



FPT

FLUID POWER TECHNOLOGY

HIGH PRESSION COMPONENTS AND HYDRAULIC TOOLS



F.P.T.

FLUID POWER TECHNOLOGY



F.P.T. manufactures high-oil-pressure professional tools and equipment; its head offices and production departments are located in a newly built and up-to-date facility designed by bearing in mind environmental respect and industrial safety. Our facility is equipped with the most advanced technologies, thus allowing us to monitor the many phases of the manufacturing process and ensure fully certified and guaranteed products.

This catalogue illustrates our standard products: cylinders, pumps, control units, valves and accessories designed and fully manufactured by F.P.T. Our oil-pressure products are one of the best choices to be made among the oil-pressure products manufactured at European and world levels.

In spite of what is accurately described in the catalogue, FLUID POWER TECHNOLOGY's real strength is designing and manufacturing special equipment.

Our products are used by:

- manufacturing lines
- industrial maintenance services
- shipbuilding and building industries
- civil and military engineering
- environmental services
- life-saving equipment used by the Fire Brigade
- structural and experimental tests

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CYLINDER CODES TABLE

This cylinder codes table shows the many cylinder models available, cylinders' manufacturing materials, surface treatments, piston stroke, ton capacity and accessories. This table can be used to order special and custom-made cylinders and, at the same time, it will help you identify your FPT cylinder so to ease the ordering of spare parts or a new one. If FPT standard production does not meet your needs, please contact us: special and custom-made cylinders will be manufactured to fully meet your requirements.

UNITS OF MEASUREMENT CONVERSION FORMULAS		CODES INDICATING CYLINDERS' DIMENSIONS			
1N	= 0,1019 Kgf	A	height cylinder with retracted piston	H_T	Body thread length
1Kgf	= 9,806 N = 2,204 lb	B	height cylinder with extended piston	H_{T1}	Cylinder anchor point length
1bar	= 1,019 Kgf/cm ² = 10N/cm ² = 0,1 Mpa	C	Cylinder – body height	L	Eye height
1Kgf/cm ²	= 0,9806 bar	D	Cylinder – outside diameter	L₁	Collar thread length
1 Pa	= 1N/m ²	D₁	Cylinder bore	L₃	Cylinder anchor point length
1psi	= 0,06895 bar	D₂	Piston rod diameter	L	Cylinder body key
1 t	= 1000 Kgf = 9,806 kN	D₃	Head diameter	M	Bore diameter
1Kw	=1,359 HP	D₇	Collar threads (outside rod threads)	N	Distance between mounting holes and piston shaft
1Nm	= 0,1019 Kgm	D_H	Through hole diameter	O	Distance between holes and cylinder base
1lb/ft	= 0,13825 Kgm	F	Hole diameter	S	Eye width
1gal.(U.K.)	= 4,4561	G	Distance inlet hole from cylinder base	T	Body thread
1 gal. (USA)	= 3,7851	H₁	Distance inlet hole from cylinder base	T₁	Base internal thread
1 l	= 61,02 in ³	H₂	Distance inlet hole from cylinder base	U	Rod protrusion
1 in	= 25,4 mm	H₄	Distance between anchor points		
1 in ³	16,38 cm ³	H_G	Ring height		

A Aluminum
S Stainless steel
N NITRED treated material
C Compact

Piston stroke (mm)

TPO Self-levelling head
TFO Self-levelling head
SF Rounded joint
FLA Front flange
SC Shoe base

CSE	A	10	100	XP	TA	
CSE Single-acting CRM Spring-return CRI Hydraulic-return CDE Double-acting		Ton capacity at 700 bar		GS Safety ring XP Extra flat FO Through-holed cylinders TRA Pulling cylinders TR Pulling cylinders		Customers' codes



OIL-PRESSURE CYLINDERS

SINGLE-ACTING LOAD-RETURN

SERIE CSE

FEATURES

- operating pressure 700 bar
- ton capacity from 5 to 600 tons
- stroke from 15 to 300 mm
- high-resistance, removable splined heads
- single-acting
- load-return
- stop ring available on all models
- 48 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

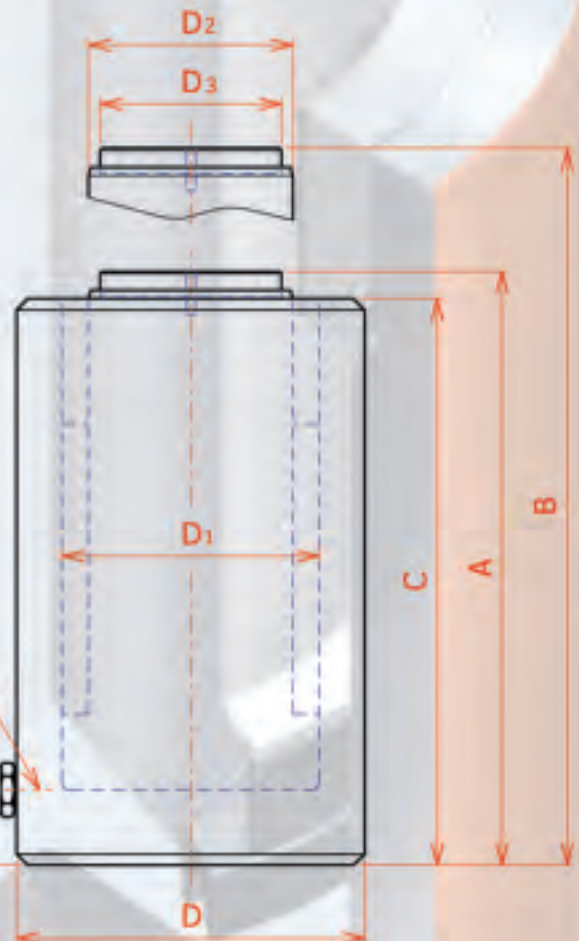
Medium-sized cylinders to be used for lifting, pushing or leveling off operations. They are especially employed in the industrial maintenance, shipbuilding and building industries and metallic carpentry sectors.

Hard-chromium surface thick-treated piston resists wear very well; high-resistance steel piston.

High-resistance, removable splined head. Stop ring guaranteeing the utmost safety, since it withstands full dead-end load. Piston models are equipped with a GR6F high-flux quick female coupler; the over 20 Kg. piston models are equipped with carrying handles or ringbolts.

ON DEMAND

- self-levelling heads
- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance



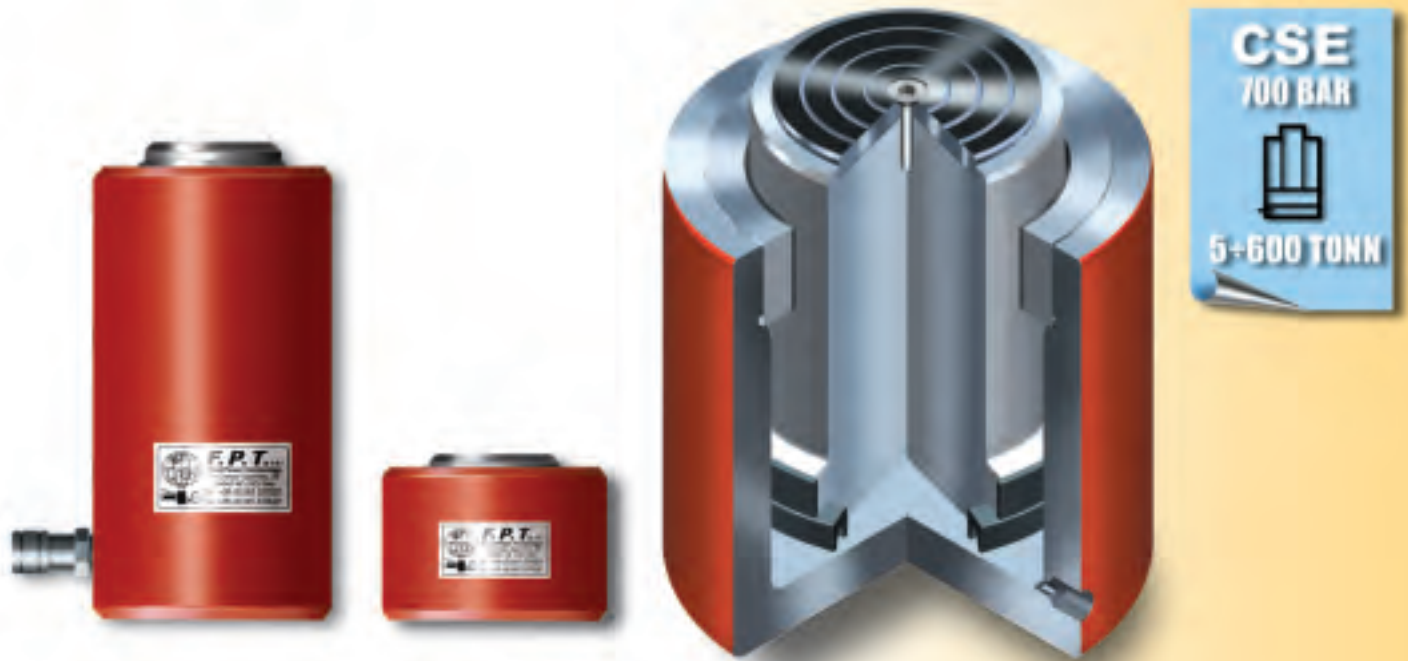
WARNING!!!

During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. If existing, side load must not exceed 5% of the cylinder nominal capacity.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.

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Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.							
tonn.	mm.		kN	cm ²	cm ³	Kg.	A	B	C	D	D ₁	D ₂	D ₃	H ₁
● 5	15	CSE-5/15-F	44,7	6,4	10	1,0	45	60	44	60	28,5	24	-	19
	50	CSE-5/50-F	44,7	6,4	32	1,6	80	130	79	60	28,5	24	-	19
	80	CSE-5/80-F	44,7	6,4	52	2,4	125	205	124	60	28,5	24	-	19
● 10	25	CSE-10/25	111,3	15,9	40	1,6	77	102	71	60	45	38	30	20
	50	CSE-10/50	111,3	15,9	80	2,0	102	152	96	60	45	38	30	20
● 20	25	CSE-20/25	218,2	31,2	78	3,9	84	109	78	92	63	50	40	20
	50	CSE-20/50	218,2	31,2	156	5,0	109	159	103	92	63	50	40	20
	100	CSE-20/100	218,2	31,2	312	7,2	159	259	153	92	63	50	40	20
● 30	25	CSE-30/25	309,3	44,2	111	6,0	92	117	86	108	75	60	52	24
	50	CSE-30/50	309,3	44,2	221	7,4	117	167	111	108	75	60	52	24
	100	CSE-30/100	309,3	44,2	442	10,4	167	267	161	108	75	60	52	24
● 50	25	CSE-50/25	549,8	78,5	197	11,5	104	129	98	140	100	80	72	30
	50	CSE-50/50	549,8	78,5	393	14,0	129	179	123	140	100	80	72	30
	100	CSE-50/100	549,8	78,5	786	18,9	179	279	173	140	100	80	72	30
	150	CSE-50/150	549,8	78,5	1179	24,8	237	387	231	140	100	80	72	30
100	25	CSE-100/25	1077,6	153,9	385	24	117	142	111	190	140	118	92	34
	50	CSE-100/50	1077,6	153,9	770	29	142	192	136	190	140	118	92	34
	100	CSE-100/100	1077,6	153,9	1540	38	192	292	186	190	140	118	92	34
	150	CSE-100/150	1077,6	153,9	2310	52	261	411	255	190	140	118	92	34
	200	CSE-100/200	1077,6	153,9	3079	61	311	511	305	190	140	118	92	34
150	25	CSE-150/25	1407,4	201,1	503	40	145	170	139	218	160	130	110	37
	50	CSE-150/50	1407,4	201,1	1006	46	170	220	164	218	160	130	110	37
	100	CSE-150/100	1407,4	201,1	2011	58	220	320	214	218	160	130	110	37
	150	CSE-150/150	1407,4	201,1	3016	71	274	424	268	218	160	130	110	37
	200	CSE-150/200	1407,4	201,1	4022	90	347	547	341	218	160	130	110	37
250	CSE-150/250	1407,4	201,1	5027	106	413	663	407	218	160	130	110	43	
200	25	CSE-200/25	1984,7	283,5	709	59	165	190	159	248	190	150	138	47
	50	CSE-200/50	1984,7	283,5	1418	67	192	242	186	248	190	150	138	47
	100	CSE-200/100	1984,7	283,5	2836	82	242	342	236	248	190	150	138	47
	150	CSE-200/150	1984,7	283,5	4253	96	292	442	286	248	190	150	138	47
	200	CSE-200/200	1984,7	283,5	5671	117	357	557	351	248	190	150	138	47
	250	CSE-200/250	1984,7	283,5	7089	139	427	677	421	248	190	150	138	52
300	CSE-200/300	1984,7	283,5	8506	158	487	787	481	248	190	150	138	52	
250	50	CSE-250/50	2424,5	346,4	1732	111	228	278	222	290	210	170	148	52
	150	CSE-250/150	2424,5	346,4	5196	154	328	478	322	290	210	170	148	52
	250	CSE-250/250	2424,5	346,4	8660	206	447	697	441	290	210	170	148	52
300	50	CSE-300/50	2908,3	415,5	2078	122	225	275	218	308	230	180	158	57
	150	CSE-300/150	2908,3	415,5	6233	168	325	475	318	308	230	180	158	57
	250	CSE-300/250	2908,3	415,5	10387	222	440	690	433	308	230	180	158	57
400	50	CSE-400/50	4007,9	572,6	2863	193	250	300	243	365	270	220	196	67
	150	CSE-400/150	4007,9	572,6	8589	270	362	512	355	365	270	220	196	67
	250	CSE-400/250	4007,9	572,6	14314	337	462	712	455	365	270	220	196	67
500	50	CSE-500/50	4948,0	706,9	3535	255	274	324	267	400	300	240	214	72
	150	CSE-500/150	4948,0	706,9	10603	333	374	524	367	400	300	240	214	72
	250	CSE-500/250	4948,0	706,9	17672	429	492	742	485	400	300	240	214	72
600	50	CSE-600/50	5987,1	855,3	4277	325	287	337	280	440	330	270	244	82
	150	CSE-600/150	5987,1	855,3	12830	422	387	537	380	440	330	270	244	82
	250	CSE-600/250	5987,1	855,3	21383	540	505	755	498	440	330	270	244	82



OIL-PRESSURE CYLINDERS

SINGLE-ACTING LOAD-RETURN SAFETY RING

SERIE CSE GS

FEATURES

- operating pressure 700 bar
- ton capacity from 25 to 600 tons
- high-resistance, removable splined heads
- single-acting
- load-return
- safety ring for the load mechanical support
- stop ring available on all models
- 45 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

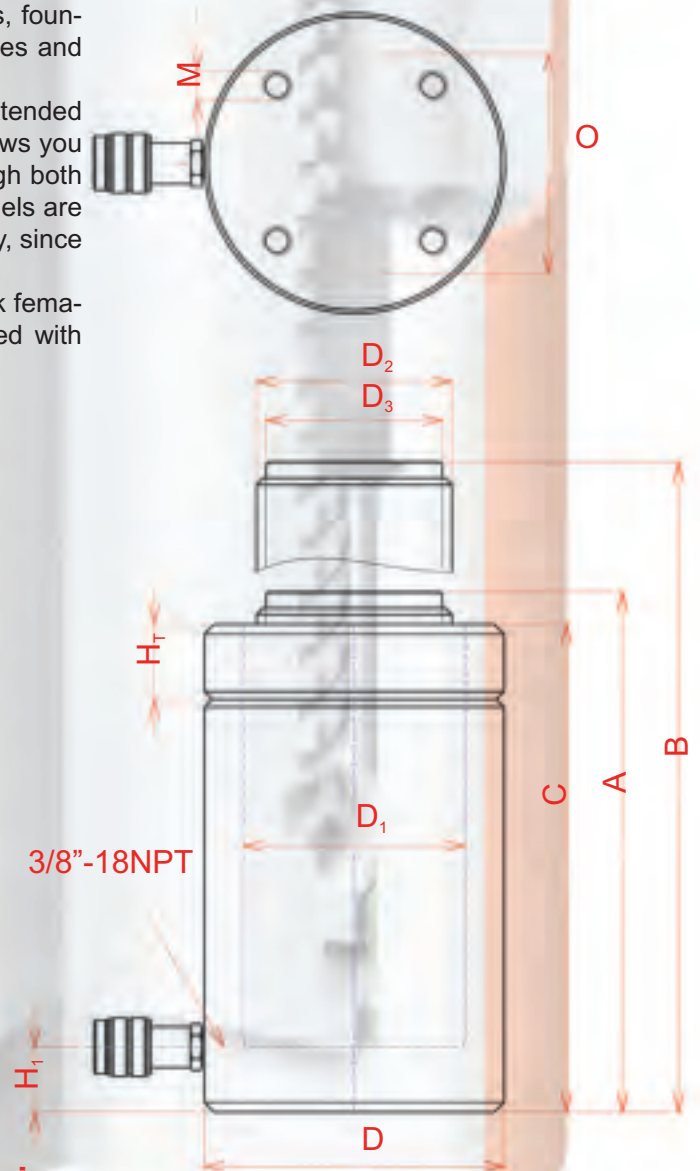
These cylinders are used to perform support operations, foundations support, construction and maintenance of bridges and viaducts and heavy carpentry.

These cylinders are able to support lifted load for extended periods of time. Locking safety ring to cylinder body allows you to work under the lifted load running no risk, even though both the pump and the control unit are disconnected. All models are equipped with a stop ring guaranteeing the utmost safety, since it withstands full dead-end load.

Piston models are equipped with a GR6F high-flux quick female coupler; the over 20 Kg. piston models are equipped with carrying handles or ringbolts.

ON DEMAND

- self-levelling heads
- custom-made stroke and ton capacity
- corrosion resistant surface treatments
- stainless steel structure
- R.I.NA – ITALIAN NAVY quality assurance



WARNING!!!

During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. If existent, side load must not exceed 3% of the cylinder nominal capacity; the use of a self-levelling head is recommended.

Do not stand under load during lifting or lowering operations. Before working under or nearby the load, make sure that safety rings be fully locked to cylinder body.

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Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.										
							tonn.	mm.	kN	cm ²	cm ³	Kg	A	B	C	D	D ₁
10	25	CSE-10/25-GS	111,3	15,9	40	3,1	97	122	88	75	45	Tr38 x3	30	19	58	M8	18
	50	CSE-10/50-GS	111,3	15,9	80	3,9	122	172	113	75	45	Tr38 x3	30	19	58	M8	18
20	25	CSE-20/25-GS	218,2	31,2	78	5,5	120	145	108	92	63	Tr52 x6	40	20	75	M8	25
	50	CSE-20/50-GS	218,2	31,2	156	6,6	145	195	133	92	63	Tr52 x6	40	20	75	M8	25
	100	CSE-20/100-GS	218,2	31,2	312	8,9	195	295	183	92	63	Tr52 x6	40	20	75	M8	25
30	25	CSE-30/25-GS	309,3	44,2	111	9,5	134	159	122	113	75	Tr65 x6	52	24	92	M10	28
	50	CSE-30/50-GS	309,3	44,2	221	11,2	159	209	147	113	75	Tr65 x6	52	24	92	M10	28
	100	CSE-30/100-GS	309,3	44,2	442	14,7	209	309	197	113	75	Tr65 x6	52	24	92	M10	28
50	25	CSE-50/25-GS	549,8	78,5	197	16,6	148	173	136	140	100	Tr85 x6	72	30	110	M10	34
	50	CSE-50/50-GS	549,8	78,5	393	19,2	173	223	161	140	100	Tr85 x6	72	30	110	M10	34
	100	CSE-50/100-GS	549,8	78,5	786	25,8	235	335	223	140	100	Tr85 x6	72	30	110	M10	34
	150	CSE-50/150-GS	549,8	78,5	1179	30,9	285	435	273	140	100	Tr85 x6	72	30	110	M10	34
100	25	CSE-100/25-GS	1077,6	153,9	385	37	177	202	163	190	140	Tr120x10	92	34	150	M10	48
	50	CSE-100/50-GS	1077,6	153,9	770	41	202	252	188	190	140	Tr120x10	92	34	150	M10	48
	100	CSE-100/100-GS	1077,6	153,9	1540	51	252	352	238	190	140	Tr120x10	92	34	150	M10	48
	150	CSE-100/150-GS	1077,6	153,9	2310	63	312	462	298	190	140	Tr120x10	92	34	150	M10	48
	200	CSE-100/200-GS	1077,6	153,9	3079	72	362	562	348	190	140	Tr120x10	92	34	150	M10	48
150	25	CSE-150/25-GS	1407,4	201,1	503	63	227	252	213	218	160	Tr130x10	110	37	180	M10	66
	50	CSE-150/50-GS	1407,4	201,1	1006	69	252	302	238	218	160	Tr130x10	110	37	180	M10	66
	100	CSE-150/100-GS	1407,4	201,1	2011	81	302	402	288	218	160	Tr130x10	110	37	180	M10	66
	150	CSE-150/150-GS	1407,4	201,1	3016	93	352	502	338	218	160	Tr130x10	110	37	180	M10	66
	200	CSE-150/200-GS	1407,4	201,1	4022	109	418	618	404	218	160	Tr130x10	110	37	180	M10	66
	250	CSE-150/250-GS	1407,4	201,1	5027	123	475	725	461	218	160	Tr130x10	110	43	120	M10	66
200	25	CSE-200/25-GS	1984,7	283,5	709	88	245	270	231	248	190	Tr160x10	138	47	200	M12	70
	50	CSE-200/50-GS	1984,7	283,5	1418	96	270	320	256	248	190	Tr160x10	138	47	200	M12	70
	100	CSE-200/100-GS	1984,7	283,5	2836	112	320	420	306	248	190	Tr160x10	138	47	200	M12	70
	150	CSE-200/150-GS	1984,7	283,5	4253	127	370	520	356	248	190	Tr160x10	138	47	200	M12	70
	200	CSE-200/200-GS	1984,7	283,5	5671	147	430	630	416	248	190	Tr160x10	138	47	200	M12	70
	250	CSE-200/250-GS	1984,7	283,5	7089	164	485	735	471	248	190	Tr160x10	138	52	140	M12	70
250	50	CSE-250/50-GS	2424,5	346,4	1732	152	310	360	296	290	210	Tr170x10	148	52	230	M16	74
	150	CSE-250/150-GS	2424,5	346,4	5196	194	410	560	396	290	210	Tr170x10	148	52	230	M16	74
	250	CSE-250/250-GS	2424,5	346,4	8660	240	519	769	505	290	210	Tr170x10	148	52	150	M16	74
300	50	CSE-300/50-GS	2908,3	415,5	2078	173	314	364	300	308	230	Tr180x10	158	57	250	M16	80
	150	CSE-300/150-GS	2908,3	415,5	6233	219	414	564	400	308	230	Tr180x10	158	57	250	M16	80
	250	CSE-300/250-GS	2908,3	415,5	10387	267	519	769	505	308	230	Tr180x10	158	57	160	M16	80
400	50	CSE-400/50-GS	4007,9	572,6	2863	268	343	393	329	365	270	Tr220x10	196	67	300	M16	86
	150	CSE-400/150-GS	4007,9	572,6	8589	344	455	605	441	365	270	Tr220x10	196	67	300	M16	86
	250	CSE-400/250-GS	4007,9	572,6	14314	411	555	805	541	365	270	Tr220x10	196	67	200	M16	86
500	50	CSE-500/50-GS	4948,0	706,9	3535	356	378	428	364	400	300	Tr240x10	214	72	330	M16	97
	150	CSE-500/150-GS	4948,0	706,9	10603	435	478	628	464	400	300	Tr240x10	214	72	330	M16	97
	250	CSE-500/250-GS	4948,0	706,9	17672	531	596	846	582	400	300	Tr240x10	214	72	230	M16	97
600	50	CSE-600/50-GS	5987,1	855,3	4277	393	399	449	385	440	330	Tr270x10	244	82	370	M16	105
	150	CSE-600/150-GS	5987,1	855,3	12830	554	499	649	485	440	330	Tr270x10	244	82	370	M16	105
	250	CSE-600/250-GS	5987,1	855,3	21383	672	617	867	603	440	330	Tr270x10	244	82	250	M16	105



