

MANUFACTURER OF LIFTING, BOLTING AND TENSIONING EQUIPMENT



GENERAL INDEX

| | |
|---|----------|
| F.P.T. – Fluid Power Technology Design and production | 3 |
| | PAGE |

| | |
|---|----------|
| Custom design Production Custom high pressure equipment | 9 |
| | PAGE |

| | |
|---|-----------|
| Lifting equipment Production Hydraulic cylinders, hand pumps, synchronous lifting systems, hydraulic pumps, valves, hoses and system’s components | 14 |
| | PAGE |

| | |
|---|------------|
| Bolting and tensioning tools Production Hydraulic bolt tensioners, hydraulic nuts, hydraulic torque wrenches, hand pumps, power units, hoses and fittings | 104 |
| | PAGE |

| | |
|---|------------|
| Tools and systems Production Nut splitters, hydraulic presses, equipment for tests and geotechnics, hot bolting equipment | 128 |
| | PAGE |

F.P.T.

THE HIGH PRESSURE EXPERTS

MORE THAN
50 YEARS
SINCE 1966

Relying on F.P.T. means choosing technical solutions deriving from more than 50 years of experience in the field of hydraulics.

It means utilising functional and modern technology that simplifies and improves the level of your work.

It means receiving personalised service that meets your specific requirements and satisfies all needs.

From 700 to 4.000 bar.



F.P.T.

MANUFACTURER FOR OVER 50 YEARS

For years F.P.T. supplies the international marketplace with a complete line of highpressure hydraulic tools and equipment.

F.P.T. manufactures, assembles and tests, in company-owned facilities in Italy, a wide range of standard products, with ample warehouse availability, that make an operator's work easier and increase efficiency in various industrial sectors.

EXCELLENCE IN THE PRODUCTION OF LIFTING, TENSIONING EQUIPMENT AND SPECIAL BOLTING APPLICATION ON CUSTOMER'S REQUIREMENTS

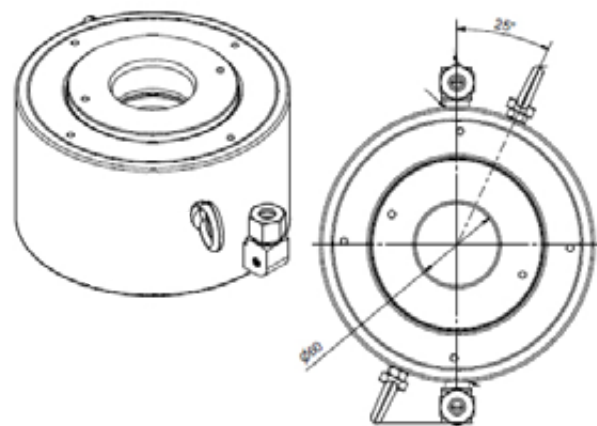
With a profound tradition in constant evolution, highly specialised engineering and design expertise focused on developing new technical solutions, absolute quality products as well as efficient technical and after-sales service and assistance, F.P.T. has become the recognised reference in high-pressure hydraulic systems personalised to meet customers' requirements.



F.P.T. DESIGN AND PRODUCTION

There is only one way that allows F.P.T. to meet the needs of its customers with products able to improve their work: aiming to perfection and always seeking for the maximum benefit for the customer.

F.P.T. follows the strategy of the highest quality: designs, produces, assembles and tests all its products at its Italian factory and guarantees excellence in all performance, from the smallest cylinder to the most complex lifting systems.



DESIGN

Possible inspection and study of feasibility at the customer's facility: search for the best solution for every need.

The highest quality achievement starts from the engineering phase, where new designs are constantly addressed to fulfil the technical needs of the markets of reference.

PRODUCTION

The production system is 9001 ISO certified and complies a strict quality process that starts from that choice and check up of raw materials of all components, continues through CNC mechanical processing and ends with heat and superficial treatments to guarantee the maximum product duration over time.



F.P.T.

AT THE SERVICE OF CUSTOMERS, EVERYWHERE IN THE WHOLE WORLD

The F.P.T. products are being used everywhere in the world and in the most diversified industrial sectors. This equipment makes any lifting and handling operation of large objects, hydraulic tightening and structure's tensioning, safe and accurate.

Steel Energy Industry Infrastructure Engineering & Geotechnics
Mine Naval Offshore Oil & Gas Trasports



F.P.T.

MANUFACTURERS OF:

CUSTOM TOOLS

The strength of F.P.T. lies in the ability to design and implement special equipment able to respond to the most specific customer's requests.

A team of specialists follow the customer during the technical consulting phase, designing, production and installation of all equipment, evaluating the best technical solutions to achieve the personalization.

STANDARD PRODUCTS

WHEN THE STANDARD BECOMES REFERENCE.

F.P.T. produces a wide range of standard high pressure products from 700 to 4000 bar and supplies production, technical assistance and spare parts all over the world.



F.P.T. CERTIFIED QUALITY

F.P.T. features its own test department and prototype test department, where constantly studies to improve production and performance take place.

All our products are CE certificated with quality is ISO 9001:2015 CERTIFICATION, therefore absolutely safe and compliant to quality guidelines: especially to those that make the customer always satisfied.

The workplace safety and health management system, both are certified.



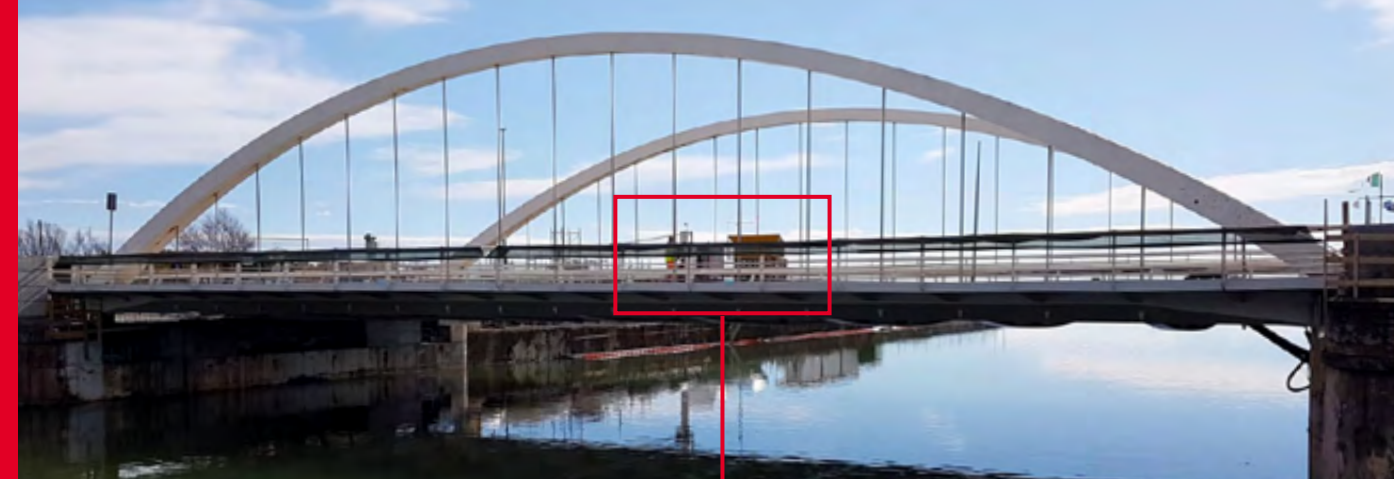
CE of conformity
F.P.T. supplies a declaration of conformity for each product and the CE mark for the products that comply with the directives of the European Community.



PRODUCTS ON REQUEST

Production | High pressure special tools

The true distinctive character of F.P.T. lies in the design and production of standard tools and costum made equipment, to meet any specific customers' need: from the smaller workshop to the largest production unit, there is no industrial sector that can do without the help of our products.



PRODUCTS ON REQUEST

Production | Custom lifting equipment

Hydraulic cylinders, hand pumps, hydraulic pumps, synchronous lifting systems, valves, hoses and custom made components, designed and manufactured on customer' specifications.



PRODUCTS ON REQUEST

Production | Custom bolt tightening equipment

Hydraulic bolt tensioners, hydraulic nuts, hydraulic torque wrenches, hand pumps and custom made hydraulic power packs, designed and manufactured on customer' specifications.



F.P.T. LIFTING EQUIPMENT

Complete, and extremely vast: the range of standard products that F.P.T. produces meets all the criteria of innovation and functionality, and includes products such as hydraulic cylinders, hydraulic electric and pneumatic pumps, hand pumps, synchronous lifting systems, valves, hoses, and many different accessories and equipment.



INDEX LIFTING TOOLS

Hydraulic cylinders



16

PAGE

Hand pumps



52

PAGE

Hydraulic pumps and synchronous lifting systems



68

PAGE

Valves and accessories



94

PAGE

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 | | |
|---|--------------|------------|-------------------|---|----|
| Spring return single acting cylinders | 5-100 | 25-360 | CRM |  | 20 |
| Compact, single acting cylinders with spring return | 10-100 | 50 | CRM C |  | 22 |
| Extra flat, single acting cylinders with spring return | 4,5-200 | 10-15 | CRM XP |  | 24 |
| Aluminium cylinders, single acting, spring return | 30-100 | 50-150 | CRMA |  | 26 |
| Pulling, single acting cylinders with spring return | 2-100 | 75-160 | CRM TRA CRM TR |  | 28 |
| Hollow, single acting cylinders with spring return | 10-100 | 50-160 | CRM FO |  | 30 |
| Hollow cylinders with oil return | 30-150 | 50-260 | CRI FO |  | 32 |
| High tonnage cylinders, single acting, load return | 50-1000 | 50-300 | CSE TU |  | 34 |
| Single acting cylinders with lock nut, low height for confined spaces | 60-500 | 45-50 | CSE GS C |  | 38 |
| High tonnage cylinder, with lock nut, double acting | 50-600 | 50-300 | CRI GS |  | 40 |
| Single acting high tonnage cylinder, load return with lock nut | 50-1000 | 50-300 | CSE GS TU |  | 41 |
| High tonnage cylinders oil return | 10-500 | 160-330 | CRI C |  | 44 |
| Push-pull double acting cylinders | 5-30 | 30-260 | CDE |  | 48 |

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.

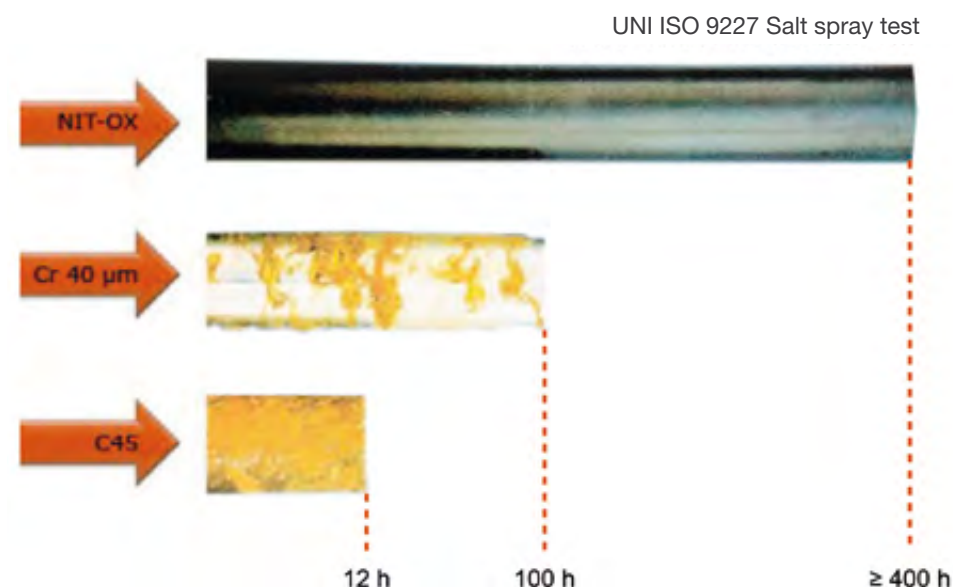
Type of cylinder and specific applications determine different constructive methodologies.

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.

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

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

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 | Accessories |
|--|--------------------------------------|----------------------------|------------|--|--|
| CSE | A | 10 | 100 | XP | TA |
| 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 | GS – LOCK NUT XP – EXTRA FLAT FO – HOLLOW TRA – PULLING WITH EYELETS TR – PULLING C – COMPACT | TA – TILTING SADDLE FS – BALL JOINT |



CRM
5-100 ton
Stroke up to 360 mm
700 bar

Series

CRM

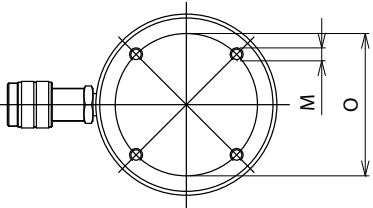
Spring return single acting cylinders



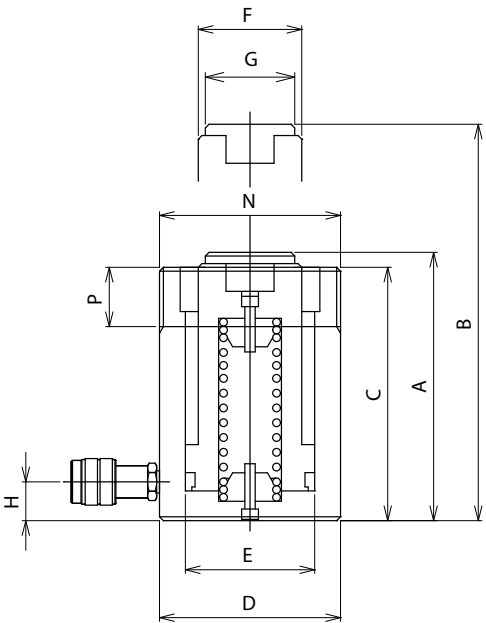
The most versatile cylinder for various applications

- 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 | STROKE | MODEL | SECTION | VOLUME | MASS | DIMENSIONS in mm | | | | | | | | | | | | |
|-----------|--------|-------------|---------|--------|------|------------------|-----|-----|-----|-------|-----|------|----|-----|------------------|-----------------|----|--|
| ton (kN) | mm | | cm² | cm³ | kg | 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 | |
| | 355 | CRM-10/355 | 14,44 | 513 | 7,5 | 453 | 808 | 447 | 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 | |
| | 360 | CRM-25/360 | 33,18 | 1194 | 16,1 | 475 | 835 | 466 | 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 /496 | 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

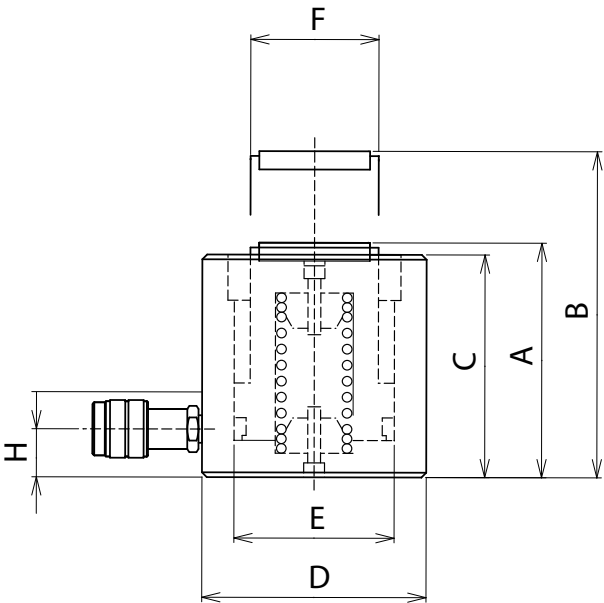
Series
CRM-C

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 cm² | VOLUME cm³ | MASS kg | DIMENSIONS in mm | | | | | | |
|-----------------------|--------------|--------------|----------------|---------------|------------|------------------|-----|-----|-----|-----|-----|----|
| | | | | | | A | B | C | D | E | F | H |
| 10 /111,3 | 50 | CRM-10/50-C | 15,9 | 79,5 | 3,2 | 95 | 145 | 94 | 77 | 45 | 35 | 18 |
| 20 /218,2 | 50 | CRM-20/50-C | 31,2 | 155,9 | 4,7 | 103 | 153 | 102 | 93 | 63 | 50 | 19 |
| 30 /309,3 | 50 | CRM-30/50-C | 44,2 | 220,9 | 6,9 | 110 | 160 | 108 | 108 | 75 | 60 | 21 |
| 50 /549,8 | 50 | CRM-50/50-C | 78,5 | 392,7 | 9,7 | 120 | 170 | 118 | 126 | 100 | 80 | 19 |
| 100 /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

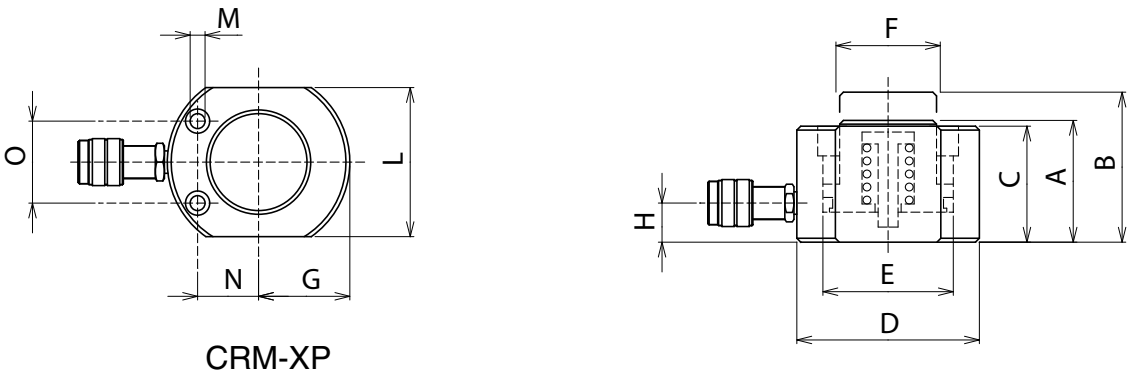
Extra flat, single acting cylinders with spring return



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



| CAP/Force | STROKE | MODEL | SECTION | VOLUME | MASS | DIMENSIONS in mm | | | | | | | | | | | | |
|-------------|--------|---------------|---------|--------|------|------------------|-----|-----|-----|-----|-----|-----|----|-----|----|------|-----|--|
| ton (kN) | mm | | cm² | cm³ | kg | 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 | |

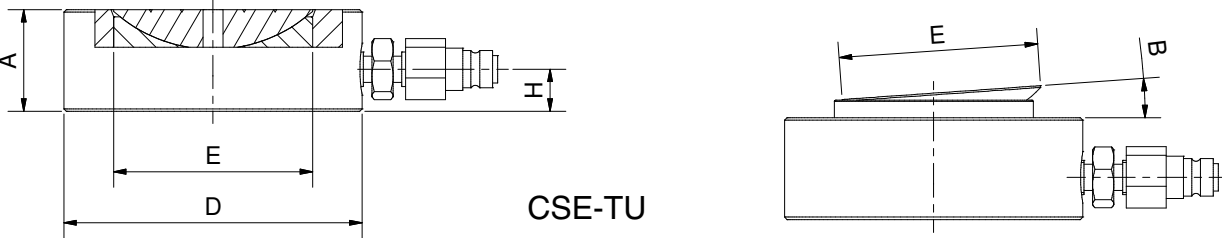
Different strokes and tonnages available.



Series

CSE TU

Super extra flat cylinders, very high pressure – 2.000 bar



| CAP/Force ton (kN) | STROKE mm | MODEL | SECTION cm² | VOLUME cm³ | 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

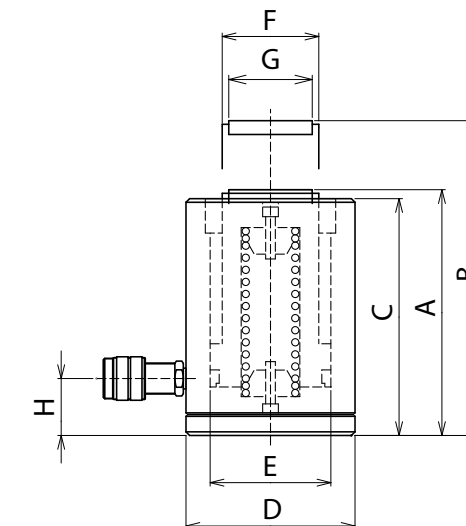
Series
CRMA

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 ² | VOLUME cm ³ | MASS kg | DIMENSIONS in mm | | | | | | | |
|-----------------------|--------------|--------------|----------------------------|---------------------------|------------|------------------|-----|-----|-----|-----|-----|----|----|
| | | | | | | A | B | C | D | E | F | G | H |
| 30 /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 |
| 50 /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 |
| 100 /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



**CRM
TRA-TR**

2-60 ton
Stroke 127-155 mm
700 bar

Series
**CRM
TRA-TR**

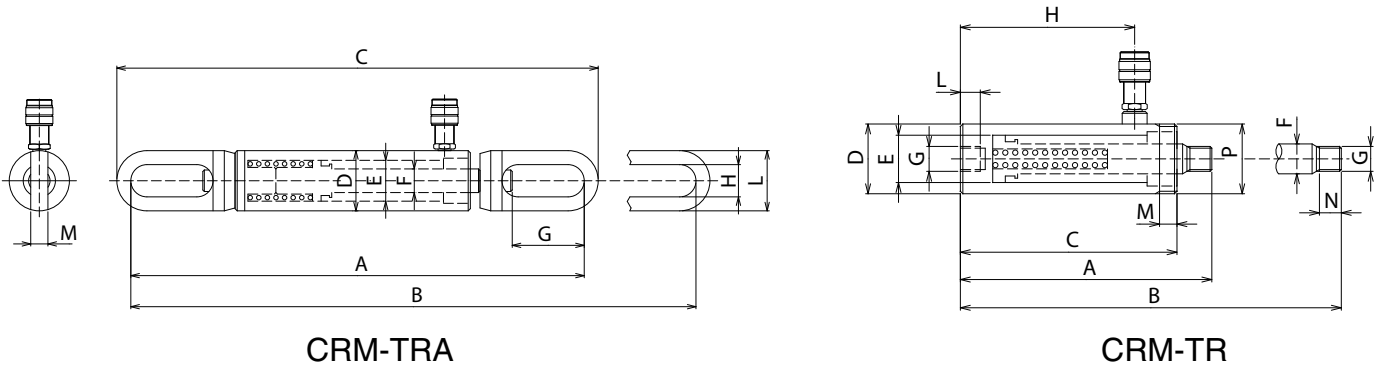
Pulling, single acting
cylinders with spring return

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 cm² | VOLUME cm³ | MASS kg | DIMENSIONS in mm | | | | | | | | |
|-----------------------|--------------|----------------|----------------|---------------|------------|------------------|------------|-----------|-----|-----|----|-----|----|-----|
| | | | | | | A | B | C | D | E | F | G | H | L |
| 10 /109 | 150 | CRM-10/150-TRA | 15,7 | 235 | 14,5 | 606 | 756 | 642 | 78 | 55 | 32 | 95 | 42 | 78 |
| 30 /304,3 | 155 | CRM-30/155-TRA | 40,84 | 648,5 | 38 | 810 - 914 | 965 - 1069 | 860 - 964 | 114 | 85 | 45 | 100 | 54 | 104 |
| 60 /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 cm² | VOLUME cm³ | MASS kg | DIMENSIONS in mm | | | | | | | | | |
|-----------------------|--------------|---------------|----------------|---------------|------------|------------------|-----|-------|----|----|----|-------------|-------|----|----|
| | | | | | | A | B | C | D | E | F | G | H | L | M |
| 2 /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 |
| 5 /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 |
| 10 /102,9 | 150 | CRM 10/150 TR | 14,13 | 226,9 | 8,4 | 304 | 454 | 264 | 80 | 55 | 35 | M30X2 | 220 | 25 | 24 |

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

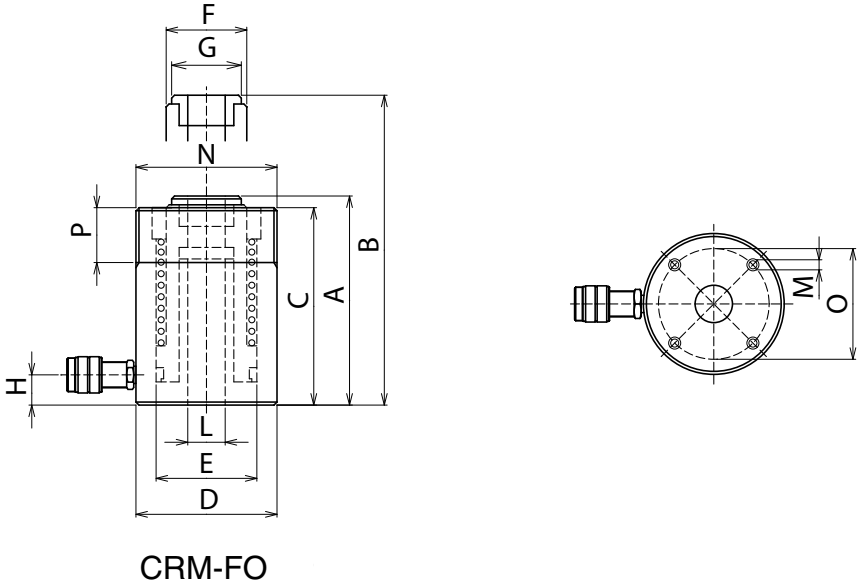
Cylinders for tensioning operations, maintenance and testing



- 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




| CAP/Force ton (kN) | STROKE mm | MODEL | SECTION cm² | VOLUME cm³ | MASS kg | DIMENSIONS in mm | | | | | | | | | | | | |
|-----------------------|--------------|---------------|----------------|---------------|------------|------------------|-----|-----|-----|-----|-----|------|----|------|-------|--------|-----|----|
| | | | | | | A | B | C | D | E | F | G | H | L | M | N | O | P |
| 10 /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 |
| 20 /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 |
| | 160 | CRM-20/160-FO | 32,8 | 525 | 15,8 | 345 | 505 | 340 | 100 | 75 | 55 | 44,5 | 19 | 27,3 | 2xM8 | M100x2 | 75 | 20 |
| 30 /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 |
| | 150 | CRM-30/150-FO | 42,9 | 643 | 22,2 | 361 | 511 | 356 | 115 | 85 | 65 | 62 | 20 | 33,5 | 2xM10 | M115x2 | 90 | 20 |
| 60 /589,6 | 75 | CRM-60/75-FO | 84,2 | 632 | 30 | 262 | 337 | 250 | 160 | 125 | 90 | 90 | 30 | 54,5 | 2xM12 | M160x4 | 130 | 35 |
| | 150 | CRM-60/150-FO | 84,2 | 1264 | 37 | 337 | 487 | 325 | 160 | 125 | 90 | 90 | 30 | 54,5 | 2xM12 | M160x4 | 130 | 35 |
| 100 /947 | 75 | CRM-100/75-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

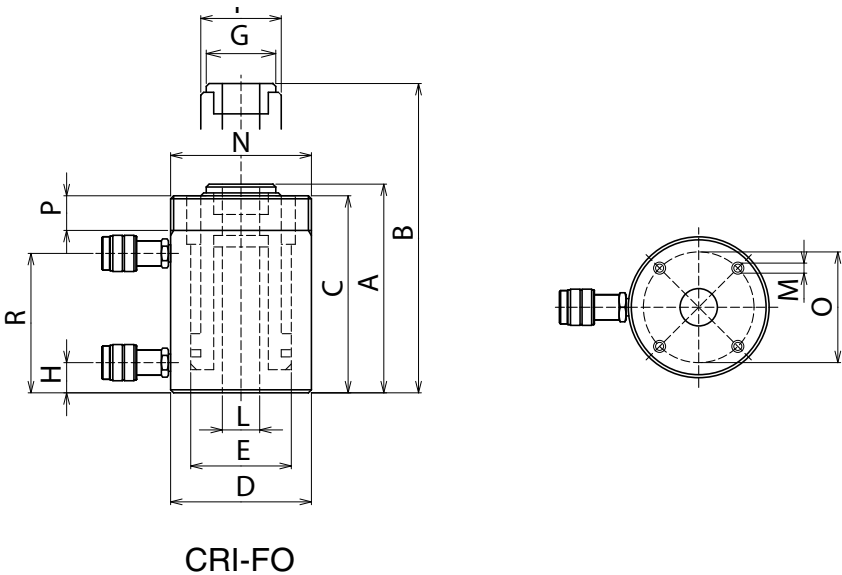
Cylinders for tensioning operations, maintenance and testing



- 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




| CAP ton | STROKE mm | MODEL | FORCE max kN | | SECTION cm² | | VOLUME cm³ | | 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 |
| | 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 |
| 100 | 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 | 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 TU
50-1000 ton
Stroke 50-300 mm
700 bar

Series

CSE TU

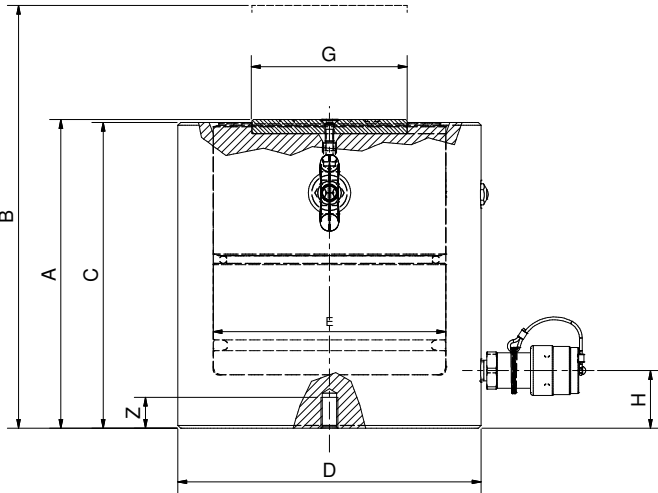
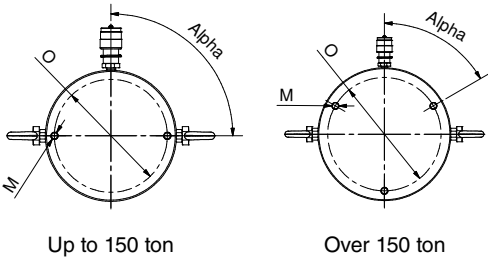
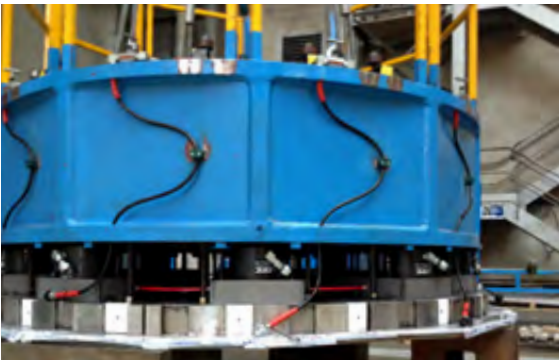
High tonnage cylinders, single acting, load return



High tonnage

- Single-acting high tonnage hydraulic cylinders with load return. Push force from 50 to 1000 tons with range of strokes from 50 mm to 300 mm.
 - Plunger execution, equipped with stroke indicator and anti overstroke device.
 - Hydraulic cylinders suitable for heavy duty applications, pushing and large lifting operations.
 - The guiding surfaces are sized to guarantee optimal performance in load offset absorption.
 - 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.
 - Nitox ONC treatment on all mechanical components for maximum resistance against corrosion and wear.
 - All models 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




