Industrial Hydraulics
Innovative Products and System Solutions
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© Copyright 2005, Parker Hannifin Corporation. All rights reserved.
Parker Hannifin is a Fortune 500 corporation listed on the New York Stock Exchange as PH. Parker is the leading global company manufacturing the widest variety of components and systems designed to control motion, flow and pressure in all types of machinery and other equipment.

We offer over 3,100 product lines that control motion in 1,200 mobile, industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, electromechanical, and computer motion control solutions. We have the largest distribution network in our field, with over 8,600 distributors serving more than 390,000 customers worldwide.

Parker products are found in satellites orbiting the earth, machine tools, mobile equipment, oil rigs and refineries, hospitals and laboratories...any place where machines depend on motion or fluid control.

The Parker Web Site

www.parker.com. Parker's extensive web site, offers a wealth of product information and other resources. Technical data and specifications are available through an interactive catalogue. This user-friendly interface allows you to search by general product families, specific product type, division, or keywords.
It All Starts With the Product

When it comes to hydraulic products, Parker is the most recognized name in the business. With more than 75 years of experience, Parker currently inventories more than 200,000 hydraulic part numbers. Parker’s strong market presence is a direct result of engineering and manufacturing expertise that is second to none.

Parker Hannifin is the leading global supplier of hydraulic components and systems. Whether you need a single product delivered down the street or a complete hydraulic system solution delivered anywhere in the world, Parker is your one-stop hydraulic resource.

Parker serves hundreds of hydraulic markets where controlling fluid motion and pressure is required. Parker’s products are engineered and manufactured to world class standards and are backed by unparalleled customer service and technical field support. Parker is ideally positioned to be your single source hydraulics supplier.

Parker’s extensive breadth of product line allows us to provide unlimited solution possibilities. Our worldwide network quickly delivers your solution, including those built to order. Whether you need a system, a sub-system, or components, Parker can deliver.
Manufacturing

Parker’s product engineering and manufacturing capabilities form the cornerstone of everything we offer. We utilize the latest computer-aided manufacturing technology to meet or exceed today’s stringent demands for both quality and delivery. Parker is ISO-certified and continues to invest in both manufacturing technology and people, performing precision metal work that is second to none.

Providing the Solution

In today’s challenging business environment, you need suppliers who can provide you with total solutions. Parker will help determine your needs and will design a custom solution for you. We have the ability to capture exact system details through our high levels of data acquisition. Parker’s staff of highly qualified application engineers, research and development teams, and system solution specialists, assures you that nobody knows industrial applications and products better than Parker.

Total Systems from the Ground Up

Total systems capabilities make Parker Hannifin today’s leading hydraulics supplier. Our customers can reduce their number of vendors without compromising quality. And, buying from a single source saves both time and money, and allows for easier ordering and faster shipping.

Parker’s staff of highly qualified engineers – application engineers, research and development teams, and system solution specialists, assures you that nobody knows industrial applications and products better than Parker. We will help you determine your needs and work with you in designing the best solution.
Industrial Systems Centre

Parker has dedicated hydraulic and fluid connector application engineers who are motion control experts. These people will assist the OEM customer in the analysis and evaluation of any motion control system. Using a methodology of “Analyze. Improve. Maximize.,” Parker will redesign an existing system to improve machine performance while maximizing efficiency and return on investment.

Parker Hannifin strongly believes that value added programs are just as important to our customers as breadth of line and system solutions. In addition to assured product quality, Parker provides engineering assistance, electronic ordering, customer training, on-time delivery, extensive product information, and consolidated shipments. Parker’s Premier Customer Service leads the industry in response; our employees are empowered to do whatever it takes to meet or exceed customer expectations.

Parker’s extensive breadth of product line allows us to provide unlimited solution possibilities. Our worldwide network quickly delivers your solution, even those built to order.

Whether you need a sub-system, sub-assembly, an entire system or even just components, Parker can deliver. For all your system requirements, look to the industry’s most trusted name to be your single source hydraulics supplier.

Training

Parker is recognized as the industry leader in the development and presentation of technical training for hydraulic and pneumatic technology. We offer complete and comprehensive texts, along with hands-on classroom opportunities to our employees, distributors, and customers. This includes web based training, on site training, and classroom training at various Parker locations. Our focus is on the practical approach to training, stressing active participation by students to increase their confidence and understanding of motion control technology.

Hundreds of colleges and universities have adopted the Parker generic textbooks as the foundation for motion and control courses offered at their institutions. Training support materials include textbooks, instructor guides, computer-based training CDs, lab manuals and trainer stands.
Field Sales Team

Parker’s highly trained mobile field sales force provides knowledgeable assistance in your product selection, working hand in hand with your local Parker distributor. These experts are strategically located throughout Europe to work with you on product application issues.

HTC Value and Services

A Parker Hydraulic Technology Centre (HTC) distributor is your local one stop shop for all your industrial hydraulic needs. These centres are staffed with specialists who can provide engineering assistance, technical help, and full systems service for all your industrial hydraulic requirements. HTCs were introduced by Parker in order to meet the changing needs of industrial customers, while increasing the level of services provided by a Parker distributor.

Parker’s HTC’s are selected because they have made the commitment to provide exceptional customer service and complete industrial hydraulic system solutions. Additionally, Parker Hydraulic Technology Centres carry the largest inventory of hydraulic components to ensure fast delivery and less down time.

A Parker HTC can provide assistance with rapid equipment development, prototype verification, and the immediate, yet smooth integration of state-of-the-art hydraulic and electronic systems.

At Parker Technology Centres you will find: advanced design and technology, local and worldwide inventory, a staff of application system engineers, and industry leading technical support and training. To fulfill all your mobile needs and to locate your nearest Parker HTC, call our European Product Information Centre free on phone: 00800 27 27 53 74 if you are calling from Austria, Belgium, France, Germany, United Kingdom, Eire, Switzerland. From other countries please call +44 1442 358 429 if you wish an English speaking service, +44 1442 358 428 for a German speaking service and +44 1442 358 427 for a French speaking service.
Parker’s Value Proposition

Parker is the leading hydraulics supplier worldwide. We have a powerful reputation, unparalleled breadth of products, and world-class customer service. However, Parker’s greatest distinguishing benefits can be found in its Value Proposition. Parker believes that it takes more than our great products, competitive prices, and on-time delivery to satisfy customer demands. It takes a commitment to provide exceptional value.

At Parker, value is not a commodity. Instead, it is the result of personal interaction and resources. Parker’s value-added services include:

- Machine Analysis and Troubleshooting
- Design-Engineering Support
- System Design
- Components Selection
- New Product Development
- Custom-Component Manufacturing
- Assemblies and Kits
- Sub-Systems
- Global Support and Service
- ISO Certification
Parker offers one of the world’s most extensive industrial hydraulics product lines. From pumps and valves to motors and motion controllers, all of our products share a common heritage of advanced technology for your applications. They incorporate electronic control for precise motion, innovative new designs to reduce size, and a greater choice of functions than ever before. Parker industrial hydraulic components and systems are designed to deliver precise, reliable control in space-saving, weight-saving packages.

**Pumps**

Parker’s broad line of energy-efficient hydraulic pumps includes fixed or variable displacement models in piston, vane and gear pumps. Designed to handle a wide range of applications, Parker pumps are available with a full complement of electronic and computer controls. Like all Parker products, these pumps are manufactured with the finest materials under strict quality control. The result is a pump that delivers high efficiency and low maintenance under the toughest operating conditions.

**Motors**

Our full line of high and low speed motors provide power ranging up to 110,000 Nm of torque. A complete range of sizes is offered in gear, vane, gerotor and piston style operating configurations. Fixed and variable placement motors are available. Parker hydraulic motors deliver excellent performance with high efficiency, true wear compensation and longer service life.
Parker offers the most complete line of standard, pre-engineered, catalogued hydraulic power units in the industry. We offer everything from 20 litres vertical to 625 litres overhead style platforms. Parker also offers custom power units that are designed and built to customer specifications; these units can be accessorized for almost any application, offering the convenience of one stop shopping in one quality unit.

All Parker power units are backed by complete engineering support including control documentation for use on the shop floor. Additionally, most Parker catalogued power units are delivered in five working days.

Cylinders
Parker Hannifin is a leading manufacturer of hydraulic cylinders for industrial equipment applications. Our cylinders keep on delivering the high performance you expect from Parker, over millions of trouble-free cycles. Parker cylinders have consistently proved to be the most reliable and cost-effective industrial cylinders on the market today.

Hydraulic Valves and Controls
We make hydraulic control valves for virtually every industrial equipment application from simple on/off functions to precise motion control. These include control and bankable control valves, motion controllers, pressure control valves, servo valves, and manifold mounted directional and proportional valves.

Integrated Hydraulic Circuits
Parker is the world leader in the design and manufacture of integrated hydraulic circuits. We provide solutions to complex circuits by selecting threaded cartridge valves from our wide range of products, and integrating them into a single manifold. We utilize 3D-CAD/CAM software, state-of-the-art machining centres, and complete automated testing to maximize application performance.

Rotary Actuators
Parker is an industry leader in the design and manufacture of hydraulic rack and pinion rotary actuators, with torque output to 68,000 Nm. In conjunction with a standard offering of rotary actuators, we work with customers on designs to meet specific application requirements. Rotary actuators provide constant high torque to perform a variety of actions, including upending, turning, rolling over, tilting, indexing, transferring, mixing, valve operating, tensioning and clamping. Applications include machine tool, packaging, marine, primary metals, rubber and plastics machinery and material handling.

Accumulators
Parker provides the industry’s most comprehensive range of hydraulic accumulators and related products. We offer a complete range of piston, bladder and diaphragm type accumulators, as well as gas bottles and other accessories. These proven components improve hydraulic system efficiency by maintaining pressure, supplementing pump flow and absorbing system shocks. Sturdy construction guarantees years of efficient, reliable service.

Filtration
Parker filtration products are designed maximize the reliability of your hydraulic systems and components with positive protection against fluid contaminants. Our comprehensive line of pressure and return line filters enhances machine life, reduces maintenance and lowers costs. High, medium and low pressure filters are offered, as well as portable filter carts and replacement elements.

