



# Mobile Hydraulics

Innovative Products and  
System Solutions

P1

LIFT

TELE

PL

PX

CDP161

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# Parker Hannifin Corporation

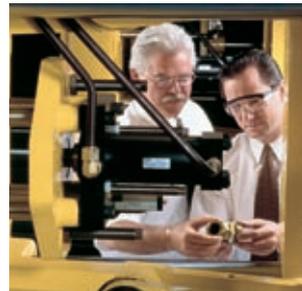
Parker Hannifin is a Fortune 500 corporation listed on the New York Stock Exchange as PH. Parker is the leading global company manufacturing the widest variety of components and systems designed to control motion, flow and pressure in all types of machinery and other equipment.

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.



**Premier  
Customer  
Service**



**Engineering  
Expertise**

**Industry-Leading  
Technical Support  
and Training**



**Worldwide  
Network of  
Distributors**



## 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.

## The Mobile Systems Team – supporting you all the way to success

Naturally, we want to provide you with the best possible value when using Parker components on the machines you build and sell. That's where our **Mobile Systems Team** comes in, to help develop and fine-tune the hydraulic systems for your machines. Our systems engineers have years of experience in advanced system design and will be your partners all the way, suggesting different system solutions until you are satisfied with the performance on your prototype machine.

### Cost-reducing Product Improvement

Simply put, you just add a highly qualified Parker systems engineer to your project team, thereby taking advantage of all the knowledge and experience that we have built up during decades of providing total systems solutions to discerning clients world-wide. Our objectives are to help you utilize Parker components in a way that offers improved systems performance – and hence a more competitive product – at a reduced total cost.

**Include one of our System Experts to participate in your product development team!**

### A Focused Organisation

The Mobile Systems Team work together with our Sales companies and Product Divisions on developing system proposals and solutions to match the customers needs – today as well as in the future. The focused organisation makes Parker the most competent partner when developing a new generation of machines.

The Product Divisions are focused on developing and producing competitive components. Parker's broad product range gives the Mobile Systems Team an unparalleled capability to optimise systems for our customers. Together with the support from local sales companies, we are well equipped to provide a truly **Premier Customer Service**.



# Mobile Systems Team

## System Proposals

Our long and solid experience is at your service when engineering your mobile hydraulics system. We will be your partner in matching Parker components into a superior hydraulic system, giving your machine optimal performance at a low total cost.



## Documentation Assistance

When selecting Parker as your partner in mobile hydraulics systems development, our systems engineers will offer documentation on systems and components during the course of the project, in order to support your own development of service and spare parts documentation for the total system.



## Training

Parker Mobile Systems Team gives regular open courses in basic hydraulics and electronics for mobile machines. When supplying total systems, we of course also offer specific training related to the system and the components included.



## Commissioning

Our Systems Engineers will support you not only in engineering your mobile hydraulics system, but also when commissioning the prototype and developing the system performance to match the target specifications for your machine.



## Function Development

Systems Engineering works continuously in close co-operation with Parker product divisions in developing the real life performance of our components even further, to meet and exceed future demands. At our dedicated Systems Engineering Centre, all components are subject to rigorous, realistic testing to provide you with well-proven high-performing solutions.

## Products to Match the Applications

To be able to continue to be your systems partner in machine development, we are focusing our R&D resources on developing new and improved products that will add more and more value to your future machines.



# Product Solutions

## Product Solutions

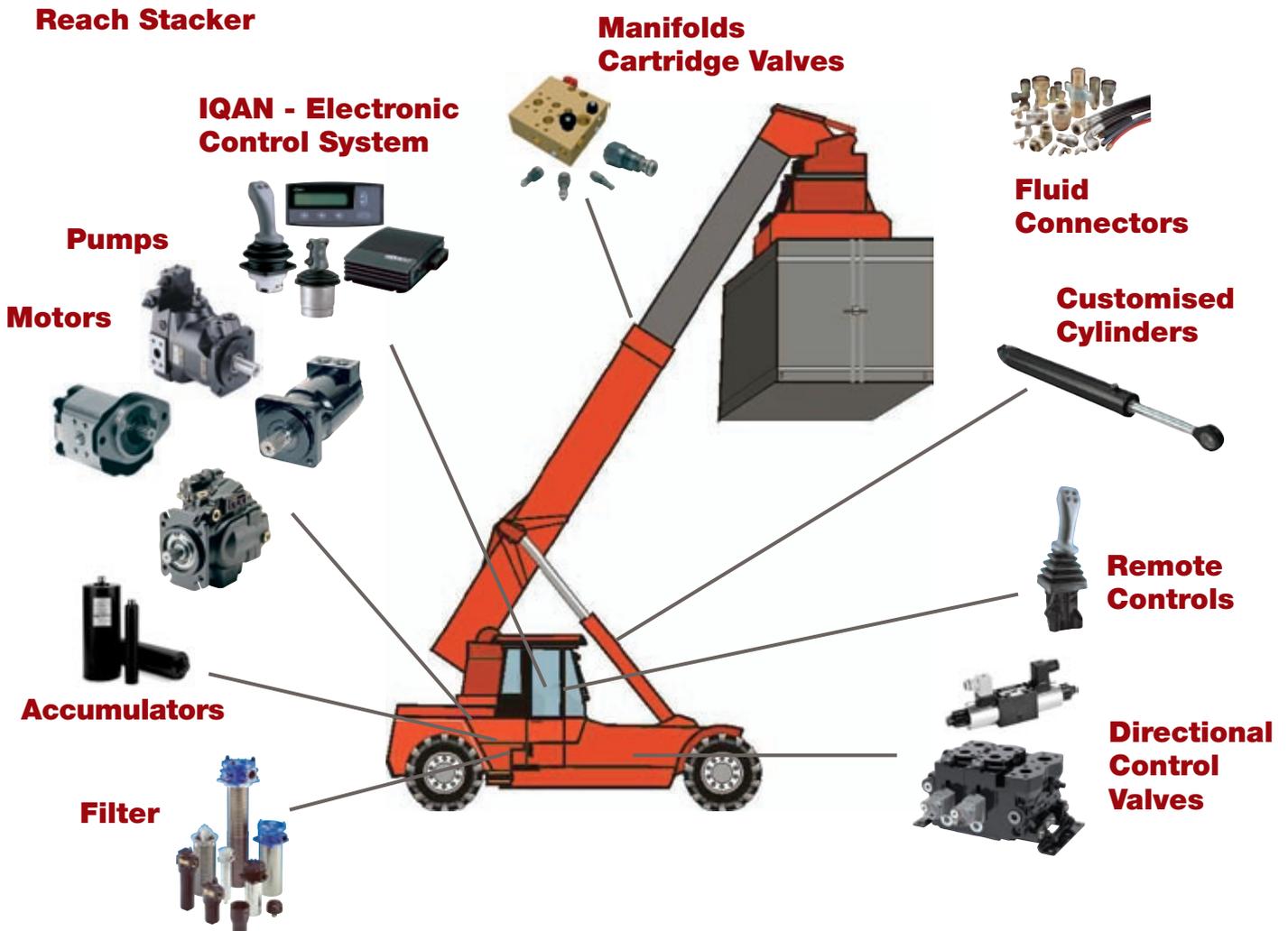
Dedicated products and solutions for different applications.

Our product offering for reach stacker applications is shown below, with similar products available for the applications opposite.



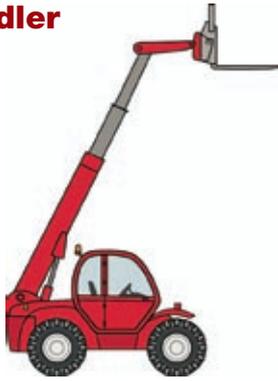
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CD file includes system solutions for applications pictured on page 7.



# Product Solutions

**Telehandler**



**Drill Rig**



**Fork Lift**



**Dump Truck**



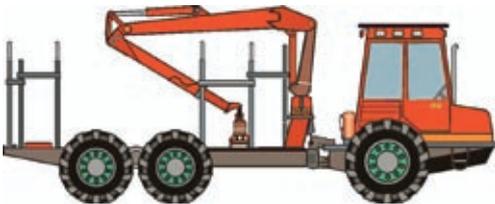
**Lorry Crane**



**Harvesting Head**



**Forest Machine**



**Wheel Loader**



**Backhoe Loader**



**Refuse Collecting Vehicle - Side Loader/Front-End Loader/Rear-End Loader**



**Skip Loader**



**Hook Loader**



**Forest Crane**



# Value Added Programs

## **www.parker.com**

Parker's extensive web site – [www.parker.com](http://www.parker.com) – offers a wealth of product information and other resources. It is the industry's most comprehensive site and includes product information, downloadable catalogues, contact information, training materials, product selection software and live order capabilities. This user-friendly interface allows you to search by general product families, specific product type, division, or keywords.

## **Fluid Power Focus**

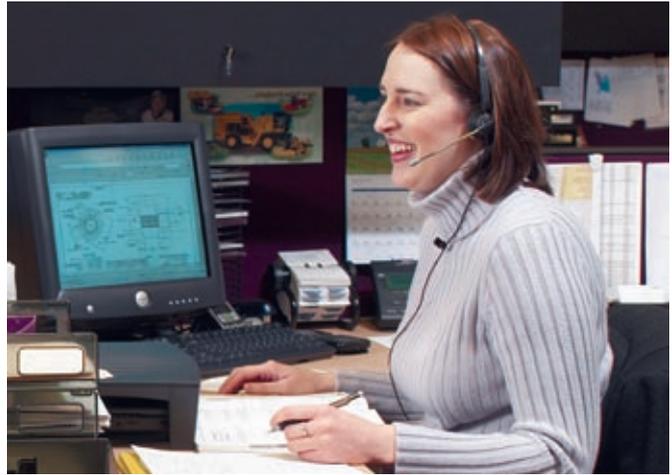
Although Parker serves many industries including Aerospace, Construction, Mining, Turf, Automotive, Refrigeration, etc., we are still exclusively concentrated on controlling fluid motion and pressure. Since we are solely focused on fluid power, we clearly understand the needs of the mobile customer better than anyone.

## **Premier Customer Service**

Parker's Premier Customer Service leads the industry in response. In addition to assured product quality, Parker provides engineering assistance, electronic ordering, consolidated shipments, on-time delivery, extensive product information, and customer training. Our employees are empowered to do whatever it takes to meet or exceed customer expectations.

## **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 the country to work with you on product application issues.



## **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.

# Technology Centres

## MTC Value and Services

A Parker Mobile Technology Centre (MTC) or Hydraulic Technology Centre (HTC) distributor is your local one stop shop for all your mobile needs. These centres are staffed with specialists who can provide engineering assistance, technical help, and full systems service for all your mobile hydraulic requirements. MTC's and HTC's 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 MTC's and HTC's are selected because they have made the commitment to provide exceptional customer service and complete mobile hydraulic system solutions. Additionally, Parker Mobile Technology Centres carry the largest inventory of hydraulic components to insure fast delivery and less down time.



A Parker MTC (and 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/MTC, 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.

# Mobile Hydraulic Components

Parker offers one of the world's most extensive mobile 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 mobile 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.



## Hydraulic Valves and Controls

We make hydraulic control valves for virtually every mobile equipment application from simple on/off functions to precise motion control. These include threaded cartridge valves, integrated hydraulic circuit blocks, bankable control valves, mobile motion control valves, mobile motion controllers, mobile directional valves, subplate mounted directional and proportional valves.

## Hydrostatic Steering Units

Parker offers a full line of hydrostatic steering units for a wide range of off-road equipment applications. These rugged components are designed to withstand system contaminants and engineered to handle higher oil pressure and temperatures than competitive products. A choice of sizes is offered in open centre, closed centre and load sense configurations.