CSE TU

| CAP/Force ton (kN) | STROKE mm | MODEL | SECTION cm² | VOLUME cm³ | MASS kg | DIMENSIONS in mm | | | | | | | | | | |
|-----------------------|--------------|---------------|----------------|---------------|------------|------------------|-----|-----|-----|-----|-----|----|----------|-----|----|-------|
| | | | | | | A | B | C | D | E | G | H | M | O | Z | Alpha |
| 50 /549,78 | 50 | CSE50/50-TU | 78,5 | 392,7 | 14,3 | 139 | 189 | 137 | 130 | 100 | 72 | 24 | M8x1,25 | 105 | 10 | 90 |
| | 100 | CSE50/100-TU | 78,5 | 785,4 | 19,3 | 189 | 289 | 187 | 130 | 100 | 72 | 24 | M8x1,25 | 105 | 10 | 90 |
| | 150 | CSE50/150-TU | 78,5 | 1178,1 | 24,8 | 239 | 389 | 237 | 130 | 100 | 72 | 24 | M8x1,25 | 105 | 10 | 90 |
| | 200 | CSE50/200-TU | 78,5 | 1570,8 | 29,8 | 289 | 489 | 287 | 130 | 100 | 72 | 24 | M8x1,25 | 105 | 10 | 90 |
| | 250 | CSE50/250-TU | 78,5 | 1963,5 | 35,3 | 339 | 589 | 337 | 130 | 100 | 72 | 24 | M8x1,25 | 105 | 10 | 90 |
| 100 /1001,97 | 300 | CSE50/300-TU | 78,5 | 2356,2 | 40,3 | 389 | 689 | 387 | 130 | 100 | 72 | 24 | M8x1,25 | 105 | 10 | 90 |
| | 50 | CSE100/50-TU | 143,1 | 715,7 | 29 | 154 | 204 | 152 | 175 | 135 | 92 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 100 | CSE100/100-TU | 143,1 | 1431,4 | 38,5 | 204 | 304 | 202 | 175 | 135 | 92 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 150 | CSE100/150-TU | 143,1 | 2147,1 | 47,7 | 254 | 404 | 252 | 175 | 135 | 92 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 200 | CSE100/200-TU | 143,1 | 2862,8 | 57,3 | 304 | 504 | 302 | 175 | 135 | 92 | 33 | M12x1,75 | 150 | 22 | 90 |
| 150 /1496,77 | 250 | CSE100/250-TU | 143,1 | 3578,5 | 66,9 | 354 | 604 | 352 | 175 | 135 | 92 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 300 | CSE100/300-TU | 143,1 | 4294,2 | 76,4 | 404 | 704 | 402 | 175 | 135 | 92 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 50 | CSE150/50-TU | 213,8 | 1069,1 | 48 | 169 | 219 | 167 | 215 | 165 | 110 | 41 | M12x1,75 | 185 | 22 | 90 |
| | 100 | CSE150/100-TU | 213,8 | 2138,2 | 62,1 | 219 | 319 | 217 | 215 | 165 | 110 | 41 | M12x1,75 | 185 | 22 | 90 |
| | 150 | CSE150/150-TU | 213,8 | 3207,4 | 76,3 | 269 | 419 | 267 | 215 | 165 | 110 | 41 | M12x1,75 | 185 | 22 | 90 |
| 200 /1984,70 | 200 | CSE150/200-TU | 213,8 | 4276,5 | 90,9 | 319 | 519 | 317 | 215 | 165 | 110 | 41 | M12x1,75 | 185 | 22 | 90 |
| | 250 | CSE150/250-TU | 213,8 | 5345,6 | 105 | 369 | 619 | 367 | 215 | 165 | 110 | 41 | M12x1,75 | 185 | 22 | 90 |
| | 300 | CSE150/300-TU | 213,8 | 6414,7 | 119,6 | 419 | 719 | 417 | 215 | 165 | 110 | 41 | M12x1,75 | 185 | 22 | 90 |
| | 50 | CSE200/50-TU | 283,5 | 1417,6 | 68,5 | 193 | 243 | 191 | 250 | 190 | 138 | 47 | M12x1,75 | 215 | 22 | 60 |
| | 100 | CSE200/100-TU | 283,5 | 2835,3 | 88,2 | 243 | 343 | 241 | 250 | 190 | 138 | 47 | M12x1,75 | 215 | 22 | 60 |
| 250 /2541,35 | 150 | CSE200/150-TU | 283,5 | 4252,9 | 107,3 | 293 | 443 | 291 | 250 | 190 | 138 | 47 | M12x1,75 | 215 | 22 | 60 |
| | 200 | CSE200/200-TU | 283,5 | 5670,6 | 127 | 343 | 543 | 341 | 250 | 190 | 138 | 47 | M12x1,75 | 215 | 22 | 60 |
| | 250 | CSE200/250-TU | 283,5 | 7088,2 | 146,2 | 393 | 643 | 391 | 250 | 190 | 138 | 47 | M12x1,75 | 215 | 22 | 60 |
| | 300 | CSE200/300-TU | 283,5 | 8505,9 | 165,8 | 443 | 743 | 441 | 250 | 190 | 138 | 47 | M12x1,75 | 215 | 22 | 60 |
| | 50 | CSE250/50-TU | 363,0 | 1815,3 | 94,5 | 197 | 247 | 195 | 280 | 215 | 148 | 53 | M12x1,75 | 245 | 22 | 60 |
| 250 /2541,35 | 100 | CSE250/100-TU | 363,0 | 3630,5 | 119,2 | 247 | 347 | 245 | 280 | 215 | 148 | 53 | M12x1,75 | 245 | 22 | 60 |
| | 150 | CSE250/150-TU | 363,0 | 5445,8 | 143,4 | 297 | 447 | 295 | 280 | 215 | 148 | 53 | M12x1,75 | 245 | 22 | 60 |
| | 200 | CSE250/200-TU | 363,0 | 7261,0 | 167,6 | 347 | 547 | 345 | 280 | 215 | 148 | 53 | M12x1,75 | 245 | 22 | 60 |
| | 250 | CSE250/250-TU | 363,0 | 9076,3 | 192,2 | 397 | 647 | 395 | 280 | 215 | 148 | 53 | M12x1,75 | 245 | 22 | 60 |
| | 300 | CSE250/300-TU | 363,0 | 10891,5 | 216,4 | 447 | 747 | 445 | 280 | 215 | 148 | 53 | M12x1,75 | 245 | 22 | 60 |

| CAP/Force ton (kN) | STROKE mm | MODEL | SECTION cm² | VOLUME cm³ | MASS kg | DIMENSIONS in mm | | | | | | | | | | |
|-----------------------|--------------|----------------|----------------|---------------|------------|------------------|-----|-----|-----|-----|-----|-----|-------|-----|----|-------|
| | | | | | | A | B | C | D | E | G | H | M | O | Z | Alpha |
| 300 /3036,15 | 50 | CSE300/50-TU | 433,7 | 2168,7 | 126,8 | 222 | 272 | 220 | 305 | 235 | 158 | 58 | M16x2 | 260 | 25 | 60 |
| | 100 | CSE300/100-TU | 433,7 | 4337,4 | 155,6 | 272 | 372 | 270 | 305 | 235 | 158 | 58 | M16x2 | 260 | 25 | 60 |
| | 150 | CSE300/150-TU | 433,7 | 6506,0 | 184,3 | 322 | 472 | 320 | 305 | 235 | 158 | 58 | M16x2 | 260 | 25 | 60 |
| | 200 | CSE300/200-TU | 433,7 | 8674,7 | 213,1 | 372 | 572 | 370 | 305 | 235 | 158 | 58 | M16x2 | 260 | 25 | 60 |
| | 250 | CSE300/250-TU | 433,7 | 10843,4 | 242,3 | 422 | 672 | 420 | 305 | 235 | 158 | 58 | M16x2 | 260 | 25 | 60 |
| | 300 | CSE300/300-TU | 433,7 | 13012,1 | 271,1 | 472 | 772 | 470 | 305 | 235 | 158 | 58 | M16x2 | 260 | 25 | 60 |
| 400 /4007,89 | 50 | CSE400/50-TU | 572,6 | 2862,8 | 188,3 | 252 | 302 | 247 | 350 | 270 | 196 | 67 | M16x2 | 300 | 25 | 60 |
| | 100 | CSE400/100-TU | 572,6 | 5725,6 | 226,2 | 302 | 402 | 297 | 350 | 270 | 196 | 67 | M16x2 | 300 | 25 | 60 |
| | 150 | CSE400/150-TU | 572,6 | 8588,3 | 264,1 | 352 | 502 | 347 | 350 | 270 | 196 | 67 | M16x2 | 300 | 25 | 60 |
| | 200 | CSE400/200-TU | 572,6 | 11451,1 | 302,5 | 402 | 602 | 397 | 350 | 270 | 196 | 67 | M16x2 | 300 | 25 | 60 |
| | 250 | CSE400/250-TU | 572,6 | 14313,9 | 340,4 | 452 | 702 | 447 | 350 | 270 | 196 | 67 | M16x2 | 300 | 25 | 60 |
| | 300 | CSE400/300-TU | 572,6 | 17176,7 | 378,3 | 502 | 802 | 497 | 350 | 270 | 196 | 67 | M16x2 | 300 | 25 | 60 |
| 500 /5114,32 | 50 | CSE500/50-TU | 730,6 | 3653,1 | 271,9 | 285 | 335 | 280 | 400 | 305 | 214 | 75 | M24x3 | 340 | 36 | 60 |
| | 100 | CSE500/100-TU | 730,6 | 7306,2 | 321,7 | 335 | 435 | 330 | 400 | 305 | 214 | 75 | M24x3 | 340 | 36 | 60 |
| | 150 | CSE500/150-TU | 730,6 | 10959,3 | 371 | 385 | 535 | 380 | 400 | 305 | 214 | 75 | M24x3 | 340 | 36 | 60 |
| | 200 | CSE500/200-TU | 730,6 | 14612,3 | 420,8 | 435 | 635 | 430 | 400 | 305 | 214 | 75 | M24x3 | 340 | 36 | 60 |
| | 250 | CSE500/250-TU | 730,6 | 18265,4 | 470,5 | 485 | 735 | 480 | 400 | 305 | 214 | 75 | M24x3 | 340 | 36 | 60 |
| | 300 | CSE500/300-TU | 730,6 | 21918,5 | 519,8 | 535 | 835 | 530 | 400 | 305 | 214 | 75 | M24x3 | 340 | 36 | 60 |
| 600 /5987,09 | 50 | CSE600/50-TU | 855,3 | 4276,5 | 338,9 | 300 | 350 | 295 | 430 | 330 | 244 | 81 | M24x3 | 370 | 36 | 60 |
| | 100 | CSE600/100-TU | 855,3 | 8553,0 | 396 | 350 | 450 | 345 | 430 | 330 | 244 | 81 | M24x3 | 370 | 36 | 60 |
| | 150 | CSE600/150-TU | 855,3 | 12829,5 | 453,5 | 400 | 550 | 395 | 430 | 330 | 244 | 81 | M24x3 | 370 | 36 | 60 |
| | 200 | CSE600/200-TU | 855,3 | 17106,0 | 511 | 450 | 650 | 445 | 430 | 330 | 244 | 81 | M24x3 | 370 | 36 | 60 |
| | 250 | CSE600/250-TU | 855,3 | 21382,5 | 568,1 | 500 | 750 | 495 | 430 | 330 | 244 | 81 | M24x3 | 370 | 36 | 60 |
| | 300 | CSE600/300-TU | 855,3 | 25659,0 | 625,6 | 550 | 850 | 545 | 430 | 330 | 244 | 81 | M24x3 | 370 | 36 | 60 |
| 800 /8149,09 | 50 | CSE800/50-TU | 1164,2 | 5820,8 | 530,6 | 340 | 390 | 335 | 505 | 385 | 292 | 95 | M24x3 | 440 | 36 | 60 |
| | 100 | CSE800/100-TU | 1164,2 | 11641,6 | 610,1 | 390 | 490 | 385 | 505 | 385 | 292 | 95 | M24x3 | 440 | 36 | 60 |
| | 150 | CSE800/150-TU | 1164,2 | 17462,3 | 689 | 440 | 590 | 435 | 505 | 385 | 292 | 95 | M24x3 | 440 | 36 | 60 |
| | 200 | CSE800/200-TU | 1164,2 | 23283,1 | 768 | 490 | 690 | 485 | 505 | 385 | 292 | 95 | M24x3 | 440 | 36 | 60 |
| | 250 | CSE800/250-TU | 1164,2 | 29103,9 | 847,5 | 540 | 790 | 535 | 505 | 385 | 292 | 95 | M24x3 | 440 | 36 | 60 |
| | 300 | CSE800/300-TU | 1164,2 | 34924,7 | 926,5 | 590 | 890 | 585 | 505 | 385 | 292 | 95 | M24x3 | 440 | 36 | 60 |
| 1000 /10643,72 | 50 | CSE1000/50-TU | 1520,5 | 7602,7 | 755,4 | 379 | 429 | 374 | 570 | 440 | 292 | 110 | M24x3 | 500 | 36 | 60 |
| | 100 | CSE1000/100-TU | 1520,5 | 15205,3 | 855,8 | 429 | 529 | 424 | 570 | 440 | 292 | 110 | M24x3 | 500 | 36 | 60 |
| | 150 | CSE1000/150-TU | 1520,5 | 22808,0 | 956,7 | 479 | 629 | 474 | 570 | 440 | 292 | 110 | M24x3 | 500 | 36 | 60 |
| | 200 | CSE1000/200-TU | 1520,5 | 30410,6 | 1057,7 | 529 | 729 | 524 | 570 | 440 | 292 | 110 | M24x3 | 500 | 36 | 60 |
| | 250 | CSE1000/250-TU | 1520,5 | 38013,3 | 1158,6 | 579 | 829 | 574 | 570 | 440 | 292 | 110 | M24x3 | 500 | 36 | 60 |
| | 300 | CSE1000/300-TU | 1520,5 | 45616,0 | 1259,5 | 629 | 929 | 624 | 570 | 440 | 292 | 110 | M24x3 | 500 | 36 | 60 |





CSE GS C

60-500 ton
Stroke 45-50 mm
700 bar

Series

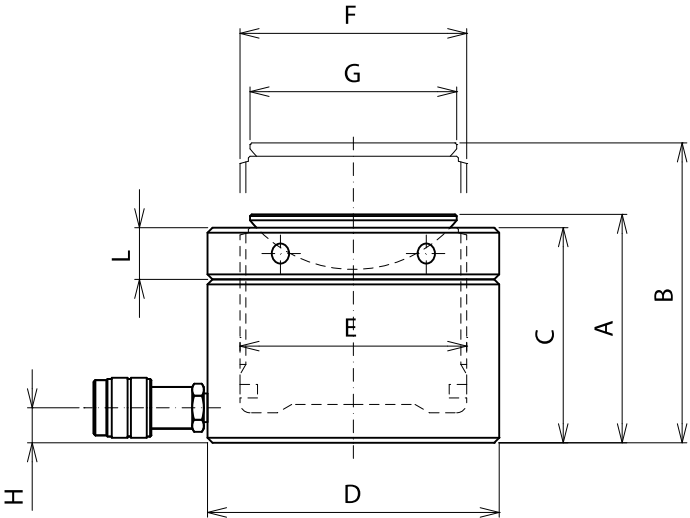
CSE GS C

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

High tonnage and confined area

- High tonnage hydraulic cylinders with lock nut, reduced height, single acting. 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. Lock nut for the maintenance of the load in complete safety.
 - The guiding surfaces are sized to guarantee optimal performance in load offset absorption. Plugging execution, equipped with anti overstroke device.
 - 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.

CUSTOM CYLINDERS ON REQUEST



CSE GS C

| CAP/Force | STROKE | MODEL | EFFECTIVE AREA | VOLUME | MASS | DIMENSIONS in mm | | | | | | | | | | MAX SADDLE INCLINATION |
|------------------|--------|-----------------|----------------|--------|------|------------------|-----|-----|-----|-----|----------|-----|----|------|--|------------------------|
| ton (kN) | mm | | cm² | cm³ | kg | A | B | C | D | E | F | G | H | L | | (°) |
| 60 /606 | 50 | CSE-60/50-GS-C | 86,6 | 433 | 15 | 125 | 175 | 119 | 140 | 105 | Tr 105x4 | 96 | 19 | 28 | | 5 |
| 100 /1002 | 50 | CSE-100/50-GS-C | 143,1 | 716 | 24,5 | 137 | 187 | 129 | 173 | 135 | Tr 135x6 | 126 | 21 | 31 | | 5 |
| 160 /1589 | 45 | CSE-160/45-GS-C | 228 | 1021 | 42,5 | 148 | 193 | 139 | 220 | 170 | Tr 170x6 | 160 | 27 | 40 | | 5 |
| 200 /1985 | 45 | CSE-200/45-GS-C | 283,5 | 1276 | 55 | 155 | 200 | 145 | 245 | 190 | Tr 190x6 | 180 | 30 | 43 | | 5 |
| 250 /2541 | 45 | CSE-250/45-GS-C | 363,1 | 1634 | 70 | 159 | 204 | 147 | 275 | 215 | Tr 215x6 | 200 | 32 | 43 | | 5 |
| 400 /4008 | 45 | CSE-400/45-GS-C | 572,6 | 2576 | 128 | 178 | 223 | 166 | 350 | 270 | Tr 270x6 | 250 | 40 | 55 | | 4 |
| 500 /5114 | 45 | CSE-500/45-GS-C | 730,6 | 3288 | 182 | 192 | 237 | 182 | 400 | 305 | Tr 305x6 | 290 | 49 | 61,5 | | 3 |



Series
CRI GS

High tonnage cylinder, with lock nut, double acting



High tonnage lock nut with oil return

- 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.



Series
CSE GS TU

50-1000 ton
Stroke 50 - 300 mm
700 bar

Series
CSE GS TU

Single acting high tonnage cylinder, load return with lock nut



High Tonnage cylinders, lock nut, load return

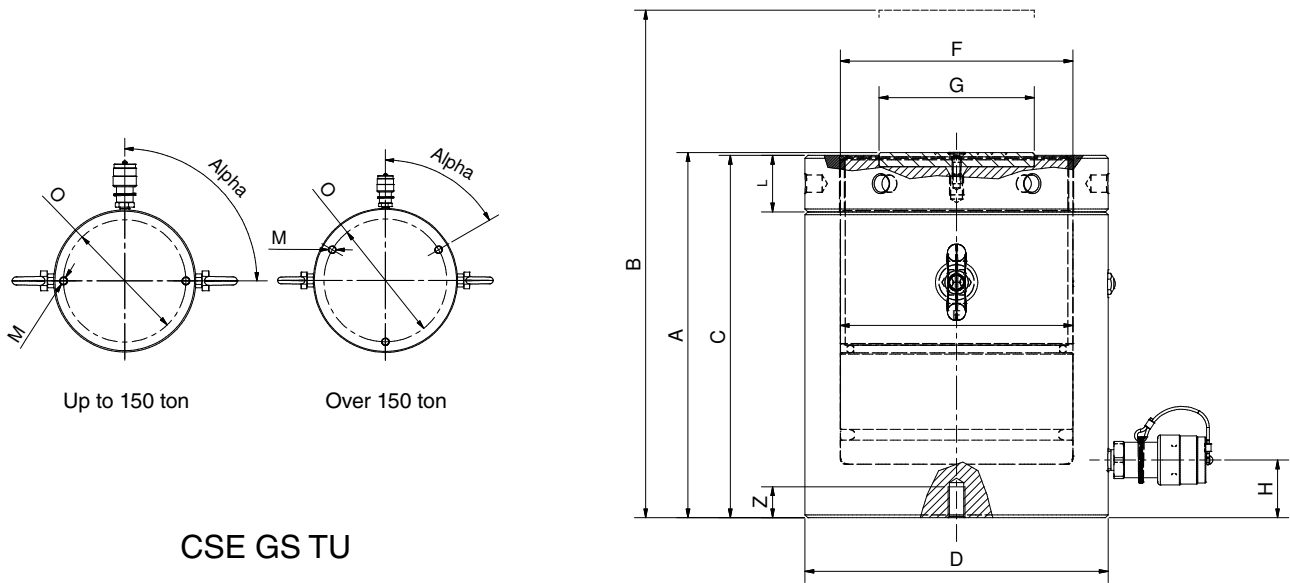
- High tonnage hydraulic cylinders, with lock nut, load return. Push force from 50 to 1000 ton, with range of strokes from 50 mm to 300 mm
- High tonnage hydraulic cylinders up to 3000 ton, suitable for heavy usage, lifting operations, pushing and heavy lifting.
- **Plunger execution, equipped with stroke indicator and anti overstroke device.**
- 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.

- 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



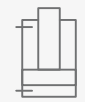
CUSTOM CYLINDERS ON REQUEST



CSE GS TU

| CAP/Force | STROKE | MODEL | SECTION | VOLUME | MASS | DIMENSIONS in mm | | | | | | | | | | | | |
|--------------|--------|------------------|---------|--------|-------|------------------|-----|-----|-----|-----|----------|-----|----|----|----------|-----|----|-------|
| ton (kN) | mm | | cm² | cm³ | kg | A | B | C | D | E | F | G | H | L | M | O | Z | Alpha |
| 50 /549,78 | 50 | CSE50/50-GS-TU | 78,5 | 392,7 | 16,9 | 164 | 214 | 162 | 130 | 100 | Tr.100x4 | 72 | 24 | 25 | M8x1,25 | 105 | 10 | 90 |
| | 100 | CSE50/100-GS-TU | 78,5 | 785,4 | 21,9 | 214 | 314 | 212 | 130 | 100 | Tr.100x4 | 72 | 24 | 25 | M8x1,25 | 105 | 10 | 90 |
| | 150 | CSE50/150-GS-TU | 78,5 | 1178,1 | 27,4 | 264 | 414 | 262 | 130 | 100 | Tr.100x4 | 72 | 24 | 25 | M8x1,25 | 105 | 10 | 90 |
| | 200 | CSE50/200-GS-TU | 78,5 | 1570,8 | 32,4 | 314 | 514 | 312 | 130 | 100 | Tr.100x4 | 72 | 24 | 25 | M8x1,25 | 105 | 10 | 90 |
| | 250 | CSE50/250-GS-TU | 78,5 | 1963,5 | 37,9 | 364 | 614 | 362 | 130 | 100 | Tr.100x4 | 72 | 24 | 25 | M8x1,25 | 105 | 10 | 90 |
| | 300 | CSE50/300-GS-TU | 78,5 | 2356,2 | 42,9 | 414 | 714 | 412 | 130 | 100 | Tr.100x4 | 72 | 24 | 25 | M8x1,25 | 105 | 10 | 90 |
| 100 /1001,97 | 50 | CSE100/50-GS-TU | 143,1 | 715,7 | 35,2 | 187 | 237 | 185 | 175 | 135 | Tr.135x6 | 92 | 33 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 100 | CSE100/100-GS-TU | 143,1 | 1431,4 | 44,7 | 237 | 337 | 235 | 175 | 135 | Tr.135x6 | 92 | 33 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 150 | CSE100/150-GS-TU | 143,1 | 2147,1 | 53,9 | 287 | 437 | 285 | 175 | 135 | Tr.135x6 | 92 | 33 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 200 | CSE100/200-GS-TU | 143,1 | 2862,8 | 63,5 | 337 | 537 | 335 | 175 | 135 | Tr.135x6 | 92 | 33 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 250 | CSE100/250-GS-TU | 143,1 | 3578,5 | 73,1 | 387 | 637 | 385 | 175 | 135 | Tr.135x6 | 92 | 33 | 33 | M12x1,75 | 150 | 22 | 90 |
| | 300 | CSE100/300-GS-TU | 143,1 | 4294,2 | 82,6 | 437 | 737 | 435 | 175 | 135 | Tr.135x6 | 92 | 33 | 33 | M12x1,75 | 150 | 22 | 90 |
| 150 /1496,77 | 50 | CSE150/50-GS-TU | 213,8 | 1069,1 | 59,4 | 209 | 259 | 207 | 215 | 165 | Tr.165x6 | 110 | 41 | 40 | M12x1,75 | 185 | 22 | 90 |
| | 100 | CSE150/100-GS-TU | 213,8 | 2138,2 | 73,5 | 259 | 359 | 257 | 215 | 165 | Tr.165x6 | 110 | 41 | 40 | M12x1,75 | 185 | 22 | 90 |
| | 150 | CSE150/150-GS-TU | 213,8 | 3207,4 | 87,7 | 309 | 459 | 307 | 215 | 165 | Tr.165x6 | 110 | 41 | 40 | M12x1,75 | 185 | 22 | 90 |
| | 200 | CSE150/200-GS-TU | 213,8 | 4276,5 | 102,3 | 359 | 559 | 357 | 215 | 165 | Tr.165x6 | 110 | 41 | 40 | M12x1,75 | 185 | 22 | 90 |
| | 250 | CSE150/250-GS-TU | 213,8 | 5345,6 | 116,4 | 409 | 659 | 407 | 215 | 165 | Tr.165x6 | 110 | 41 | 40 | M12x1,75 | 185 | 22 | 90 |
| | 300 | CSE150/300-GS-TU | 213,8 | 6414,7 | 131 | 459 | 759 | 457 | 215 | 165 | Tr.165x6 | 110 | 41 | 40 | M12x1,75 | 185 | 22 | 90 |

| CAP/Force | STROKE | MODEL | SECTION | VOLUME | MASS | DIMENSIONS in mm | | | | | | | | | | | | |
|-----------------|--------|-------------------|---------|---------|--------|------------------|------|-----|-----|-----|----------|-----|-----|-----|----------|-----|----|-------|
| ton (kN) | mm | | cm² | cm³ | kg | A | B | C | D | E | F | G | H | L | M | O | Z | Alpha |
| 200 /1984,70 | 50 | CSE200/50-GS-TU | 283,5 | 1417,6 | 85,8 | 238 | 288 | 236 | 250 | 190 | Tr.190x6 | 138 | 47 | 45 | M12x1,75 | 215 | 22 | 60 |
| | 100 | CSE200/100-GS-TU | 283,5 | 2835,3 | 105,5 | 288 | 388 | 286 | 250 | 190 | Tr.190x6 | 138 | 47 | 45 | M12x1,75 | 215 | 22 | 60 |
| | 150 | CSE200/150-GS-TU | 283,5 | 4252,9 | 124,6 | 338 | 488 | 336 | 250 | 190 | Tr.190x6 | 138 | 47 | 45 | M12x1,75 | 215 | 22 | 60 |
| | 200 | CSE200/200-GS-TU | 283,5 | 5670,6 | 144,3 | 388 | 588 | 386 | 250 | 190 | Tr.190x6 | 138 | 47 | 45 | M12x1,75 | 215 | 22 | 60 |
| | 250 | CSE200/250-GS-TU | 283,5 | 7088,2 | 163,5 | 438 | 688 | 436 | 250 | 190 | Tr.190x6 | 138 | 47 | 45 | M12x1,75 | 215 | 22 | 60 |
| | 300 | CSE200/300-GS-TU | 283,5 | 8505,9 | 183,1 | 488 | 788 | 486 | 250 | 190 | Tr.190x6 | 138 | 47 | 45 | M12x1,75 | 215 | 22 | 60 |
| 250 /2541,35 | 50 | CSE250/50-GS-TU | 363,0 | 1815,3 | 119,6 | 249 | 299 | 247 | 280 | 215 | Tr.215x6 | 148 | 53 | 52 | M12x1,75 | 245 | 22 | 60 |
| | 100 | CSE250/100-GS-TU | 363,0 | 3630,5 | 144,3 | 299 | 399 | 297 | 280 | 215 | Tr.215x6 | 148 | 53 | 52 | M12x1,75 | 245 | 22 | 60 |
| | 150 | CSE250/150-GS-TU | 363,0 | 5445,8 | 168,5 | 349 | 499 | 347 | 280 | 215 | Tr.215x6 | 148 | 53 | 52 | M12x1,75 | 245 | 22 | 60 |
| | 200 | CSE250/200-GS-TU | 363,0 | 7261,0 | 192,7 | 399 | 599 | 397 | 280 | 215 | Tr.215x6 | 148 | 53 | 52 | M12x1,75 | 245 | 22 | 60 |
| | 250 | CSE250/250-GS-TU | 363,0 | 9076,3 | 217,3 | 449 | 699 | 447 | 280 | 215 | Tr.215x6 | 148 | 53 | 52 | M12x1,75 | 245 | 22 | 60 |
| | 300 | CSE250/300-GS-TU | 363,0 | 10891,5 | 241,5 | 499 | 799 | 497 | 280 | 215 | Tr.215x6 | 148 | 53 | 52 | M12x1,75 | 245 | 22 | 60 |
| 300 /3036,15 | 50 | CSE300/50-GS-TU | 433,7 | 2168,7 | 158,9 | 278 | 328 | 276 | 305 | 235 | Tr.235x6 | 158 | 58 | 56 | M16x2 | 260 | 25 | 60 |
| | 100 | CSE300/100-GS-TU | 433,7 | 4337,4 | 187,7 | 328 | 428 | 326 | 305 | 235 | Tr.235x6 | 158 | 58 | 56 | M16x2 | 260 | 25 | 60 |
| | 150 | CSE300/150-GS-TU | 433,7 | 6506,0 | 216,4 | 378 | 528 | 376 | 305 | 235 | Tr.235x6 | 158 | 58 | 56 | M16x2 | 260 | 25 | 60 |
| | 200 | CSE300/200-GS-TU | 433,7 | 8674,7 | 245,2 | 428 | 628 | 426 | 305 | 235 | Tr.235x6 | 158 | 58 | 56 | M16x2 | 260 | 25 | 60 |
| | 250 | CSE300/250-GS-TU | 433,7 | 10843,4 | 274,4 | 478 | 728 | 476 | 305 | 235 | Tr.235x6 | 158 | 58 | 56 | M16x2 | 260 | 25 | 60 |
| | 300 | CSE300/300-GS-TU | 433,7 | 13012,1 | 303,2 | 528 | 828 | 526 | 305 | 235 | Tr.235x6 | 158 | 58 | 56 | M16x2 | 260 | 25 | 60 |
| 400 /4007,89 | 50 | CSE400/50-GS-TU | 572,6 | 2862,8 | 237,4 | 317 | 367 | 312 | 350 | 270 | Tr.270x6 | 196 | 67 | 65 | M16x2 | 300 | 25 | 60 |
| | 100 | CSE400/100-GS-TU | 572,6 | 5725,6 | 275,3 | 367 | 467 | 362 | 350 | 270 | Tr.270x6 | 196 | 67 | 65 | M16x2 | 300 | 25 | 60 |
| | 150 | CSE400/150-GS-TU | 572,6 | 8588,3 | 313,2 | 417 | 567 | 412 | 350 | 270 | Tr.270x6 | 196 | 67 | 65 | M16x2 | 300 | 25 | 60 |
| | 200 | CSE400/200-GS-TU | 572,6 | 11451,1 | 351,6 | 467 | 667 | 462 | 350 | 270 | Tr.270x6 | 196 | 67 | 65 | M16x2 | 300 | 25 | 60 |
| | 250 | CSE400/250-GS-TU | 572,6 | 14313,9 | 389,5 | 517 | 767 | 512 | 350 | 270 | Tr.270x6 | 196 | 67 | 65 | M16x2 | 300 | 25 | 60 |
| | 300 | CSE400/300-GS-TU | 572,6 | 17176,7 | 427,4 | 567 | 867 | 562 | 350 | 270 | Tr.270x6 | 196 | 67 | 65 | M16x2 | 300 | 25 | 60 |
| 500 /5114,32 | 50 | CSE500/50-GS-TU | 730,6 | 3653,1 | 342,9 | 357 | 407 | 352 | 400 | 305 | Tr.305x6 | 214 | 75 | 72 | M24x3 | 340 | 36 | 60 |
| | 100 | CSE500/100-GS-TU | 730,6 | 7306,2 | 392,7 | 407 | 507 | 402 | 400 | 305 | Tr.305x6 | 214 | 75 | 72 | M24x3 | 340 | 36 | 60 |
| | 150 | CSE500/150-GS-TU | 730,6 | 10959,3 | 442 | 457 | 607 | 452 | 400 | 305 | Tr.305x6 | 214 | 75 | 72 | M24x3 | 340 | 36 | 60 |
| | 200 | CSE500/200-GS-TU | 730,6 | 14612,3 | 491,8 | 507 | 707 | 502 | 400 | 305 | Tr.305x6 | 214 | 75 | 72 | M24x3 | 340 | 36 | 60 |
| | 250 | CSE500/250-GS-TU | 730,6 | 18265,4 | 541,5 | 557 | 807 | 552 | 400 | 305 | Tr.305x6 | 214 | 75 | 72 | M24x3 | 340 | 36 | 60 |
| | 300 | CSE500/300-GS-TU | 730,6 | 21918,5 | 590,8 | 607 | 907 | 602 | 400 | 305 | Tr.305x6 | 214 | 75 | 72 | M24x3 | 340 | 36 | 60 |
| 600 /5987,09 | 50 | CSE600/50-GS-TU | 855,3 | 4276,5 | 430,1 | 380 | 430 | 375 | 430 | 330 | Tr.330x6 | 244 | 81 | 80 | M24x3 | 370 | 36 | 60 |
| | 100 | CSE600/100-GS-TU | 855,3 | 8553,0 | 487,2 | 430 | 530 | 425 | 430 | 330 | Tr.330x6 | 244 | 81 | 80 | M24x3 | 370 | 36 | 60 |
| | 150 | CSE600/150-GS-TU | 855,3 | 12829,5 | 544,7 | 480 | 630 | 475 | 430 | 330 | Tr.330x6 | 244 | 81 | 80 | M24x3 | 370 | 36 | 60 |
| | 200 | CSE600/200-GS-TU | 855,3 | 17106,0 | 602,2 | 530 | 730 | 525 | 430 | 330 | Tr.330x6 | 244 | 81 | 80 | M24x3 | 370 | 36 | 60 |
| | 250 | CSE600/250-GS-TU | 855,3 | 21382,5 | 659,3 | 580 | 830 | 575 | 430 | 330 | Tr.330x6 | 244 | 81 | 80 | M24x3 | 370 | 36 | 60 |
| | 300 | CSE600/300-GS-TU | 855,3 | 25659,0 | 716,8 | 630 | 930 | 625 | 430 | 330 | Tr.330x6 | 244 | 81 | 80 | M24x3 | 370 | 36 | 60 |
| 800 /8149,09 | 50 | CSE800/50-GS-TU | 1164,2 | 5820,8 | 672,1 | 430 | 480 | 425 | 505 | 385 | Tr.385x6 | 292 | 95 | 90 | M24x3 | 440 | 36 | 60 |
| | 100 | CSE800/100-GS-TU | 1164,2 | 11641,6 | 751,6 | 480 | 580 | 475 | 505 | 385 | Tr.385x6 | 292 | 95 | 90 | M24x3 | 440 | 36 | 60 |
| | 150 | CSE800/150-GS-TU | 1164,2 | 17462,3 | 830,5 | 530 | 680 | 525 | 505 | 385 | Tr.385x6 | 292 | 95 | 90 | M24x3 | 440 | 36 | 60 |
| | 200 | CSE800/200-GS-TU | 1164,2 | 23283,1 | 909,5 | 580 | 780 | 575 | 505 | 385 | Tr.385x6 | 292 | 95 | 90 | M24x3 | 440 | 36 | 60 |
| | 250 | CSE800/250-GS-TU | 1164,2 | 29103,9 | 989 | 630 | 880 | 625 | 505 | 385 | Tr.385x6 | 292 | 95 | 90 | M24x3 | 440 | 36 | 60 |
| | 300 | CSE800/300-GS-TU | 1164,2 | 34924,7 | 1068 | 680 | 980 | 675 | 505 | 385 | Tr.385x6 | 292 | 95 | 90 | M24x3 | 440 | 36 | 60 |
| 1000 / 10643,72 | 50 | CSE1000/50-GS-TU | 1520,5 | 7602,7 | 965,7 | 484 | 534 | 479 | 570 | 440 | Tr.440x6 | 292 | 110 | 105 | M24x3 | 500 | 36 | 60 |
| | 100 | CSE1000/100-GS-TU | 1520,5 | 15205,3 | 1066,1 | 534 | 634 | 529 | 570 | 440 | Tr.440x6 | 292 | 110 | 105 | M24x3 | 500 | 36 | 60 |
| | 150 | CSE1000/150-GS-TU | 1520,5 | 22808,0 | 1167 | 584 | 734 | 579 | 570 | 440 | Tr.440x6 | 292 | 110 | 105 | M24x3 | 500 | 36 | 60 |
| | 200 | CSE1000/200-GS-TU | 1520,5 | 30410,6 | 1268 | 634 | 834 | 629 | 570 | 440 | Tr.440x6 | 292 | 110 | 105 | M24x3 | 500 | 36 | 60 |
| | 250 | CSE1000/250-GS-TU | 1520,5 | 38013,3 | 1368,9 | 684 | 934 | 679 | 570 | 440 | Tr.440x6 | 292 | 110 | 105 | M24x3 | 500 | 36 | 60 |
| | 300 | CSE1000/300-GS-TU | 1520,5 | 45616,0 | 1469,8 | 734 | 1034 | 729 | 570 | 440 | Tr.440x6 | 292 | 110 | 105 | M24x3 | 500 | 36 | 60 |

