

# F.P.T. HYDRAULIC CYLINDERS

F.P.T. manufactures a wide range of CE-certified cylinders designed for all industrial or maintenance applications in which load lifting, pushing, pulling or approach operations are required.

The cylinders are available both as single and double acting version, steel, aluminum or stainless steel made, with short or long strokes, a very varied range of compact, hollow cylinders, extra flat or high tonnage cylinders suitable for the customer's application.



# INDEX HYDRAULIC CYLINDERS

	Capacity ton	Stroke mm.	Series		
<b>Spring return single acting cylinders</b>	5-100	25-360	CRM		<b>20</b>
<b>Compact, single acting cylinders with spring return</b>	10-100	50	CRM C		<b>22</b>
<b>Extra flat, single acting cylinders with spring return</b>	4,5-200	10-15	CRM XP		<b>24</b>
<b>Aluminium cylinders, single acting, spring return</b>	30-100	50-150	CRMA		<b>26</b>
<b>Pulling, single acting cylinders with spring return</b>	2-100	75-160	CRM TRA CRM TR		<b>28</b>
<b>Hollow, single acting cylinders with spring return</b>	10-100	50-160	CRM FO		<b>30</b>
<b>Hollow cylinders with oil return</b>	30-150	50-260	CRI FO		<b>32</b>
<b>High tonnage cylinders, single acting, load return</b>	10-600	50-300	CSE		<b>34</b>
<b>Single acting cylinders with lock nut, low height for confined spaces</b>	60-500	45-50	CSE GS TU		<b>36</b>
<b>High tonnage cylinder, with lock nut, double acting</b>	50-600	50-300	CRI GS		<b>38</b>
<b>Single acting high tonnage cylinder, load return with lock nut</b>	10-600	25-300	CSE GS		<b>39</b>
<b>High tonnage cylinders oil return</b>	10-500	160-330	CRI C		<b>42</b>
<b>Push-pull double acting cylinders</b>	5-30	30-260	CDE		<b>46</b>

PAGE

# F.P.T. HYDRAULIC CYLINDERS

Hydraulic cylinders are a very important component of the hydraulic circuit. Entirely designed and manufactured by F.P.T. in various types they can be used in different fields of application.

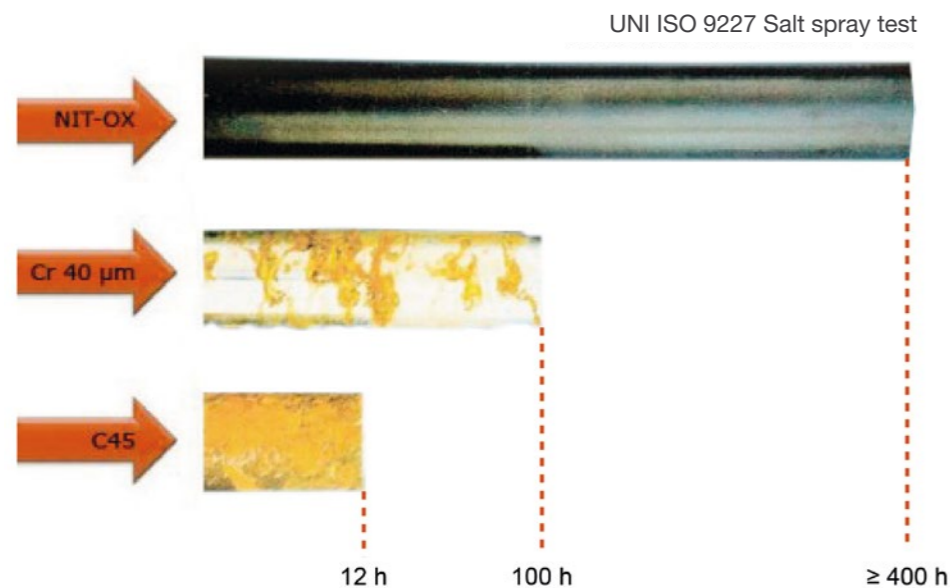
Type of cylinder and specific applications determine different constructive methodologies.

## FOR HARSH ENVIRONMENTS

### ANTI-CORROSIVE TREATMENT - Nitox ONC

The NITOX - ONC treatment is the modern combination of proven NITREG® technology of nitriding gas with controlled potential and a subsequent stage of oxidation followed by a sealing process using a liquid inhibitor of corrosion. It gives the surface a uniform black color that increases the resistance to corrosion and wear.

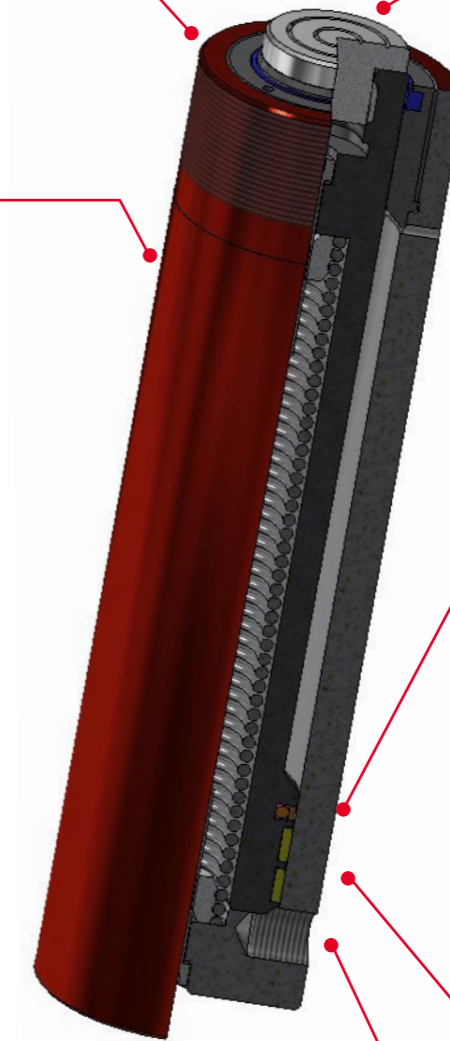
Salt spray test ASTM-B117 showed corrosion resistance of over 400 hours. High resistance to corrosion, wear and fatigue.



All models with a mass greater than 20 kg are equipped with lifting eyebolts.

Removable high-resistance head, possible tilting saddle for better distribution of the load to be lifted.

Exterior painting for maximum resistance to corrosion and/or Nitox ONC treatment.



Cylinders equipped with high strength seals for maximum durability over time: on request it is possible to equip the cylinder with high-strength gaskets for operative temperatures up to 200 ° C.

The guiding surfaces realized with double bronze ring are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.

Equipped with a 3/8" NPT female coupler with dust cap.

### CYLINDER'S CODIFICATION DESCRIPTION

The cylinder's coding table shows the various possibilities in the product line: type of cylinder, the choice of construction materials, the piston stroke, push or pulling capacity and accessories if any.

Series	Material	Capacity	Stroke	Type
<b>CSE</b>	<b>A</b>	<b>10</b>	<b>100</b>	<b>XP</b>
CSE - GRAVITY RETURN CRM - SPRING RETURN CRI-C - OIL RETURN CDE - DOUBLE ACTING	A - ALUMINIUM S - STAINLESS STEEL	CAPACITY - ton at 700 bars	STROKE mm	TA - TILTING SADDLE FS - BALL JOINT
				GS - LOCK NUT XP - EXTRA FLAT FO - HOLLOW TRA - PULLING WITH EYELETS TR - PULLING C - COMPACT



CRM

5-100 ton  
Stroke up to 360 mm  
700 bar

Series  
**CRM**

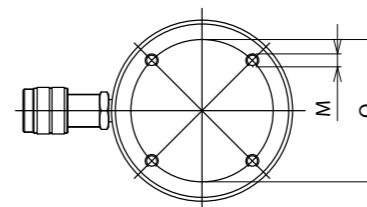
## Spring return single acting cylinders



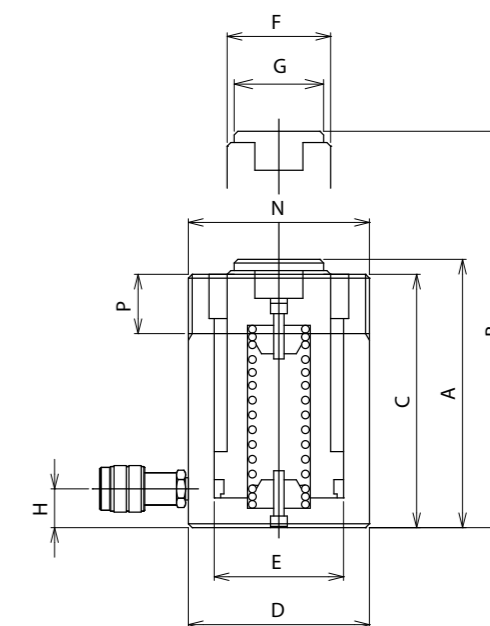
### The most versatile cylinder for various applications

- Single acting cylinders with spring return, high pressure. Push force from 5 to 100 tons with range of strokes from 25 mm to 360 mm.
- Extremely versatile hydraulic cylinders, suitable for various application, for lifting, pressing and pushing.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- 3/8" NPT female coupler with dust cap equipped, fixing holes on the bottom surface and thread on external section of the body of the cylinder.
- Equipped with high strength gaskets for maximum durability.
- Removable high strength head and possibility of mounting a tilting saddle for better distribution of the load to be lifted.
- External painting and Nitox ONC treatment on all internal mechanical components for maximum resistance against corrosion and wear.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