Fluid Connectors
Parker has a complete line of fluid connector products and services for hydraulics, pneumatics and fluid systems. Products range from high-quality state-of-the-art fittings, valves and quick couplings to pressure hose available in a wide range of core-tube materials, reinforcement designs and outer covers. Our global distribution network and strategically located service centres ensure that you can get the products you need when and where you need them.
### Gear

**PGP 500, 600**

- Superior performance
- High efficiency
- Low noise operation at high operating pressures
- International mounts and connections
- Integrated valve capabilities
- Common inlet multiple pump configurations

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## Pumps
### Vane - SAE
#### Single

- 320 bar max pressure for T7B, 275 bar for T6C, 300 bar for T7D & 240 bar for T7E
- Silent technology
- Wide range of displacements
- User friendly = easy conversions & evolutions
- Wide number of shafts available (SAE & ISO)
- Drive train options available (SAE A, SAE B or SAE C)

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1) Shaft speed for petroleum based fluids. For higher speeds, please contact Parker Denison
2) 1500 rpm at 240 bar (except TB at 175 bar, T7B at 320 bar & T7D at 300 bar)
3) 300 bar max
4) 140 bar max
5) 210 bar max
6) 240 bar max
7) 260 bar max
8) 280 bar max
9) 90 bar max

#### Double

- Low noise
- SAE or ISO standards
- One piece shaft (no internal torque limitations)
- One inlet
- 32 porting orientations available
- Wide displacement possibility (from 5.8 to 268.7 cm³/rev) per stage with a max displacement of 537.4 cm³/rev
- Displacement combinations with above T7B – T6C – T7D & T7E charts
- High power to weight ratio
- Wide range of options available = different shafts, threads, pilots
**Vane – SAE**

- Low noise
- One inlet
- 128 porting orientations available
- Many displacement combinations (from 5.8 to 268.7 cm³/rev) per stage with a max displacement of 526.7 cm³/rev
- One piece shaft (no internal torque limitation)
- High power to weight ratio

**Vane – Hybrid**

- Piston & vane pump combination
- Wide range of displacements:
  - Piston unit of 42 cm³/rev (SAE B) or 62 cm³/rev (SAE C)
  - Vane unit from 6 cm³/rev to 158 cm³/rev
- One inlet, one shaft (no internal torque limitations)
- Pressure compensators (standard, ventable & ventable by electronic valve, load sensing)
- Compact unit
- Splined & keyed shafts available

**Axial Piston**

**F11**

- Pressures up to 420 bar
- Efficient (low losses)
- Accept high external shaft loads
- Good resistance to vibrations and temperature shocks
- Proven reliability
- Easy to service
- ISO and SAE versions available

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* Use F12 for medium range displacement

**F12**

- Pressures up to 480 bar
- Very high power capability
- High overall efficiency
- Small envelope size
- ISO, SAE and cartridge versions available
- Proven reliability
- Easy to service

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**Axial Piston**

PD

- Compact overall package size
- Quiet operation
- Long life, tapered-roller shaft bearings
- End or side inlet and outlet ports
- Easy to service

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**PV**

- High strength cast iron housing
- Modular controls concepts
- Large servo pistons for fast response
- Thru-drive for 100 % nominal torque
- 9 piston design
- Multiple pressure control
- SAE and metric mounting features
- Reduced flow and pressure ripple
- Service-friendly
- 2-bolt interface 45° available for 28, 46, 76 and 100 cc.

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### Motors

#### Gear

**PGM 500, 600**

- Superior performance
- High efficiency
- Low noise operation at high operating pressures
- International mounts and connections
- Integrated valve capabilities
- Common inlet multiple pump configurations

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| Frame size PGM 511 | 0060 | 0080 | 0100 | 0110 | 0140 | 0160 | 0190 | 0230 | 0270 | 0310 | 0330 |
|--------------------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm³/rev) | 6 | 8 | 10 | 11 | 14 | 16 | 19 | 23 | 27 | 31 | 33 |
| Max cont pressure (bar) | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 225 | 190 | 165 | 155 |
| Max operating speed (rpm) | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 2750 | 2350 | 2100 |
| Input power (kW) | 4.5 | 6.0 | 7.5 | 8.3 | 10.5 | 12.0 | 14.3 | 14.7 | 14.9 | 16.7 | 17.3 |
| Weight (kg) | 3.40 | 3.47 | 3.55 | 3.57 | 3.71 | 3.79 | 3.91 | 4.06 | 4.21 | 4.37 | 4.45 |

| Frame size PGM 517 | 0140 | 0160 | 0190 | 0230 | 0280 | 0330 | 0380 | 0440 | 0520 | 0700 |
|--------------------|------|------|------|------|------|------|------|------|------|
| Displacement (cm³/rev) | 14 | 16 | 19 | 23 | 25 | 28 | 33 | 38 | 44 | 52 |
| Max cont pressure (bar) | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 225 | 190 | 160 |
| Max operating speed (rpm) | 3400 | 3400 | 3300 | 3300 | 3100 | 3100 | 3000 | 3000 | 2800 | 2700 |
| Input power (kW) | 9.6 | 11.0 | 13.1 | 15.8 | 17.2 | 19.3 | 22.7 | 26.1 | 27.0 | 28.6 |
| Weight (kg) | 7.92 | 8.00 | 8.12 | 8.29 | 8.37 | 8.50 | 8.70 | 8.91 | 9.16 | 9.49 |

| Frame size PGM 620 | 0160 | 0190 | 0210 | 0230 | 0260 | 0290 | 0330 | 0360 | 0410 | 0440 | 0460 | 0500 | 0520 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm³/rev) | 16.0 | 19.0 | 21.0 | 23.0 | 26.0 | 29.0 | 33.0 | 36.0 | 41.0 | 44.0 | 46.0 | 50.0 | 52.0 |
| Max cont pressure (bar) | 275 | 275 | 275 | 275 | 275 | 275 | 250 | 250 | 220 | 210 | 210 | 210 | 210 |
| Max operating speed (rpm) | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3000 | 3000 |
| Weight (kg) | 12.0 | 12.1 | 12.1 | 12.2 | 12.3 | 12.6 | 12.7 | 12.8 | 13.0 | 13.1 | 13.2 | 13.3 | 13.4 |

| Frame size PGM 640 | 0300 | 0350 | 0400 | 0450 | 0500 | 0550 | 0600 | 0650 | 0700 | 0750 | 0800 |
|--------------------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm³/rev) | 30.0 | 35.0 | 40.0 | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 |
| Max cont pressure (bar) | 310 | 310 | 310 | 310 | 310 | 310 | 290 | 265 | 245 | 225 | 210 |
| Max operating speed (rpm) | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Weight (kg) | 21.0 | 21.0 | 22.0 | 22.0 | 23.0 | 23.0 | 24.0 | 24.0 | 25.0 | 25.0 | 25.0 |
Motors

Fixed Displacement

Vane

Single

- Low ripple torque
- Low starting torque
- Low noise
- Bi-rotational technology
- Various pilot, threaded ports & porting configurations
- External / internal drain options

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<tr>
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<th>018</th>
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<td>230</td>
<td>230</td>
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<td>2500</td>
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<td>18.0</td>
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¹) Max. shaft speed at max. pressure, continuous
²) Output at 2000 rpm & 175 bar (except M5B at 320 bar, 045 at 280 bar) 24 cSt

Double

- 49 possible displacement combinations (see above M4C & M4D charts)
- Three different possible speeds for each combination
- Three different possible torques for each combination
- Bi-rotational technology
- Low noise
- Low ripple torque
Motors

Fixed Displacement

Gerotor

**TE**
- High volumetric efficiency
- Full flow spline cooling
- High pressure shaft seal
- High flow shaft seal cooling
- High starting torque
- High side load capacity
- Balanced performance in both directions of rotation
- Long life

<table>
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<th>0050</th>
<th>0065</th>
<th>0080</th>
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<td>98</td>
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<td>140</td>
<td>140</td>
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<td>140</td>
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<td>Max operating speed (rpm)</td>
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<td>1024</td>
<td>1020</td>
<td>877</td>
<td>695</td>
<td>582</td>
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<td>348</td>
<td>292</td>
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<tr>
<td>Max cont output torque (Nm)</td>
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<td>71</td>
<td>90</td>
<td>125</td>
<td>160</td>
<td>190</td>
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<td>260</td>
<td>293</td>
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<td>Max cont pressure (bar)</td>
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**TF**
- High volumetric efficiency
- Full flow spline cooling
- High pressure shaft seal
- High flow shaft seal cooling
- High starting torque
- High side load capacity
- Long life

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<td>141</td>
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<td>197</td>
<td>238</td>
<td>280</td>
<td>364</td>
<td>405</td>
<td>477</td>
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<td>Max cont pressure (bar)</td>
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<td>155</td>
<td>138</td>
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<td>138</td>
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<td>138</td>
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**TG**
- High volumetric efficiency
- Full flow spline cooling
- High pressure shaft seal
- High flow shaft seal cooling
- High starting torque
- High side load capacity
- Long life

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**TH**
- High volumetric efficiency
- Full flow spline cooling
- High pressure shaft seal
- High flow shaft seal cooling
- High starting torque
- High side load capacity
- Long life

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<td>Max cont output torque (Nm)</td>
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<td>18.6</td>
<td>19.2</td>
<td>19.8</td>
<td>20.6</td>
<td>21.3</td>
<td>22.9</td>
<td>24.5</td>
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</tbody>
</table>
### Gerotor
**TK**

- High volumetric efficiency
- Flow through internal spline and shaft seal cooling
- High pressure shaft seal

<table>
<thead>
<tr>
<th>Frame size TK</th>
<th>0250</th>
<th>0315</th>
<th>0400</th>
<th>0500</th>
<th>0630</th>
<th>0800</th>
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<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>250</td>
<td>315</td>
<td>400</td>
<td>500</td>
<td>630</td>
<td>800</td>
<td>1000</td>
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<tr>
<td>Max cont pressure (bar)</td>
<td>241</td>
<td>241</td>
<td>207</td>
<td>207</td>
<td>207</td>
<td>190</td>
<td>172</td>
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<td>Max operating speed (rpm)</td>
<td>523</td>
<td>413</td>
<td>373</td>
<td>298</td>
<td>237</td>
<td>276</td>
<td>218</td>
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<tr>
<td>Max cont output torque (Nm)</td>
<td>814</td>
<td>1029</td>
<td>1153</td>
<td>1439</td>
<td>1617</td>
<td>1916</td>
<td>2413</td>
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<td>Weight (kg)</td>
<td>30.8</td>
<td>31.4</td>
<td>32.3</td>
<td>33.2</td>
<td>34.5</td>
<td>36.0</td>
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</table>

### Axial Piston
**F11**

- Very high operating speeds
- Pressures up to 420 bar
- Efficient (low losses)
- Accept high external shaft loads
- Good resistance to vibrations and temperature shocks

<table>
<thead>
<tr>
<th>Frame size* F11</th>
<th>05</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>19</th>
<th>150</th>
<th>250</th>
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</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>4.9</td>
<td>9.8</td>
<td>12.5</td>
<td>14.3</td>
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<td>150.0</td>
<td>242.0</td>
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<td>Max cont pressure (bar)</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
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<td>Max operating speed (rpm)</td>
<td>12800</td>
<td>10200</td>
<td>9400</td>
<td>9000</td>
<td>8100</td>
<td>3200</td>
<td>2700</td>
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<td>Output torque at 100 bar (Nm)</td>
<td>7.8</td>
<td>15.6</td>
<td>19.8</td>
<td>22.7</td>
<td>30.2</td>
<td>238</td>
<td>384</td>
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<td>Weight (kg)</td>
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<td>7.5</td>
<td>8.2</td>
<td>8.3</td>
<td>11</td>
<td>70</td>
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</tbody>
</table>

* Use F12 for medium range displacement

### F12

- Very high operating speeds
- Pressures up to 480 bar
- High starting torque
- Very high power capability
- High overall efficiency
- Small envelope size

<table>
<thead>
<tr>
<th>Frame size F12</th>
<th>30</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>90</th>
<th>110</th>
<th>125</th>
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</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>30.0</td>
<td>40.0</td>
<td>59.8</td>
<td>80.4</td>
<td>93.0</td>
<td>110.1</td>
<td>125</td>
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<tr>
<td>Max cont pressure (bar)</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>420</td>
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<tr>
<td>Max operating speed (rpm)</td>
<td>6700</td>
<td>6100</td>
<td>5300</td>
<td>4800</td>
<td>4600</td>
<td>4400</td>
<td>4200</td>
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<tr>
<td>Output torque at 100 bar (Nm)</td>
<td>47.6</td>
<td>63.5</td>
<td>94.9</td>
<td>128</td>
<td>148</td>
<td>175</td>
<td>198</td>
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<tr>
<td>Weight (kg)</td>
<td>12</td>
<td>16.5</td>
<td>21</td>
<td>26</td>
<td>26</td>
<td>36</td>
<td>36</td>
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</tbody>
</table>
Radial Piston – Calzoni

**MRT/MRTE/MRTF**

- Double displacement motor (MRD, MRDE)
- High starting torque: from 90% to 95% of theoretical
- High control at very low speed
- High volumetric efficiency: up to 98%
- Low noise
- Resistance to thermal shocks
- Reversibility
- Long bearing life
- Speed accessories, brakes….