OIL-PRESSURE CYLINDERS

SINGLE-ACTING SPRING-RETURN

SERIE CRM

FEATURES

- operating pressure 700 bar
- ton capacity from 5 to 100 tons
- stroke from 25 to 360 mm
- high-resistance, removable splined heads
- single-acting
- spring-return
- stop ring available on all models
- 39 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

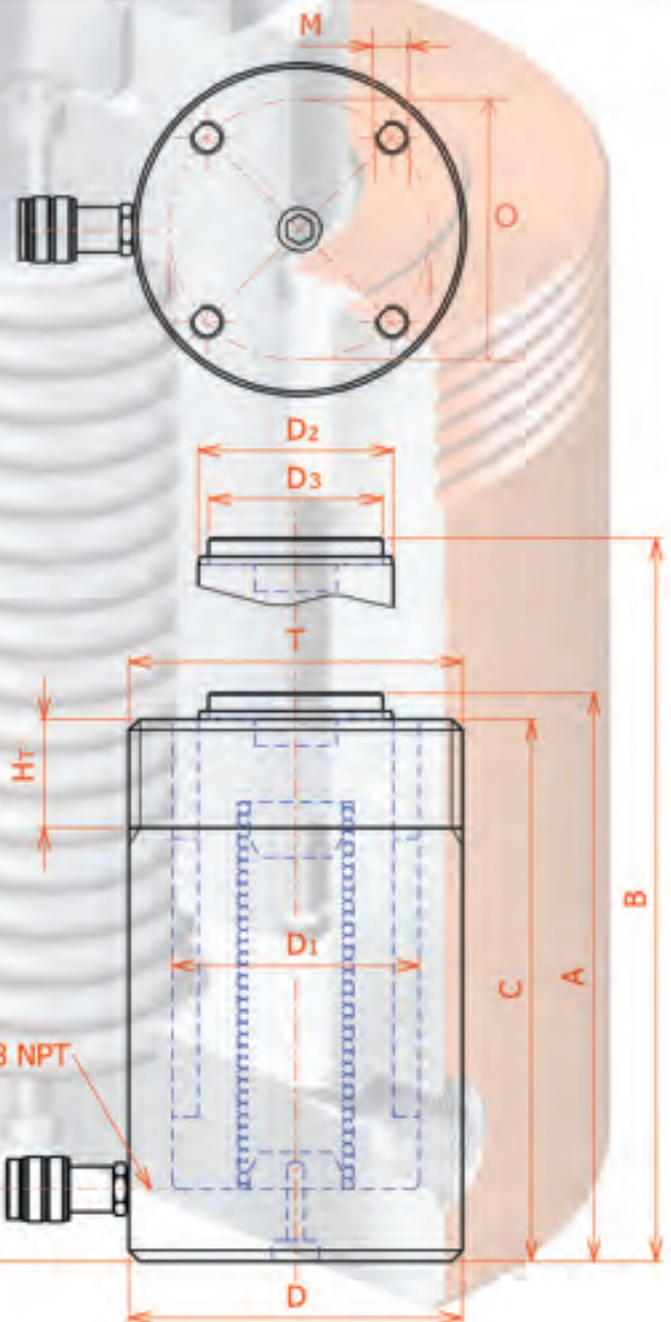
This is the widest range of general-purpose hydraulic cylinders, spring-return. They can be used in any position and to any work situation.

These cylinders are equipped with many accessories and are the ideal tools to be used for maintenance, emergency repairs and in shipyards. They can also be used in industrial body-makers facilities, mechanical carpentry, press and special equipment. All models are equipped with a stop ring guaranteeing the utmost safety, since it withstands full dead-end load.

Piston models are equipped with a GR6F high-flux quick female coupler; the over 20 Kg. piston models are equipped with carrying handles or ringbolts.

ON DEMAND

- self-levelling heads
- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance



WARNING!!!

During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. If existent, side load must not exceed 5% of the cylinder nominal capacity.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.

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FLUID POWER TECHNOLOGY



Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS in mm.												
							A	B	C	D	D ₁	D ₂	D ₃	H ₁	O	M	T	H _r	
●	5	25	CRM-5/25	49,5	7,1	18	1,0	110	135	108	40	30	25	24	20	20	2xM6	M40x1.5	20
	50	CRM-5/50	49,5	7,1	36	1,2	135	185	133	40	30	25	24	20	20	2xM6	M40x1.5	20	
	75	CRM-5/75	49,5	7,1	54	1,4	160	235	158	40	30	25	24	20	20	2xM6	M40x1.5	20	
	100	CRM-5/100	49,5	7,1	71	1,6	185	285	183	40	30	25	24	20	20	2xM6	M40x1.5	20	
	125	CRM-5/125	49,5	7,1	89	1,8	210	335	208	40	30	25	24	20	20	2xM6	M40x1.5	20	
	150	CRM-5/150	49,5	7,1	107	2,0	235	385	233	40	30	25	24	20	20	2xM6	M40x1.5	20	
	175	CRM-5/175	49,5	7,1	124	2,2	260	435	258	40	30	25	24	20	20	2xM6	M40x1.5	20	
	200	CRM-5/200	49,5	7,1	142	2,3	285	485	283	40	30	25	24	20	20	2xM6	M40x1.5	20	
	230	CRM-5/230	49,5	7,1	163	2,6	315	545	313	40	30	25	24	20	20	2xM6	M40x1.5	20	
●	10	25	CRM-10/25	111,3	15,9	40	1,9	91	116	90	60	45	38	37	22	25	2xM8	M60x1.5	32
	50	CRM-10/50	111,3	15,9	80	2,4	121	171	115	60	45	38	37	22	25	2xM8	M60x1.5	32	
	100	CRM-10/100	111,3	15,9	160	3,6	188	288	182	60	45	38	37	22	25	2xM8	M60x1.5	32	
	160	CRM-10/160	111,3	15,9	255	4,7	248	408	242	60	45	38	37	22	25	2xM8	M60x1.5	32	
	200	CRM-10/200	111,3	15,9	319	5,3	288	488	282	60	45	38	37	22	25	2xM8	M60x1.5	32	
	260	CRM-10/260	111,3	15,9	414	6,4	348	608	342	60	45	38	37	22	25	2xM8	M60x1.5	32	
	300	CRM-10/300	111,3	15,9	478	7,3	400	700	394	60	45	38	37	22	25	2xM8	M60x1.5	32	
	355	CRM-10/355	111,3	15,9	565	9,2	498	853	492	60	45	38	37	22	25	2xM8	M60x1.5	32	
●	15	50	CRM-15/50	137,4	19,6	99	4,2	149	199	141	70	50	42	41	22	30	2xM8	M70x2	32
	100	CRM-15/100	137,4	19,6	197	5,3	199	299	191	70	50	42	41	22	30	2xM8	M70x2	32	
	160	CRM-15/160	137,4	19,6	315	7,2	272	432	264	70	50	42	41	22	30	2xM8	M70x2	32	
	260	CRM-15/260	137,4	19,6	511	9,5	372	632	364	70	50	42	41	22	30	2xM8	M70x2	32	
	360	CRM-15/360	137,4	19,6	707	12,4	490	850	482	70	50	42	41	22	30	2xM8	M70x2	32	
●	25	25	CRM-25/25	232,3	33,2	83	6,9	139	164	130	92	65	55	53	22	37	2xM10	M92x2	37
	50	CRM-25/50	232,3	33,2	166	7,9	164	214	155	92	65	55	53	22	37	2xM10	M92x2	37	
	100	CRM-25/100	232,3	33,2	332	9,8	214	314	205	92	65	55	53	22	37	2xM10	M92x2	37	
	160	CRM-25/160	232,3	33,2	531	12,1	274	434	265	92	65	55	53	22	37	2xM10	M92x2	37	
	200	CRM-25/200	232,3	33,2	664	13,7	314	514	305	92	65	55	53	22	37	2xM10	M92x2	37	
	260	CRM-25/260	232,3	33,2	863	16,0	374	634	365	92	65	55	53	22	37	2xM10	M92x2	37	
	300	CRM-25/300	232,3	33,2	996	18,4	430	730	421	92	65	55	53	22	37	2xM10	M92x2	37	
	360	CRM-25/360	232,3	33,2	1195	21,0	495	855	486	92	65	55	53	22	37	2xM10	M92x2	37	
●	30	100	CRM-30/100	309,3	44,2	442	15,2	223	323	212	112	75	60	58	27	50	4xM10	M112x2	42
	200	CRM-30/200	309,3	44,2	884	22,2	340	540	329	112	75	60	58	27	50	4xM10	M112x2	42	
●	50	50	CRM-50/50	549,8	78,5	393	19,0	172	222	160	140	100	80	79	32	70	2xM12	M140x3	45
	100	CRM-50/100	549,8	78,5	786	23,3	222	322	210	140	100	80	79	32	70	2xM12	M140x3	45	
	160	CRM-50/160	549,8	78,5	1257	28,5	282	442	270	140	100	80	79	32	70	2xM12	M140x3	45	
	330	CRM-50/330	549,8	78,5	2592	45,2	470	800	458	140	100	80	79	32	70	2xM12	M140x3	45	
●	100	100	CRM-100/100	1077,6	153,9	1540	51	260	360	245	190	140	110	107	35	100	4xM12	M190x4	52
	170	CRM-100/170	1077,6	153,9	2617	62	330	500	315	190	140	110	107	35	100	4xM12	M190x4	52	
	260	CRM-100/260	1077,6	153,9	4003	81	440	700	425	190	140	110	107	35	100	4xM12	M190x4	52	



OIL-PRESSURE CYLINDERS

SINGLE-ACTING SPRING-RETURN COMPACT CYLINDERS

SERIE CRM C

FEATURES

- operating pressure 700 bar
- ton capacity from 10 to 100 tons
- standard stroke 50 mm
- high-resistance, removable splined heads
- single-acting
- spring-return
- stop ring available on all models
- 5 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

These are lightweight and handy cylinders having a limited cap height. They can be easily used in narrow areas for pushing and levelling operations; spring-return allows cylinders to be easily positioned and moved, saving on expenses.

High-resistance steel piston, hard-chromium surface thick-treated, resists wear very well. All models are equipped with a stop ring guaranteeing the utmost safety, since it withstands full dead-end load.

Piston models are equipped with a GR6F high-flux quick female coupler; the over 20 Kg. piston models are equipped with carrying or positioning handles.

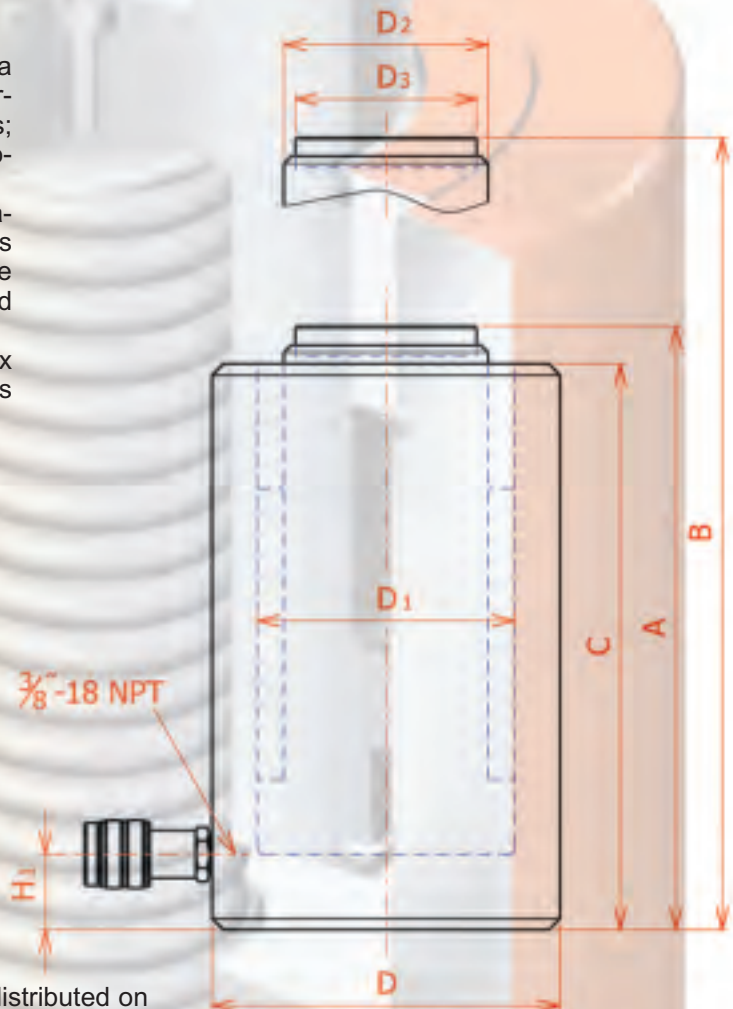
ON DEMAND

- self-levelling heads
- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance

WARNING!!!

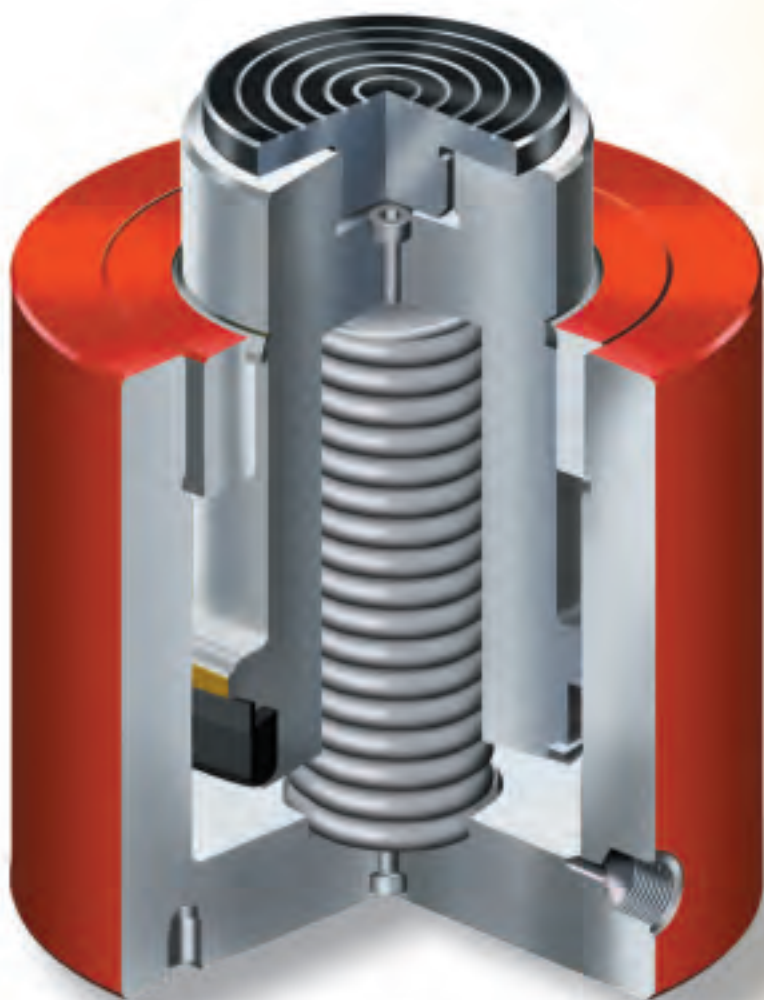
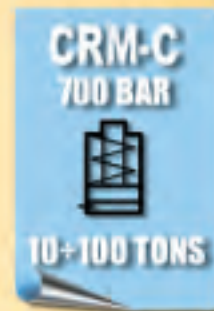
During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. If existent, side load must not exceed 5% of the cylinder nominal capacity.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.



F.P.T.

FLUID POWER TECHNOLOGY



Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.							
							A	B	C	D	D ₁	D ₂	D ₃	H ₁
tonn	mm.		kN	cm ²	cm ³	Kg								
● 10	50	CRM-10/50-C	111,3	15,9	80	2,1	108	158	101	60	45	38	30	18
● 20	50	CRM-20/50-C	218,2	31,2	156	4,7	111	161	104	92	63	50	40	21
● 30	50	CRM-30/50-C	309,3	44,2	221	7,0	118	168	111	108	75	60	52	24
50	50	CRM-50/50-C	549,8	78,5	393	13,2	130	180	123	140	100	80	72	25
100	50	CRM-100/50-C	1077,6	153,9	770	29,5	148	198	141	190	140	118	92	29



OIL-PRESSURE CYLINDERS

EXTRA FLAT SINGLE-ACTING SPRING-RETURN

SERIE CRM XP

FEATURES

- operating pressure 700 bar
- ton capacity from 4.5 to 150 tons
- stroke from 10 to 15 mm
- single-acting
- spring-return
- stop ring available on all models
- 8 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

These small cylinders can be used in very narrow areas to lift machines and equipment; they also perform alignment, mould releasing and maintenance of gantry-cranes operations. These cylinders are used in shipyards to position engines, screw axis, generators. This is the ideal tool, in case your working room is narrow. Standard cylinders are equipped with stop ring and a GR6F high-flux quick female coupler.

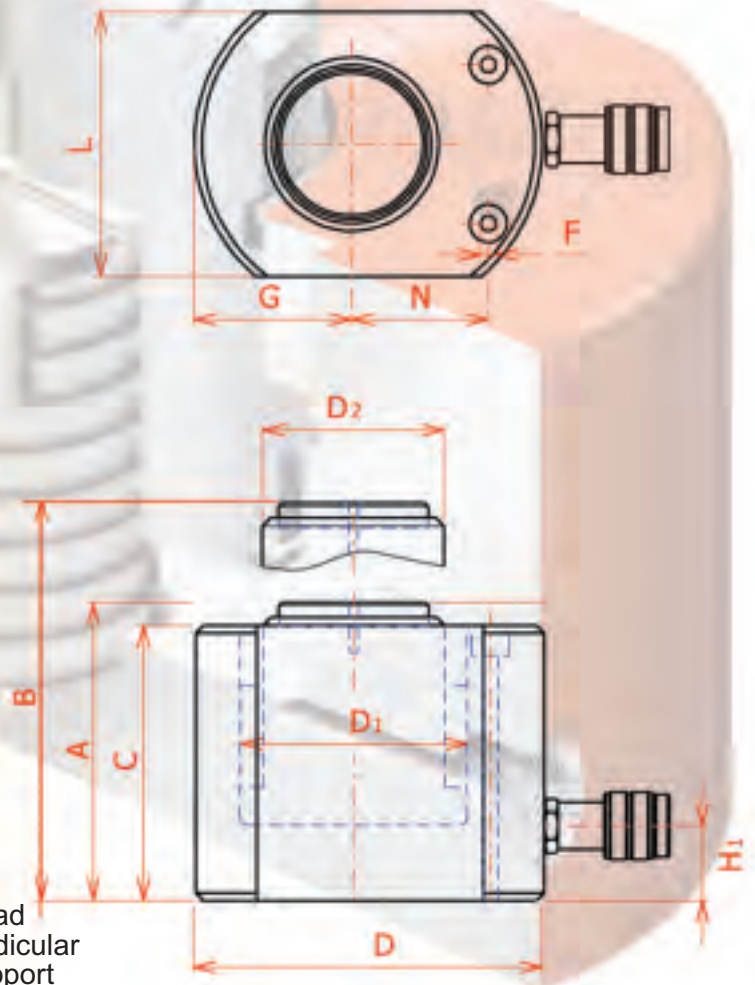
ON DEMAND

- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance

WARNING!!!

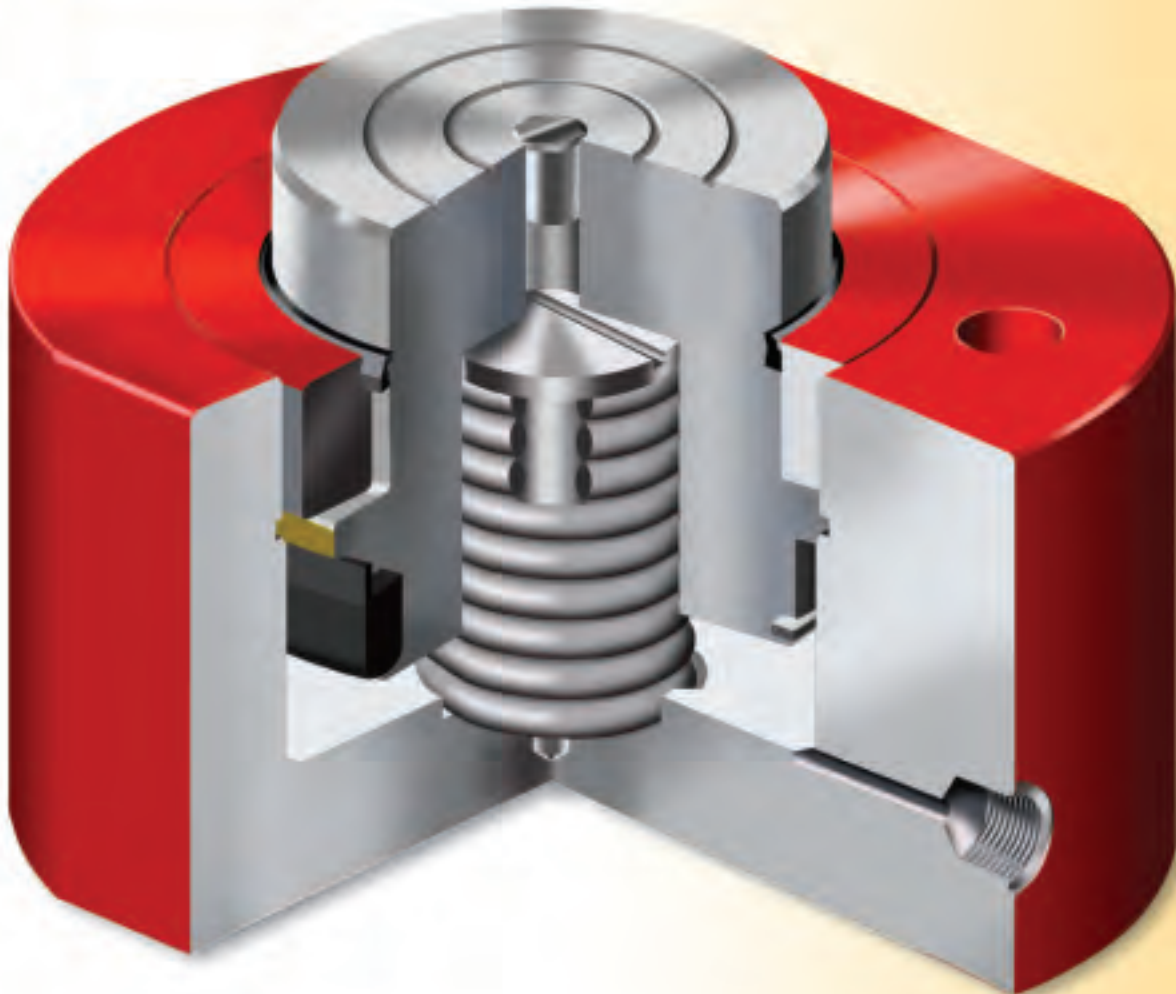
During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. It is recommended not to support side loads without self-levelling head and having cylinders going full stroke.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.



