



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Mobile Hydraulics

Innovative Products and System Solutions



ENGINEERING YOUR SUCCESS.

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# Parker Hannifin Corporation

## ENGINEERING YOUR SUCCESS.



### The Parker Brand Promise

*Parker is the global leader in motion and control technologies, partnering with its customers to increase their productivity and profitability.*

aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding

A global Fortune 300 company with customers in 48 countries, Parker Hannifin is the world's leading supplier of hydraulic, pneumatic, and electro-mechanical systems and components. Customers rely on Parker for engineering excellence, world-class manufacturing and outstanding customer service to provide comprehensive application solutions that are second to none.

- More than USD 12.1 billion in sales
- 298 plants worldwide
- 12,000 distributors
- 449,000 customers
- Serving 1,200 distinct markets
- Listed as PH on the New York Stock Exchange

Let Parker become part of your design team. Whether you need to develop new products, redesign existing applications, or design completely new systems, Parker offers unparalleled engineering expertise.

As the leader in the motion and control industry, Parker strives to be our customers' trusted partner. These relationships are cultivated by listening closely to our customers and repeatedly providing them with value measured in real dollars: saved time, reduced waste, gained efficiency, expanded output and increased profitability.



# Mobile Systems Team

## 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 customer's 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.

## 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.

## 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.

## 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

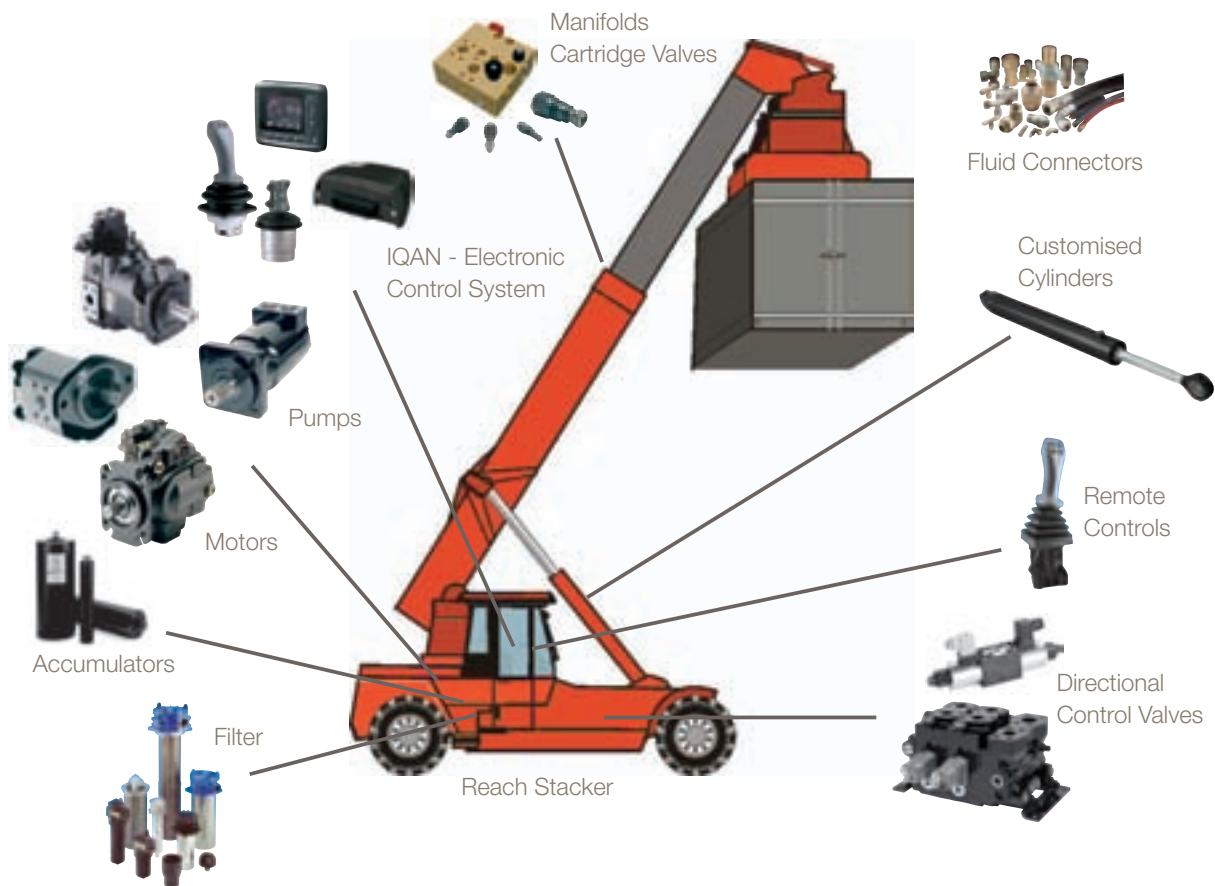
## Product Solutions

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.



zb 01

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



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.



## 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.*



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.