**CRI C**

30-1000 ton
Stroke 50-300 mm
700 bar

Series
CRI C

High tonnage cylinders oil return

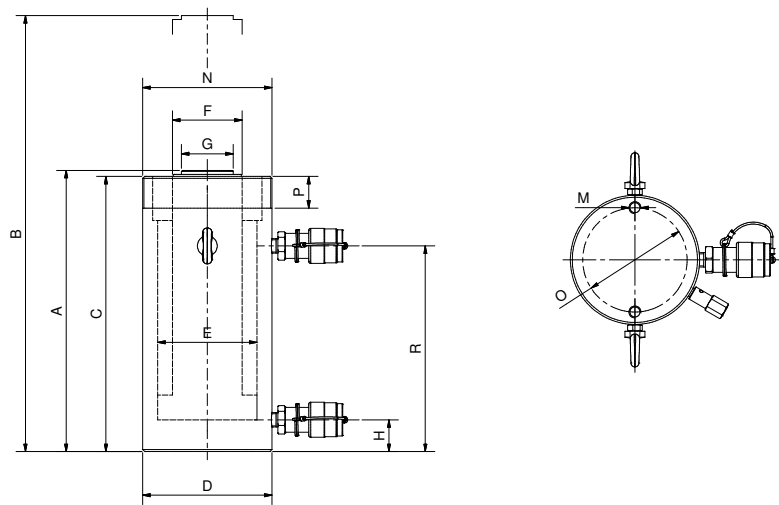


High tonnage Oil return

- 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 | STROKE | MODEL | SECTION cm² | | VOLUME cm³ | | MASS | DIMENSIONS in mm | | | | | | | | | | | | |
|-----------|--------|------------------|-------------|-------|------------|--------|------|------------------|-----|-----|-----|-----|-----|-----|----|-------|--------|-----|----|-------|
| ton (kN) | mm | | Push | Pull | Push | Pull | kg | A | B | C | D | E | F | G | H | M | N | O | P | R |
| 30 /309,2 | 30 | CRI-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-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 | STROKE | MODEL | SECTION cm² | | VOLUME cm³ | | MASSA | DIMENSIONS in mm | | | | | | | | | | | | |
|-------------|--------|----------------|-------------|-------|------------|--------|-------|------------------|-----|-----|-----|-----|-----|-----|-----|-------|--------|-----|----|-----|
| ton (kN) | mm | | Push | Pull | Push | Pull | kg | 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 | 359,9 | 5821 | 1799,5 | 608 | 404 | 454 | 400 | 505 | 385 | 320 | 297 | 100 | 3xM24 | M505x5 | 440 | 90 | 279 |
| | 100 | CRI-C-800/100 | 1164,2 | 359,9 | 11642 | 3599 | 674 | 454 | 554 | 450 | 505 | 385 | 320 | 297 | 100 | 3xM24 | M505x5 | 440 | 90 | 329 |
| | 150 | CRI-C-800/150 | 1164,2 | 359,9 | 17463 | 5398,5 | 740 | 504 | 654 | 500 | 505 | 385 | 320 | 297 | 100 | 3xM24 | M505x5 | 440 | 90 | 379 |
| | 200 | CRI-C-800/200 | 1164,2 | 359,9 | 23284 | 7198 | 806 | 554 | 754 | 550 | 505 | 385 | 320 | 297 | 100 | 3xM24 | M505x5 | 440 | 90 | 429 |
| | 250 | CRI-C-800/250 | 1164,2 | 359,9 | 29105 | 8997,5 | 872 | 604 | 854 | 600 | 505 | 385 | 320 | 297 | 100 | 3xM24 | M505x5 | 440 | 90 | 479 |
| | 300 | CRI-C-800/300 | 1164,2 | 359,9 | 34926 | 10797 | 938 | 654 | 954 | 650 | 505 | 385 | 320 | 297 | 100 | 3xM24 | M505x5 | 440 | 90 | 529 |
| 1000 /10644 | 50 | CRI-C-1000/50 | 1520,5 | 612,6 | 7602,5 | 3063 | 843 | 442 | 492 | 438 | 570 | 440 | 340 | 323 | 100 | 3xM24 | M570x5 | 440 | 90 | 317 |
| | 100 | CRI-C-1000/100 | 1520,5 | 612,6 | 15205 | 6126 | 921 | 492 | 592 | 488 | 570 | 440 | 340 | 323 | 100 | 3xM24 | M570x5 | 440 | 90 | 367 |
| | 150 | CRI-C-1000/150 | 1520,5 | 612,6 | 22807,5 | 9189 | 1000 | 542 | 692 | 538 | 570 | 440 | 340 | 323 | 100 | 3xM24 | M570x5 | 440 | 90 | 417 |
| | 200 | CRI-C-1000/200 | 1520,5 | 612,6 | 30410 | 12252 | 1079 | 592 | 792 | 588 | 570 | 440 | 340 | 323 | 100 | 3xM24 | M570x5 | 440 | 90 | 467 |
| | 250 | CRI-C-1000/250 | 1520,5 | 612,6 | 38012,5 | 15315 | 1158 | 642 | 892 | 638 | 570 | 440 | 340 | 323 | 100 | 3xM24 | M570x5 | 440 | 90 | 517 |
| | 300 | CRI-C-1000/300 | 1520,5 | 612,6 | 45615 | 18378 | 1236 | 692 | 992 | 688 | 570 | 440 | 340 | 323 | 100 | 3xM24 | M570x5 | 440 | 90 | 567 |

Series
CDE

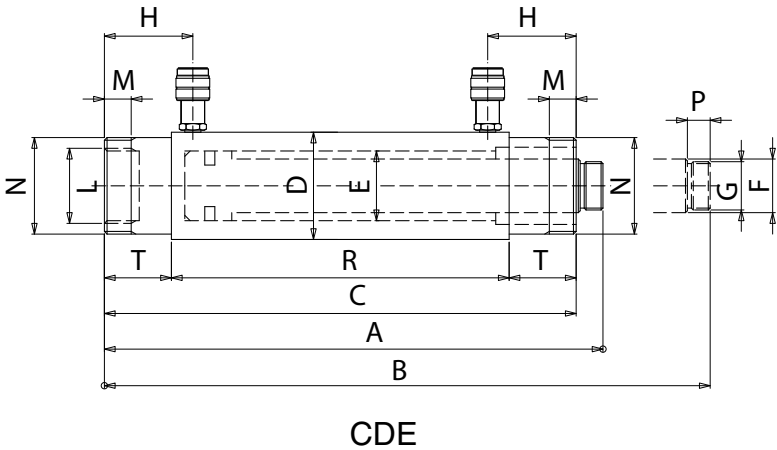
Push-pull double acting cylinders

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.

CUSTOM CYLINDERS ON REQUEST



| CAP | STROKE | MODEL | FORCE MAX kN | | SECTION cm² | | VOLUME cm³ | | MASS | DIMENSIONS in mm | | | | | | | | | | | | | |
|-----|--------|------------|--------------|-------|-------------|------|------------|-------|------|------------------|-----|-----|-----|----|----|----------|----|----------|----|----------|----|-----|----|
| ton | mm | | Push | Pull | Push | Pull | Push | Pull | kg | 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

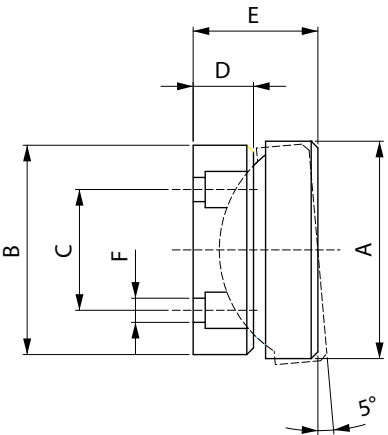
Accessories for cylinders

| 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 ½" - 16 UN | 15 | 44 | 0,5 |
| TFO 30 | CRM 30 | 54 | 58 | 1 ½" - 16 UN | 15 | 46 | 0,6 |
| TAL 30 | CRI 30 | 54 | 57 | 28 | 18 | 49,5 | 0,7 |

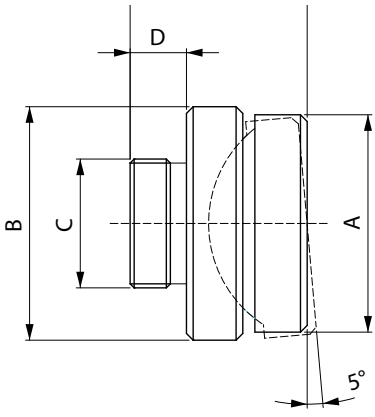
| MODEL | CYLINDER MODEL | A | B | C | D | E | F | WEIGHT Kg |
|---------|--|-----|-----|-----|----|----|------------|-----------|
| TPO 30 | CRMA 30 - CRI-C 50 | 54 | 52 | 30 | 15 | 31 | 5,5 (N°2) | 0,45 |
| TPO 50 | CSE-50-TU - CSE-50-GS-TU - CRM 50 - CRMA 50 | 66 | 72 | 50 | 17 | 35 | 6,5 (N°2) | 0,85 |
| TPO 100 | CSE-100-TU - CSE-100-GS-TU - CRM 100 - CRMA 100 - CRI-C 100 | 96 | 92 | 50 | 22 | 43 | 6,5 (N°2) | 1,9 |
| TPO 150 | CSE-150-TU - CSE-150-GS-TU - CRI-C 150 | 116 | 110 | 70 | 21 | 45 | 6,5 (N°2) | 2,8 |
| TPO 200 | CSE-200-TU - CSE-200-GS-TU - CRI-C 200 | 136 | 138 | 90 | 25 | 51 | 6,5 (N°2) | 5,2 |
| TPO 250 | CSE-250-TU - CSE-250-GS-TU - CRI-C 250 | 146 | 148 | 90 | 25 | 51 | 6,5 (N°2) | 6 |
| TPO 300 | CSE-300-TU - CSE-300-GS-TU - CRI-C 300 | 156 | 158 | 120 | 25 | 52 | 6,5 (N°2) | 6,9 |
| TPO 400 | CSE-400-TU - CSE-400-GS-TU - CRI-C 400 | 194 | 196 | 160 | 25 | 55 | 8,5 (N°2) | 12,2 |
| TPO 500 | CSE-500-TU - CSE-500-GS-TU - CRI-C 500 | 210 | 214 | 170 | 25 | 55 | 8,5 (N°2) | 14,5 |
| TPO 600 | CSE-600-TU - CSE-600-GS-TU - CRI-C 600 | 240 | 244 | 210 | 27 | 59 | 8,5 (N°2) | 21,2 |
| TPO 800 | CSE-800-TU - CSE-800-GS-TU - CRI-C 800 - CSE-1000-TU - CSE-1000-GS-TU - CRI-C 1000 | 288 | 292 | 250 | 32 | 72 | 10,5 (N°2) | 32,4 |

* Models TPO 10 and TPO 20 are available for out-of-print cylinders

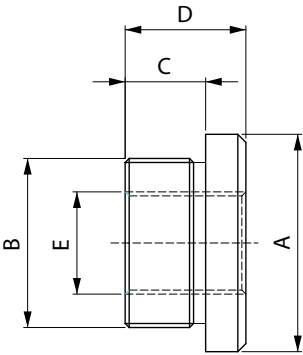
| MODEL | CYLINDER MODEL | A | B | C | D | E | WEIGHT Kg |
|---------|----------------------------|--------|---------|----|----|-----------------|-----------|
| TFF 10 | CRM10/**FO | Ø 34,5 | M28x1,5 | 15 | 20 | M18x2,5 | 0,1 |
| TFF 20 | CRM20/**FO | Ø 44,5 | M35x1,5 | 15 | 23 | 1" – 8 UNC | 0,29 |
| TFF 30 | CRM30/**FO CRI30/**FO | Ø 57 | M45x2 | 29 | 36 | 1" ¼-7 UNC | 0,35 |
| TFF 60 | CRM60/**FO CRI60/**FO | Ø 90 | M72x1,5 | 29 | 37 | 1" 5/8-51/2 UNS | 1,00 |
| TFF 100 | CRM100/**FO CRI100/**FO | Ø 125 | M105x2 | 31 | 40 | M76x6 | 1,50 |
| TFF 150 | CRI150/**FO | Ø 139 | M105x2 | 43 | 57 | M80x6 | 2,8 |



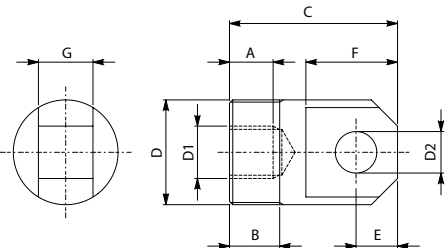
TPO



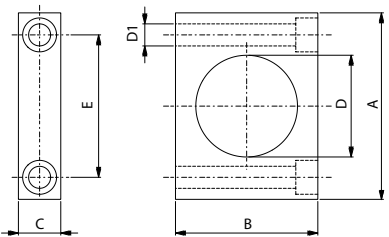
TAL - TFO



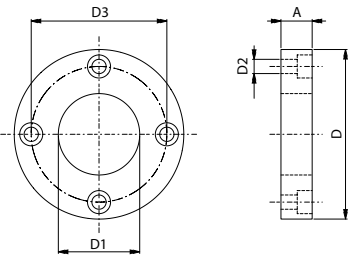
TFF



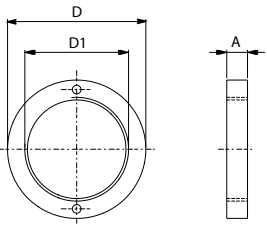
DEO



DEP



DEF



DEA

| Model | Cylinder model | DIMENSIONS in mm | | | | | | | | | |
|--------|----------------|------------------|---------|----|----|----|-----|----|----|----|-----------|
| | | D | D1 | D2 | A | B | C | E | F | G | Weight kg |
| 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 | | | | | |
|--------|----------------|------------------|-----|------|-----|----|-----------|
| | | D | D1 | D2 | D3 | A | Weight 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 |
| DEF 30 | CDE 30 | 199 | 105 | 19 | 165 | 50 | 7.9 |







| Model | Cylinder model | DIMENSIONS in mm | | | |
|--------|----------------|------------------|---------|----|-----------|
| | | D | D1 | A | Weight kg |
| 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 |

F.P.T. HAND PUMPS from 700 to 4.000 bar

F.P.T. manufactures a wide range of high pressure hand pumps, available in multiple configurations with different tank capacities, valves, construction's materials and types of fluid to be pumped. High performance, easy to use and toughness are the characteristics that distinguish them.



INDEX HAND PUMPS

| | Oil tank capacity (litres) | cm³/stroke | Series | | |
|---|----------------------------|------------|-------------------------|---|------|
| Single speed | 0,7 - 4 | 3 | PMSA |  | 56 |
| Two speed | 1 - 9 | 122 - 4,8 | PDSA |  | 58 |
| Two speed for double acting cylinder | 1,8 - 9 | 122 - 4,8 | PDSA DE |  | 60 |
| Very high pressure 1600 - 3000 - 4000 bar | 1,8 | 40 - 1 | PMSA-PDSA |  | 62 |
| For diversified utilizations – stainless steel made | 0,5 - 2 | 36,2 | PS-PSS |  | 64 |
| Hand pumps for use with water | 1,8 | 40 - 3 | PDSA-40H ₂ O |  | 66 |
| | | | | | PAGE |

F.P.T. HAND PUMPS

High pressure hand pumps produced in light aluminum alloy of aeronautics grade to minimize weight. Operating pressure from 700 to 4.000 bar.

Used in multiple fields of application, they represent an important tool, essential wherever there is no source of energy.

ALUMINUM ALLOY OF AERONAUTICS GRADE LIGHTWEIGHT AND EXTREMELY TOUGH

The use of this type of material reduces weights of the pump and the fatigue of the operator to their lowest increasing the handling and portability, even in environments that are difficult to reach. Designed to withstand critical conditions of work, fast and with low effort on the lever. The ideal tool.

CUSTOM HAND PUMPS ON CUSTOMER'S REQUEST

On request:

- Viton - Ethylene propylene special gaskets
- Various oil tank capacities available
- Customizable with additional relief valves.
- For hydrostatic tests with fluids different from oil.
- Dimensions, fixing holes, valve blocks to customer specification.

Tough pins with trough-holes for fixing to machinery or structures.

Oil filler cap with integrated vent

Surface treatments to guarantee total reliability in the most difficult environments and the maximum duration.

Designed to have high performance, maintaining optimal effort on the lever.

Lever locking system for easy and better portability.

Pressure gauge connection integrated that allows the direct assembly of the measuring instrument.

Low weight and excellent ergonomics. Heavy duty design.

Pressure relief valve integrated in the pump body for top operator's safety.

Equipped with an ergonomic bypass handle in techno polymer for the controlled pressure relief.

Two-stage models with very high flow at low pressure for the maximum speed during operations.

H2O HAND PUMPS – WATER FLUID USE



FPT produces a range of hand pumps that can be used with water. This choice is a solution that protects the environment and can be used anywhere as the water is an eco-friendly fluid. It can therefore be operated in any environment. The H2O series is very popular in laboratories for pressure testing, on-site tests and in all those situations where contamination with oil is not allowed.

PUMP CODE DESCRIPTION

The coding table of the hand pumps shows the various possibilities of range, choice of materials, type of drive and tank capacities available. This table, in addition to the request for custom pumps, may be useful to identify an F.P.T. hand pump in your possession and request spare parts or a new one.

| PMS | A | 3,5 | DE | 4 | V | |
|--|--|----------------------------------|-------------------------------------|----------------------------|----------------------------------|--|
| PMS – SINGLE SPEED PUMP PDS – DOUBLE SPEED PUMP PS - SINGLE PISTON | A ALLUMINIUM H ₂ O STAINLESS STEEL | OIL FLOW cm ³ /STROKE | DE DOUBLE ACTING FC FOOT CONTROL | OIL TANK CAPACITY (litres) | V VITON EP ETHYLENE PROPYLENE | FOR SPECIAL PUMPS CUSTOMER IDENTIFICATION |

PMSA

700 bar
3 cm³ oil flow
0,7 - 4 l capacity

Series
PMSA

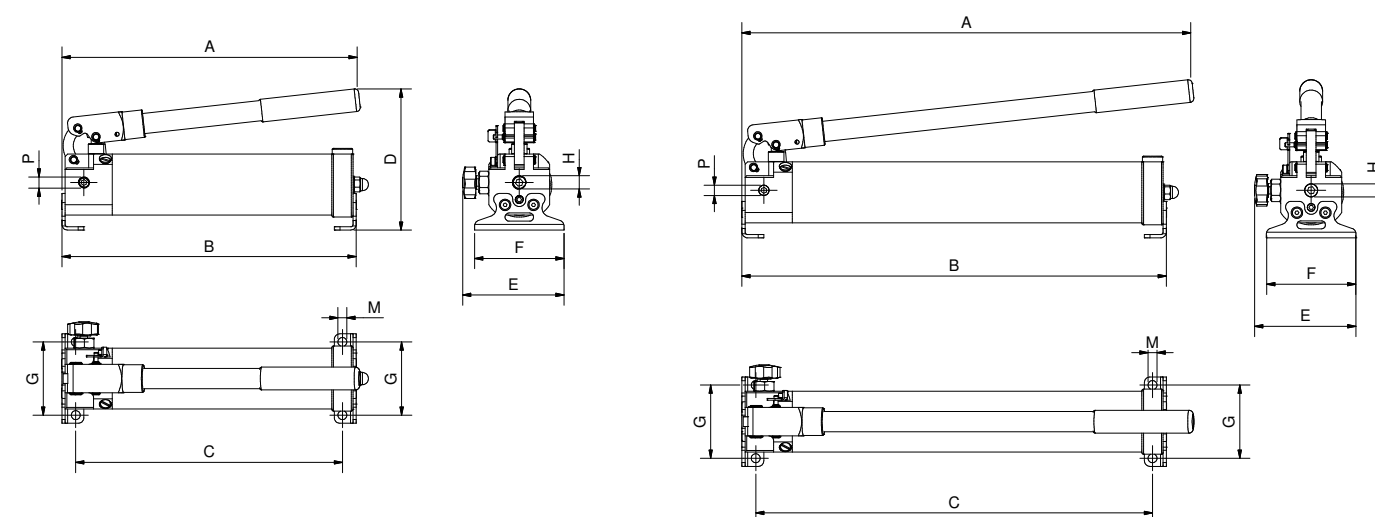
Single speed hand pump aluminium

Compact and light weight



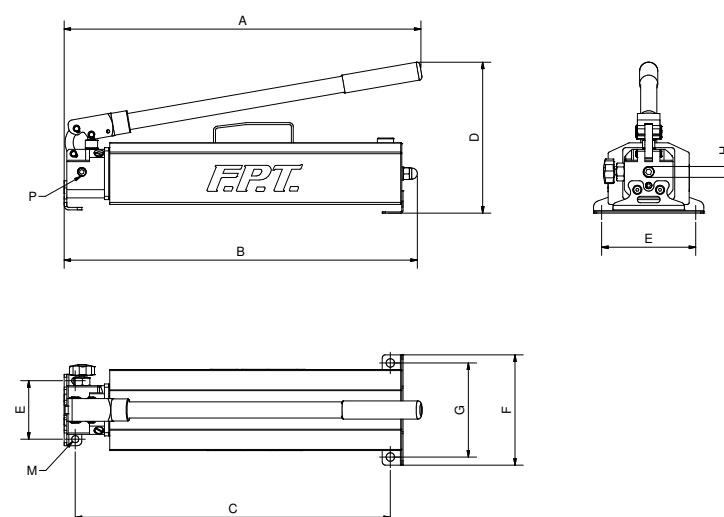
- High pressure hand pumps manufactured in light alloy aluminum of aeronautical grade to minimize the weight.
- Single stage version with a maximum flow rate of 3 cc per stroke suitable for single acting applications.
- Pressure relief valve integrated in the pump body for maximum operator safety.
- High performance, low weight and excellent ergonomics.

- Integrated pressure gauge connection for direct assembly of measuring instrument.
- Oil filler cap with integrated breather. Tough pins with trough-holes for attachment to machinery or structures.
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration.



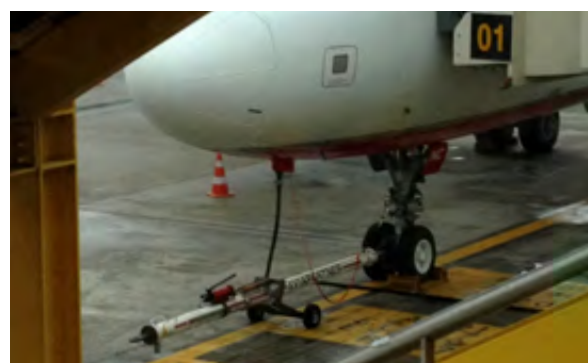
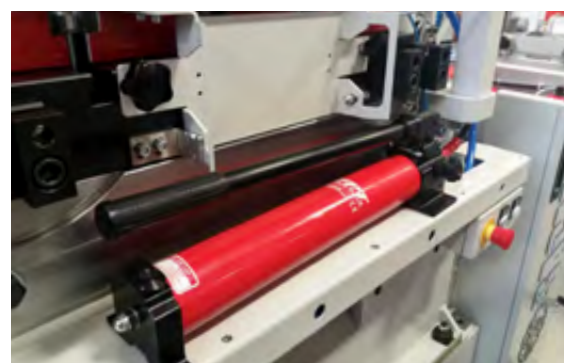
PMSA-2

PMSA-3



PMSA - 3/L3

CUSTOM PUMPS ON REQUEST



| MODEL | PRESSURE max | OIL DISPLACEMENT STROKE | RESERVOIR CAPACITY | USABLE OIL | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|-------------|--------------|-------------------------|--------------------|------------|------------------|-----|-------|-----|-------|-----|-----|----------|----|----------|--------|
| | bar | cm ³ | litres | litres | A | B | C | D | E | F | G | H | M | P | kg |
| PMSA - 2 | 700 | 2 | 0,7 | 0,5 | 367 | 362 | 328 | 175 | 124,5 | 110 | 90 | 3/8" NPT | 11 | 1/4" NPT | 3,5 |
| PMSA - 3 | 700 | 3 | 1,3 | 1 | 555 | 522 | 488 | 195 | 135 | 110 | 90 | 3/8" NPT | 11 | 1/4" NPT | 4,6 |
| PMSA - 3/L3 | 700 | 3 | 4 | 3 | 556 | 544 | 485,5 | 233 | 90 | 170 | 145 | 3/8" NPT | 13 | 1/4" NPT | 8,5 |

PDSA

700 bar
122 - 2,6 cm³ oil flow
1 - 9 l capacity

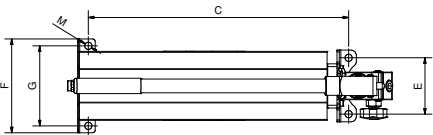
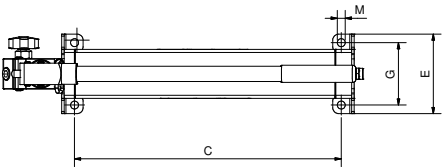
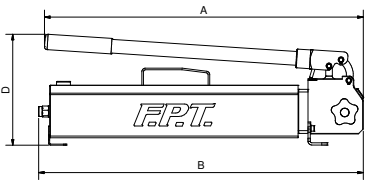
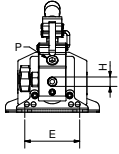
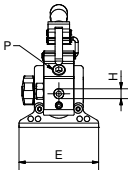
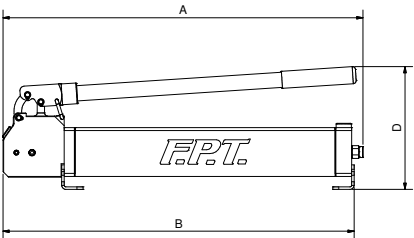
Series
PDSA

Two speed hand
pump aluminium



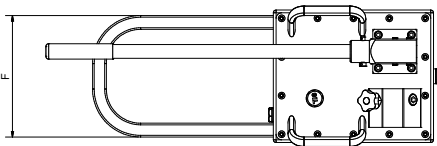
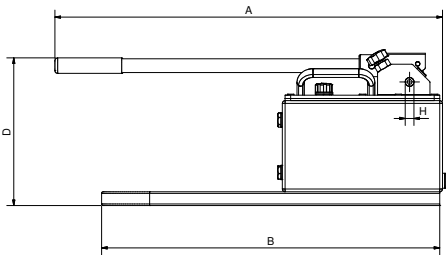
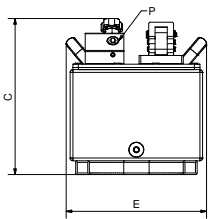
For maximum
performance

- High pressure hand pumps manufactured in light alloy of aeronautical grade aluminum to minimize the weight.
- Two speed version first stage 40 cc flow rate for rapid approach and 3 cc at the second stage. For maximum speed during operations.
- Pressure relief valve integrated in the pump body for maximum operator safety.
- High performance, low weight and excellent ergonomics.
- Integrated pressure gauge connection for direct assembly of measuring instrument.
- Oil filler cap with integrated breather. Tough pins with trough-holes for attachment to machinery or structures.
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration.