## Filtration

Parker filtration products are designed to 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.

## Electronics

With nearly three decades of worldwide Parker experience in advanced electronics and mobile hydraulics, we can provide simple or complex control systems to fit every need. Our most advanced IQAN product combines sturdy, well-tested hardware that meets or surpasses international standards with userfriendly, flexible software. Simple IQAN systems may be built from a large selection of components. More complex systems are made up of master/display units and expansion modules communicating on a CANbus.

## 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.

## 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.

## Mobile Actuators

Parker Hannifin is a leading manufacturer of hydraulic cylinders for mobile equipment applications. Our cylinders keep on delivering the high performance you expect from Parker, over millions of trouble-free cycles.

Parker cylinders have consistently proven to be the most reliable and cost-effective mobile cylinders on the market today. Parker is dedicated to providing the best products and service possible, which is why every location has an experienced on-site engineering staff using the latest engineering tools and state-of-the-art equipment, and lean enterprise techniques. Our goal is to provide premier customer service in everything we do.

## Integrated Hydraulic Circuits (Cartridge Valves Systems)

Parker is the world leader in the design and manufacture of integrated hydraulic circuits. We provide solutions for 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 HMC machining centres, and complete automated testing to maximize application performance.

## 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



zp 44

| Frame size PGP 505                  | 0030 | 0040 | 0050 | 0060 | 0070 | 0080 | 0100 | 0110 | 0120 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 3    | 4    | 5    | 6    | 7    | 8    | 10   | 11   | 12   |
| Max cont pressure (bar)             | 275  | 275  | 275  | 275  | 275  | 275  | 250  | 250  | 220  |
| Max operating speed (rpm)           | 4000 | 4000 | 4000 | 3600 | 3300 | 3000 | 2800 | 2400 | 2400 |
| Input power (kW)                    | 2.3  | 3.0  | 3.8  | 4.5  | 5.3  | 6.0  | 6.9  | 7.6  | 7.5  |
| Weight (kg)                         | 2.22 | 2.27 | 2.32 | 2.38 | 2.43 | 2.48 | 2.58 | 2.63 | 2.68 |

| Frame size PGP 511                  | 0060 | 0080 | 0100 | 0110 | 0140 | 0160 | 0190 | 0230 | 0270 | 0310 | 0330 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /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 | 3250 | 2750 | 2350 | 2100 | 2000 |
| 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 PGP 517                  | 0140 | 0160 | 0190 | 0230 | 0250 | 0280 | 0330 | 0380 | 0440 | 0520 | 0700  |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|-------|
| Displacement (cm <sup>3</sup> /rev) | 14   | 16   | 19   | 23   | 25   | 28   | 33   | 38   | 44   | 52   | 70    |
| Max cont pressure (bar)             | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 220  | 200  | 160   |
| Max operating speed (rpm)           | 3400 | 3400 | 3300 | 3300 | 3100 | 3100 | 3000 | 3000 | 2800 | 2700 | 2400  |
| Input power (kW)                    | 9.6  | 11.0 | 13.1 | 15.8 | 17.2 | 19.3 | 22.7 | 26.1 | 27.0 | 28.6 | 31.2  |
| Weight (kg)                         | 7.92 | 8.00 | 8.12 | 8.29 | 8.37 | 8.50 | 8.70 | 8.91 | 9.16 | 9.49 | 10.24 |

| Frame size PGP 620                  | 0160 | 0190 | 0210 | 0230 | 0260 | 0290 | 0330 | 0360 | 0410 | 0440 | 0460 | 0500 | 0520 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /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 continuous pressure (bar)       | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 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 PGP 640                  | 0300 | 0350 | 0400 | 0450 | 0500 | 0550 | 0600 | 0650 | 0700 | 0750 | 0800 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /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 |

## Gear GPA



- Low noise
- High efficiency
- Bi-rotational
- Compact design
- Low weight / Aluminium body
- Pressure and suction connection in the rear and on the side

zp 45



| Frame Size GPA                      | 008  | 012  | 016  | 019  |
|-------------------------------------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 8    | 12   | 16   | 19   |
| Max cont pressure (bar)             | 250  | 250  | 250  | 230  |
| Max operating speed (rpm)           | 2000 | 2000 | 2000 | 2000 |
| Weight (kg)                         | 4.6  | 4.8  | 5.1  | 5.3  |

## GP1



- Low noise
- High efficiency
- Bi-rotational
- Exceptional durability
- Compact design
- Low weight
- Pressure and suction connection in the rear or on the side

zp 47



| Frame Size GP1                      | 016  | 019  | 023  | 029  | 036  | 041  | 046  | 050* | 060* | 070* | 080* | 100* |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 16   | 19   | 23   | 29   | 36   | 41   | 46   | 50   | 60   | 70   | 80   | 100  |
| Max cont pressure (bar)             | 270  | 260  | 250  | 240  | 230  | 210  | 200  | 300  | 280  | 240  | 200  | 170  |
| Max operating speed (rpm)           | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 1800 |
| Weight (kg)                         | 6.0  | 6.3  | 6.7  | 7.1  | 7.5  | 7.8  | 8.1  | 13.1 | 13.6 | 14.1 | 15.2 | 16.5 |

\* Products available from the end of 2005

## Vane – SAE Single



- 275 bar max pressure for T6CM. 240 bar for T6DM & T6EM
- Silent technology
- Wide range of displacements
- User friendly = easy conversions & evolutions
- Wide number of shafts available (SAE, ISO & specials)
- Double shaft seal option possible (T6CP, T6DP & T6EP)
- Drive train options available (SAE A, SAE B or SAE C)



zvp 01

**DENISON** Hydraulics

| Frame size TB                           | 003  | 004  | 005  | 006  | 008  | 009  | 011  | 012  |
|---|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev)     | 8.8  | 12.8 | 16.0 | 20.7 | 26.1 | 31.5 | 35.6 | 39.7 |
| Max cont pressure (bar)                 | 175  | 175  | 175  | 175  | 175  | 175  | 175  | 175  |
| Max operating speed <sup>1)</sup> (rpm) | 3500 | 3500 | 3400 | 3400 | 3300 | 3300 | 3200 | 3200 |
| Input power <sup>2)</sup> (kW)          | 3.3  | 5.8  | 7.2  | 9.2  | 11.5 | 13.9 | 15.7 | 17.5 |
| Weight (kg)                             | 7.0  | 7.0  | 7.0  | 7.0  | 7.0  | 7.0  | 7.0  | 7.0  |

| Frame size T6CM                         | B03               | B05  | B06  | B08  | B10  | B12  | B14  | B17  | B20  | B22  | B25  | B28                | B31                |
|---|-------------------|------|------|------|------|------|------|------|------|------|------|--------------------|--------------------|
| Displacement (cm <sup>3</sup> /rev)     | 10.8              | 17.2 | 21.3 | 26.4 | 34.1 | 37.1 | 46.0 | 58.3 | 63.8 | 70.3 | 79.3 | 88.8               | 100.0              |
| Max cont pressure (bar)                 | 240               | 240  | 240  | 240  | 240  | 240  | 240  | 240  | 240  | 240  | 240  | 160                | 160                |
| Max operating speed <sup>1)</sup> (rpm) | 2800              | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2500 | 2500               | 2500               |
| Input power <sup>2)</sup> (kW)          | 5.3 <sup>3)</sup> | 12.2 | 14.7 | 17.7 | 22.3 | 24.1 | 29.5 | 36.9 | 40.2 | 44.1 | 49.5 | 48.5 <sup>4)</sup> | 54.4 <sup>4)</sup> |
| Weight (kg)                             | 15.7              | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7               | 15.7               |

| Frame size T6DM                         | B14  | B17  | B20  | B24  | B28  | B31  | B35   | B38   | B42   | B45   | B50                |
|---|------|------|------|------|------|------|-------|-------|-------|-------|--------------------|
| Displacement (cm <sup>3</sup> /rev)     | 47.6 | 58.2 | 66.0 | 79.5 | 89.7 | 98.3 | 111.0 | 120.3 | 136.0 | 145.7 | 158.0              |
| Max cont pressure (bar)                 | 210  | 210  | 210  | 210  | 210  | 210  | 210   | 210   | 210   | 210   | 160                |
| Max operating speed <sup>1)</sup> (rpm) | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500  | 2500  | 2200  | 2200  | 2200               |
| Input power <sup>2)</sup> (kW)          | 30.6 | 37.0 | 41.7 | 49.8 | 55.9 | 61.0 | 68.7  | 74.3  | 83.7  | 89.5  | 85.0 <sup>4)</sup> |
| Weight (kg)                             | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0  | 24.0  | 24.0  | 24.0  | 24.0               |

| Frame size T6EM                         | 042   | 045   | 050   | 052   | 054   | 057   | 062   | 066   | 072   |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 132.3 | 142.4 | 158.5 | 164.8 | 171.0 | 183.3 | 196.7 | 213.3 | 227.1 |
| Max cont pressure (bar)                 | 210   | 210   | 210   | 210   | 210   | 210   | 210   | 210   | 210   |
| Max operating speed <sup>1)</sup> (rpm) | 2200  | 2200  | 2200  | 2200  | 2200  | 2200  | 2200  | 2200  | 2200  |
| Input power <sup>2)</sup> (kW)          | 82.6  | 88.7  | 98.3  | 102.1 | 105.8 | 113.2 | 121.3 | 131.2 | 139.5 |
| Weight (kg)                             | 43.3  | 43.3  | 43.3  | 43.3  | 43.3  | 43.3  | 43.3  | 43.3  | 43.3  |

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)

3) 140 bar

4) 210 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 10.8 to 227.1 cm<sup>3</sup>/rev) per stage with a max displacement of 454.2 cm<sup>3</sup>/rev
- Displacement combinations with above T6CM – T6DM & T6EM charts
- High power to weight ratio
- Wide range of options available = different shafts . threads. pilots

## Triple



- Low noise
- One inlet
- 128 porting orientations available
- Many displacement combinations (from 10.8 to 227.1 cm<sup>3</sup>/rev) per stage with a max displacement of 552 cm<sup>3</sup>/rev
- One piece shaft (no internal torque limitation)
- High power to weight ratio

## Vane Single & Double



- Special PTO shaft DIN 5462
- Silent technology
- Designed for radial load capability
- Flexibility in the porting
- Two pilot options = 4 bolts Ø 80.0 or 3 bolts Ø 52.0
- Maximum working pressure 275 bar
- Double pump available (T6GCC)

zvp 01



**DENISON** Hydraulics

| Frame size T6GC - T6ZC                  | B03         | B05  | B06  | B08  | B10  | B12  | B14         | B17  | B20  | B22  | B25  | B28  | B31   |
|---|-------------|------|------|------|------|------|-------------|------|------|------|------|------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 10.8        | 17.2 | 21.3 | 26.4 | 34.1 | 37.1 | 46.0        | 58.3 | 63.8 | 70.3 | 79.3 | 88.8 | 100.0 |
| Max cont pressure (bar)                 | 240         | 240  | 240  | 240  | 240  | 240  | 240         | 240  | 240  | 240  | 240  | 160  | 160   |
| Max operating speed <sup>1)</sup> (rpm) | 2800        | 2800 | 2800 | 2800 | 2800 | 2800 | 2800        | 2800 | 2800 | 2800 | 2500 | 2500 | 2500  |
| Max input power <sup>2)</sup> (kW)      | -           | 12.2 | 14.7 | 17.7 | 22.3 | 24.1 | 29.5        | 36.9 | 40.2 | 44.1 | 49.5 | 48.5 | 54.4  |
| Weight (kg)                             | T6GC = 18.0 |      |      |      |      |      | T6ZC = 14.0 |      |      |      |      |      |       |

1) Shaft speed for petroleum based fluids. For higher speeds, please contact Parker Denison