### CUSTOM CYLINDERS ON REQUEST



CRM



CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm												
						A	B	C	D	E	F	G	H	O	M	N	P	
5 /45	25	CRM-5/25	6,47	16	1,2	115	140	109	38	28,7	25	24,5	19	25	2x 1/4" - 20 UN	1 1/2" - 16 UN	28	
	75	CRM-5/75	6,47	49	1,6	165	240	159	38	28,7	25	24,5	19	25	2x 1/4" - 20 UN	1 1/2" - 16 UN	28	
	125	CRM-5/125	6,47	81	1,9	215	340	209	38	28,7	25	24,5	19	25	2x 1/4" - 20 UN	1 1/2" - 16 UN	28	
	175	CRM-5/175	6,47	113	2,2	265	440	259	38	28,7	25	24,5	19	25	2x 1/4" - 20 UN	1 1/2" - 16 UN	28	
	230	CRM-5/230	6,47	149	2,6	320	550	314	38	28,7	25	24,5	19	25	2x 1/4" - 20 UN	1 1/2" - 16 UN	28	
10 /101	25	CRM-10/25	14,44	36	2	97	122	91	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
	50	CRM-10/50	14,44	72	2,4	122	172	116	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
	100	CRM-10/100	14,44	144	3,2	172	272	166	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
	160	CRM-10/160	14,44	231	4,1	232	392	226	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
	200	CRM-10/200	14,44	289	5,2	298	498	292	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
	260	CRM-10/260	14,44	375	6,1	358	618	352	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
	300	CRM-10/300	14,44	433	6,7	398	698	392	57	42,88	38	36	19	39	2x 5/16" - 18 UN	2 1/4" - 14 UN	26	
15 /137	50	CRM-15/50	19,63	98	4,4	160	210	150	70	50	40	38	20	48	2x 3/8" - 16 UN	2 3/4" - 16 UN	30	
	100	CRM-15/100	19,63	196	5,5	210	310	200	70	50	40	38	20	48	2x 3/8" - 16 UN	2 3/4" - 16 UN	30	
	160	CRM-15/160	19,63	314	7	270	430	260	70	50	40	38	20	48	2x 3/8" - 16 UN	2 3/4" - 16 UN	30	
	260	CRM-15/260	19,63	510	9	370	630	360	70	50	40	38	20	48	2x 3/8" - 16 UN	2 3/4" - 16 UN	30	
	360	CRM-15/360	19,63	707	11	470	830	460	70	50	40	38	20	48	2x 3/8" - 16 UN	2 3/4" - 16 UN	30	
25 /232	25	CRM-25/25	33,18	83	5,5	140	165	131	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
	50	CRM-25/50	33,18	166	6,3	165	215	156	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
	100	CRM-25/100	33,18	332	7,9	215	315	206	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
	160	CRM-25/160	33,18	531	9,8	275	435	266	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
	200	CRM-25/200	33,18	664	11,1	315	515	306	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
	260	CRM-25/260	33,18	863	13	375	635	366	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
	300	CRM-25/300	33,18	995	14,2	415	715	406	85	65	55	55	20	58	2x 1/2" - 13 UN	3 5/16" - 12 UN	49	
30 /309	210	CRM-30/210	44,18	928	19	384	594	375	102	75	60	55	46	-	-	3 5/16" - 12 UN	49	
	50	CRM-50/50	70,88	354	16	180	230	175	127	95	80	72	27	95	2x 1/2" - 13 UN	5" - 12 UN	55	
	100	CRM-50/100	70,88	709	20	230	330	225	127	95	80	72	27	95	2x 1/2" - 13 UN	5" - 12 UN	55	
	160	CRM-50/160	70,88	1134	24	290	450	285	127	95	80	72	27	95	2x 1/2" - 13 UN	5" - 12 UN	55	
	330	CRM-50/330	70,88	2339	36	460	790	455	127	95	80	72	27	95	2x 1/2" - 13 UN	5" - 12 UN	55	
100 /929	100	CRM-100/100	132,73	1327	46	280	380	275	175	130	105	92	40	140	4x 3/4" - 10 UNC	6 7/8" - 12 UN	44	
	170	CRM-100/170	132,73	2256	55	350	520	345	175	130	105	92	40	140	4x 3/4" - 10 UNC	6 7/8" - 12 UN	44	
	260	CRM-100/260	132,73	3451	67	440	700	435	175	130	105	92	40	140	4x 3/4" - 10 UNC	6 7/8" - 12 UN	44	

Different strokes and tonnages available.



**CRM-C**

10-100 ton  
Stroke 50 mm  
700 bar

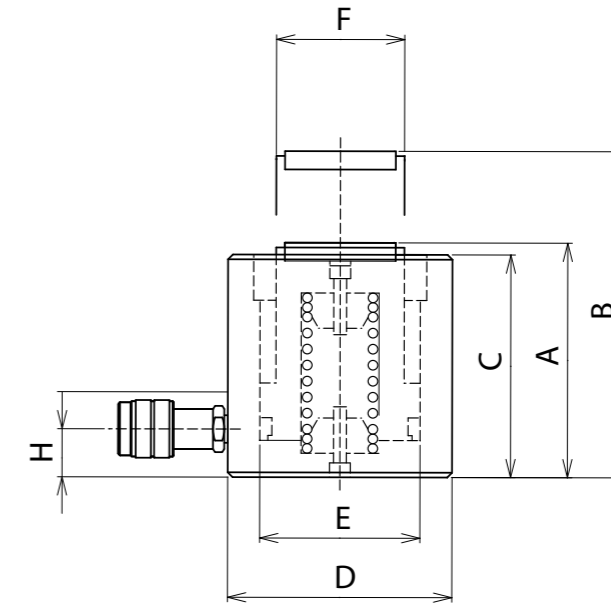
Series  
**CRM-C**

**Compact, single acting cylinders with spring return**



**When being compact is a must**

- Hydraulic cylinder, spring return, high pressure. Push force from 10 to 100 ton, stroke 50 mm.
- Lightweight, easy-to-handle cylinders with limited closed height.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- Non removable, high strength saddle, piston embedded.
- Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.



CRM-C

CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm						
						A	B	C	D	E	F	H
<b>10</b> /111,3	50	CRM-10/50-C	15,9	79,5	3,2	95	145	94	77	45	35	18
<b>20</b> /218,2	50	CRM-20/50-C	31,2	155,9	4,7	103	153	102	93	63	50	19
<b>30</b> /309,3	50	CRM-30/50-C	44,2	220,9	6,9	110	160	108	108	75	60	21
<b>50</b> /549,8	50	CRM-50/50-C	78,5	392,7	9,7	120	170	118	126	100	80	19
<b>100</b> /929,1	50	CRM-100/50-C	132,7	663,5	18,8	134	184	132	167	130	110	23

*Different strokes and tonnages available.*

**CUSTOM CYLINDERS ON REQUEST**





**CRM XP**

4,5-150 ton  
Stroke 10-15 mm  
700 bar

Series  
**CRM XP**

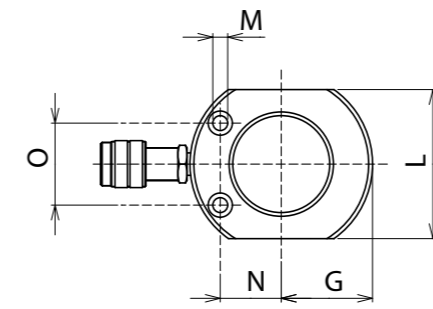
**Extra flat, single acting cylinders with spring return**



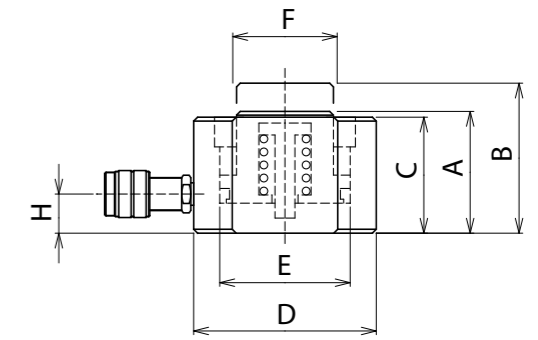
**Ideal for narrow and confined areas**

- Extra flat hydraulic cylinders, single acting, spring return, high pressure. Push force from 4,5 to 150 ton, range of strokes from 6 to 15 mm.
- Flat cylinders with extremely reduced closed height, ideal for working in narrow spaces where it would be impossible to use other cylinders.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high-strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- Non removable, high strength saddle, piston embedded.
- Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

**CUSTOM CYLINDERS ON REQUEST**



CRM-XP



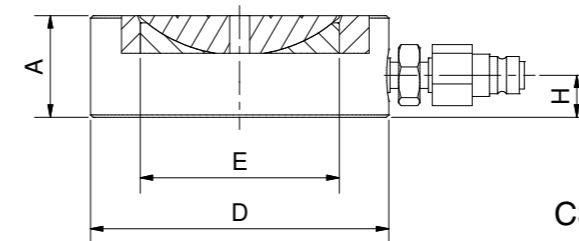
CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm											
						A	B	C	D	E	F	O	H	M	N	G	L
4,5 /43,1	6	CRM-5/6-XP	6,2	3,6	1	37	43	36	59	28	24	30	18	5,5	23	23,5	45
4,5 /43,1	15	CRM-5/15-XP	6,2	9,2	1,2	46	61	45	59	28	24	30	18	5,5	23	23,5	45
10 /111,3	10	CRM-10/10-XP	15,9	15,9	1,6	50	60	49	75	45	38	40	19	6,5	28	31,5	60
20 /218,2	10	CRM-20/10-XP	31,2	31,2	3	53	63	52	101	63	50	50	19	11	40	43	86
30 /309,3	10	CRM-30/10-XP	44,2	44,2	4,2	58	68	56	117	75	60	60	20	11	45	51	102
50 /549,8	10	CRM-50/10-XP	78,5	78,5	7,4	64	74	62	147	100	80	70	22	13	58	66	130
75 /791,7	10	CRM-75/10-XP	113,1	113,1	12	70	80	68	177	120	100	90	24	13	68	81	164
100 /1077,6	10	CRM-100/10-XP	153,9	153,9	15,4	77	87	75	192	140	120	90	21	13	76	88,5	178
150 /1496,8	14	CRM-150/14-XP	213,8	299,4	29	104	118	102	227	165	130	130	25	13	80	106	215

Different strokes and tonnages available.

