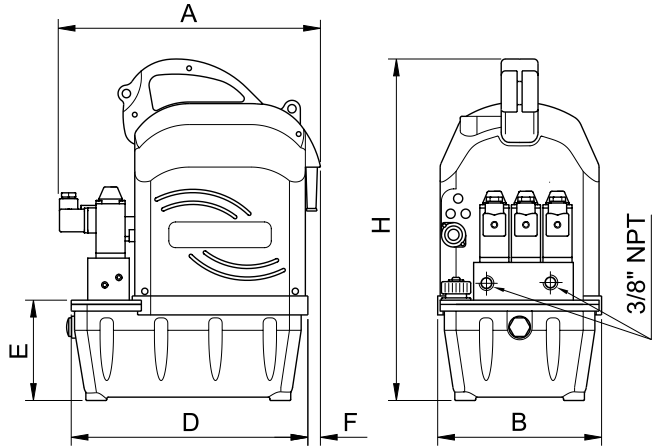
Version R 3m remote control to operate the motor only.

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RP52 gauge adaptor for gauge type G106. (700 BAR versions only)



MIDI HYDRAULIC POWER PACKS 700 BAR



- Reservoir Capacity **2,6 l**
- Delivery at 700 bar **0,4 l/min**
- Power Rating **0,75 - 1,1 kW**
- Max Pressure **700 bar**

HYDRAULIC PUMPS

SELECTION CHART

Oil delivery		Pressure rating		Reservoir capacity	Usable oil volume	MODEL	Dimensions mm					Weight kg	
1 st stage	2 nd stage	1 st stage	2 nd stage				A	B	D	E	F		H
l/min	l/min	bar	bar	litres	litres								
2,4	0,4	65	700	2,6	2,4	MDM21	329						16
						MDM31							16,3
						MDM41	366						16,3
						MDM42		197	287	119	15	406	16,5
						MDE21R							16,3
						MDE22R	316						16,3
						MDE41R							18,5

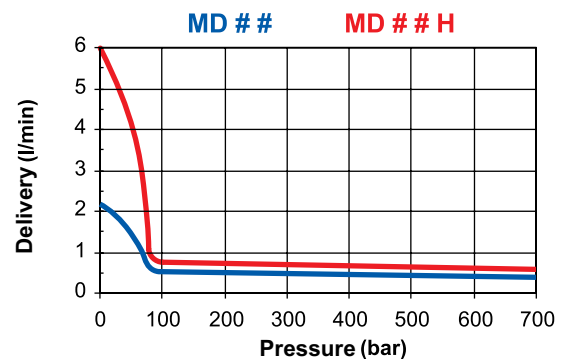
FUNCTION CHART

MODEL	For use with	Valve function	Symbol
MDM21	Single acting	Advance - Return	
MDM31		Advance - Hold - Return	
MDM41	Double acting	Advance - Hold - Return	
MDM42		Advance - Hold with pilot check - Return	
MDE21R	Single acting	Advance - Return	
MDE22R		Advance - Hold - Return	
MDE41R	Double acting	Advance - Hold - Return	

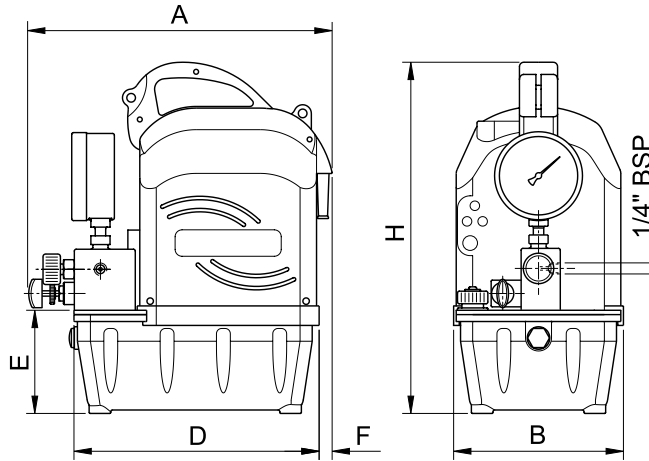
MODEL CODING OF 700 BAR SERIES

MD	M21	R	#	J
Series	Valve type	Remote control	- standard pump H High flow pump	Pressure regulation valve

DELIVERY DIAGRAM OF 700 BAR SERIES



MIDI HYDRAULIC POWER PACKS 1000 - 1500 BAR



- Reservoir Capacity 2,6 l
- Delivery at max pressure 0,2 - 0,3 l/min
- Power Rating 0,75 kW
- Max Pressure. 1000 - 1500 bar

SELECTION CHART

Oil Delivery		Pressure Rating		Reservoir Capacity	Usable Oil Volume	MODEL	Dimension mm						Weight
1 st Stage	2 st Stage	1 st Stage	2 st Stage				A	B	D	E	F	H	
l/min	l/min	bar	bar	litres	litres							kg	
2,3	0,3	65	1000	2,6	2,4	MDM21GJRT	329	197	287	119	15	406	16,5
1,8	0,2		1500			MDM21GJRV	349						19,5

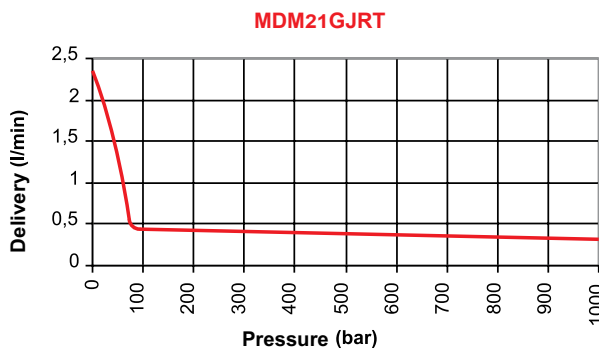
FUNCTION CHART

MODEL	Valve Function	Symbol
MDM21GJRT	Advance-Return	
MDM21GJRV		

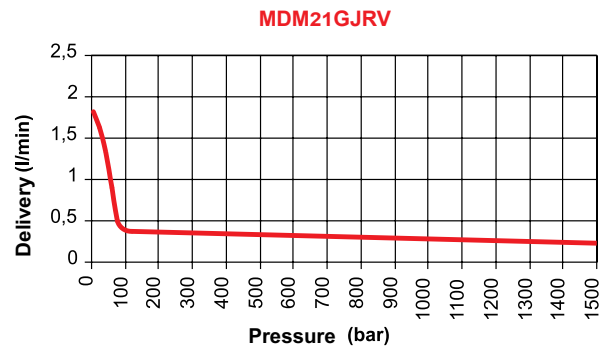
MODEL CODING OF 1000 - 1500 BAR SERIES

MD	M21	G	J	R	V
Series	Valve type	Gauge G16	Pressure regulation valve	Remote control	T= max. w. pressure 1000 bar V= max. w. pressure 1500 bar

DELIVERY DIAGRAM MDM21GJRT



DELIVERY DIAGRAM MDM21GJRV



HYDRAULIC POWER PACKS FOR TORQUE WRENCHES 700 BAR



FEATURES

Specifically designed for torque wrenches, these power packs combine maximum operating efficiency with compact, lightweight design.

Because of their compact dimensions and weight, they are very portable and supplied with a carry handle or protective frame.

All models are equipped with:

- Coupler ¼ NPT - male on extension side and female on the return, complete with dust caps
- Two-stage piston pump
- Electric or pneumatic 4 ways 2 positions valve
- Pressure regulating valve
- Pressure gauge
- Relief valve
- Plastic tank
- Plastic casing with integrated handle (mod **MDWR**)
- Protection housing (mod. **MDWRH**, **MDWRP** and **MDWRHE**)
- Oil level gauge
- 3 m. remote control
- 5 m. electric cable
- Heat exchanger (mod. **MDWRHE**)

They are available in 4 models:

MDWR with 2,4/0,4 l/min pump and electric single phase 0,75 kW motor

MDWRH with 6/0,6 l/min pump and electric single phase 1,1 kW motor

MDWRP with 6/0,6 l/min pump and air 1,5 kW motor

MDWRHE with 6/0,6 l/min pump and electric single phase 1,1 kW motor and heat exchanger



Power packs with different voltage motors and **4 exits** can be supplied upon request.

APPLICATIONS

Ideal for use with torque wrenches.



p. 108



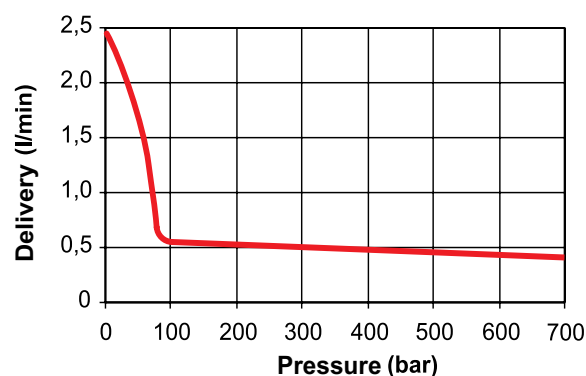
Refer to the relevant section for selection of our torque wrenches

p. 88

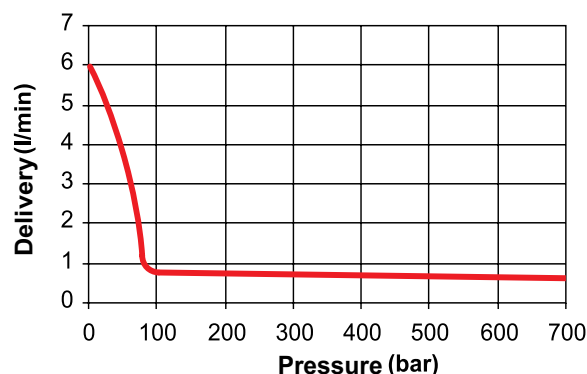


Flexible hoses: for connection to the torque wrench two hoses are necessary, each of them complete of one male and one female coupler at the two ends **SQ##FM**

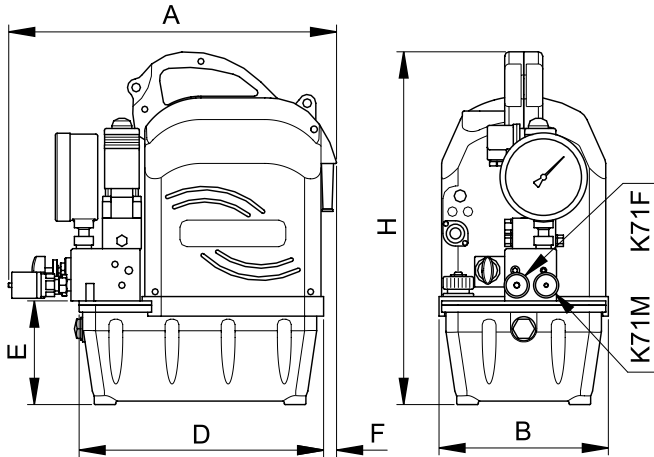
DELIVERY DIAGRAM MDWR



DELIVERY DIAGRAM MDWRH MDWRP MDRRHE



HYDRAULIC POWER PACKS FOR TORQUE WRENCHES 700 BAR



- Reservoir Capacity **2,6 l**
- Delivery at 700 bar **0,4 - 0,6 l/min**
- Power Rating **0,75 - 1,5 kW**
- Air consumption **2130 l/min**
- Max Pressure **700 bar**

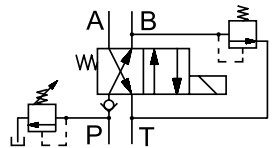
OPERATIONAL CHARACTERISTICS

MODEL	Oil Delivery		Pressure		Motor		
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage	Power supply	Power	Speed
	l/min	l/min	bar	bar		kW	rpm
MDWR	2,4	0,4	65	700	230V-50Hz	0,75	2800
MDWRH	6,0	0,6				1,1	
MDWRP					Aria	1,5	
MDWRHE					230V - 50Hz	1,1	

DIMENSIONS

MODEL	Reservoir Capacity litres	Usable oil Volume litres	Dimensions mm						Weight kg
			A	B	D	E	F	H	
MDWR	2,6	2,4	381	197	287	119	15	406	18,5
MDWRH			400	250	-	-	-	420	23,8
MDWRP			380	230	-	-	-	390	17,5
MDWRHE			540	285	540	119	-	420	30,3

FUNCTION CHART

MODEL	For use with	Valve function	Symbol
MDWR MDWRH MDWRP MDWRHE	Torque wrenches	Advance - Return	

MODULAR HYDRAULIC POWER PACKS 700 BAR



FEATURES

These hydraulic power packs are designed to a modular concept to ensure complete interchangeability of components. Using this system it is possible to order customized models.

The top plate is used as a base on which to mount all modular components, valves, and accessories)

The valves are also mounted on a plate to allow for pressure adjustment on the return line.

These power packs are manufactured under strict quality controls to ensure,

Safety: The valves are set at our Factory and each component is in compliance with "2006/42/CE Machine Directive" and its later amendments.

Life: The careful choice of all components ensures excellent performance results, weight/power ratio, together with limited dimensional requirements and easy maintenance.

Environment: They are easy to use, quiet and reliable to guarantee the maximum performance.

The various models consist of:

- **Motor**, available in four versions: three-phase electric, single phase electric, petrol engine and air motor. Furthermore our electric motors are provided with magneto-thermal cut-out with 0 voltage disconnection, complete with 5 m power cord, CEE plug and Class IP54 protection.
- **Pump** available in 12 versions from 0,45 to 10 l/min
- Relief **valve** adjustable from outside on all pumps and various types of manual, electric, air-operated and spring centred valves at your choice (see table on page 75-76)
- **Tank** from 5 to 50 litres
- **Accessories** to customize the power units (page 77).

Refer to the chart on the next page for a correct interpretation of the hydraulic power units.

APPLICATIONS

They are indispensable for lifting and jacking systems with single and double acting cylinders and for all heavy duty or complex operations that cannot be performed with manual pumps.



p. 77 ACCESSORIES

- A large range of **accessories** are available with these power packs



p. 77 STANDARD

- **C Protection Cage** for pumps with petrol engine MS

p. 44



Refer to section "how to choose a pump" to determine the correct matching pump/cylinder



MODEL COMPOSITION CHART

	Note	Description	Model	Motor Type				
				ME	MM	MP	MS	
Pump	Delivery l/min BP/AP	0,9 / 0,45	Axial piston pump	A	•	•	-	-
	"	4,7 / 0,45	Axial piston pump	B	•	•	-	-
	"	- / 0,9	Axial piston pump	C	•	•	-	-
	"	1,8 / 0,9	Axial piston pump	D	•	•	•	•
	"	2,4 / 0,9	Axial piston pump	H	•	•	-	-
	"	9,4 / 0,9	Axial piston pump	E	•	•	•	•
	"	- / 1,8	Axial piston pump	F	•	-	-	•
	"	4,7 / 1,8	Axial piston pump	G	•	-	-	•
	"	- / 1,6	Axial piston pump	L	•	-	-	-
	"	11,6 / 1,6	Combined piston/gear pump	K*	•	-	-	-
	"	10 / 1,8	Combined piston/gear pump	T**	•	-	-	-
	"	10 / 2,5	Radial piston pump	V*	•	-	-	-
Reservoir	5 litres		05	•	•	•	-	
	10 litres high		10	•	•	•	-	
	10 litres low		11	•	•	•	•	
	20 litres		20	•	•	•	•	
	30 litres * Tank available for K and V pumps only		30	•	•	•	•	
	40 litres		40	•	-	-	-	
50 litres * Tank available for V pumps only		50	•	-	-	-		
Valve	Version S Spring centred valve	P and T outlet with by pass	M20	•	•	•	•	
		Manual controlled valve 3 way 2 pos.	M21	•	•	•	•	
		Manual controlled valve 3 way 3 pos.	M31	•	•	•	•	
		Manual controlled valve 3 way 3 pos. with check	M32	•	•	•	•	
		Manual controlled valve 4 way 3 pos.	M41	•	•	•	•	
		Manual controlled valve 4 way 3 pos. with check	M42	•	•	•	•	
		Manual controlled valve 4 way 3 pos. return 150 bar	M51	•	•	•	•	
		Manual controlled valve 4 way 3 pos. with check, return 150 bar	M52	•	•	•	•	
		Version P air valve	Solenoid valve 3 way 2 pos. normally open	E21	•	•	P•	-
	Solenoid valve 3 way 2 pos. normally closed		E22	•	•	P•	-	
	Solenoid valve 3 way 3 pos.		E31	•	•	P•	-	
	Solenoid valve 4 way 3 pos.		E41	•	•	P•	-	
	Solenoid valve 4 way 3 pos. with check		E42	•	•	P•	-	
	Solenoid valve 4 way 3 pos. return 150 bar		E51	•	•	P•	-	
	Solenoid valve 4 way 3 pos. with check, return 150 bar		E52	•	•	P•	-	
	Accessories		Pressure gauge ***	G	•	•	•	•
			Protective housing (standard for air motor type MS)	C	•	•	•	•
		Protective housing with 4 pivoting wheels Ø 80x25 mm	W	•	•	•	•	
Hand activated remote control		R	•	•	•	-		
Pedal activated remote control		F	•	•	•	-		
Pressure sensor and pressure gauge		P	•	•	-	-		
Compressed air lubricator reduction filter		L	-	-	•	-		
Unidirectional flow regulator		U	•	•	•	•		
Unidirectional flow regulator with fine regulation		H	•	•	•	•		
Counterbalance valve		B	•	•	•	•		
Heat exchanger		E	•	•	-	-		
Filter on return line ****		S	•	•	•	•		
Customisation	Without hand wheel adjustable max. pressure valve	Z	•	•	•	•		
	Without magneto-thermal cut-out	Y	•	•	-	-		

* Tank available for V pumps only (50 litres tank) and for K and V pumps only (30 litres tank)

** Pump T available with 20 and 40 litres tanks only

*** Gauge Ø 100 with hand operated valves - Ø 63 with solenoid valves and hand operated valves with pilot check.

Digital gauges upon request.

**** Filter not available for 5 litres and 10 litres tank high.

MODEL CODING

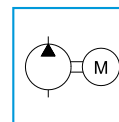
ME	A	05	M21	G
Motor type	Pump type	Reservoir capacity	Valve type	Accessories and customisation

Example: **MPE10P41R** Power pack air motor, pump 9,4/0,9 l/min, tank 10 litres high, air control valve 4 way-3 positions, remote control.

NOTE: for the accessories, fill the letters in alphabetic order.

MODULAR POWER PACKS

FOR GEOTECHNICAL STRUCTURAL TESTS 700 BAR



Reservoir capacity	10 - 40 l
Delivery at 700 bar	0,9 l/min
Power rating	1,1 - 1,5 kW
Max pressure	700 bar

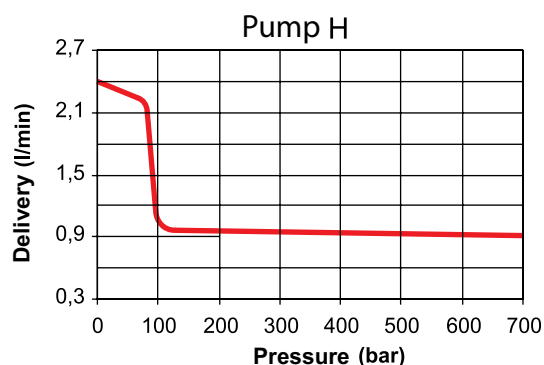
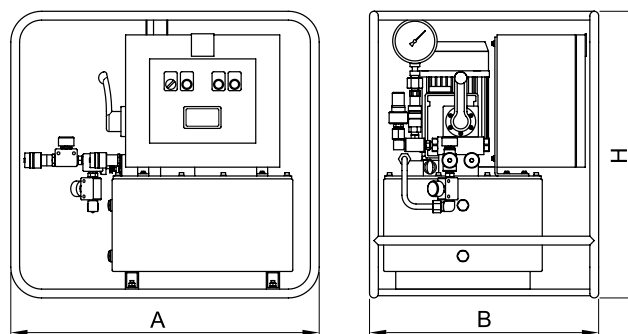
FEATURES

Many years of experience in the geotechnical field, in particular test piles, have enabled EURO PRESS to develop a complete product with special features answering sector needs.

- **Digital display**, programmed for the desired pressure values
- **Automatic pressure restore** (also in case of structural yieldness)
- **Hysteresis system cycle setting**
- **Automatic or manual control**
- Possibility to make test cycles **by decreasing pressure**
- Arranged to be used both with **single than with double acting cylinders**
- External **pressure setting** (50-700 bar range)
- Single or 3-phase electric motor
- Two stage **pump** 2,4/0,9 l/min at 1400 rpm
- Manual 4 way 3 pos **valve** with pilot check
- 10, 20 and 40 litre **tank**
- Protective and transport **cage**
- Analogical **gauge** 100 mm dia.