PDSA 40C - PDSA-40

PDSA-40 L4/L8



PDS-120-SE

CUSTOM PUMPS ON REQUEST



| MODEL | PRESSURE 1 ST /2 ND STAGE | OIL FLOW 1 ST /2 ND STAGE | RESERVOIR CAPACITY | USABLE OIL | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|----------------|--|--|-----------------------|---------------|------------------|-----|-------|-----|-----|-----|-----|----------|----|--------|--------|
| | bar | cm ³ | litres | litres | A | B | C | D | E | F | G | H | M | P | kg |
| PDSA-40C | 25/700 | 40/1 | 1 | 0,9 | 392,5 | 378 | 240 | 190 | 130 | 130 | 102 | 3/8" NPT | 13 | G 1/2" | 5,5 |
| PDSA - 40 | 25/700 | 40/3 | 1,8 | 1,6 | 590 | 477 | 435 | 200 | 130 | 130 | 102 | 3/8" NPT | 13 | G 1/2" | 7,8 |
| PDSA - 40 L4 | 25/700 | 40/2,6 | 4 | 3,2 | 578 | 588 | 471,5 | 201 | 102 | 170 | 145 | 3/8" NPT | 13 | G 1/2" | 11 |
| PDSA - 40 L8 | 25/700 | 40/2,6 | 8 | 6,3 | 578 | 588 | 471,5 | 201 | 102 | 290 | 265 | 3/8" NPT | 13 | G 1/2" | 16,5 |
| PDS - 120 - SE | 20/700 | 122/4,8 | 9 | 7,5 | 702 | 617 | 326 | 269 | 253 | 220 | - | 3/8" NPT | - | G 1/2" | 22,5 |

PDSA DE

700 bar
40 - 3 cm³ oil flow
1,8 - 9 l capacity

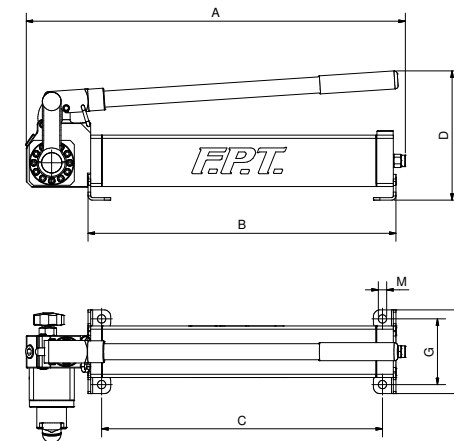
Series
PDSA DE

Two speed hand pump aluminium, for double acting cylinders

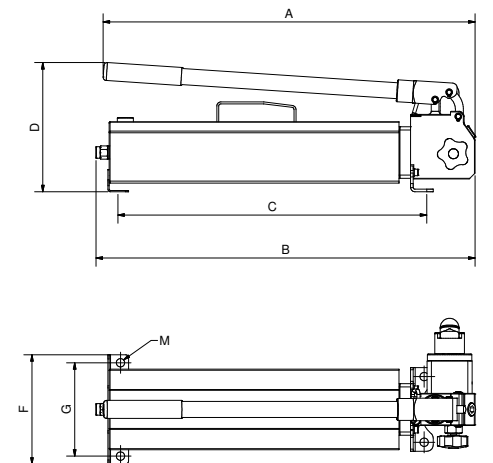
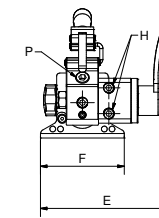
For maximum Performance



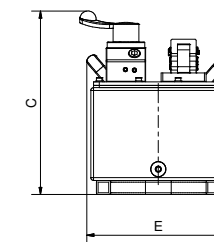
- High pressure hand pumps manufactured in light alloy of aeronautical grade aluminum to minimize the weight.
- Double stage version for double acting cylinders, with first stage 40 cc flow rate for rapid approach and 3 cc at the second stage. For maximum speed during operations.
- Pressure relief valve integrated in the pump body for maximum operator safety.
- High performance, low weight and excellent ergonomics.
- Integrated pressure gauge connection for direct assembly of measuring instrument.
- Oil filler cap with integrated breather. Tough pins with trough-holes for attachment to machinery or structures.
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration



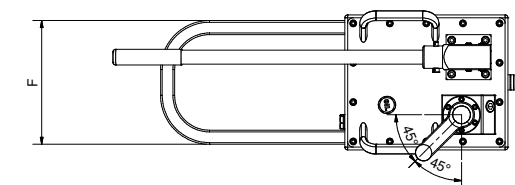
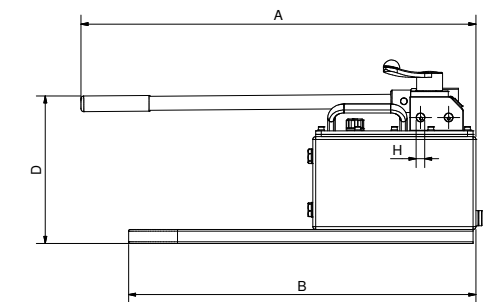
PDSA-40-DE



PDSA-40-DE L4/L8



PDS-120-DE



CUSTOM PUMPS ON REQUEST



| MODEL | PRESSURE 1 ST /2 ND STAGE | OIL FLOW 1 ST /2 ND STAGE | RESERVOIR CAPACITY | USABLE OIL | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|---------------|--|--|-----------------------|---------------|------------------|-----|-------|-----|-----|-----|-----|----------|----|--------|--------|
| | bar | cm ³ | litres | litres | A | B | C | D | E | F | G | H | M | P | kg |
| PDSA-40-DE | 25/700 | 40/3 | 1,8 | 1,6 | 590 | 477 | 435 | 200 | 207 | 130 | 102 | 3/8" NPT | 13 | G 1/2" | 9 |
| PDSA-40-DE L4 | 25/700 | 40/2,6 | 4 | 3,2 | 578 | 588 | 471,5 | 201 | 102 | 170 | 145 | 3/8" NPT | 13 | G 1/2" | 12 |
| PDSA-40-DE L8 | 25/700 | 40/2,6 | 8 | 6,3 | 578 | 588 | 471,5 | 201 | 102 | 290 | 265 | 3/8" NPT | 13 | G 1/2" | 17,5 |
| PDS-120-DE | 20/700 | 122/4,8 | 9 | 7,5 | 702 | 617 | 326 | 269 | 253 | 220 | - | 3/8" NPT | - | G 1/2" | 22,5 |

PMSA - PDSA

1.600 - 3.000 - 4.000 bar
1,8 l capacity

Series
**PMSA -
PDSA**

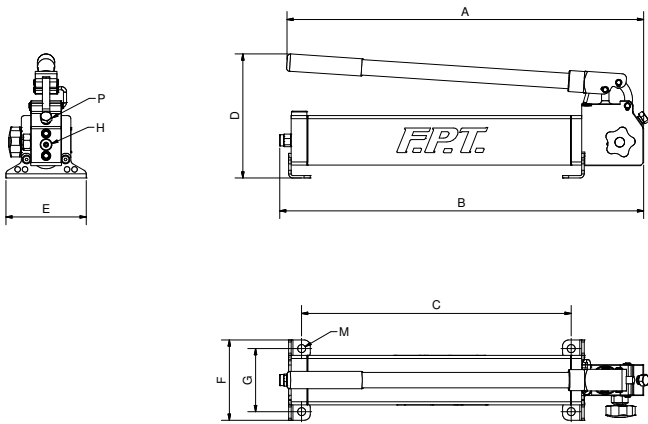
Hand pumps for very high pressures: 1.600 - 3.000 - 4000 bar, aluminium



For very high pressure

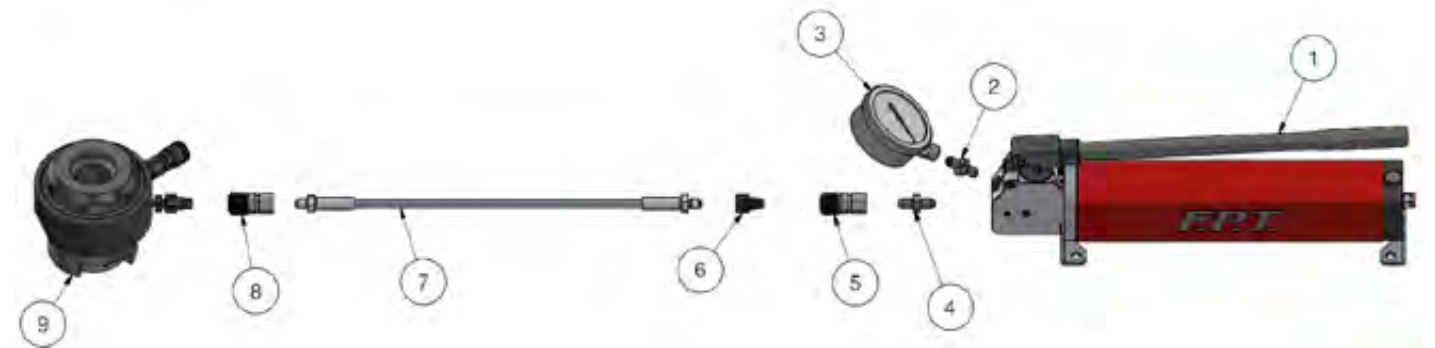
- High pressure hand pumps manufactured in light alloy of aeronautical grade aluminum to minimize the weight.
- Two-stage versions 1.600 bar and 3.000 bar with first stage 40 cc oilflow for rapid approach and second stage 0.5 and 1 cc. And 0.5 cc per stroke 4,000 bar single-stage version.
- Pump body integrated pressure relief valve for maximum operator safety.
- Very high pressure, high performance, reduced effort on the handle, excellent weight and ergonomics.
- Integrated pressure gauge connection for direct mounting of the measuring tool.
- Oil filler cap with integrated breather. Tough pins with trough-holes for attachment to machinery or structures.
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration.

CUSTOM PUMPS ON REQUEST



PDSA 1600 - 3000 - 4000

| PUMP | MODEL | PRESSURE | OIL FLOW | RESERVOIR | USABLE | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|--------------|-----------|--|--|-----------|--------|------------------|-------|-----|-----|-----|-----|-----|--------------|----|--------------|--------|
| | | 1 ST /2 ND STAGE | 1 ST /2 ND STAGE | CAPACITY | OIL | A | B | C | D | E | F | G | H | M | P | kg |
| TWO-SPEED | PDSA-1600 | 25/1600 | 40/1 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 1/4" GAS | 13 | 1/2" GAS | 7,8 |
| TWO-SPEED | PDSA-3000 | 16/3000 | 40/0,5 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 3/4"-16 UNF | 13 | 9/16"-18 UNF | 7,8 |
| SINGLE-SPEED | PMS-4000 | 4000 | 0,5 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 9/16"-18 UNF | 13 | 9/16"-18 UNF | 7,8 |



Configuration No.1 – Quick coupler on pump
Configuration No.2 – Flex hose directly assembled on the pump

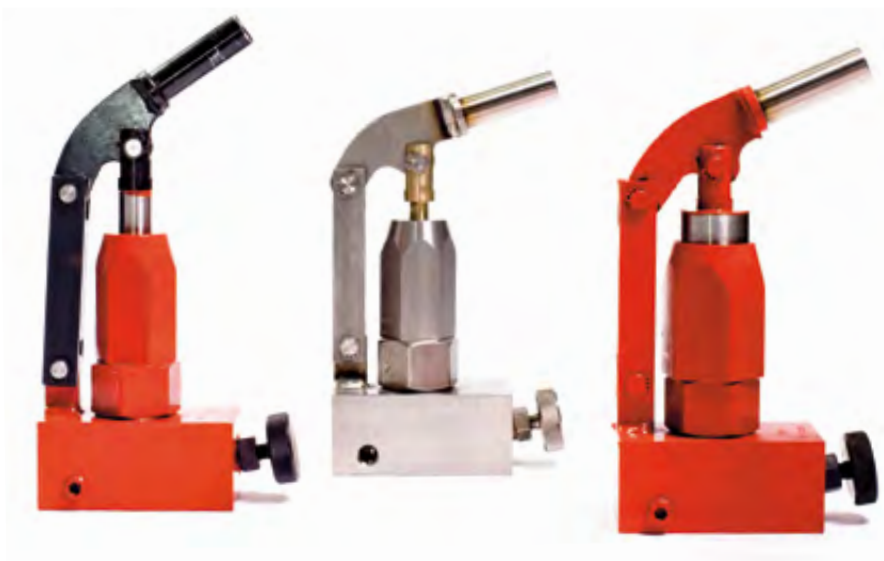
| | 1500 Bar - Config.1 | 1500 Bar - Config.2 | 1600 Bar - Config.1 | 1600 Bar - Config.2 | 2500 Bar - Config.1 | 2500 Bar - Config.2 | 3000 Bar - Config.1 | 3000 Bar - Config.2 | 4000 Bar - Config.1 | 4000 Bar - Config.2 |
|------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| ITEM | CODE | CODE | CODE | CODE | CODE | CODE | CODE | CODE | CODE | CODE |
| 1 | 01PDSA1600 | 01PDSA1600 | 01PDSA1600 | 01PDSA1600 | 01PDSA3000 | 01PDSA3000 | 01PDSA3000 | 01PDSA3000 | 01PMS4000 | 01PMS4000 |
| 2 | - | - | - | - | 0922225016 | 0922225016 | 0922225016 | 0922225016 | 0922225016 | 0922225016 |
| 3 | 01MD200G | 01MD200G | 01MD200G | 01MD200G | 01MD300G | 01MD300G | 01MD300G | 01MD300G | 01MD400G | 01MD400G |
| 4 | 0925613265 | - | 0925613265 | - | 09299199501611 | 0929112241 | 0922225257 | 09222199501606 | 0922225016 | - |
| 5 | 07GR15F | - | 07GR20F | - | 07GR25F | - | 07GR30F | - | 07GR40F-M16 | - |
| 6 | 07GR15M | - | 07GR20M | - | 07GR25M | - | 07GR30M | - | 07GR40M-M16 | - |
| 7 | 01TFR#/1800 | 01TFR#/1800 | 01TFR#/1800 | 01TFR#/1800 | 01TFR#/2500 | 01TFR#/2500 | 01TFR#/3000M16D | 01TFR#/3000M16G | 01TFR#/4000M16D | 01TFR#/4000M16H |
| 8 | 07GR15F | 07GR15F | 07GR20F | 07GR20F | 07GR25F | 07GR25F | 07GR30F | 07GR30F | 07GR40F-M16 | 07GR40F-M16 |
| 9 | Utilization | Utilization | Utilization | Utilization | Utilization | Utilization | Utilization | Utilization | Utilization | Utilization |

insert length of the hose expressed in meters.

PS-PSS
35 - 2000 bar
0,7 - 36,2 cm³ oil flow

Series
PS-PSS **Pumps for diverse utilizations
from 35 to 2000 bar**

**For being
flexible**

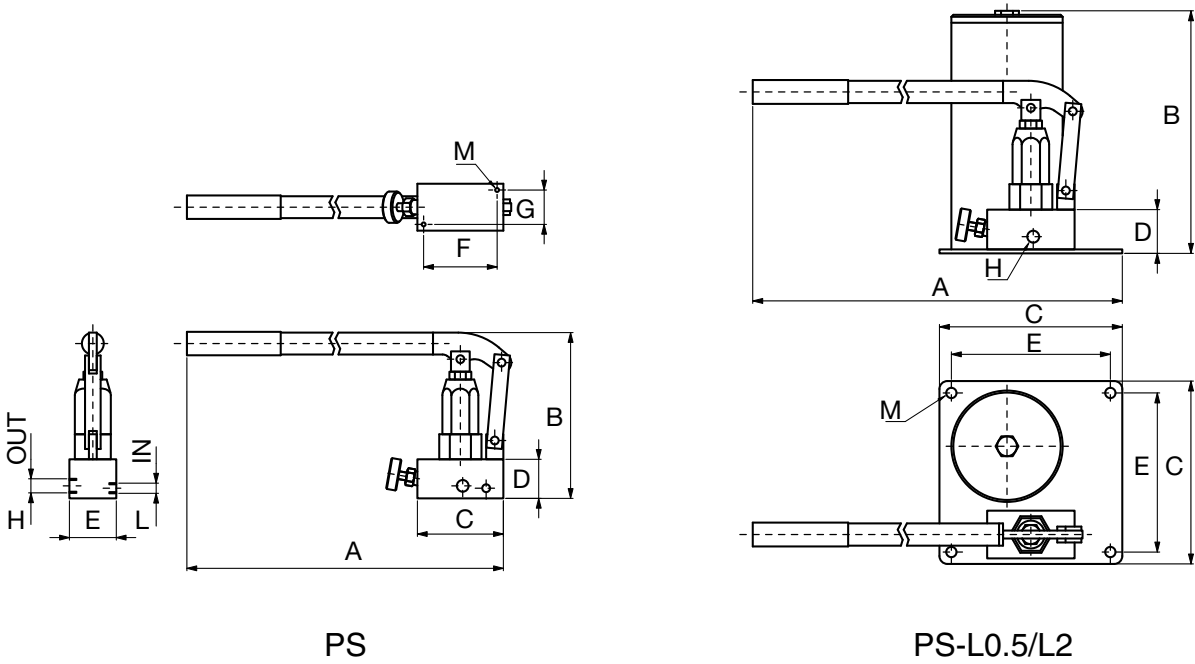


- High pressure hand pump available in steel series, with or without tank (PS - PSL)
- To use with water, H2O series with body and stainless steel components available (PSS - PSSL).
- Available in different single-stage arrangements with maximum working pressure: 35 - 105 - 210 - 700 - 1400 - 2000 bar. Suitable for single acting applications.



- Equipped with a bypass handwheel for controlled discharge of the pressure
- Pumps without pressure relief valve, designed to be integrated into any existing circuit.
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration.

CUSTOM PUMPS ON REQUEST



| MATERIAL | MODEL | Ø PISTON | PRESSURE | OIL FLOW | RESERVOIR CAPACITY | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|-----------------|------------------|----------|----------|----------|--------------------|------------------|-----|-----|----|-----|----|----|----------|----------|----|--------|
| | | mm | | | | A | B | C | D | E | F | G | H | L | M | |
| STEEL | PS - 34 | 38 | 35 | 36,2 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 7 |
| STEEL | PS - 17 | 26 | 105 | 17,87 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,7 |
| STEEL | PS - 9 | 19 | 210 | 9,92 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,3 |
| STEEL | PS - 3,6 | 12 | 700 | 3,92 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,3 |
| STEEL | PS - 2,5 | 9,5 | 1400 | 2,6 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,3 |
| STEEL | PS - 0,7 | 7 | 2000 | 0,7 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 1/4" GAS | 1/4" GAS | M8 | 5,3 |
| STEEL | PS - 34 / L2 | 38 | 35 | 36,2 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 12 |
| STEEL | PS - 17 / L2 | 26 | 105 | 17,87 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,7 |
| STEEL | PS - 9 / L2 | 19 | 210 | 9,92 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,3 |
| STEEL | PS - 3,6 / L2 | 12 | 700 | 3,92 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,3 |
| STEEL | PS - 2,5 / L2 | 9,5 | 1400 | 2,6 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,3 |
| STEEL | PS - 0,7 / L0,5 | 7 | 2000 | 0,7 | 0.5 | 690 | 225 | 206 | 70 | 168 | | | 1/4" GAS | | 13 | 8,8 |
| STAINLESS STEEL | PSS - 34 | 38 | 35 | 36,2 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 7 |
| STAINLESS STEEL | PSS - 17 | 26 | 105 | 17,87 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,7 |
| STAINLESS STEEL | PSS - 9 | 19 | 210 | 9,92 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,3 |
| STAINLESS STEEL | PSS - 3,6 | 12 | 700 | 3,92 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,3 |
| STAINLESS STEEL | PSS - 2,5 | 9,5 | 1400 | 2,6 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 3/8" NPT | 1/4" GAS | M8 | 5,3 |
| STAINLESS STEEL | PSS - 0,7 | 7 | 2000 | 0,7 | - | 640 | 230 | 110 | 50 | 60 | 94 | 44 | 1/4" GAS | 1/4" GAS | M8 | 5,3 |
| STAINLESS STEEL | PSS - 34 / L2 | 38 | 35 | 36,2 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 12 |
| STAINLESS STEEL | PSS - 17 / L2 | 26 | 105 | 17,87 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,7 |
| STAINLESS STEEL | PSS - 9 / L2 | 19 | 210 | 9,92 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,3 |
| STAINLESS STEEL | PSS - 3,6 / L2 | 12 | 700 | 3,92 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,3 |
| STAINLESS STEEL | PSS - 2,5 / L2 | 9,5 | 1400 | 2,6 | 2 | 700 | 310 | 230 | 70 | 200 | | | 3/8" NPT | | 13 | 10,3 |
| STAINLESS STEEL | PSS - 0,7 / L0,5 | 7 | 2000 | 0,7 | 0.5 | 690 | 225 | 206 | 70 | 168 | | | 1/4" GAS | | 13 | 8,8 |

PDS/PMS H₂O

700 - 4000 bar
40 - 0,5 cm³
oil flow
1,6 l capacity

Series
PDS/PMS H₂O

**Hand pumps for use
with water, in aluminum
and stainless steel**

**For use with
water H₂O**



- High pressure hand pumps suitable for use with water H₂O. This choice is a solution that protects the environment and can be used everywhere as the water is completely green.
- Suitable for all applications where contamination with oil is not allowed.
- Two-stage version with first stage 40 cc oil flow for a quick approach. For maximum speed during the operations.
- Pump body integrated pressure relief valve for maximum operator's safety.

- High performance, low weight and excellent ergonomics.
- Integrated pressure gauge connection for direct mounting of the measuring instrument.
- Oil filler cap with integrated vent. Tough pins with trough-holes for fixing to machinery or structures
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration.

CUSTOM PUMPS ON REQUEST



CUSTOM MADE EQUIPMENT

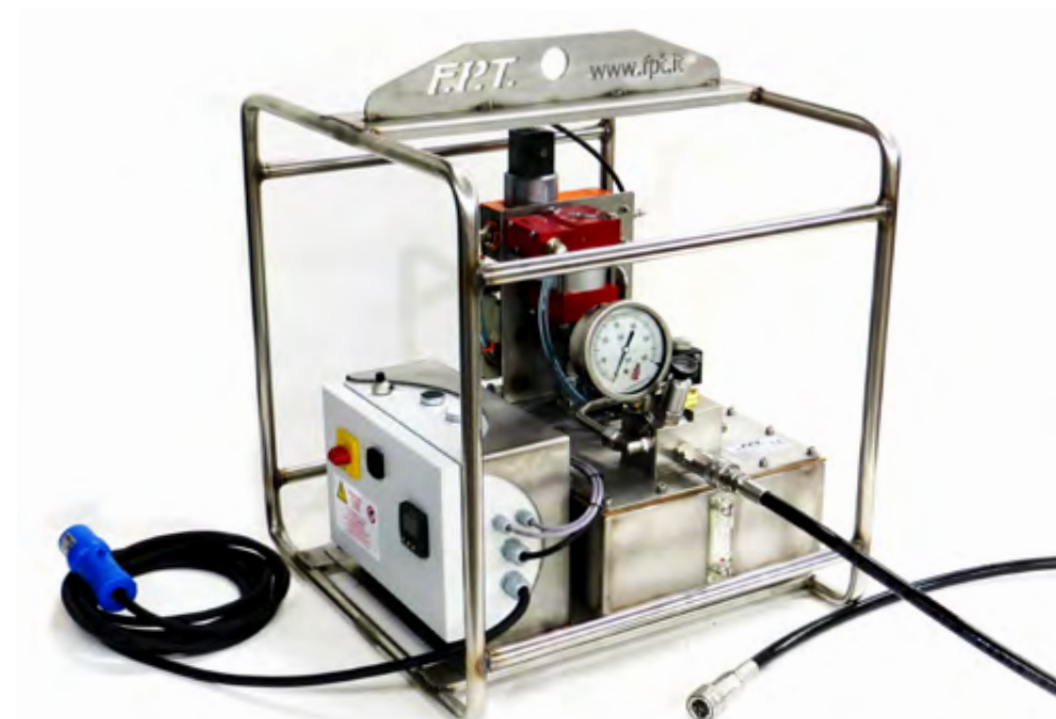
H₂O version ►

For years F.P.T. cares of the environment and its protection. It has in fact various products suitable for use with water or fluids, 100% biodegradable.

This type of product is highly appreciated in all those sectors where, for obvious reasons, contamination with chemical and petroleum products is not allowed. Such as test laboratories, marine environment, food, testing, archaeological, restorations.

Manufacturable products range over stainless steel hydraulic cylinders, valves, hand pumps, stainless steel couplers and electric or pneumatic pumps. It is also possible to design and produce systems and equipment on customer specifications.

| MODEL | PRESSURE 1 ST /2 ND STAGE | OIL FLOW 1 ST /2 ND STAGE | RESERVOIR CAPACITY | USABLE OIL | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|----------------------------|--|--|-----------------------|---------------|------------------|-------|-----|-----|-----|-----|-----|--------------|----|--------------|--------|
| | bar | cm ³ | litres | litres | A | B | C | D | E | F | G | H | M | P | kg |
| PDSA-40 H ₂ O | 25/700 | 40/3 | 1,8 | 1,6 | 590 | 477 | 435 | 200 | 130 | 130 | 102 | 3/8" NPT | 13 | G 1/2" | 7,8 |
| PDSA 1600 H ₂ O | 25/1600 | 40/1 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 1/4" GAS | 13 | 1/2" GAS | 7,8 |
| PDSA 3000 H ₂ O | 16/3000 | 40/0,5 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 3/4"-16 UNF | 13 | 9/16"-18 UNF | 7,8 |
| PMS 4000 H ₂ O | 4000 | 0,5 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 9/16"-18 UNF | 13 | 9/16"-18 UNF | 7,8 |



F.P.T.

HYDRAULIC POWER UNITS AND SYNCHRONOUS LIFTING SYSTEMS









F.P.T. hydraulic pumps are designed and built to adapt to the various needs arising from the use of hydraulic equipment. Built with 4 different motor versions: gasoline, three-phase or single-phase electric and pneumatic. Equipped with pumps operating at different flow rates and actuated via manual, electric or pneumatic valves.

High flexibility for the most varied applications.



INDEX

POWER UNITS AND LIFTING SYSTEMS

| | Motor | Standard oil tank capacity | Series | | |
|---|--|----------------------------|-------------------|---|----|
| Hydraulic pumps, electric and pneumatic | Single-phase electric Three-phase electric Pneumatic | 10 | FPT |  | 72 |
| Gasoline driven hydraulic pumps | Gasoline | 10 | FPH-MS |  | 78 |
| Cordless Battery Hydraulic Pumps | Battery | 0,6 e 1 | FPT BATT |  | 80 |
| Pneumohydraulic pumps | Pneumohydraulic | from 2,5 to 10 | PP 700 PP 1000 |  | 82 |
| | Pneumatic | from 5 to 10 | PP |  | 84 |
| Pump for tests and geotechnics | Electric | from 20 to 40 | FPT GEO |  | 86 |
| Hydraulic pumps with independent outlets for synchronized lifting | Electric | from 10 to 150 | FPT SPLIT-FLOW |  | 88 |
| Synchronus lifting systems | Electric | from 20 to 150 | FPT SYNCHRO |  | 90 |

PAGE

F.P.T. HYDRAULIC PUMPS

F.P.T. hydraulic power units are designed and produced to adapt to various customers' needs. They are available in 4 different engine configurations: three-phase or single-phase electric motor, with gasoline engine and pneumatic motor. Pressure range available from 700 bar to 4,000 bar. The power units are equipped with pumps for different flow rates, either in the single-stage version or two-stage. They can mount a wide range of, manual, electric or pneumatic valves for single or double acting cylinders. In the standard configuration are available 10 liters tanks up to 60 liters ones and a very wide range of accessories.

TOTAL FLEXIBILITY IN THE CONFIGURATION

FPT and FPT Split Flow series hydraulic pumps are designed to guarantee maximum flexibility in configurations. The customer can easily choose each single component of the power unit according to his needs and add or replace parts or accessories in a short time afterwards. Motors, pumps, valves and accessories are all modular ones and interchangeable with each other.

CUSTOM HYDRAULIC UNITS ON CUSTOMER REQUEST

On demand:

- High flow rates for advanced performance
- Larger tanks
- Hydraulic circuits for specific needs
- Custom layouts
- Custom electric panels
- PLC automation and programming
- Extreme applications:

offshore | arctic environments | desert environments | aggressive environments.



POWER UNIT'S PARTS CODE

| PUMP | | MOTOR | | OILTANK CAPACITY | |
|------|--------------|-------|-------------------------------------|------------------|-------------------|
| FPT1 | Double stage | MA | Air motor | 10 | Oiltank 10 litres |
| FPT2 | Single stage | ME2 | 2 poles three-phase electric motor | 20 | Oiltank 20 litres |
| FPT5 | Double stage | ME21 | 2 poles single-phase electric motor | 40 | Oiltank 40 litres |
| FPT9 | Double stage | ME4 | 4 poles three-phase electric motor | 60 | Oiltank 60 litres |
| | | ME41 | 4 poles single-phase electric motor | | |

| VALVES | | | |
|---------|--|---------|---|
| VM32 | manual valve for single acting cylinders with by-pass - 3/2 handle | VE43DRP | solenoid valve for double acting cylinders - with pilot operated check valve |
| VM33 | manual valve for single acting cylinders - 3/3 | VE43OC | solenoid valve for oil return cylinders - with overcenter |
| VM33RP | manual valve for single acting cylinders - 3/3 with pilot operated check-valve | VE43DOC | solenoid valve double acting cylinders - with overcenter |
| VM43 | manual valve for oil return cylinders - 4/3 | VP32 | pneumatic valve for single acting cylinders - 3/2 |
| VM43D | manual valve for double acting cylinders - 4/3 | VP32A | pneumatic valve for single acting cylinders - 3/2 fit for accessories |
| VM43RP | manual valve for oil return cylinders - 4/3 with pilot operated check-valve | VP33 | pneumatic valve for single acting cylinders - 3/3 |
| VM43DRP | manual valve for double acting cylinders - 4/3 with pilot operated check-valve | VP33RP | pneumatic valve for single acting cylinders - 3/3 with pilot operated check-valve |
| VM43OC | manual valve for oil return cylinder - 4/3 with overcenter | VP43 | pneumatic valve for oil return cylinders - 4/3 |
| VM43DOC | manual valve for double acting cylinder - 4/3 with overcenter | VP43D | pneumatic valve for double acting cylinders - 4/3 |
| VE32 | solenoid valve for single acting cylinders - 3/2 | VP43RP | pneumatic valve for oil return cylinders - 4/3 with pilot operated check valve |
| VE32A | solenoid valve for single acting cylinders - 3/2 fit for accessories | VP43DRP | pneumatic valve for double acting cylinders - 4/3 with pilot operated check-valve |
| VE33 | solenoid valve for single acting cylinders - 3/3 | VP43OC | pneumatic valve for oil return cylinders - 4/3 with overcenter |
| VE33RP | solenoid valve for single acting cylinders - 3/3 with pilot operated check-valve | VP43DOC | pneumatic valve for double acting cylinders - 4/3 with overcenter |
| VE43 | solenoid valve for oil return cylinders - 4/3 | PT | PT baseplate with relief valve knob |
| VE43D | solenoid valve for double acting cylinders - 4/3 | | |
| VE43RP | solenoid valve for oil return cylinders - 4/3 - with pilot operated check-valve | | |

| ACCESSORIES | | | |
|-------------|-----------------------------------|------|---------------------------|
| DLOG | Datalogger | SC | Heat exchanger |
| F | Filter on oil return | 2U | 2 outputs manifold |
| CP | Remote foot control | 4U | 4 outputs manifold |
| CD | Control pendant | G | Cage |
| CDP | Pneumatic control pendant | GR | Cage with pivoting wheels |
| RF | Unidirectional flow control valve | M100 | Pressure gauge |
| | | SO | No oil |
| | | C1 | Quick coupler |
| | | C2 | Quick couplers |
| | | C4 | Quick couplers |
| | | C8 | Quick couplers |
| | | FRL | FR+L group |

FPT

700 bar
Single – Double stage
0,9/0,45 - 7,5/0,9 l/min oil flow
From 10 to 60 l capacity

Series
FPT

Pneumohydraulic and electric pumps

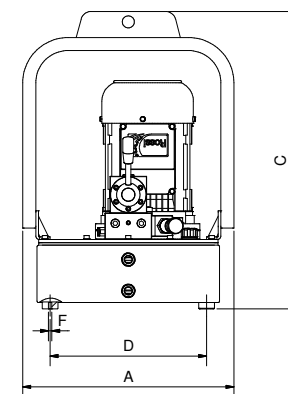
Maximum versatility and performance



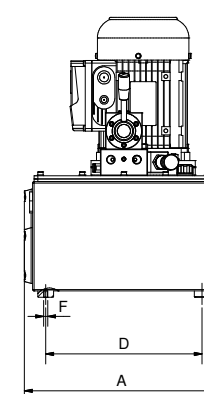
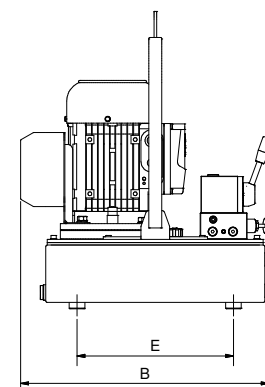
- The FPT model hydraulic pumps are the ideal solution for all industrial applications because of their extreme versatility and customization thanks to multiple configurations.
- Available with three-phase and single-phase electric motor or pneumatic.
- Possibility to install manual, electric or pneumatic, 3 or 4-way valves for single or double-acting cylinders and hydraulic equipment.