**Frame size MR**

<table>
<thead>
<tr>
<th>Frame size</th>
<th>33</th>
<th>57</th>
<th>73</th>
<th>93</th>
<th>110</th>
<th>125</th>
<th>160</th>
<th>190</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>450</th>
<th>600</th>
<th>700</th>
<th>1100</th>
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<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>32</td>
<td>56</td>
<td>73</td>
<td>93</td>
<td>109</td>
<td>125</td>
<td>160</td>
<td>192</td>
<td>199</td>
<td>251</td>
<td>304</td>
<td>350</td>
<td>452</td>
<td>608</td>
<td>707</td>
<td>1126</td>
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<tr>
<td>Max operating speed (rpm)</td>
<td>1400</td>
<td>1300</td>
<td>1200</td>
<td>1150</td>
<td>1100</td>
<td>900</td>
<td>900</td>
<td>850</td>
<td>800</td>
<td>750</td>
<td>700</td>
<td>600</td>
<td>520</td>
<td>500</td>
<td>330</td>
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<tr>
<td>Max power (kW)</td>
<td>10</td>
<td>17</td>
<td>20</td>
<td>25</td>
<td>28</td>
<td>25</td>
<td>30</td>
<td>36</td>
<td>38</td>
<td>48</td>
<td>53</td>
<td>62</td>
<td>75</td>
<td>84</td>
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**Frame size MR**

<table>
<thead>
<tr>
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<th>1800</th>
<th>2400</th>
<th>2800</th>
<th>3600</th>
<th>4500</th>
<th>6500</th>
<th>7000</th>
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<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>1598</td>
<td>1810</td>
<td>2393</td>
<td>2792</td>
<td>3637</td>
<td>4503</td>
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<td>6967</td>
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<tr>
<td>Max cont pressure (bar)</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
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<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>260</td>
<td>250</td>
<td>220</td>
<td>215</td>
<td>180</td>
<td>170</td>
<td>130</td>
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<td>Max power (kW)</td>
<td>144</td>
<td>153</td>
<td>183</td>
<td>194</td>
<td>185</td>
<td>210</td>
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**Frame size MR**

<table>
<thead>
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<th>500</th>
<th>800</th>
<th>1400</th>
<th>2100</th>
<th>3100</th>
<th>5400</th>
<th>8200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>332</td>
<td>498</td>
<td>804</td>
<td>1370</td>
<td>2091</td>
<td>3104</td>
<td>5401</td>
<td>8226</td>
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<tr>
<td>Max cont pressure (bar)</td>
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<td>Max operating speed (rpm)</td>
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<td>600</td>
<td>450</td>
<td>280</td>
<td>250</td>
<td>215</td>
<td>160</td>
<td>120</td>
</tr>
<tr>
<td>Max power (kW)</td>
<td>49</td>
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<td>93</td>
<td>102</td>
<td>148</td>
<td>190</td>
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**Frame size MR**

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<th>2800</th>
<th>4500</th>
<th>7000</th>
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</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>304</td>
<td>452</td>
<td>707</td>
<td>1126</td>
<td>1810</td>
<td>2792</td>
<td>4503</td>
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<tr>
<td>Max cont pressure (bar)</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
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<td>130</td>
</tr>
<tr>
<td>Max power (kW)</td>
<td>53</td>
<td>75</td>
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<td>119</td>
<td>157</td>
<td>194</td>
<td>210</td>
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**Frame size MR**

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<th>1400</th>
<th>2100</th>
<th>3100</th>
<th>5400</th>
<th>8200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>332</td>
<td>498</td>
<td>804</td>
<td>1370</td>
<td>2091</td>
<td>3104</td>
<td>5401</td>
<td>8226</td>
</tr>
<tr>
<td>Max cont pressure (bar)</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>750</td>
<td>600</td>
<td>450</td>
<td>280</td>
<td>250</td>
<td>215</td>
<td>160</td>
<td>120</td>
</tr>
<tr>
<td>Max power (kW)</td>
<td>49</td>
<td>70</td>
<td>93</td>
<td>102</td>
<td>148</td>
<td>190</td>
<td>210</td>
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**Frame size MRT**

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<th>9000</th>
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<th>MRTE</th>
<th>8500</th>
<th>10800</th>
<th>16500</th>
<th>20000</th>
<th>23000</th>
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<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
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<td>9005</td>
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<td>19508</td>
<td>8517</td>
<td>10802</td>
<td>16543</td>
<td>19788</td>
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<tr>
<td>Max cont pressure (bar)</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
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<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
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</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>150</td>
<td>130</td>
<td>80</td>
<td>70</td>
<td>60</td>
<td>120</td>
<td>110</td>
<td>70</td>
<td>60</td>
<td>50</td>
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<tr>
<td>Max power (kW)</td>
<td>330</td>
<td>370</td>
<td>355</td>
<td>371</td>
<td>290</td>
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**Frame size MRTF**

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<th>21590</th>
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<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>7808</td>
<td>9904</td>
<td>15277</td>
<td>18025</td>
<td>21271</td>
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<tr>
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<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>130</td>
<td>120</td>
<td>75</td>
<td>65</td>
<td>55</td>
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<td>Max power (kW)</td>
<td>280</td>
<td>300</td>
<td>305</td>
<td>320</td>
<td>311</td>
</tr>
</tbody>
</table>
**Axial Piston**

**V12**

- Very high operating speeds
- Displacement ratio 5:1
- Pressures up to 480 bar
- Very high power capability
- High starting torque
- Low weight
- High overall efficiency
- Axial or side ports
- Controls available for most needs
- ISO, SAE and cartridge versions

<table>
<thead>
<tr>
<th>Frame size V12</th>
<th>60</th>
<th>80</th>
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</thead>
<tbody>
<tr>
<td>Displacement max at 35° (cm³/rev)</td>
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<td>80</td>
</tr>
<tr>
<td>Displacement min at 6.5° (cm³/rev)</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Max cont pressure (bar)</td>
<td>420</td>
<td>420</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
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<td>6250</td>
</tr>
<tr>
<td>Corner power cont (kW)</td>
<td>235</td>
<td>280</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>28</td>
<td>33</td>
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</tbody>
</table>

**V14**

- Very high operating speeds
- Displacement ratio 5:1
- Pressures up to 480 bar
- Very high power capability
- Good control characteristics
- Smooth operation also at creep speed
- High overall and starting torque efficiency
- Compact design
- Low noise level
- ISO, SAE and cartridge versions

<table>
<thead>
<tr>
<th>Frame size V14</th>
<th>110</th>
<th>160</th>
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<tbody>
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<td>Displacement max at 35° (cm³/rev)</td>
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<td>160</td>
</tr>
<tr>
<td>Displacement min at 6.5° (cm³/rev)</td>
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<td>32</td>
</tr>
<tr>
<td>Max cont pressure (bar)</td>
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<td>420</td>
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<tr>
<td>Max operating speed (rpm)</td>
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<td>Corner power cont (kW)</td>
<td>440</td>
<td>560</td>
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<tr>
<td>Weight (kg)</td>
<td>54</td>
<td>68</td>
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</tbody>
</table>

**Radial Piston – Calzoni**

**MRV/MRVE**

- Variable displacement motor
- Customizable displacements
- High starting torque: from 90% to 95% of theoretical
- High control at very low speed
- High volumetric efficiency: up to 98%
- Low noise
- Resistance to thermal shocks
- Reversibility
- Long bearing life
- Speed accessories, brakes...

**MRV**

<table>
<thead>
<tr>
<th>Frame size MRV</th>
<th>450</th>
<th>700</th>
<th>1100</th>
<th>1800</th>
<th>2800</th>
<th>4500</th>
<th>7000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>452</td>
<td>707</td>
<td>1126</td>
<td>1810</td>
<td>2792</td>
<td>4503</td>
<td>6967</td>
</tr>
<tr>
<td>Max cont pressure (bar)</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>600</td>
<td>500</td>
<td>350</td>
<td>250</td>
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<td>130</td>
</tr>
<tr>
<td>Max power (kW)</td>
<td>75</td>
<td>97</td>
<td>119</td>
<td>157</td>
<td>194</td>
<td>210</td>
<td>250</td>
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**MRVE**

<table>
<thead>
<tr>
<th>Frame size MRVE</th>
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<th>1400</th>
<th>2100</th>
<th>3100</th>
<th>5400</th>
<th>8200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
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<td>1370</td>
<td>2091</td>
<td>3104</td>
<td>5401</td>
<td>8226</td>
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<tr>
<td>Max cont pressure (bar)</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>450</td>
<td>280</td>
<td>250</td>
<td>215</td>
<td>160</td>
<td>120</td>
</tr>
<tr>
<td>Max power (kW)</td>
<td>93</td>
<td>102</td>
<td>148</td>
<td>190</td>
<td>210</td>
<td>250</td>
</tr>
</tbody>
</table>
Power Units

M-Pak, Low Noise L-Pak

- Ideal for stationary complex hydraulic control systems: machine tools, assembly stations, handling systems, small presses, etc
- New low-noise series L-Pak
- 1 pump, high volume flows: series M-Pak max. 138 l/min, 300 bar, series L-Pak max. 270 l/min, 350 bar
- Standard scope of delivery: Tank, e-motor, pump, bell housing, return filter, contamination gauge, level switch, valve stack, accumulator
- Stackable blocks, easy to extend with additional control elements for specific use
- Standard and tailorised models, plug-and-play, ready for use
- Compatible BUS connections of series L-Pak
- Prefabricated components: fast delivery, low price

<table>
<thead>
<tr>
<th>Series</th>
<th>Pump Type</th>
<th>Pressure (bar)</th>
<th>Max Flow (l/min)</th>
<th>Tank (l)</th>
<th>Motor (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-Pak Vertical</td>
<td>(gear pump)</td>
<td>210</td>
<td>12</td>
<td>30 - 70</td>
<td>0.25 - 7.5</td>
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<tr>
<td>M-Pak Vertical</td>
<td>(internal gear pump)</td>
<td>315</td>
<td>11</td>
<td>30 - 250</td>
<td>0.55 - 15</td>
</tr>
<tr>
<td>M-Pak Vertical</td>
<td>(gear pump)</td>
<td>210</td>
<td>40</td>
<td>70 - 250</td>
<td>0.55 - 15</td>
</tr>
<tr>
<td>M-Pak Horizontal</td>
<td>(vane pump)</td>
<td>140</td>
<td>35</td>
<td>100 - 250</td>
<td>0.55 - 15</td>
</tr>
<tr>
<td>M-Pak Horizontal</td>
<td>(piston pump)</td>
<td>350</td>
<td>138</td>
<td>100 - 630</td>
<td>7.5 - 30</td>
</tr>
<tr>
<td>Individual Customized</td>
<td></td>
<td>350</td>
<td>1000</td>
<td>≤10000 ≤H128</td>
<td>≤160</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>Pressure (bar)</th>
<th>Sound (dB(A))</th>
<th>Pump Type</th>
<th>Max Flow (l/min)</th>
<th>Tank (l)</th>
<th>Motor (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-Pak</td>
<td>100</td>
<td>350</td>
<td>PVplus</td>
<td>16</td>
<td>270</td>
<td>250 - 1000</td>
</tr>
</tbody>
</table>

 Fluid Power Systems

108 550

Our compact fluid power systems let you put the power where you need it. They are completely self-contained with motor, pump, reservoir, internal valving, load hold checks and relief valves. They often eliminate the need for other components and plumbing in the system to keep costs down.