F.P.T.

FLUID POWER TECHNOLOGY



Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.										
							A	B	C	D	D ₁	D ₂	H ₁	F	N	G	L
tonn	mm.		kN	cm ²	cm ³	Kg											
● 4,5	15	CRM-5/15-XP	43,1	6,2	9,2	1,2	46	61	45	59	28	24	18	5,5	23	23,5	45
● 10	10	CRM-10/10-XP	111,3	15,9	16	1,6	50	60	49	75	45	38	19	6,5	28	31,5	60
● 20	10	CRM-20/10-XP	218,2	31,2	32	3,0	53	63	52	101	63	50	19	11	40	43	86
● 30	10	CRM-30/10-XP	309,3	44,2	45	4,2	58	68	56	117	75	60	20	11	45	51	102
● 50	10	CRM-50/10-XP	549,8	78,5	78	7,4	64	74	62	147	100	80	22	13	58	66	130
● 75	10	CRM-75/10-XP	791,7	113,1	113	12	70	80	68	177	120	100	24	13	68	81	164
● 100	10	CRM-100/10-XP	1077,6	153,9	154	15,4	77	87	75	192	140	120	21	13	76	88,5	178
● 150	14	CRM-150/14-XP	1496,8	213,8	300	29	104	118	102	227	165	130	25	13	80	106	215



OIL-PRESSURE CYLINDERS

ALUMINIUM CYLINDERS SINGLE-ACTING SPRING-RETURN

SERIE CRMA

FEATURES

- operating pressure 700 bar
- ton capacity from 30 to 100 tons
- stroke from 50 to 150 mm
- high-resistance removable steel head and base
- single-acting
- spring-return
- stop ring available on all models
- 8 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

These cylinders are built by using a special high-resistance aluminium alloy guaranteeing the best performance possible as well as the lightest weight available. Steel head and base guarantee support to loads and provide long cycle life even if cylinder is used to support heavy loads. Since these cylinders are very light, they can be easily used in those areas that can be reached with difficulties; they are also easily moved and positioned. They are used when weight can make the difference.

Cylinders are equipped with a stop ring guaranteeing the utmost safety, since it withstands full dead-end load. Cylinders are also equipped with a GR6F high-flux quick female coupler.

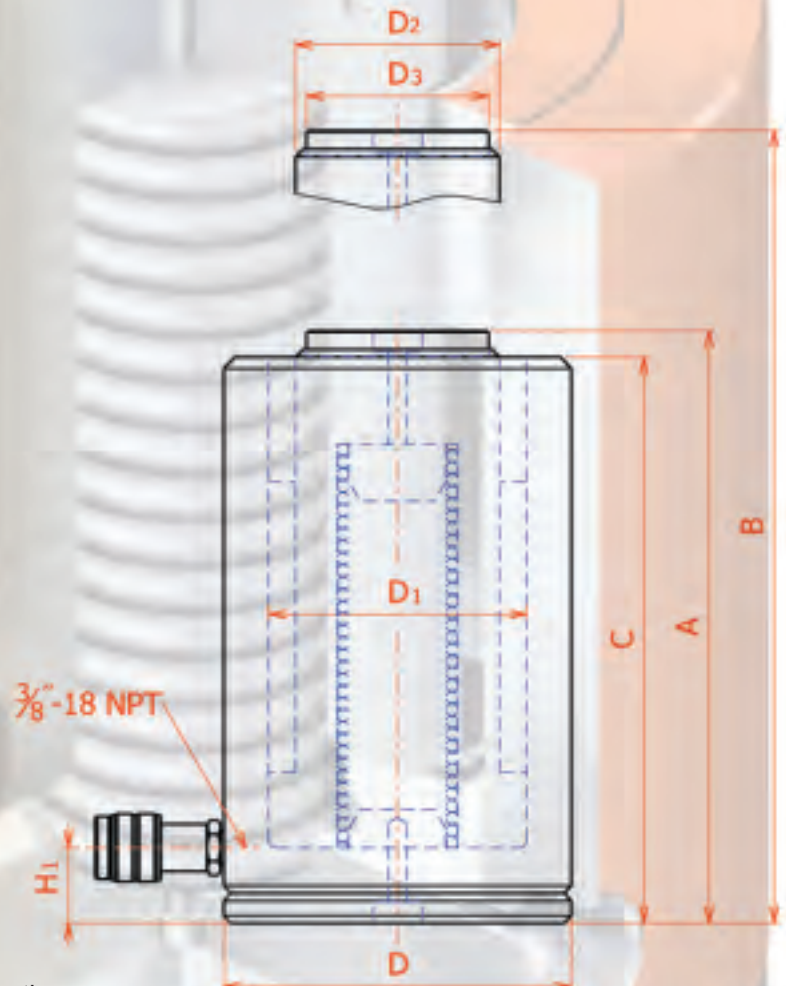
ON DEMAND

- self-levelling heads
- custom-made stroke and ton capacity
- corrosion resistant surface treatments
- R.I.NA – ITALIAN NAVY quality assurance

WARNING!!!

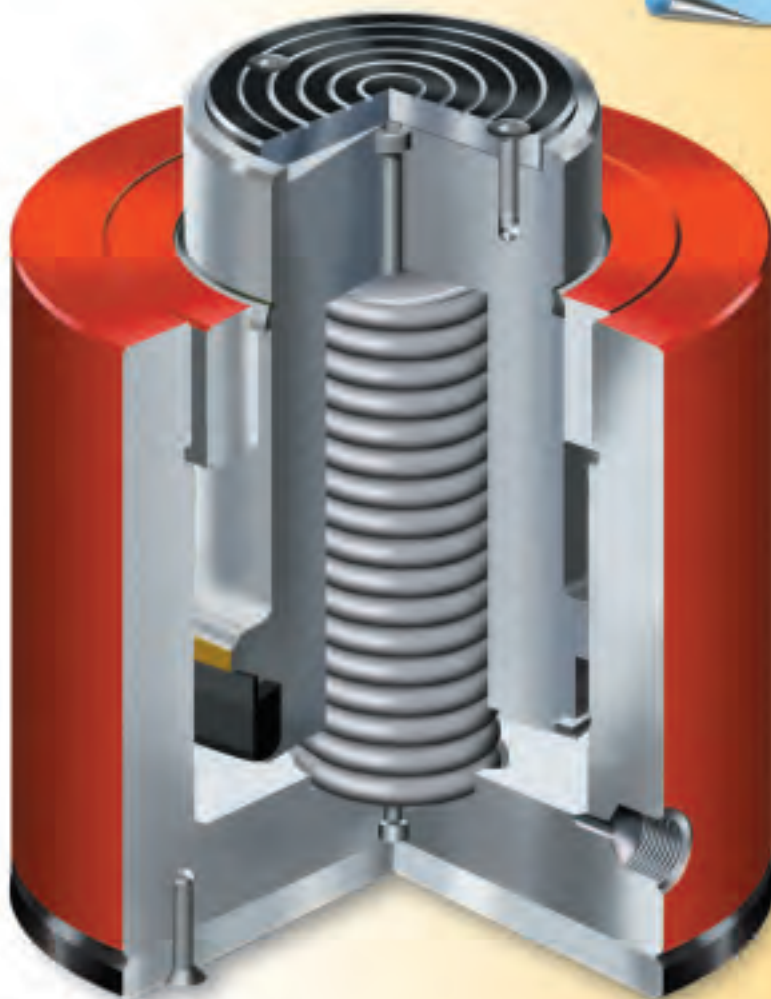
During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. It is recommended not to support side loads without self-levelling head.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.



F.P.T.

FLUID POWER TECHNOLOGY



CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.							
							A	B	C	D	D ₁	D ₂	D ₃	H ₁
tonn	mm.		kN	cm ²	cm ³	Kg								
30	50	CRMA-30/50	309,3	44,2	221	5,3	170	220	166	120	75	60	52	40
	100	CRMA-30/100	309,3	44,2	442	6,6	220	320	216	120	75	60	52	40
50	50	CRMA-50/50	496,2	70,9	355	9,7	178	228	174	149	95	80	72	45
	100	CRMA-50/100	496,2	70,9	709	11,9	226	326	222	149	95	80	72	45
	150	CRMA-50/150	496,2	70,9	1064	14,2	276	426	272	149	95	80	72	45
100	50	CRMA-100/50	1002,0	143,1	716	19	192	242	188	198	135	110	92	50
	100	CRMA-100/100	1002,0	143,1	1432	23	247	347	243	198	135	110	92	50
	150	CRMA-100/150	1002,0	143,1	2148	28	307	457	303	198	135	110	92	50



OIL-PRESSURE CYLINDERS

HOLE CYLINDERS SINGLE-ACTING SPRING-RETURN

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

SERIE CRM FO

FEATURES

- operating pressure 700 bar
- ton capacity from 10 to 100 tons
- high-resistance removable heads
- single-acting
- spring-return
- stop ring available on all models
- 11 standard models available
- special or custom-made accessories and applications

PRODUCT DESCRIPTION

These hole cylinders are characterised by a longitudinal through-hole, through which tension-rods have been tensioned and secured. These cylinders are used for tensioning of cables, positioning bars part of tensile structures, extracting operations, pulling tests on ropes, cables and tension rods.

All cylinder models are equipped with GR6F high-flux quick female couplers; the over 20 Kg. piston models are equipped with carrying or lifting handles.

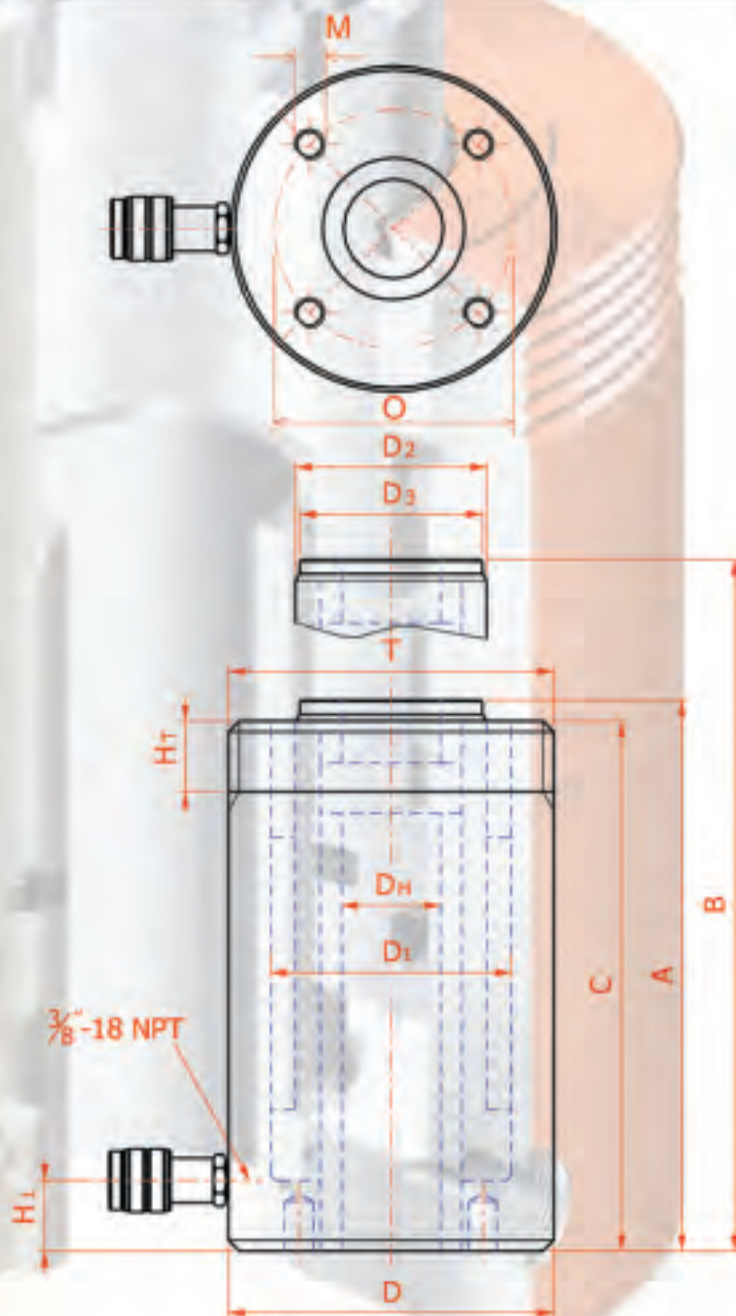
ON DEMAND

- threaded or flat pushing heads
- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.N.A – ITALIAN NAVY quality assurance

WARNING!!!

During pulling operations, check that cylinder work along the same axis as the bar or tension rod which passes through it. It is recommended not to use these cylinders as ordinary stroke cylinders unless load is perpendicular to cylinder's axis.

Do not stand nearby or close to the pulling points; use protective gloves and clothing to prevent occupational accidents from occurring.



F.P.T.

FLUID POWER TECHNOLOGY



Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.												
							A	B	C	D	D ₁	D ₂	D ₃	H ₁	H _T	T	M	O	D _H
tonn	mm.		kN	cm ²	cm ³	Kg													
● 10	50	CRM-10/50-FO	115,4	16,5	83	3,7	143	193	131	74	54	40	38	24	20	M74x2	2xM8	40	19,5
	80	CRM-10/80-FO	115,4	16,5	132	4,7	191	271	179	74	54	40	38	24	20	M74x2	2xM8	40	19,5
● 20	50	CRM-20/50-FO	238,2	34,0	171	7,7	160	210	148	100	76	56	54	24	20	M100x2	2xM8	55	27,3
	100	CRM-20/100-FO	238,2	34,0	341	11,8	248	348	236	100	76	56	54	24	20	M100x2	2xM8	55	27,3
	160	CRM-20/160-FO	238,2	34,0	545	16,3	347	507	335	100	76	56	54	24	20	M100x2	2xM8	55	27,3
● 30	50	CRM-30/50-FO	295,3	42,2	211	11,3	177	227	165	115	86	63	61	27	20	M115x2	2xM10	65	33,5
	100	CRM-30/100-FO	295,3	42,2	422	16,8	267	367	255	115	86	63	61	27	20	M115x2	2xM10	65	33,5
	150	CRM-30/150-FO	295,3	42,2	633	22,8	363	513	351	115	86	63	61	27	20	M115x2	2xM10	65	33,5
● 60	75	CRM-60/75-FO	589,6	84,2	632	32,9	261	336	249	170	125	85	82	37	25	M170x4	4xM10	90	54,5
	150	CRM-60/150-FO	589,6	84,2	1264	44,3	370	520	358	170	125	85	82	37	25	M170x4	4xM10	90	54,5
● 100	75	CRM-100/75-FO	1000,6	142,9	1073	66,6	292	367	282	225	165	127	122	42	30	M225x4	4xM12	130	78,5



OIL-PRESSURE CYLINDERS

HOLE CYLINDERS OIL-RETURN

SERIE CRI FO

FEATURES

- operating pressure 700 bar
- ton capacity from 30 to 150 tons
- high-resistance removable heads
- oil-return
- stop ring available on all models
- 11 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

These hole cylinders are characterised by a longitudinal through-hole, through which tension-rods have been tensioned and secured. These cylinders are used for tensioning of cables, positioning bars part of tensile structures, extracting operations, pulling tests on ropes, cables and tension rods.

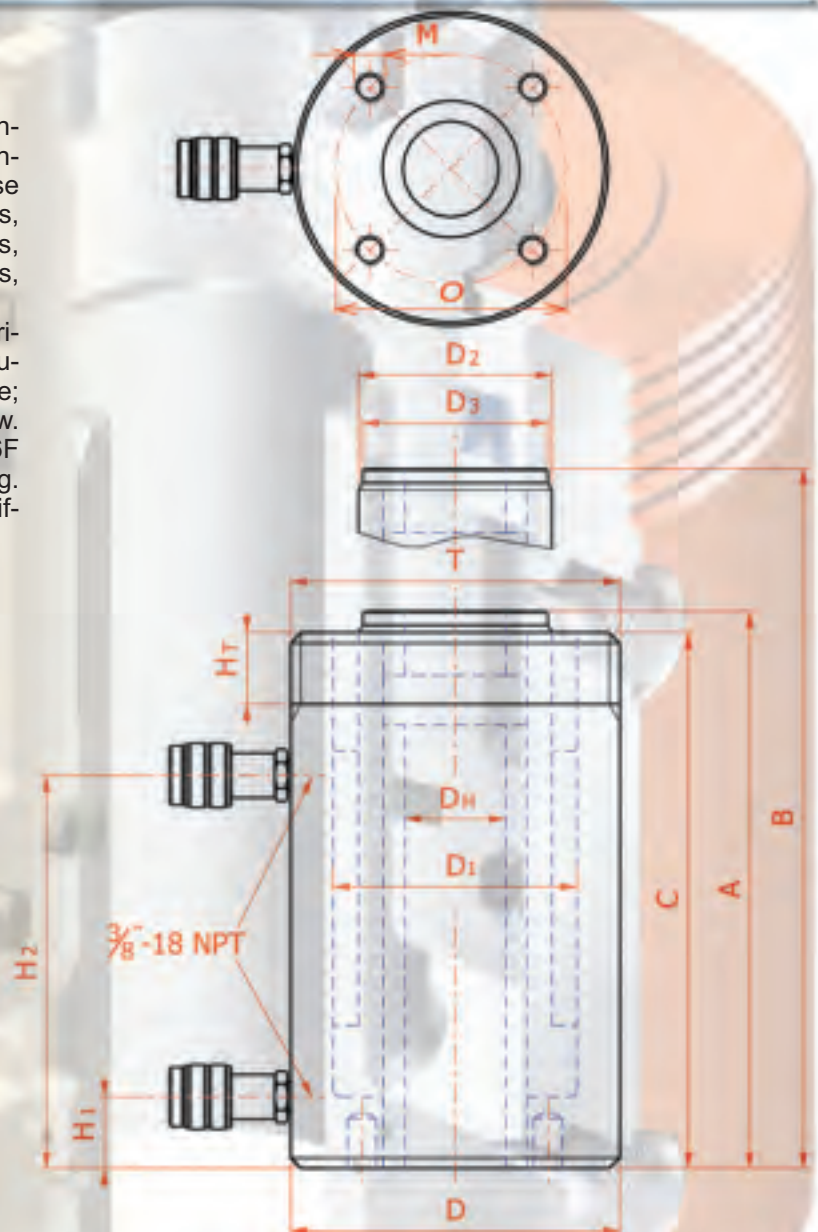
These cylinders feature the same characteristics as the CRM-FO cylinders, but the hydraulic-return system helps and speeds up its use; its spring-return model can sometimes be slow. All cylinder models are equipped with GR6F high-flux quick female couplers; the over 20 Kg. piston models are equipped with carrying or lifting handles.

ON DEMAND

- threaded or flat pulling heads
- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance

WARNING!!!

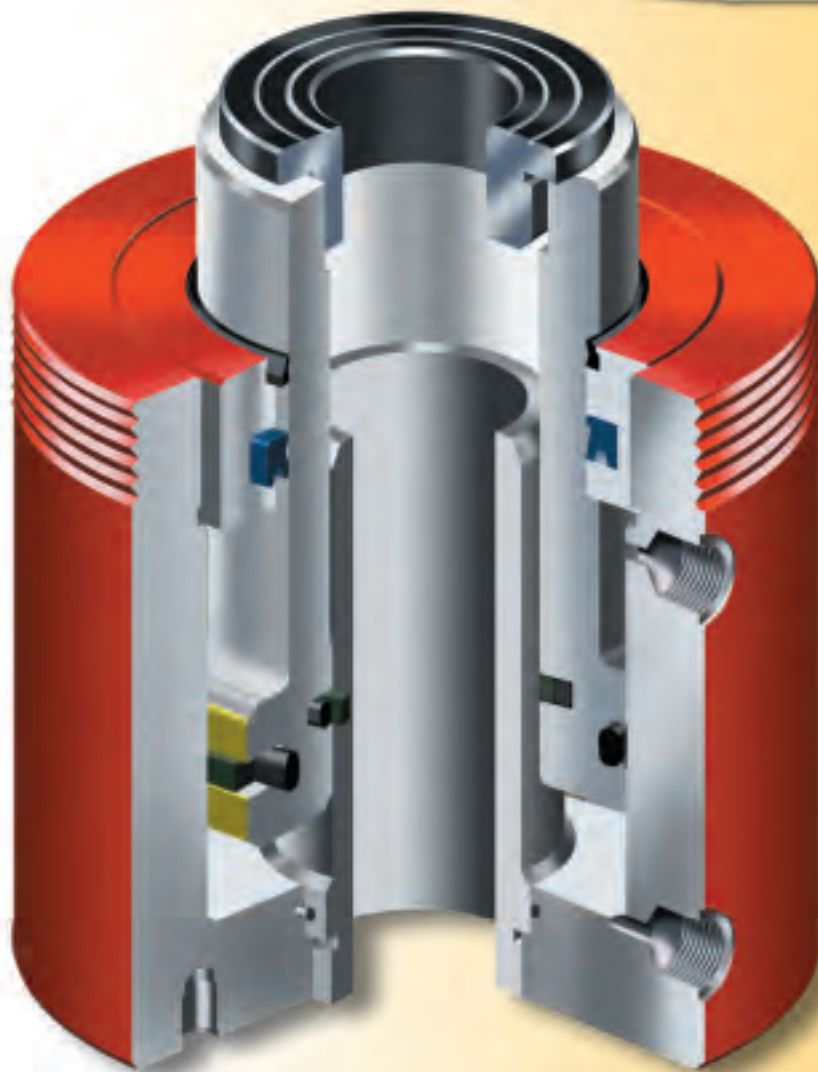
During pulling operations, check that cylinder work along the same axis as the bar or tension rod which passes through it. It is recommended not to use these cylinders as ordinary stroke cylinders unless load is perpendicular to cylinder's axis.



Do not stand nearby or close to the pulling points; use protective gloves and clothing to prevent occupational accidents from occurring.

F.P.T.