- With strong steel tank from 10 to 60 liters.
- Reduced maintenance. Designed to last.
- Wide range of accessories.
- Possibility to design and produce custom hydraulic pumps on request, with dedicated performance and features.

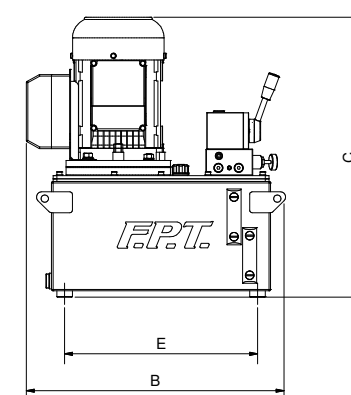
CUSTOM HYDRAULIC PUMPS ON REQUEST



10L



20 - 40 - 60L



| MODEL | PRESSURE RATING 1st/2nd STAGE | OIL DISPLACEMENT 1st/2nd STAGE | MOTOR | KW RPM |
|--------------|----------------------------------|-----------------------------------|----------------------|------------|
| | bar | l/min | | |
| FPT 1 - ME4 | 100 / 700 | 0,9 / 0,45 | THREE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 1 - ME41 | | 0,9 / 0,45 | SINGLE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 1 - ME2 | | 1,8 / 0,9 | THREE-PHASE 2 POLES | 2,2 / 2850 |
| FPT 1 - ME21 | | 1,8 / 0,9 | SINGLE PHASE 2 POLES | 2,2 / 2850 |
| FPT 1 - MA | | 1,8 / 0,9 | PNEUMATIC | 2,6 / 3000 |
| FPT 2 - ME4 | 700 | 0,9 | THREE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 2 - ME41 | | 0,9 | SINGLE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 2 - ME2 | | 1,8 | THREE-PHASE 2 POLES | 2,2 / 2850 |
| FPT 2 - ME21 | | 1,8 | SINGLE PHASE 2 POLES | 2,2 / 2850 |
| FPT 2 - MA | | 1,8 | PNEUMATIC | 2,6 / 3000 |
| FPT 5 - ME4 | 70 / 700 | 2,5 / 0,9 | THREE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 5 - ME41 | | 2,5 / 0,9 | SINGLE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 5 - ME2 | | 4,5 / 1,8 | THREE-PHASE 2 POLES | 2,2 / 2850 |
| FPT 5 - ME21 | | 4,5 / 1,8 | SINGLE PHASE 2 POLES | 2,2 / 2850 |
| FPT 5 - MA | | 4,5 / 1,8 | PNEUMATIC | 2,6 / 3000 |
| FPT 9 - ME4 | 70 / 700 | 3,5 / 0,45 | THREE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 9 - ME41 | | 3,5 / 0,45 | SINGLE-PHASE 4 POLES | 1,1 / 1450 |
| FPT 9 - ME2 | | 7,5 / 0,9 | THREE-PHASE 2 POLES | 2,2 / 2850 |
| FPT 9 - ME21 | | 7,5 / 0,9 | SINGLE PHASE 2 POLES | 2,2 / 2850 |
| FPT 9 - MA | | 7,5 / 0,9 | PNEUMATIC | 2,6 / 3000 |

| MOTOR | OILTANK CAPACITY | DIMENSIONS in mm | | | | | | WEIGHT |
|-----------------|------------------|------------------|-----|-----|-----|-----|----|--------|
| | | A | B | C | D | E | F | kg |
| Electric ME | 10 | 405 | 480 | 580 | 300 | 300 | M8 | 36 |
| | 20 | 380 | 500 | 540 | 300 | 370 | M8 | 49 |
| | 40 | 610 | 490 | 540 | 500 | 370 | M8 | 69 |
| | 60 | 860 | 490 | 540 | 750 | 370 | M8 | 91 |
| Pneumatic MA | 10 | 405 | 450 | 580 | 300 | 300 | M8 | 33 |
| | 20 | 380 | 480 | 440 | 300 | 370 | M8 | 46 |
| | 40 | 610 | 450 | 440 | 500 | 370 | M8 | 56 |
| | 60 | 860 | 490 | 440 | 750 | 370 | M8 | 87 |

Pneumatic and Electric pump's dimensions – NO CAGE

| MOTOR | OILTANK CAPACITY | DIMENSIONS in mm | | |
|--------------------------------------|------------------|------------------|-----|-----|
| | | A | B | C |
| Electric and Pneumatic ME - MA | 10 | 470 | 570 | 570 |
| | 20 | 470 | 620 | 620 |
| | 40 | 750 | 540 | 620 |
| | 60 | 1000 | 540 | 620 |

Pneumatic and Electric pump's dimensions – WITH CAGE

Valves for hydraulic pumps

| MODEL | DRIVE | HYDRAULIC DIAGRAM | DESCRIPTION |
|------------|----------|-------------------|--|
| PT | Manual | | P-T Block (with pressure relief knob) |
| VM32 | Manual | | Manual valve for single acting cylinders (bypass knob) 3 way / 2 position |
| VM33 | Manual | | Manual valve for single acting cylinders 3 way / 3 position |
| VM43/VM43D | Manual | | Manual valve for oil return cylinders 4 way / 3 position |
| VE32 | Electric | | Solenoid valve for single acting cylinders 3 way / 2 position |
| VE32A | Electric | | Solenoid valve for single acting cylinders 3 way / 2 position for accessories |

| MODEL | DESCRIPTION | HYDRAULIC DIAGRAM | ASSEMBLE ON | DESCRIPTION |
|-------|----------------------------|-------------------|--|--|
| RP | Pilot operated check valve | | VE43/VE43D – VM43/VM43D – VP43/VP43D – VM33 | Dual Pilot Operated Check Valve consists of two checkers (both on A and on B) which ensure perfect load holding. Example: With a non pilot operated manual valve when switching from position A to the central hold position, a small pressure drop occurs due to the geometry of the valve: it is a very small leakage but in some cases it is not acceptable. The check valve helps to overcome this problem. It is required in split-flow pumps when no overcenter is equipped. |

| MODEL | DRIVE | HYDRAULIC DIAGRAM | DESCRIPTION |
|------------|-----------|-------------------|--|
| VE33 | Electric | | Solenoid valve for single acting cylinders 3 way / 3 position |
| VE43/VE43D | Electric | | Solenoid valve for oil return cylinders 4 way / 3 position |
| VP32 | Pneumatic | | Pneumatic valve for single acting cylinders 3 way / 2 position |
| VP32A | Pneumatic | | Pneumatic valve for single acting cylinders 3 way / 2 position for tools |
| VP33 | Pneumatic | | Pneumatic valve for single acting cylinders 3 way / 3 position |
| VP43/VP43D | Pneumatic | | Pneumatic valve for oil return cylinders 4 way / 3 position |











| MODEL | DESCRIPTION | HYDRAULIC DIAGRAM | ASSEMBLE ON | DESCRIPTION |
|-------|-------------------|-------------------|--|--|
| OC | Over-center valve | | VE43/VE43D – VM43/VM43D – VP43/VP43D | The over-center valve (or counter-balance) has the purpose of controlling the movement of a hydraulic cylinder subject to negative loads. This valve can only be mounted on double acting or oil return cylinders. Without this valve, the return of the cylinder (during the descent phase) would not be controlled, seriously endangering the operator and the hydraulic system integrity. The valve is pre-calibrated at factory settings and the operator must not make any type of adjustment. The most economical alternative to the over center valve is a unidirectional flow regulator (RFUA). In this case the operator must completely close it before making the lifting and then gradually open it during the descent phase, varying the opening of the valve until the ideal speed is reached. It is clear that this last system is certainly cheaper but it puts the operator at risk due to possible mistakes. Moreover, in combination with the split-flow pump, the over-center valve provides a very high precision even during the return phase. |



Accessories for FPT series hydraulic pumps

The FPT series hydraulic pumps are the ideal solution for all industrial applications because of their maximum versatility and customization thanks to the multiple configurations and the many standard accessories with which they can be equipped.

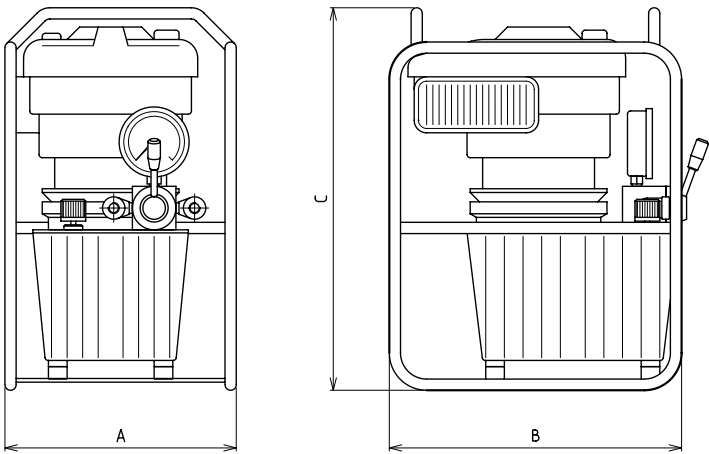
| PICTURE | CODE | NAME | DESCRIPTION |
|---|------|-----------------------------------|--|
|  | DLOG | Data-logger | Device capable of recording time / pressure values for subsequent analysis. Data that can be imported into Excel via free FPT software. |
|  | F | Oil filter on return | Recommended for harsh environments: it is important because it increases the life of hydraulic components. |
|  | CP | Foot remote control | To switch on / off the motor and control the valve remotely, 5 meters long electric cable, foot control. |
|  | CD | Remote control | To switch on / off the motor and control the valve remotely, 5 meters long electric cable. |
|  | CDP | Pneumatic remote control | To switch on / off the motor and control the valve remotely, 5 meters long electric cable. |
|  | RF | Unidirectional flow control valve | This valve allows the free flow of oil in one direction and intercepts it in the opposite direction when completely closed. When opened the flow is free in both directions. |
|  | SC | Heat exchanger | This accessory reduces the heating of the oil, particularly suitable for heavy applications |
|  | 2U | 2 outputs manifold | Manifold to use two cylinders, with integrated needle valves to control the flow of each line |

| PICTURE | CODE | NAME | DESCRIPTION |
|---|------|--------------------|---|
|  | 4U | 4 outputs manifold | Manifold to use four cylinders, with integrated needle valves to control the flow of each branch. |
|  | G | Cage | Protection frame with wheels to facilitate the transport of the pump and protect it from accidental impacts. |
|  | GR | Cage with wheels | Protection frame to facilitate the transport of the pump and protect it from accidental impacts. |
|  | M100 | Pressure gauge | Pressure gauge 0/1000 bar – Ø 100 mm – thread ½" GAS |
|  | S0 | No oil | Pump supplied with no oil |
|  | C1 | Quick coupler | No.1 Female coupler mod.GR6F – 3/8" NPT |
|  | C2 | Quick couplers | No.2 female couplers mod.GR6F – 3/8" NPT |
|  | C4 | Quick couplers | No.4 female couplers mod.GR6F – 3/8" NPT |
|  | C8 | Quick couplers | No.8 female couplers mod.GR6F – 3/8" NPT |
|  | FRL | FR+L group | Compact group consisting of a filter to retain impurities from the pneumatic circuit, a regulator to allow adjustment of the pressurized air supply, lubricator to make the hydraulic pump work properly. |

FPH-MS
700 bar
Single – double stage
1,8/0,9 - 7,5/0,9 l/min oil flow
10 to 25 l oiltank

Series
FPH-MS | **Gasoline driven
hydraulic pumps**

**Always
operative**



FPH-MS

- The FPH-MS series power units are the ideal solution for all applications where it is not possible to connect electric or air supply.
 - Equipped with 4-stroke petrol engine.
 - Possibility to install manual, electric or pneumatic, 3 or 4-way valves for single or double-acting cylinders and hydraulic equipment.
 - With strong steel tank from 10 to 60 liters.
- The whole series is equipped with a protective cage that simplifies transport and lifting and protects the hydraulic pump on construction sites.
 - Wide range of accessories, supplied without quick couplers.
 - Possibility to design and produce custom hydraulic pumps on request, with dedicated performance and features.

| MODEL | PRESSURE RATING 1st/2nd STAGE | OIL DISPLACEMENT 1st/2nd STAGE | MOTOR | DISPLACEMENT Cc | KW RPM | OILTANK CAPACITY litres | DIMENSIONS in mm | | | | | | WEIGHT kg |
|------------|----------------------------------|-----------------------------------|-------------------|------------------------|------------|--------------------------------|------------------|-----|-----|---|---|---|------------------|
| | bar | l/min | | | | | A | B | C | D | E | F | |
| FPH 1 - MS | 100 / 700 | 1,8 / 0,9 | 4 STROKE-GASOLINE | 161 | 3 / 3000 | 10 | 372 | 470 | 615 | - | - | - | 42 |
| FPH 2 - MS | | 1,8 | 4 STROKE-GASOLINE | 190 | 2,6 / 3000 | | 372 | 470 | 615 | - | - | - | 44 |
| FPH 5 - MS | | 4,5 / 1,8 | 4 STROKE-GASOLINE | 190 | 2,6 / 3000 | | 372 | 470 | 615 | - | - | - | 44 |
| FPH 9 - MS | | 7,5 / 0,9 | 4 STROKE-GASOLINE | 161 | 2,6 / 3000 | | 372 | 470 | 615 | - | - | - | 42 |

CUSTOM HYDRAULIC PUMPS ON REQUEST



FPT-BATT

700 bar
Double stage
Battery powered
0,6 and 1 l oiltank

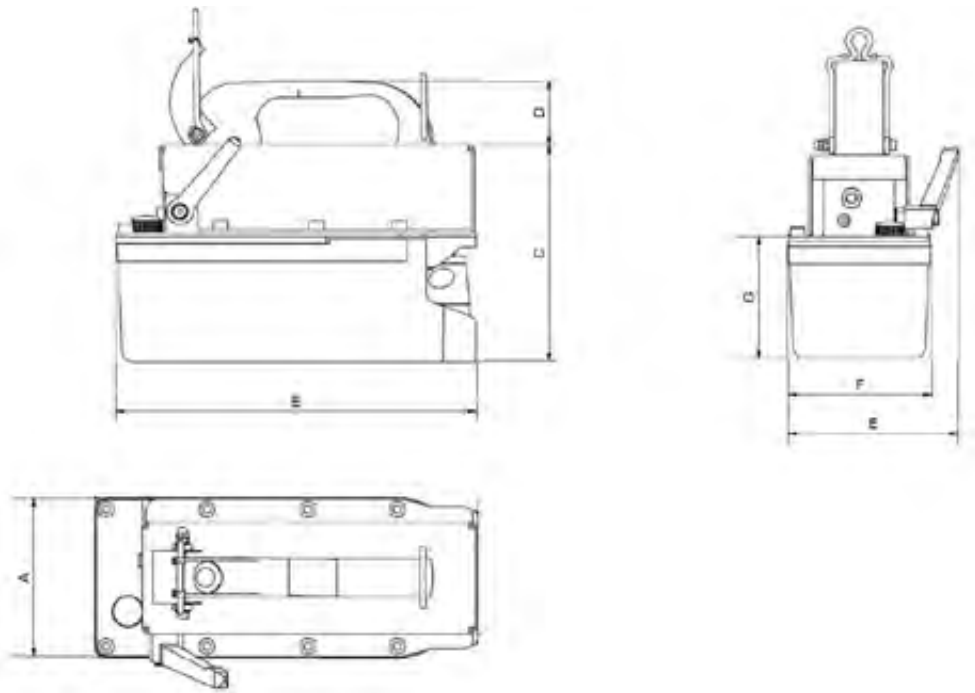
Series
FPT-BATT Cordless Battery Hydraulic Pumps



Super light
and portable

- Battery powered pump for operating single acting cylinders and tools.
- Cordless Battery Hydraulic Pumps with double stage configuration to maximize efficiency during operations.
- Battery powered: light, portable and equipped with shoulder strap for maximum Handling.
- Start button is located on the handle for easy use.
- The battery is lithium ion. Battery and battery charger are accessories that can be ordered separately.
- The optimal temperature range is 15 ° C ÷ 40 ° C. The oil to be used is ISO VG-10 mineral hydraulic.

CUSTOM HYDRAULIC PUMPS ON REQUEST



FPT-BATT

| CORDLESS BATTERY HYDRAULIC PUMPS SERIES FPT-BATT | | | | | | | | | | | | | | | |
|--|---|-----------------------------|-------------------------|----------------|---------------|------------------|-----------------|-----|--------|----|-----|-----|----|---------------|--------|
| MODEL | DESCRIPTION | PRESSURE 1°- 2° STAGE | FLOW 1°- 2° STAGE | MOTOR | BATTERY | TANK CAPACITY | DIMENSION IN mm | | | | | | | OIL OUTLET | WEIGHT |
| | | bar | l/min | | | | | | liters | A | B | C | D | | |
| 31FPT-BATT0,6SE | Cordless Battery pump including battery and battery charger | 20 / 700 | 0,7 / 0,06 | 14,4 V - 199 W | 14,4 V - 4 Ah | 0,6 | 102 | 242 | 148 | 43 | 122 | 102 | 88 | 3/8" NPT | 4,5 |
| 31FPT-BATT1,0SE | | 20 / 700 | 0,7 / 0,06 | | | 1 | | 292 | 168 | | | 108 | 5 | | |

| PRODUCTS | | |
|-----------------|---|---------------|
| MODEL | DESCRIPTION | TANK CAPACITY |
| | | liters |
| 31FPT-BATT0,6SE | Cordless Battery pump including battery and battery charger | 0,6 |
| 31FPT-BATT1,0SE | | 1 |
| 31FPTBATT0,6SEN | Cordless Battery pump without battery and battery charger | 0,6 |
| 31FPTBATT1,0SEN | | 1 |
| 31CARICBATT14V | Battery charger for 14,4 V lithium battery | / |
| 31BATT14,4-4,0 | 14,4 V – 4,0 Ah lithium battery | / |

PP-700 - PP-1.000

700 - 1000 bar
Single stage
2,5 to 10 l reservoir

Series
PP-700
PP-1.000

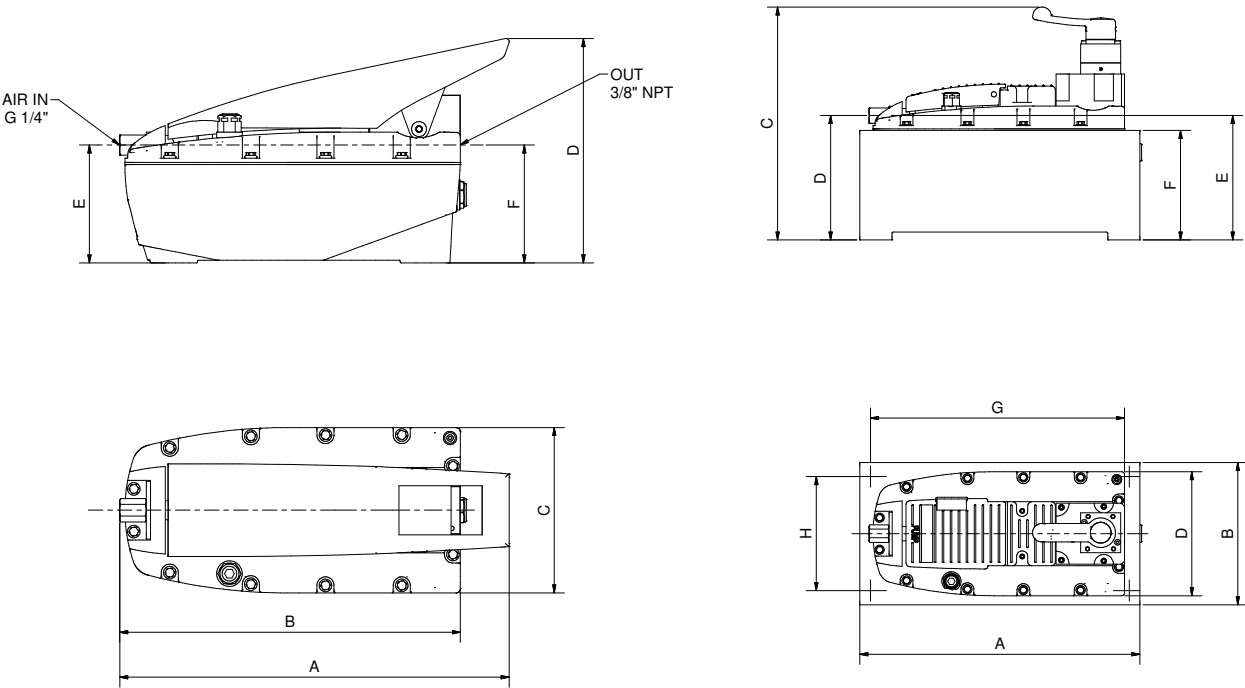
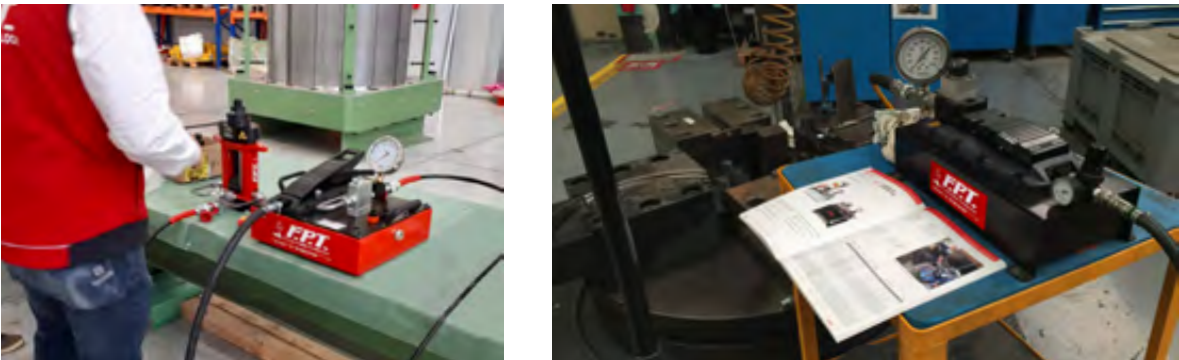
Pneumnohydraulic pumps
700 bar – 1.000 bar

Easy and
cheap



- The control units PP700 and PP1000 are characterized by very compact dimensions.
- Maximum pressure 700 or 1000 bar.
- Made of high-strength technopolymers result light and transportable.
- 5 and 10 liter tanks available.
- Easy to operate by foot or by hand.
- To be connected to the compressed air line and at an operating pressure of 6 to 8 bar.
- Available models with single or double effect with 3 or 4 way directional valves.
- For maximum flexibility, available push-button panel for remote control and a wide range of accessories.

CUSTOM HYDRAULIC PUMPS ON REQUEST



PP700

PP700TDEL5

| MODEL | PRESSURE | OIL DISPLACEMENT | OILTANK CAPACITY | USABLE OIL | AIR INLET PRESSURE | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|-----------------|----------|---------------------|---------------------|---------------|-----------------------|------------------|-----|-----|-----|-------|-----|-----|-------|---|------|--------|
| | bar | l/min | litres | litres | bar | A | B | C | D | E | F | G | H | L | kg | |
| PP 250 T | 250 | 0,8 | 2,5 | 2,1 | 2,8-8 | 365 | 320 | 155 | 209 | 109 | 127 | - | - | - | 6,3 | |
| PP 250 T L5 | | 0,8 | 4 | 4 | 2,8-8 | 350 | 178 | 255 | 155 | 175 | 137 | 310 | 140 | 6 | 12,5 | |
| PP 250 T L10 | | 0,8 | 8 | 8 | 2,8-8 | 430 | 220 | 280 | 180 | 200 | 162 | 390 | 185 | 6 | 21 | |
| PP 700 T | 700 | 0,8 | 2,5 | 2,1 | 2,8-8 | 365 | 320 | 155 | 209 | 109 | 127 | - | - | - | 6,3 | |
| PP 700 T L5 | | 0,8 | 4 | 4 | 2,8-8 | 350 | 178 | 255 | 155 | 175 | 137 | 310 | 140 | 6 | 12,5 | |
| PP 700 T L10 | | 0,8 | 8 | 8 | 2,8-8 | 430 | 220 | 280 | 180 | 200 | 162 | 390 | 185 | 6 | 21 | |
| PP 700 T DE | | 0,8 | 2,5 | 2,1 | 2,8-8 | 365 | 320 | 155 | 209 | 129 | 127 | - | - | - | 6,3 | |
| PP 700 T DE L5 | | 0,8 | 4 | 4 | 2,8-8 | 350 | 178 | 291 | 155 | 176,5 | 137 | 310 | 142,5 | 6 | 12,5 | |
| PP 700 T DE L10 | | 0,8 | 8 | 8 | 2,8-8 | 430 | 220 | 301 | 180 | 201,5 | 162 | 390 | 184,5 | 6 | 21 | |
| PP 700 T RC | | 0,8 | 2,5 | 2,1 | 2,8-8 | 365 | 320 | 155 | 209 | 109 | 127 | - | - | - | 6,3 | |
| PP 700 T RC L5 | | 0,8 | 4 | 4 | 2,8-8 | 350 | 178 | 255 | 155 | 175 | 137 | 310 | 140 | 6 | 12,5 | |
| PP 1000 T | | 1000 | 0,8 | 2,5 | 2,1 | 2,8-8 | 365 | 320 | 155 | 209 | 109 | 127 | - | - | - | 6,3 |
| PP 1000 T L5 | 0,8 | | 4 | 4 | 2,8-8 | 350 | 178 | 255 | 155 | 175 | 137 | 310 | 140 | 6 | 12,5 | |
| PP 1000 T L10 | 0,8 | | 8 | 8 | 2,8-8 | 430 | 220 | 280 | 180 | 200 | 162 | 390 | 185 | 6 | 21 | |

PP

Single stage
5 to 10 l oiltank capacity
1500 to 3000 bar

Series
PP

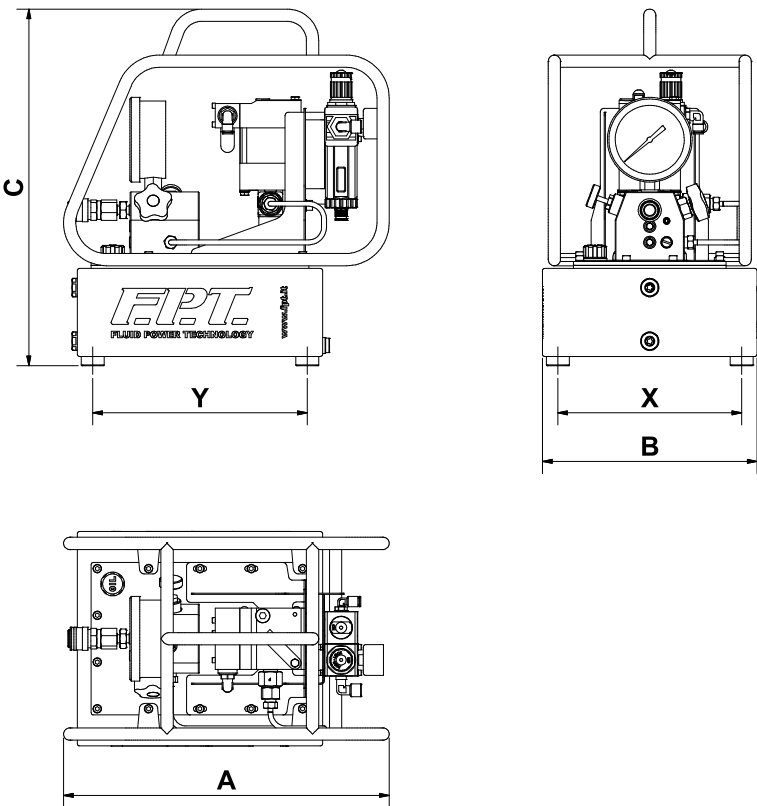
Pneumo hydraulic pumps
1.500 to 4.000 bar



For very
high pressure

- PP series power units are the ideal solution for all very high pressure applications where it is necessary to connect to the compressed air line.
- Power units for tensioning bolts, burst tests, laboratory tests, scaling or keying of bearings, actuation of hydraulic bolt tensioners or hydraulic nuts and wherever high pressure is required.
- Standard versions with pressure 1500 bar - 2500 bar - 3000 bar and 4000 bar.
- Equipped with pressure relief valve for maximum operational safety.
- Handwheel pressure regulator valve.
- Pressure gauge, female quick coupler and standard pneumatic filter regulator assembly on all models.
- Models available with remote control pendant (CDP).
- Possibility to design and produce custom hydraulic power units on request, with dedicated performance and features.

CUSTOM HYDRAULIC PUMPS ON REQUEST



PP

| MODEL | PRESSURE | MIN. NEEDED PRESSURE | AVG. AIR CONSUMPTION | MULTIPLICATION RATIO | OIL DISPLACEMENT NO LOAD | OIL DISPLACEMENT MAX PRESSURE | OILTANK CAPACITY | AIR PRESSURE RANGE | DIMENSIONS in mm | | | | | FIXING HOLES | MASS (OIL INCLUDED) |
|---------------|----------|----------------------|----------------------|----------------------|--------------------------|-------------------------------|------------------|--------------------|------------------|-----|-----|-----|-----|--------------|---------------------|
| | bar | bar | NI/min | - | NI/min | l/min | litres | bar | A | B | C | X | Y | - | kg |
| PP1500C05 | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 5 | 1 - 10 bar | 425 | 265 | 466 | 165 | 250 | nr.4 M8x12 | 19,5 |
| PP1500C10 | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 10 | | 425 | 280 | 466 | 240 | 280 | nr.4 M8x12 | 25,5 |
| PP1500C05/CDP | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 5 | | 425 | 265 | 466 | 165 | 250 | nr.4 M8x12 | 21,0 |
| PP1500C10/CDP | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 10 | | 425 | 280 | 466 | 240 | 280 | nr.4 M8x12 | 27,0 |
| PP2500C05 | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 5 | | 425 | 265 | 466 | 165 | 250 | nr.4 M8x12 | 20,5 |
| PP2500C10 | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 10 | | 425 | 280 | 466 | 240 | 280 | nr.4 M8x12 | 26,5 |
| PP2500C05/CDP | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 5 | | 425 | 265 | 466 | 165 | 250 | nr.4 M8x12 | 22,0 |
| PP2500C10/CDP | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 10 | | 425 | 280 | 466 | 240 | 280 | nr.4 M8x12 | 27,5 |
| PP3000C05 | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 5 | | 425 | 265 | 466 | 165 | 250 | nr.4 M8x12 | 20,5 |
| PP3000C10 | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 10 | | 425 | 280 | 466 | 240 | 280 | nr.4 M8x12 | 26,5 |
| PP3000C05/CDP | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 5 | | 425 | 265 | 466 | 165 | 250 | nr.4 M8x12 | 22,0 |
| PP3000C10/CDP | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 10 | | 425 | 280 | 466 | 240 | 280 | nr.4 M8x12 | 27,5 |
| PP4000C10 | 4000 | 7 | 800 | 1:660 | 0,19 | 0,05 @ 7 bar | 10 | | 425 | 280 | 475 | 240 | 280 | nr.4 M8x12 | 26,5 |
| PP4000C10/CDP | 4000 | 7 | 800 | 1:660 | 0,19 | 0,05 @ 7 bar | 10 | | 425 | 280 | 475 | 240 | 280 | nr.4 M8x12 | 29,5 |

FPT-GEO

700 bar
Double stage
2,5 - 0,9 l/min oil flow
10 to 60 l oiltank capacity

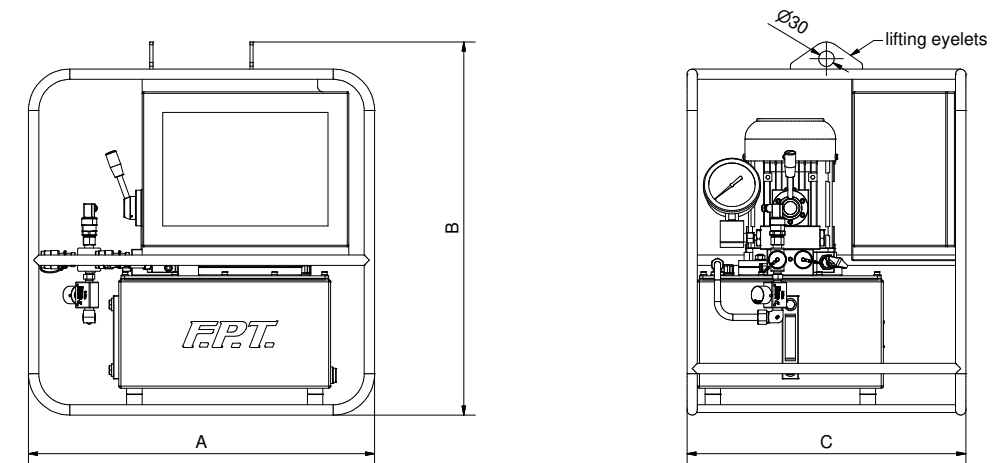
Series
FPT-GEO

Pump for tests and geotechnics



For automatic pressure recovery

- The most reliable method for determining bearing capacity of a pole is to subject it to a load test. This means planting the pile to the project depth and applying a succession of loads to it.
- FPT GEO series power units perfectly accomplish this task ensuring the maintenance of the pre-set load.
- With the practical microprocessor display it is possible to set the desired pressure. The pump will maintain this value, restoring it in case of leaks or yielding.
- Available with three-phase or single-phase electric motor.
- Protective cage with integrated electrical panel and eyelets for lifting, 20 and 40 liters tank capacity.
- Possibility to design and produce custom hydraulic pumps on request, with dedicated performance and features.
- For years F.P.T. cares of the environment and its protection. It has in fact various products suitable for use with water or fluids 100% biodegradable.