APPLICATION

Non destructive tests on concrete structures, construction material trials and geotechnical experiments both on site and in labs.

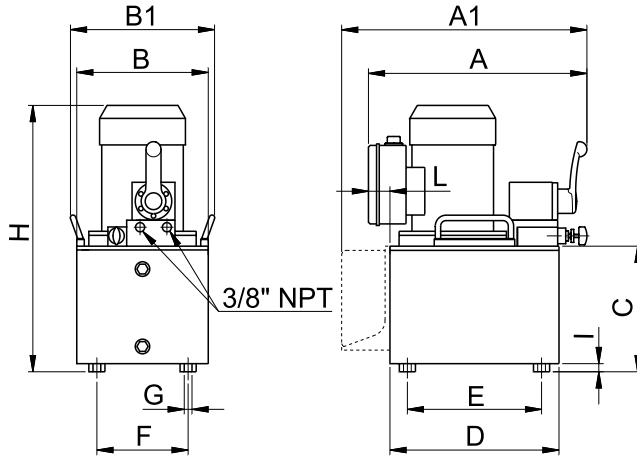


OPERATING CHARACTERISTICS

MODEL	Delivery		Pressure		Motor			Reservoir capacity	Usable oil volume	Dimensions mm		
	1° Stage	2° Stage	1° Stage	2° Stage	Voltage	Power	Speed			A	B	H
	l/min	l/min	bar	bar		kW	rpm			litres	litres	litres
MEH11M52PP	2,4	0,9	85	700	400V-50Hz	1,1	1400	10	7,7	700	520	522
MEH20M52PP								20	17,7	700	520	650
MEH40M52PP								40	35,8	710	700	650
MMH11M52PP					230V-50Hz	1,5		10	7,7	700	520	522
MMH20M52PP								20	17,7	700	520	650
MMH40M52PP								40	35,8	710	700	650

MODULAR POWER PACKS WITH 3-PHASE ELECTRIC MOTOR

700 BAR



- Reservoir Capacity **5 - 50 l**
- Delivery at 700 bar **0,45 - 2,5 l/min**
- Power rating **0,75 - 3 kW**
- Max pressure **700 bar**

DIMENSIONS

Reservoir capacity	Usable oil volume	Dimensions mm											
		litres	litres	A	A1 ^②	B	B1	C	D	E	F	G	H
5	3,8	370	470	245	270	129	315	250	170	M8	390 ^①	10	40
10 high	8,8					227					488 ^①		
10 low	7,7	447	-	360	378	129	410	320	270	-	390 ^①	-	-
20	17,7	462				600					257		
MEK 30	22	447	-	360	-	343	410	320	270	∅9	640	40	-
MEV 30	20	462				307					440		
MEV 50	32	462				600	307	440	350	510	634	634	634

① Add 16 mm for models MEC, MEH; add 40 mm for models MEL, MEF, MEG, and MET.

② For power packs with 5 l and 10 l high tanks with remote control model R or F only.

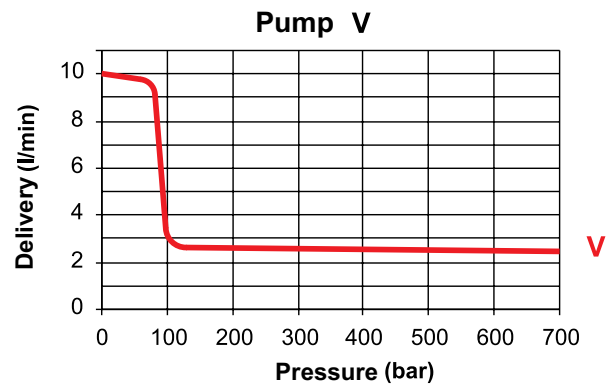
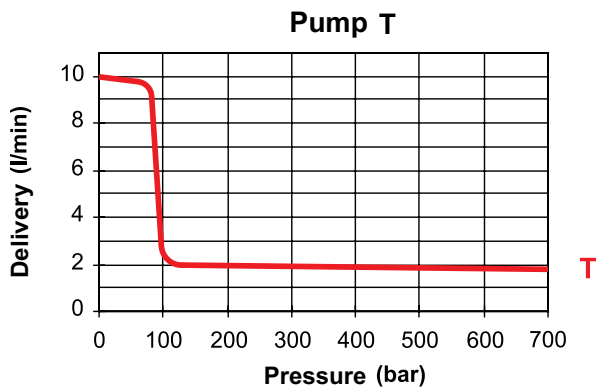
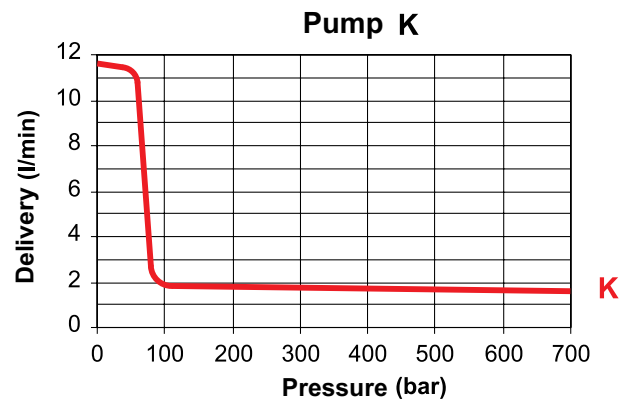
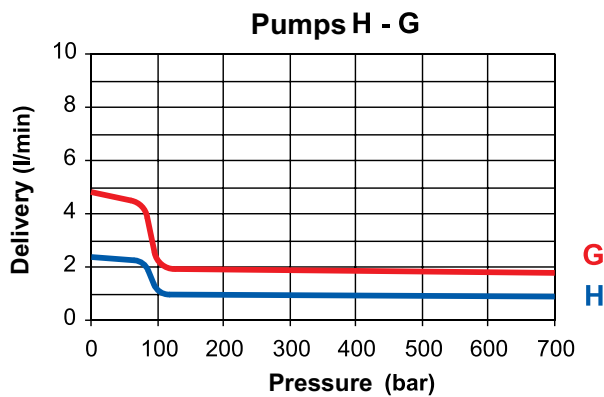
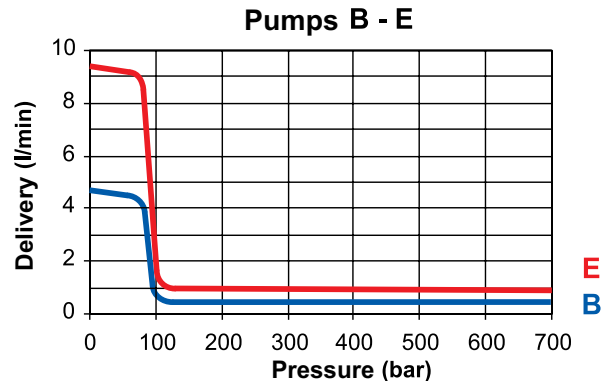
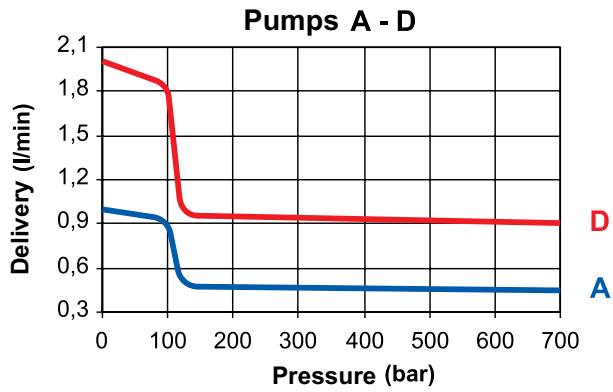
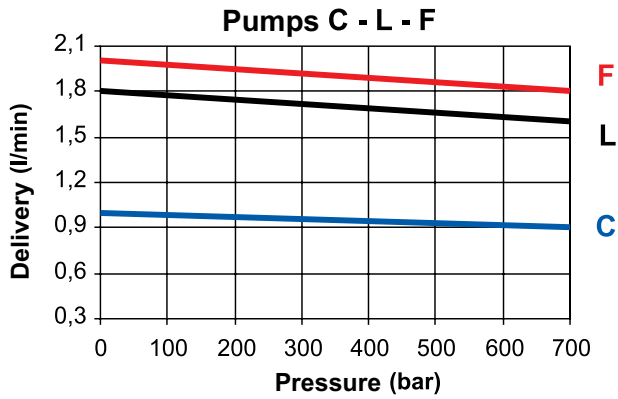


MEK power packs are particularly indicated for intensive use or when a very noiseless product is required.

Operating characteristics

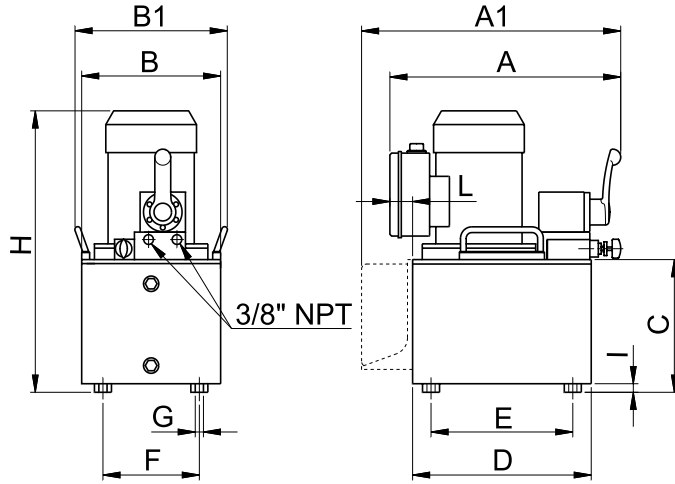
MODEL	Oil delivery		Pressure		Motor		
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage	Voltage	Power	Speed
	l/min	l/min	bar	bar		kW	rpm
MEA	0,9	0,45	100	700	400V-50Hz (Motors with different voltage upon request)	0,75	1400
MEB	4,7		85				
MEC	-	0,9	-			1,1	2800
MED	1,8		100				
MEH	2,4		85				
MEE	9,4	1,6	-			2,2	1400
MEL	-		70				
MEK	11,6	1,8	-			3	2800
MEF	-		85				
MEG	4,7	2,5	-			-	-
MET	10		85				
MEV	-	-	-	-	-		

MODULAR POWER PACKS WITH 3-PHASE ELECTRIC MOTOR 700 BAR



MODULAR POWER PACKS WITH SINGLE PHASE ELECTRIC MOTOR

700 BAR



- Reservoir capacity **5 - 40 l**
- Delivery at 700 bar **0,45 - 0,9 l/min**
- Power rating **0,75 - 1,5 kW**
- Max pressure **700 bar**

DIMENSIONS

Reservoir capacity	Usable oil volume	Dimensions mm											
		A	A1 ⊙	B	B1	C	D	E	F	G	H ⊙	I	
litres	litres												
5	3,8	370	470	245	270	129	315	250	170	M8	410	10	
10 high	8,8					227					508		
10 low	7,7	447	-	360	378	129	410	320	270		410		
20	17,7									∅9	538	40	
40	35,8	462		600	-	257	440	350	510				

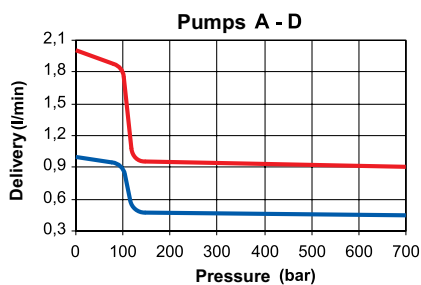
⊙ Add 48 mm for model MMC, MMH.

⊙ For power packs with 5 l and 10 l high tanks with remote control model R or F only.

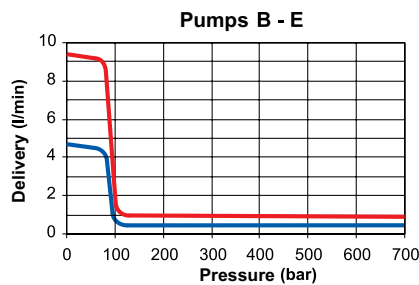
OPERATING CHARACTERISTICS

MODEL	Oil delivery		Pressure		Motor		
	1 st Stage	2 st Stage	1 st Stage	2 st Stage	Voltage	Power	Speed
	l/min	l/min	bar	bar		kW	rpm
MMA	0,9	0,45	100	700	230V-50Hz (Motors with different voltage upon request)	0,75	1400
MMB	4,7		85				
MMC	-	-					
MMD	1,8	100					
MMH	2,4	85					
MME	9,4					1,5	2800

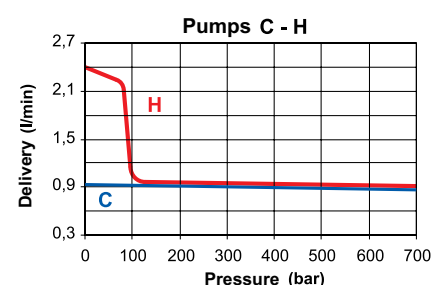
DELIVERY DIAGRAM



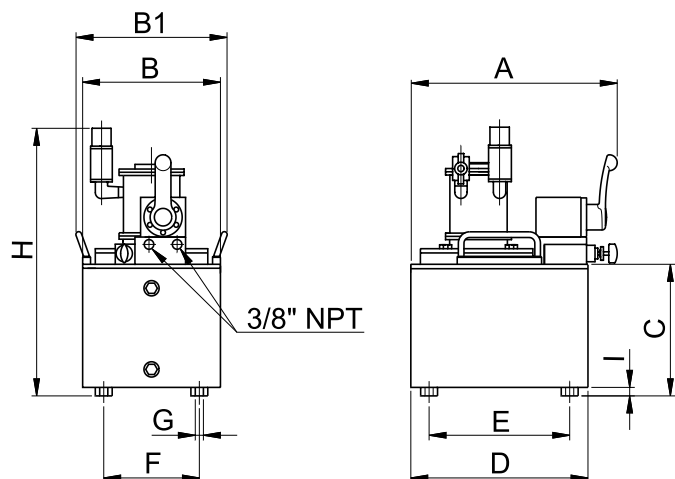
DELIVERY DIAGRAM



DELIVERY DIAGRAM



MODULAR POWER PACKS WITH AIR MOTOR 700 BAR



- Reservoir capacity **5 - 40 l**
- Delivery at 700 bar **0,9 l/min**
- Power rating **2,6 kW**
- Max pressure **700 bar**
- Consumption **3400 l/min**

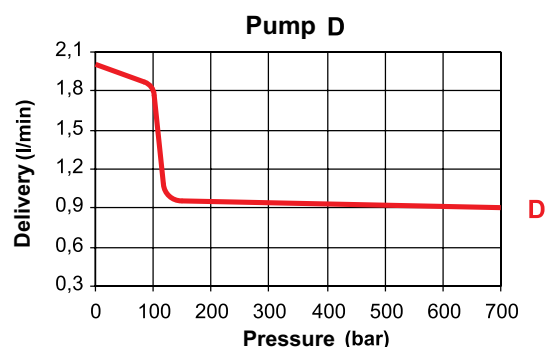
DIMENSIONS

Reservoir capacity	Usable oil volume	Dimensions mm									
		litres	litres	A	B	B1	C	D	E	F	G
5	3,8	370	245	270	129	315	250	170	M8	390	10
10 high	8,8				227					488	
10 low	7,7	447	360	378	129	410	320	270	Ø9	390	
20	17,7				257					518	40
40	35,8	462	600	-	257	440	350	510			

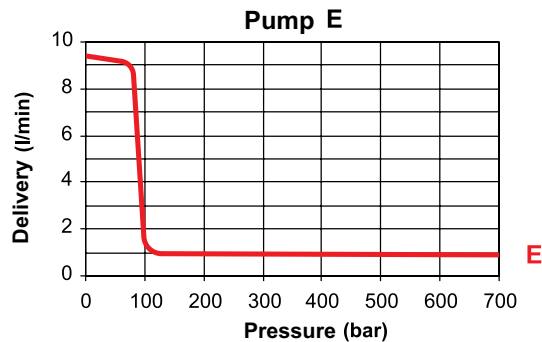
OPERATING CHARACTERISTICS

MODEL	Oil delivery		Pressure		Motor	
	1 st Stage	2 st Stage	1 st Stage	2 st Stage	Power	Speed
	l/min	l/min	bar	bar	kW	rpm
MPD	1,8	0,9	100	700	2,6	3000
MPE	9,4		85			

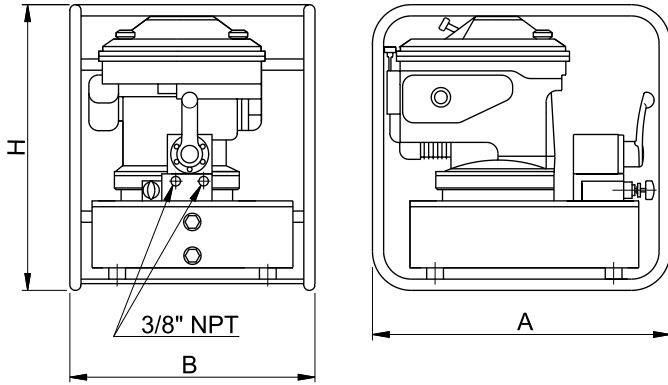
DELIVERY DIAGRAM



DELIVERY DIAGRAM



MODULAR POWER PACKS WITH PETROL ENGINE 700 BAR



- Reservoir capacity **10 - 40 l**
- Delivery at 700 bar **0,9 - 1,8 l/min**
- Power rating **3,6 kW**
- Max pressure **700 bar**
- Consumption **1,28 l/h with full load**
0,9 l/h at 75%

DIMENSIONS

Reservoir capacity litres	Usable oil volume litres	Dimensions mm		
		A	B	H
10 low	7,7	555	440	500
20	17,7			628
40	35,8	510	660	580

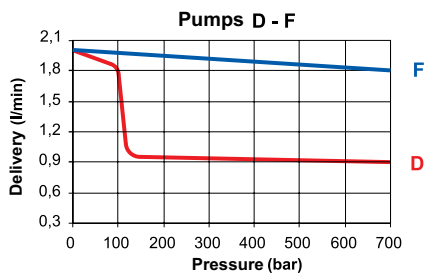
Follow our safety instructions,
see useful pages

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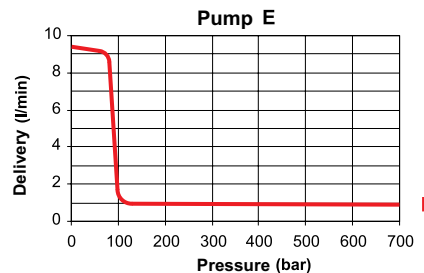
OPERATING CHARACTERISTICS

MODEL	Oil delivery		Pressure		Engine	
	1 st Stage	2 st Stage	1 st Stage	2 st Stage	Power	Speed
	l/min	l/min	bar	bar	kW	rpm
MSD	1,8	0,9	100	700	4,4	3000
MSE	9,4		85			
MSF	-	1,8	-			
MSG	4,7		85			

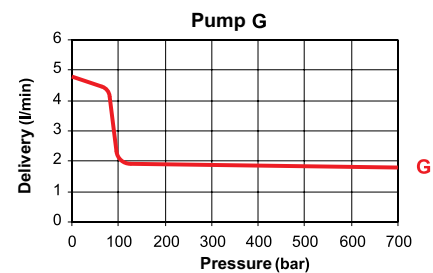
DELIVERY DIAGRAM



DELIVERY DIAGRAM



DELIVERY DIAGRAM



VALVES FOR MODULAR POWER PACKS

TABLE OF MANUAL CONTROLLED VALVE FUNCTIONS

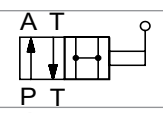
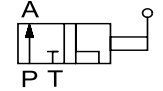
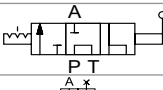
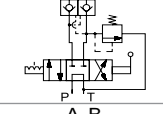
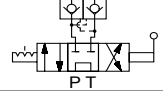
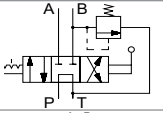
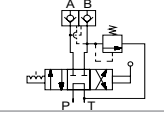
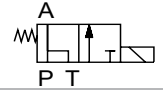
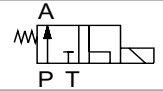
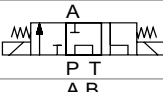
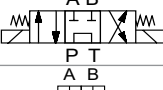
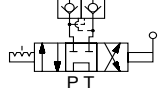
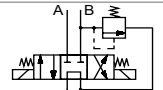
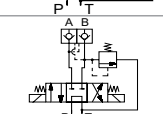
MODEL	For use with	Valve function	Symbol
VMM20	To shift control to in-line valve	Outlet P and T with by pass	
VMM21	SINGLE acting	Advance - return	
VMM31		Advance - hold - return	
VMM32		Advance - hold with pilot check - return	
VMM41		DOUBLE acting	Advance - hold - return
VMM42	Advance - hold with pilot check - return		
VMM51	Advance - hold - return at 150 bar		
VMM52	Advance - hold with pilot check - return at 150 bar		