2) 1500 rpm at 240 bar

## Vane – Hybrid Double & Triple



- Piston & vane pump combination
- Wide range of displacements:
  - Piston unit of 42 cm<sup>3</sup>/rev (SAE B) or 62 cm<sup>3</sup>/rev (SAE C)
  - Vane unit from 6 cm<sup>3</sup>/rev to 158 cm<sup>3</sup>/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

## Vane – Cardan Shaft Double – T6CCZ



- High radial & axial loads capabilities
- 3 different keyed shafts available
- One inlet
- Displacements = on P1 from 10 to 100 cm<sup>3</sup>/rev & P2 from 10 to 100 cm<sup>3</sup>/rev
- Pressure: up to 275 bar on P1 & P2

## Axial Piston

### F1



- Intermittent pressures up to 400 bar
- High power capability
- High shaft speed
- Low weight
- Bi-directional
- Volumetric efficiency 98 %
- Also SAE-B available sizes 25 up to 61



zp 16

| Frame size F1                       | 25   | 41   | 51   | 61   | 81   | 101   |
|-------------------------------------|------|------|------|------|------|-------|
| Displacement (cm <sup>3</sup> /rev) | 25.6 | 40.9 | 51.1 | 59.5 | 81.6 | 102.9 |
| Max cont pressure (bar)             | 350  | 350  | 350  | 350  | 350  | 350   |
| Max operating speed* (rpm)          | 2700 | 2700 | 2700 | 2700 | 2300 | 2300  |
| Max operating speed** (rpm)         | 2600 | 2400 | 2200 | 2200 | 2000 | 1800  |
| Input torque at 350 bar (Nm)        | 142  | 227  | 284  | 331  | 453  | 572   |
| Max cont input power (kW)           | 31   | 46   | 52   | 61   | 76   | 86    |
| Weight (kg)                         | 8.5  | 8.5  | 8.5  | 8.5  | 12.5 | 12.5  |

\* Unloaded pump (BPV)

\*\* In service 350 bar

### F2



- Twin Flow / Dual displacement
- High power capability
- High shaft speed
- Easy to install
- Smart System Solutions
- Proven reliability



zp 16

| Frame size F2                       | 53/53 | 70/35 | 55/28 |
|-------------------------------------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 54/52 | 69/36 | 55/28 |
| Max cont pressure (bar)             | 350   | 350   | 350   |
| Max operating speed* (rpm)          | 2550  | 2550  | 2800  |
| Max operating speed** (rpm)         | 1800  | 1800  | 1800  |
| Input torque at 350 bar (Nm)        | 583   | 583   | 462   |
| Max cont input power (kW)           | 88    | 88    | 50    |
| Weight (kg)                         | 19    | 19    | 19    |

\* Unloaded pump (BPV)

\*\* In service 350 bar

### T1



- Pressures up to 350 bar
- Shaft speed to 2300 rpm
- High overall efficiency
- Bi-directional
- Proven reliability



zp 16

| Frame size T1                       | 51   | 81   | 121   |
|-------------------------------------|------|------|-------|
| Displacement (cm <sup>3</sup> /rev) | 50.0 | 81.5 | 118.5 |
| Max cont pressure (bar)             | 200  | 200  | 200   |
| Max operating speed* (rpm)          | 2300 | 2300 | 2300  |
| Max operating speed** (rpm)         | 2100 | 2000 | 1800  |
| Input torque at 200 bar (Nm)        | 158  | 258  | 375   |
| Max cont input power (kW)           | 27   | 54   | 71    |
| Weight (kg)                         | 7.2  | 8.5  | 12.5  |

\* Unloaded pump (BPV)

\*\* In service 350 bar

## 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

zp 21



| Frame size* F11                     | 05   | 10   | 12   | 14   | 19   | 150   | 250   |
|-------------------------------------|------|------|------|------|------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 4.9  | 9.8  | 12.5 | 14.3 | 19.0 | 150.0 | 242.0 |
| Max cont pressure (bar)             | 350  | 350  | 350  | 350  | 350  | 350   | 350   |
| Max operating speed (rpm)           | 4600 | 4200 | 4000 | 3900 | 3500 | 1700  | 1500  |
| Weight (kg)                         | 5    | 7.5  | 8.2  | 8.3  | 11   | 70    | 77    |

\* 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

zp 21



| Frame size F12                      | 30   | 40   | 60   | 80   | 90   | 110   | 125  |
|-------------------------------------|------|------|------|------|------|-------|------|
| Displacement (cm <sup>3</sup> /rev) | 30.0 | 40.0 | 59.8 | 80.4 | 93.0 | 110.1 | 125  |
| Max cont pressure (bar)             | 420  | 420  | 420  | 420  | 420  | 420   | 420  |
| Max operating speed (rpm)           | 3150 | 2870 | 2500 | 2300 | 2300 | 2290  | 2100 |
| Weight (kg)                         | 12   | 16.5 | 21   | 26   | 26   | 36    | 36   |

## Boost Unit BLA



The boost unit provides filtration and make-up fluid to replace pump and motor volumetric losses, while maintaining sufficient pump inlet pressure to avoid cavitation. The semi-closed system could be built with a smaller and lighter reservoir at the same time as, the pump speed is possible to increase. The Boost Units BLA are available in two different sizes:

BLA 4 for flow 25–160 litres per minute,

BLA 6 for flow 150–400 litres per minute.

## Axial Piston

### VP1 – Truck



- Pressures up to 350 bar
- Suitable for all load-sensing systems
- Splined shaft DIN 5462
- Light and compact
- Mounting flange and shaft meet the ISO Standard
- Strong and reliable
- Less energy – less fuel – less heat

zp 16



| Frame size* VP1                     | 45   | 75   | 120  |
|-------------------------------------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 45   | 75   | 120  |
| Max cont pressure (bar)             | 300  | 300  | 300  |
| Max operating speed (rpm)*          | 2400 | 2100 | 1800 |
| Input power (kW)                    | 60   | 100  | 160  |
| Weight (kg)                         | 27   | 27   | 27   |

\* 2 1/2" suction line

### P2



- Designed for mobile applications
- Compact
- Unique port layout
- Quiet
- Reduced flow and pressure ripple
- Easy to install
- Service friendly

zp 18



| Frame size P2                       | 060  | 075  | 105  | 145  |
|-------------------------------------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 60   | 75   | 105  | 145  |
| Max cont pressure (bar)             | 320  | 320  | 320  | 320  |
| Max operating speed (rpm)           | 2800 | 2500 | 2300 | 2200 |
| Weight (kg)                         | 37   | 44   | 63   | 78   |

### 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

zp 14



| Frame size PV                       | 16   | 20   | 23   | 28   | 32   | 40   | 46   | 63   | 76   | 80   | 92   | 100  | 140  | 180  | 270  |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 16   | 20   | 23   | 28   | 32   | 40   | 46   | 63   | 76   | 80   | 92   | 100  | 140  | 180  | 270  |
| Max cont pressure (bar)             | 350  | 350  | 350  | 320  | 350  | 350  | 350  | 350  | 320  | 350  | 350  | 320  | 350  | 350  | 350  |
| Max operating speed (rpm)           | 3000 | 3000 | 3000 | 3000 | 2800 | 2800 | 2800 | 2800 | 2300 | 2500 | 2300 | 2300 | 2400 | 2200 | 1800 |
| Input power (kW)                    | 15.5 | 19.5 | 22.5 | 24.5 | 31   | 39   | 45   | 61.5 | 67   | 78   | 89.5 | 89   | 136  | 175  | 263  |
| Weight (kg)                         | 19   | 19   | 19   | 19   | 30   | 30   | 30   | 60   | 39   | 60   | 60   | 60   | 90   | 90   | 172  |

### P1



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

zp 04



| Frame size P1                       | 075  | 100  | 140  |
|-------------------------------------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 75   | 100  | 140  |
| Max cont pressure (bar)             | 280  | 280  | 280  |
| Max operating speed (rpm)           | 2300 | 2100 | 2000 |
| Weight (kg)                         | 31   | 55   | 67   |

## 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

zp 44



| Frame size PGM 505                  | 0030 | 0040 | 0050 | 0060 | 0070 | 0080 | 0100 | 0110 | 0120 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 3    | 4    | 5    | 6    | 7    | 8    | 10   | 11   | 12   |
| Max cont pressure (bar)             | 275  | 275  | 275  | 275  | 275  | 275  | 250  | 250  | 220  |
| Max operating speed (rpm)           | 4000 | 4000 | 4000 | 3600 | 3300 | 3000 | 2800 | 2400 | 2400 |
| Input power (kW)                    | 2.3  | 3.0  | 3.8  | 4.5  | 5.3  | 6.0  | 6.9  | 7.6  | 7.5  |
| Weight (kg)                         | 2.22 | 2.27 | 2.32 | 2.38 | 2.43 | 2.48 | 2.58 | 2.63 | 2.68 |

| Frame size PGM 511                  | 0060 | 0080 | 0100 | 0110 | 0140 | 0160 | 0190 | 0230 | 0270 | 0310 | 0330 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /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 | 3250 | 2750 | 2350 | 2100 | 2000 |
| 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 | 0250 | 0280 | 0330 | 0380 | 0440 | 0520 | 0700  |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|-------|
| Displacement (cm <sup>3</sup> /rev) | 14   | 16   | 19   | 23   | 25   | 28   | 33   | 38   | 44   | 52   | 70    |
| Max cont pressure (bar)             | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 220  | 200  | 160   |
| Max operating speed (rpm)           | 3400 | 3400 | 3300 | 3300 | 3100 | 3100 | 3000 | 3000 | 2800 | 2700 | 2400  |
| Input power (kW)                    | 9.6  | 11.0 | 13.1 | 15.8 | 17.2 | 19.3 | 22.7 | 26.1 | 27.0 | 28.6 | 31.2  |
| Weight (kg)                         | 7.92 | 8.00 | 8.12 | 8.29 | 8.37 | 8.50 | 8.70 | 8.91 | 9.16 | 9.49 | 10.24 |

| Frame size PGM 620                  | 0160 | 0190 | 0210 | 0230 | 0260 | 0290 | 0330 | 0360 | 0410 | 0440 | 0460 | 0500 | 0520 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /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  | 275  | 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 (cm <sup>3</sup> /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 |