FPT GEO

| MODEL | PRESSURE 1st/2nd STAGE | OIL DISPLACEMENT | MOTOR | VOLTAGE/ FREQUENCY | KW/RPM | OILTANK CAPACITY | DIMENSIONS in mm | | | WEIGHT |
|------------------|---------------------------|---------------------|----------------------|-----------------------|----------|---------------------|------------------|-----|-----|--------|
| | bar | bar | | V/Hz | | litres | | | | kg |
| FPT5-ME4-20-GEO | 100/700 | 2,5/0,9 | THREE PHASE ELECTRIC | 400V-50Hz | 1,1/1440 | 20 | 670 | 772 | 540 | 75 |
| FPT5-ME41-20-GEO | 100/700 | 2,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,1/1440 | | | | | 75 |
| FPT5-ME4-40-GEO | 100/700 | 2,5/0,9 | THREE PHASE ELECTRIC | 400V-50Hz | 1,1/1440 | 40 | | | | 94 |
| FPT5-ME41-40-GEO | 100/700 | 2,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,1/1440 | | | | | 94 |

CUSTOM HYDRAULIC PUMPS ON REQUEST



FPT – TECH Series HYDRAULIC PUMPS FOR TESTS AND PRESSING TESTS

More and more customers need to have a technologically advanced product to perform pressure tests. F.P.T. realizes for this specific sector those power units suitable for operations with water or biodegradable fluids, able of perform pressure tests, record data and be remotely controlled.

Equipped with PLC and dedicated FPT software, they are the ideal tool for all testing and product validation and are completely customizable based on specific customer needs.

FPT SPLIT FLOW

700 bar
Single stage
0,4 - 0,9 l/min oil flow
10 to 60 l oiltank capacity

Series
FPT
SPLIT FLOW

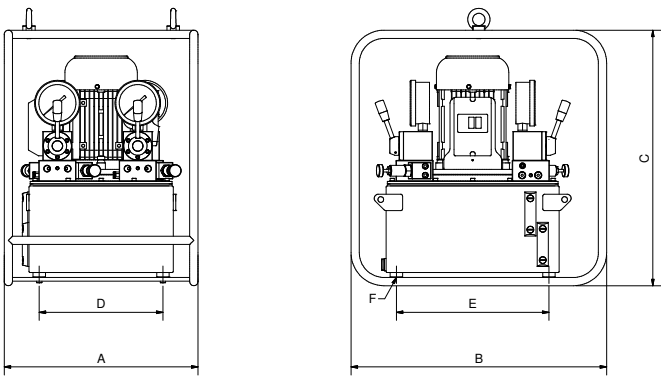
Hydraulic pump with independent outlets

For synchronous lifting during the lifting and lowering phases ±3% of precision on the nominal stroke



- Split Flow power units allow to perform synchronous lifting and lowering operations of irregular and unbalanced loads.
- Can handle 2 or 4 single or double effect cylinders.
- Piston pump with independent outputs ideal for carrying out lifting operations where high accuracy load leveling is required.
- ± 3% accuracy on the nominal stroke when lifting with of single-acting cylinders and during lifting and lowering with double-acting cylinders.
- Available manual or electric valves with related control pendant and counter-balance valves for load control during descent.

CUSTOM HYDRAULIC PUMPS ON REQUEST



SPLIT FLOW

| MODEL | OUTPUTS | MAX WORKING PRESSURE | OIL DISPLACEMENT PER OUTPUT | MOTOR | KW RPM |
|------------------|---------|----------------------|-----------------------------|---------------------|------------|
| | | bar | l/min | | |
| FPT 2x0,9 - ME2 | 2 | 700 | 0,9 | THREE PHASE 2 POLES | 2,2 / 2850 |
| FPT 2x0,9 - ME21 | 2 | | 0,9 | MONO PHASE 2 POLES | |
| FPT 4x0,4 - ME2 | 4 | | 0,4 | THREE PHASE 4 POLES | |
| FPT 4x0,4 - ME21 | 4 | | 0,4 | MONO PHASE 2 POLES | |

| OILTANK CAPACITY | DIMENSIONS in mm | | | | | | WEIGHT |
|------------------|------------------|-----|-----|-----|-----|----|--------|
| | A | B | C | D | E | F | kg |
| 10 | 405 | 480 | 580 | 300 | 300 | M8 | 36 |
| 20 | 380 | 500 | 540 | 300 | 370 | M8 | 49 |
| 40 | 610 | 490 | 540 | 500 | 370 | M8 | 69 |
| 60 | 860 | 490 | 540 | 750 | 370 | M8 | 91 |

Split flow pump's dimensions – WITHOUT PROTECTION CAGE

| OILTANK CAPACITY | DIMENSIONS in mm | | |
|------------------|------------------|-----|-----|
| | A | B | C |
| 10 | 870 | 600 | 620 |
| 20 | 870 | 600 | 620 |
| 40 | 935 | 580 | 740 |
| 60 | 1085 | 580 | 740 |

Split flow pump's dimensions – WITH PROTECTION CAGE

| PICTURE | CODE | NAME | DESCRIPTION |
|---------|------|-----------------------------------|--|
| | CD | Remote control | To switch on / off the motor and control the valve remotely, 5 meters long electric cable. |
| | RF | Unidirectional flow control valve | This valve allows the free flow of oil in one direction and intercepts it in the opposite direction when completely closed. When opened the flow is free in both directions. |
| | G | Cage | Protection frame with wheels to facilitate the transport of the pump and protect it from accidental impacts. |
| | GR | Cage with wheels | Protection frame to facilitate the transport of the pump and protect it from accidental impacts. |
| | M100 | Pressure gauge | Pressure gauge 0/1000 bar – Ø 100 mm – thread ½" GAS |
| | SO | No oil | Pump supplied with no oil |

Series
FPT SYNCHRO

Synchronous lifting system

**1mm precision
in the operations of
lifting and lowering**



Lifting with a precision of 1 mm

F.P.T. manufactures integrated lifting systems controlled by PLC. The F.P.T. SYNCHRO allows the operator to carry out each step of the lifting and descending process synchronously through integrated management of the hydraulic and control part. Unbalanced loads are kept levelled during the up or down phases, with leveling accuracy equal to 1 mm.

The system was developed to adapt to customer lifting needs and can be totally customizable with a series of optional. It is the ideal tool for operations of lifting or weighing that need accurate control's systems functions. The F.P.T. system is user friendly, safe and modular.

Typical application of synchronous lifting from 4 to 48 points:

Thanks to stroke and pressure transducers feedbacks, the system allows lifting and lowering in a synchronous way with the precision of 1 mm, reducing the risk of excessive stress due to unbalanced distribution of the loads between the lifting points.

The operator can set on the PC screen the parameters of the operation to be performed, decide the number of cylinders to use, the stroke, the accuracy and the speed to operate. All data during operations are always monitored by the system increasing productivity and safety during operations. All data are stored and can be downloaded later.

Basic system composition:

- 700 bar hydraulic pump with radial piston pump, three-phase motor inverter controlled
- laptop or touch screen panel
- wire transducers for stroke control
- armored cables complete with industrial connectors

For use with single or double acting hydraulic cylinders.

Controls - Operator panel:

- Monitoring from 4 to 48 lifting points.
- Controlled movement for lifting / lowering.
- Possibility to select the cylinders to be operated.
- 2 modes available: automatic or manual.
- Possibility to set the maximum lag permitted.
- Accuracy on synchronism of 1 mm.
- Load and stroke alarm display for maximum safety during operations.
- Display of the maximum relative error between various cylinders.
- Download and storage of data related to lifting.

Speed optimization

The system is able to optimize the speed of load lifting / lowering regardless of number and size of cylinders maintaining the error within the set limit. The operator panel also allows the approach of the cylinders to the structure/formwork to lift, thus allowing a considerable saving of time.

The information displayed for each cylinder are:

- relative and absolute position
- pressure
- force
- direction (upward / downward)
- information relating to errors



CUSTOM HYDRAULIC PUMPS

When standard production fails to meet the requirements of the customer F.P.T. designs and produces hydraulic pumps according to customer specifications. The power units can be designed with operative pressure up to 4,000 bar, have extremely compact 2 or 5 liters tanks, larger tanks to operate multiple cylinders reaching up to 400 or 500 liters. The pumps can be axial or radial type, single-stage, double-stage, combined and capable of oil displacement suitable for the customer's application.

Wide selection of motors available and the operation can be done by manual, electric or pneumatic valves and hydraulic system to customer specification. The range of accessories that can be equipped on the hydraulic pump is very wide and the entire unit can be completely designed on the specific needs of the customer and the sector in which he operates.

Typical synchronized applications lifting:

- Handling of heavy structures.
- Maintenance, launch or construction of bridges
- Load transfer operations
- Installation or maintenance of heavy systems
- Positioning of offshore platforms
- Weighing operations



F.P.T. VALVES AND AUXILIARY COMPONENTS

For an always reliable control

F.P.T. valves are designed and produced to guarantee maximum reliability and performance for customer needs. They can be mounted directly on the hydraulic pump or in line, manually or electric driven, with multiple configurations giving the maximum flexibility for the operator.

A wide range of components and accessories is available to complete your own hydraulic system. Complete series of pressure gauges, flexible hoses, quick couplings, manifolds, fittings and oil for optimal operation and durability of your equipment.




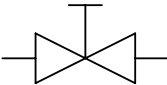
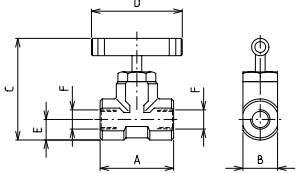
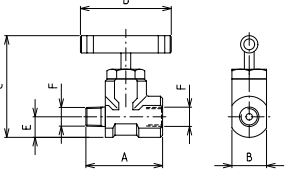
INDEX VALVES AND AUXILIARY COMPONENTS


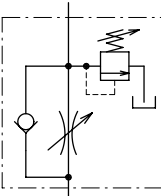
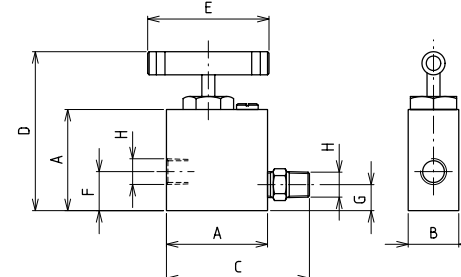
| | Series | | |
|---|----------------|--|-----|
| Complementary valves for flow rate and pressure control | V | | 96 |
| Pressure gauges | MD | | 98 |
| Accessories for pressure gauges | VM PM | | 99 |
| Flex hoses | TFG TFR | | 100 |
| Quick couplers | GR | | 101 |
| Manifold, fittings, oil | MR MA ML | | 102 |

PAGE



Series **V** **Complementary valves for flow and pressure control.**


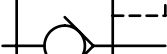
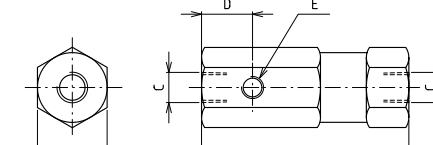
| | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | TECHNICAL DRAWING | | |
|---|--------------------------|---|--|--|----|----------|
|  | NEEDLE VALVE 1000 BAR |  | Inline needle valve used to exclude or hold parts of the hydraulic circuit under pressure (female-female). |  VM-5A | | |
| | | | Inline needle valve used to exclude or hold parts of the hydraulic circuit under pressure (male-female). |  VM-5B | | |
| MODEL | A | B | C | D | E | F |
| VM - 5A | 68 | 32 | 94 | 84 | 19 | 3/8" NPT |
| VM - 5B | | | | | | |


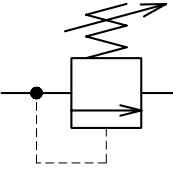
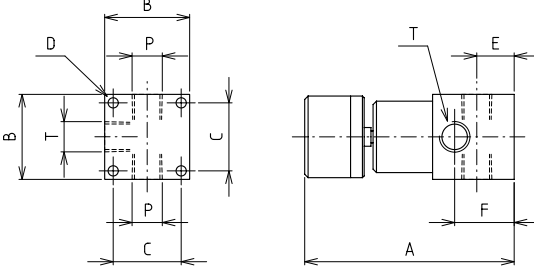
| | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | TECHNICAL DRAWING | | | | |
|--|--|---|---|--|----|----|----|----------|
|  | UNIDIRECTIONAL FLOW CONTROL VALVE 700 BAR |  | Unidirectional flow control valve, allows the lowering of the load in a controlled manner. The built-in relief valve protects the circuit against overpressure. |  | | | | |
| MODEL | A | B | C | D | E | F | G | H |
| RFUA | 70 | 35 | 100 | 110 | 84 | 27 | 18 | 3/8" NPT |


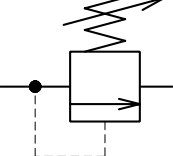
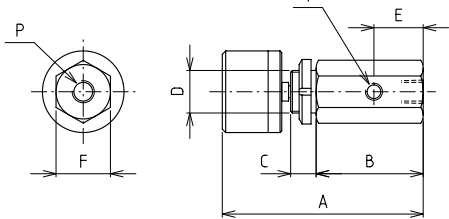
| | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | TECHNICAL DRAWING |
|-----------|----------------------------|-------------------|---|-------------------|
| | VALVE OF RETURN 700 BAR | | Inline unidirectional check valve. It blocks the flow in one direction while allowing it to move in the opposite direction. | VRL |
| MODEL | A | B | C | |
| VRL - A38 | 66 | 30 | 3/8" NPT | |
| VRL - B14 | 56 | 25 | 1/4" NPT | |

Other models of 3-way valves also available

Dimensions in mm

| | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | TECHNICAL DRAWING | |
|---|--|---|--|---|----------|
|  | PILOT OPERATED CHECK VALVE 700 BAR |  | Inline pilot-operate check valve: blocks the flow in one direction allowing it to move in the opposite direction. The circuit is unblocked thanks to a pilot pressure 4 times lower than the circuit pressure. |  | |
| MODEL | A | B | C | D | E |
| VRPL - A | 122 | 41 | 3/8" NPT | 30 | 1/4" NPT |

| | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | TECHNICAL DRAWING | | | | |
|---|----------------------------------|---|--|---|----|----|----------|----------|
|  | PRESSURE RELIEF VALVE 700 BAR |  | Pressure relief valve; the knob is used to regulate the pressure in the circuit. For inline mounting. |  | | | | |
| MODEL | A | B | C | D | E | F | P | T |
| VMPL - A | 125 | 50 | 40 | 5,5 | 22 | 35 | 3/8" NPT | 3/8" NPT |

| | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | TECHNICAL DRAWING | | | | |
|--|----------------------------------|--|--|--|----|----|----------|----------|
|  | PRESSURE RELIEF VALVE 700 BAR |  | Pressure relief valve; the knob is used to regulate the pressure in the circuit. Panel mounted. |  | | | | |
| MODEL | A | B | C | D | E | F | P | T |
| VMPP - A | 120 | 63 | 15 | M25x1,5 | 29 | 32 | 1/4" NPT | 1/8" NPT |

| | | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | | TECHNICAL DRAWING | | |
|--------|-----|----------------------------------|-------------------|--|---------|-------------------|----------|----------|
| | | PRESSURE RELIEF VALVE 700 BAR | | Pressure relief valve; the knob is used to regulate the pressure in the circuit. Panel mounted. Very accurate metering. | | | | |
| MODEL | A | B | C | D | E | F | P | T |
| VMX/TS | 183 | 43 | 128 | 15 | M30x1,5 | 45 | 3/8" NPT | 1/8" NPT |

| | | TYPE OF VALVE | HYDRAULIC DIAGRAM | DESCRIPTION | | TECHNICAL DRAWING | | |
|---------|-----|----------------------------------|-------------------|--|---------|-------------------|----------|----------|
| | | PRESSURE RELIEF VALVE 700 BAR | | Pressure relief valve; the knob is used to regulate the pressure in the circuit. Panel mounted. | | | | |
| MODEL | A | B | C | D | E | F | P | T |
| VMX/TSL | 183 | 43 | 128 | 15 | M30x1,5 | 45 | 3/8" NPT | 1/8" NPT |

Other models of 3-way valves also available

Dimensions in mm

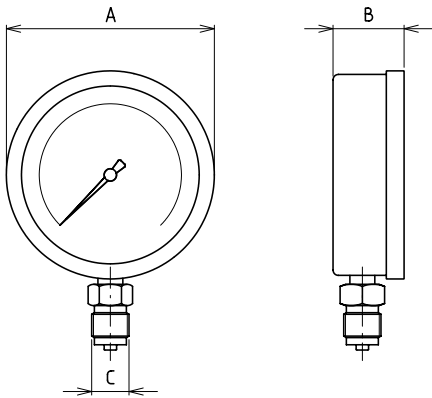
Series
MD

Pressure gauges

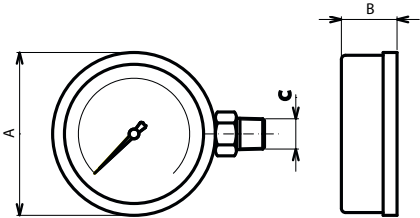


- Excellent precision and readability, easy to assemble.
- Digital or dual pressure reading scale (bar - ton).

MD PRESSURE GAUGES



MD-60G/H3



| MODEL | PRESSURE RANGE | | PRECISION CLASS | Ø FACE | TYPE | DIMENSIONS in mm | | |
|-----------|----------------|-----------|-----------------|--------|-------------------|------------------|----|----------|
| | Bar | Psi | | | | A | B | C |
| MD 60G/H3 | 0 - 1000 | 0 - 14000 | 1,6 | 60 | IN GLYCERINE BATH | 68 | 28 | 1/4" NPT |
| MD 60G | 0 - 1000 | 0 - 14000 | 1,6 | 60 | IN GLYCERINE BATH | 68 | 28 | 1/4" NPT |
| MD 100G | 0 - 1000 | 0 - 14000 | 1,0 | 100 | IN GLYCERINE BATH | 110 | 36 | G 1/2" |
| MD 160G | 0 - 1600 | 0 - 23000 | 1,0 | 100 | IN GLYCERINE BATH | 110 | 47 | G 1/2" |
| MD 200G | 0 - 2000 | 0 - 30000 | 1,0 | 100 | IN GLYCERINE BATH | 110 | 50 | G 1/2" |
| MD 300G | 0 - 3000 | 0 - 45000 | 1,0 | 100 | IN GLYCERINE BATH | 110 | 50 | M16x1,5* |
| MD 400G | 0 - 4000 | 0 - 60000 | 1,0 | 100 | IN GLYCERINE BATH | 110 | 50 | M16x1,5* |

* Female

Series
VM - PM

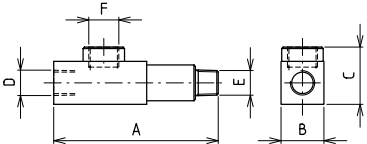
Pressure gauge accessories

PRESSURE GAUGE ADAPTORS

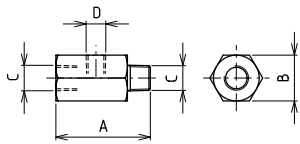
The FPT system can be used to mount the pressure gauge directly on the pump head. The pressure gauge adaptors are required on pumps and valves when the pressure gauge is not directly installed.



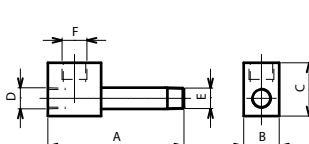
PM-39 PM-351



PM-355 PM-356



PM-356

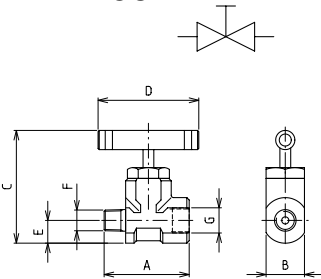


| | MODEL | DIMENSIONS in mm | | | | | |
|--|----------|------------------|----|----------|----------|----------|--------|
| | | A | B | C | D | E | F |
| | PM - 346 | 115 | 30 | 45 | 3/8" NPT | 3/8" NPT | G 1/2" |
| | PM - 351 | 115 | 30 | 40 | 3/8" NPT | 1/4" NPT | G 1/2" |
| | PM - 355 | 68 | 27 | 1/4" NPT | 1/4" NPT | - | - |
| | PM - 356 | 68 | 32 | 3/8" NPT | 1/4" NPT | - | - |

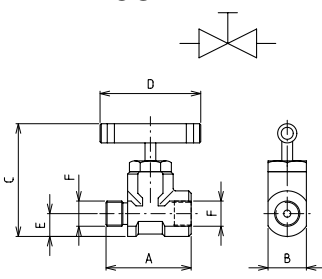
PRESSURE GAUGE SHUT-OFF VALVES

The pressure gauge shut-off valves cut off the pressure to the gauge so that it can be excluded when readings are not required.

VM-5C



VM-5G



| | MODEL | MALE END | FEMALE END | DIMENSIONS in mm | | | | |
|--|---------|----------|------------|------------------|----|----|----|----|
| | | F | G | A | B | C | D | E |
| | VM - 5C | 3/8" NPT | G 1/2" | 68 | 32 | 94 | 84 | 19 |
| | VM - 5G | G 1/2" | G 1/2" | 68 | 32 | 94 | 84 | 19 |

FLEX HOSES

Max working pressure
1.000 to 4.000 bar

Series
TFG - TFR Flex Hoses



High pressure
Hoses

The 1000 bar thermoplastic flex hoses standard 1/4 version with internal Ø 6.3 mm are suitable for demanding applications and have a safety factor of 2.8: 1. On request, also available hoses with custom sizes and fittings, flexible hoses with internal Ø of 9.7 mm for applications with high flow rates as well.

For very high pressure applications, thermoplastic hoses available in a range from 1.800 to 4.000 bar to cover all market needs.

| MAX W.P. | 1000 BAR | | | | | | | |
|----------|----------|-------|----------|-------|----------|-------|--------|-------|
| | TFR # | | TFRR # | | TFG # | | TFGG # | |
| | END 1 | END 2 | END 1 | END 2 | END 1 | END 2 | END 1 | END 2 |
| 0,6 | 3/8" NPT | | 1/4" NPT | | 3/8" NPT | GR-6M | GR-6M | |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 10 | | | | | | | | |

| MAX W.P. | 1800 BAR | | 2500 BAR | | 3000 BAR | | 3000 BAR | | 4000 BAR | | 4000 BAR | |
|----------|-------------------|-------|-------------------|-------|-------------------|-------|-------------------|---------|-------------------|-------|-------------------|---------|
| | TFR # / 1800 | | TFR # / 2500 | | TFR # / 3000-M16D | | TFR # / 3000-M16G | | TFR # / 4000-M16D | | TFR # / 4000-M16H | |
| | END 1 | END 2 | END 1 | END 2 | END 1 | END 2 | END 1 | END 2 | END 1 | END 2 | END 1 | END 2 |
| 1 | 1/4" GAS M - 120° | | 1/4" GAS M - 120° | | M16x1,5 | | 1/4" GAS F - 60° | M16x1,5 | M16x1,5 | | 1/4" HP | M16x1,5 |
| 1,5 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |

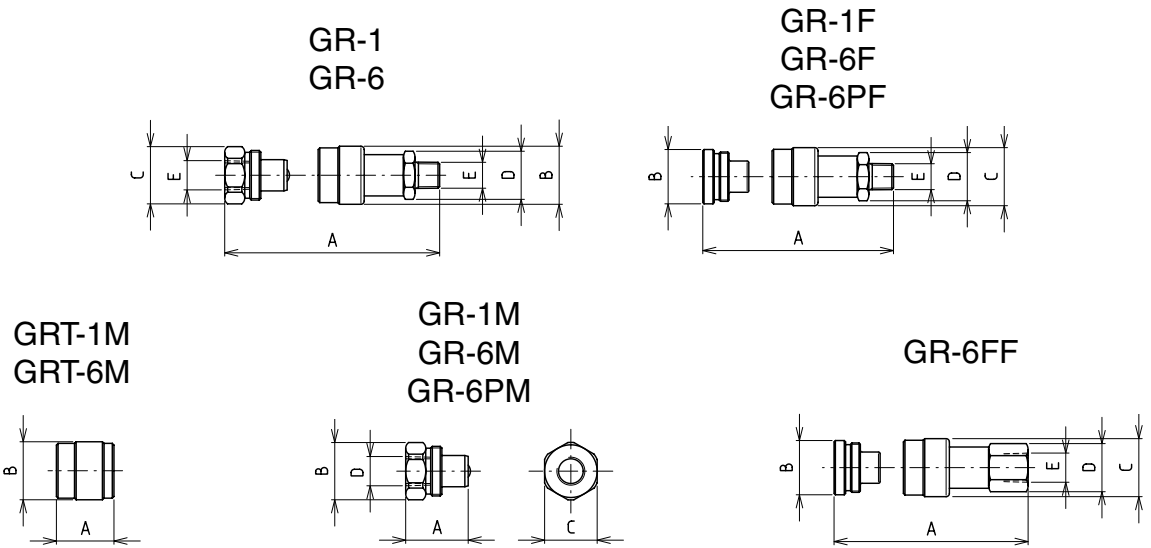
insert length of the hose expressed in meters

Series
GR Quick couplers



For quick and safe
connection of the
hydraulic circuits

700 bar couplings available in standard or high flow version. Female quick couplers are equipped with dust caps. For very high pressures, quick couplings are available up to 4,000 bar depending on specific needs.




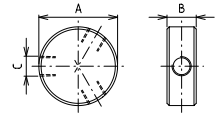

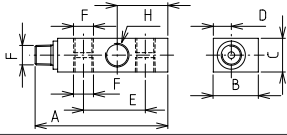

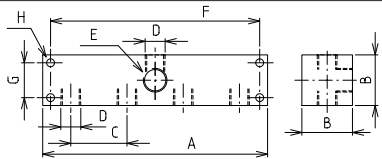
| MAX WP | MODEL | Description | Connection |
|---------------------|------------|--|-----------------|
| 700 bar | GR-6F | Female quick coupler, male threaded | 3/8" NPT Male |
| | GR-6M | Male quick coupler, female threaded | 3/8" NPT Female |
| | GR-6FF | Female quick coupler, female threaded | 3/8" NPT Female |
| | GR-6 | Complete quick coupler (GR-6F + GR-6M) | 3/8" NP |
| | GRT-6M | Dust cap for GR-6M | - |
| | GR-1F | Female quick coupler, male threaded | 1/4" NPT Male |
| | GR-1M | Male quick coupler, female threaded | 1/4" NPT Female |
| | GR-1 | Complete quick coupler (GR-1F + GR-1M) | 1/4" NPT |
| | GRT-1M | Dust cap for GR-1M | - |
| | GR-6PF | Female coupler, male threaded, poppet sealing system | 3/8" NPT Male |
| 700 bar - high flow | GR-6PM | Male coupler, female threaded, poppet sealing system | 3/8" NPT Female |
| 1500 bar | GR-15F | Female quick coupler, female threaded | 1/4" G |
| | GR-15M | Male quick coupler, female threaded | |
| 2000 bar | GR-20F | Female quick coupler, female threaded | |
| | GR-20M | Male quick coupler, female threaded | |
| 2500 bar | GR-25F | Female quick coupler, female threaded | M16x1,5 |
| | GR-25M | Male quick coupler, female threaded | |
| 3000 bar | GR-30F | Female quick coupler, female threaded | |
| | GR-30M | Male quick coupler, female threaded | |
| 4000 bar | GR-40F-M16 | Female quick coupler, female threaded | M16x1,5 |
| | GR-40M-M16 | Male quick coupler, female threaded | |


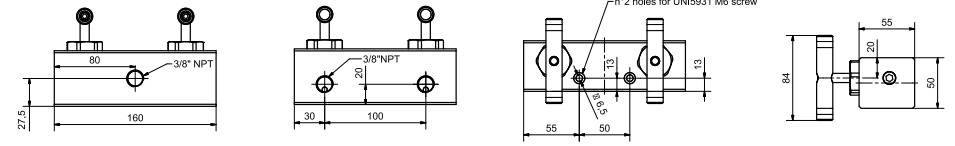

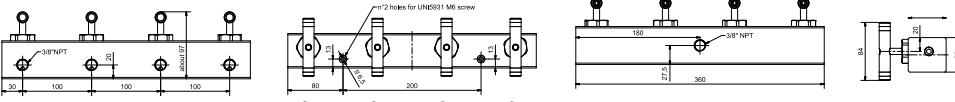
Series

MR - MA - ML

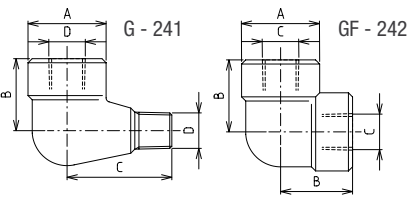
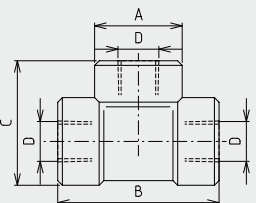
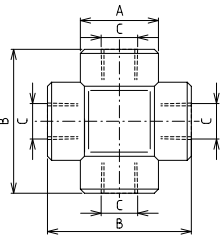
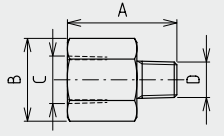
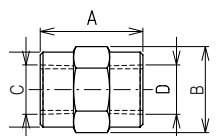
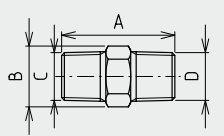
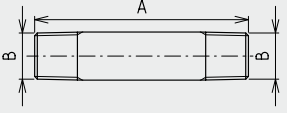
Manifolds - fittings
and hydraulic oil


- Used to connect multiple lines to one inlet.
 - Built with radial or linear outlet. The linear models are supplied with a pressure gauge installation hole.
- Available in 11 standard models and in custom versions for high pressure jobs.
 - 1000 bar

| | MODEL | NUMBER OF USES | DIMENSIONS in mm | | | | | | | | | |
|--|----------|----------------|------------------|----|----------|----------|--------|----------|-----|--------|---|--|
| | | | A | B | C | D | E | F | G | H | | |
|  | MR - 3V | 3 | 70 | 26 | 3/8" NPT | | | | | |  | |
| | MR - 5V | 5 | 70 | 26 | 3/8" NPT | | | | | | | |
| | MR - 11V | 11 | 148 | 35 | 3/8" NPT | | | | | | | |
| | MR - 17V | 17 | 230 | 35 | 3/8" NPT | | | | | | | |
|  | MA - 5 | 5 | 118 | 40 | 30 | 16 | 55 | 3/8" NPT | 45 | G 1/2" |  | |
| | MA - 7 | 7 | 173 | 40 | 30 | 16 | 55 | 3/8" NPT | 100 | G 1/2" | | |
| | MA - 9 | 9 | 228 | 40 | 30 | 16 | 55 | 3/8" NPT | 100 | G 1/2" | | |
|  | ML - 5 | 5 | 200 | 45 | 50 | 3/8" NPT | G 1/2" | 186 | 31 | 6,5 |  | |
| | ML - 7 | 7 | 300 | 45 | 50 | 3/8" NPT | G 1/2" | 286 | 31 | 6,5 | | |
| | ML - 9 | 9 | 400 | 45 | 50 | 3/8" NPT | G 1/2" | 386 | 31 | 6,5 | | |
| | ML - 11 | 11 | 500 | 45 | 50 | 3/8" NPT | G 1/2" | 486 | 31 | 6,5 | | |

| | MODEL | NUMBER OF USES | DIMENSIONS in mm | | | | | | | | | |
|--|--------|----------------|--|--|--|--|--|--|--|--|--|--|
|  | VM5A/2 | 3 |  | | | | | | | | | |
| | | | | | | | | | | | | |
|  | VM5A/4 | 5 |  | | | | | | | | | |
| | | | | | | | | | | | | |

FITTINGS

| TYPE | MODEL | DIMENSIONS in mm | | | | |
|---------------|----------|------------------|----------|----------|----------|---|
| | | A | B | C | D | |
| ELBOW | G - 241 | 38 | 35 | 50 | 3/8" NPT |  |
| | GF - 242 | 38 | 35 | 3/8" NPT | - | |
| T FITTING | T - 342 | 38 | 66 | 53 | 3/8" NPT |  |
| CROSS FITTING | C - 442 | 38 | 66 | 3/8" NPT | - |  |
| REDUCTION | R - 313 | 40 | CH 27 | 1/4" NPT | 3/8" NPT |  |
| | R - 314 | 40 | CH 27 | 3/8" NPT | 1/4" NPT | |
| | R - 316 | 45 | CH 32 | G 1/2" | 1/4" NPT | |
| | R - 352 | 45 | CH 32 | G 1/2" | 3/8" NPT | |
| HEX COUPLING | ME - 349 | 37 | CH 27 | 3/8" NPT | 3/8" NPT |  |
| | ME - 357 | 37 | CH 27 | 1/4" NPT | 3/8" NPT | |
| NIPPLE | N - 341 | 39 | CH 17 | 1/4" NPT | 1/4" NPT |  |
| | N - 343 | 41 | CH 19 | 1/4" NPT | 3/8" NPT | |
| | N - 344 | 41 | CH 19 | 3/8" NPT | 3/8" NPT | |
| LONG NIPPLE | NL - 345 | 55 | 3/8" NPT | | - |  |
| | NL - 346 | 80 | 3/8" NPT | | - | |
| | NL - 347 | 150 | 3/8" NPT | | - | |

| | MODEL | LITRES |
|---|------------|--------|
|  | OIL - 1 | 1 |
| | OIL - 5 | 5 |
| | OIL - 10 | 10 |
| | BIO-OIL-1 | 1 |
| | BIO-OIL-5 | 5 |
| | BIO-OIL-10 | 10 |

MINERAL HIDRAULIC OIL ISO VG 32
Available different oil for custom applications.