TABLE OF ELECTRIC CONTROLLED VALVE FUNCTIONS (230 VAC VOLTAGE)

MODEL	For use with	Valve function	Symbol
VME21	SINGLE acting	Advance - return	
VME22		Advance - hold - return	
VME31		Advance - hold - return	
VME41	DOUBLE acting	Advance - hold - return	
VME42		Advance - hold with pilot check - return	
VME51		Advance - hold - return at 150 bar	
VME52		Advance - hold with pilot check - return at 150 bar	

VALVES FOR MODULAR POWER PACKS

TABLE OF MANUAL CONTROLLED VALVE FUNCTIONS - SPRING RETURN IN CENTRAL POSITION

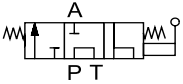
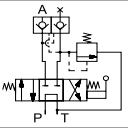
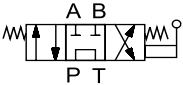
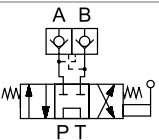
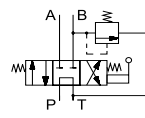
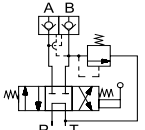
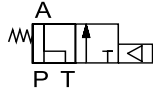
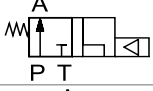
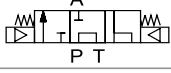
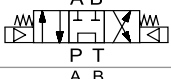
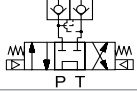
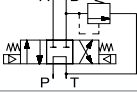
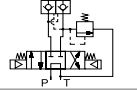
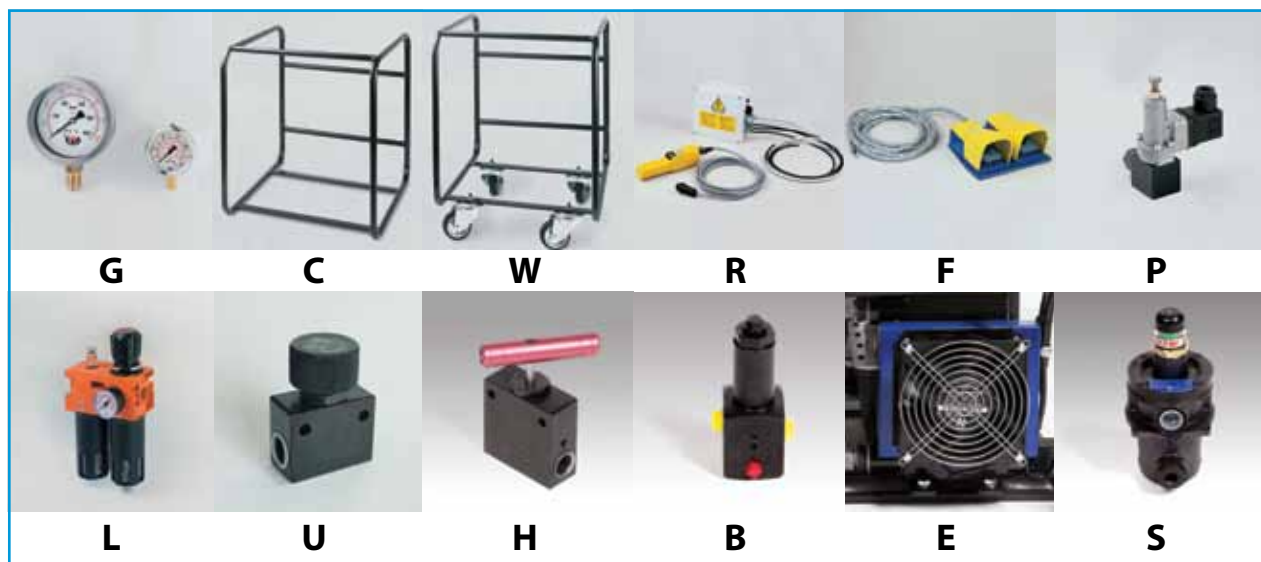
MODEL	For use with	Valve function	Symbol
VMS31	SINGLE acting	Advance - hold - return	
VMS32		Advance - hold with pilot check - return	
VMS41	DOUBLE acting	Advance - hold - return	
VMS42		Advance - hold with pilot check - return	
VMS51		Advance - hold - return at 150 bar	
VMS52		Advance - hold with pilot check - return at 150 bar	

TABLE OF PNEUMATIC CONTROLLED VALVE FUNCTIONS

MODEL	For use with	Valve function	Symbol
VMP21	SINGLE acting	Advance - return	
VMP22		Advance - hold - return	
VMP31		Advance - hold - return	
VMP41	DOUBLE acting	Advance - hold - return	
VMP42		Advance - hold with pilot check - return	
VMP51		Advance - hold - return at 150 bar	
VMP52		Advance - hold with pilot check - return at 150 bar	

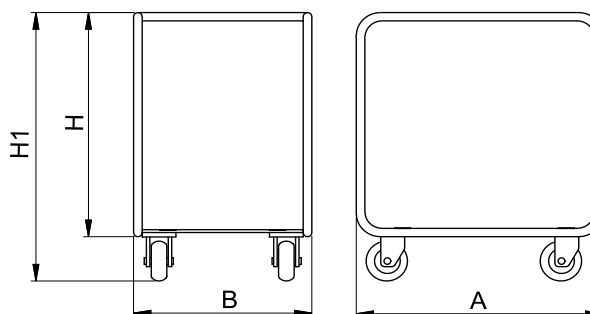
FOR MODULAR POWER PACKS 700 BAR



- **G**- Glycerine filled Pressure gauge \varnothing 100 with manual valves and \varnothing 63 with solenoids and with controlled check manual valves. (digital gauge upon request).
- **C**- Protective housing (standard for MS power packs).
- **W**- Protective housing with 4 pivoting wheels \varnothing 80x25 mm
- **R**- Manual activated remote control length 5 metres.
- **F**- Pedal activated remote control length 5 metres.
- **P**- Pressure sensor and pressure gauge.
- **L**- Filter and pressure reducer for models with air motor.
- **U**- Unidirectional flow regulator.
- **H**- Unidirectional flow regulator with fine regulation.
- **B**- Counterbalance valve.
- **E**- Heat exchanger.
- **S**- Filter on return line (not available for power packs with 5 l and 10 l tank high).

CUSTOMIZED VERSIONS

- **Z**- Without hand wheel adjustable max. pressure valve.
- **Y**- Without magneto-thermal cut out for models fitted with electric motor.



DIMENSIONS OF PROTECTIVE HOUSING

With reservoir	Dimensions mm			
	A	B	H	H1
litres				
5	495	325	500	595
10 high			600	695
10 low	580	440	500	595
20			640	733
40	540	700	690	783
MEK 30 - MEV 30	580	440		
MEV 50	540	700		

SYNCHROLIFT



SYNCHRONOUS LIFTING SYSTEM



Synchronized lifting with Synchronlift for the rebuilding of house foundations. (Germany 2003)

FEATURES

Synchronlift (Synchronous Lifting System) is the most sophisticated method to lift up and lower down any kind of load in a perfectly synchronised way and with the highest degree of precision.

This system splits the oil flow coming out from a hydraulic power pack and directs it towards different lifting points; it controls and monitors the different flows thanks to a range of electric valves controlled by a PLC.

The PLC controls the flow in the direction of a number of cylinders, checking the signals issued by dynamic transducers and activating appropriately the monitoring valves.

This electric system enables the regulation of the movement of the cylinders stopping and/or slowing down those that exceed the difference in allowed movement as chosen by the client. A PC provides for its control system.

Synchronlift is easy to control, multipurpose and extremely accurate, it can handle simultaneously many lifting points, even with different capacity cylinders.

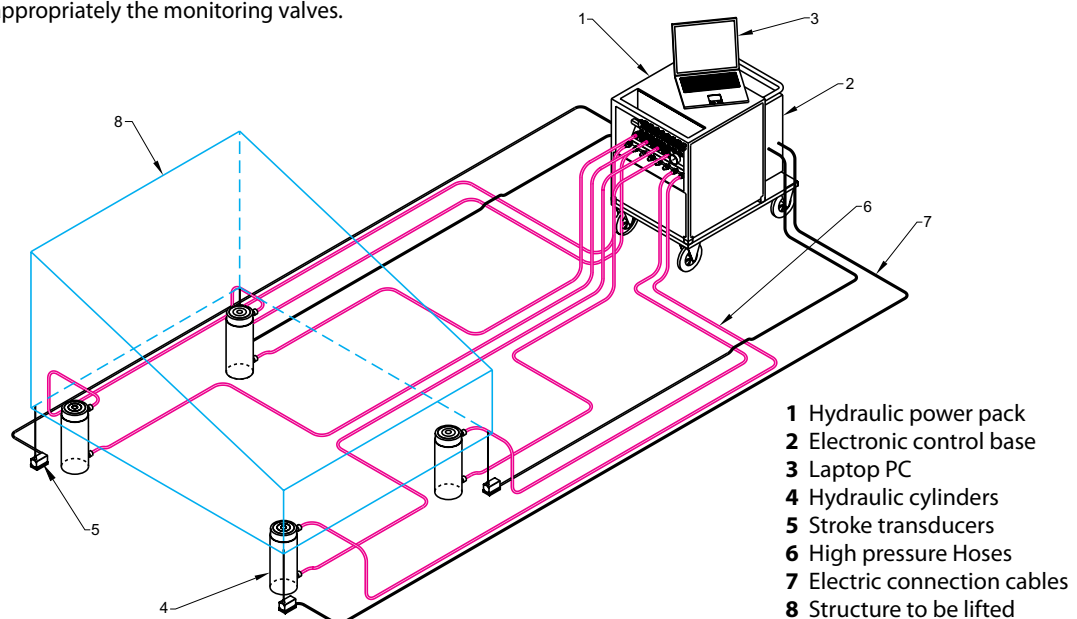
The programme can also deal both with linear and planar non-parallel lifting operations, counteracting with pinpoint precision structural failure (e.g. a bridge pier, one end of which has yielded).

APPLICATIONS

Our Synchronlift system is necessary every time hydraulic cylinders with different loads are required to lift up and lower down at the same rate (e.g. lifting a 3000 t bridge with 1 mm precision, or squaring a building damaged by seismic activity are only two of the many applications of a synchronised lifting system)



Our Technical Department is at your disposal to study the best technical and operational solution, and deliver tailored solutions on demand.



SYNCHRONOUS LIFTING SYSTEM



- Lifting points _____ **4-48**
- Force for each point _____ **100-1000 t**
- Max Pressure _____ **700 bar**
- Max Precision _____ **0,1 mm**

SYNCHROLIFT IS MADE OF

Control system	
SYNCHRO 4 points	electronic control base (4 points) with dedicated PLC + note book with included software (Windows area) to display and control operations and to book data + 4 linear stroke transducers (1 for each lifting point) + group of control valves
SYNCHRO 8 points	electronic control base (8 points) with dedicated PLC + note book with included software (Windows area) to display and control operations and to book data + 8 linear stroke transducers (1 for each lifting point) + group of control valves
Hydraulic Components	
Activation	customised hydraulic power pack
Cylinders	standard hydraulic cylinders and/or as chosen by client
Connections	hoses, fittings and couplers according to your needs



SPLIT FLOW



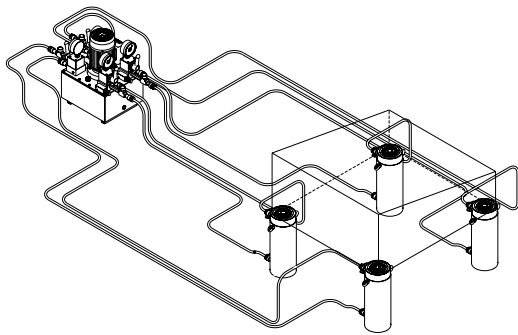
SYNCHRONOUS LIFTING SYSTEMS

POWER PACKS ME##M52GU

FEATURES

The Split Flow hydraulic power packs have two or four independent outlets delivering a constant amount of oil, even if the pressure in each line is not the same. They are equipped with:

- 3-phase electric motor
- pump and tank to be matched with
- 2 or 4 (one for each port) 4-way, 3-position manual control valves with piloted check and 150 bar pressure setting on return B port
- 2 or 4 flow control valves (one for each port) for controlled load lowering
- 2 or 4 pressure gauges (one for each port)



APPLICATIONS

They are an efficient and economic solution particularly suitable for lifting up to a maximum of 4 cylinders with different loads. Since they are based on equal geometrical pressure lines, without any external control on the actual stroke, Split Flow power packs provide for $\pm 3\%$ synchronous lifting with visual control of the operation.

Furthermore, they also allow for synchronous load lowering operations under load when using double acting cylinders.

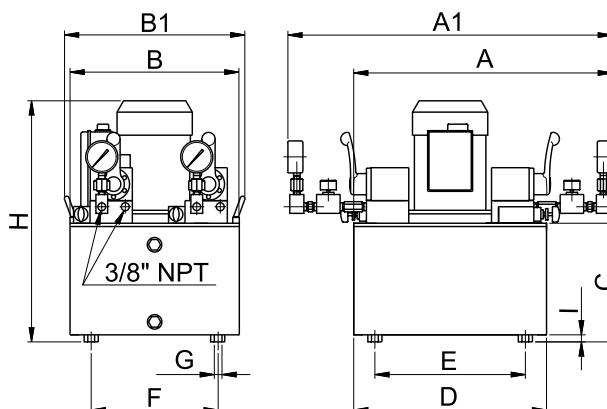


- Reservoir capacity **10 - 40 l**
- Delivery at 700 bar **0,45 - 0,9 l/min**
- Power Rating **2,2 kW**
- Max. pressure **700 bar**



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When the operation requires an automatic control of the down stroke speed without pressure oscillations and load jumping, we suggest the use of the **VRB38** counterbalance valve.



OPERATIONAL CHARACTERISTICS ACCORDING TO THE CHOSEN PUMP

MODEL	Nu. Outlets	Oil delivery		Pressure		Motor		
		1 st stage	2 nd stage	1 st stage	2 nd stage	Voltage	Power	Speed
		l/min	l/min	bar	bar			
MEM	2	-	0,9	-	700	400V-50Hz	2,2	2800
MEN	2	2,2	-	85				
MEQ	4	-	0,45	-	-			

OPERATIONAL CHARACTERISTIC ACCORDING TO THE CHOSEN TANK

Reservoir capacity	Usable oil	Dimensions mm										
Litres	Litres	A	A1	B	B1	C	D	E	F	G	H	I
10 low	7,7	555	700	360	378	129	410	320	270	M8	410	10
20	17,7				-					257		
40	35,8	570		600			440	350	510		518	40

MODEL CODING

ME	#	#	M52	G	U
Motor Type	Pump type	Reservoir capacity	Valve type	Pressure Gauge	Unidirectional flow regulator



VALVES AND ACCESSORIES FOR HYDRAULIC SYSTEMS:



Pressure Gauges and Gauge Blocks

G..... p. 82



Couplers

K..... p. 83



Manifolds and Fittings

R..... p. 85



Hoses

S..... p. 88



In-line Valves Reduction Valves and Regulators

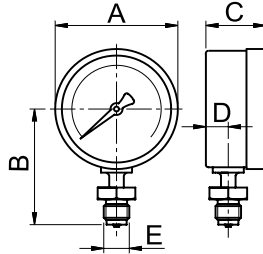
VL - VR..... p. 89



Hydraulic oil

ZOH..... p. 94

PRESSURE GAUGES AND GAUGE BLOCKS 700 - 1000 - 3000 - 4000 BAR



- Max Working pressure **700 - 4000 bar**
- Dial diameter **63 - 100 mm**
- Accuracy of full scale **1% - 1,6%**
- Scale **bar - bar/kN**

SELECTION CHART FOR DOUBLE SCALE GAUGES

MODEL	Scale bar	Scale kN	For cylinders	Dimensions
G10F1020	700	0-121 / 0-225	CMF 10/20 ton	See G10 chart
G10F3060		0-327 / 0-578	CMF/COF 30/60 ton	
G10S1020		0-109 / 0-194	CGS/CMC/CMI/CMP/COI 10 ton	
G10S2530		0-228 / 0-303	CGS/CMC/CMP 20 ton	
G10S50100		0-486 / 0-911	CMI 25 ton - CGG/CGS/CMC/CMI/CMP/COI 30 ton	
			CGG/CGS/CMC/CMI/CML/CMP/COI/COS 50/100 ton	

FEATURES

Pressure Gauges

Available with 63 or 100 mm dial with read-out in bar and PSI. The 1000 bar gauges are glycerine filled while the 1600, 3000, 4000 bar are dry.

The G106L pressure gauge has a 1/4" NPT screwed connection at 3 o'clock for direct installation on the left side of the pump head.

The model G10 exists also in the double scale version, bar and kN, to be used up to 700 bar, different for cylinders with hollow piston (G10F##) and for cylinders with normal piston (G10S##).

Gauge blocks

Manufactured in steel and available in four versions to suit the gauge diameter and distance from the equipment.

PRESSURE GAUGE SELECTION CHART: 700 - 1000 BAR

Max Working Pressure	Full scale	Dial diameter	Precision class DIN16005	Scale indexing	Thread	MODEL	Dimensions mm				Weight
							A	B	C	D	
bar	bar	mm	%	bar	E					kg	
700	1000	63	1,6	50	1/4" NPT	G106L G106	68	54	32	13	0,2
1000	1000	100	1,0	20	1/2" BSP Swivel	G10	101	98	49	15,5	0,8

PRESSURE GAUGE SELECTION CHART: 1600 - 3000 - 4000 BAR

Max Working Pressure	Full scale	Dial diameter	Pressure Class DIN16005	Scale indexing	Thread	MODEL	Dimensions mm				Weight
							A	B	C	D	
bar	bar	mm	%	bar	E					kg	
1600	1600	100	1,0	50	1/2" BSP *	G16 G30 G40	101	98	49	15,5	0,6
3000	3000				1/2" BSP **						
4000	4000				M16x1,5 Female						

* Swivelling ** Fixed



Digital gauges can be supplied on request.

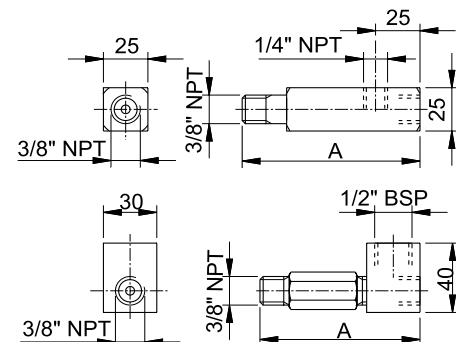
SELECTION CHART FOR 1000 BAR GAUGE BLOCKS TO BE MOUNTED IN-LINE

MODEL	Max working pressure	Gauge connection	In/out connection	A Dimension	Weight
	bar				
RP52	1000	1/4" NPT	3/8" NPT	100	0,40
RP50				60	0,28
RP501		1/2" BSP		90	0,33
RP502				140	0,42



Adapters range for gauges 1000, 1600, 3000 bar

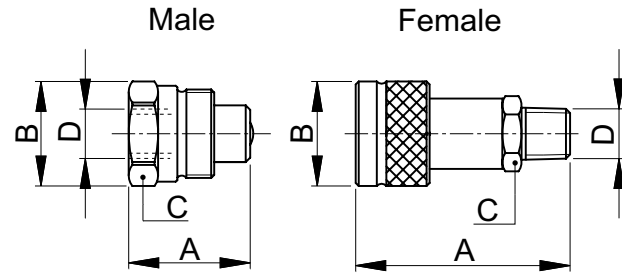
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QUICK COUPLERS 700 BAR



■ Max Working pressure **700 bar**
 ■ Thread **1/4" - 3/8" NPT**



FEATURES

Quick Release couplers are available in **screwed and flat face** versions and are compatible with the EPP product range and also interchangeable with most couplings used on high pressure hydraulic equipment.

Flat face snap couplers are advantageous because they are

- Anti-drip with negligible air or fluid inclusion during coupling, and uncoupling operations
- Easy to clean
- Rotary motion which prevents hose twisting
- Safe coupling system, (two voluntary movements are necessary for uncoupling)



Couplers with Viton seals are available on request.



When using **screw couplings**, the nut of the female part must always be fully tightened on the male part. If the two parts are not fully connected the oil can not pass through the coupler, and damage or injury can occur.