## Vane Single



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



zvp 01

**DENISON** Hydraulics

| Frame size M3B                          | 009  | 012  | 018  | 027  | 036   |  |  |
|---|------|------|------|------|-------|--|--|
| Displacement (cm <sup>3</sup> /rev)     | 9.2  | 12.3 | 18.5 | 27.8 | 37.1  |  |  |
| Max cont pressure (bar)                 | 175  | 210  | 210  | 210  | 210   |  |  |
| Max operating speed <sup>1)</sup> (rpm) | 3000 | 3000 | 3000 | 3000 | 3000  |  |  |
| Output torque <sup>2)</sup> (Nm)        | 4.3  | 5.8  | 10.0 | 16.3 | 21.1  |  |  |
| Output power <sup>2)</sup> (kW)         | 19.7 | 26.7 | 46.6 | 77.4 | 102.0 |  |  |
| Weight (kg)                             | 8.0  | 8.0  | 8.0  | 8.0  | 8.0   |  |  |

| Frame size M4C                          | 024  | 027  | 031  | 043   | 055   | 067   | 075   |
|---|------|------|------|-------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 24.4 | 28.2 | 34.5 | 46.5  | 58.8  | 71.1  | 80.1  |
| Max cont pressure (bar)                 | 230  | 230  | 230  | 230   | 210   | 210   | 175   |
| Max operating speed <sup>1)</sup> (rpm) | 2500 | 2500 | 2500 | 2500  | 2500  | 2500  | 2500  |
| Output torque <sup>2)</sup> (Nm)        | 60.5 | 70.0 | 86.8 | 120.0 | 149.0 | 170.0 | 198.0 |
| Output power <sup>2)</sup> (kW)         | 12.7 | 14.7 | 18.0 | 25.1  | 31.2  | 35.6  | 41.5  |
| Weight (kg)                             | 15.4 | 15.4 | 15.4 | 15.4  | 15.4  | 15.4  | 15.4  |

| Frame size M4D                          | 062  | 074  | 088  | 102   | 113   | 128   | 138   |
|---|------|------|------|-------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 65.1 | 76.8 | 91.1 | 105.5 | 116.7 | 132.4 | 144.4 |
| Max cont pressure (bar)                 | 230  | 230  | 230  | 210   | 210   | 190   | 175   |
| Max operating speed <sup>1)</sup> (rpm) | 2500 | 2500 | 2500 | 2500  | 2500  | 2500  | 2500  |
| Output torque <sup>2)</sup> (Nm)        | 165  | 200  | 236  | 264   | 300   | 340   | 372   |
| Output power <sup>2)</sup> (kW)         | 34.6 | 41.9 | 49.4 | 55.3  | 62.8  | 71.2  | 77.9  |
| Weight (kg)                             | 27.0 | 27.0 | 27.0 | 27.0  | 27.0  | 27.0  | 27.0  |

| Frame size M4E                          | 153   | 185   | 214   |
|---|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 158.5 | 191.6 | 222.0 |
| Max cont pressure (bar)                 | 190   | 180   | 175   |
| Max operating speed <sup>1)</sup> (rpm) | 2500  | 2500  | 2500  |
| Output torque <sup>2)</sup> (Nm)        | 398   | 484   | 567   |
| Output power <sup>2)</sup> (kW)         | 83.4  | 101.4 | 118.8 |
| Weight (kg)                             | 45.0  | 45.0  | 45.0  |

| Frame size M5B                          | 012  | 018  | 028   | 036   | 045   |
|---|------|------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 12.0 | 18.0 | 28.0  | 36.0  | 45.0  |
| Max cont pressure (bar)                 | 290  | 290  | 290   | 290   | 260   |
| Max operating speed <sup>1)</sup> (rpm) | 4000 | 4000 | 2500  | 2500  | 2500  |
| Output torque <sup>2)</sup> (Nm)        | 50.6 | 81.2 | 132.1 | 172.8 | 190.0 |
| Output power <sup>2)</sup> (kW)         | 10.6 | 17.0 | 27.7  | 36.2  | 39.8  |
| Weight (kg)                             | 18.0 | 18.0 | 18.0  | 18.0  | 18.0  |

1) Max. 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

## Vane

### Fan - M5



- Heavy duty bearing
- Low mechanical losses
- Integrated valves possible (anti cavitation check, proportional pressure relief valve, ...)

- Low noise
- Bi-rotational technology
- Internal or external drain possible with the uni-rotational option

zvp01



**DENISON** Hydraulics

| Frame size M5AF                         | 006  | 010  | 012  | 016  | 018  | 025   | M5BF | 012  | 018  | 028   | 036   | 045   |
|---|------|------|------|------|------|-------|------|------|------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev)     | 6.3  | 10.0 | 12.5 | 16.0 | 18.0 | 25.0  |      | 12.0 | 18.0 | 28.0  | 36.0  | 45.0  |
| Max cont pressure (bar)                 | 300  | 300  | 300  | 300  | 300  | 280   |      | 290  | 290  | 290   | 290   | 260   |
| Max operating speed <sup>1)</sup> (rpm) | 4000 | 4000 | 4000 | 4000 | 4000 | 2500  |      | 4000 | 4000 | 2500  | 2500  | 2500  |
| Max output torque <sup>2)</sup> (Nm)    | 26.1 | 43.8 | 55.7 | 72.4 | 82.0 | 107.5 |      | 50.6 | 81.2 | 132.1 | 172.8 | 190.0 |
| Output power <sup>3)</sup> (kW)         | 5.5  | 9.1  | 11.7 | 15.1 | 17.1 | 22.5  |      | 10.6 | 17.0 | 27.7  | 36.2  | 39.8  |
| Weight (kg)                             | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0  |      | 18.5 | 18.5 | 18.5  | 18.5  | 18.5  |

1) Max shaft speed at max pressure

2) Output torque at 24 cSt, 320 bar for M5BF, 300 bar for M5AF

3) Output power at 24 cSt 2000 rpm, 300 bar M5AF, 320 bar M5BF

## Gerotor

### TE



- High volumetric efficiency
- Long life
- 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

zm 03



| Frame size TE                       | 0036 | 0045 | 0050 | 0065 | 0080 | 0100 | 0130 | 0165 | 0195 | 0230 | 0260 | 0295 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 36   | 41   | 49   | 65   | 82   | 98   | 130  | 163  | 195  | 228  | 260  | 293  |
| Max cont pressure (bar)             | 140  | 140  | 140  | 140  | 140  | 140  | 140  | 140  | 140  | 120  | 110  | 100  |
| Max operating speed (rpm)           | 1141 | 1024 | 1020 | 877  | 695  | 582  | 438  | 348  | 292  | 328  | 287  | 256  |
| Max cont output torque (Nm)         | 55   | 71   | 90   | 125  | 160  | 190  | 255  | 310  | 390  | 380  | 400  | 428  |
| Weight. code L and H (kg)           | 6.7  | 6.8  | 6.9  | 7.0  | 7.1  | 7.2  | 7.6  | 7.8  | 8.1  | 8.3  | 8.6  | 8.8  |

| Frame size TE                       | 0330 | 0365 | 0390 |
|-------------------------------------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 328  | 370  | 392  |
| Max cont pressure (bar)             | 100  | 95   | 85   |
| Max operating speed (rpm)           | 228  | 203  | 191  |
| Max cont output torque (Nm)         | 443  | 467  | 445  |
| Weight. code L and H (kg)           | 9.1  | 9.4  | 9.6  |

### TF



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

zm 05



| Frame size TF                       | 0080 | 0100 | 0130 | 0140 | 0170 | 0195 | 0240 | 0280 | 0360 | 0405 | 0475 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 81   | 100  | 128  | 141  | 169  | 197  | 238  | 280  | 364  | 405  | 477  |
| Max cont pressure (bar)             | 207  | 207  | 207  | 172  | 172  | 138  | 138  | 138  | 128  | 128  | 114  |
| Max operating speed (rpm)           | 693  | 749  | 583  | 530  | 444  | 381  | 394  | 334  | 258  | 231  | 195  |
| Max cont output torque (Nm)         | 220  | 195  | 230  | 255  | 315  | 365  | 425  | 510  | 595  | 655  | 680  |
| Weight. code H and V (kg)           | 14.0 | 14.0 | 14.2 | 14.3 | 14.6 | 14.9 | 15.3 | 15.6 | 16.3 | 17.0 | 17.5 |

## Gerotor

### TG



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

zm 06



| Frame size TG                       | 0140 | 0170 | 0195 | 0240 | 0280 | 0310 | 0335 | 0405 | 0475 | 0530 | 0625 | 0785 | 0960 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 141  | 169  | 195  | 238  | 280  | 310  | 337  | 405  | 477  | 528  | 623  | 786  | 959  |
| Max cont pressure (bar)             | 207  | 207  | 207  | 207  | 207  | 207  | 207  | 172  | 138  | 138  | 121  | 103  | 69   |
| Max operating speed (rpm)           | 660  | 554  | 477  | 393  | 334  | 303  | 277  | 232  | 237  | 213  | 182  | 143  | 118  |
| Max cont output torque (Nm)         | 390  | 475  | 555  | 675  | 795  | 924  | 965  | 940  | 885  | 980  | 985  | 1045 | 775  |
| Weight, code H and V (kg)           | 14.6 | 14.8 | 15.1 | 15.5 | 15.9 | 16.1 | 16.3 | 16.9 | 17.5 | 18.3 | 19.0 | 20.5 | 22.2 |

### BG



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

zm 04



| Frame size BG                       | 0140 | 0170 | 0195 | 0240 | 0280 | 0310 | 0335 | 0405 | 0475 | 0530 | 0625 | 0785 | 0960 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 141  | 169  | 195  | 238  | 280  | 310  | 337  | 405  | 477  | 528  | 623  | 786  | 959  |
| Max cont pressure (bar)             | 207  | 207  | 207  | 207  | 207  | 207  | 207  | 172  | 138  | 138  | 121  | 103  | 69   |
| Max operating speed (rpm)           | 660  | 554  | 477  | 393  | 334  | 303  | 277  | 232  | 237  | 213  | 182  | 143  | 118  |
| Max cont output torque (Nm)         | 390  | 475  | 555  | 675  | 795  | 924  | 965  | 940  | 885  | 980  | 985  | 1045 | 775  |
| Brake holding capacity (Nm)         | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Weight (kg)                         | 14.6 | 14.8 | 15.1 | 15.5 | 15.9 | 16.1 | 16.3 | 16.9 | 17.5 | 18.3 | 19.0 | 20.5 | 22.2 |

### TH



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

zm 07



| Frame size TH                       | 0140 | 0170 | 0195 | 0240 | 0280 | 0310 | 0335 | 0405 | 0475 | 0530 | 0625 | 0785 | 0960 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 141  | 169  | 195  | 238  | 280  | 310  | 337  | 405  | 477  | 528  | 623  | 786  | 959  |
| Max cont pressure (bar)             | 207  | 207  | 207  | 207  | 207  | 207  | 207  | 172  | 138  | 138  | 121  | 103  | 69   |
| Max operating speed (rpm)           | 660  | 554  | 477  | 393  | 334  | 303  | 277  | 232  | 237  | 213  | 182  | 143  | 118  |
| Max cont output torque (Nm)         | 390  | 475  | 555  | 675  | 795  | 924  | 965  | 940  | 885  | 980  | 985  | 1045 | 775  |
| Weight, code B. X. L. A. Y (kg)     | 16.9 | 17.2 | 17.4 | 17.8 | 18.2 | 18.4 | 18.6 | 19.2 | 19.8 | 20.6 | 21.3 | 22.9 | 24.5 |

### TK



- High volumetric efficiency
- Long life
- Flow through internal spline and shaft seal cooling
- High pressure shaft seal
- High starting torque
- High side load capacity

zm 08



| Frame size TK                       | 0250 | 0315 | 0400 | 0500 | 0630 | 0800 | 1000 |
|-------------------------------------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 250  | 315  | 400  | 500  | 630  | 800  | 1000 |
| Max cont pressure (bar)             | 241  | 241  | 207  | 207  | 207  | 190  | 172  |
| Max operating speed (rpm)           | 523  | 413  | 373  | 298  | 237  | 276  | 218  |
| Max cont output torque (Nm)         | 814  | 1029 | 1153 | 1439 | 1617 | 1916 | 2413 |
| Weight (kg)                         | 30.8 | 31.4 | 32.3 | 33.2 | 34.5 | 36.0 | 37.9 |

## Axial Piston

### F1



- Pressures up to 350 bar
- Positive synchronization with timing gear
- Shaft end and mounting flange meet the ISO standard for all sizes
- Very low weight
- High overall efficiency withstand high acceleration

zp 16



| Frame size F1                       | 25-M | 41-M | 51-M | 61-M | 81-M | 101-M | 121-M |
|-------------------------------------|------|------|------|------|------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 25.6 | 40.9 | 51.1 | 59.5 | 81.6 | 102.9 | 118.5 |
| Max cont pressure (bar)             | 250  | 250  | 250  | 250  | 250  | 250   | 250   |
| Max operating speed (rpm)           | 3000 | 2700 | 2400 | 2200 | 2000 | 1800  | 1700  |
| Output torque at 200 bar (Nm)       | 81   | 130  | 162  | 189  | 259  | 327   | 376   |
| Output power (kW)                   | 20   | 27   | 31   | 34   | 41   | 48    | 51    |
| Weight (kg)                         | 8.5  | 8.5  | 8.5  | 8.5  | 12.5 | 12.5  | 12.5  |