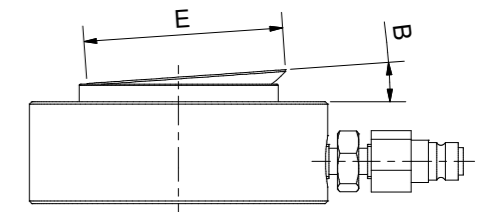


Series  
**CSE TU**

**Super extra flat cylinders, very high pressure – 2.000 bar**



CSE-TU



CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm				
						A	B	D	E	H
100 /1005	10	CSE-100/10-TU	50,3	50	3,6	41	4°	120	80	19
200 /2077	10	CSE-200/10-TU	103,9	104	9,5	50	/	175	115	22

Super extra flat hydraulic cylinders, load return, push force from 100 to 200 tons at 2.000 bar. Used when available height is really minimal, they are suitable for working in such small spaces where it would not be possible to use the CRM XP cylinders.



**CRMA**

30-100 ton  
Stroke 50-150 mm  
700 bar

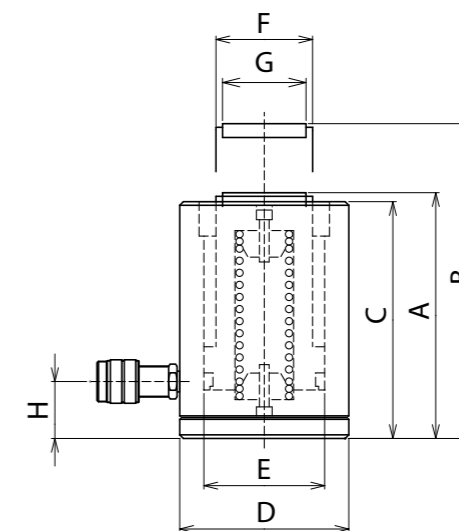
Series  
**CRMA**

## Aluminium cylinders, single acting, spring return



### Light weight easy to carry

- Hydraulic cylinders, aluminium weight, single acting spring return, high pressure- Push force from 30 to 100 ton with range of strokes from 50 to 100 mm.
- Hydraulic cylinders made of high strength special aluminum alloy, light weight, easy to carry and very easy to handle. Used in applications in which reduced weight is an important factor.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- High strength saddle and possibility of mounting a tilting saddle for better distribution of the load to be lifted.
- The aluminum cylinders are different from those in steel and while offering advantages in terms of weight have a different behavior at fatigue. Hence the aluminum cylinder must not be used in intensive applications.
- All models feature carry handles.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.



CRMA

CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm							
						A	B	C	D	E	F	G	H
<b>30</b> /309,3	50	CRMA-30/50	44,2	220,9	5,3	170	220	166	120	75	60	52	40
	100	CRMA-30/100	44,2	441,8	6,6	220	320	216	120	75	60	52	40
<b>50</b> /496,2	50	CRMA-50/50	70,9	354,4	9,7	178	228	174	149	95	80	72	45
	100	CRMA-50/100	70,9	708,8	11,9	226	326	222	149	95	80	72	45
	150	CRMA-50/150	70,9	1063,2	14,2	276	426	272	149	95	80	72	45
<b>100</b> /1002	50	CRMA-100/50	143,1	715,7	19	192	242	188	198	135	110	92	50
	100	CRMA-100/100	143,1	1431,4	23	247	347	243	198	135	110	92	50
	150	CRMA-100/150	143,1	2147,1	28	307	457	303	198	135	110	92	50

Different strokes and tonnages available.

### CUSTOM CYLINDERS ON REQUEST



### Different models of aluminium cylinders available

- CSEA series, single acting cylinders, load return
- CSEAGS series, single acting cylinders, load return, with lock nut
- CRIA series, double acting cylinders, oil return
- CRMAFO series, single acting cylinders





2-60 ton  
Stroke 127-155 mm  
700 bar

Series  
**CRM  
TRA-TR**

## Pulling, single acting cylinders with spring return

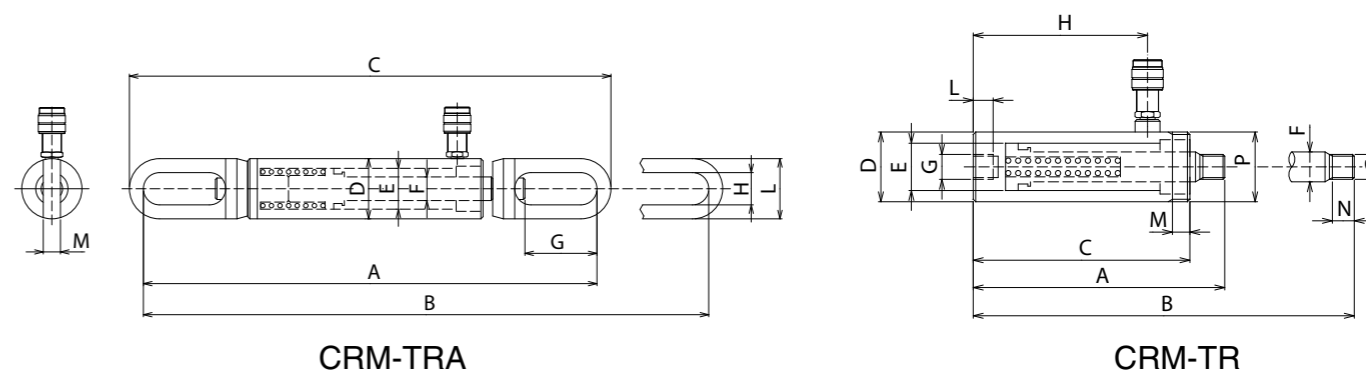


**Pulling force:  
for structure  
approach  
operations**

- Single acting, pulling hydraulic cylinders with spring return, high pressure. Pushing force from 2 to 100 tons with range of strokes from 75 mm to 160 mm.
- Cylinders that operate under a pulling force. Ideal for load approach and welding operations in the shipbuilding and heavy structural steelwork sectors.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high strength gaskets for maximum durability.

- 3/8 " NPT female coupler with dust cap equipped. CRM TR cylinders feature a threaded section on the body and piston to fit its accessories: chains, heads and extensions.
- External painting for maximum corrosion resistance or Nitox ONC treatment on all components for the maximum resistance to corrosion and wear.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

### CUSTOM CYLINDERS ON REQUEST



CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm									
						A	B	C	D	E	F	G	H	L	
<b>10</b> /109	150	CRM-10/150-TRA	15,7	235	14,5	606	756	642	78	55	32	95	42	78	
<b>30</b> /304,3	155	CRM-30/155-TRA	40,84	648,5	38	810 - 914	965 - 1069	860 - 964	114	85	45	100	54	104	
<b>60</b> /613,1	155	CRM-60/155-TRA	84,23	1306	92,5	840	995	918	175	125	70	137	62	140	

CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm											
						A	B	C	D	E	F	G	H	L	M	N	P
<b>2</b> /22,9	127	CRM 2/127 TR	3,27	41,5	1,8	234	361	202,5	40	30	22	3/4 NPT	163,5	22	20	18	M40 X 1,5
<b>5</b> /53	140	CRM 5/140 TR	7,57	106	4,9	300	440	255	60	45	32	1 - 1/4 NPT	201,5	30	35	22	M60 X 1,5
<b>10</b> /102,9	150	CRM 10/150 TR	14,13	226,9	8,4	304	454	264	80	55	35	M30X2	220	25	24	25	M80 X 2

Different strokes and tonnages available.

- The eyelet can be used to adjust the extended and closed heights of the CRM30/75 TRA and CRM 30/155 TRA models.
- Construction on request of forks and pins, protective bellows and connectors or threads based on customer specifications.





**CRM-FO**

10-100 ton  
Stroke 50-160 mm  
700 bar

Series  
**CRM-FO**

**Hollow, single acting cylinders with spring return**



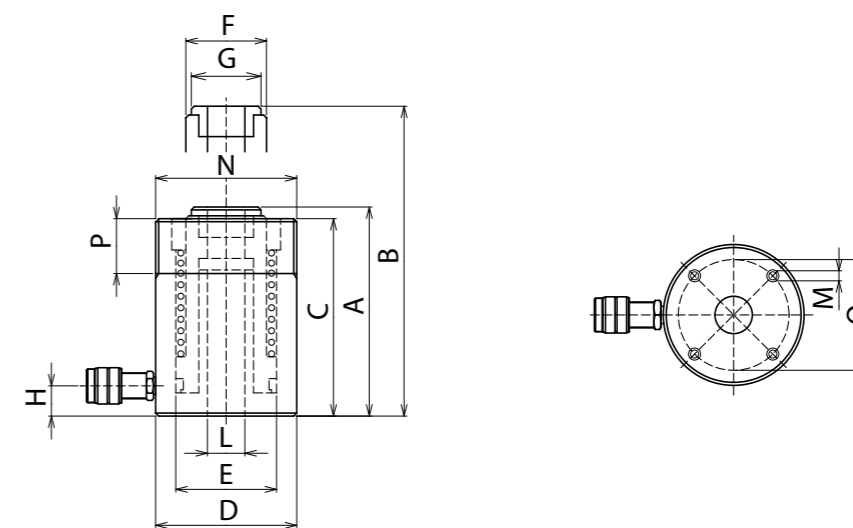
**Cylinders for tensioning operations, maintenance and testing**

- Single acting hollow hydraulic cylinders with spring return, high pressure. Push force from 10 to 100 tons with range of strokes from 50 mm to 160 mm.
- Hydraulic cylinders with hollow center suitable for operations of tensioning, maintenance and testing; for cable tensioning operations, positioning bars in tensile structures, pulley assembly and disassembly, and cable and tie rod pulling tests.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped and

threaded section on the outer body of the cylinder.