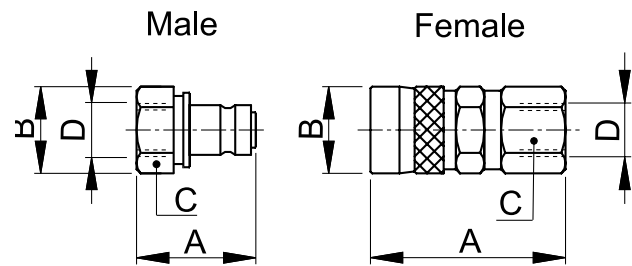
SELECTION CHART FOR QUICK COUPLERS: 700 BAR

Working pressure bar	Coupling type	Thread type D	Coupler type	MODEL	Dimensions mm			Weight g
					A	B	C	
700	Screw	1/4" NPT	Complete (K71M+K71F+K71C+K71D)	K71	-	-	-	-
			Male with female thread	K71M	39	30	19	75
			Female with male thread	K71F	60,5	30	22	140
			Female with female thread	K71X	58	30	22	150
			Cap for female	K71C	-	-	-	-
			Cap for male	K71D	-	-	-	-
		3/8" NPT	Complete (K73M+K73F+K73C+K73D)	K73	-	-	-	-
			Male with female thread	K73M	40,5	36	32	120
			Female with male thread	K73F	72	35,5	24	200
			Female with female thread	K73X	76	35,5	24	210
			Cap for female	K73C	-	-	-	-
			Cap for male	K73D	-	-	-	-
	Flat Face	1/4" NPT	Complete (KP71M+KP71X)	KP71	-	-	-	-
			Male with female thread	KP71M	48	24	22	90
			Female with female thread	KP71X	58	29	22	210
		3/8" NPT	Completo (KP73M+KP73X)	KP73	-	-	-	-
			Male with female thread	KP73M	55	26	24	100
			Female with female thread	KP73X	60	29	24	220

QUICK RELEASE COUPLINGS 1000 - 1500 - 2000 BAR



- Max Working Pressure **1000 - 2000 bar**
- Thread **1/4" - 3/8" NPT**
1/4" BSP



FEATURES

These couplings are compatible with the whole EPP product range and high pressure accessories. They are available in the quick release coupling version to ensure easy and fast coupling and have dust protection cap.

Follow our safety instructions.
See useful pages.

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SELECTION CHART FOR QUICK COUPLERS 1000 - 1500 - 2000 BAR

Working pressure bar	Coupling type	Thread type D	Coupler type	MODEL	Dimensions mm			Weight g
					A	B	C	
1000	Quick Release	1/4" NPT	Complete (K11M+K11X)	K11	-	-	-	-
			Male with female thread	K11M	36	25	22	60
			Female with female thread	K11X	58,5	27,5	24	150
		3/8" NPT	Complete (K13M+K13X)	K13	-	-	-	-
			Male with female thread	K13M	37	27	24	70
			Female with female thread	K13X	60,5	27,5	24	175
1500		1/4" BSP	Complete (K15M+K15X)	K15	-	-	-	-
			Male with female thread	K15M	37	25	22	65
			Female with female thread	K15X	58,5	27,5	24	150
2000		1/4" BSP	Complete (K20M+K20X)	K20	-	-	-	-
			Male with female thread	K20M	38	25	22	65
			Female with female thread	K20X	67	30	24	210

MANIFOLDS - FITTINGS 1000 - 2000 - 3000 BAR



■ Max working pressure **1000 bar**

■ Applications **3 - 9**

FEATURES

Manifolds

- of various sizes with axial or radial outlets, these manifolds are threaded **1/4" NPT** to accept **G106** pressure gauge.

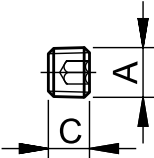

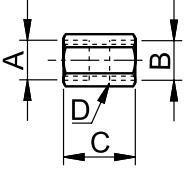

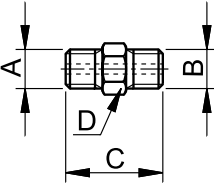

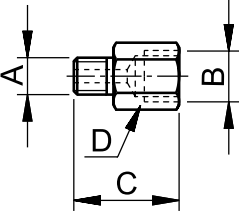

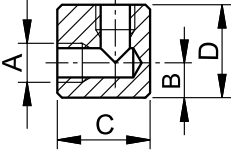

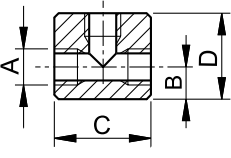

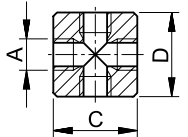

Fittings

- The fittings range at 1000 bar guarantees a safety factor 4 if used at 700 bar w.p., and a safety factor 2,8 if used at 1000 bar w.p.

MANIFOLDS			Nu. applications	A mm	B mm
Multi level Manifold	RB386		6	-	-
Single level Manifold	RM387		7	260	110
	RM389		9	400	180
Radial manifold	RK383		3	45	-
	RK385		5	55	-
	RK387		7	65	-

FITTINGS

Max working pressure **1000 bar**

FITTINGS		Dimensions					
Type	MODEL	A	B	C	D		
Plug	RC14			1/4" NPT	10.5	-	
	RC38			3/8" NPT			
Coupling	RS14			1/4" NPT	1/4" NPT	32	19
	RS38			3/8" NPT	3/8" NPT	34	24
	RS52			1/4" NPT			
Nipple	RN14			1/4" NPT	1/4" NPT	39	17
	RN38			3/8" NPT	41		
	RN381				70		
	RN382				120		
	RN52			1/4" NPT	41		
Reducing connector	RR23			1/4" BSP 120°	3/8" NPT	41	24
	RR24			1/4" NPT		40	
	RR52			3/8" NPT	1/4" NPT	19	
	RR02			1/2" BSP		22	
	RR26			1/4" NPT		30	
	RR501			3/8" NPT	1/2" BSP		
	Elbow			RE14			1/4" NPT
RE38		3/8" NPT	15	40			40
Tee	RT14			1/4" NPT	12,5	40	35
	RT38			3/8" NPT	15	45	40
Cross	RX14			1/4" NPT	-	45	45
	RX38			3/8" NPT	-		

FITTINGS

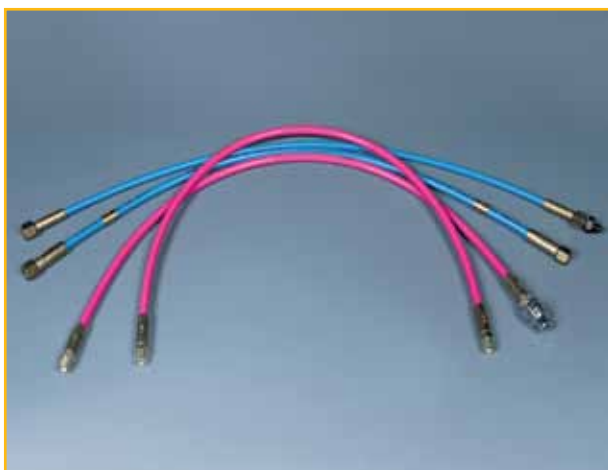
Max working pressure **2000 - 3000 bar**

FITTINGS			Dimensions					
Type	Press. bar	MODEL	A	B	C	D		
Plug	2000	RC15			1/4" BSP 120°	-	28	22
	3000	RC34			3/4"-16 UNF 60°	-	32	
Coupling	2000	RS15			1/4" BSP 120°	1/4" BSP 120°	40	19
	3000	RS34			3/4"-16 UNF 60°	3/4"-16 UNF 60°	42	27
Nipple	2000	RN15			1/4" BSP 120°	1/4" BSP 120°	46	22
		RN29				1/4" NPT	43	
		RN53				3/8" NPT	45	
		RN17				1/4" BSP **	34	
		RN31				1/4" NPT	37	
		RN55				3/8" NPT	39	
	3000	RN32	 Internal cone 60°		1/4" BSP 120°	1/4" BSP **	40	22
		RN33				M16x1,5 60°	39	
		RN28				1/2" BSP	44	
		RN34				3/4"-16 UNF 60°	54	
		RN34 O*				3/4"-16 UNF 60°	63	
		RN49				1/4" BSP 120°	50	
Reducing connector	2000	RR49			3/4"-16 UNF 60°	1/4" BSP 120°	42	22
	3000	RR51 O*			3/8" BSP 60°	1/2" BSP	53	27
Elbow	2000	RE15			1/4" BSP 120°	12,5	35	35
	3000	RE34			3/4"-16 UNF 60°	12,5	40	40
Tee	2000	RT15			1/4" BSP 120°	12,5	45	35
	3000	RT34			3/4"-16 UNF 60°	15	45	45
Cross	2000	RX15			1/4" BSP 120°	-	45	45
	3000	RX34			3/4"-16 UNF 60°	-	55	55

** Specifically for flexible hoses

* Swivelling

HIGH PRESSURE HOSES 700 - 1000 - 1800 - 2500 BAR



Max Pressure **700 - 2500 bar**

Internal Diameter **4,8 - 6,5 mm**

FEATURES

These hoses are suitable for all hydraulic applications and consist of 2, 4, or 6 steel wire spirals depending on the operating pressure. They have an extremely high tensile strength.

Their outer cover in polyurethane (700 bar) or polyamide (1800 and 2500 bar) provides excellent abrasion protection, whereas minimal expansion during operation guarantees excellent efficiency.

SELECTION CHART FOR 700 - 1000 BAR HOSES

MODEL	Max. working pressure	Fitting thread	Length	Coupling	Nipple	Min. burst pressure	Safety factor @700 bar	Safety factor @1000 bar	Internal diameter	Minimum bending radius	Oil volume	Weight		
	bar												bar	mm
SN10	1000	3/8"NPT - 3/8"NPT male	10 = 1 m 20 = 1,8 m 30 = 3 m etc.	-	-	2800	4	2,8	6,4	70	32,2	0,32		
SN10M	700			K73M										
SN10HT	700 @ 120°C	3/8"NPT - 3/8"NPT male		-									40	0,25
SQ10	1000			1/4"NPT - 1/4"NPT male										
SQ10M	700	K71M											70	0,32
SR10	1000	1/4"BSP - 1/4"BSP Swivel female		-										



- Bolt tensioners hoses: **SN#FT** (with K13X coupler).
- Torque wrenches hoses: **SQ#FM** (male coupler on one side and female on the other).



The oil volume required to fill the hoses needs to be taken into account when selecting the pump model.



The maximum operating pressure of the pump-hose-coupling system is the working pressure of the lowest rated part.

SELECTION CHART FOR 1800 - 2500 BAR HOSES

MODEL	Max. working pressure	Fitting thread	Length	Coupling	Nipple	Min. burst pressure	Safety Factor	Internal diameter	Minimum bending radius	Oil volume	Weight			
	bar											bar	mm	mm
SM10	1800	1/4"BSP - 1/4"BSP Swivel female	10 = 1 m 20 = 2 m 30 = 3 m etc.	-	-	4500	2,5	4,8	130	17,8	0,28			
SM10P					RN32									
SH10	2500				-							6250	175	0,41
SH10P					RN51									

IN-LINE VALVES - REGULATING VALVES

700 - 1000 - 2000 - 3000 BAR



Pressure **700 - 3000 bar**

FEATURES

These valves provide the means to control cylinders and actuators operating at pressures of 700, 1000, 2000 and 3000 Bar.

Specifications.

- **VL** Manual and electric control valves to operate single acting (3-way) and double acting (4 way) systems
- **VR** Regulating, shut-off and check valves to isolate and monitor hydraulic systems

Control voltage for solenoids is 230 VAC
Different voltages are available on request.



When using **closed centre** valves the pump must be **switched off** when the valve lever is in the central position to prevent overheating of the oil.



For installation of the valves in modular units, refer to the relevant section.

p. 75-76



HOW TO SELECT A VALVE

Please consider the following information when choosing a valve.

- **Single acting cylinders:** these require a **3-way** valve (three outlets: pressure P, tank T, cylinder A)
- **Double acting cylinders:** these require a **4-way** valve (4 outlets, pressure P, tank T, extension A, return B)
- **Positions:** these are the valve lever position points: extension and retraction of the cylinder (**2 position** valve) extension, holding and return (**3 position** valve)
- **Centre:** Intermediate position. The centre may be **open** and in this case the valve connects the pump (P) and users (A,B) to the discharge outlet (T), or closed and then all outlets are **closed** (if you want to isolate the cylinder but use the pump to feed other users)

Follow our safety instructions
see useful pages

p. 126



For installation of the valves on hand pumps PL, refer to the relevant section.

p. 51



VLM - IN-LINE MANUAL VALVES

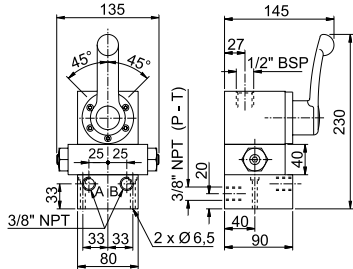

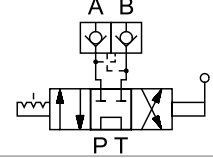
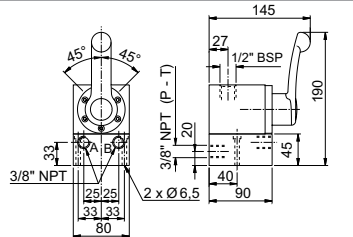

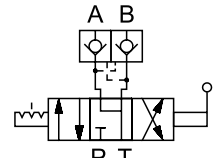
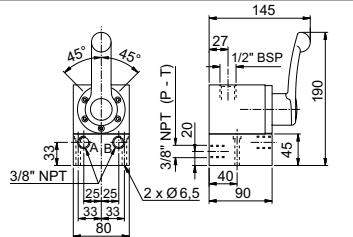

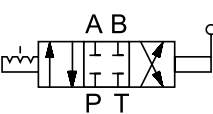
VLM PRESSURE 700 BAR

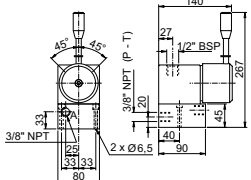

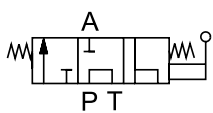
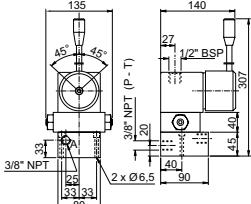

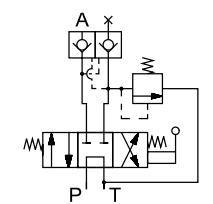
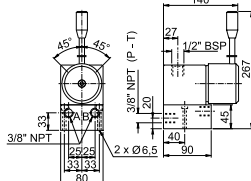

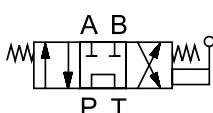
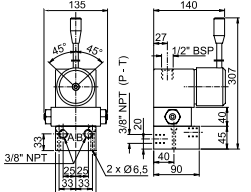

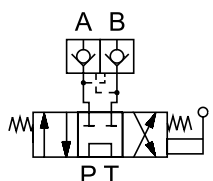
VALVES AND ACCESSORIES

MODEL	Description	Symbol
VLM31	<p>3-way, 3-position Manual Control Valve.</p> <ul style="list-style-type: none"> • Advance • Hold • Return 	
VLM32	<p>3-way, 3-position Manual Control Valve Pilot operated Check Valve.</p> <ul style="list-style-type: none"> • Advance • Hold with Pilot Check • Return 	
VLM35	<p>3-way, 3-position Manual Control Valve Pilot operated Check Valve P closed.</p> <ul style="list-style-type: none"> • Advance • Hold with Pilot Check • Return 	
VLM36	<p>3-way, 3-position Manual Control Valve Closed Centre.</p> <ul style="list-style-type: none"> • Advance • Hold • Return 	
VLM41	<p>4-way, 3-position Manual Control Valve.</p> <ul style="list-style-type: none"> • Advance • Hold • Return 	

VLM - IN-LINE MANUAL VALVES

VLS - IN-LINE MANUAL VALVES SPRING RETURN IN CENTRAL POSITION

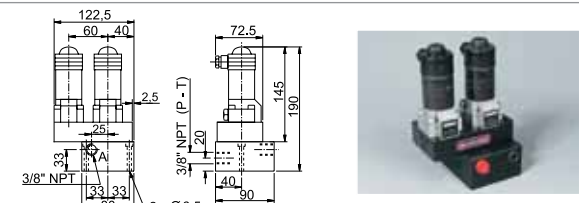
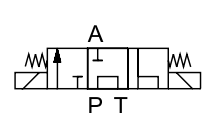
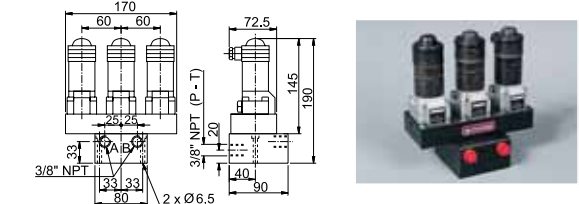
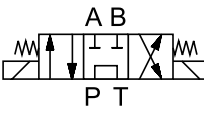
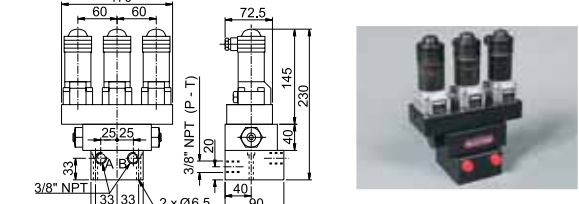
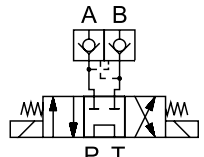
VLM PRESSURE 700 BAR				
MODEL	Description			Symbol
VLM42	4-way, 3-position Manual Control Valve Pilot operated Check. <ul style="list-style-type: none"> • Advance • Hold with Pilot Check • Return 			
VLM45	4-way, 3-position Manual Control Valve Pilot operated Check Valve P closed. <ul style="list-style-type: none"> • Advance • Hold with Pilot Check • Return 			
VLM46	4-way, 3-position Manual Control Valve Closed Centre. <ul style="list-style-type: none"> • Advance • Hold • Return 			

VLS PRESSURE 700 BAR				
MODEL	Description			Symbol
VLS31	3-way, 3-position Manual Control Valve. <ul style="list-style-type: none"> • Advance • Hold • Spring return in central position 			
VLS32	3-way, 3-position Manual Control Valve with Pilot operated Check Valve. <ul style="list-style-type: none"> • Advance • Hold with pilot check • Spring return in central position 			
VLS41	4-way, 3-position Manual Control Valve. <ul style="list-style-type: none"> • Advance • Hold • Spring return in central position 			
VLS42	4-way, 3-position Manual Control Valve with Pilot operated Check Valve. <ul style="list-style-type: none"> • Advance • Hold with pilot check • Spring return in central position 			

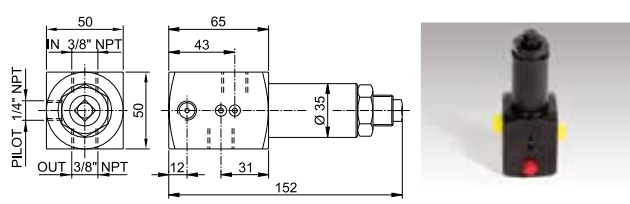
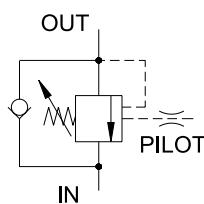
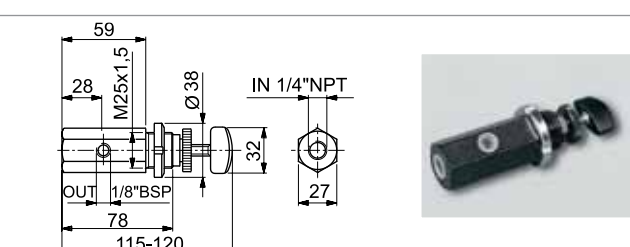
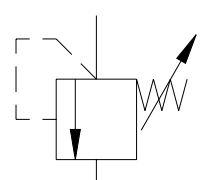
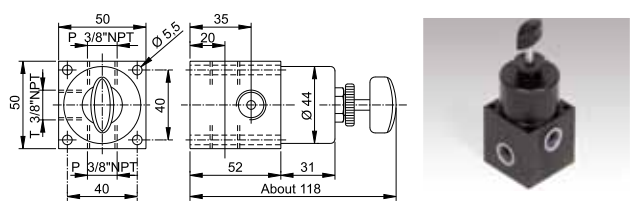
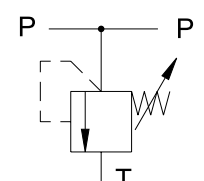
VLE - IN-LINE ELECTRIC VALVES