### 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
- Proven reliability
- Easy to service
- ISO and SAE versions available

zp 21



| Frame size* F11                     | 05    | 10    | 12   | 14   | 19   | 150   | 250   |
|-------------------------------------|-------|-------|------|------|------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 4.9   | 9.8   | 12.5 | 14.3 | 19.0 | 150.0 | 242.0 |
| Max cont pressure (bar)             | 350   | 350   | 350  | 350  | 350  | 350   | 350   |
| Max operating speed (rpm)           | 12800 | 10200 | 9400 | 9000 | 8100 | 3200  | 2700  |
| Output torque at 100 bar (Nm)       | 7.8   | 15.6  | 19.8 | 22.7 | 30.2 | 238   | 384   |
| Weight (kg)                         | 5     | 7.5   | 8.2  | 8.3  | 11   | 70    | 77    |

\* 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
- Accessory valves available
- ISO, SAE and cartridge versions available
- Proven reliability
- Easy to service
- Super-shockless swing relief valve

zp 21



| Frame size F12                      | 30   | 40   | 60   | 80   | 90   | 110   | 125  |
|-------------------------------------|------|------|------|------|------|-------|------|
| Displacement (cm <sup>3</sup> /rev) | 30.0 | 40.0 | 59.8 | 80.4 | 93.0 | 110.1 | 125  |
| Max cont pressure (bar)             | 420  | 420  | 420  | 420  | 420  | 420   | 420  |
| Max operating speed (rpm)           | 6700 | 6100 | 5300 | 4800 | 4600 | 4400  | 4200 |
| Output torque at 100 bar (Nm)       | 47.6 | 63.5 | 94.9 | 128  | 148  | 175   | 198  |
| Weight (kg)                         | 12   | 16.5 | 21   | 26   | 26   | 36    | 36   |

## Radial Piston – Calzoni

### MRT/MRTE/MRTF



### MR/MRE



- 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....

### MRD/MRDE

zm 30



| Frame size MR                       | 33   | 57   | 73   | 93   | 110  | 125 | 160 | 190 | 200 | 250 | 300 | 350 | 450 | 600 | 700 | 1100 |
|-------------------------------------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Displacement (cm <sup>3</sup> /rev) | 32   | 56   | 73   | 93   | 109  | 125 | 160 | 192 | 199 | 251 | 304 | 350 | 452 | 608 | 707 | 1126 |
| Max cont pressure (bar)             | 250  | 250  | 250  | 250  | 250  | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250  |
| Max operating speed (rpm)           | 1400 | 1300 | 1200 | 1150 | 1100 | 900 | 900 | 850 | 800 | 800 | 750 | 640 | 600 | 520 | 500 | 330  |
| Max power (kW)                      | 10   | 17   | 20   | 25   | 28   | 25  | 30  | 36  | 38  | 48  | 53  | 62  | 75  | 84  | 97  | 119  |

| Frame size MR                       | 1600 | 1800 | 2400 | 2800 | 3600 | 4500 | 6500 | 7000 |
|-------------------------------------|------|------|------|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 1598 | 1810 | 2393 | 2792 | 3637 | 4503 | 6460 | 6967 |
| Max cont pressure (bar)             | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| Max operating speed (rpm)           | 260  | 250  | 220  | 215  | 180  | 170  | 130  | 130  |
| Max power (kW)                      | 144  | 153  | 183  | 194  | 185  | 210  | 240  | 250  |

| Frame size MRE                      | 330 | 500 | 800 | 1400 | 2100 | 3100 | 5400 | 8200 |
|-------------------------------------|-----|-----|-----|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 332 | 498 | 804 | 1370 | 2091 | 3104 | 5401 | 8226 |
| Max cont pressure (bar)             | 210 | 210 | 210 | 210  | 210  | 210  | 210  | 210  |
| Max operating speed (rpm)           | 750 | 600 | 450 | 280  | 250  | 215  | 160  | 120  |
| Max power (kW)                      | 49  | 70  | 93  | 102  | 148  | 190  | 210  | 250  |

| Frame size MRD                      | 300 | 450 | 700 | 1100 | 1800 | 2800 | 4500 | 7000 |
|-------------------------------------|-----|-----|-----|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 304 | 452 | 707 | 1126 | 1810 | 2792 | 4503 | 6967 |
| Max cont pressure (bar)             | 250 | 250 | 250 | 250  | 250  | 250  | 250  | 250  |
| Max operating speed (rpm)           | 750 | 600 | 500 | 330  | 250  | 215  | 170  | 130  |
| Max power (kW)                      | 53  | 75  | 97  | 119  | 157  | 194  | 210  | 250  |

| Frame size MRDE                     | 330 | 500 | 800 | 1400 | 2100 | 3100 | 5400 | 8200 |
|-------------------------------------|-----|-----|-----|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 332 | 498 | 804 | 1370 | 2091 | 3104 | 5401 | 8226 |
| Max cont pressure (bar)             | 210 | 210 | 210 | 210  | 210  | 210  | 210  | 210  |
| Max operating speed (rpm)           | 750 | 600 | 450 | 280  | 250  | 215  | 160  | 120  |
| Max power (kW)                      | 49  | 70  | 93  | 102  | 148  | 190  | 210  | 250  |

| Frame size MRT                      | 7100 | 9000 | 14000 | 17000 | 19500 | MRTE | 8500 | 10800 | 16500 | 20000 | 23000 |
|-------------------------------------|------|------|-------|-------|-------|------|------|-------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 7104 | 9005 | 14010 | 16759 | 19508 |      | 8517 | 10802 | 16543 | 19788 | 23034 |
| Max cont pressure (bar)             | 250  | 250  | 250   | 250   | 250   |      | 210  | 210   | 210   | 210   | 210   |
| Max operating speed (rpm)           | 150  | 130  | 80    | 70    | 60    |      | 120  | 110   | 70    | 60    | 50    |
| Max power (kW)                      | 330  | 370  | 355   | 371   | 371   |      | 290  | 310   | 308   | 316   | 306   |

| Frame size MRTF                     | 7800 | 9900 | 15500 | 18000 | 21500 |
|-------------------------------------|------|------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 7808 | 9904 | 15277 | 18025 | 21271 |
| Max cont pressure (bar)             | 210  | 210  | 210   | 210   | 210   |
| Max operating speed (rpm)           | 130  | 120  | 75    | 65    | 55    |
| Max power (kW)                      | 280  | 300  | 305   | 320   | 311   |

## Axial Piston

### T12



- Designed specifically for track drives
- Very high operating speeds
- Pressures up to 480 bar
- Very high power capability
- High starting torque
- Low weight
- High overall efficiency
- Axial or side ports
- Two-position control
- Cartridge version available
- Service-friendly

zm 22



| Frame size T12                                 | 60   | 80   |
|--|------|------|
| Displacement max at 35° (cm <sup>3</sup> /rev) | 60   | 80   |
| Displacement min at 10° (cm <sup>3</sup> /rev) | 18   | 24   |
| Max continuous pressure (bar)                  | 420  | 420  |
| Max operating speed (rpm)                      | 7000 | 6250 |
| Corner power cont (kW)                         | 235  | 280  |
| Weight (kg)                                    | 26   | 30.5 |

### 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

zm 21



| Frame size V12                                  | 60   | 80   |
|---|------|------|
| Displacement max at 35° (cm <sup>3</sup> /rev)  | 60   | 80   |
| Displacement min at 6.5° (cm <sup>3</sup> /rev) | 12   | 16   |
| Max cont pressure (bar)                         | 420  | 420  |
| Max operating speed (rpm)                       | 7000 | 6250 |
| Corner power cont (kW)                          | 235  | 280  |
| Weight (kg)                                     | 28   | 33   |

### V14



- Operating pressures up to 480 bar
- High speeds thanks to low weight pistons with laminated piston rings and a very compact design of the rotating parts
- High over all efficiency throughout the entire displacement range
- 9 pistons provide high start-up torque and smooth operation
- Wide displacement range – 5:1
- Small envelope size and high power-to-weight ratio
- Low noise levels due to the compact, sturdy design and smooth fluid passages
- Positive piston locking, strong synchronizing shaft, heavy-duty bearings and a small number of parts add up to a very robust motor with long service life and proven reliability

zm 20



| Frame size V14                                  | 110  | 160  |
|---|------|------|
| Displacement max at 35° (cm <sup>3</sup> /rev)  | 110  | 160  |
| Displacement min at 6.5° (cm <sup>3</sup> /rev) | 22   | 32   |
| Max cont pressure (bar)                         | 420  | 420  |
| Max operating speed (rpm)                       | 5700 | 5000 |
| Corner power cont (kW)                          | 440  | 560  |
| Weight (kg)                                     | 54   | 68   |

## 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....

zm 30



| Frame size MRV                      | 450 | 700 | 1100 | 1800 | 2800 | 4500 | 7000 |
|-------------------------------------|-----|-----|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 452 | 707 | 1126 | 1810 | 2792 | 4503 | 6967 |
| Max cont pressure (bar)             | 250 | 250 | 250  | 250  | 250  | 250  | 250  |
| Max operating speed (rpm)           | 600 | 500 | 330  | 250  | 215  | 170  | 130  |
| Max power (kW)                      | 75  | 97  | 119  | 157  | 194  | 210  | 250  |

| Frame size MRVE                     | 800 | 1400 | 2100 | 3100 | 5400 | 8200 |
|-------------------------------------|-----|------|------|------|------|------|
| Displacement (cm <sup>3</sup> /rev) | 804 | 1370 | 2091 | 3104 | 5401 | 8226 |
| Max cont pressure (bar)             | 210 | 210  | 210  | 210  | 210  | 210  |
| Max operating speed (rpm)           | 450 | 280  | 250  | 215  | 160  | 120  |
| Max power (kW)                      | 93  | 102  | 148  | 190  | 210  | 250  |

## Open Centre Systems

### Mobile Valves

#### P70CF



#### F130CF



#### H170CF



Open centre valves tend to be used most in applications requiring simple, uncomplicated systems that are undemanding in terms of operating characteristics. However, our considerable experience and high-quality products mean that we can offer open centre valves offering much more, especially in terms of operation. Our open centre valves are used by several market leaders in the mechanical engineering industry, which are extremely demanding in terms of repeatability and precision of operation.

P70CF and F130CF are of modular construction. The H170CF is of monoblock type but valve blocks can be flanged together to form a valve package for either single or multi-pump operation. The valves are designed for many different applications and used extensively in machines such as lorry cranes, small wheel loaders, concrete placing cranes, forestry machines, refuse trucks, drill rigs, garbage trucks, container trucks, forklift trucks etc.

These valves can be equipped with a large number of optional components and assemblies such as:

- Pump unloading with blocked pump channel for emergency stop
- Main pressure relief valve
- Port relief valves with anti cavitation function
- Anti cavitation valves
- Counter pressure valve
- Application adapted spools
- Pressure compensated spools
- Load hold check valve
- Power beyond feature
- For single or multi-pump operation
- For single or multi-valve operation

(Options vary for different valves)

zv 01



| Valve         | Pump Flow<br>l/min | Pressure<br>bar | Operation |           |           |                       |
|---------------|--------------------|-----------------|-----------|-----------|-----------|-----------------------|
|               |                    |                 | Manual    | Pneumatic | Hydraulic | Electro-<br>hydraulic |
| <b>P70CF</b>  | 70                 | 350             | X         | X         | X         | X                     |
| <b>F130CF</b> | 110                | 320             | X         | X         | X         | X                     |
| <b>H170CF</b> | 170                | 250             | X         | X         | X         | X                     |

## Constant Pressure Systems

### Mobile Valves

#### P70CP



Valves for constant pressure systems are mainly used where operational characteristics are critical and energy consumption is not. In these systems, simultaneous function operation is possible. Valves for constant pressure can return a un-load signal to the variable pump when they are not in use.