FLUID POWER TECHNOLOGY



CAP tonn	STROKE mm.	MODEL	MAX CAP. kN		SECTION cm ²		VOLUME cm ³		MASS Kg.	DIMENSIONS IN mm.													
			PUSH	PULL	PUSH	PULL	PUSH	PULL		A	B	C	D	D ₁	D ₂	D ₃	D _H	H ₁	H ₂	O	M	T	H _T
30	50	CRI-30/50-FO	295,3	29,4	42,2	19,6	211	99	11,7	177	227	165	115	86	70	64	33,5	27	120	65	2xM10	M115x2	20
	100	CRI-30/100-FO	295,3	29,4	42,2	19,6	422	197	15,3	236	336	224	115	86	70	64	33,5	27	120	65	2xM10	M115x2	20
	150	CRI-30/150-FO	295,3	29,4	42,2	19,6	633	295	18,3	286	436	274	115	86	70	64	33,5	27	120	65	2xM10	M115x2	20
	260	CRI-30/260-FO	295,3	29,4	42,2	19,6	1097	510	26,4	418	678	406	115	86	70	64	33,5	27	120	65	2xM10	M115x2	20
60	75	CRI-60/75-FO	589,6	77,8	84,2	51,8	632	389	31,6	227	302	215	170	125	95	92	54,5	33	133	90	4xM10	M170x4	25
	160	CRI-60/160-FO	589,6	77,8	84,2	51,8	1348	830	41,6	312	472	300	170	125	95	92	54,5	33	133	90	4xM10	M170x4	25
	260	CRI-60/260-FO	589,6	77,8	84,2	51,8	2191	1348	55,1	422	682	410	170	125	95	92	54,5	33	133	90	4xM10	M170x4	25
100	75	CRI-100/75-FO	1000,6	130,7	142,9	87,1	1073	654	65	265	340	253	225	165	127	122	78,5	42	191	130	4xM12	M225x4	30
	150	CRI-100/150-FO	1000,6	130,7	142,9	87,1	2145	1308	80	340	490	328	225	165	127	122	78,5	42	191	130	4xM12	M225x4	30
	260	CRI-100/260-FO	1000,6	130,7	142,9	87,1	3717	2266	105	460	720	448	225	165	127	122	78,5	42	191	130	4xM12	M225x4	30
150	200	CRI-150/200-FO	1533,9	130,8	219,1	87,2	4383	1744	129	370	570	350	268	200	170	165	80,5	44	280	-	-	-	-



OIL-PRESSURE CYLINDERS

DESIGNED FOR PULLING SINGLE-ACTING SPRING-RETURN

SERIE CRM TRA-TR

FEATURES

- operating pressure 700 bar
- pulling capacity from 2+100 tons
- stroke from 75 to 160 mm
- high-resistance removable forged eyes and heads
- single-acting
- spring-return
- stop ring available on all models
- 10 standard models available
- special or custom-made accessories and applications

80

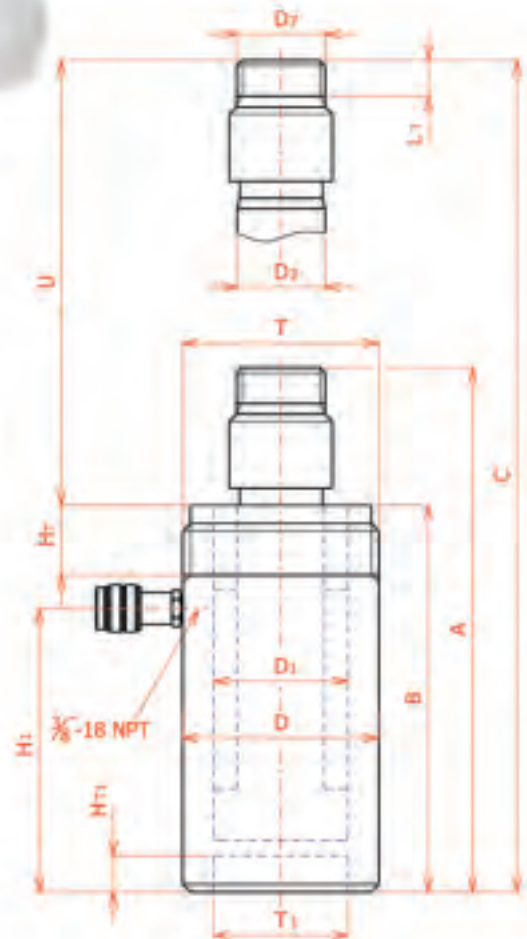
The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

These cylinders are used to perform various operations in the building and carpentry sectors, lining up of components or slabs or approach of these same components during mounting operations; special applications for the shipbuilding industry, for approaching structures and all those operations needing pulling capacity. An in-line VM-5A type interception valve can also be mounted, if needed; this valve isolates cylinders and allows the pump or the control unit to be disconnected keeping the components pulled. All cylinder models are equipped with a 3/8" threaded inlet oil port and a GR6F high-flux quick female coupler; the over 20 Kg. piston models are equipped with carrying or lifting handles.

ON DEMAND

- special heads or eyes
- custom-made stroke and ton capacity
- corrosion resistant surface treatments
- rod protection against welding projections
- R.I.NA – ITALIAN NAVY quality assurance



CRM - TR

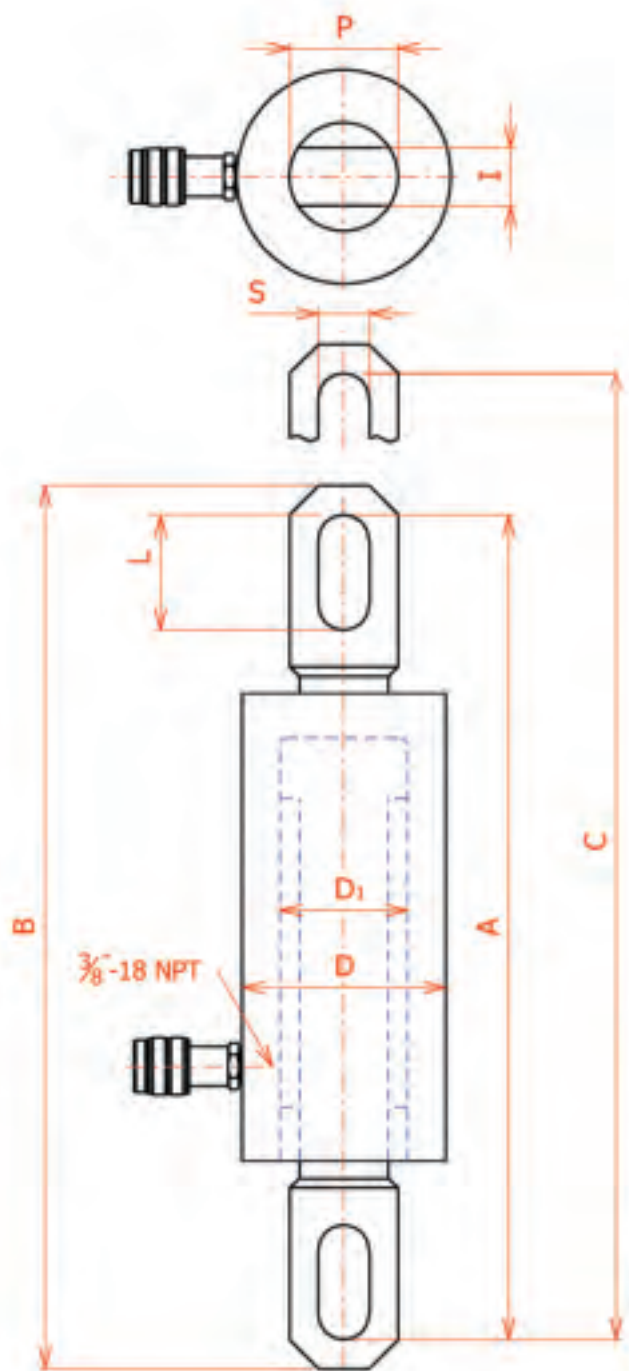
WARNING!!!

Before operating, check that pulling points be aligned according to the cylinder's axis; do not use cylinders as lifting hooks and do not have them operate out of alignment.

Do not stand nearby or close to the pulling points; use protective gloves and clothing to prevent occupational accidents from occurring.

F.P.T.

FLUID POWER TECHNOLOGY



CRM - TRA

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.								
							A	B	C	D	D ₁	I	L	P	S
10	75	CRM-10/75-TRA	109,07	14,98	112,5	13,5	650 - 734	686 - 770	725 - 809	78	54	22	110	78	42
10	150	CRM-10/150-TRA	109,07	14,98	225	14,5	606	642	756	78	54	22	110	78	42
30	75	CRM-30/75-TRA	304,39	41,82	314	28,5	700 - 804	750 - 854	775 - 879	114	85	30	100	104	54
30	155	CRM-30/155-TRA	304,39	41,82	648,5	38,0	810 - 914	860 - 964	965 - 1069	114	85	30	100	104	54
60	80	CRM-60/80-TRA	613,1	84,23	674	70,5	690	768	770	175	125	50	137	140	62
60	155	CRM-60/155-TRA	613,1	84,23	1306	92,5	840	918	995	175	125	50	137	140	62
100	160	CRM-100/160-TRA	1042,33	143,2	2292	170,0	950	1048	1110	225	165	60	149	170	72

CAP	STROKE	MODEL	CAPACITY	SECTION	VOLUME	MASS	DIMENSIONS IN mm.													
							A	B	C	D	D ₁	D ₂	D ₇	T	T ₁	H ₁	L ₁	H _r	HT ₁	U
2	127	CRM-2/127-TR	22,9	3,27	41,5	1,8	234	202,5	361	40	30	22	3/4" NPT	M 40x1,5	3/4" NPT	163,5	18	24	22	158,5
5	140	CRM-5/140-TR	53	7,57	106	4,9	300	255	440	60	45	32	1,1/4" NPT	M 60x1,5	1,1/4" NPT	201,5	22	35	30	185
10	150	CRM-10/150-TR	102,9	14,13	226,9	8,4	288	248	438	80	55	35	M 30x2	M 80x2	M 30x2	210	25	20	25	190



OIL-PRESSURE CYLINDERS

OIL PISTON-RETURN

SERIE CRI FEATURES

- operating pressure 700 bar
- ton capacity from 10 to 500 tons
- stroke from 160 to 330 mm
- high-resistance removable splined heads
- oil-return
- stop ring available on all models
- 20 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

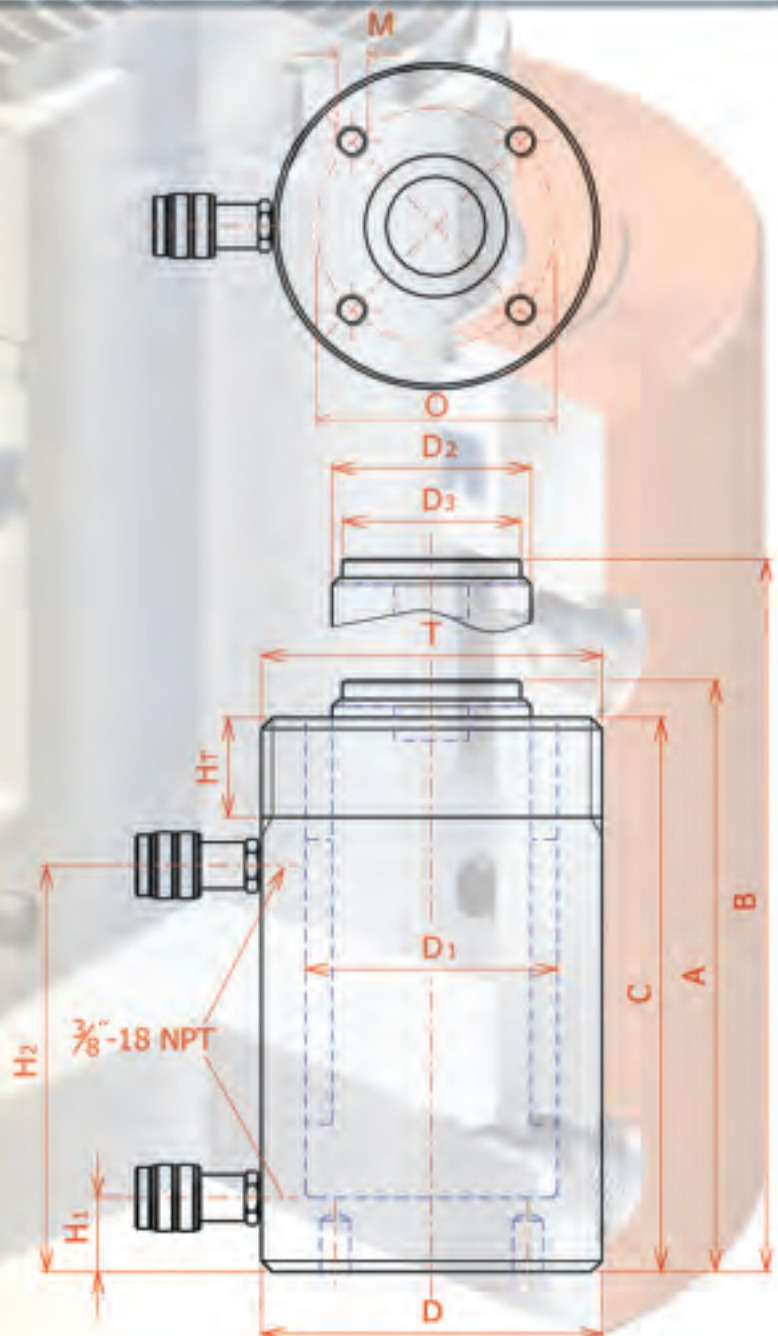
Hydraulic cylinders featuring an oil-return of the rod; they can be mounted on flanges and presses by means of the body thread. These cylinders exploit their long stroke by operating for laying of subways or piling tests.

These cylinders are equipped with seals supporting repeated high-speed activation. Stop ring guarantees full dead-end load, the high-resistance removable splined head guarantees the utmost protection for the rod. Mud ring mounted on the rod, GR6F high-flux quick female couplers are standard accessories as well. The over 20 Kg. piston models are equipped with carrying handles or ringbolts.

WARNING!!!

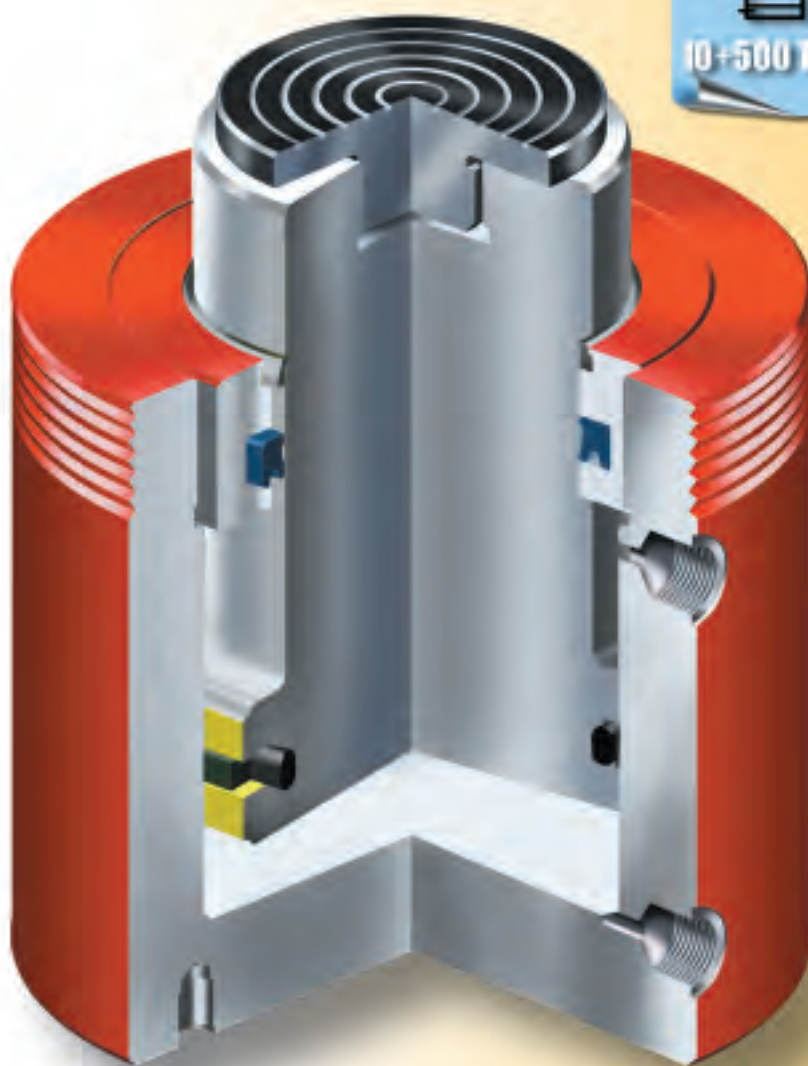
During lifting or moving operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. If existent, side load must not exceed 5% of the cylinder nominal capacity.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.



F.P.T.

FLUID POWER TECHNOLOGY



Note: models available on stock are indicated by the following symbol ●

CAP	STROKE	MODEL	CAPACITY max kN		SECTION cm ²		VOLUME cm ³		MASS	DIMENSIONS IN mm.												
			PUSH	PULL	PUSH	PULL	PUSH	PULL		Kg	A	B	C	D	D ₁	D ₂	D ₃	H ₁	H ₂	H _T	T	M
10	160	● CRI-10/160	111,3	16,0	15,9	4,6	255	73	5,0	250	410	242	60	45	38	37	20	190	32	M60x1.5	2xM8	22
	260	● CRI-10/260	111,3	16,0	15,9	4,6	414	119	6,8	350	610	342	60	45	38	37	20	290	32	M60x1.5	2xM8	22
30	160	● CRI-30/160	309,3	55,7	44,2	15,9	707	254	20,9	292	452	280	113	75	60	58	32	223	35	M112x2	2xM10	50
	260	● CRI-30/260	309,3	55,7	44,2	15,9	1149	414	27,5	392	652	380	113	75	60	58	32	323	35	M112x2	2xM10	50
50	160	● CRI-50/160	549,8	99,0	78,5	28,3	1257	452	33,8	310	470	298	140	100	80	79	32	233	45	M140x3	4xM12	70
	330	● CRI-50/330	549,8	99,0	78,5	28,3	2592	933	53,3	503	833	495	140	100	80	79	32	438	45	M140x3	4xM12	70
75	160	● CRI-75/160	791,7	121,0	113,1	34,6	1810	553	57,4	324	488	312	175	120	100	96	32	242	48	M175x3	4xM12	85
	260	● CRI-75/260	791,7	121,0	113,1	34,6	2941	898	73,6	424	688	412	175	120	100	96	32	342	48	M175x3	4xM12	85
100	160	● CRI-100/160	1077,6	156,0	153,9	44,6	2464	713	67,2	328	484	313	190	140	118	107	38	254	40	M190x4	4xM12	100
	330	● CRI-100/330	1077,6	156,0	153,9	44,6	5080	1471	102,4	513	684	498	190	140	118	107	38	424	55	M190x4	4xM12	100
150	160	● CRI-150/160	1496,8	283,8	213,8	81,1	3422	1297	99,7	353	513	338	225	165	130	126	43	270	48	M225x4	4xM12	120
	330	● CRI-150/330	1496,8	283,8	213,8	81,1	7057	2676	149,7	548	878	533	225	165	130	126	43	440	55	M225x4	4xM12	120
200	160	● CRI-200/160	1984,7	373,8	283,5	106,8	4537	1709	122,8	360	520	345	248	190	150	146	46	277	48	M245x4	4xM12	140
	330	● CRI-200/330	1984,7	373,8	283,5	106,8	9357	3525	182,3	555	885	540	248	190	150	146	46	447	60	M245x4	4xM12	140
300	160	● CRI-300/160	2908,3	563,5	415,5	161,0	6648	2576	185,2	352	512	335	308	230	180	176	52	255	55	M305x4	4xM16	200
	330	● CRI-300/330	2908,3	563,5	415,5	161,0	13711	5313	277,5	547	877	530	308	230	180	176	52	435	65	M305x4	4xM16	200
400	160	● CRI-400/160	4007,9	791,7	572,6	226,2	9161	3619	286,5	378	538	360	368	270	210	206	67	275	60	M365x4	4xM16	250
	330	● CRI-400/330	4007,9	791,7	572,6	226,2	18895	7464	422,9	578	908	560	368	270	210	206	67	460	70	M365x4	4xM16	250
500	160	● CRI-500/160	4948,0	1019,8	706,9	291,4	11310	4662	370,6	390	550	370	412	300	230	226	72	280	65	M410x4	4xM16	280
	330	● CRI-500/330	4948,0	1019,8	706,9	291,4	23327	9616	540,6	590	920	570	412	300	230	226	72	465	80	M410x4	4xM16	280



OIL-PRESSURE CYLINDERS

CRI.C SERIES OIL-PISTON RETURN COMPACT

SERIE CRI.C

FEATURES

- operating pressure 700 bar
- ton capacity from 50 to 500 tons
- stroke from 50 to 250 mm
- high-resistance removable splined heads
- oil-return
- stop ring available on all models
- 28 standard models available
- special or custom-made accessories and applications

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

PRODUCT DESCRIPTION

These large-sized cylinders feature oil-return of the rod, ideal for heavy-duty work, structure lifting, lowering and support operations, wide range applications for civil, nautical and iron and steel engineering. Fully reliable thanks to stop ring guaranteeing full dead-end load, high-resistance removable splined head, mud ring mounted on the rod to prevent residues and dirt from entering cylinders. All models are equipped with GR6F high-flux quick female couplers and the over 20 Kg. piston models are equipped with carrying handles or ringbolts.

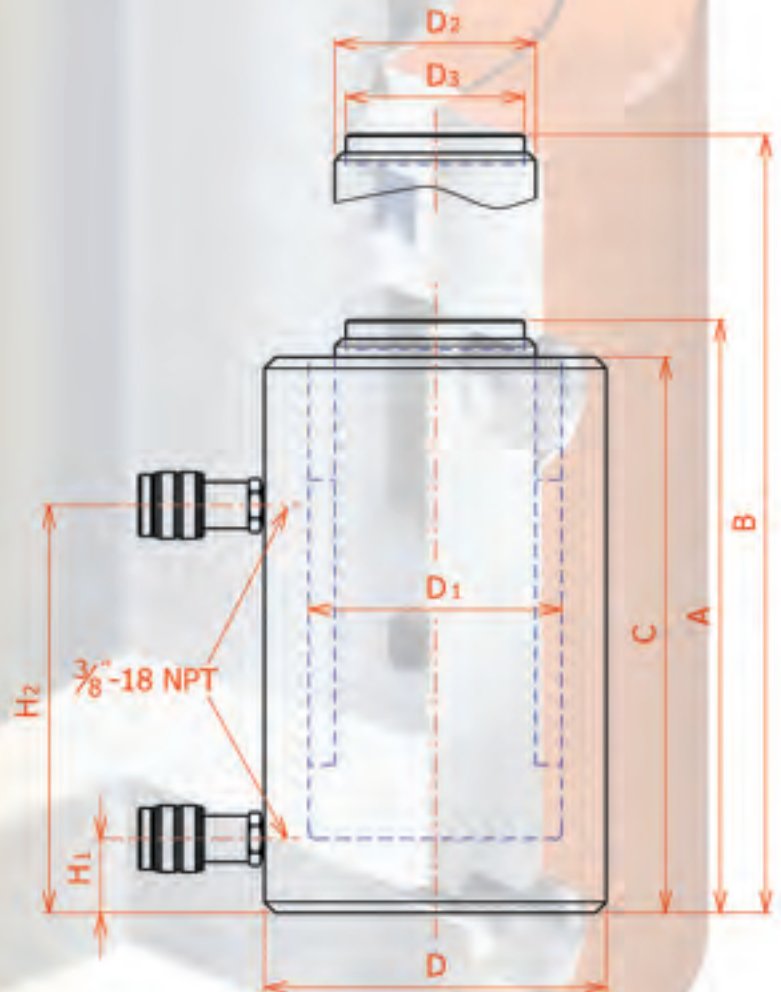
ON DEMAND

- self-levelling heads
- custom-made stroke and ton capacity
- surface treatments
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance

WARNING!!!