VR - IN-LINE REGULATING VALVES

VLE PRESSURE 700 BAR

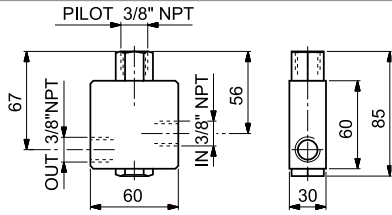
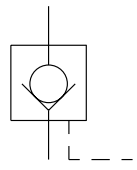
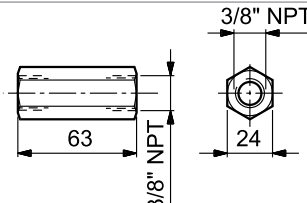
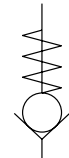
MODEL	Description	Symbol
VLE31	<p>3-way, 3-position Electric Control Valve.</p> <ul style="list-style-type: none"> • Advance • Hold • Return 	
VLE41	<p>4-way, 3-position Electric Control Valve.</p> <ul style="list-style-type: none"> • Advance • Hold • Return 	
VLE42	<p>4-way, 3-position Electric Control Valve with Pilot operated Check.</p> <ul style="list-style-type: none"> • Advance • Hold with pilot check • Return 	

VR PRESSURE 700 BAR

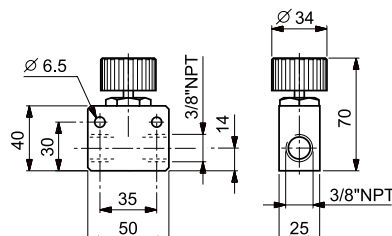
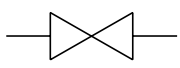
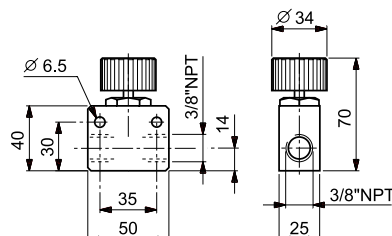
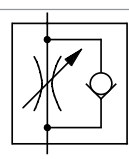
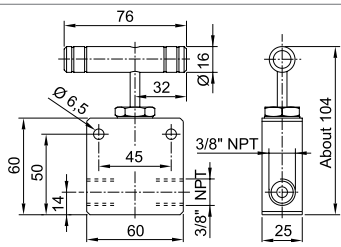
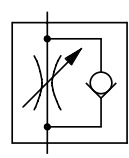
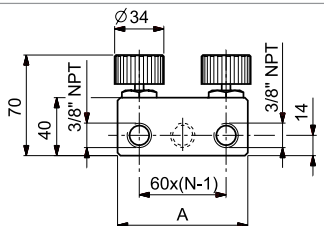
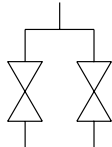
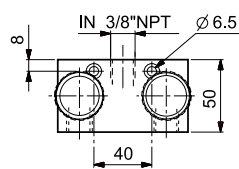
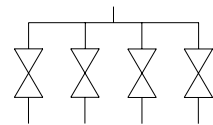
MODEL	Description	Symbol
VRB38	<p>Counterbalance valve. It allows the positive hold of the load; calibrated during assembling, it controls automatically the down stroke speed without pressure oscillations and load jumping. Only for double acting cylinders.</p> 	
VRM14	<p>Pressure relief valve limiting the circuit pressure to the maximum required value (ranging between 50 and 700 bar). Adjusted by the valve control wheel. Suitable to be mounted on a panel.</p> 	
VRM381	<p>Pressure relief valve limiting the circuit pressure to the maximum required value (ranging between 50 and 700 bar). Adjusted by the valve control wheel. Suitable to be mounted in line.</p> 	

VR - IN-LINE REGULATING VALVES

VR PRESSURE 700 BAR

MODEL	Description	Symbol
VRP38	Pilot operated check valve. To permit free flow in one way and shut off the flow in the opposite direction. Pilot ratio 1.4 	
VRR38	One-way check valve. To shut off the oil flow in one direction $\Delta P = 1$ bar 	

VR PRESSURE 1000 BAR

MODEL	Description	Symbol
VRF38	Needle valve. To shut off the flow. 	
VRU38	One-way flow control valve. It permits controlled load lowering. 	
VRH38	One-way flow control valve with fine regulation. It permits controlled load lowering. 	
VRF382	Double outlet needle valve. To split the flow in two separate ways. A= 90 	
VRF384	Needle valve with four outlets to split the flow in four separate ways. A= 210 	

VR - IN-LINE REGULATING VALVES

ZOH - IN-LINE REGULATING VALVES

VR PRESSURE 2000 BAR

MODEL	Description	Symbol
VRF15	Needle valve. To shut off the flow.	
VRF152	Double outlet needle valve. To split the flow in two separate ways. A= 115	
VRF153	Needle valve with three outlets to split the flow in three separate ways. A= 180	
VRF154	Needle valve with four outlets to split the flow in four separate ways. A= 245	

VR PRESSURE 3000 BAR

MODEL	Description	Symbol
VRF34	Needle valve. To exclude circuit branches.	
VRR34	One-way check valve. To shut off the oil flow in one direction.	

ZOH HYDRAULIC OIL



Always use EUROPRESS hydraulic oil or oil having the same technical characteristics. Different oil types might damage the seals or gaskets and equipment and would make the guarantee null and void.

Container size

1 - 10 lt

FEATURES

EUROPRESS high pressure hydraulic oil is a mineral based oil to ISO VG 32 with excellent viscosity and lubrication properties. The use of EUROPRESS oil will ensure maximum efficiency and long service life of the equipment. EUROPRESS hydraulic oil is non foaming, will not leave gummy deposits, nor corrode valve seats, seals or gaskets, or the cylinder walls.

Supplied in 1, 5 and 10 lt. containers.

Code:

- ZOH1 1 litre Container
- ZOH5 5 litres Container.
- ZOH10 10 litres Container.



HYDRAULIC TOOLS



Maintenance

UE p. 96



UML p. 100



UMP p. 102



UMS p. 103



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Bolting

UA p. 105



UD p. 106



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UWB - UWC ..p. 108



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Tools

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PULLERS AND EXTRACTORS



FEATURES

They consist of two parts:

- **Mechanical** manufactured in high quality steel to ensure reliability and long life
- **Hydraulics** consisting of a PS or PL pump, a cylinder from the CMF range with ZTE threaded hollow saddle, an SN20M hose assembly and G106L pressure gauge

Pullers of the **UE** range may be supplied in 5 tonnage types (5 - 10 - 20 - 30 - 50) and in 3 configurations, i.e.:

- **UEC# (complete puller set)** which includes all mechanical parts and the hydraulic components
- **UEG# (jaw puller)** consisting of 3 jaw puller and hydraulic components
- **UET# (press puller set)** consisting of: press puller internal and external puller, hydraulic components

The self aligning 3 jaw puller is also available for a more precise and easy positioning on the workplace.

APPLICATIONS

Indispensable when extracting gears, bearings, couplers and bushings etc.

A correct assessment of the item to be extracted as well as the force required is essential for correct selection of the puller component.



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ACCESSORIES

- **UEB#** Carry Case (except for the 50 ton model)



OPTIONS

- **Version Z (UEC#Z)** complete puller supplied with self aligning type jaw puller(UEZ) instead of the standard type jaw puller UEG).



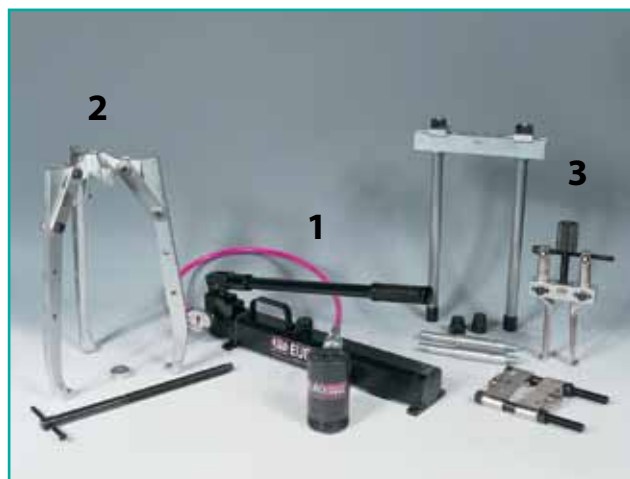
Each puller component has a different **operating pressure** which must never be exceeded. Please refer to data charts.



The safety regulations laid down in the operating and maintenance manual must be observed at all times.



COMPLETE HYDRAULIC PULLERS



Force **5 - 50 t**

Pullers for specific applications and different tonnes, and for special use may be supplied on request.

SELECTION CHART FOR COMPLETE PULLERS

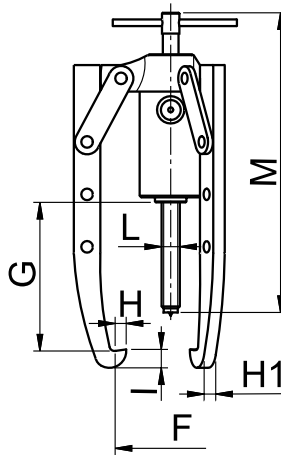
Description		MODEL				
		UEC5	UEC10	UEC20	UEC30	UEC50
HYDRAULICS UEU#	Pos.					
Hand pump	1	PS100	PL131	PL141	PL141	PL162
Cylinder		CMI5N125	CMF10N50E	CMF20N50E	CMF30N50E	CMF60N75E
Hose		SN20M	SN20M	SN20M	SN20M	SN20M
Pressure gauge		G106L	G106L	G106L	G106L	G106L
Max.operating pressure	-	Refer to the capacity of each mechanical component				
MECHANICAL PARTS UEC#M	Pos.					
Jaw pullers	2	UEG5M	UEG10M	UEG20M	UEG30M	UEG50M
Press, internal & external puller	3	UET5M	UET10M	UET20M	UET30M	UET50M

ACCESSORIES: CARRY CASE UEB



MODEL	For use with	Note
UEB10	UEC10	-
UEB20	UEC20	
UEB30	UEC30	Consisting of UEB10 + UEB20

DOUBLE & TRIPLE GRIP JAW PULLERS SETS



Force **5 - 50 t**



Pullers for specific applications and different tonnes, and for special use may be supplied on request.

SELECTION CHART FOR STANDARD (UEG) AND SELF ALIGNING TYPE (UEZ) JAW PULLERS

Description			MODEL					
			UEG5	UEG10	UEG20	UEG30	UEG50	
			-	UEZ10	UEZ20	UEZ30	UEZ50	
HYDRAULICS UEU#	Pos.							
Hand pump	1		PS100	PL131	PL141	PL141	PL162	
Cylinder			CM15N125	CMF10N50E	CMF20N50E	CMF30N50E	CMF60N75E	
Hose			SN20M	SN20M	SN20M	SN20M	SN20M	
Pressure gauge			G106L	G106L	G106L	G106L	G106L	
Max.operating pressure	-		700 bar	560 bar	600 bar	615 bar	580 bar	
MECHANICAL PARTS	UEG#M	UEZ#M	Pos.					
Protection saddle			2	-	UETS10	UETS20	UETS30	UETS50
Number of jaws			3	2	* 2/3	2/3	2/3	2/3
Minimum spread mm			F	73	50	70	90	120
Maximum spread mm				195	350	480	580	920
Maximum reach mm			G	220	268	335	425	731
Jaw width mm			H	18	14	18	25	30
Jaw depth mm			H'	26	15	20	22	25
Jaw thickness mm			I	11	25	32	42	50
Adjusting screw thread			L	-	3/4" - 16 UNF	1" - 8 UNC	1 1/4" - 7 UNC	1 5/8" - 5,5 UNS
Adjusting screw length			M	-	400	670	790	975
Weight 2/3 jaw			kg	5	12	22/27	36/45	85/103

* Universal crosshead



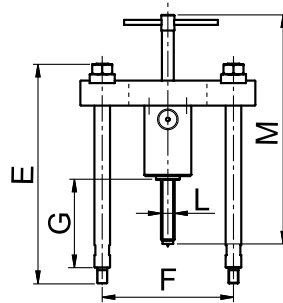
The jaw puller **UEZ** is fitted with a self aligning mechanical device to synchronise closing of the jaws on the workpiece so that precise positioning can be obtained.



The 5 t. jaw puller may also be used as an internal puller by assembling the jaws facing outwards



HYDRAULIC PRESS PULLER SETS

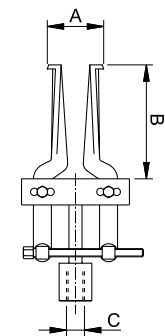


Force **5 - 50 t**

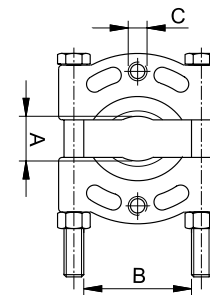
Pullers for specific applications and different tonnes, and for special use may be supplied on request.

SELECTION CHART FOR PRESS PULLERS

		MODEL													
Description		UET5		UET10		UET20		UET30		UET50					
HYDRAULICS UEU#	Pos.														
Hand pump	1	PS100		PL131		PL141		PL141		PL162					
Cylinder		CMI5N125		CMF10N50E		CMF20N50E		CMF30N50E		CMF60N75E					
Hose		SN20M		SN20M		SN20M		SN20M		SN20M					
Pressure gauge		G106L		G106L		G106L		G106L		G106L					
Max.operating pressure	-	700 bar		560 bar		600 bar		615 bar		580 bar					
MECHANICAL PARTS UET#M		Pos.													
Internal puller	2	-		UEI10		UEI20		UEI30		UEI50					
External puller	3	-		UEE10		UEE20		UEE30		UEE50					
Protection saddle	4	UETS5		UETS10		UETS20		UETS30		UETS50					
Number of legs	5	2	2	2	2	2	2	2	2	2	2	2	2		
Leg length mm	E	180	360	209	460	209	336	515	665	328	582	836	820	1075	
Maximum reach mm	G	100	280	-21	230	-56	71	250	400	4	258	512	399	655	
Minimum spread mm	Fmin.	82		115		135		180		230					
Maximum spread mm	Fmax.	235		260		345		440		580					
Adjusting screw thread	L	-		3/4" - 16 UNF		1" - 8 UNC		1 1/4" - 7 UNC		1 5/8" - 5,5 UNS					
Adjusting screw length	M	-		400		670		790		975					
Weight	kg	5		13		32		55		115					



Internal puller UEI



External puller UEE

INTERNAL PULLER UEI

MODEL	Force Pressure		Dimensions mm				Weight kg
	t	bar	A min.	A max.	B	C	
UEI10	5	280	40	145	115	3/4" - 16 UNF	2
UEI20	10	300	32	160	140	1" - 8 UNC	2,5
UEI30	15	310	60	240	150	1 1/4" - 7 UNC	6
UEI50	25	290	60	240	150	1 5/8" - 5,5 UNS	6

EXTERNAL PULLER UEE

MODEL	Force Pressure		Dimensions mm				Weight kg
	t	bar	A min.	A max.	B	C	
UEE10	7	370	10	110	110	5/8" - 18 UNF	2,5
UEE20	13	400	11	134	152	5/8" - 18 UNF	5,5
UEE30	20	410	15	250	260	1" - 14 UNF	25
UEE50	33	385	15	250	260	1 1/4" - 12 UNF	25

LIGHTWEIGHT ALUMINIUM JACKS



In the **claw version** the load to be lifted shall not exceed the value indicated on the claw and in the chart.



Follow carefully the safety instruction as in the use and maintenance handbook

Follow our safety instructions. See useful pages.

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FEATURES

UML are self contained compact lifting units with the capacity to lift up to 100 tonnes. They are portable, efficient and reliable.

They are available in three versions:

- **Standard** with plain ram for lifting vertically or pushing horizontally on the front face
- **Lock ring, with** screwed ram and locking collar, an ideal solution to support the load mechanically for long periods
- **With Claw** for conventional load lifting or lifting from very low heights on the claw. These models have extended bases for maximum stability.

All models are provided with

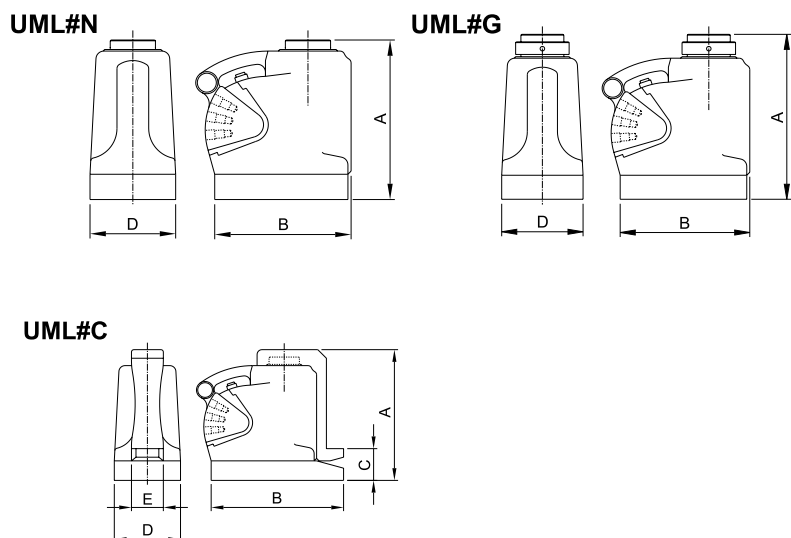
- A built-in safety valve to prevent overload
- A release valve controlled by an operating lever to lift and lower the jack.
- A built-in carry handle on models over 15 tons

APPLICATIONS

Because of their light weight and easy handling, these jacks are particularly versatile and suitable for all many applications in the industrial, civil, ship repair, and railway industries.



LIGHTWEIGHT ALUMINIUM JACKS

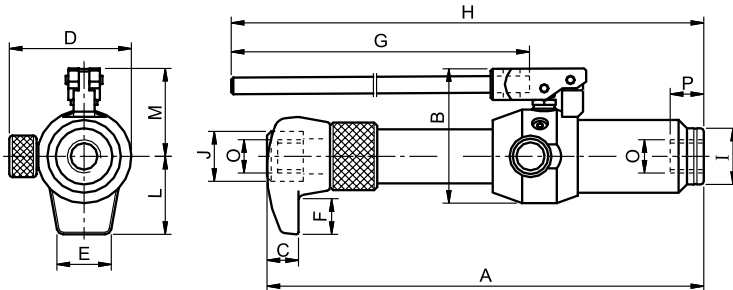


Force **6,5 - 100 t**
Stroke **75 - 305 mm**

SELECTION CHART: ALUMINIUM JACKS

Type	Pushing force t	Maximum load on the claw t	Stroke mm	MODEL	Dimensions mm					Weight kg	
					A	B	C	D	E		
Standard	6,5	-	75	UML6N75	131	159	-	76	-	3,6	
	10	-	115	UML10N115	182	171	-	76	-	6,3	
	15	-	152	UML15N152	230	197	-	92	-	10,0	
	20	-	-	152	UML20N152	257	191	-	130	-	13,6
				305	UML20N305	445	267	20,4			
	30	-	-	152	UML30N152	263	197	-	140	-	15,4
				305	UML30N305	451	273	23,4			
	60	-	-	152	UML60N152	292	260	-	197	-	31,3
				305	UML60N305	505	348	55,0			
100	-	-	152	UML100N152	310	305	-	240	-	49,0	
With safety lock ring	20	-	152	UML20G152	283	191	-	130	-	14,1	
			305	UML20G305	470	267	20,9				
	30	-	-	152	UML30G152	292	197	-	140	-	16,4
				305	UML30G305	479	273	24,4			
	60	-	-	152	UML60G152	330	260	-	197	-	33,2
				305	UML60G305	543	348	52,0			
100	-	-	152	UML100G152	360	305	-	240	-	53,0	
With claw	20	8	152	UML20C152	276	267	70	130	70	19,5	
			305	UML20C305	464				80	28,2	
	30	12	-	152	UML30C152	281	273	73	140	85	20,3
				305	UML30C305	470				95	31,0
	60	24	-	152	UML60C152	325	348	72	197	100	50,0
				305	UML60C305	469				110	81,0

UNIVERSAL HYDRAULIC JACK PRIMUS



Force	5 t
Stroke	150 mm

FEATURES

Compact hydraulic lifter with integral hand pump and cylinder, manufactured from steel and aluminium. Due to its special rubber bladder type oil reservoir it can be used in any working position.

A built in safety valve prevents overload.

Supplied complete with a tread protection ring, lifting toe and pushing saddle as standard.

You can lift the load on the head or on the lifting toe or on the foot (by using the accessories).

The release valve handwheel allows the load to be lowered in a smooth controlled manner, suitable for use in temperatures ranging from -30 to +60 degrees C.

APPLICATIONS

The special design of the PRIMUS-lifter, allows it to be used in any working position which gives this jack a very wide range of heavy duty field applications.

Used widely in the mining, shipbuilding, railway and steel structural industries it is also suitable for use in rescue applications.

The PRIMUS-lifter is an essential piece of equipment for any repair facility.