- High strength head.
- External painting and Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear up to 30 ton models. 60 ton and higher capacity models feature a Nitox ONC treatment on all mechanical parts.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

**CUSTOM CYLINDERS ON REQUEST**



CRM-FO

CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm												
						A	B	C	D	E	F	G	H	L	M	N	O	P
<b>10</b> /116,8	50	CRM-10/50-FO	16,69	83	3,9	143	193	139	75	55	38	34,5	19	19,5	2xM8	M75x2	58	20
	80	CRM-10/80-FO	16,69	134	5	191	271	187	75	55	38	34,5	19	19,5	2xM8	M75x2	58	20
<b>20</b> /229,9	50	CRM-20/50-FO	32,8	164	7,7	158	208	153	100	75	55	44,5	19	27,3	2xM8	M100x2	75	20
	100	CRM-20/100-FO	32,8	328	11,8	246	346	241	100	75	55	44,5	19	27,3	2xM8	M100x2	75	20
<b>30</b> /300	50	CRM-30/50-FO	42,9	214	11,4	175	225	170	115	85	65	62	20	33,5	2xM10	M115x2	90	20
	100	CRM-30/100-FO	42,9	429	16,7	265	365	260	115	85	65	62	20	33,5	2xM10	M115x2	90	20
<b>60</b> /589,6	50	CRM-60/50-FO	84,2	429	22,2	361	511	356	115	85	65	62	20	33,5	2xM10	M115x2	90	20
	150	CRM-60/150-FO	84,2	643	22,2	361	511	356	115	85	65	62	20	33,5	2xM10	M115x2	90	20
<b>100</b> /947	75	CRM-100/75-FO	135,3	1015	55	267	342	255	215	165	125	125	38	80,5	4xM12	M215x4	175	45
	150	CRM-100/150-FO	135,3	1015	55	267	342	255	215	165	125	125	38	80,5	4xM12	M215x4	175	45

Different strokes and tonnages available.

**BRIDGES - SPACERS – CUSTOM REACTION TOOLS**

Possibility of creating reaction bridges, custom spacers and specific equipment suitable for the installation on hollow cylinders.







**CRI-FO**

30-150 ton  
Stroke 50-260 mm  
700 bar

Series  
**CRI-FO**

**Hollow cylinders with oil Return**

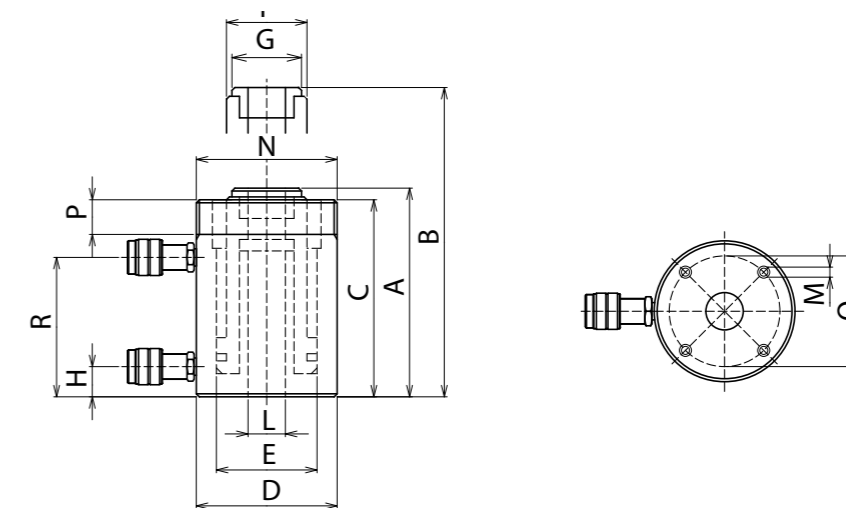


**Cylinders for tensioning operations, maintenance and testing**

- Oil return hollow hydraulic cylinders, spring return, high pressure. Push force from 30 to 150 tons with range of strokes from 50 mm to 260 mm.
- Hydraulic cylinders with hollow center suitable for operations of tensioning, maintenance and testing; for cable tensioning operations, positioning bars in tensile structures, pulley assembly and disassembly, and cable and tie rod pulling tests.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped and

- threaded section on the outer body of the cylinder.
- High strength head.
- External painting and Nitox ONC treatment on all internal mechanical components for maximum resistance against corrosion and wear up to 30 ton models. 60 ton and higher capacity models feature a Nitox ONC treatment on all mechanical parts.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

**CUSTOM CYLINDERS ON REQUEST**



CRI-FO

CAP ton	STROKE mm	MODEL	FORCE max kN		SECTION cm <sup>2</sup>		VOLUME cm <sup>3</sup>		MASS kg	DIMENSIONS in mm													
			Push	Pull	Push	Pull	Push	Pull		A	B	C	D	E	F	G	H	L	M	N	O	P	R
30	150	CRI-30/150-FO	300,2	27,5	42,9	18,3	643	274	19	302	452	296	115	85	70	62	27	33,5	2xM10	M115x2	90	20	235
	260	CRI-30/260-FO	300,2	27,5	42,9	18,3	1115	475	25,6	412	672	406	115	85	70	62	27	33,5	2xM10	M115x2	90	20	345
60	75	CRI-60/75-FO	589,6	77,8	84,2	51,8	632	389	25,1	207	282	200	160	125	95	90	30	54,5	2xM12	M160x4	130	35	143
	160	CRI-60/160-FO	589,6	77,8	84,2	51,8	1348	830	33,4	292	452	285	160	125	95	90	30	54,5	2xM12	M160x4	130	35	228
100	260	CRI-60/260-FO	589,6	77,8	84,2	51,8	2191	1348	43,3	392	652	385	160	125	95	90	30	54,5	2xM12	M160x4	130	35	328
	75	CRI-100/75-FO	947	121,6	135,28	81,09	1015	608	52	242	317	235	215	165	130	125	38	80,5	4xM12	M215x4	175	45	164
150	150	CRI-100/150-FO	947	121,6	135,28	81,09	2029	1216	65,5	317	467	310	215	165	130	125	38	80,5	4xM12	M215x4	175	45	239
	260	CRI-100/260-FO	947	121,6	135,28	81,09	3517	2108	85,4	427	687	420	215	165	130	125	38	80,5	4xM12	M215x4	175	45	349
150	200	CRI-150/200-FO	1435	160,2	205	106,8	4100	2136	101	354	554	350	247	190	150	139	38	80,5	-	-	-	-	287

Different strokes and tonnages available.

**BRIDGES - SPACERS – CUSTOM REACTION TOOLS**

Possibility of creating reaction bridges, custom spacers and specific equipment suitable for the installation on double acting hollow cylinders.



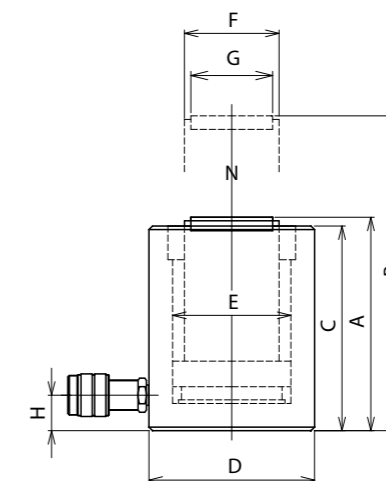
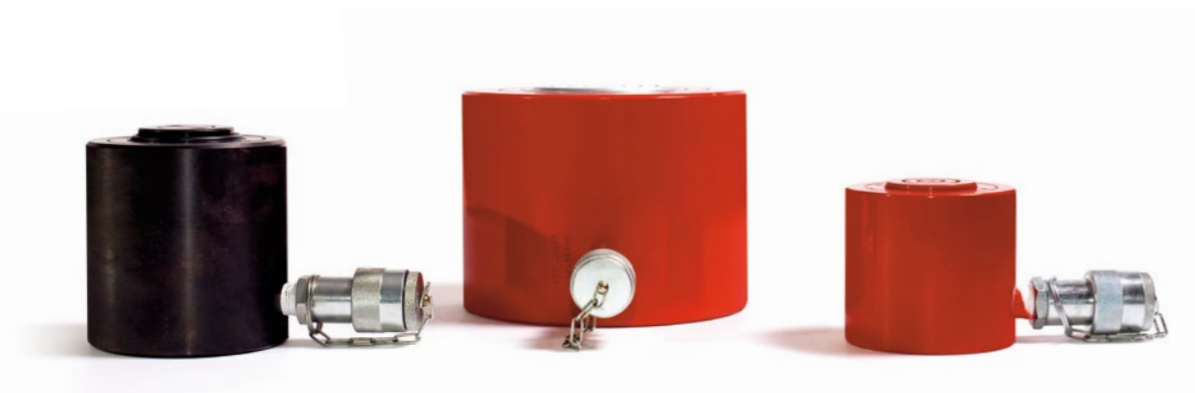