During lifting operations, check that load be fully distributed on the push head and perpendicular to the cylinder axis. If existent, side load must not exceed 5% of the cylinder nominal capacity.

Mechanically secure the lifted load, do not stand under load neither during nor after the lifting operation.



F.P.T.

FLUID POWER TECHNOLOGY



CAP	STROKE	MODEL	CAPACITY max kN		SECTION cm ²		VOLUME cm ³		MASS	DIMENSIONS IN mm								
			PUSH	PULL	PUSH	PULL	PUSH	PULL		Kg	A	B	C	D	D ₁	D ₂	D ₃	H ₁
50	50	CRI-C-50/50	496,2	113,4	70,9	32,4	355	162	14,8	153	203	146	132	95	70	52	25	91
	100	CRI-C-50/100	496,2	113,4	70,9	32,4	709	324	18,9	203	303	196	132	95	70	52	25	141
	150	CRI-C-50/150	496,2	113,4	70,9	32,4	1064	486	24,1	263	413	256	132	95	70	52	25	201
100	50	CRI-C-100/50	929,1	189,7	132,7	54,2	664	271	28,4	163	213	156	176	130	100	92	30	100
	100	CRI-C-100/100	929,1	189,7	132,7	54,2	1328	542	35,8	213	313	206	176	130	100	92	30	151
	150	CRI-C-100/150	929,1	189,7	132,7	54,2	1991	813	45,1	273	423	266	176	130	100	92	30	211
	200	CRI-C-100/200	929,1	189,7	132,7	54,2	2655	1084	55,3	338	538	331	176	130	100	92	30	261
	250	CRI-C-100/250	929,1	189,7	132,7	54,2	3319	1355	65,6	403	653	396	176	130	100	92	30	326
150	50	CRI-C-150/50	1407,4	239,2	201,1	68,3	1006	342	49,9	182	232	175	218	160	130	110	37	115
	100	CRI-C-150/100	1407,4	239,2	201,1	68,3	2011	683	61,9	232	332	225	218	160	130	110	37	165
	150	CRI-C-150/150	1407,4	239,2	201,1	68,3	3016	1025	76,7	282	432	275	218	160	130	110	37	215
	200	CRI-C-150/200	1407,4	239,2	201,1	68,3	4022	1367	90,1	347	547	340	218	160	130	110	37	280
	250	CRI-C-150/250	1407,4	239,2	201,1	68,3	5027	1708	103,5	402	652	395	218	160	130	110	37	335
200	50	CRI-C-200/50	1984,7	373,8	283,5	106,8	1418	534	71,5	187	237	180	258	190	150	138	42	120
	150	CRI-C-200/150	1984,7	373,8	283,5	106,8	2836	1068	108,3	287	387	280	258	190	150	138	42	220
	250	CRI-C-200/250	1984,7	373,8	283,5	106,8	4253	1602	151,2	402	552	395	258	190	150	138	42	330
250	50	CRI-C-250/50	2424,5	417,8	346,4	119,4	1732	597	107,3	205	255	198	298	210	170	148	46	128
	150	CRI-C-250/150	2424,5	417,8	346,4	119,4	5196	1791	152,5	305	455	298	298	210	170	148	46	228
	250	CRI-C-250/250	2424,5	417,8	346,4	119,4	8660	2985	211,5	430	680	423	298	210	170	148	46	353
300	50	CRI-C-300/50	2908,3	461,8	415,5	131,9	2078	660	124,3	222	272	214	308	230	190	158	50	137
	150	CRI-C-300/150	2908,3	461,8	415,5	131,9	6233	1979	172,4	322	472	314	308	230	190	158	50	237
	250	CRI-C-300/250	2908,3	461,8	415,5	131,9	10387	3299	237,9	452	702	444	308	230	190	158	50	367
400	50	CRI-C-400/50	4007,9	549,8	572,6	157,1	2863	785	188,8	238	288	228	365	270	230	196	57	150
	150	CRI-C-400/150	4007,9	549,8	572,6	157,1	8589	2356	258,5	338	488	328	365	270	230	196	57	250
	250	CRI-C-400/250	4007,9	549,8	572,6	157,1	14314	3927	352,7	468	718	458	365	270	230	196	57	380
500	50	CRI-C-500/50	4948,0	755,9	706,9	216,0	3535	1080	240,5	253	303	243	400	300	250	214	60	163
	150	CRI-C-500/150	4948,0	755,9	706,9	216,0	10603	3240	322,0	353	503	343	400	300	250	214	60	263
	250	CRI-C-500/250	4948,0	755,9	706,9	216,0	17672	5400	433,0	483	733	473	400	300	250	214	60	393



OIL-PRESSURE CYLINDERS

DOUBLE-ACTING

80

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be found within safety limits. You are recommended not to exceed 80% of these values.

SERIE CDE FEATURES

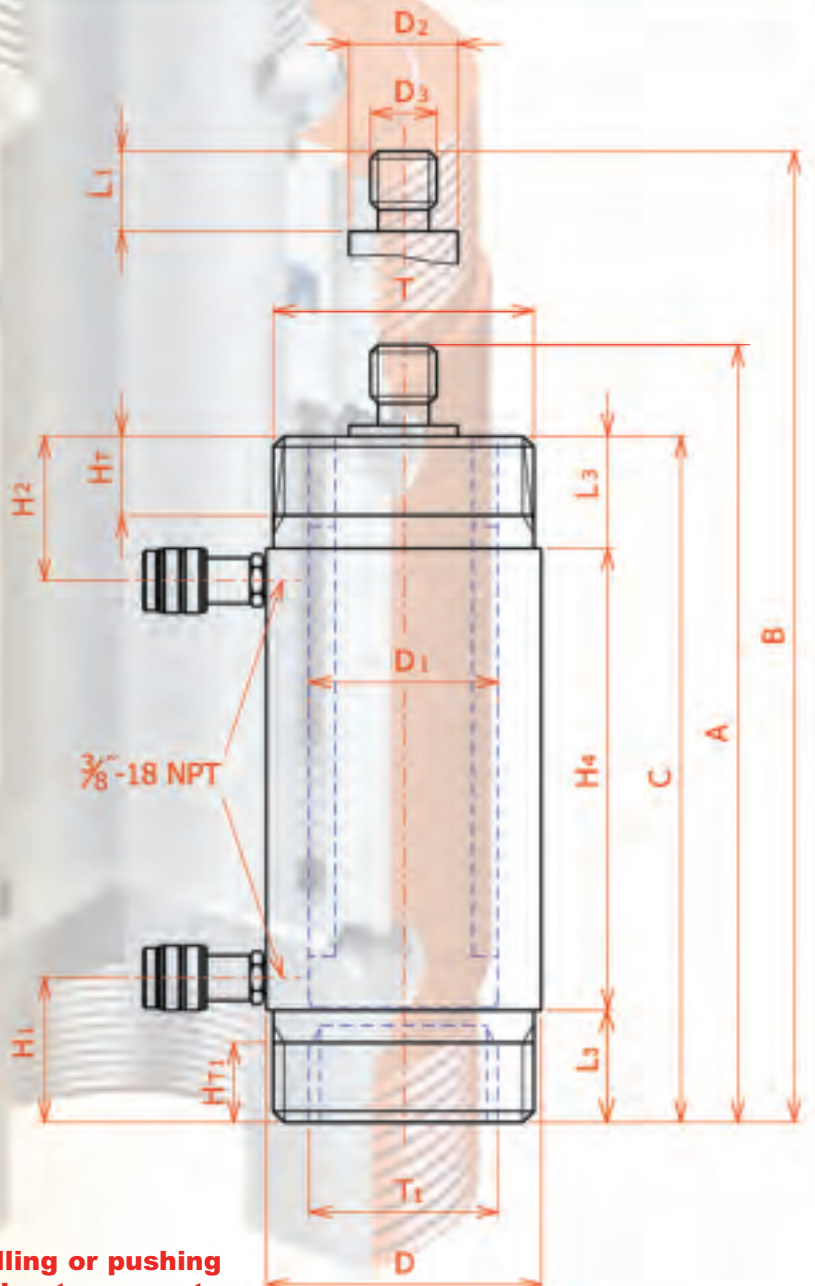
- operating pressure 700 bar
- ton capacity from 5 to 30 tons
- stroke from 30 to 260 mm
- double-acting
- 15 standard models available
- special or custom-made accessories and applications

PRODUCT DESCRIPTION

These cylinders are used with blocking systems, which repeat high-frequency and speed operations regularly; they are used in laboratories as capacity/strength simulators for both pull and push applications during which an alternative pull and push capacity is needed. The wide range of available standard accessories (eye connections, flanges, rings and slabs) can be mounted by means of the many threads on the cylinders' and rods' bodies and allows these cylinders to be used interfaced with complex mechanical equipment and structures. GR6F high-flux quick female couplers are also standard accessories of these cylinders.

ON DEMAND

- special connectors
- custom-made stroke and ton capacity
- surface treatments
- stainless steel structure
- seals up to 200° C
- R.I.NA – ITALIAN NAVY quality assurance



WARNING!!!

After the push and pull phases, check that cylinder operate on the alignment and be correctly positioned and mounted for the applications it is carrying out.

Do not stand nearby or close to the pulling or pushing points; use protective gloves and clothing to prevent occupational accidents from occurring.

F.P.T.

FLUID POWER TECHNOLOGY

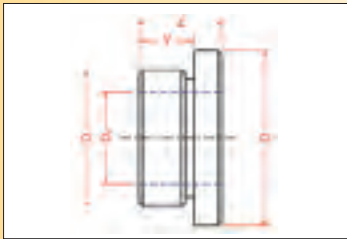


CAP	STROKE	MODEL	CAP. max kN		SECTION cm ²		VOLUME cm ³		MASS	DIMENSIONS IN mm															
			PUSH	PULL	PUSH	PULL	PUSH	PULL		Kg	A	B	C	D	D ₁	D ₂	D ₃	T	T ₁	H ₁	H ₂	H ₄	L ₁	H _T	L ₃
5	30	CDE-5/30	49,5	22,9	7,1	3,3	21,2	9,8	3	174	204	154	49	30	22	M 20x1,5	M 42x1,5	M 35x1,5	46	46	102	18	14	26	14
	60	CDE-5/60	49,5	22,9	7,1	3,3	42,4	19,6	2,7	204	264	184	49	30	22	M 20x1,5	M 42x1,5	M 35x1,5	46	46	132	18	14	26	14
	100	CDE-5/100	49,5	22,9	7,1	3,3	70,7	32,6	3,5	244	344	222	49	30	22	M 20x1,5	M 42x1,5	M 35x1,5	46	46	170	18	14	26	14
	160	CDE-5/160	49,5	22,9	7,1	3,3	113,1	52,1	4,3	304	464	284	49	30	22	M 20x1,5	M 42x1,5	M 35x1,5	46	46	232	18	14	26	14
10	60	CDE-10/60	111,3	68,2	15,9	9,8	95,4	58,5	5,7	243	303	223	68	45	28	M 24x2	M 60x2	M 48x1,5	56	56	153	18	16	35	16
	100	CDE-10/100	111,3	68,2	15,9	9,8	159,0	97,5	6,5	283	383	263	68	45	28	M 24x2	M 60x2	M 48x1,5	56	56	193	18	16	35	16
	160	CDE-10/160	111,3	68,2	15,9	9,8	254,4	156,0	8	343	503	323	68	45	28	M 24x2	M 60x2	M 48x1,5	56	56	253	18	16	35	16
	260	CDE-10/260	111,3	68,2	15,9	9,8	413,4	253,5	10,5	443	703	423	68	45	28	M 24x2	M 60x2	M 48x1,5	56	56	353	18	16	35	16
14	80	CDE-14/80	137,4	87,9	19,6	12,6	157,0	100,4	11	308	388	283	78	50	30	M 27x2	M 70x2	M 56x1,5	72	72	179	23	25	52	25
	160	CDE-14/160	137,4	87,9	19,6	12,6	314,0	200,9	13,5	388	548	363	78	50	30	M 27x2	M 70x2	M 56x1,5	72	72	259	23	25	52	25
	260	CDE-14/260	137,4	87,9	19,6	12,6	510,3	326,5	16	488	748	463	78	50	30	M 27x2	M 70x2	M 56x1,5	72	72	359	23	25	52	25
22	80	CDE-22/80	232,2	120,9	33,2	17,3	253,2	137,0	14	342	422	316	92	65	45	M40x2	M 85x2	M 70x2	89	89	186	24	26	65	26
	160	CDE-22/160	232,2	120,9	33,2	17,3	506,5	274,2	17,5	422	582	396	92	65	45	M40x2	M 85x2	M 70x2	89	89	266	24	26	65	26
	260	CDE-22/260	232,2	120,9	33,2	17,3	823,1	545,6	21,5	522	782	496	92	65	12	M 40x2	M 85x2	M 70x2	89	89	366	24	26	65	26
30	260	CDE-30/260	310,6	145,8	44,2	20,4	1185,0	567,3	33,5	532	782	504	113	75	55	M 50x2	M 105x2	M 80x2	94	94	360	24	28	72	28



Cylinder Accessories

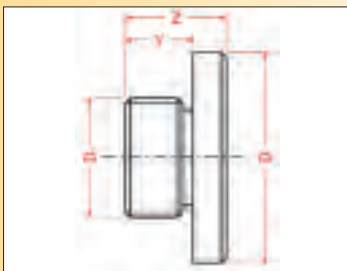
HEADS – EYE CONNECTIONS – ANCHOR PLATES – FLANGES – RINGS



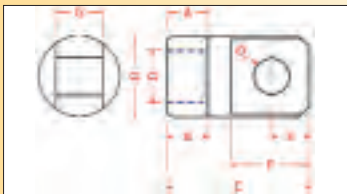
MODEL	CYLINDER MODEL	D	D ₁	D ₂	Y	Z	MASS Kg.
TFL - 10	CRM-10-FO	38	M28x1,5	19,5	18	28	0,10
TFL - 20	CRM-20-FO	54	M42x1,5	27,3	25	35	0,25
TFL - 30	CRM-30-FO	61	M50x1,5	33,5	20	30	0,30
TFLA - 30	CRI-30-FO	64	M50x1,5	33,5	20	30	0,35
TFL - 60	CRM-60-FO	82	M70x2	54,5	30	40	0,55
TFLA - 60	CRI-60-FO	92	M70x2	54,5	30	40	0,65
TFL - 100	CRM-100-FO CRI-100-FO	122	M100x2	78,5	35	45	1,30
TFL - 150	CRI-150-FO	165	M112x2	80,5	27	40	2,60



MODEL	CYLINDER MODEL	D	D ₁	D ₂	Y	Z	MASS Kg.
TFF - 10	CRM-10-FO	38	M28x1,5	M18X2,5	18	28	0,10
TFF - 20	CRM-20-FO	54	M42x1,5	1"-8 UNC	25	35	0,29
TFF - 30	CRM-30-FO	61	M50x1,5	1"1/4-7UNC	20	30	0,33
TFFA - 30	CRI-30-FO	64	M50x1,5	1"1/4-7UNC	20	30	0,35
TFF - 60	CRM-60-FO	82	M70x2	1"5/8-51/2UNS	30	40	0,85
TFFA - 60	CRI-60-FO	92	M70x2	1"5/8-51/2UNS	30	40	1
TFF - 100	CRM-100-FO CRI-100-FO	122	M100x2	M76X6	35	45	1,50
TFF - 150	CRI-150-FO	165	M112x2	M80X6	27	40	2,80



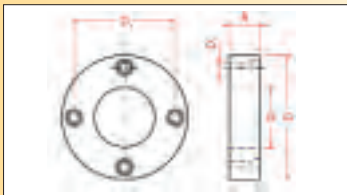
MODEL	CYLINDER MODEL	D	D ₁	Y	Z	MASS Kg.
TFP - 10	CRM-10-FO	38	M28x1,5	18	28	0,16
TFP - 20	CRM-20-FO	54	M42x1,5	25	35	0,40
TFP - 30	CRM-30-FO	61	M50x1,5	20	30	0,50
TFPA - 30	CRI-30-FO	64	M50x1,5	20	30	0,54
TFP - 60	CRM-60-FO	82	M70x2	30	40	1,20
TFPA - 60	CRI-60-FO	92	M70x2	30	40	1,35
TFP - 100	CRM-100-FO CRI-100-FO	122	M100x2	35	45	3
TFP - 150	CRI-150-FO	165	M112x2	27	40	4,17



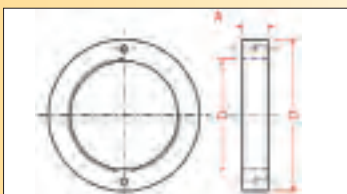
MODEL	CYLINDER MODEL	DIMENSIONS mm.									Weight
		D	D ₁	D ₂	A	B	C	E	F	G	Kg
DEO - 5	CDE-5	M35x1,5	M20x1,5	16	20	23	67	14	34	16	0,25
DEO - 10	CDE-10	M48x1,5	M24x2	19	20	23	77	19	42	25	0,65
DEO - 14	CDE-14	M56x1,5	M27x2	25	27	28	98	25	54	32	1,23
DEO - 22	CDE-22	M70x2	M40x2	32	29	30	112	32	66	38	2,00
DEO - 30	CDE-30	M80x2	M50x2	38	30	31	130	38	80	42	2,81



MODEL	CYLINDER MODEL	DIMENSIONS mm.						Weight
		D	D ₁	A	B	C	E	Kg
DEP - 5	CDE-5	42	10,5	84	60	15	64	0,30
DEP - 10	CDE-10	60	13	110	84	25	84	1,03
DEP - 14	CDE-14	70	17	136	100	35	100	2,20
DEP - 22	CDE-22	85	23	170	130	45	124	4,70
DEP - 30	CDE-30	105	25	200	150	50	148	6,90



MODEL	CYLINDER MODEL	DIMENSIONS mm.					Weight
		D	D ₁	D ₂	D ₃	A	Kg
DEF - 5	CDE-5	98	42	8,5	75	18	0,75
DEF - 10	CDE-10	125	60	10,5	100	23	1,55
DEF - 14	CDE-14	145	70	13	116	36	3,35
DEF - 22	CDE-22	175	85	17	138	45	6,00
DEF - 30	CDE-30	199	105	19	165	50	7,90

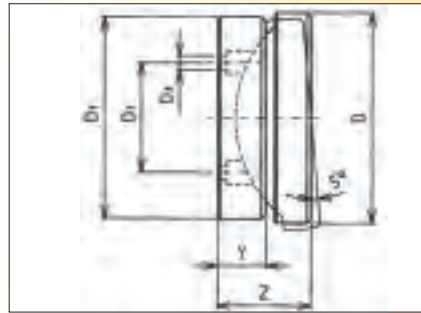
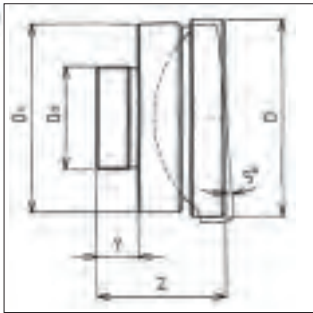


MODEL	CYLINDER MODEL	DIMENSIONS mm.			Weight
		D	D ₁	A	Kg
DEA - 5	CDE-5	60	M42x1,5	9	0,10
DEA - 10	CDE-10	80	M60x2	12	0,20
DEA - 14	CDE-14	94	M70x2	16	0,35
DEA - 22	CDE-22	110	M85x2	20	0,65
DEA - 30	CDE-30	135	M105x2	22	1,05



Cylinder Accessories

HEADS



MODEL	CYLINDER MODEL	D	D ₁	D ₂	Y	Z	MASS Kg.
TFO-10	CRM-10 CRI-10	34	37	M24x2	12	33,5	0,18
TFO-15	CRM-15	45	41	M27x2	15	40	0,30
TFO-25	CRM-25	54	53	M32x2	15	45	0,53
TFO-30	CRM-30 CRI-30	54	58	M32x2	14	44	0,55
TFO-50	CRM-50 CRI-50	66	68	M42x1,5	11	46	0,90
TFO-75	CRI-75	96	96	M42x1,5	15	58	2,20
TFO-100	CRM-100 CRI-100	96	98	M50x2	20	63	2,30
TFO-150	CRI-150	116	118	50	20	65	3,15
TFO-200	CRI-200	146	146	50	20	70	6,20
TFO-300	CRI-300	156	158	65	22	74	7,50
TFO-400	CRI-400	194	196	80	25	80	13,20
TFO-500	CRI-500	210	218	80	25	80	15,60

MODEL	CYLINDER MODEL	D	D ₁	D ₂	D ₃	Y	Z	MASS Kg.
TPO-10	CSE10 / CSE10GS CRM10C	34	30	16	5,5(n°2)	12	21,5	0,11
TPO-20	CSE20 / CSE20GS CRM20C	45	40	24	5,5(n°2)	13	26	0,24
TPO-30	CSE30 / CSE30GS / CRM30C CRMA30 / CRIC50	54	52	30	5,5(n°2)	15	31	0,45
TPO-50	CSE50 / CSE50GS / CRM50C CRMA50	66	72	50	6,5(n°2)	17	35	0,85
TPO-100	CSE100 / CSE100GS / CRM100C CRMA100 / CRIC100	96	92	50	6,5(n°2)	22	43	1,90
TPO-150	CSE150 / CSE150GS CRIC150	116	110	70	6,5(n°2)	21	45	2,80
TPO-200	CSE200 / CSE200GS / CRIC200	136	138	90	6,5(n°4)	25	51	5,20
TPO-250	CSE250 / CSE250GS / CRIC250	146	148	90	6,5(n°4)	25	51	6
TPO-300	CSE300 / CSE300GS / CRIC300	156	158	120	6,5(n°4)	25	52	6,90
TPO-400	CSE400 / CSE400GS / CRIC400	194	196	160	8,5(n°4)	25	55	12,20
TPO-500	CSE500 / CSE500GS / CRIC500	210	214	170	8,5(n°4)	25	55	14,50
TPO-600	CSE600 / CSE600GS	240	244	210	8,5(n°4)	27	60	21,20