The 108 Series models are designed for intermittent service and come in four standard pump sizes. Units are available with single or bi-directional rotation and a choice of several hydraulic circuits.

The 550 Series offers top quality industrial power in an economical package. Units are available in a wide variety of configurations. The reversing option enables you to eliminate external directional control valves.

<table>
<thead>
<tr>
<th>Series</th>
<th>Operating (bar)</th>
<th>Max Flow (l/min)</th>
<th>Tank (l)</th>
<th>Motor (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>108</td>
<td>241</td>
<td>3</td>
<td>0.5-5.7</td>
<td>0.25</td>
</tr>
<tr>
<td>550</td>
<td>207</td>
<td>11</td>
<td>1.9-19</td>
<td>0.37-1.5</td>
</tr>
</tbody>
</table>
Compact Hydraulics

Piston Pumps

- Designed for open circuit systems
- Fixed displacement
- Clockwise, counter-clockwise, or bi-directional rotation
- Naturally aspirated to 5000 rpm
- Porting on sides or rear
- Operate efficiently on thin (1 cS) fluid
- Operating temperature: -40 °C to 150 °C

<table>
<thead>
<tr>
<th>Frame size H</th>
<th>450</th>
<th>600</th>
<th>750</th>
<th>900</th>
<th>1000</th>
<th>1200</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement (cm³/rev)</td>
<td>0.156</td>
<td>0.206</td>
<td>0.299</td>
<td>0.311</td>
<td>0.346</td>
<td>0.417</td>
<td>0.519</td>
<td>0.692</td>
<td>0.865</td>
</tr>
<tr>
<td>Max cont pressure (bar)</td>
<td>241</td>
<td>241</td>
<td>241</td>
<td>241</td>
<td>241</td>
<td>241</td>
<td>241</td>
<td>224</td>
<td>207</td>
</tr>
<tr>
<td>Max operating speed (rpm)</td>
<td>4400</td>
<td>4200</td>
<td>4000</td>
<td>3800</td>
<td>3800</td>
<td>3700</td>
<td>3700</td>
<td>3600</td>
<td>3500</td>
</tr>
</tbody>
</table>

Cartridge Pumps

- Three-piston design
- Fixed displacement determined by internal cam angle
- Uni-directional
- Designed to fit specially machined manifolds
- Porting on sides or rear
- Operate efficiently on thin (1 cS) fluid
- Operating temperature: -40 °C to 150 °C

| Displacement (cm³/rev) | 0.1 to 0.33 |
| Max cont pressure (bar) | 207 |
| Max operating speed (rpm) | 6000 |
Cylinders

**HMI/HMD**
- Tie rod cylinder for heavy duty applications
- Maximum working pressure 210 bar
- Standard bore sizes 25 mm to 200 mm
- Available in any practicable stroke length
- Mounting styles and dimensions to ISO 6020/2 and DIN 24 554
- Up to three rod sizes per bore
- Piston rod diameters 12 mm to 140 mm
- Up to three male and three female rod end threads per bore, plus custom designs
- Up to 12 standard mounting styles
- Detachable gland for easy maintenance
- Parker profiled cushion for increased performance and productivity
- Wide range of mounting accessories
- Single and double rod designs
- Seal types to suit a wide variety of operating environments

**2H**
- Tie rod cylinder for heavy duty applications
- Maximum working pressure 210 bar
- Standard bore sizes 38.1 mm to 304.8 mm
- Piston rod diameters 15.9 mm to 215.9 mm
- Rod ends: three standard choices, specials to order
- Available in any practicable stroke length
- 17 standard mounting styles
- Detachable gland for easy maintenance
- Parker profiled cushion for increased performance and productivity

**3L**
- Tie rod cylinder for medium duty applications
- Maximum working pressure 70 bar
- Standard bore sizes 25.4 mm to 203.2 mm
- Rod diameters 12.7 mm to 139.7 mm
- Available in any practicable stroke length
- Rod ends: three standard choices, specials to order
- 15 standard mounting styles
- Detachable gland for easy maintenance
- Parker profiled cushion for increased performance and productivity

**Electro-Hydraulic Cylinders**
- Cylinders with integral feedback devices designed for use with servo and proportional valves in closed-loop applications
- Maximum working pressures up to 210 bar
- Bolt-on and integral manifolds available
- Full range of magnetostrictive and inductive transducer types
- Wide range of stroke lengths available
- Simplifies machine design and reduces number of hydraulic lines
- Eliminates need for limit switches, deceleration valves, shock absorbers and mechanical linkages in many applications
- Integrally mounted valves eliminate assembly time and fittings
- Intrinsically safe and explosion proof switches available
Cylinders

**MMA/MMB**
- Maximum working pressures 250 bar (MMA) and 160 bar (MMB)
- Heavy duty, flanged ‘mill’ cylinders with bore sizes up to 320 mm
- Fatigue-free at rated pressure
- Mounting styles and dimensions to ISO 6022 (MMA) and ISO 6020/1 (MMB)
- Two rod sizes per bore
- Strokes available in any practical length
- Piston rod diameters up to 220 mm
- Detachable gland for easy maintenance
- Seal types to suit a wide variety of operating environments
- Parker profiled cushions for increased performance and productivity
- Wide range of options including feedback and position sensing

**MWA/MWB**
- Maximum working pressures 250 bar (MWA) and 160 bar (MWB)
- Threaded one-piece head with welded cap
- Four standard mounting styles
- Standard bore sizes up to 200 mm
- Any practicable stroke length
- Piston rod diameters up to 125 mm
- Head detaches for easy maintenance
- Seal types to suit a wide variety of operating environments
- Custom rod threads, ports and mountings available
- Options include feedback and position sensing

**Custom Cylinders**
- Bore sizes up to 500 mm
- Any practicable stroke length
- Working pressures up to 600 bar
- Welded, threaded head and tie rod designs
- Telescopic and single stage cylinders
- Single and double acting designs
- Various materials and coatings:
  - Stainless steel
  - Electroless nickel
  - Nitriding
  - Epoxy paint
- Options include:
  - Load holding valves
  - Electrohydraulic transducers
  - End of stroke cushions
  - Stop tubes
  - Position switches
  - Flow controls, flow fuses

**CHH/CHL**
- Max. working pressures up to 160 bar (CHH) and 100 bar (CHL)
- Compact, double-acting ‘block’ cylinders with bore sizes from 32 mm to 80 mm
- Rigid one-piece cylinder body of steel (CHH) or anodized aluminium (CHL) with detachable copper alloy gland
- Strokes available in fixed increments up to 100 mm
- Push forces up to 80 kN (CHH) and 50 kN (CHL)
- Head and cap mountings, with optional foot mounting on CHH models
- Male and female threaded rod ends
- Single and double rod construction
- Long life seals with low breakout, low friction performance
- Hard chrome plated piston rods for high resistance to physical damage
- Options include integrated position switching and cutting oil-resistant seals
Hydraulic Valves

Directional Control Valves

- NFPA manifold mounted
- Rugged spools with four control lands; up to 21 spool styles available depending on operator
- Solenoid, lever, cam, air or oil pilot operated
- Soft-shift available on D1 and D3 solenoid operated valves
- Low pressure drop
- 8 Watt for D1 available
- Several solenoid connections available

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>D1</th>
<th>D3</th>
<th>D31</th>
<th>D41</th>
<th>D81</th>
<th>D111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Flow* (l/min)</td>
<td>80</td>
<td>150</td>
<td>150</td>
<td>300</td>
<td>700</td>
<td>2000</td>
</tr>
<tr>
<td>Max operating pressure (bar)</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>Mounting Style (NFPA)</td>
<td>D03</td>
<td>D05</td>
<td>D05</td>
<td>D07</td>
<td>D08</td>
<td>D10</td>
</tr>
<tr>
<td>(CETOP)</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>(NG)</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>32</td>
</tr>
</tbody>
</table>

*Depending on spool

Manapak

- Mounted between directional control valves and their mounting surface
- Steel bodies and internal hardened steel components for strength and durability

<table>
<thead>
<tr>
<th>Mounting Style</th>
<th>D03</th>
<th>D05</th>
<th>D07</th>
<th>D08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pilot Operated Check</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Flow Control</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Direct Op Pressure Reducing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pressure Reducing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Relief</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Cartpak

- Mounted between D1 Series valves and their mounting surface
- Combines cartridge valve with standard ISO4401-03, NFPA D03, CETOP 3 size body
- Aluminum body for 207 bar operation; ductile iron body for 350 bar operation
- Functions include:
  - Pressure relief
  - Pressure reducing
  - Pressure sequence
  - Flow control, needle, check
  - 2-way solenoid
  - 3-way directional
  - Proportional pressure relief
  - Proportional flow control
Hydraulic Valves

Pressure Control Valves

- Inline or manifold mounted (NFPA P03, P06 and P10)
- 350 bar operating pressure
- Functions include relief, pressure reducing and sequence, and unloading in 207 bar only

Colorflow Valves

- Inline mounted flow, check, needle, gauge isolator and snubber valves
- Flow controls available in pressure compensated models
- Sizes 1/4” to 2”
- Choice of NPTF, SAE, BSPP and ISO 6149 metric ports
- Maximum operating pressures up to 350 bar
- Flows up to 250 l/min
- Steel bodies; some models also available with brass or stainless steel
Hydraulic Valves

Proportional Control Valves

- Maximum operating pressures to 350 bar
- Manifold and inline mounting styles
- On-board and remote electronics available
- Zero lap servo spools offered for closed loop applications
- Explosion proof models available (ATEX-EE x 2111 D/G)

<table>
<thead>
<tr>
<th>Proportional Directional Control</th>
<th>Series</th>
<th>Direct Operated</th>
<th>Pilot Operated</th>
<th>Spool Feedback</th>
<th>Integrated Electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: NG</td>
<td>06 10</td>
<td>10 16 25 32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size: ISO/CETOP</td>
<td>3 5</td>
<td>5 7 8 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Performance</td>
<td>D&quot;FT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D&quot;1FW</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D&quot;1FT</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D&quot;FB</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>optional</td>
</tr>
<tr>
<td>High reproducibility</td>
<td>D&quot;1FS</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D&quot;1FH</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCD Performance/ Servo Performance</td>
<td>D1FP</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D3FP</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proportional Pressure Control</th>
<th>Series</th>
<th>Direct Operated</th>
<th>Pilot Operated</th>
<th>Integrated Electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: NG</td>
<td>06</td>
<td>06 10 25 32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size: ISO/CETOP</td>
<td>3</td>
<td>3 5 8 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportional Relief</td>
<td>RE06&quot;T</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RE06&quot;W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RE&quot;T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RE&quot;W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VBY&quot;L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportional Reducing</td>
<td>PC</td>
<td>X X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DWE</td>
<td>X X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportional Reducing w/check valve</td>
<td>PE</td>
<td>X X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DWU</td>
<td>X X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportional Reducing</td>
<td>VMY&quot;L</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Way Valve</td>
<td></td>
<td>(no integrated electronics)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proportional Directional Control</th>
<th>Series</th>
<th>Pilot Operated</th>
<th>Spool Feedback</th>
<th>Integrated Electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: NG</td>
<td>16 25 32 40 50 63 80 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Performance</td>
<td>TDA</td>
<td>X X X X X X X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Servo Performance</td>
<td>TDL</td>
<td>X X X X X X X X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proportional Pressure Control</th>
<th>Series</th>
<th>Pilot Operated</th>
<th>Spool Feedback</th>
<th>Integrated Electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: NG</td>
<td>16 25 32 40 50 63 80 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Performance</td>
<td>TDA</td>
<td>X X X X X X X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Servo Performance</td>
<td>TDL</td>
<td>X X X X X X X X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Electrohydraulic Valves**