**CSE**

10-600 ton  
Stroke 50-250 mm  
700 bar

Series  
**CSE**

## High tonnage cylinders, single acting, load return

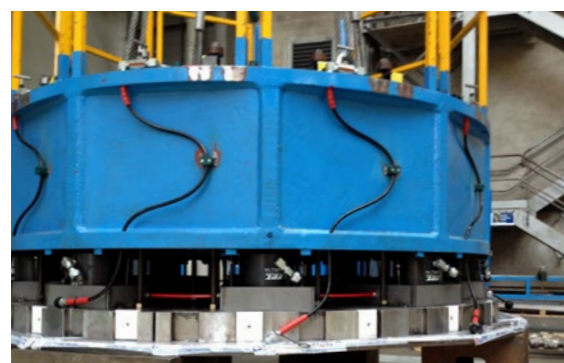


CSE

### High tonnage

- Single-acting high tonnage hydraulic cylinders with load return, high-pressure. Push force from 10 to 600 tons with range of strokes from from 50 mm to 250 mm.
- Hydraulic cylinders suitable for heavy-duty applications and for lifting, pushing and large lifting operations.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and stop-ring increases safety for the operator avoiding the over stroke of the piston.
- Equipped with high strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- Removable high strength saddle and possibility of mounting a tilting saddle for better distribution of the load to be lifted.
- External painting and Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear up to 30 ton models. 60 ton and higher capacity models feature a Nitox ONC treatment on all mechanical parts.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

### CUSTOM CYLINDERS ON REQUEST



CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm							
						A	B	C	D	E	F	G	H
<b>10</b> /111,3	50	CSE-10/50	15,9	79,5	2	102	152	96	60	45	38	30	20
	<b>20</b> /218,2	50	CSE-20/50	31,2	155,9	5	109	159	104	92	63	50	40
<b>30</b> /309,3	50	CSE-30/50	44,2	220,9	7,4	117	167	111	108	75	60	52	24
	100	CSE-30/100	44,2	441,8	10,4	167	267	161	108	75	60	52	24
<b>50</b> /549,8	50	CSE-50/50	78,5	392,7	14	129	179	123	140	100	80	72	30
	100	CSE-50/100	78,5	785,4	18,9	179	279	173	140	100	80	72	30
	150	CSE-50/150	78,5	1178,1	24,8	237	387	231	140	100	80	72	30
<b>100</b> /1077,6	50	CSE-100/50	153,9	769,7	29	142	192	136	190	140	118	92	34
	100	CSE-100/100	153,9	1539,4	38	192	292	186	190	140	118	92	34
	150	CSE-100/150	153,9	2309,1	52	261	411	255	190	140	118	92	34
<b>150</b> /1407,4	50	CSE-150/50	201,1	1005,3	46	170	220	164	218	160	130	110	37
	100	CSE-150/100	201,1	2010,6	58	220	320	214	218	160	130	110	37
	150	CSE-150/150	201,1	3015,9	71	274	424	268	218	160	130	110	37
	200	CSE-150/200	201,1	4021,2	90	347	547	341	218	160	130	110	37
<b>200</b> /1984,7	50	CSE-200/50	283,5	1417,6	67	192	242	186	258	190	150	138	47
	150	CSE-200/150	283,5	4252,9	96	292	442	286	258	190	150	138	47
	200	CSE-200/200	283,5	5670,6	117	357	557	351	258	190	150	138	47
<b>250</b> /2424,5	150	CSE-250/150	346,4	5195,4	154	328	478	322	290	210	170	148	52
	250	CSE-250/250	346,4	8659	206	447	697	441	290	210	170	148	52
<b>300</b> /2908,3	150	CSE-300/150	415,5	6232,1	168	325	475	318	308	230	180	158	57
	250	CSE-300/250	415,5	10386,9	222	440	690	433	308	230	180	158	57
<b>400</b> /4007,9	150	CSE-400/150	572,6	8588,3	270	362	512	355	365	270	220	196	67
	250	CSE-400/250	572,6	14313,9	337	462	712	455	365	270	220	196	67
<b>500</b> /4948	150	CSE-500/150	706,9	10602,9	333	374	524	367	400	300	240	214	72
	250	CSE-500/250	706,9	17671,5	429	492	742	485	400	300	240	214	72
<b>600</b> /5987,1	150	CSE-600/150	855,3	12829,5	422	387	537	380	440	330	270	244	82
	250	CSE-600/250	855,3	21382,5	540	505	755	498	440	330	270	244	82

Different strokes and tonnages available.



**CSE GS TU**

60-500 ton  
Stroke 50 mm  
700 bar

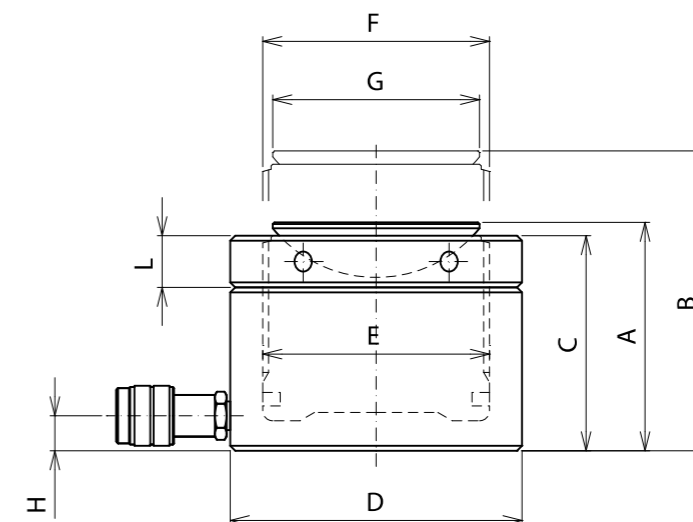
Series  
**CSE GS TU**

**Single acting cylinders with lock nut, low height for confined spaces**



**High tonnage and confined areas**

- High tonnage hydraulic cylinders with safety ring, reduced height, single acting, oil return, high pressure. Push force from 60 to 500 tons with a range of strokes from 45 mm to 50 mm.
- Compact hydraulic cylinders, suitable for lifting operations pushing and heavy lifting. Security nut for the maintenance of the load in complete safety.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption Plugging executuin with stroke limiter.
- Equipped with high-strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- Tilting saddle for optimal offset load distribution.
- Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.



CSE-GS

CAP/Force	STROKE	MODEL	SECTION	VOLUME	MASS	DIMENSIONS in mm								
						A	B	C	D	E	F	G	H	L
60 /606,3	50	CSE-60/50-GS-TU-TA	86,60	433	15	125	175	119	140	105	Tr 105X4	96	19	28
100 /1002	50	CSE-100/50-GS-TU-TA	145,27	726,3	26	137	187	129	175	135	Tr 136X6	124	21	31
160 /1588,9	45	CSE-160/45-GS-TU-TA	229,66	1033,4	44	148	193	139	220	170	Tr 170X6	150	27	40
200 /1984,7	45	CSE-200/45-GS-TU-TA	283,53	1275,8	57	155	200	145	245	190	Tr 190X6	170	30	43
260 /2541,4	45	CSE-250/45-GS-TU-TA	363,05	1633,7	74	159	204	148	275	215	Tr 215X6	200	32	44
400 /4007,9	45	CSE-400/45-GS-TU-TA	572,56	2576,5	134	178	223	167	350	270	Tr 270X6	250	39	45
500 /5114,3	45	CSE-500/45-GS-TU-TA	3287,80	14795,1	189	192	237	182	400	305	Tr 305X6	290	48	55

**CUSTOM CYLINDERS ON REQUEST**



Series **CRI GS** **High tonnage cylinder, with lock nut, double acting**



**High tonnage, lock nut**

- High tonnage hydraulic cylinders with lock nut, double acting, with rapid hydraulic return, high pressure. Push force from 30 to 600 tons with range of strokes from 50 mm to 300 mm on customer request.
- High tonnage hydraulic cylinders up to 3.000 ton, suitable for heavy usage, lifting operations, pushing and heavy lifting.
- Lock nut for safe load upkeep. The threaded nut allows the locking and the mechanical upkeep of the load even for very long periods of time with disconnected pump. The operator then has the opportunity to work under raised load in complete safety.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and the stop ring increases safety for the operator avoiding the extra stroke of piston.
- Equipped with high-strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- Removable high strength head and possibility of mounting a tilting saddle for better distribution of the load to be lifted.
- Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
- All models weighing more than 20 kg are equipped with lifting eyebolts.

**CSE GS**  
10-600 ton  
Stroke 25-300 mm  
700 bar

Series **CSE GS** **Single acting high tonnage cylinder, load return with lock nut**



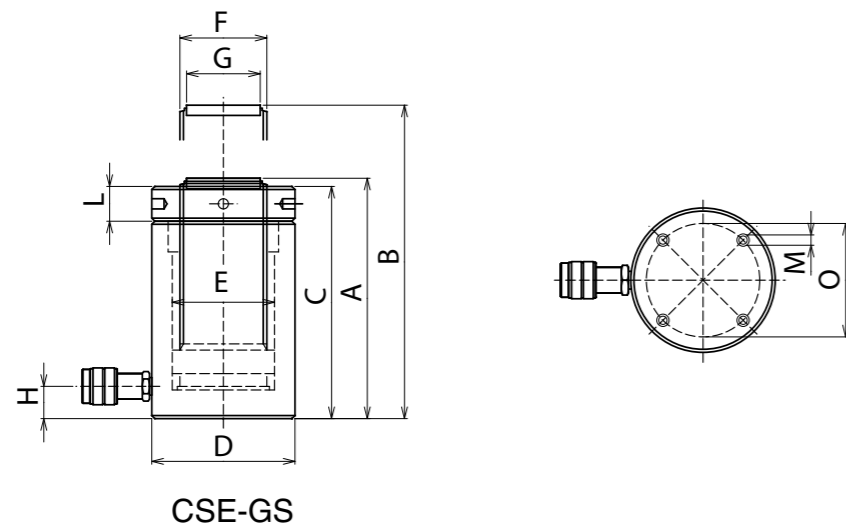
**High Tonnage cylinders, lock nut, load return**