MODEL	CYLINDER MODEL	D	D ₁	Y	Z	MASS Kg.
TSF-5	CRM-5	24	14	10	15	0,03
TSF-10	CRM-10 CRI-10	37	M 24X2	12	17	0,08
TSF-15	CRM-15	41	M 27X2	15	21	0,12
TSF-25	CRM-25	53	M 32X2	15	22	0,20
TSF-30	CRM-30 CRI-30	58	M 32X2	14	23	0,26
TSF-50	CRM-50 CRI - 50	79	M 42 X1,5	15	25	0,49
TSF-75	CRI-75	96	M 42X1,5	15	25	0,71
TSF-100	CRM-100 CRI-100	107	M 50X2	20	32	1,11
TSF-150	CRI-150	126	50	20	30	1,28
TSF-200	CRI-200	146	50	20	33	2
TSF-300	CRI-300	176	65	22	35	3,04
TSF-400	CRI-400	206	80	25	40	4,88
TSF-500	CRI-500	226	80	25	40	5,67

MODEL	CYLINDER MODEL	D	D ₁	D ₂	Z	MASS Kg.
TSP-10	CSE10 / CSE10GS CRM10C	30	16	5,5(n°2)	8	0,05
TSP-20	CSE20 / CSE20GS CRM20C	40	24	5,5(n°2)	8	0,08
TSP-30	CSE30 / CSE30GS / CRM30C CRMA30 / CRIC50	52	30	5,5(n°2)	10	0,16
TSP-50	CSE50 / CSE50GS / CRM50C CRMA50	72	50	6,5(n°2)	10	0,32
TSP-100	CSE100 / CSE100GS / CRM100C CRMA100 / CRIC100	92	50	6,5(n°2)	10	0,52
TSP-150	CSE150 / CSE150GS CRIC150	110	70	6,5(n°2)	10	0,74
TSP-200	CSE200 / CSE200GS / CRIC200	138	90	6,5(n°4)	12	1,40
TSP-250	CSE250 / CSE250GS / CRIC250	148	90	6,5(n°4)	12	1,61
TSP-300	CSE300 / CSE300GS / CRIC300	158	120	6,5(n°4)	12	1,84
TSP-400	CSE400 / CSE400GS / CRIC400	196	160	8,5(n°4)	12	2,83
TSP-500	CSE500 / CSE500GS / CRIC500	214	170	8,5(n°4)	12	3,37
TSP-600	CSE600 / CSE600GS	244	210	8,5(n°4)	12	4,38

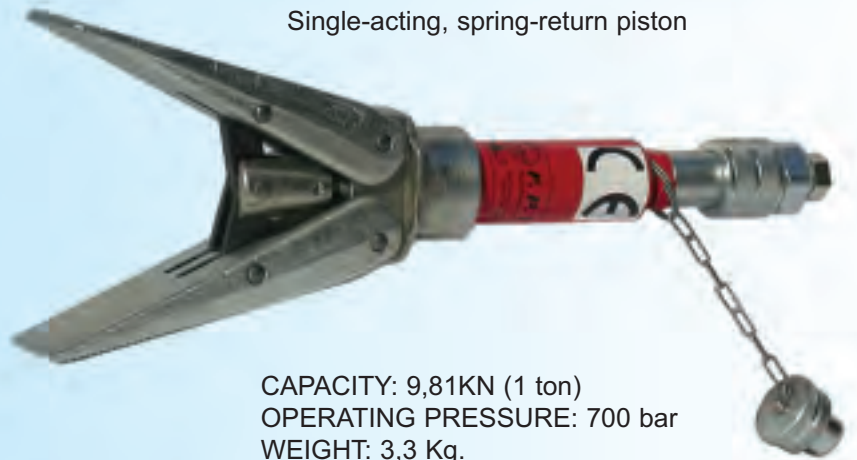
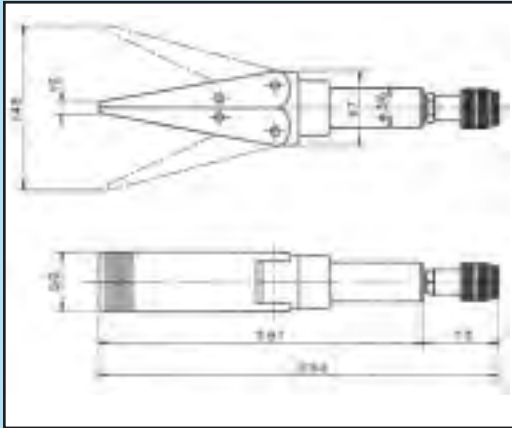


TOOLS



AD -1 SPREADER

Single-acting, spring-return piston



CAPACITY: 9,81KN (1 ton)
OPERATING PRESSURE: 700 bar
WEIGHT: 3,3 Kg.

Used to spread flanges, gauge boxes, machines and structures positioning and in bodywork industry sector.

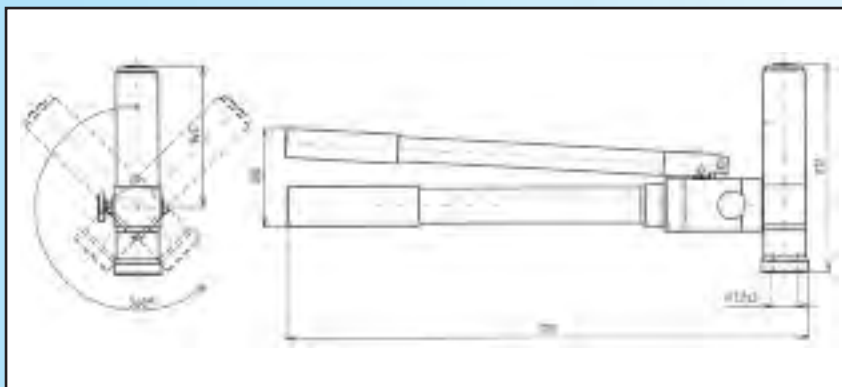
CPIA 4 SPREADING TOOL

PUMP FEATURES

OPERATING PRESSURE: 700 bar
STROKE CAPACITY: 0,9 cm³
MAX PRESS. ADJUSTABLE VALVE

CYLINDER FEATURES

CAPACITY: 5 TONS
STROKE: 75 MM
RETURN SPRING



This spreader is used to approach plates, as a lifting device in the shipbuilding industry, mechanical, building and industrial maintenance sectors.

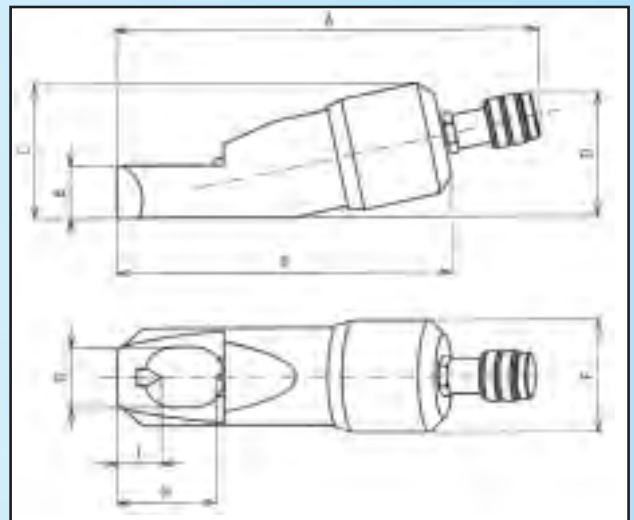
F.P.T.

FLUID POWER TECHNOLOGY



TOOLS

TB NUT SPLITTERS

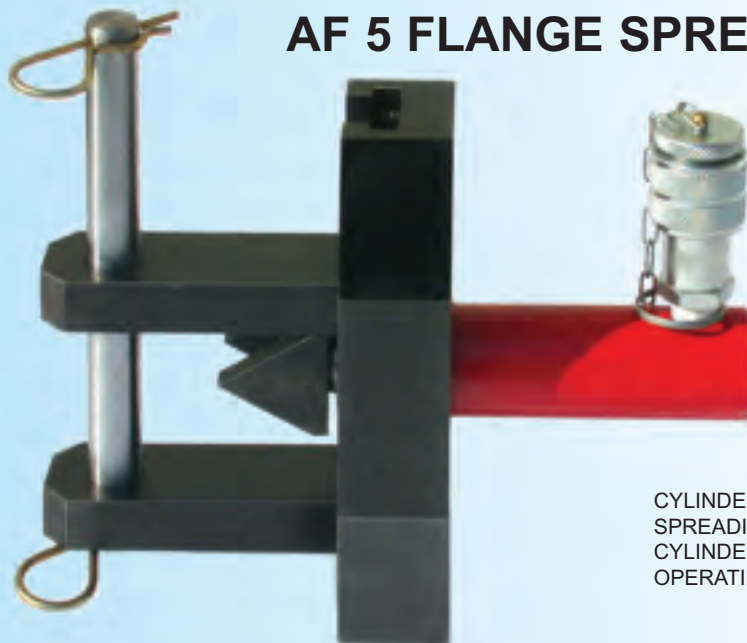


Ideal for splitting nuts which are difficult to be removed. These splitters are equipped with two opposed cutter blades which allow the nut to be fully split in just one application. The spring return allows the piston to be retracted as soon as the nut has been split. FPT Nut Splitter splits high-resistance steel nuts up to class 12 nuts as well. Worn cutter blades can be whetted or substituted. Be careful: centre cutter blades on to the sides of the nut to be split, this procedure guarantees clear and precise splits and prevent side strain from applying on the blades.

MODEL	SCREW DIAMETER	Nut key	NUT SPLITTER CAPACITY (calc. at 700 bar)	DIMENSIONS IN MM								
				A	B	C	D	E	F	G	H	I
TB 13/19	M8 - M12	13 - 19	5,5	203	133	48	58	19	43	26	41	21
TB 19/24	M12 - M16	19 - 24	11	233	163	65	68	25	58	34	47	22
TB 24/32	M16 - M22	24 - 32	16,5	260	190	75	74	30	69	41	57	24
TB 32/41	M22 - M27	32 - 41	21,8	297	230	90	80	35	84	55	77	35
TB 41/50	M27 - M33	41 - 50	35	347	280	112	93	42	103	68	89	38
TB 50/60	M33 - M39	50 - 60	49,5	395	330	136	105	52	124	82	103	42

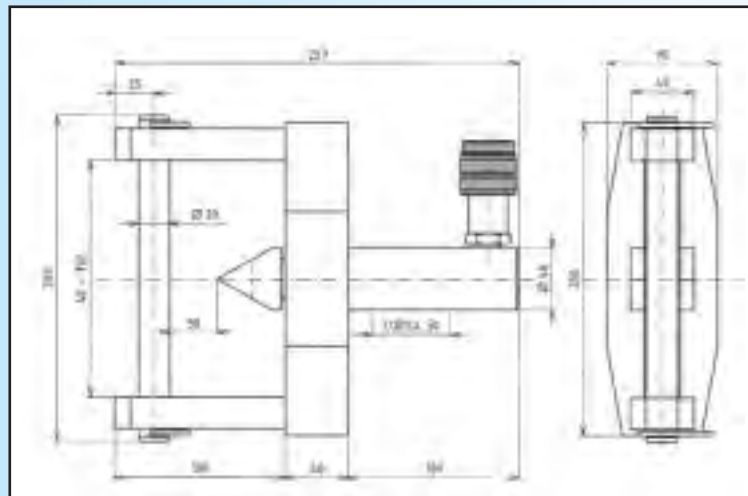


TOOLS



AF 5 FLANGE SPREADER

CYLINDER CAPACITY: 49,5 kN
SPREADING FORCE: 35 kN
CYLINDER STROKE: 50 mm
OPERATING PRESSURE: 700 bar

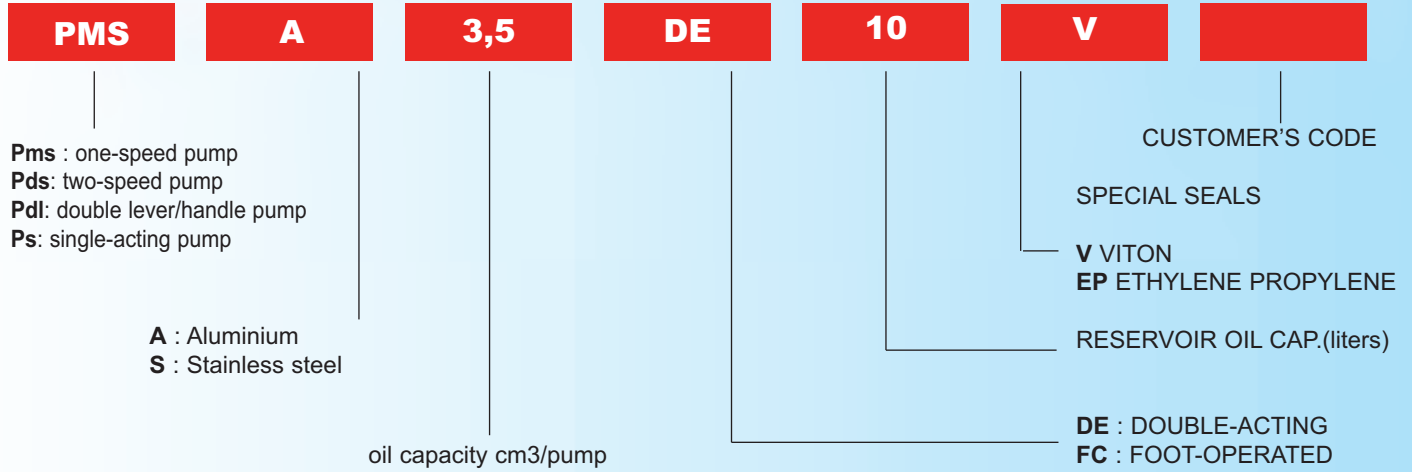


Allows spreading of flanges quickly and safely. Cylinder develops a maximum capacity of 49,5 kN and a spreading force of 35 kN, having a frictional coefficient of 0,30.

Their use is very simple: after plugging tool, turn on the cylinder which pushes spreader's wedges between the flanges and spreads them. Flange spreaders should be used in pairs, one opposed to the other, to provide even spreading force. Spreader is equipped with 20 mm and 15 mm flange bolts and two adjustment bushes for 15 mm flange bolts. In such a way, this tool can operate on flanges whose thickness is up to 120 mm or 90 mm, having holes no less than 20 mm or 15 to 20 mm in diameter respectively.



HAND PUMPS CODE



HAND PUMP CODES DESCRIPTION

Standard products may not meet our customers' needs and pumps are often modified to be better employed for the most various applications.

The hand pump codes table shows the many models and possibilities, choice of materials and components, capacity, activation procedure and reservoir capacity our range offers you.

This table can be used to order a custom-made pump or identify your FPT pump and order spare parts or a new one.

CUSTOM-MADE HAND PUMPS

FPT products can meet our customers' special needs as for the manufacturing materials and components as well as fluids to be pumped.

FPT can manufacture non-magnetic steel hand pump to be used in the nuclear energy sector or be installed on military equipment and vehicles. Water, phosphorous esters, naphtha and many more hydrocarbons can be easily pumped.

FPT hand pumps' operating pressure can reach up to 2800 bar.



HAND PUMPS ONE – TWO-SPEED

SERIE PMS/PDS

FEATURES

- operating pressure from 700 to 2800 bar
- one and two- speed pumps
- safety valve
- stainless steel pump

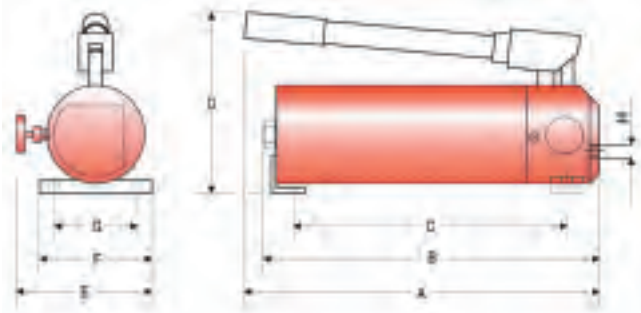
PRODUCT DESCRIPTION

FPT hand pumps are handy and easy to be used, they allow their users to operate oil-pressure equipment everywhere. These pumps are very strong, need limited maintenance intervention, and are constructed to support pressures up to 2800 bar, one or two-speed, and start up single or double-acting cylinders.

They are equipped with a safety valve, adjusted to the maximum operating pressure; a manometer for the reading of the operating pressure can be mounted on to the pump, directly or by means of an adapter.

Reservoirs having capacities other than the standard one can also be mounted.

Should hydrostatic tests envisaging the use of fluids other than oil be carried out, the suitable pump to be used is the stainless steel pump model..



MODEL	MAX. PRESSURE	OIL CAPACITY	RESERVOIR CAPACITY	USABLE OIL CAPACITY	DIMENSIONS IN mm.								WEIGHT
					A	B	C	D	E	F	G	H	
	bar	cm ³	litres	litres	A	B	C	D	E	F	G	H	kg
PMS - 0,9	700	0,9	0,3	0,19	332	294	-	110	74	56	-	1/4" NPT	2,6
PMSA - 3,5	700	3,1	1,6	1,3	585	510	465	185	135	110	90	3/8" NPT	5,1
PMS - 3,5/L3	700	3,1	3	2,5	585	530	417	185	135	110	90	3/8" NPT	10
PMS - 1,2	1600	1,2	1,6	1,2	615	553	463	200	140	140	120	G 1/4"	5,5
PMS - 0,7	2800	0,7	1,6	1,2	615	553	463	200	140	140	120	G 1/4"	5,5

MODEL	ONE / TWO-SPEED PRESSURE	ONE / TWO-SPEED OIL CAPACITY	RESERVOIR CAPACITY	USABLE OIL CAPACITY	DIMENSIONS IN mm.								Weight
					A	B	C	D	E	F	G	H	
	bar	cm ³	litres	litres	A	B	C	D	E	F	G	H	kg
PDSA - 20	35/700	17,5 / 2,7	2,2	1,65	590	465	389	230	170	140	120	3/8" NPT	10,5
PDS - 20/L4	35/700	17,5 / 2,7	4	3,4	590	517	380	230	200	140	120/180	3/8" NPT	14,5
PDS - 20/L8	35/700	17,5 / 2,7	8	6,1	590	517	380	230	350	140	120/330	3/8" NPT	19,5
PDS - 20 - DE	35/700	17,5 / 2,7	2,2	1,65	590	465	389	230	220	140	120	3/8" NPT	12
PDS - 20 - DE/L4	35/700	17,5 / 2,7	4	3,4	590	517	380	230	220	140	120/180	3/8" NPT	16
PDS - 20- DE/L8	35/700	17,5 / 2,7	8	6,1	590	517	380	230	350	140	120/330	3/8" NPT	21
PDS - 18	35/1600	12,5 / 1,1	2,2	1,65	625	537	400	200	140	140	120	G 1/4"	10,5
PDS - 16	35/2800	12,5 / 0,7	2,2	1,65	625	537	400	200	140	140	120	G 1/4"	10,5
PDSA - 21	35/700	17,5 / 2,7	1,6	1,2	590	540	475	190	140	140	120	*	6,5

*OUTLET HOLE P AND DISCHARGE HOLE T 3/8"NPT



HAND PUMPS FOR VARIOUS UTILIZATIONS

SERIE PS

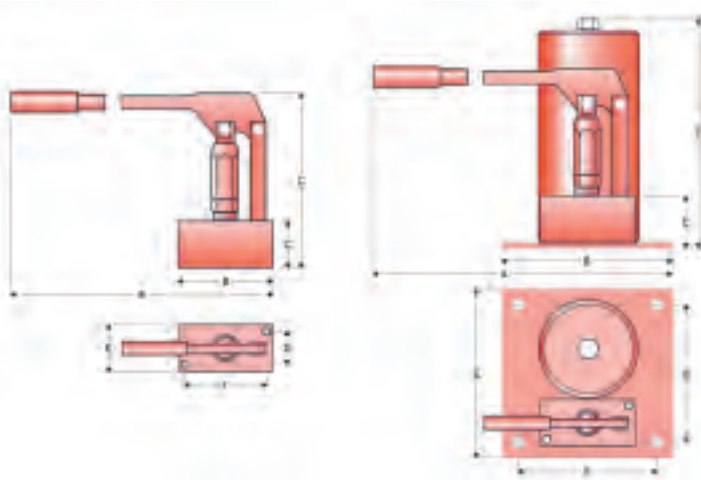
FEATURES

- operating pressure up to 2000 bar
- modular pumps
- with or without reservoirs
- 2-way valves

PRODUCT DESCRIPTION

Manual, modular, oil-pressure pumps to be used for specific operations on special equipment or for applications needing work consistency.

They generate pressures up to 2000 bar and are equipped with a 2-way valve to start up single-acting cylinders. (if needed, a 4-way valve, featuring 3 phases, can be mounted: it operates double-acting cylinders). More than two reservoirs can be coupled according to the needs of the customers; what's more, should water or special fluids, such as phosphorous ester, be used, stainless steel or aluminium pump structures are envisaged



MODEL	Ø PISTON	MAX. PRESSURE	OIL CAPACITY	OIL PORT	DIMENSIONS IN mm.							WEIGHT
	mm.				bar	cm ³	"	A	B	C	D	
PS - 0,7	7	2000	0,7	3/8-NPT	540	114	57	230	57	98,5	41,3	6,5
PS - 2,5	9,5	1400	2,6	3/8-NPT	540	114	57	230	57	98,5	41,3	5,3
PS - 3,6	12	700	3,92	3/8-NPT	540	114	57	230	57	98,5	41,3	5,3
PS - 9	19	210	9,92	3/8-NPT	540	114	57	230	57	98,5	41,3	5,3
PS - 17	26	105	17,87	3/8-NPT	540	114	57	230	57	98,5	41,3	5,7
PS - 34	38	35	36,2	3/8-NPT	540	114	57	230	57	98,5	41,3	7
PS - 0,7 / L0,5	7	2000	0,7	3/8-NPT	540	206	62	230	206	168	168	11,5
PS - 2,5 / L2	9,5	1400	2,6	3/8-NPT	540	206	62	310	206	168	168	10,3
PS - 3,6 / L2	11	700	3,92	3/8-NPT	540	206	62	310	206	168	168	10,3
PS - 9 / L2	19	210	9,92	3/8-NPT	540	206	62	310	206	168	168	10,3
PS - 17 / L2	26	105	17,87	3/8-NPT	540	206	62	310	206	168	168	10,7
PS - 34 / L2	38	35	36,2	3/8-NPT	540	206	62	310	206	168	168	12



CONTROL UNIT CODES

Standard products may not meet our customers' needs, that's why control units have to be modified to fully meet our customers' requests. The following control unit codes table shows the many choices at your disposal among engines, pumps, control valves and reservoir capacities. This table can be used to order a custom-made control unit or identify your FPT control unit and order spare parts or a new one. The following tables focus on the FPT, FPH and ISO-FLOW control units.