# Mobile Hydraulic Components

## 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, ParFit replacement elements and fluid analysis instruments .

## 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 Cylinders and Rotary Actuators

Parker Hannifin is a leading manufacturer of hydraulic cylinders and rotary actuators for mobile equipment applications. Our products 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. Our rotary actuators, with fully-enclosed mechanisms, constant torque in both directions and rugged bearings which eliminate the need for external support, reduce design, production and in-service costs.

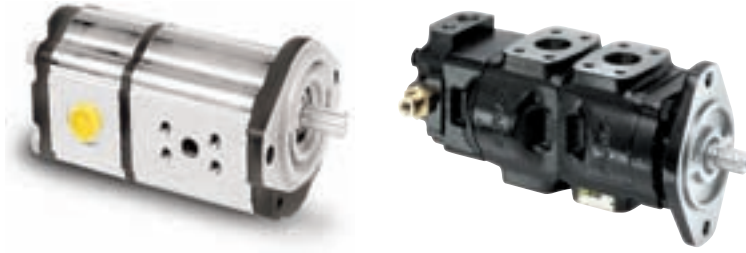
## Hydraulic Manifold Blocks

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.

# Pumps - Fixed Displacement

## 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	0060	0080	0100	0120					
Displacement (cm <sup>3</sup> /rev)	3	4	6	8	10	12					
Max cont pressure (bar)	275	275	275	275	250	220					
Max operating speed (rpm)	4000	4000	3600	3000	2800	2400					
Input power (kW)	2.3	3.0	4.5	6.0	6.9	7.5					
Weight (kg)	2.22	2.27	2.38	2.48	2.58	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 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 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

# Pumps - Fixed Displacement

## 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
Displacement (cm <sup>3</sup> /rev)	16	19	23	29	36	41	46
Max cont pressure (bar)	270	260	250	240	230	210	200
Max operating speed (rpm)	2000	2000	2000	2000	2000	2000	2000
Weight (kg)	6.0	6.3	6.7	7.1	7.5	7.8	8.1

# Pumps - Fixed Displacement

## Vane – SAE

**DENISON®**

Single



- 275 bar max pressure for T6CM. 240 bar for T6DM & T6EM
- Silent technology even under high pressure
- 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)
- Rear drive train options available (SAE A, SAE B or SAE C)



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

2) 1500 rpm at 240 bar (except TB at 175 bar)

3) 140 bar

4) 210 bar max

Double



- Very low noise
- SAE or ISO standards
- One piece shaft (no internal torque limitations)
- Single common inlet
- 32 porting orientations available, 16 different double pump frames
- 819 displacement possibility (from 10.8 to 227.1 cm<sup>3</sup>/rev) with a max displacement of 454.2 cm<sup>3</sup>/rev
- Displacement combinations with above T6CM – T6DM & T6EM
- High power to weight ratio
- Wide range of options available = different shafts, threads, pilots
- Double shaft seal option available (T6CCP, T6DCP, T6ECP & T6EDP)
- Special shafts for tractors (J718c) T6CCMW, T6DCMW, T6ECM & T6EDM)