These valves can be equipped with a large number of optional components and assemblies such as:

- Main pressure relief valve
- Port relief valves with anti cavitation function
- Anti cavitation valves
- Pressure compensated spools
- Load hold check valve
- Wide range of adaptors for system unique functionality
- For single or multi-pump operation
- For single or multi-valve operation

(Options vary for different valves)

#### F130CP



zv 02

| Valve         | Pump Flow<br>l/min | Pressure<br>bar | Operation |           |           |                       |
|---------------|--------------------|-----------------|-----------|-----------|-----------|-----------------------|
|               |                    |                 | Manual    | Pneumatic | Hydraulic | Electro-<br>hydraulic |
| <b>P70CP</b>  | 90                 | 350             | X         | X         | X         | X                     |
| <b>F130CP</b> | 150                | 320             | X         | X         | X         | X                     |

## Load Sensing Systems Mobile Valves

### L90LS



### K170LS



### K220LS



Valves for load sensing systems have the same operating characteristics as valves for constant pressure systems, except that the pressure in the motor port is sent as a signal either to a variable load sensing pump or to a bypass in the inlet. Bypasses are used with fixed displacement pumps. The load-sensing system can be used to achieve complex system structures, for example including flow sharing, pressure compensation and pressure limitation in the motor ports. Correctly used, the load-sensing system can significantly reduce energy consumption (heat generation) and therefore reduce operating costs, primarily in systems with wide variations in loads and operating times.

These valves can be equipped with a large number of optional components and assemblies such as:

- Options for variable or fixed pumps displacement
- Pump unloading with blocked pump channel for emergency stop
- For single or multi-pump operation
- For single or multi-valve operation
- Counter pressure valve
- Pressure relief valve
- Port relief valves with anti cavitation function
- Anti cavitation valves
- Application adapted spools
- Load hold check valve
- Port specific force feedback
- Sections with pressure compensators

(Options vary for different valves)

### HV08



### M200LS



### M400LS



zv 03



| Valve  | Pump Flow<br>l/min | Pressure<br>bar | Operation |           |           |                       |
|--------|--------------------|-----------------|-----------|-----------|-----------|-----------------------|
|        |                    |                 | Manual    | Pneumatic | Hydraulic | Electro-<br>hydraulic |
| L90LS  | 200                | 320             | X         | X         | X         | X                     |
| K170LS | 280*               | 330             |           |           | X         | X                     |
| K220LS | 280*               | 350             |           |           | X         | X                     |
| HV08   | 300                | 320             | X         |           | X         | X                     |
| M200LS | 400                | 280             |           |           | X         |                       |
| M400LS | 900                | 280             |           |           | X         | X                     |

\* 2·280 l/min if intermediate inlet used

## Constant Pressure System Subplate Mounted CETOP/NG Style Valves

### D1VW



The D1VW is a 3 chamber-, electrically controlled 4/3 or 4/2 way directional control valve. It is activated directly by solenoids with screwed in wet pin armature.

The coils can be exchanged for various input voltages, however, a change between alternating (AC) and direct current (DC) is not possible.

### D1FT



The soft shifting of the D1VW soft shift valve is achieved by damping the plunger in the tube with an orifice.

The D3W is a 3 chamber-, electrically controlled 4/3 or 4/2 way directional control valve. It is activated directly by solenoids with screwed in wet pin armature.

### D3W



### D1FB



### D1FC



zv 04



| Valve            | Pump Flow<br>l/min | Pressure<br>bar | Solenoid | Operation | Remarks                     |
|------------------|--------------------|-----------------|----------|-----------|-----------------------------|
| <b>D1VW</b>      | 80                 | 350             | X        |           | Standard, NG6               |
| <b>D1VW</b>      | 80                 | 350             | X        |           | Soft Shift, NG6             |
| <b>D3W</b>       | 150                | 350             | X        |           | Standard, NG10              |
| <b>D1FB</b>      | 20                 | 350             | X        |           | Proportional DC Valve       |
| <b>D1FC</b>      | 20                 | 350             | X        |           | Proportional DC Valve, LVDT |
| <b>D3FB</b>      | 60                 | 350             | X        |           | Proportional DC Valve       |
| <b>D3FC</b>      | 60                 | 350             | X        |           | Proportional DC Valve, LVDT |
| <b>Subplates</b> |                    |                 |          |           | CETOP03/05, NG06/10         |

## Bankable Mini Valves

### SMV6



Series SMV6 is a bankable valve with 3- or 4-way, 2 or 3 positions valves.

On mobile machines there is a need for valves with low flow functions. Auxiliary functions such as parking breaks, pilot pressure feed, accumulator charging etc. can be solved with this type of valve. SMV6 offers a number of different functions that can be stacked together in a valve package to reduce space and leakage points.

All functions have common tank and pressure ports. It is also possible to fit a plug in between two functions to create 2 separate systems.

zv 05



| Valve       | Pump Flow<br>l/min | Pressure<br>bar | Solenoid | Operation | Remarks                         |
|-------------|--------------------|-----------------|----------|-----------|---------------------------------|
| <b>SMV6</b> | 11                 | 210             | X        |           | 3- and 4-way, 2 and 3 positions |

## Pneumatic VP04



The VP04 is a pneumatic pilot valve for the proportional remote control of directional control valves, positioning cylinders, etc. Either linear or joystick lever versions of the VP04 are available.

Principal applications include the proportional remote control of pneumatic spool-actuators and positioning cylinders in mobile or industrial hydraulic systems.

All connections are furnished with couplings of the plug-in type.

zr 21



| System Type                                  | Pneumatic Pilot Pressure |
|--|--------------------------|
| Control pressure range                       | 0–8 bar                  |
| Control flow                                 | max 7 NI/s               |
| Control curves with straight characteristics | X                        |
| Friction brake for retention in any position | X                        |
| Mechanical end-position detent               | X                        |

## Hydraulic PCL4



The PCL4 is a hydraulic pilot valve for the proportional remote control of directional control valves, pumps, motors, etc. It is available with joystick lever-units, as well as linear units for hand or foot control.

The PCL4 is intended primarily for the remote control of hydraulically operated spool actuators and pump regulators in all kinds of mobile and industrial applications.

zr 11



| System Type   | Hydraulic Pilot Pressure |
|---|--------------------------|
| Control pressure range                                | 1–75 bar                 |
| Control flow  | max 15 l/min             |
| Max supply pressure                                   | 100 bar                  |
| Individual control characteristics for each direction | X                        |
| Selectable start and final pressures                  | X                        |
| Selectable lever force                                | X                        |
| Curves with straight characteristics                  | X                        |
| Curves with two-step characteristics                  | X                        |
| Curves with forced opening (final step)               | X                        |
| Friction brake for retention in any position          | X                        |
| Mechanical or solenoid end position detent            | X                        |

## Electrohydraulic PVC6



Series PVC6 is a bankable valve assembly used for remote control of directional control valves. The proportional pressure reducing valve creates a pressure proportional to the inlet current. Solenoid Coil Voltage is available in 12 or 24 Volt. The inlet section can be equipped with a pressure reducing valve to protect the control sections (max inlet pressure to control section is 50 bar).

zr 02



## Electronics



### IQAN

IQAN is a state-of-the-art system, developed by Parker, for electronically controlling and monitoring hydraulics in mobile machines. IQAN communicates with other systems in the machinery, such as diesel engines and transmission systems. IQAN-MDM and IQAN-MDL display data from

these systems and allow control of them. IQAN is user-programmable via a high level graphical design tool, which dramatically simplifies development. Simulation of the control system takes place in parallel with the programming of machine functions. All hardware in IQAN's wide range of products meets the standards set for mobile applications, such as extreme temperatures, vibrations, mechanical impact, electro-magnetic interference, etc. IQAN's major benefits are:

- Mobility:** Hardware designed and tested for mobile hydraulic equipment.
- Simplicity:** Implement complex machine functionality without specialized programming knowledge.
- Time to Market:** IQAN's simple programming environment and modular hardware reduces development time.
- Machine Management:** IQAN has the software tools to benefit the entire life cycle of a machine. This allows you to reduce cost from design through after sales support.



zr 01

| System Types  | IQANdevelop platform   | IQANdesign platform  |
|---|--|--|
| CANbus Master<br>CANbus Modules<br>CANbus Joysticks | IQAN-MDM<br>IQAN-XP, IQAN-XS, IQAN-XP2, IQAN-XT2<br>IQAN-LL, IQAN-LM | IQAN-MDL<br>IQAN-XA2, IQAN-XS2, IQAN-XT2<br>IQAN-LL, IQAN-LM       |
| Stand-alone Controls                                | IQAN-TOC8, IQAN-TOC2   |  |
| Analog Joysticks<br>Sensors                         |  | IQAN-LSL, IQAN-LST, IQAN-LF1, ICL4, ICM4<br>IQAN-SP035, IQAN-SP500 |

### Components



### System Concept



#### IQANdevelop

An expandable modular control system with software tools to add modules and build functionality

### Stand Alone Concept



#### IQANdevelop

Task oriented control system with software tools to build functionality

### Advanced System Concept



#### IQANdesign

An advanced expandable modular control system with software tools to add modules and build functionality and simulate



zv 40

HY16-8167/UK/DE/FR/IT

## Directional Control Valves

| Valve Type                                   | Max Working Pressure bar | Flow Capacity l/min |
|--|--------------------------|---------------------|
| Manual valves                                | 240                      | 50                  |
| Manual three-way valves                      | 240                      | 25                  |
| Manual four-way valves                       | 240                      | 8                   |
| Pilot operated valves                        | 240                      | 40                  |
| Solenoid, poppet-type, two-way valves        | 345                      | 265                 |
| Solenoid, poppet-type, bi-directional valves | 345                      | 20                  |
| Solenoid, spool-type, two-way valves         | 345                      | 75                  |
| Solenoid, spool-type, three-way valves       | 345                      | 65                  |
| Solenoid, spool-type, four-way valves        | 345                      | 30                  |
| Double solenoid, spool-type, four-way valves | 345                      | 25                  |



zv 41

## Proportional Control Valves

| Valve Type  | Max Working Pressure bar | Flow Capacity l/min |
|---|--------------------------|---------------------|
| Solenoid operated, two-way, NC or NO proportional flow control valves | 207                      | 225                 |
| Solenoid operated, two-way NO proportional pressure control valves    | 207                      | 150                 |
| Solenoid operated, two-way NC throttle valve                          | 207                      | 20                  |
| Solenoid operated, proportional pressure reducing valves              | 207                      | 40                  |
| Solenoid operated, three-way, proportional pressure control           | 207                      | 11                  |

## Load Holding Valves

zv 42



| Valve Type                         | Max Working Pressure bar | Flow Capacity l/min |
|------------------------------------|--------------------------|---------------------|
| Counterbalance valves              | 345                      | 0-750               |
| Check valves                       | 345                      | 0-375               |
| Soft seat check valves             | 207                      | 0-60                |
| Vent-to-open check valves          | 240                      | 0-225               |
| Pilot-to-close check valves        | 240                      | 0-150               |
| Single pilot operated check valves | 207                      | 0-190               |
| Double pilot operated check valves | 207                      | 0-190               |
| Shuttle valves                     | 240                      | 0-25                |