BIO OIL - Eco-friendly oil
Eco-friendly oil. High-performance, fully synthetic, biodegradable, non-toxic hydraulic fluid, saturated esters made.







F.P.T. BOLT TIGHTENING EQUIPMENT

Versatile solutions

F.P.T. produces a wide range of equipment for bolt tightening: hydraulic bolt tensioners, hydraulic nuts, torque wrenches, hand pumps and custom hydraulic pumps.



INDEX TORQUE AND TENSIONING

| | Series | | |
|---|------------------|---|-----|
| Hydraulic bolt tensioners | TTS CTP |  | 108 |
| Pumps and powerpacks for hydraulics tensioners and nuts | FPT PDS PP |  | 114 |
| Hydraulic torque wrenches and power units | FPT HTW |  | 122 |
| Hydraulic nuts | GH |  | 126 |



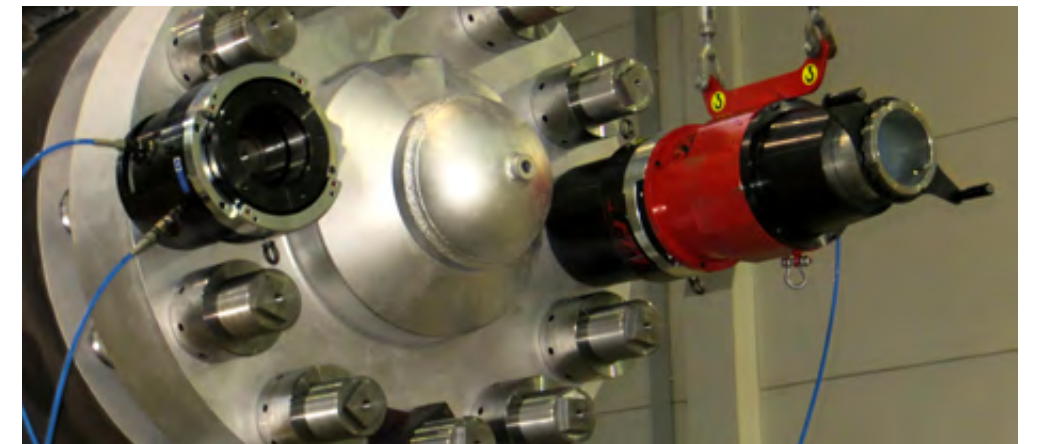
PRODUCTION OF CUSTOM HYDRAULIC BOLT TENSIONERS

F.P.T. can provide custom design bolt tightening solutions from 700 to 2.500 bar. The relevant markets more and more require hydraulic bolt tensioners built to the customer's to specifics operate within the required geometry. F.P.T. supports customers from studying the layout to the 3D model and the production of the requested tensioners. F.P.T. doesn't just produce tensioners, but also supports the customer in developing the hydraulic circuit, providing the hydraulic pumps and all the components needed to get the system running.



F.P.T. HYDRAULIC BOLT TENSIONERS

- Tensioning accuracy. The tensioner, by applying a direct force on the stud, allows very high accurate tightening, directly proportional to the pressure applied to the tensioner itself.
- Easy calculation of the force to be applied to the stud. The calculation of force is simple and F.P.T. provides all the force / pressure conversion data.
- Speed and repeatability in tightening operations. Easy to set up and fast in carrying out the tensioning operation, guaranteeing very high repetitiveness as well.
- Less stress. By this tightening method the studs are less stressed because there are no torsional forces, just axial ones.



TTS

3/4" to 4" (M20-M100)
236 kN - 2.820 kN
Stroke 10 - 15 mm
1.500 bar

Series
TTS

Standard hydraulic
bolt tensioners



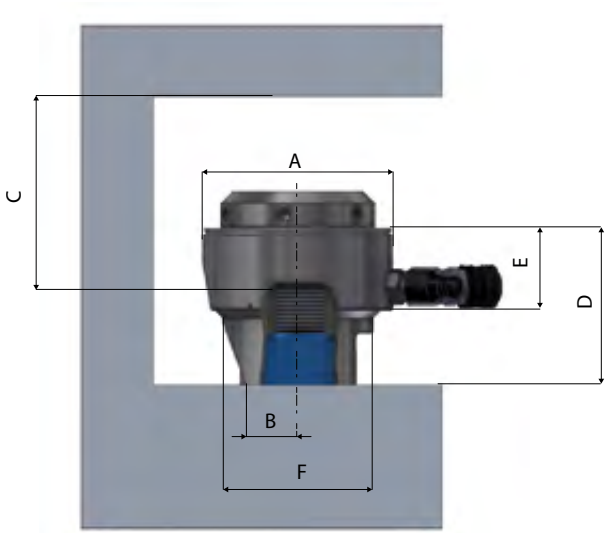
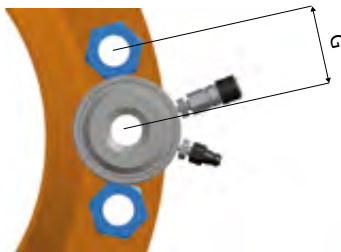
High forces – reduced dimensions: anti over-stroke device.

- TTS Series tensioners are designed to suit most flanges type: ANSI B16.5 - ANSI B16.47 - B.S.3293 - AWWA - MSS-SP44 - API-6A - API-17D - UNI EN 1092-1.
- High forces and reduced dimensions. TTS Series tensioners represent the optimal combination between the developed strength and their size.
- Extremely compact dimensions and low weight. In TTS series the spaces for the installation are reduced to a minimum level and operations are facilitated by reduced weights.
- Maximum flexibility. With only 6 hydraulic cells the operator can cover an extended range of Imperial or Metric thread sizes from 3/4" to 4" (M20 – M100).
- 15 mm stroke cover most of the tensioning application. If longer

- strokes are required the tensioning operation can be carried on by steps.
- All components are manufactured with hardened high tensile strength steel.
- Special treatment to guarantee: high resistance to corrosion - high resistance to wear – extremely low friction to help during screw operations.
- Safety is a must. All size have over stroke indicators.
- All model are equipped with 2 quick couplers, male and female, for serial hydraulic connection.
- Special high quality seals for leak free operations and easy maintenance.

Anti over stroke device for the maximum safety during operations.

CUSTOM TENSIONERS ON REQUEST



TENSIONING TOOL TTS SERIES COMPONENTS



| HYDRAULIC CELL | IMPERIAL ADAPTER KITS | | METRIC ADAPTER KITS | | FORCE | | HYDRAULIC AREA | | STROKE | WEIGHT | DIMENSIONS (mm) | | | | | | |
|----------------|-----------------------|---------------|---------------------|-------------|--------|-------|-----------------|-----------------|--------|--------|-----------------|----|-----|-----|----|-----|---------|
| | Thread size | Kit code | Thread size | Kit code | kN | Ton | in ² | mm ² | mm | kg | A | B | C | D | E | F | G (min) |
| TTS1 | 3/4"-10 UNC | 1.KI030410UNC | M20x2,5 | 1.KM.020025 | 236,5 | 24,1 | 2,44 | 1576,46 | 10 | 2 | 73 | 16 | 64 | 75 | 45 | 52 | 44,50 |
| | 7/8"-9 UNC | 1.KI070809UNC | M22x2,5 | 1.KM.022025 | | | | | | 1,9 | | 22 | | 79 | | 58 | 50,50 |
| | 1"-8 UN | 1.KI100008UN | M24x3 | 1.KM.024030 | | | | | | 1,8 | | 23 | | 81 | | 62 | 55 |
| | 1.1/8"-8 UN | 1.KI110808UN | M27x3 | 1.KM.027030 | | | | | | 1,8 | | 24 | | 81 | | 68 | 61 |
| TTS2 | 1.1/8"-8 UN | 2.KI110808UN | M27x3 | 2.KM.027030 | 459,5 | 46,8 | 4,75 | 3063,05 | 15 | 4,6 | 101 | 25 | 89 | 104 | 54 | 75 | 64,50 |
| | - | - | M30x3,5 | 2.KM.030035 | | | | | | 4,6 | | 25 | | 104 | | 75 | 64,50 |
| | 1.1/4"-8 UN | 2.KI110408UN | M33x3,5 | 2.KM.033035 | | | | | | 4,5 | | 28 | | 108 | | 80 | 69,50 |
| | 1.3/8"-8 UN | 2.KI130808UN | M36x4 | 2.KM.036040 | | | | | | 4,4 | | 30 | | 111 | | 84 | 74,50 |
| TTS3 | 1.1/2"-8 UN | 2.KI110208UN | M39x4 | 2.KM.039040 | 831,3 | 84,7 | 8,59 | 5541,77 | 15 | 4,2 | 133 | 33 | 89 | 114 | 57 | 88 | 79 |
| | 1.1/2"-8UN | 3.KI110208UN | M39x4 | 3.KM.039040 | | | | | | 7,7 | | 34 | | 106 | | 95 | 82,50 |
| | 1.5/8"-8 UN | 3.KI150808UN | M42x4,5 | 3.KM.042045 | | | | | | 7,7 | | 36 | | 109 | | 104 | 90 |
| | 1.3/4"-8 UN | 3.KI130408UN | M45x4,5 | 3.KM.045045 | | | | | | 7,5 | | 40 | | 112 | | 108 | 94,50 |
| TTS4 | 1.7/8"-8 UN | 3.KI170808UN | M48x5 | 3.KM.048050 | 1345,5 | 137,2 | 13,90 | 8970,03 | 15 | 7,6 | 163 | 42 | 102 | 117 | 63 | 112 | 99,50 |
| | 2"-8 UN | 3.KI200008UN | M52x5 | 3.KM.052050 | | | | | | 7,5 | | 48 | | 118 | | 116 | 104,50 |
| | 1.7/8"-8 UN | 4.KI170808UN | M48x5 | 4.KM.048050 | | | | | | 13,7 | | 43 | | 125 | | 122 | 104,50 |
| | 2"-8 UN | 4.KI200008UN | M52x5 | 4.KM.052050 | | | | | | 13,2 | | 45 | | 128 | | 123 | 108 |
| TTS5 | 2.1/4"-8 UN | 4.KI210408UN | M56x5,5 | 4.KM.056055 | 1927,3 | 196,5 | 19,91 | 12848,33 | 15 | 12,7 | 193 | 54 | 98 | 133 | 63 | 132 | 117,50 |
| | - | - | M60x5,5 | 4.KM.060055 | | | | | | 13,3 | | 53 | | 137 | | 140 | 120,50 |
| | 2.1/2"-8 UN | 4.KI210208UN | M64x6 | 4.KM.064060 | | | | | | 13 | | 57 | | 141 | | 146 | 128 |
| | 2.1/2"-8 UN | 5.KI210208UN | M64x6 | 5.KM.064060 | | | | | | 18,9 | | 59 | | 134 | | 148 | 131 |
| TTS6 | - | - | M68x6 | 5.KM.068060 | 2819,9 | 287,5 | 29,14 | 18799,29 | 15 | 19 | 232 | 62 | 125 | 137 | 73 | 154 | 135 |
| | 2.3/4"-8 UN | 5.KI230408UN | M72x6 | 5.KM.072060 | | | | | | 18,2 | | 68 | | 140 | | 158 | 141,50 |
| | 3"-8 UN | 5.KI300008UN | M76x6 | 5.KM.076060 | | | | | | 17,5 | | 70 | | 146 | | 165 | 150,50 |
| | 3"-8 UN | 6.KI300008UN | M76x6 | 6.KM.076060 | | | | | | 34,3 | | 75 | | 160 | | 170 | 153 |
| TTS6 | - | - | M80x6 | 6.KM.080060 | 2819,9 | 287,5 | 29,14 | 18799,29 | 15 | 36,3 | 232 | 77 | 125 | 165 | 73 | 177 | 155 |
| | 3.1/4"-8 UN | 6.KI310408UN | M85x6 | 6.KM.085060 | | | | | | 34,3 | | 77 | | 170 | | 182 | 164,50 |
| | 3.1/2"-8 UN | 6.KI310208UN | M90x6 | 6.KM.090060 | | | | | | 33 | | 82 | | 175 | | 191 | 174,50 |
| | 3.3/4"-8 UN | 6.KI330408UN | M95x6 | 6.KM.095060 | | | | | | 32,9 | | 86 | | 180 | | 206 | 187,50 |
| TTS6 | 4"-8 UN | 6.KI400008UN | M100x6 | 6.KM.100060 | 2819,9 | 287,5 | 29,14 | 18799,29 | 15 | 32,9 | 232 | 95 | 125 | 185 | 73 | 216 | 198 |
| | - | - | - | - | | | | | | 32,9 | | 95 | | 185 | | 216 | 198 |

Series
CTP

Hydraulic bolt tensioners with threaded insert

For big
sizes



The hydraulic bolt tensioners with threaded insert are characterised by the threaded interchangeable insert which makes it possible to work on studs with various threads, using just one hydraulic cell. This configuration is extremely versatile whenever stud with different threads and similar clearance must be tensioned, all you need is a set of inserts different sockets and in some cases reaction bridges.

F.P.T. is specialized in the study and production of custom hydraulic bolt tensioners from 700 to 2,500 bar.

CUSTOM TENSIONERS ON REQUEST



Series
CTP-C

Compact hydraulic bolt tensioners

To being
compact



The compact hydraulic bolt tensioners have the thread integrated in the piston. This characteristic reduces the overall size at a minimum level, allowing you to have a tensioner with extremely small dimensions and to be able to operate where other tensioners could not be installed.

F.P.T. produces this model of tensioner, with threaded piston, in all those cases in which it is not possible to meet the requirements of dimensions without recurring to multistage tensioner. Spring return version or pneumatic return can be realised to speed up the return operations of the piston.

CUSTOM TENSIONERS ON REQUEST



Series
CTP-M

Multi-stage hydraulic bolt tensioners

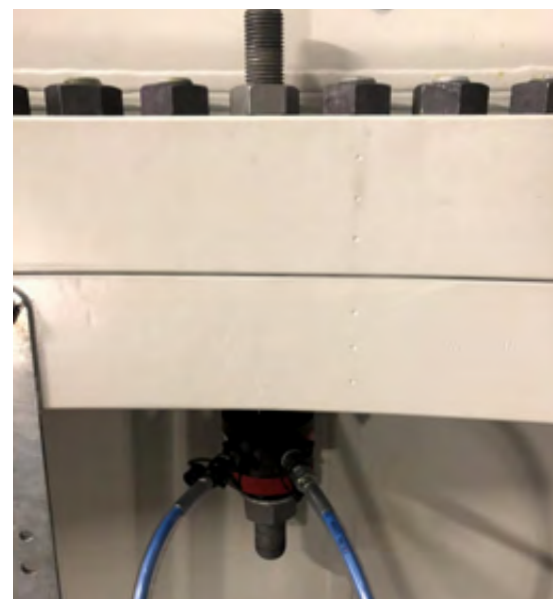
**High forces
low clearance**



The CTP-M series is characterised by a central puller which two loading cells operate on, this construction makes it possible to double the load capacity whilst keeping the external cell dimension the same. The results obtained are very tight clearances with the load supplied remaining equal. The multistage tensioners F.P.T. are suitable for all applications where there are reduced radial dimensions available. This type of tensioner is available also in the version with gear rotation nut mechanism to accelerate tensioning operations. Also there is the possibility of shaping the bridge to best match the available space among nuts.

F.P.T. realizes multistage hydraulic bolt tensioners according to customer specifications by carrying out a preliminary study on the existing dimensions and thus offering the most suitable solution.

CUSTOM TENSIONERS ON REQUEST



Series
CTP-W

Hydraulic bolt tensioners for the wind turbine sector

For wind towers



F.P.T. - Fluid Power Technology produces a wide range of wind tensioners, CTP-W series, specifically designed for the wind power sector, for bolted joints of a wind turbine. Extremely compact, they are capable of developing very high forces, designed and engineered for turbine installation and subsequent maintenance. They have a compact structure, equipped with a piston, spring return and / bush screwing / unscrewing nut device on the stud with ratchet wrench. Equipped with adjustable joint for 360° rotation to place the flexible hoses in the best possible position in order to allow the free access to tensioning tools. Automatic piston return system for maximum speed in operations, nut unscrewing/screwing system and the assisted key positioning equipped.

The wind tensioners are especially designed to tighten swivel ring, bolts, hub and blades of wind towers. They are light, easy to use, easy to handle and carefully designed for greater reliability and durability. All components are made of high resistance steel and have a special treatment to guarantee a high resistance against corrosion and a high resistance to wear during screwing operations and equipped with Long Life Time Puller.

CUSTOM TENSIONERS ON REQUEST



PDSA

1.600 - 3.000 bar
40/1 cm3 oil displacement
Double stage
1,8 l oiltank capacity

Series
PDSA

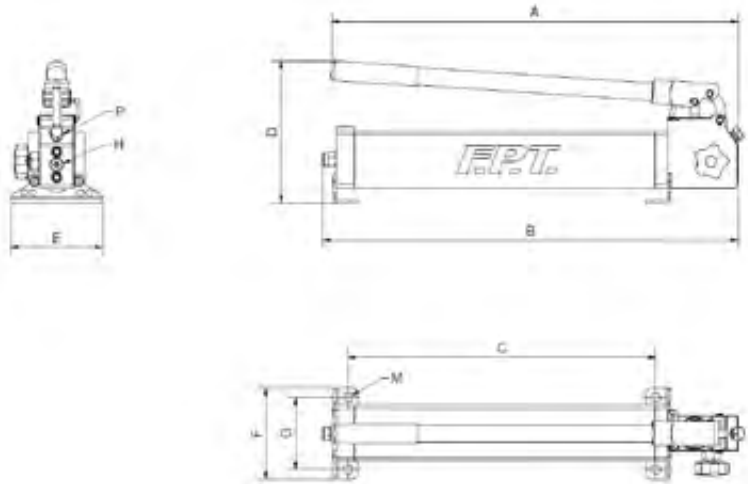
Hand pumps for bolt tensioners and hydraulic nuts
1.600 - 3.000 bar,
aluminium made



For bolt tensioners
And hydraulic nuts

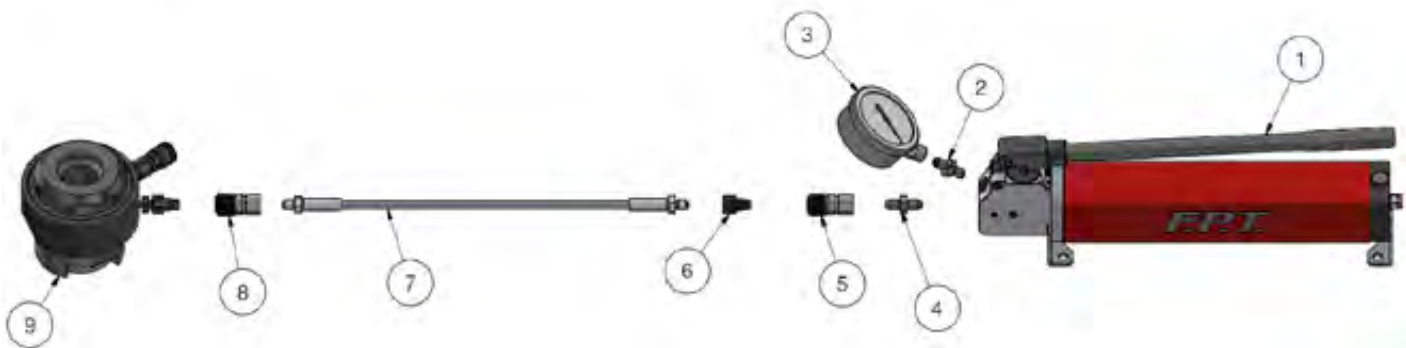
- Very high pressure hand pumps produced in lightweight aluminum alloy of aeronautics grade to reduce weight to a minimum level. The most flexible solution for driving hydraulic bolt tensioners and nuts.
- Two-stage versions at 1,600 bar and 3,000 bar with 40 cc displacement at the first stage for a rapid approach and 1 cc at the second stage.
- Pressure relief valve integrated in the pump body for maximum operator safety.
- Very high pressure, high performance, reduced effort on the handle and ergonomics.
- Integrated pressure gauge connection for direct mounting of the measuring instrument.
- Oil filler cap with integrated breather. Tough pins with trough-holes for attachment to machinery or structures.
- Surface treatments to guarantee total reliability in the most difficult environments and maximum duration.

CUSTOM PUMPS ON REQUEST



PDSA 1600 - 3000

| TYPE OF PUMP | MODEL | PRESSURE 1°/2° STAGE | OIL DISPLACEMENT 1°/2° STAGE | OIL TANK CAPACITY | USABLE OIL | DIMENSIONS in mm | | | | | | | | | | WEIGHT |
|--------------|-----------|-------------------------|------------------------------------|----------------------|------------|------------------|-------|-----|-----|-----|-----|-----|-------------|----|--------------|--------|
| | | bar | cm ³ | litres | litres | A | B | C | D | E | F | G | H | M | P | kg |
| DOUBLE STAGE | PDSA-1600 | 25/1600 | 40/1 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 1/4" GAS | 13 | 1/2" GAS | 7,8 |
| DOUBLE STAGE | PDSA-3000 | 16/3000 | 40/0,5 | 1,8 | 1,6 | 577 | 588,5 | 436 | 200 | 130 | 130 | 102 | 3/4"-16 UNF | 13 | 9/16"-18 UNF | 7,8 |



Configuration No.1 – Quick coupler on pump
Configuration No.2 – Flex hose directly assembled on the pump

| | 1500 Bar - Config.1 | 1500 Bar - Config.2 | 1600 Bar - Config.1 | 1600 Bar - Config.2 | 2500 Bar - Config.1 | 2500 Bar - Config.2 | 3000 Bar - Config.1 | 3000 Bar - Config.2 |
|------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| ITEM | CODE | CODE | CODE | CODE | CODE | CODE | CODE | CODE |
| 1 | 01PDSA1600 | 01PDSA1600 | 01PDSA1600 | 01PDSA1600 | 01PDSA3000 | 01PDSA3000 | 01PDSA3000 | 01PDSA3000 |
| 2 | - | - | - | - | 0922225016 | 0922225016 | 0922225016 | 0922225016 |
| 3 | 01MD200G | 01MD200G | 01MD200G | 01MD200G | 01MD300G | 01MD300G | 01MD300G | 01MD300G |
| 4 | 0925613265 | - | 0925613265 | - | 09299199501611 | 0929112241 | 0922225257 | 09222199501606 |
| 5 | 07GR15F | - | 07GR20F | - | 07GR25F | - | 07GR30F | - |
| 6 | 07GR15M | - | 07GR20M | - | 07GR25M | - | 07GR30M | - |
| 7 | 01TFR#/1800 | 01TFR#/1800 | 01TFR#/1800 | 01TFR#/1800 | 01TFR#/2500 | 01TFR#/2500 | 01TFR#/3000M16D | 01TFR#/3000M16G |
| 8 | 07GR15F | 07GR15F | 07GR20F | 07GR20F | 07GR25F | 07GR25F | 07GR30F | 07GR30F |
| 9 | Tool | Tool | Tool | Tool | Tool | Tool | Tool | Tool |

insert length of the hose expressed in meters

FPT C7

1.500 to 3.000 bar
40/1 cm³ oil displacement
Double stage
7 l oiltank capacity

Series
FPT C7

Electric pump 1500 bar for hydraulic bolt tensioners

**For bolt tensioners and
hydraulic nuts**



- Single-phase electric power pack suitable to operate hydraulic bolt tensioners and nuts.

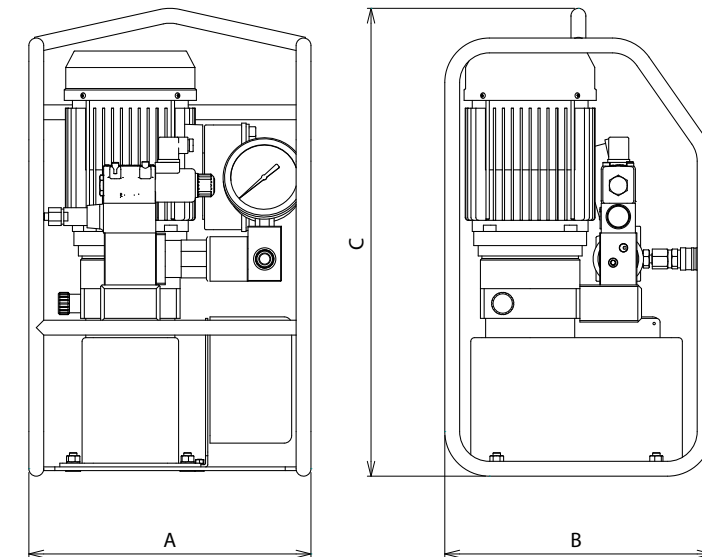
- On request different engines, capacities and pressure are available.

- The electric pump is available in three versions: 1.500 - 2.000 and 3.000 bar.

- The pressure regulating valve allows easy output pressure setting.

- Control pendant for easy operation control.

- Data Logger option available as an option, for the download of tightening values.



FPT C7

CUSTOM PUMPS ON REQUEST



| MODEL | PRESSURE | OIL FLOW | MOTOR | KW RPM | VALVE | OILTANK CAPACITY | DIMENSIONS | | | WEIGHT | ACCESSORIES |
|---------------------|----------|----------|-----------------------|----------|----------------|------------------|------------|-----|-----|--------|------------------------------|
| | bar | l/min | | | | | A | B | C | | |
| FPT-1500-EV4/3-C7 | 120/1500 | 4,5/0,35 | SINGLE PHASE, 4 POLES | 1,1/1400 | SOLENOID VALVE | 7 | 380 | 360 | 630 | 38 | PENDANT |
| FPT-1500-EV4/3-D-C7 | 120/1500 | 4,5/0,35 | SINGLE PHASE, 4 POLES | 1,1/1400 | SOLENOID VALVE | 7 | 380 | 360 | 630 | 39 | PENDANT WITH DIGITAL DISPLAY |
| FPT-2000-EV4/3-C7 | 120/2000 | 3,7/0,12 | SINGLE PHASE, 4 POLES | 1,1/1400 | SOLENOID VALVE | 7 | 380 | 360 | 630 | 38 | PENDANT |
| FPT-3000-EV4/3-C7 | 185/3000 | 3,2/0,15 | SINGLE PHASE, 4 POLES | 1,1/1400 | SOLENOID VALVE | 7 | 380 | 360 | 630 | 38 | PENDANT |

**** On request it is possible to have control pendant with digital pressure indicator even for pressures > 1500 bar**

PP

Single stage
5 to 10 l reservoir
1.500 to 3.000 bar

Series
PP

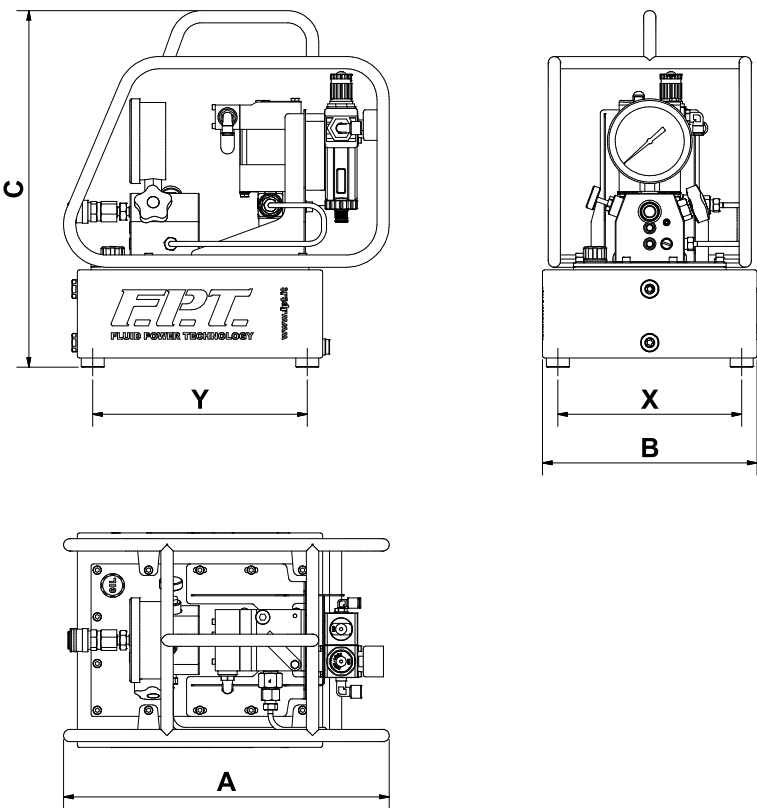
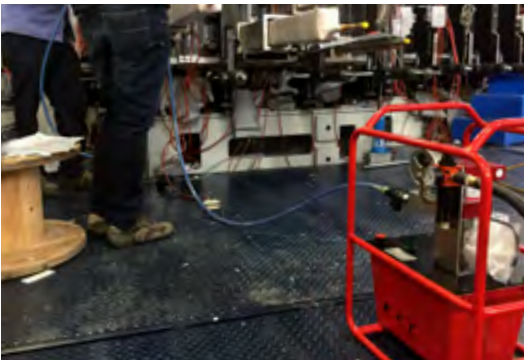
Pneumohydraulic pumps
for bolt tensioners and
hydraulic nuts



For bolt tensioners and
hydraulic nuts

- PP series power packs are the ideal solution for all very high pressure applications when compressed air line connection is needed.
- Hydraulic pumps for stud tensioning, burst tests, laboratory tests, scaling or keying of bearings, actuation of hydraulic bolt tensioners or hydraulic nuts and wherever high pressure is required.
- Standard versions with pressure 1500 bar - 2500 bar - 3000 bar and 4000 bar.
- Equipped with pressure relief valve for maximum operative safety.
- Handwheel pressure regulator valve.
- Pressure gauge, female quick coupler and standard assembly pneumatic regulator filter on all models.
- Models available with remote control pendant.
- Possibility to design and produce custom hydraulic power units on request, with dedicated performance and features.