FPT1 **ME2** **M** **VM-1-M** **20** **Customer's code**

PUMP MODEL:		PISTON no.	
		Bp	Ap
FPT1	TWO-SPEED	2	2
FPT2	ONE-SPEED	-	4
FPT5	TWO-SPEED	2	4
FPT9	TWO-SPEED	4	2

ME2 three-phase, 2-pole engine
ME4 three-phase, 4-pole engine
ME21 one-phase, 2-pole engine
ME41 one-phase, 4-pole engine
MA pneumatic engine
MS 4T internal combustion engine

MANOMETER

3-WAY VALVES		4-WAY VALVES	
MANUAL	ELECTRIC	MANUAL	ELECTRIC
PT	VE-R2	VM-11-M	VE-R22/A
VM-1-M	VE-R21	VM-12-M	VE-R22/C
VM-2-M		VM-13-M	
VM-3-M		VM-14-M	

20 reservoir capacity (liters)
CD medium-range remote control button
CDF medium-range remote control pedals
P manostat
CDP pneumatic remote control

FPH1 **ME2** **M** **VM-4-M** **20** **VM** **Customer's code**

PUMP MODEL:		PISTON no.	
		Bp	Ap
FPH1	TWO-SPEED	2	2
FPH2	ONE-SPEED	-	4
FPH5	TWO-SPEED	2	4
FPH9	TWO-SPEED	4	2

ME2 three-phase, 2-pole engine
ME4 three-phase, 4-pole engine
ME21 one-phase, 2-pole engine
ME41 one-phase, 4-pole engine
MA pneumatic engine
MS 4T internal combustion engine

MANOMETER

3-WAY VALVES		4-WAY VALVES	
MANUAL	ELECTRIC	MANUAL	ELECTRIC
VM-4M	VE-R2	VM-15-M	VE-R22/A
VM-5-M	VE-R21	VM-16-M	VE-R22/C
VM-6-M		VM-17-M	
		VM-18-M	

MAX. PRESSURE VALVE, external adjustment (optional function)
20 reservoir capacity (liters)
CD medium-range remote control button
CDF medium-range remote control pedals
P manostat
CDP pneumatic remote control

FPT2 **0,9** **ME2** **VM-5-M** **M** **20** **Customer's code**

Port no.	
FPT2	2-use
FPT4	4-use
FPT6	6-use

ME2 three-phase, 2-pole engine
ME4 three-phase, 4-pole engine

CAPACITY (liters/min)	
FPT2	0,9 l/min
FPT4	0,4 l/min
FPT6	0,8 l/min

VALVES	
3-WAY	4-WAY
VM-5-M	VM-15-M
VM-6-M	VM-16-M
	VM-17-M
	VM-18-M

RESERVOIR CAPACITY (LITERS)
MANOMETER

F.P.T.

FLUID POWER TECHNOLOGY



PNEUMO-HYDRAULIC CONTROL UNITS

SERIE PP-700

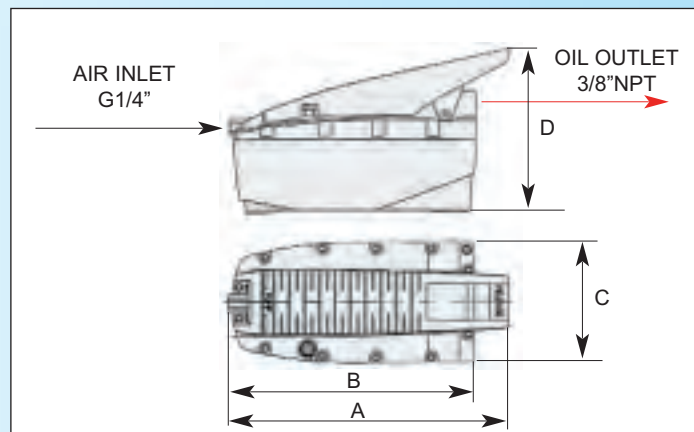
FEATURES:

- operating pressure up to 700 bar
- oil capacity up to 0,8 liters/min
- do not need lubricated air
- G 1/4" air inlet
- 2 standard models available

PRODUCT DESCRIPTION

These are pneumo-hydraulic, compact, easy to use control units. They generate pressures up to 700 bar and feature a maximum capacity of about 0,8 liters/min.

2,5 to 5 liters standard reservoirs are mounted onto the units, if needed though, these units can be equipped with higher capacity reservoirs as well. 2-way valves (standard valves) and 4-way valves (special valves) allow the starting up of single-acting or double-acting cylinders. They can be connected to an ordinary compressed air system by means of a G 1/4" thread inlet connection.



MODEL	MAX. PRESSURE bar	OIL CAPACITY l / min.	RESERVOIR CAPACITY litres	USABLE OIL litres	AIR PRESSURE bar	DIMENSIONS IN mm.				WEIGHT kg.
						A	B	C	D	
PP-700 - T	700	0,8	2,5	2,1	2,8 - 8	365	320	155	210	5
PP- 700 L5	700	0,8	5	4	2,8 - 8	410	400	205	210	11

SERIE PP 2100

PRODUCT DESCRIPTION:

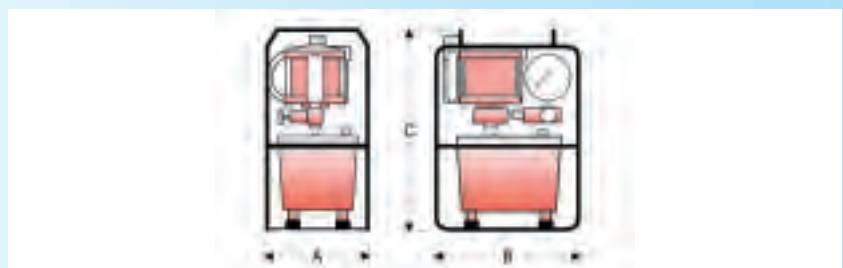
These are pneumo-hydraulic units generating a maximum pressure of 2100 bar, thanks to an air-oil pressure multiplier having a 300:1 ratio.

This unit model is fed by an ordinary compressed air system and is ideal for tensioning studs, internal combustion tests, laying of bearings and all those operations needing very high pressures.

Air consumption is about 2100 liters/min. Feeding pressure varies from 1,8 to 7 bar. Should pressure decline, this control unit model is able to reactivate the pre-existing values. If needed, pneumo-hydraulic units generating pressure up to 4000 bar can be constructed.

FEATURES:

- operating pressure up to 2100 bar
- oil capacity from 0,56 to 0,25 liters/min
- pressure multiplier, 300:1 ratio
- NPT 3/8" oil port
- G 1/2" air inlet
- 10 liter capacity reservoir
- weight: 29 Kg.



MODEL	MAX. PRESSURE bar	OIL CAPACITY l / min.	RESERVOIR CAPACITY litres	AIR PRESSURE bar	DIMENSIONS IN mm.				WEIGHT kg.
					A	B	C	D	
PP - 2100 - 10 - G	2100	0,25	10	1,8-7	365	470	600		29



OIL-PRESSURE CONTROL UNITS EQUIPPED WITH A STEEL RESERVOIR

PRODUCT DESCRIPTION:

FPT high-pressure control units have been designed to meet the many different needs which have to be satisfied when using oil-pressure equipment. Various engine models can be mounted on these units, such as electric, internal combustion or air engines, as well as pumps featuring various capacities, electric, pneumatic or manual 3- or 4-way valves. These are first-quality control units, need little maintenance and are very easy to use, that's why users get the maximum productive return from them. Their standard model is equipped with a 10-liter reservoir, but, if needed, 20-liter or more reservoirs can be mounted as well.

SERIE FPT

FEATURES:

- operating pressure 700 bar
- axial piston pumps
- safety valves
- plate reservoir
- 3- or 4-way manual, electric or pneumatic valves
- 20 standard models available



MODELLO	1-2-SPEED PRESSURE	1-2-SPEED OIL CAPACITY	ENGINE	KW REVOLUTIONS/MIN	RESERVOIR CAPACITY	DIMENSIONS IN mm.								WEIGHT
	bar	l/min				litres	A	B	C	D	E	F	G	
FPT 1 - ME4	100 / 700	0,9 / 0,45	three-phase, 4-pole	0,75 / 1410	10	380	360	370	125	300	M8	410	350	45
FPT 1 - ME41	100 / 700	0,9 / 0,45	one-phase 4-pole	1,1 / 1330	10	380	360	460	125	300	M8	410	350	50
FPT 1 - ME2	100 / 700	1,8 / 0,9	three-phase, 2-pole	1,1 / 2850	10	380	360	370	125	300	M8	410	350	45
FPT 1 - ME21	100 / 700	1,8 / 0,9	one-phase 2-pole	1,5 / 2750	10	380	360	460	125	300	M8	410	350	50
FPT 1 - MA	100 / 700	1,8 / 0,9	pneumatic engine	2,6 / 3000	10	-	360	370	125	300	M8	410	350	47
FPT 1 - MS	100 / 700	1,8 / 0,9	i.c.engine 4/S	3 / 3000	10	-	360	530	125	300	M8	505	350	49
FPT 2 - ME4	700	0,9	three-phase, 4-pole	1,1 / 1390	10	-	360	460	125	300	M8	410	350	48
FPT 2 - ME2	700	1,8	three-phase, 2-pole	2,2 / 2850	10	-	360	460	125	300	M8	410	350	50
FPT 2 - MA	700	1,8	pneumatic engine	2,6 / 3000	10	355	360	370	125	300	M8	410	350	47
FPT 2 - MS	700	1,8	i.c.engine 4/S	3 / 3000	10	355	360	530	125	300	M8	505	350	49
FPT 5 - ME4	70 / 700	2,5 / 0,9	three-phase, 4-pole	1,1 / 1390	10	-	360	460	125	300	M8	410	350	48
FPT 5 - ME2	70 / 700	4,5 / 1,8	three-phase, 2-pole	2,2 / 2850	10	-	360	460	125	300	M8	410	350	50
FPT 5 - MA	70 / 700	4,5 / 1,8	pneumatic engine	2,6 / 3000	10	355	360	370	125	300	M8	410	350	47
FPT 5 - MS	70 / 700	4,5 / 1,8	i.c.engine 4/S	3 / 3000	10	355	360	530	125	300	M8	505	350	49
FPT 9 - ME4	70 / 700	3,7 / 0,45	three-phase, 4-pole	0,75 / 1410	10	-	360	370	125	300	M8	410	350	45
FPT 9 - ME41	70 / 700	3,5 / 0,45	one-phase 4-pole	1,1 / 1330	10	-	360	460	125	300	M8	410	350	50
FPT 9 - ME2	70 / 700	7,5 / 0,9	three-phase, 2-pole	1,1 / 2850	10	-	360	370	125	300	M8	410	350	45
FPT 9 - ME21	70 / 700	7,3 / 0,9	one-phase 2-pole	1,5 / 2750	10	-	360	460	125	300	M8	410	350	50
FPT 9 - MA	70 / 700	7,9 / 0,9	pneumatic engine	2,6 / 3000	10	355	360	370	125	300	M8	410	350	47
FPT 9 - MS	70 / 700	7,9 / 0,9	i.c.engine 4/S	3 / 3000	10	355	360	530	125	300	M8	505	350	49

FPT1

Pump model

ME2

Engine model

M

Manometer

VM-1-M

Valve model

20

Reservoir capacity

Customer's code

F.P.T.

FLUID POWER TECHNOLOGY



OIL-PRESSURE CONTROL UNITS EQUIPPED WITH AN ALUMINIUM RESERVOIR

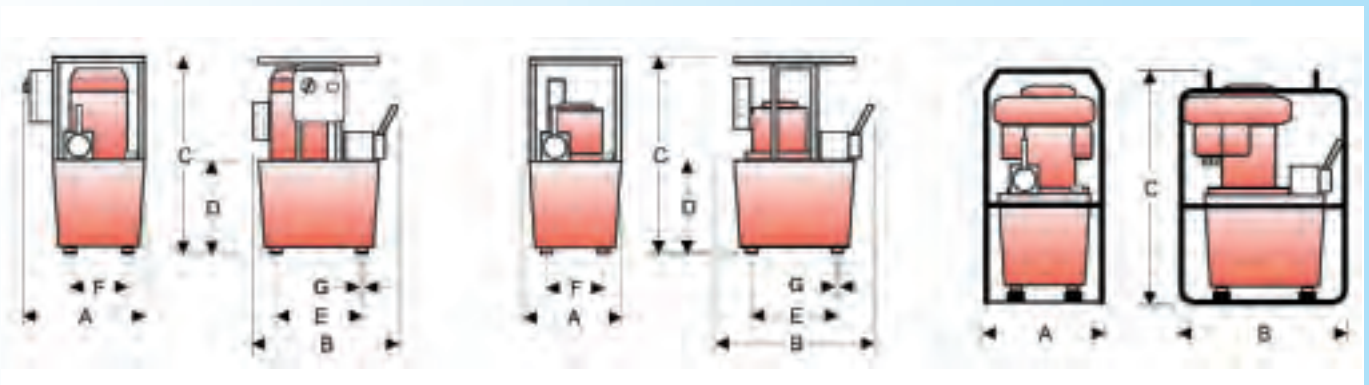
SERIE FPH

FEATURES:

- operating pressure 700 bar
- axial piston pumps
- safety valves
- pressure adjusting valve (on demand, see table)
- plate reservoir
- 3- or 4-way manual, electric or pneumatic valves
- 20 standard models available

PRODUCT DESCRIPTION:

FPH high-pressure control units are the ideal solution for the starting up of oil-pressure equipment, thanks to the many construction choices that can be taken. Various engine models can be mounted on these units, as well as electric, pneumatic or manual 3- or 4-way valves and one- or two-speed axial pumps featuring various capacities: so you get the control unit which most suits your application needs. These are portable units: thanks to the protection cage and to a number of aluminium components, contributing to lower their weights, these units are easily moved.



MODEL	1-2-SPEED PRESSURE	1-2-SPEED OIL CAPACITY	ENGINE	KW REVOLUTIONS/MIN	RESERVOIR CAPACITY	DIMENSIONS IN mm.							WEIGHT
	bar	l/min				litres	A	B	C	D	E	F	
FPH 1 - ME4	100 / 700	0,9 / 0,45	three-phase 4-pole	0,75 / 1410	10	395	360	495	230	210	170	M8	35
FPH 1 - ME41	100 / 700	0,9 / 0,45	one-phase 4-pole	1,1 / 1330	10	395	380	495	230	210	170	M8	40
FPH 1 - ME2	100 / 700	1,8 / 0,9	three-phase 2-pole	1,1 / 2850	10	395	360	495	230	210	170	M8	35
FPH 1 - ME21	100 / 700	1,8 / 0,9	one-phase 2-pole	1,5 / 2750	10	395	380	547	230	210	170	M8	40
FPH 1 - MA	100 / 700	1,8 / 0,9	pneumatic engine	2,6 / 3000	10	395	360	495	230	210	170	M8	37
FPH 1 - MS	100 / 700	1,8 / 0,9	i.c. engine 4/T	3 / 3000	10	365	470	600	-	-	-	-	39
FPH 2 - ME4	700	0,9	three-phase 4-pole	1,1 / 1390	10	395	380	495	230	210	170	M8	38
FPH 2 - ME2	700	1,8	three-phase 2-pole	2,2 / 2850	10	395	380	547	230	210	170	M8	40
FPH 2 - MA	700	1,8	pneumatic engine	2,6 / 3000	10	395	350	495	230	210	170	M8	37
FPH 2 - MS	700	1,8	i.c. engine 4/T	3 / 3000	10	365	470	600	-	-	-	-	39
FPH 5 - ME4	70 / 700	2,5 / 0,9	three-phase 4-pole	1,1 / 1390	10	395	380	495	230	210	170	M8	38
FPH 5 - ME2	70 / 700	4,5 / 1,8	three-phase 2-pole	2,2 / 2850	10	395	380	547	230	210	170	M8	40
FPH 5 - MA	70 / 700	4,5 / 1,8	pneumatic engine	2,6 / 3000	10	395	360	495	230	210	170	M8	37
FPH 5 - MS	70 / 700	4,5 / 1,8	i.c. engine 4/T	3 / 3000	10	365	470	600	-	-	-	-	39
FPH 9 - ME4	70 / 700	3,7 / 0,45	three-phase 4-pole	0,75 / 1410	10	395	360	368	230	210	170	M8	35
FPH 9 - ME41	70 / 700	3,5 / 0,45	one-phase 4-pole	1,1 / 1330	10	395	380	476	230	210	170	M8	40
FPH 9 - ME2	70 / 700	7,5 / 0,9	three-phase 2-pole	1,1 / 2850	10	395	360	368	230	210	170	M8	35
FPH 9 - ME21	70 / 700	7,3 / 0,9	one-phase 2-pole	1,5 / 2750	10	395	380	476	230	210	170	M8	40
FPH 9 - MA	70 / 700	7,9 / 0,9	pneumatic engine	2,6 / 3000	10	395	360	374	230	210	170	M8	37
FPH 9 - MS	70 / 700	7,9 / 0,9	i.c. engine 4/T	3 / 3000	10	365	470	600	-	-	-	-	39

FPH1	ME2	M	VM-4-M	20	VM	
PUMP MODEL	ENGINE MODEL	MANOMETER	VALVE MODEL	RESERVOIR CAPACITY	MAX. PRESS. VALVE	CUSTOMER'S CODE



OIL-PRESSURE CONTROL UNITS ISO FLOW

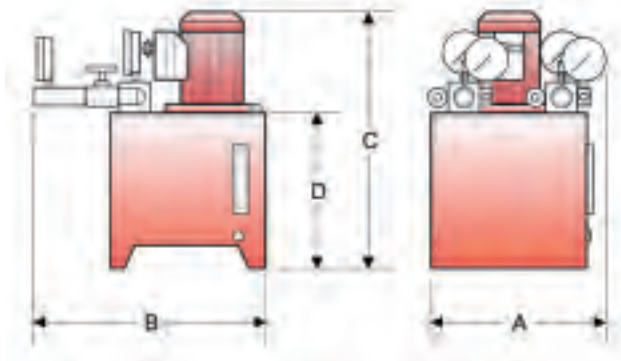
SERIE ISO FLOW

FEATURES :

- operating pressure 700 bar
- safety valve calibrated at 700 bar
- adjusting valve
- 3- or 4-way control valves
- interception valves installed on the outlets
- axial piston pumps
- 3 standard models available

PRODUCT DESCRIPTION:

This unit model provides 2, 4 or 6 separate outlets featuring the same capacity, which does not change depending on the loads. Each outlet is also equipped with a capacity adjusting valve that allows the monitoring on the lowering of the load. Manual, 3- or 4-way valves can also be mounted on this model; axial pumps are used, featuring capacities varying from 0,4 to 0,9 litres/min.



MODEL	MAX. PRESSURE	OIL CAPACITY	ENGINE	KW REVOLUTIONS/MIN	RESERVOIR CAPACITY	DIMENSIONS IN mm.				WEIGHT
	bar	l/min				litres	A	B	C	
FPT 2 x 0,9 - ME2	700	0,9	3 -phase 2-pole	2,2 / 2850	20	376	480	590	310	83
FPT 4 x 0,4 - ME2	700	0,4	3 -phase 2-pole	2,2 / 2850	60	525	650	590	310	140
FPT 6 x 0,8 - ME4	700	0,8	3 -phase 4-pole	7,5 / 1420	150	1400	650	1120	-	257 *

* oil not included

FPT2

OUTLET NO.

0,9

CAPACITY

ME2

ENGINE MODEL

VM-5-M

VALVE MODEL

M

MANOMETER

20

RESERVOIR CAPACITY

CUSTOMER'S CODE

F.P.T.

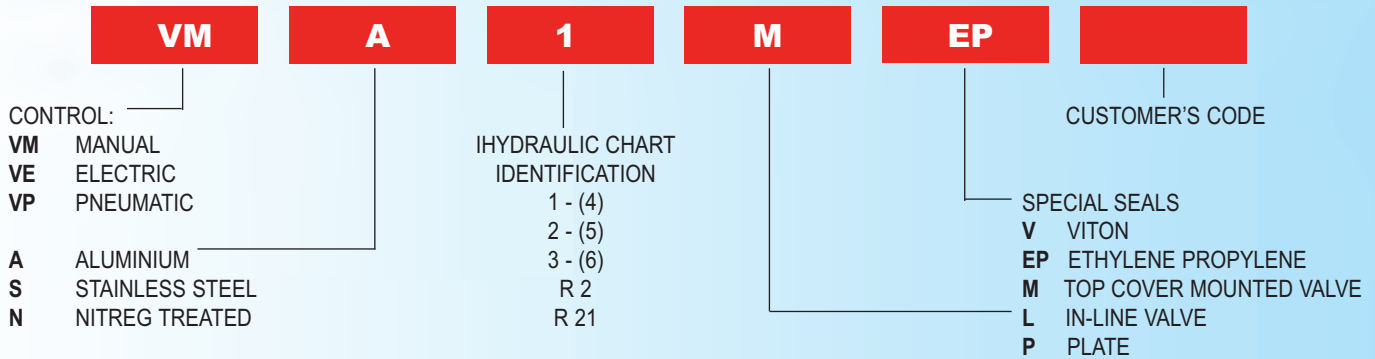
FLUID POWER TECHNOLOGY



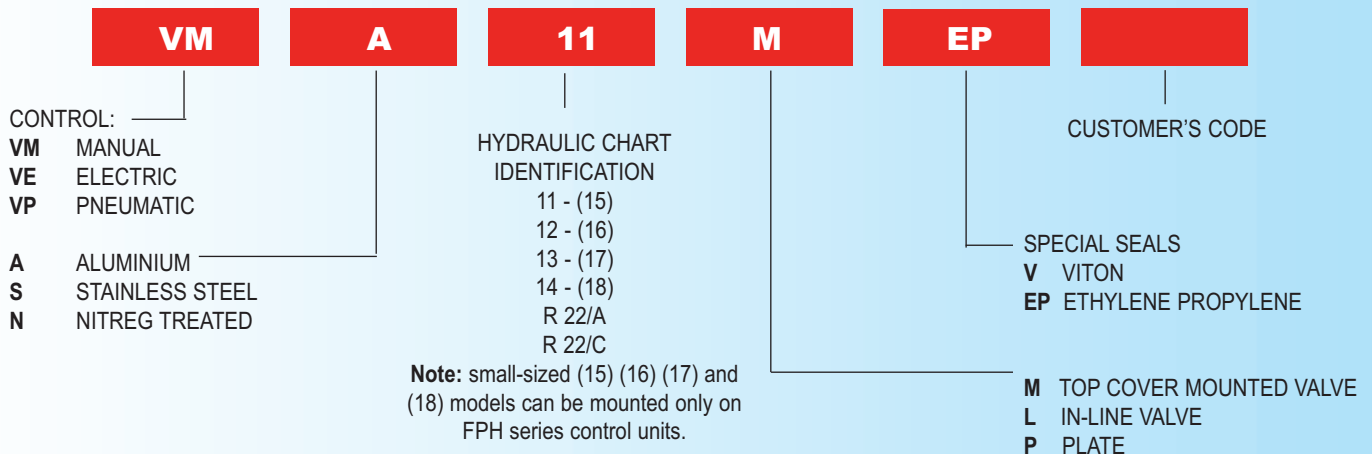
3- OR 4 -WAY VALVE CODES

3-WAY VALVES

Note: small-sized (4) (5) and (6) models can be mounted only on FPH series control units.



4-WAY VALVES



VALVE CODES DESCRIPTION

Standard products may not meet our customers' needs; valves often need to be modified to fully meet our customers' requests. The valve codes tables show the many choices at your disposal as for valve range, materials used, identification of the hydraulic chart and mounting system (in-line, top cover and plate mounted valves). These tables can be used to order a custom-made valve or identify your FPT valve and order spare parts or a new one.