**Servovalves**

- Robust, reliable industrial electro hydraulic servovalves for motion control applications
- Explosion-proof models available
- Intrinsically safe models available
- Valves series BD meet CSA, FM and Cenelec standards

<table>
<thead>
<tr>
<th>Valve Series</th>
<th>BD</th>
<th>PH</th>
<th>SEMT</th>
<th>SE05</th>
<th>SE10</th>
<th>SE15</th>
<th>SE2N</th>
<th>SE20</th>
<th>SE2E</th>
<th>SE31</th>
<th>SE60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Flow* (l/min)</td>
<td>151</td>
<td>57</td>
<td>-7</td>
<td>-10</td>
<td>-40</td>
<td>-57</td>
<td>-125</td>
<td>-75</td>
<td>-75</td>
<td>-60</td>
<td>-230</td>
</tr>
<tr>
<td>Max. Operating Pressure (bar)</td>
<td>207</td>
<td>210</td>
<td>210</td>
<td>315</td>
<td>315</td>
<td>315</td>
<td>210</td>
<td>500</td>
<td>315</td>
<td>315</td>
<td>210</td>
</tr>
</tbody>
</table>

* at 70 bar

**Electronics**

Full range of digital and analogue drivers and controllers. Drivers providing ramps, setpoints command signals, deadband compensation and auxiliary functions:

- Up to 4 axis in synchronous operation; encoder or magnetostrictive feedback (NC100)
- Power supplies for a variety of valve applications
- Snap-on electronics
- Software (www.parker.com/euro_hcd)
DIN Cartridge Valves

- Available in sizes 16 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
- Nominal flows up to 8,000 l/min (Δp 5 bar)
- Maximum operating pressures up to 350 bar
- Proportional throttle, relief and pressure controls
- Complete selection of pressure controls
- Variety of direct and pilot operated checks
- Directional controls to 8,000 l/min (Δp 5 bar)

Auxiliary Valves

The pressure reducing valve is of three-way design.
- Compact
- Easy to adjust
- Factory set and sealed

The sequence valve is designed to open or close a hydraulic pilot signal when it reaches a predetermined pressure level.
- Compact
- Several pressure ranges available
- Can be factory set and sealed

The shuttle valve enables two signal flows in a hydraulic system to be directed alternately into a common service line. The flow with the highest pressure takes priority.
- Small dimensions
- Rapid switching
- Negative overlapping
- Reacts on very small flows
- Minimal leakage

Directly controlled pressure-relief valves with anti-cavitation function. The valves have good pressure characteristics together with very short reaction times.
- Compact
- Tight
- Reliable
- Not sensitive to contamination

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Max Working Pressure (bar)</th>
<th>Max Setting Pressure (bar)</th>
<th>Flow Capacity (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subplate/relief valves</td>
<td>345</td>
<td>345</td>
<td>57</td>
</tr>
<tr>
<td>Hi-lo unloading valves</td>
<td>379</td>
<td>345</td>
<td>57</td>
</tr>
<tr>
<td>Accumulator bleed-down valves</td>
<td>241</td>
<td>-</td>
<td>Inlet: 75 accum-tank: 226</td>
</tr>
<tr>
<td>Reducing valves</td>
<td>345</td>
<td>345</td>
<td>113</td>
</tr>
<tr>
<td>Sequence valves</td>
<td>345</td>
<td>345</td>
<td>57</td>
</tr>
<tr>
<td>Hose-rupture valves</td>
<td>207</td>
<td>-</td>
<td>249</td>
</tr>
<tr>
<td>Pressure relief valves</td>
<td>500</td>
<td>25-500</td>
<td>0-350</td>
</tr>
</tbody>
</table>
Directional Control Valves

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Max Working Pressure (bar)</th>
<th>Flow Capacity (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual valves</td>
<td>241</td>
<td>49</td>
</tr>
<tr>
<td>Manual three-way valves</td>
<td>241</td>
<td>23</td>
</tr>
<tr>
<td>Manual four-way valves</td>
<td>241</td>
<td>8</td>
</tr>
<tr>
<td>Pilot operated valves</td>
<td>241</td>
<td>38</td>
</tr>
<tr>
<td>Solenoid, poppet-type, two-way valves</td>
<td>345</td>
<td>264</td>
</tr>
<tr>
<td>Solenoid, poppet-type, bi-directional valves</td>
<td>345</td>
<td>19</td>
</tr>
<tr>
<td>Solenoid, spool-type, two-way valves</td>
<td>345</td>
<td>75</td>
</tr>
<tr>
<td>Solenoid, spool-type, three-way valves</td>
<td>345</td>
<td>64</td>
</tr>
<tr>
<td>Solenoid, spool-type, four-way valves</td>
<td>345</td>
<td>30</td>
</tr>
<tr>
<td>Double solenoid, spool-type, four-way valves</td>
<td>345</td>
<td>23</td>
</tr>
</tbody>
</table>

Proportional Control Valves

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Max Working Pressure (bar)</th>
<th>Flow Capacity (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solenoid operated, two-way NC or NO proportional flow control valves</td>
<td>207</td>
<td>226</td>
</tr>
<tr>
<td>Solenoid operated, two-way NO, proportional pressure control valves</td>
<td>207</td>
<td>151</td>
</tr>
<tr>
<td>Solenoid operated, two-way NC throttle valve</td>
<td>207</td>
<td>19</td>
</tr>
<tr>
<td>Solenoid operated, proportional pressure reducing valves</td>
<td>207</td>
<td>38</td>
</tr>
<tr>
<td>Solenoid operated, three-way, proportional pressure control</td>
<td>207</td>
<td>11</td>
</tr>
</tbody>
</table>
### Threaded Cartridge Valves

#### Load Holding Valves

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Max Working Pressure (bar)</th>
<th>Flow Capacity (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counterbalance valves</td>
<td>345</td>
<td>0–754</td>
</tr>
<tr>
<td>Check valves</td>
<td>345</td>
<td>0–377</td>
</tr>
<tr>
<td>Soft seat check valves</td>
<td>207</td>
<td>0–57</td>
</tr>
<tr>
<td>Vent-to-open check valves</td>
<td>241</td>
<td>0–226</td>
</tr>
<tr>
<td>Pilot-to-close check valves</td>
<td>241</td>
<td>0–151</td>
</tr>
<tr>
<td>Single pilot operated check valves</td>
<td>207</td>
<td>0–189</td>
</tr>
<tr>
<td>Double pilot operated check valves</td>
<td>207</td>
<td>0–189</td>
</tr>
<tr>
<td>Shuttle valves</td>
<td>241</td>
<td>0–23</td>
</tr>
</tbody>
</table>

#### Pressure Control Valves

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Max Working Pressure (bar)</th>
<th>Max Setting Pressure (bar)</th>
<th>Flow Capacity (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct acting relief valves</td>
<td>345</td>
<td>345</td>
<td>0–151</td>
</tr>
<tr>
<td>Cross-over relief valves</td>
<td>241</td>
<td>241</td>
<td>0–75</td>
</tr>
<tr>
<td>Dual relief with anti-cavitation checks</td>
<td>345</td>
<td>345</td>
<td>0–60</td>
</tr>
<tr>
<td>Pilot operated relief valves</td>
<td>345</td>
<td>345</td>
<td>0–377</td>
</tr>
<tr>
<td>Pressure sensing valves</td>
<td>345</td>
<td>-</td>
<td>0–189</td>
</tr>
<tr>
<td>Reducing/releasing valves</td>
<td>345</td>
<td>345</td>
<td>0–151</td>
</tr>
<tr>
<td>Direct acting pressure reducing valves</td>
<td>345</td>
<td>345</td>
<td>0–57</td>
</tr>
<tr>
<td>Pressure reducing valves</td>
<td>345</td>
<td>345</td>
<td>0–57</td>
</tr>
<tr>
<td>Pressure reducing spools</td>
<td>345</td>
<td>-</td>
<td>0–189</td>
</tr>
<tr>
<td>Sequence valves</td>
<td>345</td>
<td>345</td>
<td>0–151</td>
</tr>
<tr>
<td>Unloading relief valves</td>
<td>241</td>
<td>207</td>
<td>0–6</td>
</tr>
<tr>
<td>Logic elements</td>
<td>248</td>
<td>248</td>
<td>0–189</td>
</tr>
<tr>
<td>Thermal relief</td>
<td>248</td>
<td>248</td>
<td>0–30</td>
</tr>
</tbody>
</table>

#### Volume Control Valves

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Max Working Pressure (bar)</th>
<th>Max Flow Setting (l/min)</th>
<th>Flow Capacity (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle valves</td>
<td>241</td>
<td>-</td>
<td>0–189</td>
</tr>
<tr>
<td>Rotary adjust needle valves</td>
<td>241</td>
<td>-</td>
<td>0–57</td>
</tr>
<tr>
<td>Flow divider/combiner valves</td>
<td>207</td>
<td>-</td>
<td>0–45</td>
</tr>
<tr>
<td>Pilot control flow control valves</td>
<td>207</td>
<td>-</td>
<td>0–57</td>
</tr>
<tr>
<td>Flow control valves</td>
<td>241</td>
<td>-</td>
<td>0–45</td>
</tr>
<tr>
<td>Restrictive-type, pressure compensated valves</td>
<td>241</td>
<td>-</td>
<td>0–151</td>
</tr>
<tr>
<td>Priority-type, pressure compensated valves</td>
<td>241</td>
<td>0–38</td>
<td>0–57</td>
</tr>
<tr>
<td>Restrictive-type, pressure compensated flow regulator valves</td>
<td>241</td>
<td>-</td>
<td>0–57</td>
</tr>
<tr>
<td>Priority-type, pressure compensated flow regulator valves</td>
<td>241</td>
<td>0–34</td>
<td>0–57</td>
</tr>
<tr>
<td>Priority-type, pressure compensated flow regulator with relief</td>
<td>241</td>
<td>0–34</td>
<td>0–57</td>
</tr>
<tr>
<td>Velocity fuses</td>
<td>207</td>
<td>-</td>
<td>0–30</td>
</tr>
</tbody>
</table>

#### Safety blocks for presses

<table>
<thead>
<tr>
<th>Size</th>
<th>Flow (l/min)</th>
<th>Working pressure (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>40</td>
<td>350</td>
</tr>
<tr>
<td>10</td>
<td>70</td>
<td>350</td>
</tr>
<tr>
<td>16</td>
<td>230</td>
<td>350</td>
</tr>
<tr>
<td>25</td>
<td>450</td>
<td>350</td>
</tr>
<tr>
<td>32</td>
<td>1000</td>
<td>350</td>
</tr>
<tr>
<td>63</td>
<td>2000</td>
<td>350</td>
</tr>
<tr>
<td>80</td>
<td>3500</td>
<td>350</td>
</tr>
</tbody>
</table>
Rotary Actuators

HTR Series

- Rack and pinion rotary actuators for heavy-duty service
- Operating pressures up to 210 bar
- Standard rotations: 90°, 180°, 360°
- Custom rotations up to 5+ revolutions
- Output torque at 210 bar: up to 68,000 Nm
- Rugged iron housing with a range of mounting options
- Tapered roller bearings support high external and thrust loads
- Chrome alloy steel gears for strength
- Keyed and splined shaft options
- Optional seals, cushions, stroke adjusters, flow controls and position sensors

Custom Engineered Products

High durability features provide 99 % reliability in 10 million cycles. Actuators can be custom designed to integrate as part of machine structure. Housing and shafting designed with special materials and features to carry high induced loads.