- High tonnage hydraulic cylinders, with lock nut, load return, high pressure . Push force from 10 to 600 ton, with range of strokes from 25 mm to 300 mm on customer request.
- High tonnage hydraulic cylinders up to 3.000 ton, suitable for heavy usage, lifting operations, pushing and heavy lifting.
- Lock nut for safe load upkeep. The threaded nut allows the locking and the mechanical upkeep of the load even for very long periods of time with disconnected pump. The operator then has the opportunity to work under raised load in complete safety.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and the stop ring increases safety for the operator avoiding the extra stroke of piston.
- Equipped with high strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped.
- Removable high strength head and possibility of mounting a tilting saddle for better distribution of the load to be lifted.
- Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

**CUSTOM CYLINDERS ON REQUEST**

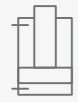


**CUSTOM CYLINDERS ON REQUEST**



CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>	VOLUME cm <sup>3</sup>	MASS kg	DIMENSIONS in mm										
						A	B	C	D	E	F	G	H	L	M	O
<b>50</b> /549,8	50	CSE-50/50-GS	78,5	392,6	19,2	173	223	165	140	100	Tr85x6	72	30	34	M10	110
	100	CSE-50/100-GS	78,5	785,3	25,8	235	335	227	140	100	Tr85x6	72	30	34	M10	110
	150	CSE-50/150-GS	78,5	1178	30,9	285	435	277	140	100	Tr85x6	72	30	34	M10	110
<b>100</b> /1077,6	50	CSE-100/50-GS	153,9	769,7	41	202	252	188	190	140	Tr120x10	92	34	48	M10	150
	100	CSE-100/100-GS	153,9	1539,3	51	252	352	238	190	140	Tr120x10	92	34	48	M10	150
	150	CSE-100/150-GS	153,9	2309	63	312	462	298	190	140	Tr120x10	92	34	48	M10	150
	200	CSE-100/200-GS	153,9	3078,7	72	362	562	348	190	140	Tr120x10	92	34	48	M10	150
<b>150</b> /1407,4	50	CSE-150/50-GS	201,1	1005,3	69	252	302	238	218	160	Tr130x10	110	37	66	M10	180
	100	CSE-150/100-GS	201,1	2010,6	81	302	402	288	218	160	Tr130x10	110	37	66	M10	180
	150	CSE-150/150-GS	201,1	3015,9	93	352	502	338	218	160	Tr130x10	110	37	66	M10	180
	200	CSE-150/200-GS	201,1	4021,2	109	418	618	404	218	160	Tr130x10	110	37	66	M10	120
<b>200</b> /1984,7	100	CSE-200/100-GS	283,5	2835,2	112	320	420	306	258	190	Tr160x10	138	47	70	M12	200
	150	CSE-200/150-GS	283,5	4252,9	127	370	520	356	258	190	Tr160x10	138	47	70	M12	200
	200	CSE-200/200-GS	283,5	5670,5	147	430	630	416	258	190	Tr160x10	138	47	70	M12	200
	250	CSE-200/250-GS	283,5	7088,2	164	485	735	471	258	190	Tr160x10	138	47	70	M12	140
<b>250</b> /2424,5	50	CSE-250/50-GS	346,4	1731,8	152	310	360	296	290	210	Tr170x10	148	52	74	M16	230
	150	CSE-250/150-GS	346,4	5195,4	194	410	560	396	290	210	Tr170x10	148	52	74	M16	230
	250	CSE-250/250-GS	346,4	8659	240	519	769	505	290	210	Tr170x10	148	52	74	M16	150
<b>300</b> /2908,3	150	CSE-300/150-GS	415,5	6232,1	219	414	564	400	308	230	Tr180x10	158	57	80	M16	250
	250	CSE-300/250-GS	415,5	10386,8	267	519	769	505	308	230	Tr180x10	158	57	80	M16	160
<b>400</b> /4007,9	150	CSE-400/150-GS	572,6	8588,3	344	455	605	441	365	270	Tr220x10	196	67	86	M16	300
	250	CSE-400/250-GS	572,6	14313,8	411	555	805	541	365	270	Tr220x10	196	67	86	M16	200
<b>500</b> /4948	150	CSE-500/150-GS	706,9	10602,8	435	478	628	464	400	300	Tr240x10	214	72	97	M16	330
	250	CSE-500/250-GS	706,9	17671,4	531	596	846	582	400	300	Tr240x10	214	72	97	M16	230
<b>600</b> /5987	150	CSE-600/150-GS	855,3	12829,5	554	499	649	485	440	330	Tr270x10	244	82	105	M16	370
	250	CSE-600/250-GS	855,3	21382,4	672	617	867	603	440	330	Tr270x10	244	82	105	M16	250

Different strokes and tonnages available.



**CRI C**

30-1000 ton  
Stroke 50-300 mm  
700 bar

Series  
**CRI C**

**High tonnage cylinders  
oil return**



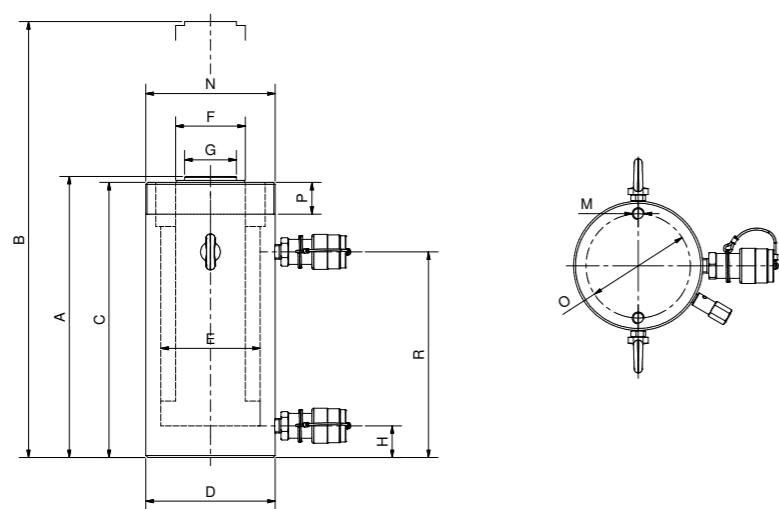
**High tonnage  
Oil return**

- High tonnage hydraulic cylinders, double acting, oil return, high pressure. Push force from 30 to 1000 ton, with range of strokes from 160 mm to 330 mm.
- Extremely versatile hydraulic cylinders, hydraulic return allows shorter return times also in all conditions of usage, suitable for lifting operations and for heavy-duty applications.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and the stop ring increases safety for the operator avoiding the extra stroke of piston. 10 % side load resistance .
- Equipped with high strength gaskets for maximum durability.

- 3/8 " NPT female coupler with dust cap equipped.
- Removable high strength head and possibility of mounting a tilting saddle for better distribution of the load to be lifted.
- Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
- All models weighing more than 20 kg are equipped with lifting eyebolts.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.

**CUSTOM CYLINDERS ON REQUEST**





CRI C

CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>		VOLUME cm <sup>3</sup>		MASS kg	DIMENSIONS in mm												
			Push	Pull	Push	Pull		A	B	C	D	E	F	G	H	M	N	O	P	R
30 /309,2	30	CRI-C-30/160	44,1	15,9	706,8	254,5	20,6	292	452	280	113	75	60	58	32	2xM10	M112x2	50	35	223
	30	CRI-C-30/260	44,1	15,9	1148,6	413,5	27,5	392	652	380	113	75	60	58	32	2xM10	M112x2	50	35	223
50 /496,2	50	CRI-C-50/50	70,9	32,4	354,5	162	17,7	183	233	177	130	95	70	52	32	2xM12	M130x2	105	32	107
	100	CRI-C-50/100	70,9	32,4	708,8	324	21,6	233	333	227	130	95	70	52	32	2xM12	M130x2	105	32	157
	150	CRI-C-50/150 (*)	70,9	32,4	1063,2	486	25,5	283	433	277	130	95	70	52	32	2xM12	M130x2	105	32	207
	200	CRI-C-50/200	70,9	32,4	1417,6	648	30,5	343	543	337	130	95	70	52	32	2xM12	M130x2	105	32	267
	250	CRI-C-50/250	70,9	32,4	1772	810	34,5	393	643	387	130	95	70	52	32	2xM12	M130x2	105	32	317
300	CRI-C-50/300 (*)	70,9	32,4	2126,4	972	38,4	443	743	437	130	95	70	52	32	2xM12	M130x2	105	32	367	
100 /1002	50	CRI-C-100/50	143,1	64,6	715,7	323	35	202	252	194	175	135	100	92	36	2xM12	M175x3	150	46	126,5
	100	CRI-C-100/100	143,1	64,6	1431,4	646	42	252	352	244	175	135	100	92	36	2xM12	M175x3	150	46	176,5
	150	CRI-C-100/150	143,1	64,6	2147,1	969	48,8	302	452	294	175	135	100	92	36	2xM12	M175x3	150	46	226,5
	200	CRI-C-100/200	143,1	64,6	2862,8	1292	60,4	378	578	370	175	135	100	92	36	2xM12	M175x3	150	46	288,5
	250	CRI-C-100/250	143,1	64,6	3578,5	1615	67,3	428	678	420	175	135	100	92	36	2xM12	M175x3	150	46	338,5
300	CRI-C-100/300	143,1	64,6	4294,2	1938	74	478	778	470	175	135	100	92	36	2xM12	M175x3	150	46	388,5	
150 /1497	50	CRI-C-150/50	213,8	100,7	1069	503,5	57	220	270	213	215	165	120	110	46	2xM12	M215x3	185	52	138
	100	CRI-C-150/100	213,8	100,7	2138	1007	68	270	370	263	215	165	120	110	46	2xM12	M215x3	185	52	188
	150	CRI-C-150/150	213,8	100,7	3207	1510,5	79	320	470	313	215	165	120	110	46	2xM12	M215x3	185	52	238
	200	CRI-C-150/200	213,8	100,7	4276	2014	96	397	597	390	215	165	120	110	46	2xM12	M215x3	185	52	299
	250	CRI-C-150/250	213,8	100,7	5345	2517,5	107	447	697	440	215	165	120	110	46	2xM12	M215x3	185	52	349
300	CRI-C-150/300	213,8	100,7	6414	3021	117	497	797	490	215	165	120	110	46	2xM12	M215x3	185	52	399	
200 /1985	50	CRI-C-200/50	283,5	106,8	1417,5	534	83	231	281	224	250	190	150	138	50	3xM12	M250x3	215	57	146
	100	CRI-C-200/100	283,5	106,8	2835	1068	98	281	381	274	250	190	150	138	50	3xM12	M250x3	215	57	196
	150	CRI-C-200/150	283,5	106,8	4252,5	1602	111	331	481	324	250	190	150	138	50	3xM12	M250x3	215	57	246
	200	CRI-C-200/200	283,5	106,8	5670	2136	139	408	608	401	250	190	150	138	50	3xM12	M250x3	215	57	309
	250	CRI-C-200/250	283,5	106,8	7087,5	2670	154	458	708	451	250	190	150	138	50	3xM12	M250x3	215	57	359
300	CRI-C-200/300	283,5	106,8	8505	3204	169	508	808	501	250	190	150	138	50	3xM12	M250x3	215	57	409	