VALVES' FEATURES

The construction of an oil-pressure circuit performing even the simplest and most basic operations cannot be done without using deviation or insertion devices giving the circuit that flexibility which is necessary to perform these operations. These devices are the directional valves or distributors. Their role depends on the connection that can be put into place and the number of variations of the connection itself. The connection type stems from the available number of ways and each position's oil-pressure chart.

The above-mentioned variations are the number of positions of the valve's lever (i.e. a manual valve). FPT high-pressure directional control valves offer you a wide range of different models (manual, electrically and pneumatically operated) and are in-line, top cover and plate mounted valves. Thanks to the materials used and FPT's care in constructing and assembling them, they are efficient and long-lasting products.



3-WAY VALVES

MANUAL OR ELECTRIC CONTROL, IN-LINE MOUNTED OR PUMP MOUNTED

Description: Outlet block with P and T ports and manometer connection

MODEL	DIMENSIONS IN mm.									
PT	A	B	C	D	E	F	G			
	100	45	48	84	6,5	3/8"NPT	1/4"NPT			

Description: 2-position manual valve

Functions:
Pos. 1 cylinder piston 'advance'
Pos. 2 cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.									
VM - 1L	A	B	C	D	E	F	G	H		
	143	135	50	40	5,5	3/8"NPT	21	41		

VM - 1M	A	B	C	D	E	F	G	H	I	L	M	N	O
	148	110	64	46	20	3/8"NPT	26	21	M20x1,5	R1/2"	1/8"NPT	31	1/4"NPT

Description: 3-position manual valve

Functions:
Pos. centre, cylinder piston is on 'hold', pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.									
VM - 2L	A	B	C	D	E	F	G			
	128	149	70	58	5,5	3/8"NPT	20			

VM - 2M	A	B	C	D	E	F	G	H	I	L	M	N
	138	178	100	70	30	3/8"NPT	35	16	1/4"NPT	31	16	R1/2"

Description: v3-position manual valve equipped with a pilot operated non-return valve preventing piston from moving if pressure loss occurs when shifting from the 'advance' to 'hold' position.

Functions:
Pos. centre, cylinder piston is on 'hold', pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
VM - 3L	A	B	C	D	E	F	G	H	I	L	M	N	O
	198	186	70	60	38	15	8	35	38	3/8"NPT	114	16	114

VM - 3M	A	B	C	D	E	F	G	H	I	L	M
	178	186	70	40	20	3/8"NPT	32	114	73	1/4"	114

Description: 2-position manual valve

Functions:
Pos. 1 cylinder piston 'advance'
Pos. 2 cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.											
VM - 4M	A	B	C	D	E	F	G	H	I	L	M	N
	90	35	77	34	53	12	3/8"NPT	13	26	25	3/8"NPT	1/4"NPT



3-WAY VALVES - 700 BAR

MANUAL OR ELECTRIC CONTROL, IN-LINE MOUNTED OR PUMP MOUNTED

Description: 3-position manual valve

Functions: Pos. centre, cylinder piston is on 'hold', pump is discharging
 Pos. left cylinder piston 'advance'
 Pos. right cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
VM-5M	A	B	C	D	E	F	G	H	I	L	M	N	O
	128	149	70	24	14	40	50	3/8"NPT	20	1/8" NPT	M8	R1/2"	60

Description: 3-position manual valve equipped with a pilot operated non-return valve preventing piston from moving if pressure loss occurs when shifting from the 'advance' to 'hold' position.

Functions: Pos. centre, cylinder piston is on 'hold', cylinder pressure is held, pump is discharging
 Pos. left cylinder piston 'advance'
 Pos. right cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
VM-6M	A	B	C	D	E	F	G	H	I	L	M	N	
	137	188	70	40	15	1/4"NTP	20	3/8"NPT	73	24	114	R1/2"	

Description: 2-position electromagnetic valve

Functions: Solenoid is de-energized: cylinder piston 'advance'
 Solenoid is energized: cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
VE-R2	A	B	C	D	E	F	G	H	I	L	M	N	
	155	70	35	20	25	5	13	27	14	40	1/4"NPT	M6	

Description: 3-position electromagnetic valve

Functions: Solenoids are de-energized: cylinder piston on 'hold'
 Solenoid 1 is energized: cylinder piston 'advance'
 Solenoid 2 is energized: cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
VE-R21	A	B	C	D	E	F	G	H	I	L			
	195	52,5	31	1/4"NTP	3/8"NPT	R1/2"	25	40	120	18			



4-WAY VALVES

MANUAL OR ELECTRIC CONTROL, IN-LINE MOUNTED OR PUMP MOUNTED

Description: 3-position manual valve

Functions: Pos. centre, cylinder piston is on 'hold', pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract'

MODEL	DIMENSIONS IN mm.												
	A	B	C	D	E	F	G	H	I	L	M	N	O
VM -11M	138	178	100	70	30	3/8"NPT	35	16	1/4"NPT	31	16	R1/2"	42

Description: 3-position manual valve equipped with a pilot operated non-return valve preventing piston from moving if pressure loss occurs when shifting from the 'advance' to 'hold' position.

Functions: Pos. centre, piston is on 'hold', cylinder pressure is held, pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract'

MODEL	DIMENSIONS IN mm.												
	A	B	C	D	E	F	G	H	I	L	M		
VM -12M	178	186	70	40	20	3/8"NPT	32	82	41	1/4"NPT	15		

Description: 3-position manual valve featuring a B outlet equipped with a max. press. valve calibrated at 150 bar

Functions: Pos. centre, cylinder piston is on 'hold', pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract' at low pressure (150 bar)

MODEL	DIMENSIONS IN mm.												
	A	B	C	D	E	F	G	H	I	L	M	N	O
VM -13M	138	178	100	70	30	3/8"NPT	35	16	1/4"NPT	31	16	R1/2"	42

Description: 3-position manual valve equipped with a pilot operated non-return valve preventing pressure loss from occurring when shifting from the 'advance' to 'hold' position. B outlet equipped with a max. press. valve calibrated at 150 bar

Functions: Pos. centre, piston is on 'hold', cylinder pressure is held, pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract' at low pressure (150 bar)

MODEL	DIMENSIONS IN mm.												
	A	B	C	D	E	F	G	H	I	L	M		
VM -14M	178	186	70	40	20	3/8"NPT	32	82	41	1/4"NPT	15		

Description: 3-position manual valve

Functions: Pos. centre, cylinder piston is on 'hold', pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
	A	B	C	D	E	F	G	H	I	L	M	N	O
VM -15M	128	149	70	24	14	40	50	3/8"NPT	20	1/4"NPT	M8	R1/2"	60

Description: 3-position manual valve equipped with a pilot operated non-return valve preventing piston from moving if pressure loss occurs when shifting from the 'advance' to 'hold' position.

Functions: Pos. centre, piston is on 'hold', cylinder pressure is held, pump is discharging
Pos. left cylinder piston 'advance'
Pos. right cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
	A	B	C	D	E	F	G	H	I	L	M	N	
VM -16M	128	148	70	40	15	1/4"NPT	20	3/8"NPT	41	32	82	R1/2"	



4-WAY VALVES - 700 BAR

MANUAL OR ELECTRIC CONTROL, IN-LINE MOUNTED OR PUMP MOUNTED

Description: 3-position manual valve featuring a B outlet equipped with a max. press. valve calibrated at 150 bar

Functions:
 Pos. centre, cylinder piston is on 'hold', pump is discharging
 Pos. left cylinder piston 'advance'
 Pos. right cylinder piston 'retract' at low pressure (150 bar)

MODEL	DIMENSIONS IN mm.												
VM -17M	A	B	C	D	E	F	G	H	I	L	M	N	O
	128	149	70	24	14	40	50	3/8"NPT	20	1/4"NPT	M8	R1/2"	60

Description: 3-position manual valve equipped with a pilot operated non-return valve preventing pressure loss from occurring when shifting from the 'advance' to 'hold' position. B outlet equipped with a max. press. valve calibrated at 150 bar

Functions:
 Pos. centre, cylinder piston is on 'hold', pump is discharging
 Pos. left cylinder piston 'advance'
 Pos. right cylinder piston 'retract' at low pressure (150 bar)

MODEL	DIMENSIONS IN mm.												
VM -18M	A	B	C	D	E	F	G	H	I	L	M	N	
	128	188	70	40	15	1/4"NPT	20	3/8"NPT	41	32	82	R1/2"	

Description: 3-position electromagnetic valve

Functions:
 Solenoids are de-energized: piston on 'hold', pressure is held, pump is discharging
 Solenoids 2-3 are energized: cylinder piston 'advance'
 Solenoids 1-3 are energized: cylinder piston 'retract', pump is discharging

MODEL	DIMENSIONS IN mm.												
VE-R22A	A	B	C	D	E	F	G	H	I	L	M		
	195	52	31	1/4"NPT	3/8"NPT	R1/2"	25	40	47	165	18		

Description: 3-position electromagnetic valve with a max. press. valve calibrated at 150 bar

Functions:
 Solenoids are de-energized: piston on 'hold', pressure is held, pump is discharging
 Solenoids 2-3 are energized: cylinder piston 'advance'
 Solenoids 1-3 are energized: cylinder piston 'retract' at low pressure (150 bar)

MODEL	DIMENSIONS IN mm.												
VE - R22C	A	B	C	D	E	F	G	H	I	L	M		
	195	52	31	1/4"NPT	3/8"NPT	R1/2"	25	40	47	165	18		



ACCESSORY VALVES

INTERCEPTION, ADJUSTMENT, MAX.PRESSURE AND NON-RETURN VALVES

Description:
In-line metering valve
Used for holding or excluding pressure from a number of components of the hydraulic circuit.

MODEL	A	B	C	D	E	F		
VM - 5A	68	88	98	32	19	3/8"NPT		
VM - 5B	68	88	98	32	19	3/8"NPT		

Description:
One-way flow adjusting valve
Allows load to be lowered in a controlled environment
The mounted maximum pressure valve protects the circuit from overpressure.

MODEL	A	B	C	D	E	F	G	
RFU - A	70	88	35	116	18	27	3/8"NPT	

Description:
In-line, one-way, non-return valve
Stops flow going one way and allows flow in the opposite way

MODEL	A	B	C				
VRL - A38	65	30	3/8"NPT				
VRL - B14	65	30	1/4"NPT				

Description:
Pilot operated, in-line, non-return valve
Stops flow going one way and allows flow in the opposite way
Circuit starts operating again thanks to a pilot pressure 4 times lower than the circuit's

MODEL	A	B	C	D	E		
VRPL - A	122	41	3/8"NPT	30	1/4"NPT		

Description:
Pressure limiting valve
Act on the screw so to adjust the circuit pressure

MODEL	A	B	C	D	E	F	G	H
VMPL - A	125	50	40	5,5	52	35	20	3/8"NPT

Description:
Pressure limiting valve
Act on the hand wheel so to adjust the circuit pressure
Panel mounted

MODEL	A	B	C	D	E	F	G	H	I
VMPP - A	119	32	1/4"NPT	44	19	61	M25x1,5	29	R1/8"



GENERAL PURPOSE ACCESSORIES

MANOMETERS

	Description: Dry manometer, bar and psi scale, 700 bar gauge, scale ceiling value 1000 bar – 14000 psi Dial diameter 100 mm – manometer connection R1/2"						
	MODEL	DIMENSIONS IN mm.					
	MD 100 S	A	B	C			
	118	40	157				
Description: Glycerol-immersed manometer, bar and psi scale, 700 bar gauge, scale ceiling value 1000 bar – 14000 psi Dial diameter 100 mm – manometer connection R1/2"							
MODEL	DIMENSIONS IN mm.						
MD 100 G	A	B	C				
	118	40	157				
Description: Glycerol-immersed manometer, bar and psi scale, 700 bar gauge, scale ceiling value 1000 bar – 14000 psi Dial diameter 60 mm – manometer connection R1/4" - 18 NPT							
MODEL	DIMENSIONS IN mm.						
MD 60 G	A	B	C				
	68	31	89				

MANOMETER CUTTING OFF VALVES

	Description: Manometer cutting off valves stop pressure going to the manometer and allow to cut it off if pressure reading is not needed						
	MODEL	DIMENSIONS IN mm.					
		A	B	C	D	E	F
VM - 5C	68	88	98	32	19	3/8"NPT	R1/2"
VM - 5G	68	88	98	32	19	R1/2"	R1/2"

MANOMETER-HOLDING CONNECTORS

	Description: These are needed for those pumps or valves not envisaging the direct mounting of a manometer PM-39 model is to be mounted on the following pumps: PMS-0,9 - PMS-1,2 - PMS 2/FC PM-351 model is to be mounted on the following pumps: PDS 11/FC					
	MODEL	DIMENSIONS IN mm.				
		A	B	C	D	E
PM - 39	115	30	40	R1/2"	3/8" - 18NPT	3/8" - 18NPT
PM - 351	115	30	40	R1/2"	3/8" - 18NPT	1/4" - 18NPT
PM - 355	68	27	-	1/4" - NPT	1/4" - 18NPT	1/4" - 18NPT
PM - 356	68	27	-	1/4" - NPT	3/8" - 18NPT	3/8" - 18NPT



GENERAL PURPOSE ACCESSORIES

FLEXIBLE HOSES

Description: First-quality hoses, pressure resistant up to 700 bar (more than 700 bar pressure resistant hoses can be supplied as well, on demand) Safety factor 4:1 Standard length from 0,6 to 10 cm

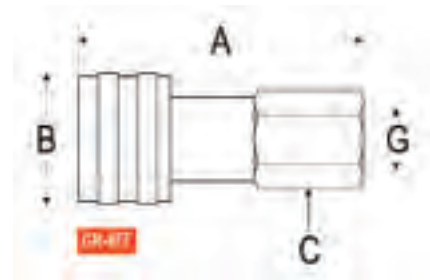
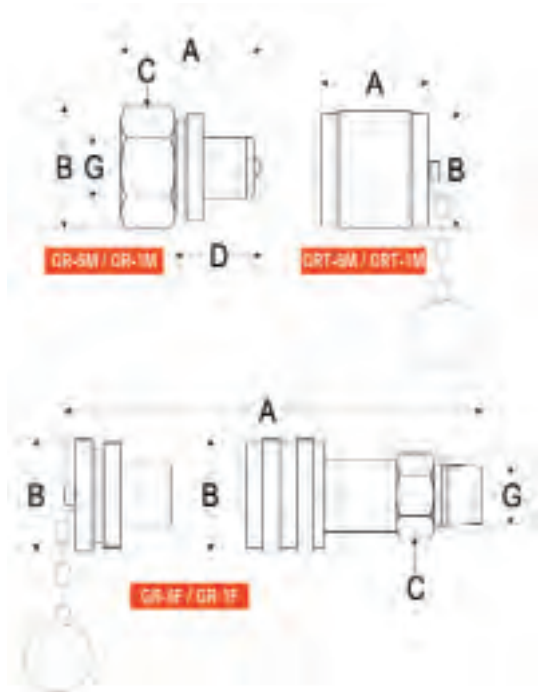
MODEL	LENGTH (M)	HOSE END		MODEL	LENGTH (M)	HOSE END
TFG - 0,6	0,6	3/8" - 18 NPT + coupler GR-6M	Note: If you add R after the last letter, e.g. TFR-06=TFRR-06, the hose end is supplied with 1/4" - 18 NPT 1/4" - 18 NPT connectors	TFR - 0,6	0,6	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 1	1	3/8" - 18 NPT + coupler GR-6M		TFR - 1	1	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 2	2	3/8" - 18 NPT + coupler GR-6M		TFR - 2	2	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 3	3	3/8" - 18 NPT + coupler GR-6M		TFR - 3	3	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 4	4	3/8" - 18 NPT + coupler GR-6M		TFR - 4	4	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 5	5	3/8" - 18 NPT + coupler GR-6M		TFR - 5	5	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 6	6	3/8" - 18 NPT + coupler GR-6M		TFR - 6	6	3/8" - 18 NPT - 3/8" - 18 NPT
TFG - 10	10	3/8" - 18 NPT + coupler GR-6M		TFR - 10	10	3/8" - 18 NPT - 3/8" - 18 NPT

QUICK COUPLERS

Description:

FPT quick coupler are available as female, male and complete/full models
 Each coupler is equipped with a top cover protecting it against dust and residues
 The following threaded couplers are available: 1/4" - 18 NPT and 3/8" - 18 NPT threaded couplers
 They are used as flexible hoses' ends and as connectors on valves and cylinders

MODEL	FEATURES	DIMENSIONS IN mm.				
		A	B	C	D	G
GR - 1	Full quick coupler GR-1F + GR-1M	-	-	-	-	
GR - 1F	Female quick coupler with top cover	56	30,5	21	-	1/4" -18 NPT male
GR - 1M	Male coupler	38	30	27	21	1/4" -18 NPT female
GRT - 1M	Top cover for GR-1M	33	30,5	-	-	
GR - 6	Full quick coupler GR-6F + GR-6M	-	-	-	-	
GR - 6F	Female quick coupler with top cover	74	35,5	25	-	3/8" -18 NPT male
GR - 6M	Male coupler	39,5	35	32	26,5	3/8" -18 NPT female
GRT - 6M	Top cover for GR-6M	40	35,5	-	-	
GR - 6FF	Female quick coupler with top cover	75,5	35,5	25	-	3/8" -18 NPT female



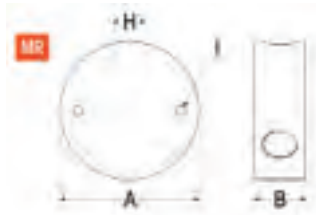


GENERAL PURPOSE ACCESSORIES

MANIFOLD CONNECTORS

Description:

They allow the connection of more than one line to one individual inlet. Feature both axial or radial outlets. Axial models are equipped with a mounting hole for the manometer 11 standard models available



MODEL	Utilization no.	DIMENSIONS IN mm.									
		A	B	C	D	E	F	G	H	I	
MR - 3V	3	70	26	-	-	-	-	-	3/8" - 18 NPT	-	
MR - 5V	5	70	26	-	-	-	-	-	3/8" - 18 NPT	-	
MR - 11V	11	148	35	-	-	-	-	-	3/8" - 18 NPT	TCEI M6	
MR - 17V	17	230	35	-	-	-	-	-	3/8" - 18 NPT	TCEI M6	
MA - 5	5	98	40	30	55	-	-	-	3/8" - 18 NPT	3/8" - 18 NPT	
MA - 7	7	173	40	30	55	-	-	R 1/2"	3/8" - 18 NPT	3/8" - 18 NPT	
MA - 9	9	228	40	30	55	-	-	R 1/2"	3/8" - 18 NPT	3/8" - 18 NPT	
ML - 5	5	200	45	45	50	31	186	R 1/2"	3/8" - 18 NPT	R 1/2"	
ML - 7	7	300	45	45	50	31	186	R 1/2"	3/8" - 18 NPT	R 1/2"	
ML - 9	9	400	45	45	50	31	186	R 1/2"	3/8" - 18 NPT	R 1/2"	
ML - 11	11	500	45	45	50	31	186	R 1/2"	3/8" - 18 NPT	R 1/2"	



ADAPTORS/CONNECTORS

Description: They are needed to connect the many oil-pressure components. 18 standard models available



MODEL	DIMENSIONS IN mm.			
	A	B	D	d
G - 241	69	-	3/8" - 18 NPT	-
GF - 242	53	-	3/8" - 18 NPT	-
T - 342	66	53	3/8" - 18 NPT	-
C - 442	66	-	3/8" - 18 NPT	-
MF - 310	37	-	3/8" - 18 NPT	3/8" - 18 NPT
MF - 311	37	-	3/8" - 18 NPT	1/4" - 18 NPT
R - 313	40	CH 27	1/4" - 18 NPT	3/8" - 18 NPT
R - 314	40	CH 27	3/8" - 18 NPT	1/4" - 18 NPT
R - 316	45	CH 32	R 1/2"	1/4" - 18 NPT
R - 352	45	CH 32	R 1/2"	3/8" - 18 NPT
N - 341	39	CH 17	1/4" - 18 NPT	1/4" - 18 NPT
N - 343	41	CH 19	1/4" - 18 NPT	3/8" - 18 NPT
N - 344	41	CH 19	3/8" - 18 NPT	3/8" - 18 NPT
NL - 345	55	-	3/8" - 18 NPT	-
NL - 346	80	-	3/8" - 18 NPT	-
NL - 347	150	-	3/8" - 18 NPT	-
ME - 349	37	CH 27	3/8" - 18 NPT	3/8" - 18 NPT
ME - 357	37	CH 27	1/4" - 18 NPT	3/8" - 18 NPT



HYDRAULIC OIL

Description:

First-quality hydraulic oil

Allows the greatest efficiency of the hydraulic system and equipment. Supplied as follows:

Oil 1: 1 l capacity - **Oil 5:** 5 l capacity - **Oil 10:** 10 l capacity

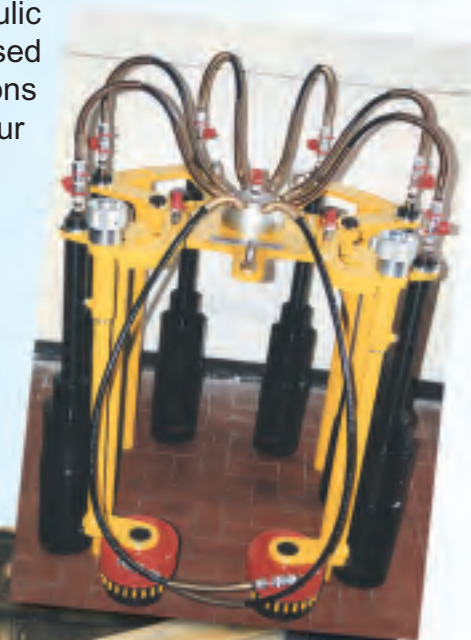




FPT SPECIAL INFORMATION



FPT designs and builds high-pressure hydraulic components to be used for special applications on demand from our customers.





FPT SPECIAL INFORMATION



F.P.T.

FLUID POWER TECHNOLOGY



SAFETY DIRECTIONS

All FPT products are designed and built in full compliance with the international regulations regarding occupational safety. Please, carefully stick to the following rules:

The values of the cylinder stroke and capacity given by the manufacturer are the ceiling values to be respected to work under safe conditions. You are recommended not to exceed 80% of these values.



Before operating equipment, wear protective clothing, gloves and shoes



Cylinders must be positioned on smooth and even surfaces



Loads must be mechanically secured, do not work underneath



The anchor/support point of the load must be stable and centered along the cylinder's axis



Do not expose equipment to heat sources or welding irradiation heating warmer than 65° C



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WARNING!!!



Maintenance interventions must be carried out when equipment is not under operating pressure



By means of a manometer, check that the operating pressure do not exceed the nominal pressure indicated for that component



Do not use extensions or other tools on to the pump lever, as well as on valves' manual controls



Keep equipment clean, you will save money on your maintenance expenses



Clean connectors before plugging them into cylinders: extraneous matters may enter the hydraulic system and damage its most delicate components



Avoid bending flexible hoses too much and protect them against flattening





F.P.T.

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Fluid Power Technology S.r.l. - Via Campo sportivo, 54 - 16040 NE (Ge)
Tel. +39 0185 337 525 - Fax: + 39 0185 337 620
e-mail: info@fpt.it - <http://www.fpt.it>