- Rotations to 1080°, variety of speeds, special shafting, mounting, and porting arrangements
- Units with minimal backlash, combined linear and rotational motion functions
- Total system solutions integrate position feedback with control valve packages
- Special materials include titanium, stainless steels and bronzes
- Compliance to customer specs and agency certifications
- Special environments/applications: robotic, submerged, clean room, medical, PC chips

Accumulator Safety Blocks

- Protects and isolates any type of accumulator
- Simplifies discharging for routine maintenance
- 350 bar operating pressures
- Flow rates up to 300 l/min at 330 bar
- User-adjustable, cartridge-type relief valve
- Manually- or electrically-operated discharge valves
Accumulators

A Series Piston Accumulators

- Over 20 standard capacities from 0.1 litres to 76 litres
- 50 mm, 75 mm, 100 mm, 125 mm, 150 mm and 200 mm nominal bore sizes
- 250 bar and 350 bar max. working pressures
- Piston speeds up to 4 m/s
- Flow rates up to 5,700 l/min
- Patented five-bladed V-O-ring piston seals in five standard seal compounds
- Accumulator and gas bottle configurations
- CE approved to new PED 97/23/EC
- Other approvals available

AP Series Piston Accumulators

- Over 20 standard capacities from 6 litres to 300 litres
- 180 mm, 250 mm and 360 mm bore sizes
- 250 bar and 350 bar maximum working pressures
- High performance sealing systems for piston speeds up to 8 m/s
- Flow rates up to 45,000 l/min
- High flow ports for rapid cycling performance
- Accumulator and gas bottle configurations
- CE approved to new PED 97/23/EC
- Other approvals available

BAE Series Bladder Accumulators

- Standard capacities from 1.0 litre to 50 litres
- Maximum operating pressures up to 330 bar
- Flow rates up to 900 l/min
- BSPP, ISO 6149 and SAE threaded and flanged ports available
- Five bladder compounds to suit a variety of fluids and temperatures
- CE approved to new PED 97/23/EC

ADE Series Diaphragm Accumulators

- 11 standard capacities from 0.075 litres to 3.5 litres
- Up to 250 bar maximum working pressure depending on model
- Nitrile and epichlorohydrine bladder compounds for operating temperatures from -30°C to +80°C
- Flow rates up to 60 l/min
- BSPP threaded ports as standard; other thread forms available to order
- Meet conformity assessment procedures of PED 97/23/EC

Accumulator Charging Kit and Mounting Accessories

- Charging and gauging equipment
- Gauge adapters and assemblies
- Unloading valves
- Mounting clamps and base brackets
- U-Bolt mounting hardware
Total Product Offering

For Parker Filtration, our commitment to re-think, re-engineer and realign ourselves to fulfil the needs of our customers and their customers, is best demonstrated by our Total ‘Global’ Product Offering. In addition to the products highlighted here, a comprehensive catalogue is available. Many of the Filtration products are designed to ISO 14001 to meet Parker’s global environmental commitment.

Low Pressure

- Various mounting configurations
- High capacity/high efficiency Microglass III media and ‘e’ series environmentally friendly media options
- Visual and electrical indicators with several connector styles
- Tank mounted and in-tank models
- Integral indicator & breather options

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Flow Rate l/min</th>
<th>Max Pressure (bar)</th>
<th>Mounting Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction Return</td>
<td>250</td>
<td>10</td>
<td>Tank Top</td>
</tr>
<tr>
<td>Multi flow</td>
<td>600</td>
<td>8</td>
<td>Tank Top</td>
</tr>
<tr>
<td>1200 Series</td>
<td>140</td>
<td>6</td>
<td>Tank Top</td>
</tr>
<tr>
<td>Tank Topper</td>
<td>650</td>
<td>10</td>
<td>Tank Top</td>
</tr>
<tr>
<td>IN-AGB</td>
<td>2400</td>
<td>10</td>
<td>Inside Tank</td>
</tr>
<tr>
<td>BGT-S</td>
<td>2400</td>
<td>10</td>
<td>Tank Top</td>
</tr>
<tr>
<td>Maxiflow</td>
<td>360</td>
<td>10</td>
<td>Spin-On</td>
</tr>
<tr>
<td>TTF</td>
<td>500</td>
<td>10</td>
<td>Tank Top</td>
</tr>
</tbody>
</table>

Medium Pressure

- Various port options
- High capacity/high efficiency Microglass III and ‘e’ series, environmentally friendly media options
- Cartridge style by-pass valve
- Visual and electrical indicators with several connector styles

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Flow Rate l/min</th>
<th>Max Pressure Bar</th>
<th>Mounting Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN Series</td>
<td>660</td>
<td>70</td>
<td>Inline</td>
</tr>
<tr>
<td>1145 Series</td>
<td>250</td>
<td>40</td>
<td>Inline</td>
</tr>
<tr>
<td>1300 ‘e’ Series</td>
<td>1000</td>
<td>30</td>
<td>Inline</td>
</tr>
</tbody>
</table>

High Pressure

- Various mounting configuration
- High capacity/high efficiency Microglass III and ‘e’ Series, environmentally friendly media options
- Visual and electrical indicators with several connector styles
- Flows up to 1,000 l/min at 414 bar

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Flow Rate l/min</th>
<th>Max Pressure Bar</th>
<th>Mounting Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>H600/H1000</td>
<td>1000</td>
<td>414</td>
<td>Inline</td>
</tr>
<tr>
<td>8 Series</td>
<td>520</td>
<td>414</td>
<td>Inline</td>
</tr>
<tr>
<td>7000 Series</td>
<td>450</td>
<td>420</td>
<td>Inline</td>
</tr>
<tr>
<td>15P/30P Series</td>
<td>200</td>
<td>207</td>
<td>Inline</td>
</tr>
</tbody>
</table>
Portable Filtration Systems

- Provides flexibility for removing contaminants from hydraulic fluid
- Guardian hand-held portable filtration system with 15 l/min flow
- A range of trolley mounted portable filtration systems – 10MF Series 38 l/min
- Choice of 5 portable purification systems with flow rates from 19 l/min to 113 l/min. Water, air and particulates removed from large systems with the PVS range

Reservoir Equipment

- Metallic and non-metallic breathers and filler breathers
- Diffusers
- Fluid Level/temperature gauges
- Environmental air filters
- Spin-on breathers
- Suction strainers

ParGel

- Water removal elements filter free water from mineral-base and synthetic fluids
- Fits many Parker filters and the Guardian filtration system

ParFit

- Extensive range of competitively priced Parker quality replacement filter elements for any filter brand
- Over 6,500 competitive inter-change listings help consolidate vendor base by allowing users to acquire all replacement elements from one source. Check out our online selector
- Provides proven Parker performance in competitive filter housings

www.parker.com/eurofilt
LaserCM – Portable Particle Counter

There are many reasons why the new LaserCM, the latest in an impressive line-up of portable particle counters, is destined to become a world-leader. Some users will be attracted to its proven performance in the field, on the production line or in the laboratory. Others will recognize the manufacturing quality, its reliability, its potential for reducing machine downtime, and its effective predictive maintenance programs. Then there are those who find originality and innovation irresistible qualities, that when combined, provide a fluid condition monitor that will outperform the rest.

- Instant, accurate results achieved with a 2-minute test cycle
- Data entry allows individual equipment identification
- Data graphing selectable via the integral printer
- Handset auto-logging test sequence
- Datums data download software available
- Auto 300-test cycle logging via LCD handset input
- RS-232 serial port computer interface
- Worldwide service and technical support. There is an integral 16-column printer for hard copy data

MS100 Moisture Sensor

- Parker’s MS100 Moisture Sensor provides a compact, real time solution to continuous water contamination monitoring
- Simple LED’s provide local Go/No-Go indication
- Panel meter for local or remote display reports 0–100% saturation
- Meter scale is colour coded for positive/easy identification
- Dual set-point alarm module interface for bar graph indicator

ASIC ‘Performer’ Transducers & Transmitters

- One-piece body and diaphragm machining ensures long-term product stability
- All Stainless Steel construction
- 6 transducer pressure ratings, 0–5 V and 1–6 V outputs
- 7 transmitter pressure ratings – 2-wire 4–20 mA output
- Micro plug and M12 connector options

Flow Meters & Monitors

An extensive range of inline flow meters, flow switches and test equipment for oil, water and air applications. Inline flow indicators and precision monitors, flow transmitters, stainless steel flowmeters for corrosive or chemical media and flow products designed for arduous conditions.
**Polyflex**

**High Pressure Hoses for Water Jetting**

For low volumetric expansion and excellent flex-impulse life at pressures up to 400 MPa.

Applications: high pressure cleaning equipment, boiler tube cleaning, hydrodemolition, sewer jetting, water jet cutting. End fittings made from high performance safety critical materials. Assembling and testing with Polyflex assembly equipment.

Construction: thermoplastic with up to 2 layers of textile reinforcement and up to 8 layers of high tensile steel wires. Size range: from 3 to 25 mm bore.

Working pressure: up to 400 MPa on 5 mm and 90 MPa on 25 mm.

Temperature range: -10 °C to +70 °C.

**Polyflex Presto**

**Thermoplastic Tubing for Pneumatics**

Thermoplastic single and multicore tubing bundles for most pneumatic applications.

Tubing bundles containing up to 19 tubes for instrumentation, controls and systems monitoring.

Materials: Polyethylene (PE), Polyurethane (TPU), Polyamide (PA).

Size range: 2 to 16 mm (1/8” to 1”).

Temperature range: -40 °C to +80 °C.

**Thermoplastic Hoses for Hydraulic and Industrial Applications**

For pressures up to 400MPa. Single and multiple lines with permanently attached end fittings for assembly with Polykrimp/Parkrimp systems.

Applications: Low pressure to Ultra high Pressure hydraulic, pneumatics, surface finishing and PTFE hoses. Construction: Thermoplastic hoses with synthetic fibre/steel wire reinforcement.

Size range: from 1/8” to 1 1/4”.

Temperature range: -57 °C to +150 °C.
**Polyflex Products for Beverage and Domestic Applications**

Beverage industry: single line food quality tubing made of LDPE, PVC, PVDF, PA and EVA, multi layered extruded tubing “Python” thermally insulated multicore bundles, thermoplastic “TrueSeal” fittings and associated products.

The comprehensive product package is designed to meet the widest range of applications.

Easy to install tubing products required to service the Beverage industry.

**Polyflex Products for Offshore Technologies**

Single line hoses and hose umbilicals for On- and Off-shore applications. Long length, high temperature, light weight hoses for subsea controls.

Materials: Polyamide (PA), Polyurethane (TPU), Polyesther Elastomer (PE-E), Fluoropolymers, Aramid fibre, high performance steels and other specialised materials.

Construction: thermoplastics with reinforcement layers of 4 spiral textile and 6 spiral steel wires for maximum lengths.

Size range: 3 to 50 mm (1/8” to 2” bore).

Working pressure: 280 MPa on 5 mm (3/16”) to 70 MPa on 50 mm (2”).

Information on request
EO-2 Fittings

The EO-2 version of the EO standard range is a fitting system with soft seals at all joints. The most important feature is the use of the EO-2 functional nut instead of the progressive ring.