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ACCESSORIES

— **ZUN5 Nipple**, to screw on clevis eye on top side

ZUE5 Clevis eye, for attachments on the rod (without nipple) or on top side of the cylinder (with nipple). Hole dimensions 22 mm

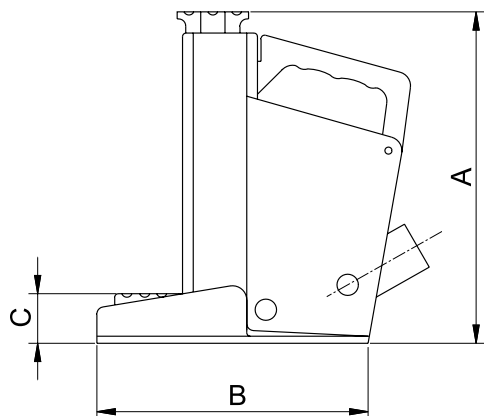
OPTIONS

— **S Versione**, (UMP5N150WS) Tool without bracket.

SELECTION CHART

Pushing force	Stroke	Lift per handle stroke	Handle effort	Reservoir capacity	MODEL	Dimensions mm													Weight	
						t	mm	mm	N	cm ³	A	B	C	D	E	F	G	H		I
5	150	1,3	275	260	UMP5N150W	416	130	30	116	48	35	400	565	54	48	75	85	M32x2	20	9,3

STEEL HYDRAULIC JACKS



- Force 5 t
- Stroke 175 mm

FEATURES

- **Reduced front profile** which permits the insertion of the jack in very limited load spaces. This jack has a claw height of only 41 mm above ground level for lifting of loads from a very low height
- **The claw is manufactured in high tensile steel** sliding inside the jack and therefore perfectly guided, and with excellent resistance to off-centre loads
- **Will lift 5 Tonnes on the head and on the claw**
- **Lateral stability** is ensured by the sturdy extended base
- **Easy application** This jack is very easy to use, even in heavy duty conditions because of the single mechanism operating both the pump and the release valve
- **Built in relief valve** and a mechanical stop to prevent overstroking of the piston

APPLICATIONS

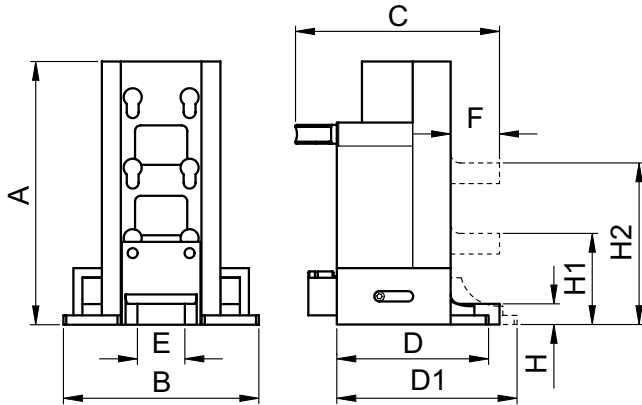
This jack, designed with a high safety factor to operate in heavy duty conditions, is made from steel without any aluminium components. It is widely used in the machinery moving, mining, ship repair and railway industries.



SELECTION CHART

Pushing force	Maximum load on the claw	Stroke	MODEL	Dimensions mm			Weight	
				A	B	C		Width
t	t	mm						
5	5	175	UMS5N175	327	265	41	118	18

EUROJACK HEAD AND TOE LIFTING JACK



- Force 10 - 25 t
- Stroke 150 mm
- Max Working Pressure: 700 bar



FEATURES

Power jack with adjustable lifting toe designed to lift large loads from very low positions.

They are provided with extendable bases for maximum stability. The lifting toe can be positioned at three different levels with only 25 mm minimum clearance needed. The head of the jack may also be used to lift vertically, or if the jack is turned onto its side it can be used for pushing.

APPLICATIONS

Particularly suitable for lifting, moving and levelling of machinery and heavy equipment from a very low starting height.



Hand Pump model **PL131** is the recommended pump to operate the power jack **UJ** model.



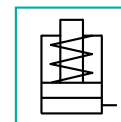
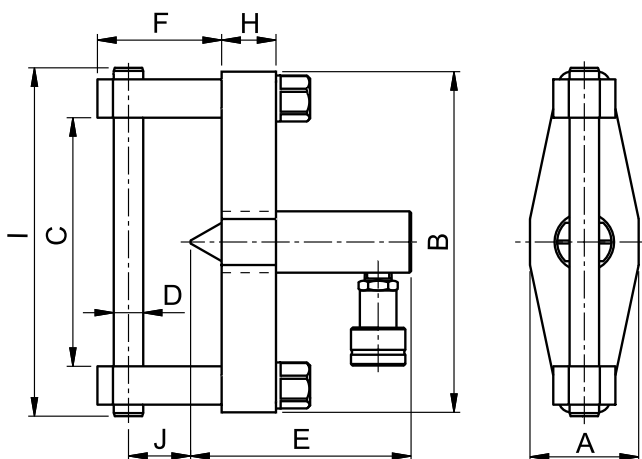
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SELECTION CHART

Pushing force t / kN	Stroke mm	Oil volume cm ³	MODEL	Dimensions mm										Weight kg
				A	B	C	D	D1	E	F	H	H1	H2	
10 / 111	150	238	UJ10	280	206	215	160	190	50	50	25	100	175	22
25 / 232	150	498	UJ20	314	271	290	230	265	70	70	30	110	190	45

FLANGE SPREADER



Force	5 - 10 t
Opening	48 - 223 mm
Pressure:	700 bar

FEATURES

The UA Europress flange spreader is completely Nitreg treated (excluded the aluminium parts) for a bigger strength and resistance to corrosion. It's equipped with a standard CMI Europress cylinder, easy to use, safe and lightweight. It's available in the version of 5 and 10 ton, with a working pressure of 700 bar.

The flanges can be regulated to reach an opening from 48 to 223 mm.

It's supplied complete with the coupler.

OPERATIONAL AERAS

Petrochemistry industry, industrial and shipyards maintenance are the fields where this useful and essential tool is mostly used.



For the best use of UA Flange Spreader we recommend our hand pumps model **PS100** or **PL140**.

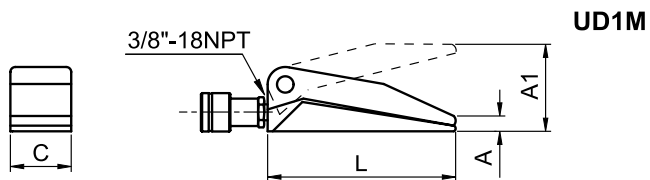
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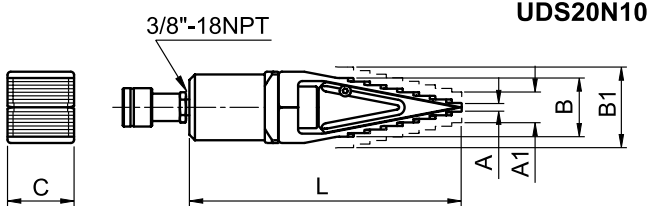
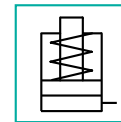
SELECTION CHART

Pushing force	Flange opening	Stroke	Oil volume	MODEL	Dimensions mm									Weight
					t	mm	mm	cm ³	A	B	C	D	E	
5	3 - 25	50	35	UA5	70	220	48-161	19	143	80	35	227	40	4,0
10	4 - 35	50	80	UA10	100	300	64-223	32	153	90	50	315	50	9,5

HYDRAULIC SPREADERS



UD1M



UDS20N10

Force **1 - 20 t**

Max working Pressure: **700 bar**

FEATURES AND APPLICATIONS

Depending on the model they are ideal for lifting and levelling of machinery, splitting flanges, and for reforming bodywork.

Pistons are spring return on all models and the tool can be ordered in the following versions:

- **Spreader 1 ton capacity (UD1M)**
- **Spreader 20 ton capacity (UDS20N10)**
- **Spreader set** composed of UD1M + hand pump PS100 + hose SN10M (**UD1MC**)
- **Spreader set** composed of UDS20N10 + hand pump PL131 + hose SN10M (**UDS20C**)

Follows our safety instruction.
See **useful pages**.

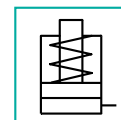
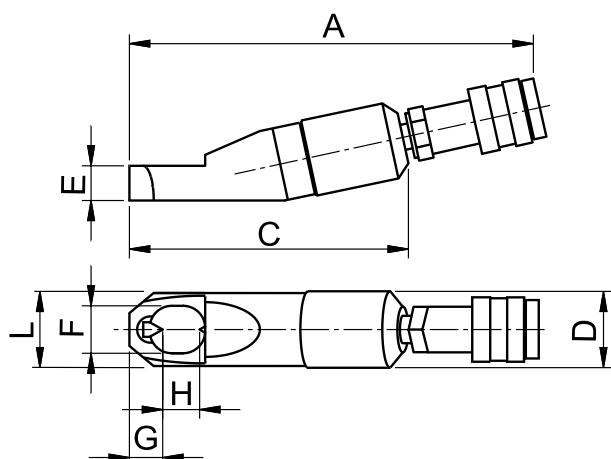
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SELECTION CHART

Force t	MODEL	Dimensions mm						Weight kg
		A	A1	B	B1	L	C	
1	UD1M	14	80	-	-	170	52	3,5
17	UDS20N10	8	18	54	64	246	60	3,7

NUT CUTTER



- Force 5 - 50 t
- Nut thread M8 - M39
- Max Working Pressure: 700 bar

FEATURES

US series nut cutters feature **opposed double blades** which permit nut cutting in one single operation (EUROPRESS patented system). This system reduces cutting time and allows operation in confined spaces.

The nuts to be cut may be in high tensile steel with hardness up to 44 HRCHRC.

After cutting, the piston is retracted by spring return.

Worn-out blades may be re-sharpened or replaced.

APPLICATIONS

US nut cutters are designed to cut any nuts that are difficult to remove; they are appropriate for maintenance jobs on pipes and flanges, in the mining, steel structural work and railway sectors, these being a few of the many applications.



Take care when using the cutter to ensure the blade is completely square to the nut to be cut. This will prevent any side loading or damage to the cutter or the blades.

ACCESSORIES

- **US#R** spare blade set

SELECTION CHART

Bolt range mm	Hexagon nut range mm	Force t	Oil Volume cm ³	MODEL	Dimensions mm										Weight kg
					A	B	C	D	E	F	G	H max.	H min.	L	
M8÷M12	13÷19	5	12	US1319	218	62	137	42	19	26	18	23	8	40	1,2
M12÷M16	19÷24	11	25	US1924	243	73	161	59	25	34	22	28	12	55	2,3
M16÷M22	24÷32	16	48	US2432	265	78	180	70	30	41	24	36	16	63	3,2
M22÷M27	32÷41	22	72	US3241	304	88	222	84	35	55	28	45	22	78	5,1
M27÷M33	41÷50	32	119	US4150	351	118	283	104	42	70	32,5	54	27	96	10,4
M33÷M39	50÷60	50	220	US5060	403	139	333	124	52	82	38	64	33	118	17,5

TORQUE WRENCHES

FEATURES

EUROPRESS torque wrenches are used to accurately tighten nuts to the correct torque setting.

Their high power to weight ratio, excellent application flexibility, and easy use make UWB and UWC torque wrenches a very popular tool.

They are lightweight and portable and the Light Alloy version offers a 30% weight saving over the standard model.

They are available in four different versions:

- **UWB# in steel with square insert** to be used on standard sockets
- **UWBL# in light alloy with square insert** to be used on standard sockets
- **UWC# in steel with replaceable cartridge** and female hexagon
- **UWCL# in light alloy with interchangeable cartridge** and female hexagon

UWC# and UWCL# wrenches consist of two parts:

- the body with double acting cylinder
- the interchangeable cartridge

APPLICATIONS

EPP Torque wrenches enable tightening and removal of nuts in many Industrial and offshore applications involving pumps, valves, compressors, flanges, heat exchangers, presses, rolling mills and power generating machinery.

In particular, UWC# and UWCL# wrenches can be used whenever the height is not sufficient to use the bushings.



Hydraulic Power units from the **MDW** Series are designed for use with torque wrenches.

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Deformed or rusted nuts that are difficult to remove can also be removed by using the **US** nut cutter.

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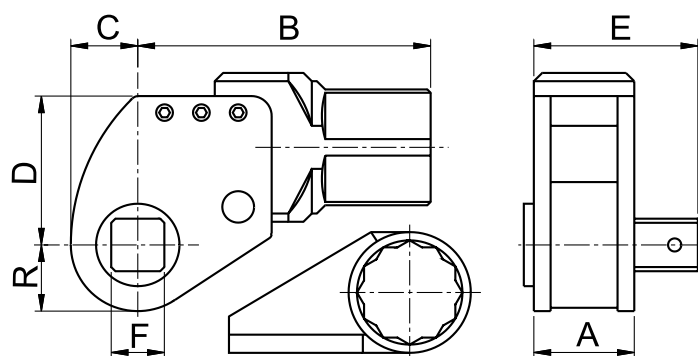


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Torque wrenches with interchangeable cartridges on request are available with:

- hexagons reducing sleeves
- square drive adapters
- adapters for use with allen screws

TORQUE WRENCHES



■ Max. Torque **1360 - 108800 Nm**
■ Square Insert **3/4" - 3 1/2"**

SELECTION CHART: STEEL WRENCH WITH SQUARE INSERT FOR BUSHINGS

Max. Torque	F	MODEL	Dimensions mm						Weight
			A	B	C	D	E	R	
Nm	inch								kg
1360	3/4" - 1"	UWB1	42	115	28	65	70	24	4
2040		UWB2	50	140	30	65	90	25	6
4488	1"	UWB4	52	175	40	90	92	35	8
7888	1 1/2"	UWB8	65	180	45	95	120	37	13
10060		UWB10	65	207	58	112	120	45	16
14960		UWB15	83	222	66	130	138	45	22
20400	2 1/2"	UWB20	95	230	70	140	172	52	31
28560		UWB28	97	265	74	157	175	62	44
43520		UWB41	115	290	80	175	185	69	54
68000	2 1/2" - 3 1/2"	UWB68	145	320	90	200	230	85	103
108800		UWB109	172	416	100	258	272	100	178

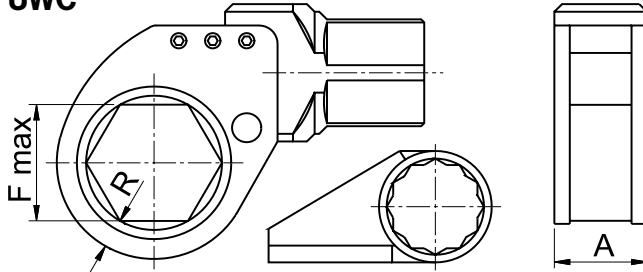
HYDRAULIC TOOLS

SELECTION CHART: LIGHT ALLOY WRENCHES WITH SQUARE INSERT FOR BUSHINGS

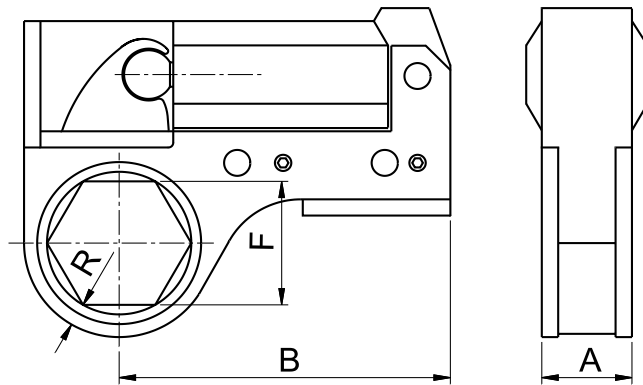
Max. Torque	F	MODEL	Dimensions mm						Weight
			A	B	C	D	E	R	
Nm	inch								kg
2040	1"	UWBL2	50	145	50	70	80	30	3
4500		UWBL4	65	181	48	103	95	37	5
9500	1 1/2"	UWBL10	90	200	68	107	130	50	9
15000		UWBL15	102	221	72	118	147	52	13
34000	2 1/2"	UWBL34	120	300	90	165	185	70	28

TORQUE WRENCHES

UWC



UWCL



■ Max Torque **1360 - 108800 Nm**

■ Hexagon Cartridge: **24 - 250 mm**

SELECTION CHART: STEEL WRENCHES WITH INTERCHANGEABLE CARTRIDGE

Max Torque Nm	F max mm	MODEL	Dimensions mm	
			A	R
1360	41	UWC1	38	11
2040	55	UWC2	41	12
4488	65	UWC4	52	15
7888	75	UWC8	58	16
10060	80	UWC10	64	18
14960	120	UWC15	82	20
20400	120	UWC20	96	22
28560	130	UWC28	100	25
43520	155	UWC41	120	30
68000	205	UWC68	147	38
108800	250	UWC109	180	48

SELECTION CHART: LIGHT ALLOY WRENCHES WITH INTERCHANGEABLE CARTRIDGE

Max Torque Nm	F mm	MODEL	Dimensions mm		
			A	B	R
1630	24 - 36	UWCL2	32	170	12
2850	36 - 60	UWCL3	35		14
4100	46 - 65	UWCL4	40	200	15
6120	50 - 80	UWCL6	42		16
10500	65 - 100	UWCL10	64	230	18
19000	80 - 120	UWCL19			19
27000	90 - 130	UWCL27	80	280	23
41000	100 - 155	UWCL41		290	27

BOLT TENSIONERS 1000 - 1500 BAR



FEATURES

EUROPRESS bolt tensioners are made of an hydraulic part with a supporting base (bridge) to which a threaded puller and a polygonal wrench in its various sizes may be added. This allows to cover a large number of tie rods and to optimize the number of bolt tensioners necessary. According to their technical characteristics, they differ as:

UTN series at 1000 bar, provide a traction force of about the 70% of the break point of a steel bolt grade 8.8 of the biggest size (value of max thread in the chart). They are equipped with **K13M** coupler.

UTH series at 1000 bar, with most of these you can obtain a traction force equal to 70% of the yield stress of a steel bolt grade 10.9 of the maximum size (value of max thread in the chart). They are equipped with **K13M** coupler.

UTV series at 1500 bar, that can develop a traction force of about the 70% of the break point of a steel bolt grade 10.9 of the biggest size (value of max thread in the chart). They have reduced overall dimensions if referred to the 1000 bar series, due to their high working pressure. They are equipped with a **K15M** coupler, and have a second auxiliary hole (1/4" BSP) that can be joined with a quick coupler (to be ordered separately) for in line connections.

All tensioners are supplied with **tommy bar** to operate the threaded puller and the polygonal wrench.

The gas nitriding treatment (Nitreg) provided to all steel of EUROPRESS products makes them particularly fit for working outside or in aggressive locations, thanks to their high resistance to corrosion.

APPLICATIONS

The big advantage of tensioning is given by the fact that it is possible to charge in advance a tie rod with the required load in an extremely precise manner, thus avoiding the force losses due to the frictions of the traditional torque tightening. Their great facility in use, the possibility to save time and staff and their precision are all factors that make this technique particularly useful in those sectors where a perfect coupling or flange tightness is essential for the safety of people and machinery.

In particular in the industrial and oil sectors and in all situations where it is necessary to tighten with extreme accuracy nuts or threaded tie rods.

They are widely used to tighten valves, pumps, heat exchangers, flanges, etc.



Tensioning system for roof's supporting structure while building the new Rome's Music Auditorium. On this job were used bolt tensioner cylinders specially manufactured from Euro Press Pack. (Rome Italy, 2001)



If you use a tensioning system where you choose to tension in various steps (50%, 33% or even 25% of the points) for space reasons, take care to alternate the tensioners and to locate them in opposite positions.



To operate in complete safety be careful that the threaded screw sticks out of the nut at least as much as the measure of the diameter of the tensioner.



The tensioner maximum capacity refers to its maximum working pressure; for smaller loads reduce the pressure in a proportional way.