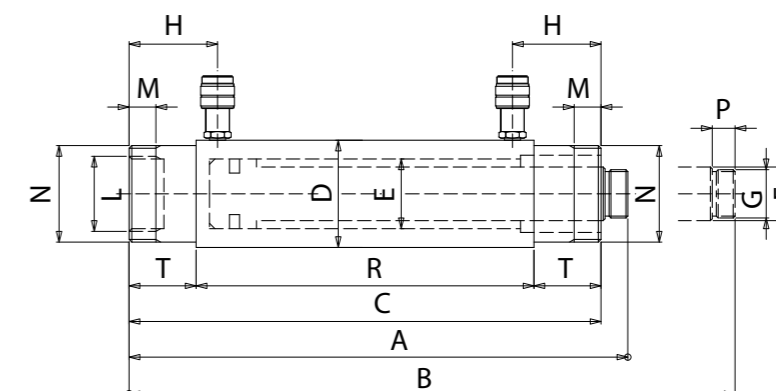
CAP/Force ton (kN)	STROKE mm	MODEL	SECTION cm <sup>2</sup>		VOLUME cm <sup>3</sup>		MASS kg	DIMENSIONS in mm												
			Push	Pull	Push	Pull		A	B	C	D	E	F	G	H	M	N	O	P	R
250 /2541	50	CRI-C-250/50	363,1	136,1	1815,5	680,5	109	241	291	235	280	215	170	148	55	3xM12	M280x3	245	57	153
	100	CRI-C-250/100	363,1	136,1	3631	1361	128	291	391	285	280	215	170	148	55	3xM12	M280x3	245	57	203
	150	CRI-C-250/150	363,1	136,1	5446,5	2041,5	147	341	491	335	280	215	170	148	55	3xM12	M280x3	245	57	253
	200	CRI-C-250/200	363,1	136,1	7262	2722	185	431	631	425	280	215	170	148	55	3xM12	M280x3	245	57	319
	250	CRI-C-250/250	363,1	136,1	9077,5	3402,5	204	481	731	475	280	215	170	148	55	3xM12	M280x3	245	57	369
300	CRI-C-250/300	363,1	136,1	10893	4083	224	531	831	525	280	215	170	148	55	3xM12	M280x3	245	57	419	
300 /3036	50	CRI-C-300/50	433,7	119,6	2168,5	598	159	296	346	292	305	235	200	158	58	3xM16	M305x3	260	73	191
	100	CRI-C-300/100	433,7	119,6	4337	1196	183	346	446	342	305	235	200	158	58	3xM16	M305x3	260	73	241
	150	CRI-C-300/150	433,7	119,6	6505,5	1794	208	396	546	392	305	235	200	158	58	3xM16	M305x3	260	73	291
	200	CRI-C-300/200	433,7	119,6	8674	2392	232	446	646	442	305	235	200	158	58	3xM16	M305x3	260	73	341
	250	CRI-C-300/250	433,7	119,6	10842,5	2990	257	496	746	492	305	235	200	158	58	3xM16	M305x3	260	73	391
300	CRI-C-300/300	433,7	119,6	13011	3588	281	546	846	542	305	235	200	158	58	3xM16	M305x3	260	73	441	
400 /4008	50	CRI-C-400/50	572,6	192,4	2863	962	227	321	371	317	350	270	220	196	74	3xM16	M350x3	300	83	206
	100	CRI-C-400/100	572,6	192,4	5726	1924	258	371	471	367	350	270	220	196	74	3xM16	M350x3	300	83	256
	150	CRI-C-400/150	572,6	192,4	8589	2886	289	421	571	417	350	270	220	196	74	3xM16	M350x3	300	83	306
	200	CRI-C-400/200	572,6	192,4	11452	3848	321	471	671	467	350	270	220	196	74	3xM16	M350x3	300	83	356
	250	CRI-C-400/250	572,6	192,4	14315	4810	352	521	771	517	350	270	220	196	74	3xM16	M350x3	300	83	406
300	CRI-C-400/300	572,6	192,4	17178	5772	383	571	871	567	350	270	220	196	74	3xM16	M350x3	300	83	456	
500 /5114	50	CRI-C-500/50	730,6	239,7	3653	1198,5	320	344	394	340	400	305	250	214	79	3xM24	M400x4	340	90	219
	100	CRI-C-500/100	730,6	239,7	7306	2397	361	394	494	390	400	305	250	214	79	3xM24	M400x4	340	90	269
	150	CRI-C-500/150	730,6	239,7	10959	3595,5	402	444	594	440	400	305	250	214	79	3xM24	M400x4	340	90	319
	200	CRI-C-500/200	730,6	239,7	14612	4794	443	494	694	490	400	305	250	214	79	3xM24	M400x4	340	90	369
	250	CRI-C-500/250	730,6	239,7	18265	5992,5	484	544	794	540	400	305	250	214	79	3xM24	M400x4	340	90	419
300	CRI-C-500/300	730,6	239,7	21918	7191	525	594	894	590	400	305	250	214	79	3xM24	M400x4	340	90	469	
600 /5987	50	CRI-C-600/50	855,3	282,7	4276,5	1413,5	379	352	402	348	430	330	270	244	85	3xM24	M430x4	370	90	227
	100	CRI-C-600/100	855,3	282,7	8553	2827	427	402	502	398	430	330	270	244	85	3xM24	M430x4	370	90	277
	150	CRI-C-600/150	855,3	282,7	12829,5	4240,5	474	452	602	448	430	330	270	244	85	3xM24	M430x4	370	90	327
	200	CRI-C-600/200	855,3	282,7	17106	5654	521	502	702	498	430	330	270	244	85	3xM24	M430x4	370	90	377
	250	CRI-C-600/250	855,3	282,7	21382,5	7067,5	568	552	802	548	430	330	270	244	85	3xM24	M430x4	370	90	427
300	CRI-C-600/300	855,3	282,7	25659	8481	615	602	902	598	430	330	270	244	85	3xM24	M430x4	370	90	477	
800 /8149	50	CRI-C-800/50	1164,2																	

Series **CDE** **Push-pull double acting cylinders**



**Double acting Push pull**

- Double acting hydraulic cylinders, push pull, high pressure. Push force from 5 to 30 ton with range of strokes from 30 mm to 260 mm.
- Hydraulic cylinders with thread on the body and rod that are assembled into more complex mechanical machinery with high-frequency push – pull cycles or for production applications.
- The guiding surfaces are sized to guarantee optimal performance in load offset absorption and the stop ring increases safety for the operator avoiding the extra stroke of piston.
- Equipped with high-strength gaskets for maximum durability.
- 3/8 " NPT female coupler with dust cap equipped and it is possible to fix the cylinder to machinery or frameworks through the featured threads.
- External painting for maximum resistance against corrosion and wear.
- Possibility to design and produce custom made hydraulic cylinders on request, with dedicated geometries, performances and features.