Product range: Series LL from 4 to 6 mm tube o.d.
Series L from 6 to 42 mm tube o.d.
Series S from 6 to 38 mm tube o.d.

Material: steel and stainless steel.
Sealing material: NBR, FKM.
Nominal pressure Pn: Series L up to 315 bar
Series S up to 630 bar.


EO New Generation

New, higher performance fitting generation, higher pressure, higher corrosion resistance, easier fitting assembly, chromium-6-free connections.

All systems give maximum safety even at extreme pressures, 500 hours corrosion resistance against white rust.

Product range:
Series L from 6 to 42 mm tube o.d.
Series S from 6 to 38 mm tube o.d.

Material: steel.
Sealing material (EO2-Plus/EO2-Form): NBR/FKM.
Nominal pressure Pn: Series L up to 500 bar
Series S up to 800 bar.
Sizes 20S  38S: 420 bar.

Triple-Lok

JIC 37° Fittings

Triple-Lok is a universal 37° flared fitting for medium pressure applications. Usable with either metric or inch size tubes, or hoses.

Material: steel and stainless steel, brass.
Sizes: tube o.d. 6 to 42 mm (1/4” to 2”).
Port threads: UNF, NPTF, BSPP, BSPT, metric ISO 6149 and DIN 3852.
Nominal pressure Pn: up to 350 bar.

O-Lok

O-ring Face Seal Fittings (ORFS)

Soft seal fittings provide leakfree connections for high pressure hydraulic systems. Excellent where reliability, versatility and ease of assembly are important factors. For rigid tubing and hoses.

Material: steel and stainless steel, brass on request.
Sizes: tube o.d. 6 to 50 mm (1/4” to 2”).
Port threads: BSPP, metric ISO 6149 and DIN 3852, UNF, NPTF.
Nominal pressure Pn: up to 630 bar.
Pneumatic Fittings

**Prestolok 2**
*Push-in Fittings – Thermoplastic Body*

Prestolok 2 is an instant fitting for plastic tubing, may be used with a protective cap.

Material: polyamide, threaded parts in nickel plated brass.
Sizes: tube o.d. 4 to 14 mm.
Threads: BSPT, BSPP 1/8” to 1/2”, metric M3 to M22.
Working pressure: up to 18 bar.
Working temperature: -25 °C to +80 °C
(depending on tube specification)

**Prestolok micro**
*Push-in Fittings – Thermoplastic Body*

Prestolok micro is an instant push-in fitting for plastic tubing.

Material: polyamide, threaded parts in nickel plated brass.
Sizes: tube o.d. 3 to 6 mm.
Threads: BSPT, BSPP 1/8” to 1/4”, metric M3 to M5.
Working pressure: up to 16 bar.
Working temperature: -25 °C to +80 °C
(depending on tube specification)

**Metrulok**
*Medium Pressure Brass Tube Fittings*

Metrulok is a one-piece ready to use bite type fitting for use with either copper or plastic tubing. The cutting ring is retained within the nut.

Metrulok fittings are reusable.

Material: brass.
Sizes: tube o.d. 4 to 22 mm.
Threads: NPT, BSPT, BSPP 1/16” to 3/4”, metric M5 to M22.
Working pressure: copper tubing up to 180 bar, plastic tubing up to 39 bar.
Working temperature: -60 °C to +190 °C.
Quick Couplings

Low Pressure – Pneumatic Applications

Push-to-connect quick couplings meeting the requirements of the “European profile”, ISO 6150-B or ISO 6150-C. Also available with improved flow characteristics, which allows their use with any type of pneumatic equipments. The range is completed with safety versions conforming to ISO 4414 standard, which is designed to prevent hose whip.

Material: brass, steel or polyamide.
Sizes: from 1/4” to 1/2”, 7.2 mm and 10 mm.
Threads: BSPP, BSPT, hose barb and Parker Push-Lok.
Flow rates: up to 4,160 l/min.
Rated pressure: up to 35 bar.

High Pressure

Quick couplings combining the advantages of high pressure capability with well proven designs: flush-faced poppet for reduced spillage, threaded types to connect under pressure, ball locking mechanism for ease and rapidity of use. Most of the series are interchangeable with similar designs.

Materials: steel and stainless steel.
Sizes: 1/4” and 3/8”.
Threads: BSPP, NPTF, NPSF, UNF.
Rated pressure: up to 1,000 bar.

Medium Pressure – Industrial Hydraulic and Chemical

For each application, we have a solution: general purpose 60 series meeting ISO 7241-1-B standard, FF series with flat-faced poppet to protect work place and environment, FS series in stainless steel for use with corrosive fluids or ST series without valving for high flow and low pressure drop.

Materials: brass, steel and stainless steel.
Sizes: from 1/8” to 2 1/2”.
Threads: BSPP, BSPT, NPT(F), NPSF, UN(F).
Rated pressure: up to 460 bar.
Rubber Hoses

Multispiral Hoses

The Multispiral No-Skive hose range contains all of the market typical 4 and 6 spiral hose types including 4SP/4SH, SAE 100R12, R13 and R15 SAE.

Unique to Parker however, is that the full range of spiral hoses are No-Skive, so no removal of the outer cover or inner tube is required before crimping the fittings on to the hose. This unique functionality is achieved through specially designed fittings that bite through the outer cover and guarantee a total grip system between the fitting and the hose.

As a complimentary product to this MS range Parker also has the 372 hose. This 3 wire braided hose has a higher specification than the typical 4SP hose, whilst also offering greater flexibility.

All of the MS products in the range are also available upon request with nitrile inner tubes that offer higher chemical resistance to aggressive fluids and are ideal for use with Bio-oils.

Working pressure: up to 445 bar.
Temperature range: -40 °C to +121 °C.
Dimensions: size -6 to -32.

ParLock Multispiral Hose and Fitting Range
- the High Performance Skive System

Specific customers or applications stipulate the implementation of multispiral hose assemblies with external/internal skive type fittings. With the ParLock hose and fittings range, Parker meets this demanding market requirement. The ParLock System offers:

A full range of skive/interlock multi spiral hoses ISO 3862-1 (4SP to R15). Hose and fitting combination giving performance that exceeds ISO/EN requirements. Approved hose and fitting compatibility "one manufacturer, one source". Field-tested, proven reliability suitable for:

- High flex-impulse applications
- High vibration applications

Constructions: synthetic rubber tube and cover, 4 to 6 layers of high tensile steel

Dimensions: size -6 to -32.
Working pressure: up to 44.5 MPa.
Temperature range: -40 °C to +100 °C.
Rubber Hoses

Parkrimp Elite Compact No-Shive Hoses

The design of compact hoses for the future. The medium pressure hydraulic hose product range contains:

The Elite Compact hoses exceeding EN specifications.

The No-Shive hoses according to specifications:
EN 853, SAE 100 R1AT, SAE 100 R2AT and SAE100 R16

Whenever small bend radii together with high-pressure ratings and excellent oil compatibility are required, the Parker Elite Compact hoses should be the first choice.

The proven functionality of the Elite Compact hoses and the respective Parker 46 series fittings offers increased safety and reliability. The Elite range contains both single and twin-line rubber hoses meeting or exceeding the EN857 specification.

Parker Compact hoses and 46 series fittings can be crimped on Parker’s Karrykrimp, Karrykrimp 2 and Parkrimp 2 crimping machines offering a complete system solution for your hydraulic hose needs.

Construction: Abrasion and ozone resistant synthetic rubber cover, 1 or 2 layers of high tensile steel wires and high quality Nitrile (NBR) inner tubes.

Dimensions: size -4 to -20.
Working pressure: up to 42.5 MPa.
Temperature range: -50 °C to +100 °C.

SAE 100R5 Air Brake/Refrigerant and 2TE Hydraulic Hoses

A range of hoses which are the optimum solution for air brake systems, diesel engine cooling systems as well as air conditioning applications.

Parker is offering for this hose types a special range of fittings (Series 26) as a No-Shive system.

Some of the available hose types include high performance of fire resistance construction.

The hose constructions are dependent on working pressure and contain different layers of textile or steel wires and synthetic rubber material for tube and cover.

Working pressure: up to 207 bar.
Temperature range: -50 °C to +150 °C.
Dimensions: size -4 to -32.

Parkrimp Compact No-Shive Twin Hoses

The vulcanized rubber Compact twin hoses have a high abrasion resistant cover and are extremely flexible with a constant working pressure of 210 bar.

These hoses are ideal for applications where extremely small bending radii are required such as the ‘Mast application’ on a fork lift truck, hose reels for such applications as mobile cranes or lifting platforms.

Working pressures: up to 210 bar.
Temperature range: -40 °C to +80 °C.
Dimensions: size -4 to -10.
Pretension: 3–5 %.
Rubber Hoses

Push-Lok Hoses
(Low Pressure Self-grip Hose and Fitting System)

For the following good reasons Parker Hannifin is world-wide market leader with the Push-Lok System. Push-Lok hose and fittings are worldwide approved and available with a variety of connections in DIN, BSP, SAE, JIC and ORFS in brass, steel and stainless steel.

The Push-Lok System includes 9 hose types for a multiplicity of applications. During many years of system development three different hose constructions were created:

- 6 rubber hose constructions
- 2 thermoplastic hose constructions
- 1 hybrid hose construction

The hoses are available with 6 different colours, which could be used to sign different kind of fluids.

Please find below some basic features about the Push-Lok System:

**Easy assembly - no tools and clamps required.**

Low assembly costs.

- High functional safety with a safety factor of 4
- Hose + fitting = One manufacturer.
- High-class hose types

Customer oriented hose developments are the basis for high-class hoses.

Working pressure: up to 24 bar.

Temperature range: -40 °C to +150 °C.

Dimensions: size -4 to -16.

Parkrimp Compact No-Shive ‘Tough Cover’ and ‘Super Tough’ Cover Hoses

In applications where even higher abrasion resistance than the Parker Compact hoses already offer is required, the TC (Tough Cover) and the ST (Super Tough cover) hoses offer extreme abrasion resistance for extreme applications.

Specifying a Parker hose with ST cover offers an abrasion resistance level 450 times greater than that of a standard rubber cover according to ISO 6945 metal to hose abrasion test results. The same test results prove Parker's TC cover to be 80 times more abrasion resistant than the standard rubber cover.

These ultra high abrasion resistant hoses give increased service life, lower maintenance costs and can eliminate the need for costly hose protectors such as guards or sleeves.

As with all Parker hoses the cover does not need to be removed before assembling the Parkrimp fittings.

Working pressure: up to 400 bar.

Temperature range: -40 °C to +100 °C.

Dimensions: size -4 to -16.
Hot Water and Steam Hoses

Hot water and steam hoses are manufactured with special rubber compounds formulated to resist the effect of steam ageing.

Parker’s steam hoses fulfil the latest international standards.

Special textile and steel reinforcement provide high safety margins with high pressures and temperatures.

The cover is resistant to abrasion, ageing and heat.

Size range: I.D.: from 7 to 120 mm.
Working pressure: 0.3 MPa to 1.7 MPa.

Gas Hoses

Largely used in domestic and industrial appliances or for transport of LPG, domestic, welding and non-combustible gases. Welding applications can be hazardous and safety is most important.

Gas and welding hoses are manufactured according to the latest European standard EN 559.

Where necessary Parker’s gas hoses have been approved by qualified Organisations (such as IMQ, DVGW, … etc.).