## Pressure Control Valves

zv 43



| Valve Type                              | Max Working Pressure bar | Max Setting Pressure bar | Flow Capacity l/min |
|---|--------------------------|--------------------------|---------------------|
| Direct acting relief valves             | 345                      | 345                      | 0-150               |
| Cross-over relief valves                | 240                      | 240                      | 0-75                |
| Dual relief with anti-cavitation checks | 345                      | 345                      | 0-60                |
| Pilot operated relief valves            | 345                      | 345                      | 0-375               |
| Pressure sensing valves                 | 345                      |                          | 0-190               |
| Reducing/relieving valves               | 345                      | 345                      | 0-150               |
| Direct acting pressure reducing valves  | 345                      | 345                      | 0-60                |
| Pressure reducing valves                | 345                      | 345                      | 0-60                |
| Pressure reducing spools                | 345                      |                          | 0-190               |
| Sequence valves                         | 345                      | 345                      | 0-150               |
| Unloading relief valves                 | 240                      | 207                      | 0-6                 |
| Logic elements                          | 250                      | 250                      | 0-190               |
| Thermal Relief                          | 250                      | 250                      | 0-30                |

## Volume Control Valves

zv 44



| Valve Type   | Max Working Pressure bar | Max Flow Setting l/min | Flow Capacity l/min |
|--|--------------------------|------------------------|---------------------|
| Needle valves  | 240                      |                        | 0-190               |
| Rotary adjust needle valves                                    | 240                      |                        | 0-60                |
| Flow divider/combiner valves                                   | 207                      |                        | 0-45                |
| Pilot control flow control valves                              | 207                      |                        | 0-60                |
| Flow control valves  | 240                      |                        | 0-45                |
| Restrictive-type, pressure compensated valves                  | 240                      |                        | 0-150               |
| Priority-type, pressure compensated valves                     | 240                      | 0-40                   | 0-60                |
| Restrictive-type, pressure compensated flow regulator valves   | 240                      |                        | 0-60                |
| Priority-type, pressure compensated flow regulator valves      | 240                      | 0-35                   | 0-60                |
| Priority-type, pressure compensated flow regulator with relief | 240                      | 0-35                   | 0-60                |
| Velocity fuses   | 207                      |                        | 0-30                |

# Auxiliary Valves

## Threaded Cartridge Valves



Directly controlled pressure-relief valves with anti-cavitation function. The valves have good pressure characteristics together with very short reaction times. They are compact, tight, reliable and not sensitive to contamination.

zv 21



| Valve Type             | Max Working Pressure bar | Max Setting Pressure bar | Flow Capacity l/min |
|------------------------|--------------------------|--------------------------|---------------------|
| Pressure relief valves | 500                      | 25-500                   | 0-350               |

## Auxiliary Valves



Parker's stackable selector valve is operated by a wet pin solenoid. The valve is capable of switching from one circuit to another at a variety of flows and pressures. If more than two circuits are to be controlled then additional units can be stacked together. Alternatively, the valve can be connected to a pump and used to direct the flow to either one of two different circuits.

- Stackable
- Reduce pipe work
- Reduce number of fittings
- Reduce number of directional control valves spool sections

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

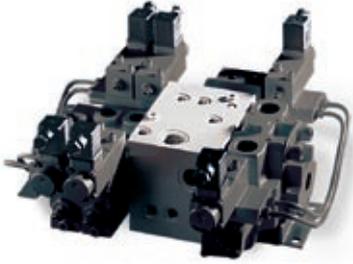
The shuttle valve enables two signal flows in a hydraulic system to be directed alternately into a common service line. The flow with the highest pressure takes priority.

- Small dimensions
- Rapid switching
- Negative overlapping
- Reacts on very small flows
- Minimal leakage

zv 21

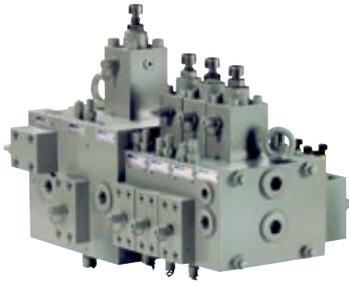


| Valve Type   | Max Working Pressure bar | Flow Capacity l/min |
|--|--------------------------|---------------------|
| Stackable, 2-position, 4-way, solenoid operated, circuit selector control valves | 210                      | 40                  |
| Pressure reducer valve   | 250                      | 25                  |
| Sequence valve   | 250                      | 25                  |
| Shuttle valve  | 250                      | 20                  |



Cartridge Valve Systems (Hydraulic Manifold Blocks) are designed to meet the many demands on mobile hydraulic equipment. Manifold blocks offer you the following benefits:

- **Minimum number of tubing, hoses and couplings**
- **Fewer components**
- **Fewer leakage points**
- **Less space required**
- **Simplified assembly and service instructions**
- **Complete system solution with optimized functions**



Manifold blocks can be flanged to one or more directional valves as well as to pumps, cylinders, motors and filters.

Some cartridge valve products offered by Parker include:

- **Directional Control Valves**
- **Logic Elements and Flow Controls**
- **Pressure Controls**
- **Proportional Valves**
- **Powershift Transmission Controls**
- **Load Holding Valves**



Parker's Integrated Systems Division offers value-added services such as manifold design using 3D CAD and CAM software, application engineering assistance and assembly and testing capabilities.



## System Protection through New Manifolds for Pump Safety

Parker has developed special manifolds for pumps to prevent hydraulic systems from inadmissible pressure rises. In addition to pressure limiting types, Parker now offers modules with integrated check valves which allow several pumps to co-operate in a hydraulic circuit. The new product range also includes electrically unloadable manifolds with or without

When you need finished integrated hydraulic circuits with extremely short lead times, the Parker 'Speed Shop' is the place to go. Parker's expert application engineers along with the latest computer-aided design technology can bring advanced new custom products to market faster.

The solution to your problem is only minutes away when Parker's Quick Design proposals and quotes that are created using 3D CAD. Once the design is finalized, the 'Speed Shop' process is further streamlined by utilizing electronic communications and approvals.

When design specifications meet customer requirements, Parker's CAD linked prototype machining produces fully functional hydraulic integrated circuits. All prototypes are fully tested and documented before being released to production. In today's highly competitive market, speed and quality are critical for success.

zv 22



## Safe and Simple

- **Additional, low-cost system protection**
- **Variety of functions – pressure relief with check valve for pump combinations, electrical unloading with/without check valve**
- **Direct mounting on pump pressure port SAE – extra piping and assembly unnecessary**
- **Pressure-less pump start and bypass function**
- **Protection against inadmissible increase in hydraulic systems**
- **Suitable for pumps ports SAE3/4 to SAE11/2 6000PSI**

zv 23



# Mobile Actuators

## Multi-stage, Double-acting Telescopic With Mechanical Plunger and Holding Valve



Parker offers single- or double-acting single stage and telescopic mobile cylinders.

Custom cylinders can be built in batch sizes from one piece to hundreds. We work with our customers to develop specifications in a wide range of sizes, pressures and mounting styles.

## Multi-stage, Single-acting Telescopic



- Bore sizes up to 500 mm diameter
- Any practicable stroke length
- Operating pressures up to 500 bar
- Seal compounds to suit all standard fluids
- A wide range of materials and coatings
  - stainless steel
  - electroless nickel
  - nitriding
  - chrome and double-chrome plating
- Options include
  - loadholding valves
  - electro-hydraulic transducers
  - position switches
  - end of stroke hydraulic damping
  - protective rod boots
  - flow controls
  - flow fuses

## MWA/MWB & HC20 Single Stage Cylinder



## Double-sided Steering Cylinder



zc 01, zc 03



| Cylinder    | Cyl. Bore<br>Ø mm | Pressure<br>bar | Max Stroke<br>mm | Load Holding<br>Valves | Optional<br>Seal Types | Position<br>Switches | Customized<br>Variants |
|-------------|-------------------|-----------------|------------------|------------------------|------------------------|----------------------|------------------------|
| <b>MWA</b>  | 50-200            | 250             | 4000             | X                      | X                      | X                    | X                      |
| <b>MWB</b>  | 32-200            | 160             | 4000             | X                      | X                      | X                    | X                      |
| <b>HC20</b> | 25-200            | 160             | 2800             | X                      | X                      | X                    | X                      |

## HTR Rotary Actuators



Rack and pinion rotary actuators deliver constant torque, in both directions. Parker offers single rack and double rack versions, with 'specials' to customer order.

- Output torques up to 68,000 Nm
- Standard rotations – 90°, 180°, 360°
- Specials up to five revolutions or more
- Up to 210 bar operating pressure

zc 02



## A & ACP Series Piston Accumulators



- Standard capacities from 0.08 to 76 litres
- 250 bar to 350 bar operating pressures
- Bore diameters from 40 mm to 200 mm
- Seal compounds to suit all standard fluids and operating temperatures
- Threaded or high-strength crimped construction for long service life
- CE approved for use throughout Europe

za 01



## BAE Series Bladder Accumulators



- Standard capacities from 1.0 to 50 litres
- 330 bar operating pressure
- Bladder materials to suit all standard fluids and operating temperatures
- Seamless, chrome-molybdenum alloy steel shells with forged ends, for maximum strength
- Contamination tolerant materials, suitable for use with low-lubricity fluids
- CE approved for use throughout Europe

za 03



## 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

za 02



## Accumulator Charging Kits and Mounting Accessories



- Charging and gauging equipment
- Gauge adapters and assemblies
- Mounting clamps and base brackets
- U-bolt mounting assemblies
- Accumulator repair tools

za 01



## 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

zf 01



| Model          | Max Flow Rate l/min | Max Pressure (bar) | Mounting Style |
|----------------|---------------------|--------------------|----------------|
| Suction Return | 250                 | 10                 | Tank Top       |
| Multiflow      | 600                 | 8                  | Tank Top       |
| 1200 Series    | 140                 | 6                  | Tank Top       |
| Tank Topper    | 650                 | 10                 | Tank Top       |
| IN-AGB         | 2400                | 10                 | Inside Tank    |
| BGT-S          | 2400                | 10                 | Tank Top       |
| Maxiflow       | 360                 | 10                 | Spin-On        |
| TTF            | 500                 | 10                 | Tank Top       |

### 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

zf 02



| Model           | Max Flow Rate l/min | Max Pressure Bar | Mounting Style |
|-----------------|---------------------|------------------|----------------|
| CN Series       | 660                 | 70               | Inline         |
| 1145 Series     | 250                 | 40               | Inline         |
| 1300 ‘e’ Series | 1000                | 30               | Inline         |

### 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 1000 l/min at 414 bar

zf 03



| Model          | Max Flow Rate l/min | Max Pressure Bar | Mounting Style |
|----------------|---------------------|------------------|----------------|
| H600/H1000     | 1000                | 414              | Inline         |
| 8 Series       | 520                 | 414              | Inline         |
| 7000 Series    | 450                 | 420              | Inline         |
| 15P/30P Series | 200                 | 207              | Inline         |

## 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

zf 04



## Reservoir Equipment



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

zf 05



## ParGel



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

zf 06



## 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](http://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 out-perform 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
- Datum 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

zfa 03



## 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

zfa 02



## 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

zfa 04



## 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.

zfa 05



# Measure/Brake Systems and Vehicle Steering

## SensoControl



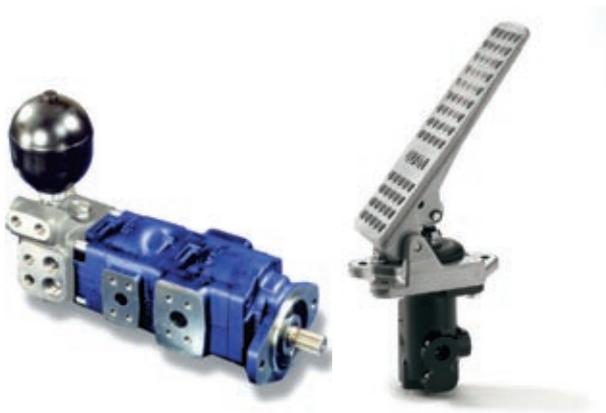
SensoControl handmeters and complete measuring systems are perfectly suited measuring tools for every application. Whether they are used in the industrial area, in mobile hydraulics, for service or repair: measuring and processing of hydraulic values is the basis of safe trouble shooting. The systematic search of errors with modern means is something the service engineer simply cannot do without.