CDE

**CUSTOM CYLINDERS ON REQUEST**



CAP ton	STROKE mm	MODEL	FORCE MAX kN		SECTION cm <sup>2</sup>		VOLUME cm <sup>3</sup>		MASS kg	DIMENSIONS in mm													
			Push	Pull	Push	Pull	Push	Pull		A	B	C	D	E	F	G	H	L	M	N	P	R	T
5	30	CDE-5/30	49,5	22,9	7,1	3,3	21,2	9,8	2,1	177	207	154	49	30	22	M 20x1,5	46	M 35x1,5	14	M 42x1,5	18	102	26
	60	CDE-5/60	49,5	22,9	7,1	3,3	42,4	19,6	2,7	207	267	184	49	30	22	M 20x1,5	46	M 35x1,5	14	M 42x1,5	18	132	26
	100	CDE-5/100	49,5	22,9	7,1	3,3	70,7	32,7	3,5	247	347	222	49	30	22	M 20x1,5	46	M 35x1,5	14	M 42x1,5	18	170	26
	160	CDE-5/160	49,5	22,9	7,1	3,3	113,1	52,3	4,3	307	467	284	49	30	22	M 20x1,5	46	M 35x1,5	14	M 42x1,5	18	232	26
10	60	CDE-10/60	111,3	68,2	15,9	9,7	95,4	58,5	5,7	243	303	223	68	45	28	M 24x2	56	M 48x1,5	16	M 60x2	18	153	35
	100	CDE-10/100	111,3	68,2	15,9	9,7	159	97,5	6,5	283	383	263	68	45	28	M 24x2	56	M 48x1,5	16	M 60x2	18	193	35
	160	CDE-10/160	111,3	68,2	15,9	9,7	254,5	155,9	8	343	503	323	68	45	28	M 24x2	56	M 48x1,5	16	M 60x2	18	253	35
	260	CDE-10/260	111,3	68,2	15,9	9,7	413,5	253,4	10,5	443	703	423	68	45	28	M 24x2	56	M 48x1,5	16	M 60x2	18	353	35
22	80	CDE-22/80	232,3	121	33,2	17,3	265,5	138,2	14	342	422	316	92	65	45	M40x2	89	M 70x2	26	M 85x2	24	186	65
	160	CDE-22/160	232,3	121	33,2	17,3	530,9	276,5	17,5	422	582	396	92	65	45	M40x2	89	M 70x2	26	M 85x2	24	266	65
	260	CDE-22/260	232,3	121	33,2	17,3	862,8	449,2	21,5	522	782	496	92	65	45	M 40x2	89	M 70x2	26	M 85x2	24	366	65
30	260	CDE-30/260	309,3	142,9	44,2	20,4	1148,6	530,9	33,5	532	782	504	113	75	55	M 50x2	94	M 80x2	28	M 105x2	24	360	72

Higher tonnage cylinders and different strokes available.



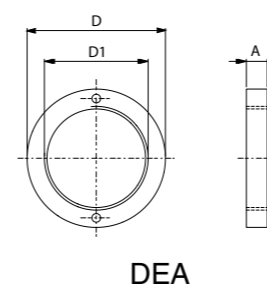
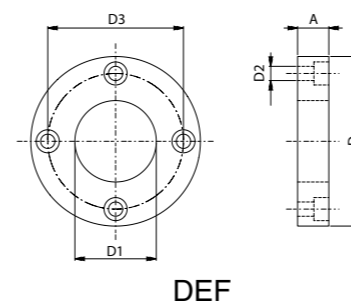
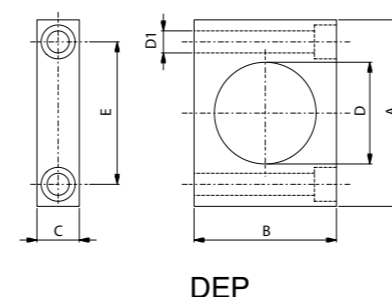
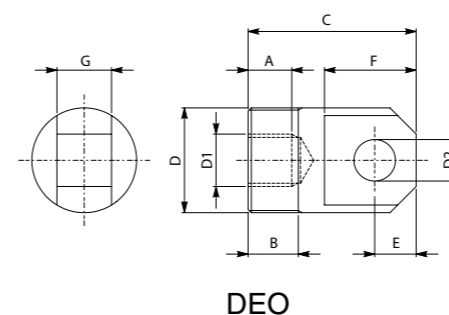
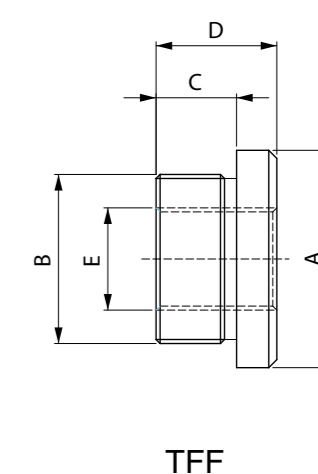
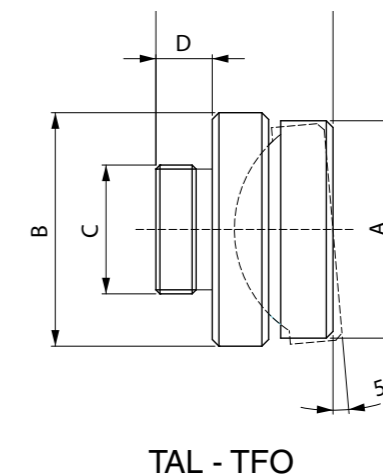
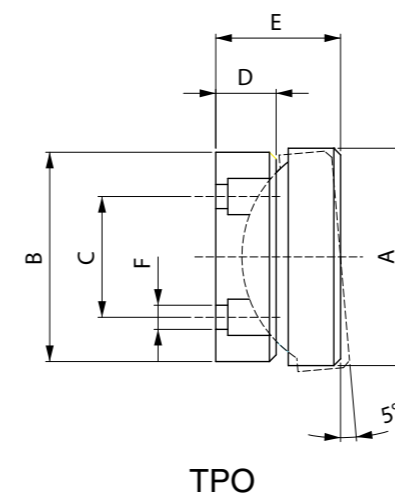
**TAL - TFO - TPO - TFF**  
**DEO - DEP - DEF - DEA**

Accessories  
**Accessories for cylinders**

MODEL	CYLINDER MODEL	A	B	C	D	E	WEIGHT Kg
TFO 10	CRM 10	34	37	1" - 8 UN	12	33	0,2
TFO 15	CRM 15	39	41	1" - 8 UN	15	36	0,3
TFO 25	CRM 25	52	53	1 1/2" - 16 UN	15	44	0,5
TFO 30	CRM 30	54	58	1 1/2" - 16 UN	15	46	0,6
TAL 30	CRI 30	54	57	28	18	49,5	0,7

MODEL	CYLINDER MODEL	A	B	C	D	E	F	WEIGHT Kg
TPO 10	CSE 10 - CSE 10 GS	34	30	16	12	21,5	5,5 (N°2)	0,11
TPO 20	CSE 20 - CSE 20 GS	45	40	24	13	26	5,5 (N°2)	0,24
TPO 30	CSE 30 - CSE 30 GS - CRMA 30 - CRI C 50	54	52	30	15	31	5,5 (N°2)	0,45
TPO 50	CSE 50 - CSE 50 GS - CRM-50 - CRMA 50	66	72	50	17	35	6,5 (N°2)	0,85
TPO 100	CSE 100 - CSE 100 GS - CRM-100 - CRMA 100 - CRI C 100	96	92	50	22	43	6,5 (N°2)	1,9
TPO 150	CSE 150 - CSE 150 GS - CRI C 150	116	110	70	21	45	6,5 (N°2)	2,8
TPO 200	CSE 200 - CSE 200 GS - CRI C 200	136	138	90	25	51	6,5 (N°4)	5,2
TPO 250	CSE 250 - CSE 250 GS - CRI C 250	146	148	90	25	51	6,5 (N°4)	6
TPO 300	CSE 300 - CSE 300 GS - CRI C 300	156	158	120	25	52	6,5 (N°4)	6,9
TPO 400	CSE 400 - CSE 400 GS - CRI C 400	194	196	160	25	55	8,5 (N°4)	12,2
TPO 500	CSE 500 - CSE 500 GS - CRI C 500	210	214	170	25	55	8,5 (N°4)	14,5
TPO 600	CSE 600 - CSE 600 GS	240	244	210	27	60	8,5 (N°4)	21,2

MODEL	CYLINDER MODEL	A	B	C	D	E	WEIGHT Kg
TFF 10	CRM10/**FO	∅ 34,5	M28x1,5	15	20	M18x2,5	0,1
TFF 20	CRM20/**FO	∅ 44,5	M35x1,5	15	23	1" - 8 UNC	0,29
TFF 30	CRM30/**FO CRI30/**FO	∅ 57	M45x2	29	36	1" 1/4-7 UNC	0,35
TFF 60	CRM60/**FO CRI60/**FO	∅ 90	M72x1,5	29	37	1" 5/8-51/2 UNS	1,00
TFF 100	CRM100/**FO CRI100/**FO	∅ 125	M105x2	31	40	M76x6	1,50
TFF 150	CRI150/**FO	∅ 139	M105x2	43	57	M80x6	2,8



Model	Cylinder model	DIMENSIONS in mm										Weight kg
		D	D1	D2	A	B	C	E	F	G		
DEO 5	CDE 5	M35X1,5	M20X1,5	16	20	23	67	14	34	16	0,3	
DEO 10	CDE 10	M48X1,5	M24X2	19	20	23	77	19	42	25	1,03	
DEO 14	CDE 14	M56X1,5	M27X2	25	27	28	98	25	54	32	2,2	
DEO 22	CDE 22	M70X2	M40X2	32	29	30	112	32	66	38	4,7	
DEO 30	CDE 30	M80X2	M50X2	38	30	31	130	38	80	42	6,9	

Model	Cylinder model	DIMENSIONS in mm						Weight kg
		D	D1	A	B	C	E	
DEP 5	CDE 5	42	10.5	84	60	15	64	0.3
DEP 10	CDE 10	60	13	110	84	25	84	1.03
DEP 14	CDE 14	70	17	136	100	35	100	2.2
DEP 22	CDE 22	85	23	170	130	45	124	4.7
DEP 30	CDE 30	105	25	200	150	50	148	6.9

Model	Cylinder model	DIMENSIONS in mm						Weight kg
		D	D1	D2	D3	A		
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	
DEF 30	CDE 30	199	105	19	165	50	7.9	

Model	Cylinder model	DIMENSIONS in mm			Weight kg
		D	D1	A	
DEA 5	CDE 5	60	M42X1.5	9	0.1
DEA 10	CDE 10	80	M60X2	12	0.2
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