Triple



- Very low noise
- Single common inlet
- 128 porting orientations available
- 6766 displacement combinations (from 10.8 to 227.1 cm<sup>3</sup>/rev) with a max displacement of 552 cm<sup>3</sup>/rev
- One piece shaft (no internal torque limitation)
- High power to weight ratio
- 15 different triple pump frames available



# Pumps - Fixed Displacement

## 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)

**DENISON®**



zvp 01

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			T6GCC = 27.2			

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

2) 1500 rpm at 240 bar

## 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 & Fixed Vane Combination

Double & Triple



- Variable piston & vane pump combination
- Wide range of displacements:
  - Variable 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 controls (standard, ventable & ventable by electronic valve, load sensing)
- Very compact unit
- Splined & keyed shafts available
- 10 frame size available

# Pumps - Fixed Displacement

## 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	42/42	55/28	53/53	70/35	70/70
Displacement (cm <sup>3</sup> /rev)	43/41	54/52	55/28	69/36	68/68
Max cont pressure (bar)	350	350	350	350	300
Max operating speed* (rpm)	2550	2550	2550	2550	2550
Max operating speed** (rpm)	1800	1800	1800	1800	1650
Input torque at 350 bar (Nm)	467	461	589	583	648
Max cont input power (kW)	88	88	110	110	112
Weight (kg)	19	19	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	1600
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



# Pumps - Fixed Displacement

## Axial Piston

F11



- Pressures up to 420 bar
- High overall efficiency (low losses)
- Accept high external shaft loads
- Good resistance to vibrations and temperature shocks
- Proven reliability
- Easy to service
- CETOP, 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	350	420	420
Max operating speed ( rpm)	3150	2870	2500	2300	2300	2200	2100
Weight (kg)	12	16.5	21	26	26	36	36

## Boost Unit

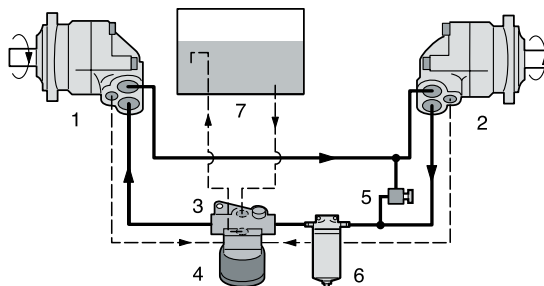
BLA



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.



1. Pump  
4. Filter cartridge  
7. Reservoir

2. Motor  
5. Pressure relief valve

3. Boost unit (with injector and nozzle)  
6. Full-flow filter (when required)

# Pumps - Variable Displacement

## Axial Piston

VP1 – Truck



- Intermittent pressure up to 400 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	95	120
Displacement (cm <sup>3</sup> /rev)	45	75	95	120
Max cont pressure (bar)	350	350	400	360
Max operating speed (rpm)	2400*	2200*	2200**	1900*
Input power (kW)	63	96	139	137
Weight (kg)	27	27	27	27

\* 2 1/2" suction line    \*\* 3" suction line

P2 / P3



- Designed for mobile applications
- High self priming speed
- Unique port layout
- Quiet operation
- Reduced flow and pressure ripple
- Easy to install
- Service friendly



zp 18

Frame size P2	060	075	105	145		P3	105	145
Displacement (cm <sup>3</sup> /rev)	60	75	105	145			105	145
Max cont pressure (bar)	320	320	320	320			320	320
Max operating speed (rpm)	2800	2500	2300	2200			2600	2500
Weight (kg)	37	44	63	78			62	76

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



zp 14

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

P1



- Compact overall package size for easy installation
- Quiet operation
- High flexibility by various thru drive and remote control options
- Easy to service



zp 04

Frame size P1	060	075	100	140
Displacement (cm <sup>3</sup> /rev)	60	75	100	140
Max cont pressure (bar)	280	280	280	280
Max operating speed (rpm)	2400	2300	2100	2000
Weight (kg)	30	31	55	67