To meet the requirements in both modern industrial hydraulics and complex mobile hydraulics, we offer a range of different models.

zsc 01



## Hydraulic Operated Power Brake



Pump package complete with accumulator charge valve and accumulator and a Single Brake Modulating Valve with pedal.

Within the Parker Hannifin product range we can offer components for a hydraulic operated power brake system.

The brake system onboard a vehicle is vital for the safety of the vehicle. It is therefore important that the design of the vehicle and the design of the brake system are co-ordinated to give an optimal safety and good performance and that complements other modern cab ergonomics to reduce operator fatigue and give good machine feel.

We are pleased to help you select the right components for a given application. Contact your local Parker Hannifin Office.

zs 01



## Hydraguide™ Hydrostatic Steering Units

### HGF



- Compact package size
- Patented pressure dams
- Removable upper column
- Full pressure shaft seal
- Internal relief valve
- Low noise option
- Manual emergency steering

zs 02



| Frame size HGF                      | 08   | 10   | 12   | 16    | 20    | 24    |
|-------------------------------------|------|------|------|-------|-------|-------|
| Displacement (cm <sup>3</sup> /rev) | 54.1 | 67.7 | 81.1 | 108.2 | 135.2 | 162.3 |
| Max operating pressure (bar)        | 124  | 124  | 124  | 124   | 124   | 124   |
| Flow (l/min)                        | 30   | 30   | 30   | 30    | 30    | 30    |
| Weight (kg)                         | 4    | 4.1  | 4.2  | 4.4   | 4.7   | 4.8   |

## Series 108



- AC or DC motor
- 4 pump sizes – up to 3 l/min
- Single or bidirectional rotation
- Fixed relief valve
- Locking check valves available on all models
- Variety of hydraulic circuits
- Reservoirs from 0.45 to 5.5 litres
- 241 bar rating

zu 01



## Series 165



- 0,75 kW, 12 VDC electric motor
- 3 pump sizes (0.52, 0.82 and 1.06 cm<sup>3</sup>/rev)
- Variety of circuits
- Many reservoir choices
- Up to 240 bar operating pressure
- Soft seat load hold check valves
- Vertical or horizontal mounting

zu 06



## Series 550



- Numerous motors to 1.5 kW
- 6 pump sizes – flows from 1 to 11.4 l/min
- Externally adjustable relief valve
- Variety of reservoirs
- Operating pressure to 210 bar
- NG6 pad or standard P and T ports

zu 02



## Miniature Piston Pumps 5 Piston Design



- Pressures to 275 bar
- Displacements from 0.156 to 0.865 cc/rev
- Pumping Efficiencies to 90 %

zu 03



# Thermoplastic Hoses

## Polyflex/Parflex Thermoplastic Hoses for Hydraulic Applications



For pressures up to 700 bar. Single and multiple lines with permanently attached end fittings for self assembly with Polykrimp/Parkrimp systems.

Applications: low pressure to high pressure hydraulic, pneumatic and surface finishing, PTFE hoses.

Construction: thermoplastic hoses with synthetic fibre/steel wire reinforcement.

Size range: from 1/4" to 1.1/4".

Working pressure: 700 bar on 1/4" and 275 bar on 1.1/4".

Temperature range: -57 °C to +150 °C.

zfc 03



Catalogue 4460 and 4467 (PTA/PTB)

## Polyflex Ultra High Pressure Thermoplastic Hoses



For working pressures from 700 to 4000 bar.

Applications: hydraulic tools, bolt tensioning, pressure testing, forming technology.

End fittings made from high performance steels for maximum safety. Assembly and testing with Polyflex assembly equipment.

Construction: thermoplastic with up to 8 spiral layers of high tensile steel wire.

Size range: 4 to 25 mm bore.

Working pressure: 4000 bar on 5 mm to 720 bar on 50 mm.

Temperature range: -40 °C to +100 °C.

zfc 01



Catalogue 4460

## Polyflex Presto Tubing for Pneumatics



Thermoplastic single and multicore tubing bundles for most pneumatic applications. Tubing bundles 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

zfc 02



Catalogue 5210

## 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-2 Compact (LL) High performance.

Small dimensions. For microhydraulics, refrigerant and lubrication systems.



Catalogues 4100

## New Generation



New, chromium(VI)-free fitting generation, consisting of: EO-Plus for metallic sealed connections, EO2-Plus for soft sealed connections and EO2-Form for soft sealed cold-formed tube connections. Gives 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/FPM.

Nominal pressure Pn: Series L up to 500 bar

Series S up to 800 bar.

Sizes 20S 38S: 420 bar.



Catalogue 4100

## Parker O-Lok O-Ring Face Seal Fittings (ORFS)



Soft seal fittings provide leak-free 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, UNE, NPTF.

Nominal pressure Pn: up to 630 bar.

Standards: ISO 8434-3, SAE J1453.



Catalogue 4100

# 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).



## Prestomatic 2 Airbrake Fittings



Re-usable push-in brass fitting for use with polyamide airbrake tubing.

Material: brass.

Sizes: tube o.d. from 6 to 16 mm.

Threads: from M10x1.0 to M22x1.5, NPT, BSPT.

Working pressure: up to 17 bar.

Working temperature: -40 °C to +100 °C.



## 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

## Agricultural Hydraulic



Quick couplings and multicoupler systems with ball locking mechanism designed to satisfy many applications such as hydraulic connection between implements and tractors, forestry equipment, mowers and also road service vehicles. Most of the series meet the ISO 7241-1-A standard and are widely interchangeable. They are used by major manufacturers of tractors and agricultural equipment worldwide.

Material: steel.

Sizes: from 1/4" to 1".

Threads: BSPP, NPTF, UNF and metric.

Rated pressure: up to 250 bar.

zfc 12



Catalogue 3800

## High Pressure



General purpose and screw-to-connect quick couplings for rock breakers, hydraulic hammers, excavators... They combine the advantages of high pressure up to 450 bar with well proven designs.

Material: steel.

Sizes: from 3/8" to 1.1/2".

Threads: BSPP, NPTF, NPSE, UN(F), metric.

Rated pressure: up to 450 bar.

zfc 13



Catalogue 3800

## Diagnostic



Diagnostic couplings provide easily accessible test points for performance testing of hydraulic systems in plant or on mobile vehicles. This early detection contributes to equipment efficiency and long life. Parker PD & PDP series combine many advantages: ISO 15171-1 & SAE J1502 conformity for wide interchangeability, flat-faced poppet for reduced spillage, possibility to connect under pressure...

Material: steel.

Size: 1/8".

Threads: BSPP, NPTF, UNF and metric.

Rated pressure: up to 630 bar.

zfc 14



Catalogue 3800

## Hydraulic Equipment



For each application, we have a solution: general purpose 60 series meeting ISO 7241-1-B standard, screw-to-connect 6100 series to connect under pressure, FF series with flat-faced poppet to protect work place and environment.

Material: steel.

Sizes: from 3/8" to 1.1/2".

Threads: BSPP, NPTF, NPSE, UNF.

Rated pressure: up to 280 bar.

zfc 27



Catalogue 3800

## 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 .



zfc 15

Catalogue 4400-UK

## 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.

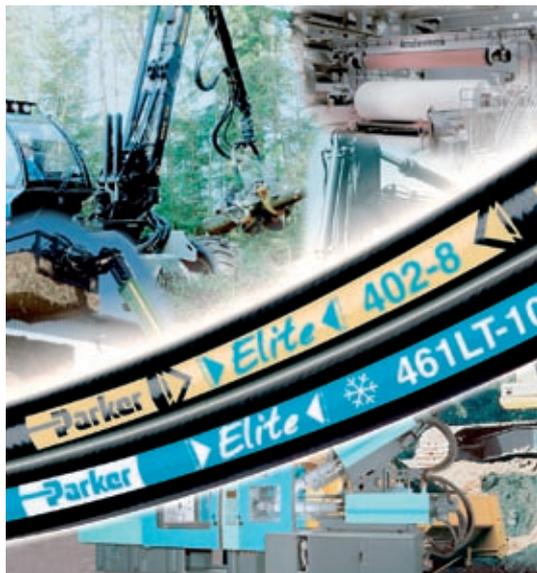
Specifications: ISO 3862 EN 856 4SP/4SH / R12 / R13 / R15.



zfc 18

Catalogue 4480-B28.1-UK

## Parkrimp *Elite* Compact *No-Skive* 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-Skive* 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.

zfc 18



Catalogue 4400-UK

## 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-Skive* 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.

zfc 17



Catalogue 4400-UK

## Parkrimp Compact *No-Skive* 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 pressure: up to 210 bar.

Temperature range: -40 °C to +80 °C.

Dimensions: size -4 to -10.

Pretension: 3-5 %.

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Catalogue 4400-UK

## 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.

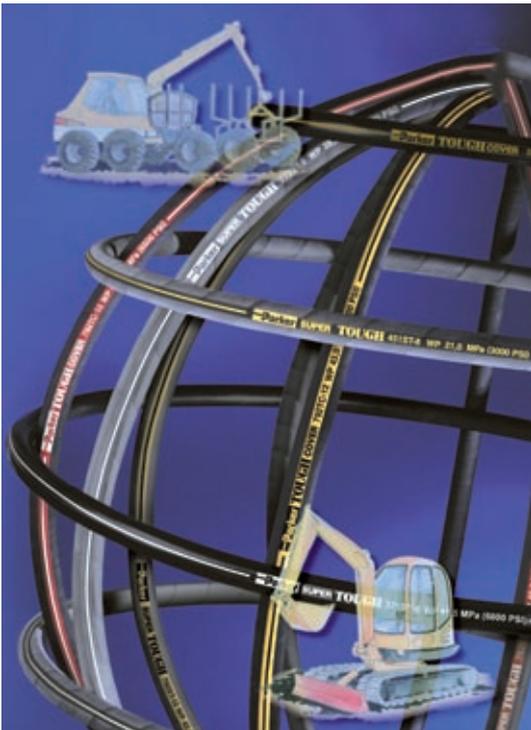
Dimensions: size -4 to -16.



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Catalogue 4400-UK

## Parkrimp Compact *No-Skive* '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.



zfc 19, zfc 26

Catalogue 4400-UK

## 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.



**The Automation Group** is a leading supplier of pneumatic and electromechanical components and systems to automation customers worldwide.



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To view the CD, the following are required:

- Pentium®-class processor
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- 16 MB of RAM (32 MB recommended)
- 20 MB of available hard-disk space

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You must have the search plug-in to take advantage of the search feature described in the next section.

### To View the CD

The CD is self-loading. Just place it in your CD drive. Acrobat Reader will open (or install), and the opening page will appear on your monitor. From this page you can navigate to the following sections.

- Search takes you to the search feature. When the search window opens, type a word(s) or code\* and press enter. A list of pages where that word appears is shown. Select one and click the View button. Repeat as needed.
- View Bookshelf takes you to the selection of catalogues and products on the CD.
- Product Overview takes you to a .pdf file of this Industrial Hydraulics Product Range.
- Safety takes you to the Warning and Offer of Sale documents.
- Getting Started provides a summary of how to navigate using Acrobat Reader.
- Contact Us provides you with phone, fax and online information.

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