Size range: I.D.: from 4 to 51 mm.
Working pressure: 1.0 MPa to 5.0 MPa.
Oil and Fuel Hoses

Hoses designed for suction and delivery of petroleum products, fuels and mineral oil, for hydraulic systems, loading and discharge of tankers and petrol pumps.

Parker’s oil and fuel hoses have a tube resistant to petroleum based fluids. To withstand suction some types of these hoses have a strong textile reinforcement and an embedded steel wire helix. The cover is made of an oil and weather-resistant rubber compound, to provide a good resistance to severe industrial use.

Parker’s oil and fuel hoses fulfil the latest international standards (such as EN 1360, SAE J 200, EN ISO 7840 A1, EN 12115, etc) and, where necessary, they have been approved by Bureau Veritas, TUEV, etc.

Size range: I.D.: from 5 to 150 mm.
Working pressure: 0.4 MPa to 2.0 MPa.

Multipurpose Hoses

Parker also manufactures a wide range of multipurpose hose for different applications, particularly versatile. For example PYTHON (for hot water, light chemicals) and OILPRESS (high quality hose, flame retardant) give the end users maximum quality assurance and control resulting in the Parker guarantee of product excellence.

Size range: I.D.: from 6 to 100 mm.
Working pressure: 1.0 MPa to 10.0 MPa.

PVC-PU Hoses

Parker ITR can offer a wide range of PVC-PU hoses covering different applications: suction, water, agricultural spray, oil and fuel, foodstuff and cable protection.

PU hoses have a high ageing and abrasion resistance, high flexibility and good stress resistance performance.
About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 3,100 product lines that control motion in some 1,200 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 8,600 distributors serving more than 390,000 customers worldwide.

Parker’s Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

Product Information

Customers seeking product information, the location of a nearby distributor, or repair services will receive prompt attention by calling the Parker Product Information Centre. The Centre can be called toll free from France, Germany, Austria, Switzerland or the United Kingdom. You will be answered by a Parker employee in your own language. Call Freephone: 00800 27 27 5374 (00800 C PARKER).

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The Fluid Connectors Group designs, manufactures and markets rigid and flexible connectors, and associated products used in pneumatic and fluid systems.

The Seal Group designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.

The Hydraulics Group designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.

The Filtration Group designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support, and global availability.

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Europe

Austria
Parker Hannifin GmbH
Badener Strasse 12
AT-2700 Wiener Neustadt
Austria
Tel.: +43 (0)2622 23501
Fax: +43 (0)2622 66212

Belgium
Parker Hannifin S.A.-N.V.
Parc Industriel Sud–Zone II
Rue du Bosquet 23
BE-1400 Nivelles
Belgium
Tel.: +32 (0)67 280 900
Fax: +32 (0)67 280 999

Czech Republic
Parker Hannifin s.r.o.
Dopravaku 723
CZ-184 00 Prague 8
Czech Republic
Tel.: +420 2 830 85 224
Fax: +420 2 830 85 360

Denmark
Parker Hannifin Danmark A/S
Industriparken 37
DK-2750 Ballerup
Denmark
Tel.: +45 4356 0400
Fax: +45 4373 8431

Finland
Parker Hannifin Oy
Ylästöntie 16
FI-01510 Vantaa
Finland
Tel.: +358 (0)9 4767 31
Fax: +358 (0)9 4767 3200

France
Parker Hannifin S.A.
142 Rue de la Forêt
FR-74130 Contamines-sur-Arve
France
Tel.: +33 (0)450 25 80 25
Fax: +33 (0)450 03 67 37

Germany – Sales Location
Parker Hannifin GmbH & Co. KG
Pat-Parker-Platz 1
DE-41564 Kassel
Germany
Tel.: +49 (0)2131 4016 0
Fax: +49 (0)2131 4016 9199

Greece
Parker Hannifin Corp.
Athens Representation Office
197 Syngrou Av.
17121 Athens
Greece
Tel.: +30 (1) 0933 64 50
Fax: +30 (1) 0933 64 51

Hungary
Parker Hannifin
Hungarian Trade
Representative Office
Vesér u. 156–158
HU-1148 Budapest
Hungary
Tel.: +36 1 252 8137
Fax: +36 1 252 8129

Ireland
Parker Sales Ireland Ltd
Blackthorn Close
Stillorgan Industrial Park
Blackrock, Co Dublin
IE - Republic of Ireland
Tel.: +353 (0)1 293 9999
Fax: +353 (0)1 293 9900

Italy
Parker Hannifin SpA
Via Privata Archimede 1
IT-1-20094 Corsico, Milano,
Italy
Tel.: +39 02 45 19 21
Fax: +39 02 4 73 93 40

The Netherlands
Parker Hannifin B.V.
Edisonstraat 1
Postbus 340
NL-7575 AT Oldenzaal
Netherlands
Tel.: +31 (0)541 585000
Fax: +31 (0)541 585459

Norway
Parker Hannifin A/S
Berghagen Langhus
P.O. Box 3008
NO-1402 Ski
Norway
Tel.: +47 64 91 10 00
Fax: +47 64 91 10 90

Poland
Parker Hannifin Sp.z.o.o
8, Rownolegla St.
02-235 Warsaw
Poland
Tel.: +48 22 573 24 00
Fax: +48 22 573 24 03

Portugal
Parker Hannifin Portugal, Lda
Travessa da Bataria,
184 - r/c Orto / 1° Esq.
PT - 4450-625 Leça da Palmeira
Portugal
Tel.: +351 22 9997 360
Fax: +351 22 9961 527

Romania
Parker Hannifin Corp.
Bucharest Representation Office
Bld. Ferdinand nr. 27 Sect 2
Cod 7031131 Bucharest
Romania
Tel.: +40 1252 1382
Fax: +40 1252 3381

Russia
Parker Hannifin Corp. Komosomolskoy
Prospect 42 Office 207
Moscow G-48
119827 GSP Russia
Tel.: +7 095 242 0907
Fax: +7 095 242 0907

Slovak Republic
See Czech Republic

Slovenia
Parker Hannifin Corp.
vel. Bucna vas 7
8000 Novo Mesto
Slovenia
Tel.: +386 733 766 50
Fax: +386 733 766 51

Spain
Parker Hannifin España S.A.
P. L. Las Monjas
Calle Estaciones 8
ES-28850 Torrejon de Ardoz
Madrid
Spain
Tel.: +34 91 675 73 00
Fax: +34 91 675 77 11

Sweden
Parker Hannifin AB
Fagerstaqatan 51
Box 8314
SE-16208 Spånga
Sweden
Tel.: +46 (0)8 597 950 00
Fax: +46 (0)8 597 951 10

Turkey:
Parker Hannifin Corp.
Liaison office of Turkey
Mertter Is Merkezi
TR-34067 Merter
Istanbul
Tel.: +90 212 482 91 06
Tel.: +90 212 482 91 07
Fax: +90 212 482 91 10

Ukraine
Parker Hannifin Corp.
Vul. Velyka Vasykivska 9/2
Office 59
252004 Kiev
Ukraine
Tel./Fax: +380 44 2207432
Tel./Fax: +380 44 2206534

United Kingdom
Parker Hannifin plc
Tachbrook Park Drive
Tachbrook Park
Warwick, CV34 6TU
England
Tel.: +44 (0)1926 317 878
Fax: +44 (0)1926 317 855
## Asia Pacific

### Australia
- **Parker Hannifin Corporation**
  - Motion & Control Group
  - 9 Carrington Road
  - AU-Castle Hill, N.S.W 2154
  - Australia
  - Tel.: +61 (0)2-9634 7777
  - Fax: +61 (0)2-9842 5111

### China
- **Parker Hannifin Hong Kong Ltd**
  - **Beijing Office**
    - Suite B9-11, 21/F. West Wing
    - Han wei Plaza
    - 7 Guang Hua Road
    - Chaoyang District
    - Beijing 100004
    - China
    - Tel.: +86 10 6561 0520
    - Fax: +86 10 6561 0526

### Malaysia
- **Parker Hannifin Singapore Pte. Ltd**
  - **Representative Office**
    - Suite E-08-16, Block E
    - Plaza Mont Kiara
    - 50480 Kuala Lumpur
    - Malaysia
    - Tel.: (60) 3 6203 4482
    - Fax: (60) 3 6203 4457

### New Zealand
- **Parker Hannifin NZ Ltd**
  - **Parker Motion & Control Division**
    - NZ-103 Harris Road, East Tamaki
    - New Zealand
    - Tel.: +64 9 273 8944
    - Fax: +64 9 273 8943

### Singapore
- **PH Hydr. & Eng. Pte Ltd**
  - 27 Gul Lane, Jurong
  - SGP-Singapore 629421
  - Republic of Singapore
  - Tel.: +65 862 34 33
  - Fax: +65 861 74 88

### Taiwan
- **Parker Hannifin Taiwan Ltd**
  - 8F-1 No. 102 Sung Lung Road
  - Taipei
  - Taiwan
  - Tel.: (886) 2 8787 3780
  - Fax: (886) 2 8787 3782

### Thailand
- **Parker Hannifin (Thailand) Co. Ltd**
  - 1023 3rd Floor, TPS Building
  - Pattanakarn Road, Suanluang
  - Bangkok 10250, Thailand
  - Tel.: (662) 717 8140
  - Fax: (662) 717 8148

## North America

### USA, Canada
- **Parker Hannifin Corporation**
  - **Mobile Systems Division**
    - 595 Schelter Road
    - Lincolnshire, IL 60069
    - USA
    - Tel.: +1 847-821-1500
    - Fax: +1 847-821-7600

### Mexico
- **Parker Hannifin de Mexico, S.A. de C.V.**
  - Via de Ferrocarril a Matamoros #730
  - Apodaca, N.L.
  - Mexico
  - C.P. 6 6 6 0 0
  - Tel.: +52 81 56 6000
  - Fax: +52 81 56 6076

## Latin America

### Pan American Division
- **Parker Hannifin Corporation**
  - 7400 N.W. 19th Street
  - Suite A
  - Miami, FL 33126
  - Tel.: +305 470 8800
  - Fax: +305 470 8808

### Argentina
- **Parker Hannifin Argentina S.A.I.C.**
  - Stephenson 2711
  - (1667) Tortuguitas–Malvinas Argentinas
  - Pcia. de Buenos Aires
  - Argentina
  - Tel.: +54 11 4752 4129
  - Fax: +54 11 4752 3704

### Brazil
- **Parker Hannifin**
  - Industria E Commercio Ltda
  - Av. Lucas Nogueira Garcez
  - 2181 Jacareí, SP Brazil 12300-000
  - Brazil
  - Tel.: +55 12 354 5100
  - Fax: +55 12 354 5262

### Venezuela
- **Parker Hannifin Venezuela S.A.**
  - Edif. Drazza PB. Esq.
  - Calle Miraima Con. Av.
  - Principal Boleita Norte
  - Caracas
  - Venezuela
  - Tel.: +58 2 2385422
  - Fax: +58 2 2392272

## Middle East

### United Arab Emirates
- **Parker Hannifin Corporation**
  - P.O. Box 46451
  - Abu Dhabi
  - United Arab Emirates
  - Tel.: +971 2 67 88 587
  - Fax: +971 2 67 93 812

## South Africa

### Republic of South Africa
- **Parker Hannifin Africa Pty Ltd**
  - Parker Place
  - 10 Berne Avenue Aeroport
  - Kempton Park
  - Republic of South Africa
  - Tel.: +27 (0)11-961 0700
  - Fax: +27 (0)11-392 7213
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Phone: 00800 27 27 5374 (European Product Information Centre)*
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Web: www.parker.com/eurohyd
Email: eurohyd@parker.com

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