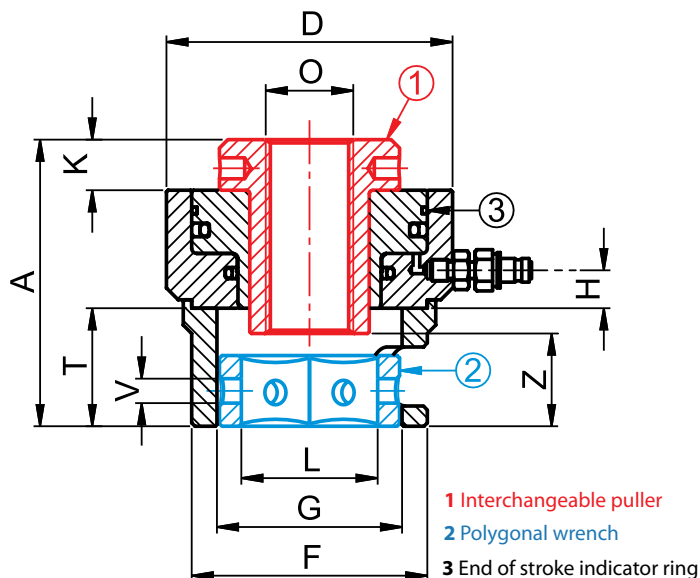
BOLT TENSIONERS 1000 BAR

MATCHING CHART

COMPLETE BOLT TENSIONER	Hydraulic part	Threaded puller	Polygonal wrench
 UTN4864M48 UTN4864M56 UTN4864M64	UTN4864	UTB484	UTC48
		UTB564	UTC56
		UTB644	UTC64
UTN6476M64 UTN6476M72 UTN6476M76	UTN6476	UTB645	UTC64
		UTB725	UTC 72
		UTB765	UTC76
UTN76100M76 UTN76100M80 UTN76100M90 UTN76100M100	UTN76100	UTB766	UTC76
		UTB806	UTC80
		UTB906	UTC90
		UTB1006	UTC100

COMPLETE BOLT TENSIONER	Hydraulic part	Threaded puller	Polygonal wrench
UTH1624M16 UTH1624M20 UTH1624M24	UTH1624	UTB161	UTC16
		UTB201	UTC20
		UTB241	UTC24
UTH2739M27 UTH2739M30 UTH2739M36 UTH2739M39	UTH2739	UTB272	UTC27
		UTB302	UTC30
		UTB362	UTC36
		UTB392	UTC39
UTH3952M39 UTH3952M42 UTH3952M52	UTH3952	UTB393	UTC39
		UTB423	UTC42
		UTB523	UTC52
UTH4864M48 UTH4864M56 UTH4864M64	UTH4864	UTB484	UTC48
		UTB564	UTC56
		UTB644	UTC64
UTH6476M64 UTH6476M72 UTH6476M76	UTH6476	UTB645	UTC64
		UTB725	UTC72
		UTB765	UTC76
UTH76100M76 UTH76100M80 UTH76100M90 UTH76100M100	UTH76100	UTB766	UTC76
		UTB806	UTC80
		UTB906	UTC90
		UTB1006	UTC100

TENSIONERS 1000 BAR

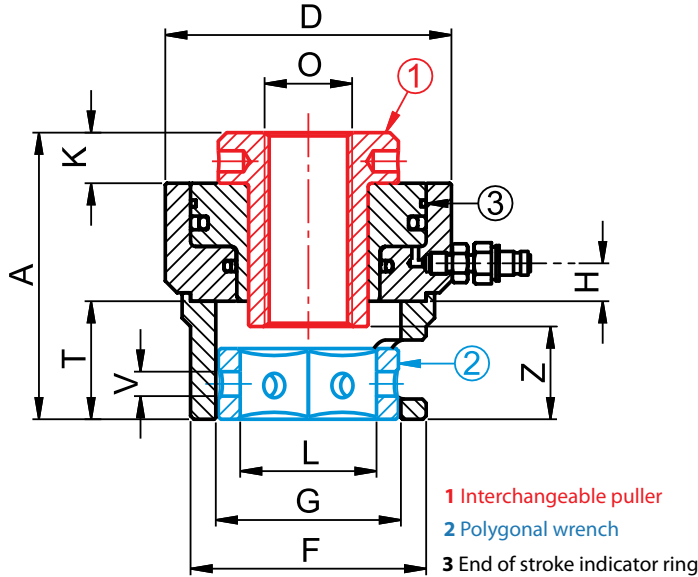


- Force **99 - 4369 kN**
- Stroke: **15 mm**
- Max working pressure **1000 bar**
- Threaded puller **M16 - M100**

SELECTION CHART

Operating force @ pressure		Oil volume	Screw	MODEL									Threaded puller	Polygonal wrench	Weight	
kN	bar	cm ³	mm		A	ØD	ØF	ØG	H	T	Z	K	O	L		ØV
659	519	191	M48	UTN4864M48	185	195	165	130	20	80	65	35	M48 x 5	76	12,5	24
909	715		M56	UTN4864M56									M56 x 5,5	86		
1198	942		M64	UTN4864M64									M64 x 6	96		
1198	626	287	M64	UTN6476M64	200	240	200	150	25	95	80	40	M64 x 6	96	20,5	37
1549	810		M72	UTN6476M72									M72 x 6	106		
1742	910		M76	UTN6476M76									M76 x 6	111		
1742	601	438	M76	UTN76100M76	230	295	245	190	30	115	100	45	M76 x 6	111	20,5	59
1946	672		M80	UTN76100M80									M80 x 6	116		
2504	864		M90	UTN76100M90									M90 x 6	131		
2898	1000		M100	UTN76100M100									M100 x 6	146		
99	381		M16	UTH1624M16									122	85		
154	595	M20	UTH1624M20	M20 x 2,5	30,5											
222	857	M24	UTH1624M24	M24 x 3	36,5											
289	542	80	M27	UTH2739M27	145	125	100	80	21	60	45	25	M27 x 3	41,5	10,5	7,5
353	661		M30	UTH2739M30									M30 x 3,5	46,5		
515	963		M36	UTH2739M36									M36 x 4	55,5		
534	1000	146	M39	UTH2739M39	165	170	135	110	17,5	70	55	30	M39 x 4	60,5	12	15
615	632		M39	UTH3952M39									M39 x 4	60,5		
706	727		M42	UTH3952M42									M42 x 4,5	66		
972	1000	252	M52	UTH3952M52	185	215	165	130	20	80	65	35	M52 x 5	81	12,5	27
928	553		M48	UTH4864M48									M48 x 5	76		
1278	762		M56	UTH4864M56									M56 x 5,5	86		
1679	1000	360	M64	UTH4864M64	200	255	200	150	25	95	80	40	M64 x 6	96	20,5	39
1685	701		M64	UTH6476M64									M64 x 6	96		
2179	907		M72	UTH6476M72									M72 x 6	106		
2403	1000	655	M76	UTH6476M76	230	340	245	190	30	115	100	45	M76 x 6	111	20,5	71
2450	561		M76	UTH76100M76									M76 x 6	111		
2736	626		M80	UTH76100M80									M80 x 6	116		
3522	806	1000	M90	UTH76100M90	230	340	245	190	30	115	100	45	M90 x 6	131	20,5	71
4369	1000		M100	UTH76100M100									M100 x 6	146		

TENSIONERS 1500 BAR



Force	99 - 3522 kN
Stroke	12 mm
Max working pressure	1500 bar
Threaded puller	M16 - M90

MATCHING CHART

COMPLETE BOLT TENSIONER	Hydraulic part	Threaded puller	Polygonal wrench
UTV1624M16	UTV1624	UTB161V	UTC16V
UTV1624M20		UTB201V	UTC20V
UTV1624M24		UTB241V	UTC24V
UTV2736M27	UTV2736	UTB272V	UTC27V
UTV2736M30		UTB302V	UTC30V
UTV2736M36		UTB362V	UTC36V
UTV3945M39	UTV3945	UTB393V	UTC39V
UTV3945M42		UTB423V	UTC42V
UTV3945M45		UTB453V	UTC45V
UTV4860M48	UTV4860	UTB484V	UTC48V
UTV4860M56		UTB564V	UTC56V
UTV4860M60		UTB604V	UTC60V
UTV6472M64	UTV6472	UTB645V	UTC64V
UTV6472M68		UTB684V	UTC68V
UTV6472M72		UTB724V	UTC72V
UTV7690M76	UTV7690	UTB766V	UTC76V
UTV7690M80		UTB806V	UTC80V
UTV7690M90		UTB906V	UTC90V

SELECTION CHART

Operating force @ pressure	Stroke	Oil volume	Screw	MODEL	A	ØD	ØF	ØG	H	mm	K	Ø	L	ØV	kg
236/1500	6	9,4	M16	UTV1624M16	117	73	65	49	25	42	12	M16 x 2	24,5	8,5	2,5
			M20	UTV1624M20						46		M20 x 2,5	30,5		
			M24	UTV1624M24						50		M24 x 3	36,5		
			M27	UTV2736M27						64		M27 x 3	41,5		
530/1500	12	42,4	M30	UTV2736M30	145	108	90	73	35	68	15	M30 x 3,5	46,5	10,5	6
			M36	UTV2736M36						73		M36 x 4	55,5		
			M39	UTV3945M39						89		M39 x 4	60,5		
			M42	UTV3945M42						92		M42 x 4,5	66		
804/1500	12	64,3	M45	UTV3945M45	168	138	120	98	30	95	18	M45 x 4,5	71	12,5	12,2
			M48	UTV4860M48						110		M48 x 5	76		
			M56	UTV4860M56						116		M56 x 5,5	86		
			M60	UTV4860M60						120		M60 x 5,5	91		
1472/1500	12	117,8	M64	UTV6472M64	175	175	145	120	30	132	20	M64 x 6	96	12,5	18,8
			M68	UTV6472M68						135		M68 x 6	101		
			M72	UTV6472M72						138		M72 x 6	106		
			M76	UTV7690M76						160		M76 x 6	111		
3581/1500	12	286,5	M80	UTV7690M80	227	270	235	175	38	163	30	M80 x 6	116	20,5	58,7
			M80	UTV7690M80						163		M80 x 6	116		
			M90	UTV7690M90						172		M90 x 6	131		

* This means the minimum centre distance allowing for the installation of one single tensioner without any interference problems. If using a multiple tensioning system, this distance is equal to the figure in column ØD (external diameter)

HAND PUMPS, POWER PACKS, ACCESSORIES 1000 - 1500 BAR UP PRESSES

HOW TO CHOOSE A SYSTEM

The best system can be chosen according to the oil quantity of the bolt tensioner or set of bolt tensioners and the drive speed required. Various types of EUROPRESS pumps can be chosen and combined according to the desired working pressure, their reservoir, capacity and the valve function.

A gauge with eventually its gauge adaptor and a hose complete with coupler (with the correct working pressure according to the chosen bolt tensioner), must always be combined with the pump.



1000 BAR SYSTEMS

Operation + gauge	Single stage	Double stage	Delivery	Tank	Valve	Adjustable relief valve
PS10010G	•		1,0 cm ³	0,42 l	By pass	-
PL16#10+ZPS53+G16		•	32/1,6 cm ³	2,3/4,3/7,8 l	By pass	-
MLP2#TA+ZPS12+G16	-	-	0,5/0,1 l/min	2,6/5,0/10 l	Pedal 3/3	-
MDM21GJRT		•	2,3/0,3 l/min	2,6 l	Manual 3/2	•
MEC#M21GRT	•		0,6 l/min	5/10/20/40 l	Manual 3/2	•

HOSE to connect pump with tensioner: **SN#FT**.

1500 BAR SYSTEMS

Operation + gauge	Single stage	Double stage	Delivery	Tank	Valve	Adjustable relief valve
PL16#16+ZPF14+G16		•	32/1,6 cm ³	2,3/4,3/7,8 l	By pass	-
MLP2#VAG (*)	-	-	0,44/0,08 l/min	2,6/5,0/10 l	Pedal 3/3	-
MDM21GJRV (*)		•	1,8/0,2 l/min	2,6 l	Manual 3/2	•

(*) **Power packs supplied with coupler K15M**

HOSE to connect hand pump to bolt tensioner:

SM#PFV hose type SM @ 1800 bar with RN32 at one end (pump side) and RN32 + K15X at the other end (tensioner side)

HOSE to connect power pack to bolt tensioner:

SM#FFV hose type SM @ 1800 bar + RN32 and K15X at both ends.

UP PRESSES



FEATURES

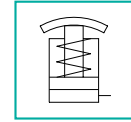
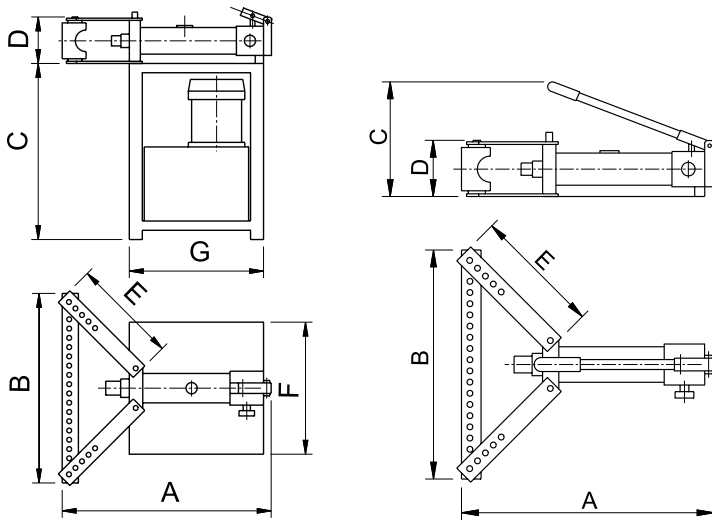
Made of steel and equipped with a hydraulic part, they are produced on request and can be customised according to specific needs. The hydraulic part is made of standard products with single or double acting cylinder, single or double phase pump and gauge to guarantee more safety to the system.



Our Technical Department is at your disposal to study special presses as per customer requirements.

Special customised press

PIPE BENDERS



Capacity **3/8" - 4"**

Pipe benders may be supplied upon request for pipe sizes up to 6" NB or for special applications.



FEATURES

They are available in two versions:

- **UB#** - with **hand pump** and former sets for use on Nominal Bore Tubes from 3/8" to 4"
- **UB#M** - with **motor-driven** pump complete with former set from 3/8" to 4"

If necessary this particularly silent and fast version can also be manually operated.

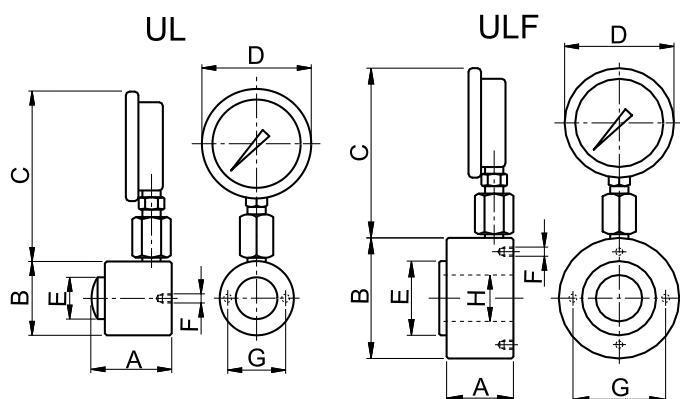
APPLICATIONS

UB pipe benders are suitable for cold-bending without filling from 3/8" to 4" sized nominal bore tubes to obtain one shot right and left bends up to 90°.

SELECTION CHART

MODEL	Type of Operation	Former Dimensions											Dimensions mm							Weight kg
		3/8"	1/2"	3/4"	1"	1"1/4	1"1/2	2"	2"1/2	3"	3"1/2	4"	A	B	C	D	E	F	G	
UB2	Hand Pump	•	•	•	•	•	•	•					710	645	460	160	375	-	-	75
UB3		•	•	•	•	•	•	•	•	•			810	980	550	215	540	-	-	135
UB4		•	•	•	•	•	•	•	•	•	•	•	870	1016	730	250	590	-	-	180
UB4M	Electric	•	•	•	•	•	•	•	•	•	•	870	1016	765	250	590	575	585	300	

LOAD CELLS



Force **5500 - 23000 kg**



FEATURES

UL series load cells have been fully nitrided to give them a high corrosion resistance. They are available in two versions:

- **UL - with solid rod**
Fitted with a spherical push saddle for off centre load alignment
- **ULF - with hollow rod**
To insert threaded rods or tie bars

All models are supplied with pressure gauges marked in kg and with a maximum indicating pointer to measure the maximum load. Degree of accuracy: $\pm 2.5\%$.

APPLICATIONS

They are used in many sectors and whenever or wherever it is necessary to measure forces and loads. Because of the nitride treatment they are suitable for outdoor operation or in very aggressive environments.



OPTION

F Version Load Cell complete with 1m flexible hose.

SELECTION CHART

Capacity kg	MODEL	Dimensions mm								Weight kg
		A	B	C	D	E	F	G	H	
5500	UL05	85	80	217	118	45	2 x M6	65	-	3,7
11000	UL10	93	105			65	2 x M8	90	-	6,5
23000	UL23					80	130	80	4 x M8	100
15000	ULF15									

MODEL CODE

UL	-	05	#
Load Cell	- with solid rod F with hollow rod	Capacity in tonnes	F with 1m flexible tube



AUTOMOTIVE EQUIPMENT



Mobile folding Crane

UGC p. 119



Trolley Jacks

UGJ p. 120



Hydraulic lifting Tables

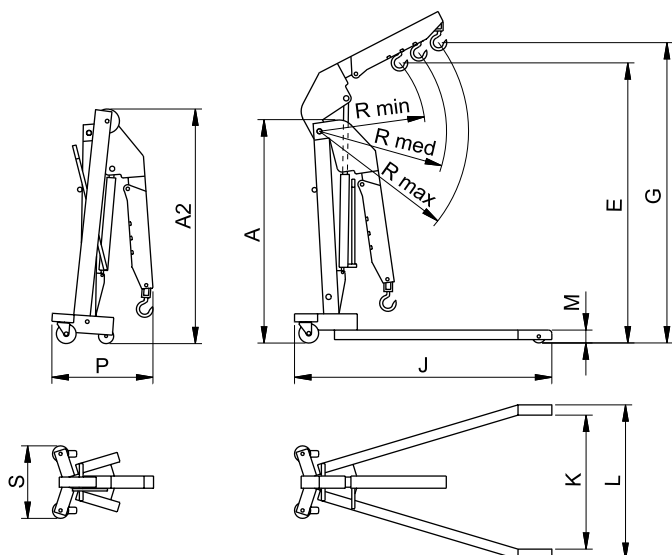
UGT p. 121



Hydraulic Bottle Jacks

UMB p. 122

MOBILE FOLDING FLOOR CRANE



Capacity **500 - 2000 kg**



FEATURES

UGC floor cranes are robust, versatile, and fully folding for easy storage.

There are three models available with maximum lifting capacities from 500kg to 2000 kg. Each model is fitted with hard wearing polyamide wheels and castors for smooth and quiet operation.

The three position fully extendable jib is fitted with a handle to facilitate easy positioning and is complete with lifting hook. The combined cylinder and pump unit swivels to allow the operator maximum access and control.

The cylinder has a safety valve and a stroke limitation device.

APPLICATIONS

These cranes are used in a wide variety of applications including, machinery and engine removal, and in machine shops.

UGC cranes are essential for lifting, moving and positioning of motors and engines and where space is limited.

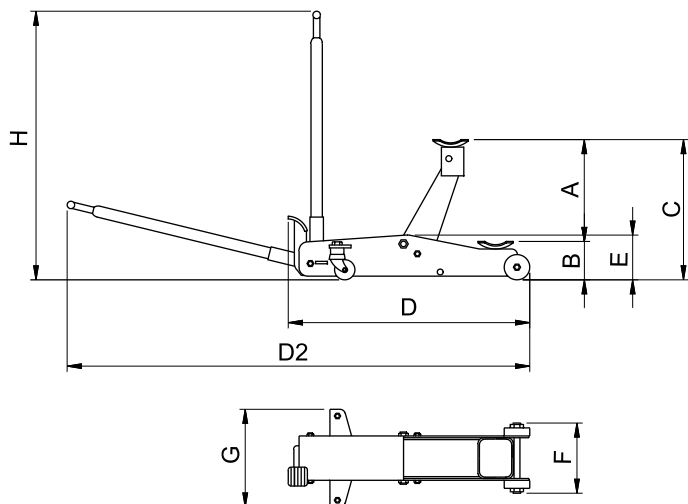


Always check that the pin is fully secured in the correct locating hole, depending on the jib position, and the load to be lifted.

SELECTION CHART

Capacity			MODEL	Dimensions mm													Weight kg
Position 1	Position 2	Position 3		A	A2	E	G	J	K	L	M	R min.	R med.	R max	P	S	
kg	kg	kg		kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	
500	400	325	UGC5	1400	1400	1970	2080	1500	820	970	80	1050	1150	1250	465	450	92
1000	800	700	UGC10	1675	1675	2275	2415	1695	935	1085	80	1260	1405	1550	545	450	121
2000	1750	1650	UGC20	1720	1815	2340	2500	1900	1035	1205	200	1275	1420	1570	635	570	173

TROLLEY JACKS



Capacity **2 - 10 t**



FEATURES

UGJ trolley jacks feature polyamide swivel castors for smooth and quiet operation. All models are fitted with a foot pedal for fast approach to the load.

In addition all models are fitted with a safety valve and stroke limiting device.

The 2 ton and 3 ton models have polyamide wheels whilst the 6 and 10 tonne models have cast wheels.