# Motors - Fixed Displacement

## 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 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 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	

# Motors - Fixed Displacement

## Vane

Single



- High overall efficiency
- High starting torque
- Very low noise
- Low ripple torque
- Various mounting pads, threaded ports & porting configurations
- Wide range of built-in valves options on uni-rotational motors

**DENISON®**


zvp 01

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)	165.0	200.0	236.0	264.0	300.0	340.0	372.0
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	023	028	036	045	050
Displacement (cm <sup>3</sup> /rev)	12.0	18.0	23.0	28.0	36.0	45.0	50.0
Max cont pressure (bar)	290	290	290	290	290	260	260
Max operating speed <sup>1</sup> (rpm)	4000	4000	3000	3000	3000	2500	2500
Output torque <sup>2</sup> (Nm)	50.6	81.2	117.1	132.1	172.8	190.0	211.0
Output power <sup>2</sup> (kW)	10.6	17.0	24.5	27.7	36.2	39.8	44.0
Weight (kg)	18.5	18.5	18.5	18.5	18.5	18.5	18.5

1) Max. shaft speed at max. pressure, continuous

2) Output at 2000 rpm, 24 cSt &amp; M5B\* at 320 bar, 045 &amp; 050 at 280 bar, M3B &amp; M4\* at 175 bar

Double



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

# Motors - Fixed Displacement

## Vane

Fan – M5



- Heavy duty bearing
- High overall efficiency
- 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

**DENISON®**



zvp 01

Frame size M5AF	006	010	012	016	018	025	M5BF	012	018	023	028	036	045	050
Displacement (cm <sup>3</sup> /rev)	6.3	10.0	12.5	16.0	18.0	25.0		12.0	18.0	23.0	28.0	36.0	45.0	50.0
Max cont pressure (bar)	300	300	300	300	300	280		290	290	290	290	290	260	260
Max operating speed <sup>1</sup> (rpm)	4000	4000	4000	4000	4000	2500		4000	4000	3000	3000	3000	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	117.1	132.1	172.8	190.0	211.0
Output power <sup>2</sup> (kW)	5.5	9.1	11.7	15.1	17.1	22.5		10.6	17.0	24.5	27.7	36.2	39.8	44.0
Weight (kg)	15.0	15.0	15.0	15.0	15.0	15.0		18.5	18.5	18.5	18.5	18.5	18.5	18.5

1) Max shaft speed at max pressure

2) Output at 2000 rpm, 24 cSt & M5B\* at 320 bar, 045 & 050 at 280 bar, M5AF at 300 bar

## 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	155	138	138	138	138	138	138	130	128	113
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

# Motors - Fixed Displacement

## 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
- Flow through internal spline and shaft seal cooling
- High pressure shaft seal / no drainline
- High starting torque
- High side load capacity
- Long life



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						

# Motors - Fixed Displacement

## 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 and fast accelerations
- Anti cavitation valve available
- Pressures up to 420 bar
- High overall efficiency (low losses)
- Accept high external shaft loads
- Good resistance to vibrations and temperature shocks
- Proven reliability
- Easy to service
- CETOP, 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 and fast accelerations
- 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	350	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

# Motors - Fixed Displacement

## Radial Piston

MRT/MRTE/MRTF

MRD/MRDE

MR/MRE


**CALZONI®**

- 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....