CUSTOM PUMPS ON REQUEST



PP

| MODEL | HYDRAULIC PRESSURE | MIN. AIR INLET PRESSURE | AVG. AIR CONSUMPTION | MULTIPLICATION RATIO | NO LOAD OIL DISPLACEMENT | OIL DISPLACEMENT AT MAX OIL PRESSURE | OILTANK CAPACITY | AIR PRESSURE RANGE | LENGTH | WIDTH | HEIGHT | FIXING HOLES | SIDE INTERAXIS | FRONT INTERAXIS | WEIGHT (WITH OIL) |
|---------------|--------------------|-------------------------|----------------------|----------------------|--------------------------|--------------------------------------|------------------|--------------------|--------|-------|--------|--------------|----------------|-----------------|-------------------|
| | bar | bar | l/min | - | l/min | l/min | litres | bar | A | B | C | - | X | Y | kg |
| PP1500C05 | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 5 | 1 - 10 bar | 425 | 265 | 466 | nr.4 M8x12 | 165 | 250 | 19,5 |
| PP1500C10 | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 10 | | 425 | 280 | 466 | nr.4 M8x12 | 240 | 280 | 25,5 |
| PP1500C05/CDP | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 5 | | 425 | 265 | 466 | nr.4 M8x12 | 165 | 250 | 21,0 |
| PP1500C10/CDP | 1500 | 7 | 500 | 1:220 | 0,28 | 0,01 @ 7 bar | 10 | | 425 | 280 | 466 | nr.4 M8x12 | 240 | 280 | 27,0 |
| PP2500C05 | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 5 | | 425 | 265 | 466 | nr.4 M8x12 | 165 | 250 | 20,5 |
| PP2500C10 | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 10 | | 425 | 280 | 466 | nr.4 M8x12 | 240 | 280 | 26,5 |
| PP2500C05/CDP | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 5 | | 425 | 265 | 466 | nr.4 M8x12 | 165 | 250 | 22,0 |
| PP2500C10/CDP | 2500 | 6 | 600 | 1:440 | 0,21 | 0,03 @ 6 bar | 10 | | 425 | 280 | 466 | nr.4 M8x12 | 240 | 280 | 27,5 |
| PP3000C05 | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 5 | | 425 | 265 | 466 | nr.4 M8x12 | 165 | 250 | 20,5 |
| PP3000C10 | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 10 | | 425 | 280 | 466 | nr.4 M8x12 | 240 | 280 | 26,5 |
| PP3000C05/CDP | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 5 | | 425 | 265 | 466 | nr.4 M8x12 | 165 | 250 | 22,0 |
| PP3000C10/CDP | 3000 | 8 | 700 | 1:440 | 0,21 | 0,06 @ 8 bar | 10 | | 425 | 280 | 466 | nr.4 M8x12 | 240 | 280 | 27,5 |

F.P.T.

SQUARE DRIVE TORQUE WRENCHES, LOW CLEARANCE TORQUE WRENCHES, HYDRAULIC PUMPS AND ACCESSORIES

F.P.T. offers a wide variety of products for controlled tightening to better meet the customer's specific needs and applications. Including hydraulic torque wrenches, compact and high-flow power packs, twin flex hoses, quick couplers and all the accessories required to complete the system. Any tightening can be executed with F.P.T.'s torque wrenches. Handy and compact models, square drive and low clearance.

- Accuracy
- Reliability
- Low weight
- Excellent performance

[Contact F.P.T. to receive the complete catalog of hydraulic torque wrenches](#)



F.P.T.

SQUARE DRIVE TORQUE WRENCHES, LOW CLEARANCE TORQUE WRENCHES, HYDRAULIC PUMPS AND ACCESSORIES



FPT-HTW-C

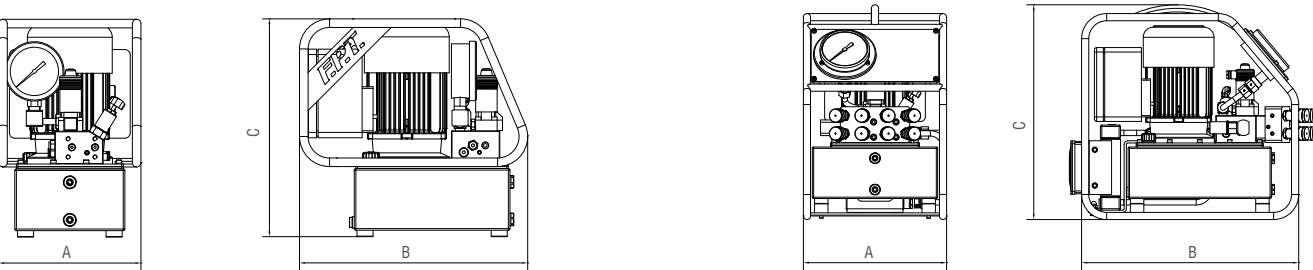
700 bar
Two speed
3,5/0,45 - 7,9/0,9 l/m
5 to 10 l capacity

Series
FPT-HTW-C

Compact pumps electric
and pneumatic for hydraulic
torque wrenches



- The FPT-HTW-C is a compact pump that provide the power for your torque wrenches.
- The FPT-HTW-C10 Series is available in both single port models for single tool operation and quad port models for running up to four tools simultaneously.
- The sight glasses enable operator to monitor reservoir oil levels and the transport cage for all around protection and easy handling.
- The hydraulic pump is available in electric or pneumatic version, with different 2-Stage delivery.
- For this model are available different accessories. For both version the heat exchanger, quick couplers and twin hoses, for FPT9-HTW-C10 the quad block and the auto cycle - for automatic operation. It is also possible totally customize the pump up to the customers' needs.
- See option on page 119



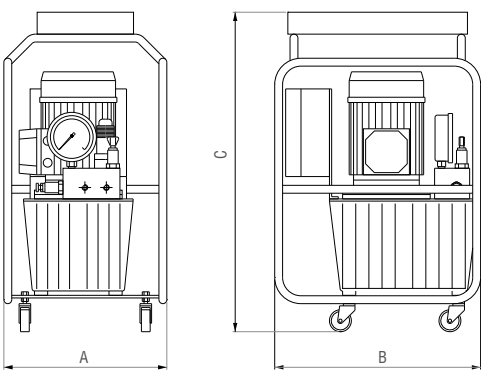
| CODE | MODEL | PRESSURE 1°/ 2° STAGE | OIL FLOW | MOTOR | TENSION/ FREQUENCY | POWER/ RPM | TANK CAPACITY | DIMENSIONS in mm | | | WEIGHT |
|-------|---------------------------|-----------------------------|----------|---------------------|-----------------------|---------------|------------------|------------------|-----|-----|--------|
| | | bar | l/min | | | | | A | B | C | |
| 51001 | FPT9-ME41-HTW-C05 | 80/700 | 3,5/0,45 | MONO PHASE ELECTRIC | 230V-50Hz | 0,75/1370 | 5 | 265 | 425 | 405 | 29 |
| 51002 | FPT9-ME41-HTW-C05-SC | 80/700 | 3,5/0,45 | MONO PHASE ELECTRIC | 230V-50Hz | 0,75/1370 | 5 | 265 | 425 | 405 | 34 |
| 51088 | FPT9-ME21-HTW-C05-SC | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 5 | 265 | 425 | 405 | 34 |
| 51003 | FPT9-MA-HTW-C05 | 80/700 | 5,6/0,65 | PNEUMATIC | - | 1,3/3000 | 5 | 265 | 425 | 405 | 27 |
| 51004 | FPT9-ME21-HTW-C10 | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 320 | 485 | 480 | 36 |
| 51005 | FPT9-ME21-HTW-C10-SC | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 320 | 485 | 480 | 40 |
| 51006 | FPT9-ME21-HTW-C10-Q | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 320 | 485 | 480 | 38 |
| 51008 | FPT9-ME21-HTW-C10-SC-Q | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 320 | 485 | 480 | 43 |
| 51009 | FPT9-ME21-HTW-C10-SC-Q-AC | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 320 | 485 | 480 | 44 |
| 51011 | FPT9-ME21-HTW-C10-AC-SC | 80/700 | 7,5/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 320 | 485 | 480 | 42 |
| 51012 | FPT9-MA-HTW-C10 | 80/700 | 7,9/0,9 | PNEUMATIC | - | 3/3000 | 10 | 320 | 485 | 480 | 34 |
| 51013 | FPT9-MA-HTW-C10-Q | 80/700 | 7,9/0,9 | PNEUMATIC | - | 3/3000 | 10 | 320 | 485 | 480 | 36 |

Series
FPH-HTW

Electric and
pneumatic pumps for
hydraulic torque wrenches



- The FPH-HTW pump is the most used pump for torque operations and provide the power for your torque wrenches.
- The hydraulic pump is available in electric or pneumatic version, with different 2-Stage delivery.
- The transport cage guarantee all-round protection and easy handling.
- For this model are available different accessories: heat exchanger, quad block, automatic cycle, quick couplers and twin hoses.
- This pump model can moreover be totally personalized:
 - ATEX
 - hour counter
 - different cages
 - timer
 - multiple switches
 - different tanks
 - different tension and frequency



| OPZIONI | |
|---------|----------------|
| SC | HEAT EXCHANGER |
| Q | QUAD BLOCK |
| AC | AUTO CYCLING |
| T | TIMER |
| HC | HOUR COUNTER |

| CODE | MODEL | PRESSURE 1°/ 2° STAGE | OIL FLOW | MOTOR | TENSION/ FREQUENCY | POWER/ RPM | TANK CAPACITY | DIMENSIONS in mm | | | WEIGHT |
|-------|---------------|-----------------------------|----------|----------------------|-----------------------|---------------|------------------|------------------|-----|-----|--------|
| | | bar | l/min | | | | | A | B | C | |
| 51014 | FPH5-ME21-HTW | 80/700 | 4/1,6 | MONO PHASE ELECTRIC | 230V-50Hz | 2,2/2850 | 10 | 372 | 470 | 725 | 42 |
| 51015 | FPH5-ME2-HTW | 80/700 | 4,5/1,8 | THREE PHASE ELECTRIC | 400V-50Hz | 2,2/2850 | 10 | 372 | 470 | 725 | 40 |
| 51016 | FPH5-MA-HTW | 80/700 | 5,4/1,8 | PNEUMATIC | - | 3/3000 | 10 | 372 | 470 | 725 | 34 |
| 51017 | FPH9-ME21-HTW | 80/700 | 7,2/0,9 | MONO PHASE ELECTRIC | 230V-50Hz | 1,5/2850 | 10 | 350 | 460 | 610 | 38 |
| 51018 | FPH9-ME2-HTW | 80/700 | 7,2/0,9 | THREE PHASE ELECTRIC | 400V-50Hz | 1,1/2850 | 10 | 350 | 460 | 610 | 37 |
| 51019 | FPH9-MA-HTW | 80/700 | 7,9/0,9 | PNEUMATIC | - | 1,3/3000 | 10 | 350 | 460 | 610 | 33 |

FPT-HTW-HF

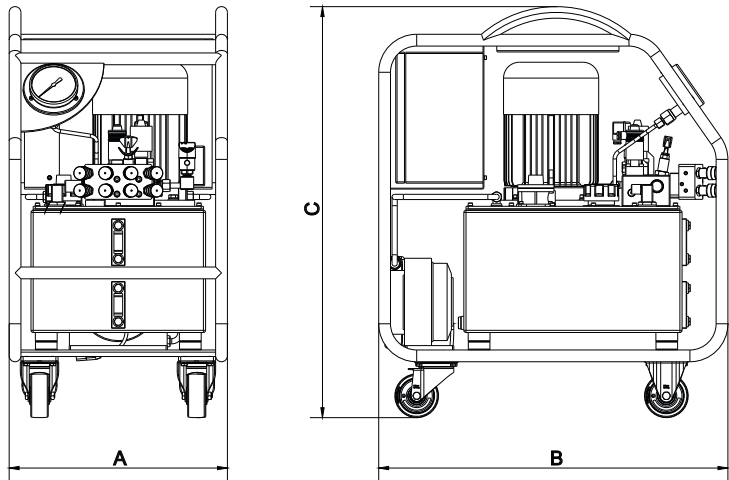
700 bar
15/3 l/min
Two speed
40 l capacity

Series
FPT-HTW-HF

High flow pumps
for torque wrenches



- The pump FPT-HTW-HF is a high flow version typically used for intensive job with multiple tools.
- The pump is available on three-phase version with 15 l/min at 100 bar and 3 l/min at 700 bar.
- The pump is equipped with protection cage and wheels for easy handling.
- Standard for this model are: heater exchanger, quad block manifold and oil return filter.
- There are also available different accessories: automatic cycle, quick couplers and twin hoses.
- The FPT-HTW-HF can also be equipped with different pumps and flow related to the torque specifications.
- Automatic cycle available for heavy duty operations



| CODE | MODEL | PRESSURE 1°/ 2° STAGE | OIL FLOW | MOTOR | TENSION/ FREQUENCY | POWER/RPM | TANK CAPACITY | DIMENSIONS in mm | | | WEIGHT |
|-------|-----------------------|-----------------------------|----------|-------------|-----------------------|-----------|------------------|------------------|-----|-----|--------|
| | | bar | l/min | | | | | A | B | C | |
| 51086 | FPT15-ME4-HTW-HF40 | 100/700 | 15/3 | THREE PHASE | 400V-50Hz | 4/1450 | 40 | 500 | 800 | 940 | 100 |
| 51087 | FPT15-ME4-HTW-HF40-AC | 100/700 | 12/3 | THREE PHASE | 400V-50Hz | 4/1450 | 40 | 500 | 800 | 940 | 100 |

ACCESSORIES AND
CUSTOM MADE

Accessories and custom
made pumps for hydraulic
torque wrenches

| MODEL | HOSE AND COUPLERS ASSEMBLY | | LENGHT m | PRESSURE BAR |
|----------------|----------------------------|-------------|-------------|-----------------|
| | PUMP END | WRENCH END | | |
| TTFG-5-HTW | N°2 NIPPLI 1/4" | GR1M + GR1F | 5 | 700 |
| TTFG-6-HTW | N°2 NIPPLI 1/4" | GR1M + GR1F | 6 | 700 |
| TTFG-10-HTW | N°2 NIPPLI 1/4" | GR1M + GR1F | 10 | 700 |
| TTFG-5-HTW-C | N°2 NIPPLI 1/4" | GR5M + GR5F | 5 | 700 |
| TTFG-6-HTW-C | N°2 NIPPLI 1/4" | GR5M + GR5F | 6 | 700 |
| TTFG-10-HTW-C | N°2 NIPPLI 1/4" | GR5M + GR5F | 10 | 700 |
| TTFGG-5-HTW | GR1M + GR1F | GR1M + GR1F | 5 | 700 |
| TTFGG-6-HTW | GR1M + GR1F | GR1M + GR1F | 6 | 700 |
| TTFGG-10-HTW | GR1M + GR1F | GR1M + GR1F | 10 | 700 |
| TTFGG-5-HTW-C | GR5M + GR5F | GR5M + GR5F | 5 | 700 |
| TTFGG-6-HTW-C | GR5M + GR5F | GR5M + GR5F | 6 | 700 |
| TTFGG-10-HTW-C | GR5M + GR5F | GR5M + GR5F | 10 | 700 |

Available different types of hoses
length and quick couplers.



Custom pumps for
torque wrenches

FPT is specialized in the study and production of hydraulic pumps for custom hydraulic torque wrenches. High flow versions, compact and lightweight, for simultaneous use of multiple tools, atex certified, with heat exchangers and many other customizations based on the characteristics of the customer's application.



Series
GH-DI

Hydraulic nuts

Hydraulic nuts



- **Hydraulic nuts** are used in all those applications where is not possible to use a mechanical nut because of continuous maintenance operations, heat, vibrations or others factors.
- Replace existing hex nuts to provide an accurate and uniform load at every bolted connection.
- Allow to tighten large diameter bolts, with high and precise preloads easily.
- They can have upper or lower clamping collar and they are extremely compact, it is also possible to connect any number of hydraulic nuts for simultaneous operation, ensuring a uniform tensioning.

- The **hydraulic nuts** are used for installation and removal of components such as couplings, gears and ship propellers, rudder blades, rudder blade shaft coupling or large pieces on conical seats and for bearings assembling and disassembling.
- The hydraulic nuts can have various threads and dimensions, they are operated by a handpump or high pressure hydraulic pump. Customized solutions produced on request.
- They find application in the naval, iron and steel, mechanical sector.

Very high pressure hand pumps and pneumo-hydraulic power units up to 3000 bar and manifold, high-pressure manifold and fittings are supplied with the hydraulic system both for the hydraulic nuts and hydraulic rings.



F.P.T. TOOLS AND SYSTEMS

Production of custom hydraulic equipment

F.P.T. produces a wide range of standard tools and custom versions to meet customer requirements. This includes hydraulic presses, hydraulic pullers, flange spreaders, wedges, lifting systems for bus maintenance, testing equipment and numerous systems and tools for maintenance and lifting.



INDEX TOOLS AND SYSTEMS

| | Series | | |
|-----------------------------|--------|---|------|
| Nut splitters | TB |  | 130 |
| Hot Bolt & Industrial Clamp | HBRC |  | 131 |
| Bottle jacks | CB-CBT |  | 132 |
| Hydraulic presses | PR |  | 133 |
| | | | PAGE |

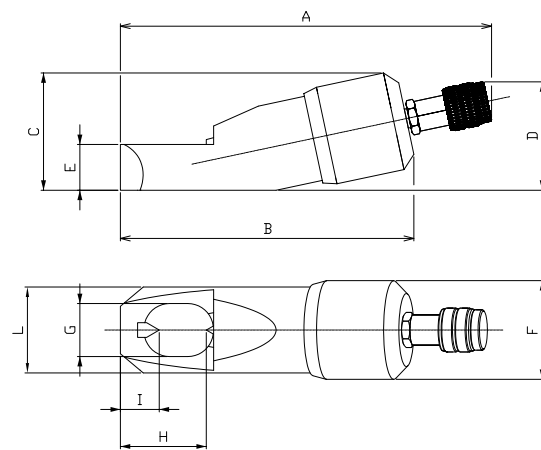


Series
TB

Nut splitters



- Used when nuts are difficult to remove due to rust or wear.
- Equipped with fixed and mobile blades to cut the nut in a single operation: the blades can be sharpened or replaced.
- Used in the petrochemical, railway and nautical sectors.



SAFETY INSTRUCTIONS

- Can be used on hexagonal nuts with hardness under 44 HRC
- During the cutting phase, position the blade to the centre of the surface to cut
- Avoid touching the washer if present

| SCREW DIAMETER | HEX NUT DIAMETER | MODEL | FORCE in ton | DIMENSIONS in mm | | | | | | | | | | WEIGHT kg | SPARE BLADE MODEL | |
|----------------|------------------|----------|--------------|------------------|-----|-----|-----|----|-----|-----|-----|----|-----|-----------|-------------------|--------------|
| | | | | A | B | C | D | E | F | G | H | I | L | | FIXED BLADE | MOBILE BLADE |
| M8 - M12 | 13 - 19 | TB 13/19 | 5,5 | 203 | 133 | 48 | 58 | 19 | 43 | 26 | 41 | 21 | 40 | 1,2 | CF-13/19 | CM-13/19 |
| M12 - M16 | 19 - 24 | TB 19/24 | 11 | 233 | 163 | 65 | 68 | 25 | 58 | 34 | 47 | 22 | 55 | 2,3 | CF-19/24 | CM-19/24 |
| M16 - M22 | 24 - 32 | TB 24/32 | 16,5 | 260 | 190 | 75 | 74 | 30 | 69 | 41 | 57 | 24 | 63 | 3,2 | CF-24/32 | CM-24/32 |
| M22 - M27 | 32 - 41 | TB 32/41 | 21,8 | 297 | 230 | 90 | 80 | 35 | 84 | 55 | 77 | 35 | 78 | 5,1 | CF-32/41 | CM-32/41 |
| M27 - M33 | 41 - 50 | TB 41/50 | 35 | 347 | 280 | 112 | 93 | 42 | 103 | 68 | 89 | 38 | 98 | 10,4 | CF-41/50 | CM-41/50 |
| M33 - M39 | 50 - 60 | TB 50/60 | 49,5 | 395 | 330 | 136 | 105 | 52 | 124 | 82 | 103 | 42 | 118 | 17,5 | CF-50/60 | CM-50/60 |
| M39 - M48 | 60-75 | TB 60/75 | 90 | 454 | 400 | 182 | 132 | 75 | 168 | 110 | 113 | 28 | 154 | 38,5 | - | CM-60/75 |

Series
HBRC

Hot Bolt & Industrial Clamp



Replacement of damaged nuts – Industrial Clamping

- FPT is a producer of Hot Bolt and Industrial Clamping System with applications throughout the industrial sectors, oil & gas as well.
- The system has been designed to remove rusted nuts on pipelines where is essential to replace the corroded or damaged nuts without interrupting production.
- The standard system consists of 4 FPTs Hot Bolt of 34 kN with of 10 mm stroke and a maximum working pressure of 700 bar, an FPT hand pump model PMSA2, manifold, flex hoses,

couplings and accessories . Every Hot Bolt is superficially treated to obtain an excellent resistance against corrosion
Product code: KIT-4HBRC-35

- The tools can be operated through multiple outputs electric power unit, pneumo-hydraulic pumps and handpumps and the system can be personalized to meet customer's requirements.

CUSTOM TOOLS ON REQUEST



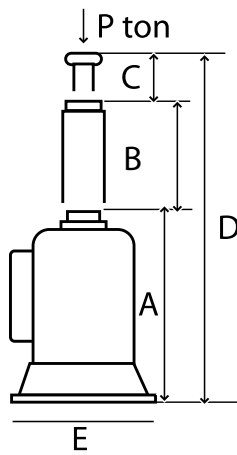


Series
CB

Hydraulic bottle jacks

SERIES WITH LOAD-BEARING PISTON WITH RISER SCREW

- Complete range of hydraulic bottle jacks
- CB Series with load-bearing piston with riser screw
- Equipped with adjustable extension screws with safety lock and automatic stop valve
- The models are supplied with the suitable lever



| TYPE | TON | A | B | C | D | E | WEIGHT |
|-------------------------|-----|-----|-----|-----|-----|-----------|--------|
| CB3 | 3 | 215 | 150 | - | 365 | 145 x 115 | 5 |
| CB3/P | 3 | 245 | 175 | - | 420 | 145 x 115 | 5,5 |
| CB5/P | 5 | 255 | 180 | - | 435 | 145 x 115 | 7,5 |
| CB3/V with raiser screw | 3 | 215 | 150 | 80 | 445 | 145 x 115 | 5 |
| CB5 with raiser screw | 5 | 220 | 145 | 85 | 450 | 145 x 115 | 6,5 |
| CB8 with raiser screw | 8 | 250 | 180 | 85 | 515 | 145 x 115 | 7,5 |
| CB10 with raiser screw | 10 | 250 | 170 | 100 | 520 | 170 x 145 | 11,5 |
| CB15 with raiser screw | 15 | 270 | 190 | 100 | 560 | 170 x 145 | 13 |
| CB20 with raiser screw | 20 | 275 | 190 | 100 | 565 | 195 x 170 | 15,5 |
| CB25 with raiser screw | 25 | 280 | 190 | 100 | 570 | 195 x 170 | 18 |
| CB30 with raiser screw | 30 | 280 | 190 | 100 | 570 | 200 x 170 | 20 |
| CB40 with raiser screw | 40 | 280 | 190 | 100 | 570 | 235 x 210 | 25 |
| CB50 with raiser screw | 50 | 280 | 190 | 100 | 570 | 235 x 210 | 30 |

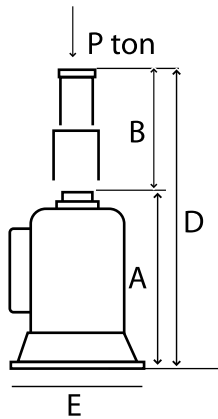


Series
CBT

Hydraulic bottle jacks

SERIES WITH TWO TELESCOPIC LOAD-BEARING PISTONS

- Complete range of hydraulic bottle jacks
- CB Series with two load-bearing pistons with riser screws
- Equipped with adjustable extension screws with safety lock and automatic stop valve
- The models are supplied with the suitable lever



| TYPE | TON | LOAD ON 1 ST PISTON | A | B | C | D | E | WEIGHT |
|-------------------|-----|--------------------------------|-----|-----|---|-----|-----------|--------|
| CBT1,5 | 1,5 | 4 | 160 | 200 | - | 360 | 145 x 115 | 5 |
| CBT1,5 with plate | 1,5 | 4 | 190 | 200 | - | 390 | 145 x 115 | 5,5 |
| CBT3 | 3 | 5 | 170 | 210 | - | 380 | 145 x 115 | 6 |
| CBT5 | 5 | 10 | 225 | 275 | - | 500 | 170 x 145 | 11 |
| CBT10 | 10 | 20 | 230 | 310 | - | 540 | 195 x 170 | 14 |
| CBT10/BUS | 10 | 20 | 180 | 205 | - | 385 | 195 x 170 | 12 |
| CBT15 | 15 | 25 | 230 | 310 | - | 540 | 195 x 170 | 18 |
| CBT20 | 20 | 30 | 230 | 310 | - | 540 | 195 x 170 | 20 |
| CBT25 | 25 | 40 | 240 | 310 | - | 550 | 235 x 210 | 22 |

Series
PR

Hydraulic Presses



Multipurpose

- Built according to customer needs and specific operative requirements.
- They can also be equipped with a hand pump or hydraulic pump with electric or air motor.
- Equipped with safety guards and systems, fixed or mobile bench, push piston and positioning function on request.
- Correctly sized structure to guarantee maximum strength and stability during operations.



SAFETY INSTRUCTIONS

All F.P.T. products are designed and built in full compliance with the international regulations regarding occupational safety. The following are some general guidelines regarding the correct and improper use of F.P.T. products.

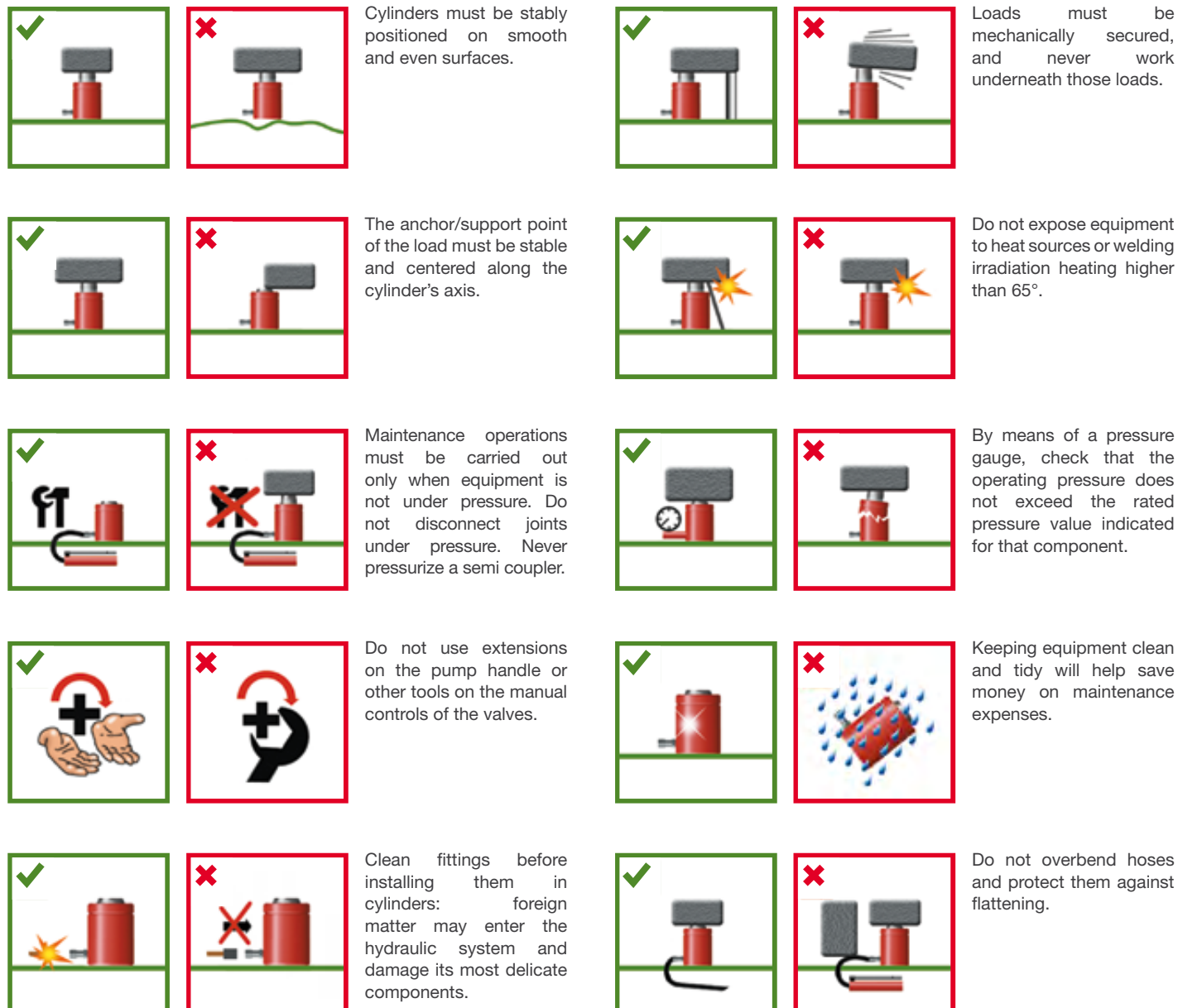
Before using any F.P.T. equipment carefully read the user and maintenance manuals available to download at www.fpt.it

Before operating equipment, always wear the required protective clothing.

F.P.T. cannot be held liable for damage or injuries caused by the improper use of products or lack of maintenance.

For any clarification or technical information, please contact F.P.T.

The capacity and stroke values supplied by the manufacturer are the recommended ceiling values to ensure safety. It is recommended not to exceed 80% of these values.



The measurements and technical data provided are correct and verified at the time of printing. In any case, F.P.T. reserves the right to make any changes whatsoever to the products in this catalogue without notification. Because the products are constantly being developed, any of the information in this catalogue may be changed without notification. Please contact the F.P.T. technical office for further information if the final measurements are important.

F.P.T. WARRANTY

F.P.T. products are warranted to be free of defects in workmanship under normal use for as long as they are owned by the original purchaser.

This warranty does not cover incorrect installation or use of the products, inadequate maintenance, alterations or repairs not authorized by F.P.T. or damage caused by transportation.

All electric parts, motors, solenoid valves and in general all parts not supplied by F.P.T. are excluded from this warranty. Such items are warranted to the extent of the warranty provided by the manufacturers of such items.

The warranty is limited only to new, original equipment products.

If the customer believes a product is defective, the product must be delivered to F.P.T. which, in its unquestionable judgement, if it deems the product to be defective, will be repaired or replaced under this warranty.

The customer must pay for any and all expenses for transporting the product to/from F.P.T.

F.P.T. will not be held liable for:

- any damage caused by defective or non-conforming products, negligence or any other damage
- any other obligations or liabilities arising out of breach of contract or of warranty. The warranty will not be applicable for non-payment (or even partial payment) of the goods supplied.



CE of conformity
F.P.T. supplies a declaration of conformity for each product and the CE mark for the products that comply with the directives of the European Community.



FPT.
FLUID POWER TECHNOLOGY





Fluid Power Technology S.r.l.

📍 Via Campo Sportivo 54 - 16040 Ne (Ge) - Italy

☎ +39 0185 337525

📠 +39 0185 337620

✉ info@fpt-worldwide.com

www.fpt-worldwide.com



MORE THAN
50
YEARS
SINCE 1966