APPLICATIONS

These jacks are intended for use mainly in machine shops and garages to lift vehicles.

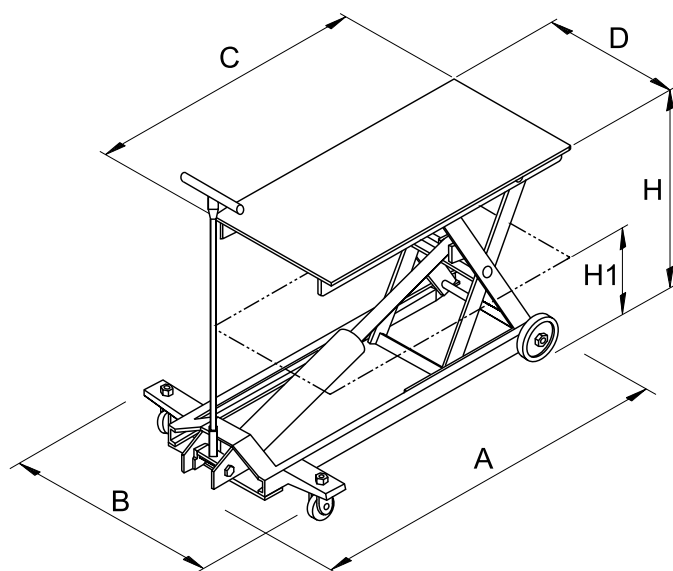


Check that the saddle is placed centrally under the load to be lifted.

SELECTION CHART

Capacity	MODEL	Dimensions mm									Weight	
		A	B	C	D	D2	E	F	G	H		kg
t												
2	UGJ2	365	125	490	900	1885	165	245	360	990	34	
3	UGJ3	380	145	525	1220	2215	190	250	350	1100	52	
6	UGJ6	380	195	575	1300	2300	220	300	425	1100	82	
10	UGJ10	380	195	575	1600	2600	260	345	425	1100	111	

HYDRAULIC LIFTING TABLE



Capacity 2 t



FEATURES

The UGT hydraulic lifting table has been designed to lift loads of up to 2 tonne. The lifting height of 880 mm enables the operator to work in a very comfortable position. The table can be locked mechanically by safety pins at three different positions.

UGT tables are equipped with foot pedal for fast approach to the load.

The cylinder is fitted with a safety valve and stroke limitation device. The polyamide fixed and swivel wheels are quiet in operation, and do not cause damage to floors.

APPLICATIONS

In machine shops, garages, and a variety of industrial uses.

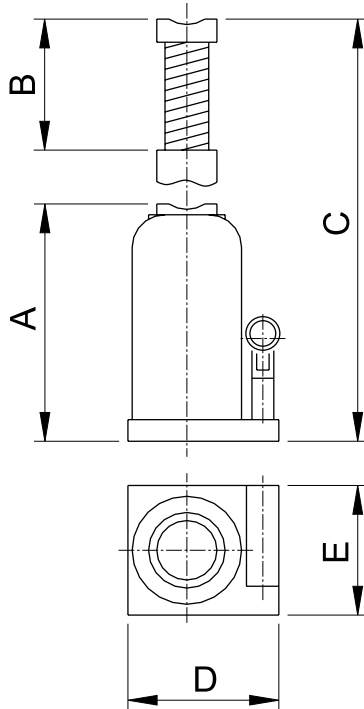


Use the foot pedal for a fast approach to the load.

SELECTION CHART

Capacity t	MODEL	Dimensions mm						Weight
		A	B	C	D	H	H1	kg
2	UGT2	1440	800	1060	540	880	300	187

HYDRAULIC BOTTLE JACKS



- Capacity 3 - 50 t
- Stroke 150 mm



Follow our safety rules.
See Useful pages.

p. 126

FEATURES

UMB bottle jacks are produced with a one piece base, cylinder and reservoir. This eliminates any potential leaks between the base and reservoir.

All jacks are supplied with a operating lever. 20, 30 and 50 tonne models have a carry handle for ease of transport.

All models can be used horizontally with the pumping unit below the cylinder. The seals are easily replaced cutting service

time down to the minimum.

Jacks are fitted with a stroke limiting device and safety valves

APPLICATIONS

These jacks are ideal for a variety of lifting or pushing jobs and can be used in many different industries.

SELECTION CHART

Capacity t	Stroke mm	MODEL	Dimensions mm							Weight kg
			A	B	C	D	E	F	G	
3	150	UMB3N150	210	65	425	116	95	23.5	24	4,2
5		UMB5N150	212	75	437	123	95	29	29	5,0
8		UMB8N150	219		444	138	95	38	32.8	5,5
10		UMB10N150	219		444	142	95	38	37.3	6,5
12		UMB12N150	226		451	153	112	44	40.8	8,0
15		UMB15N150	228		453	163	112	44	44.6	9,0
20		UMB20N150	234		459	171	127	58	50.9	11,0
25		UMB25N150	240		465	196	142	65	54.4	14,3
30		UMB30N150	242		467	196	142	65	57.6	14,8
50		UMB50N150	252		-	402	230	180	-	80

LIFTINGS

Lifting and precision levelling of the suspended floors during rebuilding works on the Campione d'Italia Casino. (Campione d'Italia 2003)



SYNCHRONIZED LIFTINGS

Synchronous lifting of mine digger's cabin P&H 4100 and P&H 2800 for periodic maintenance on cabin's thrust block and turntable. (Perù, December 2002)



Double effect aluminium telescopic cylinders and Split Flow power pack for the synchronized lifting of military vehicles for the upkeep of tracks.

Levelling of the central bay of a road bridge with high tonnage cylinders with safety nut, CGG series. (Italy, Pescara 2010)



Synchronous lifting on a viaduct of the Piacenza - Brescia motorway in Italy to replace antivibrating bearings, with traffic being undisturbed. (Italy, Ponte Sarmato 2009)

Lifting of a cylindrical shell used to build a reactor for the oil sector. Cylinders have been operated by a Split Flow power pack.



LOAD TESTS

Resistance and inflexion tests carried out on slabs or beams by using single or double effect EUROPRESS cylinders.



Introduction of "mega piles" for consolidation operation following the foundation collapse of a heavy cemetery building. (Italy 2010)



Strengthening of a motorway viaduct with a test on a 1000 mm diameter cement pile with an induced load of about 700 ton. (Italy, Piacenza 2008)



ALIGNMENT SYSTEMS

Alignment system made up of special CGG series cylinders for the particles detector at the end of the new LHC accelerator ring. (CERN Geneva, activity starting in 2007)



Load tests made on a cut off wall in the bearing structure of a buildings foundations.



Foundations of one of the 30 aeolian 30 MW generators installed in the North Sea and levelled with 6 CGS50N100 working at a depth of 10-15 metres under water.



PULLING

Special CMF series cylinders, mounted on the pulling equipment of diesel engine injectors



RERAILING OF RAILWAY CARRIAGES

Rerailing of railway carriages. This system allows the displacement of derailed carriages back onto the rails by using telescopic double effect EUROPRESS cylinders.



CRIMPING

Some of the special crimping tools projected and manufactured from EUROPRESS.



PRODUCTS

The "Trolley" solution was born from the need to have a modular and integrated system, easy to handle, and designed to be used safely. It is possible to mount on it a cylinder with tonnage according to customer preference starting from 100 ton. It is equipped with thick and large wheels to make sliding easy also for loose surfaces, and with a power pack with remote control to operate the cylinder from a safety distance.

The handle design has been studied to have a perfect balance of the whole tool.



High tonnage cylinders with retractable wheels to make handling easier. They are oil return cylinders, equipped with safety nut, integrated tilt saddle, gauge and pilot check valve to operate safely.



In the following pages you'll find information and advice concerning the safe use and the correct selection of your EUROPRESS High-pressure Hydraulic Equipment. Please refer to Sections **How to choose a cylinder** (page 9), **How to choose a pump** (page 44) and **Components of an**

hydraulic system (page 46). We hope these pages are helpful but should you require more information, our Technical Department is at your disposal to study special projects or applications to provide a cost effective and convenient solution.

BASICS FOR HYDRAULIC CALCULATIONS

The calculation examples given serve as a basis for the use of hydraulic systems.

1. FORCE OF AN HYDRAULIC CYLINDER

The force of an hydraulic cylinder results from the pressure in the cylinder, p , on the piston of the cylinder

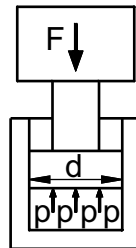
The formula: $F(\text{kg}) = p(\text{bar}) \cdot A(\text{cm}^2)$ [being $= \frac{10N \cdot m}{s^2}$]
means:

F = force acting on the cylinder in kg

p = operating pressure in bar

A = the cylinder effective area in cm^2 which is calculated from the piston diameter:

$$A(\text{cm}^2) = \frac{d(\text{mm})^2 \cdot \pi}{400} \quad (\pi = 3,1416)$$



EXAMPLE 1:

A **CGG100P50** cylinder is required to lift a load of 72 t. What operating pressure is required?

$$A(\text{cm}^2) = \frac{d(\text{mm})^2 \cdot \pi}{400}$$

with piston diameter **CGS100P50**

$$\rightarrow d = 130 \text{ mm}$$

$$\rightarrow A = \frac{130^2 \cdot 3,1416}{400} \text{ cm}^2 = 132,7 \text{ cm}^2$$

the result of $F(\text{kg}) = p(\text{bar}) \cdot A(\text{cm}^2)$ after its inversion, is

$$p(\text{bar}) = \frac{F(\text{Kg})}{A(\text{cm}^2)} \text{ being } F = 72 \text{ t} = 72.000 \text{ kg}$$

$$\rightarrow p = \frac{72.000}{132,7} \text{ bar} = 542 \text{ bar.}$$

The required operating system is 542 bar.

EXAMPLE 2:

A **CMI10N100** cylinder lifts a load; the gauge shows an operating pressure of 520 bar. What is the weight of the load?

$$A(\text{cm}^2) = \frac{d(\text{mm})^2 \cdot \pi}{400}$$

With piston diameter **CMI10N100**

$$\rightarrow d = 45 \text{ mm}$$

$$\rightarrow A = \frac{45^2 \cdot 3,1416}{400} \text{ cm}^2 = 15,9 \text{ cm}^2$$

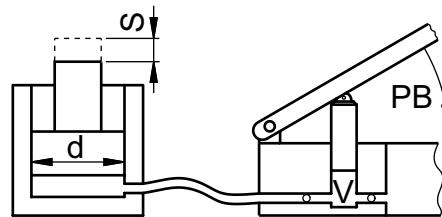
$$F(\text{kg}) = p(\text{bar}) \cdot A(\text{cm}^2)$$

$$F = (520 \cdot 15,9) \text{ kg} = 8270 \text{ kg}$$

The lifted load has a weight of 8270 kg.

2. ACTUATING PUMPS

When an hydraulic cylinder is operated by a hand pump, the cylinder plunger moves a certain distance per pump actuation. This distance depends on the cylinders effective area and on the pump's oil flow per stroke. When two-speed hand pumps are used, the low pressure oil flow **VLP** applies for cylinder movements without load and the high pressure oil flow **VHP** applies for cylinder movements with loads.



$$\text{The formula: } S(\text{mm}) = \frac{V(\text{cm}^3) \cdot 10}{A(\text{cm}^2)}$$

means:

S = cylinder's shift in mm

V = pump's oil flow per stroke in cm^3

A = cylinder area in cm^2 .

EXAMPLE 3:

A **CMI10N100** cylinder is operated by a **PL131** hand pump. What is the distance the supported load moves per pump actuating?

$$\rightarrow A = 15,9 \text{ cm}^2 \text{ (see example 2)}$$

$$S(\text{mm}) = \frac{V(\text{cm}^3) \cdot 10}{A(\text{cm}^2)}$$

PL131 having an oil flow per stroke of

$$\begin{aligned} \rightarrow V &= 3,4 \text{ cm}^3 \\ \rightarrow S &= \frac{3,5 \cdot 10}{15,9} \text{ mm} = 2,2 \text{ mm} \end{aligned}$$

The supported load moves 2,2 mm per pump full stroke actuation.

EXAMPLE 4:

A **CGG100P50** (stroke $S = 50\text{mm}$) is operated by a **PL162** hand pump. A non-load stroke of $L = 30 \text{ mm}$ has to be accounted for. How many pump actuations **PB** are necessary to extend the cylinder completely?

$$\rightarrow A = 132,7 \text{ cm}^2 \text{ (See example 1)}$$

$$\text{Meaning for the non-load stroke } S_{BP}(\text{mm}) = \frac{V_{BP}(\text{cm}^3) \cdot 10}{A(\text{cm}^2)}$$

PL162 having a LP-oil flow per stroke of

$$\begin{aligned} \rightarrow V_{BP} &= 32 \text{ cm}^3 \\ \rightarrow S_{BP} &= \frac{32 \cdot 10}{132,7} \text{ mm} = 2,4 \text{ mm} \end{aligned}$$

The number of pump actuations in the non-load mode is calculated by way of non-load stroke divided by the movement covered per pump actuation:

$$PB_{BP} = \frac{L(\text{mm})}{S_{BP}(\text{mm})} = \frac{30}{2,4} = 13 \text{ pump actuations}$$

$$\text{Meaning for stroke under load: } S_{AP}(\text{mm}) = \frac{V_{AP}(\text{cm}^3) \cdot 10}{A(\text{cm}^2)}$$

PL162 having a LP-oil flow per stroke of

$$\begin{aligned} \rightarrow V_{AP} &= 3 \text{ cm}^3 \\ \rightarrow S_{AP} &= \frac{3 \cdot 10}{132,7} \text{ mm} = 0,23 \text{ mm} \end{aligned}$$

The number of pump actuations under load is calculated from the remaining stroke divided by the distance covered per pump actuation:

$$PB_{AP} = \frac{H(\text{mm}) - L(\text{mm})}{S_{AP}(\text{mm})} = \frac{50 - 30}{0,23} = 87 \text{ pump actuations}$$

In total = $PB_{BP} + PB_{AP} = 13 + 87 = 100$ pump actuations.

UNITS OF MEASUREMENT

The details given in the present catalogue are expressed in the units of measurements of the international System currently in force. The table below facilitates conversion into a commonly used equivalent systems of measurements.

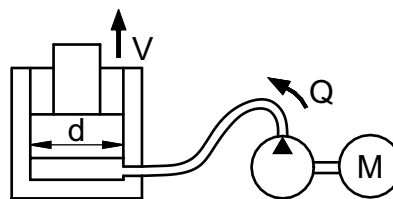
1 bar = 0,1 MPa
 1 bar = 10 N/cm²
 1 bar = 1,0197 kgf/cm²
 1 bar = 14,5 psi
 1 MPa = 10 bar
 1 N/cm² = 0,1 bar
 1 kgf/cm² = 0,9806 bar
 1 psi = 0,0689 bar

1 kN = 0,10197 t
 1 N = 0,10197 kgf
 1 N = 0,2248 lbf
 1 ton (short) = 907,18 kg
 1 ton (short) = 2000 lb
 1 kW = 1,359 HP
 1 HP = 0,735 kW

1 Nm = 0,10197 kgf·m
 1 lbf·ft = 0,13825 kgf·m
 1 gal (UK) = 4,546 l
 1 gal (US) = 3,785 l
 1 in³ = 16,387 cm³
 1 in² = 6,451 cm²
 1 in = 25,4 mm

3. SPEED OF EXTENDING

The time an hydraulic cylinder needs for extending, being operated by an electric pump, depends on the cylinder effective area and on the oil flow of the electric pump. When two-speed pumps are used, the LP-oil volume Q_{LP} for cylinder movements without load and the HP-oil volume Q_{HP} for cylinder movements with load is to be put in.



$$\text{The Formula: } v(\text{mm/s}) = \frac{Q(\text{l/min}) \cdot 166,67}{A(\text{cm}^2)}$$

means:

v = speed of the cylinder in mm/s
Q = the oil flow of the pump in l/min
A = cylinder area in cm²

EXAMPLE 5:

A **CGG100P50** is operated by an electric pump **MEF10M31**. What is the cylinder's speed of full extension?

$$\rightarrow A = 132,7 \text{ cm}^2 \text{ (see example 1)}$$

$$v(\text{mm/s}) = \frac{Q(\text{l/min}) \cdot 166,67}{A(\text{cm}^2)}$$

having an oil flow **MEF10M31** | **Q** = 1,8 l/min

$$\rightarrow v = \frac{1,8 \cdot 166,67}{132,7} \text{ mm/s} = 2,2 \text{ mm/s.}$$

The cylinder's speed of full extension is 2,2 mm/s.

SAFETY INSTRUCTIONS

MAINTENANCE AND USE INSTRUCTION

CYLINDERS



- Always provide a solid support for the entire cylinder base area.



- Make sure that the two areas on which the cylinder develops its force are sufficiently strong and non-deformable.



- Never use cylinders without the saddle, as they distribute the load evenly and prevent damage to the piston.



- The cylinder saddle must be in contact with the load and the cylinder movement must be in axis with the load movement.



- Avoid any lifting of off-centred loads which could damage the cylinder. The use of a tilt saddle allows a misalignment of the load $\pm 5^\circ$.



- To hold the load lifted use a needle or a pilot check valve in addition to the pump or power pack valve. In case the load has to be held over a long period use a cylinder with a safety lock nut.



- Never work near the load supported only by the hydraulics. The safety lock nut of the cylinders has to be continuously screwed down onto the body of the cylinder during the lifting operation.



- Never place any part of your body under the load and for additional safety support the load mechanically.



- Keep your hydraulic equipment away from temperatures above 65°C (150°F).



- EPP components have been treated against corrosion. Nevertheless in case of operations in very humid areas or marine environments, please contact our Technical Department for more information.

SAFETY INSTRUCTIONS



- Avoid retracting the piston too quickly if it is still under load. A sudden retraction creates pressure shocks in the hydraulic circuit. Slowly turn the hand pump and power pack release valve. When 4/3 valves are used in a maintained position it is advised to insert a needle valve between the directional valve and the cylinder in order to have a controlled lowering speed of the load.



- Never exceed the maximum working pressure indicated for any cylinder range.



- Do not use any component with a load exceeding their nominal capacity. Always use a gauge to check the circuit pressure or tonnage.

EUROPRESS CYLINDERS HAVE BEEN DESIGNED WITH GREAT SAFETY MARGINS. NEVERTHELESS TO AVOID TO UNDERVALUE THE LOAD TO BE LIFTED, ALWAYS CHOOSE A CYLINDER WITH AT LEAST 20% MORE CAPACITY THAN THE REQUESTED LOAD.



HYDRAULIC HOSES



- Always keep the hoses away from the area under the load.



- Do not lift any hydraulic component by the hose



- Before connecting, clean the couplers properly and to avoid contamination use the dust caps when not connected.



- Only disconnect the cylinder from the pump when the rod has fully retracted.



- Do not kink hoses. The bending radius must not be under 70 mm. Do not walk over or drop heavy objects on them.

SAFETY INSTRUCTIONS

PUMPS



- Never refill the pump above indicated level and whilst the pump is connected to a partially extended cylinder.



- We recommend to use EURO PRESS hydraulic oil only. Its viscosity and lubrication features guarantee the highest operational efficiency and a longer life of the equipment. The hydraulic oil temperature must not exceed 60°C (140° F). To operate at higher temperatures or with different fluids please contact our Technical Department.



- Do not use any extension on the pump handle. Operate hand pumps is easy, when properly handled.



- We recommend to read carefully EURO PRESS safety instructions before use.



- Use your fingers to close the release valve, a tool could cause damage.



- Use EURO PRESS hydraulic oil only, to keep the seals intact.

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QUALITY

QUALITY CERTIFICATION

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This means that both the design of our products than their manufacturing are planned considering the Good Manufacturing Practice. All necessary controls are made to grant our customers the highest possible quality standard. In this way the final product is produced and checked according to the defined procedures and this assures that the quality system is efficient, controlled and proved.

QUALITY SYSTEM CERTIFICATE ISO 9001:2008

Certification for design, manufacturing, marketing and repair of high pressure components



ENVIRONMENTAL SYSTEM CERTIFICATE ISO 14001:2004

System certification for design and manufacture, through the various step of cutting, mechanical machining, surface treatments, painting, assembly, testing, packing and dispatch, sales and service of high pressure hydraulic fluid components.



ANSI B30.1

All cylinders comply to the standard laid down by the American National Standards institute (apart from CGS#P#, CGG#P#, and CGR cylinders).

EN 60204-1

The electric parts of the machines are made according the standard of EN 60204-1

SAE 100R10

The 700 bar hoses exceed this norm.

CE DIRECTIVES 2006/42/CE – 2006/95/CE – 2004/108/CE

All our power packs conform the CE norm on the machine directive, low tension and electromagnetic compatibility.

CE mark.

All EUROPRESS products meet the European safety directives.



Euro Press Pack



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