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



# Motors - Variable Displacement

## 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

# Motors - Variable Displacement

## 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....



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	

# Directional Control Valves

## Open Centre Valves

Mobile Valves

VO40



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 a flangeable monoblock type meaning 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 or without 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	Operation					
	Pump Flow l/min	Pressure bar	Manual	Pneumatic	Hydraulic	Electrohydraulic
VO40	40	300	X	X	X	X
P70CF	70	320	X	X	X	X
F130CF	110	320	X	X	X	X
H170CF	170	250	X	X	X	X

# Directional Control Valves

## Constant Pressure Valves

Mobile Valves

P70CP



F130CP



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 an un-loading 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 or without anti cavitation function
- Anti cavitation valves
- Pressure compensated spools
- Load 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)



zv 02

Valve	Pump Flow l/min	Pressure bar	Operation			
			Manual	Pneumatic	Hydraulic	Electrohydraulic
P70CP	90	320	X	X	X	X
F130CP	150	320	X	X	X	X

# Directional Control Valves

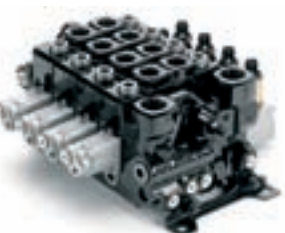
## Load Sensing Valves

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 displacement pumps
- Pump unloading with blocked pump channel for emergency stop
- For single or multi-pump operation
- For single or multi-valve operation
- Flanged multi-valves, L90LS, K170LS, K220LS
- Counter pressure valve
- Pressure relief valve
- Port relief valves with or without anti cavitation function
- Anti cavitation valves
- Port specific feed reducers
- Application adapted spools
- Port specific force feedback
- Load check valve
- Sections with pressure compensators

(Options vary for different valves)

K + L Midinlet



VP170



M200LS



M400LS



Valve	Pump Flow l/min	Pressure bar	Operation			
			Manual	Pneumatic	Hydraulic	Electrohydraulic
L90LS	200	320	X	X	X	X
VP170**	220	350	X	X	X	X
K170LS	280*	330			X	X
K220LS	280*	350			X	X
M200LS	400	280			X	X
M400LS	900	280			X	X

\* 2x280 l/min if intermediate inlet used \*\* Flow sharing

# Directional Control Valves

## 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 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.

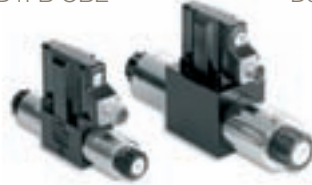
D3W



D1FB



D1FB OBE



D3FB OBE



zv 04

Operation					
Valve	Pump Flow l/min	Pressure bar	Solenoid	Remarks	
D1VW	80	350	X	Standard, Soft Shift, NG6	
D3W	150	350	X	Standard, Soft Shift, NG10	
D1FB	20	350	X	Proportional DC Valve, ext. or onboard (OBE) electronics	
D3FB	60	350	X	Proportional DC Valve, ext. or onboard (OBE) electronics	
Subplates				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. 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

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

# Remote Control Systems

## 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



# Remote Control Systems

## Electronic Control Systems

IQAN



IQAN is a state-of-the-art system, developed by Parker, for electronically controlling and monitoring hydraulics in mobile machines. IQAN communicates with the other systems in the machinery, such as diesel engines and transmission systems. IQAN master units display data from these systems and also allows 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. The IQAN software tools cover all phases of a machine's life cycle, from development through production to after sales.

**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.

Components



IQANdesign platform

An advanced expandable modular control system with software tools, IQAN Creative Studios, to add modules and build functionality and simulation tools.



zr 01

System Types	IQANdesign platform
CANbus Master	IQAN-MDL2, IQAN-MD3, IQAN-MC2
CANbus Modules	IQAN-XA2, IQAN-XS2, IQAN-XT2
CANbus Joysticks	IQAN-LL, IQAN-LM
Analog Joysticks	IQAN-LSL, IQAN-LST, IQAN-LF1, ICL4, ICM4
Sensors	IQAN-SP035, IQAN-SP500, IQAN SENSORS

## Stand Alone Concept



IQANdevelop

Task oriented control system with software tools to build functionality together with the Stand-alone Controls IQAN-TOC8 and IQAN-TOC2.



# Auxiliary Valves - Threaded Cartridge Valves



## Directional Control Valves



zv 40  
HY15-3501/USA/EU

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

## Proportional Control Valves



zv 41

Valve Type	Max Working Pressure (bar)	Flow Capacity (l/min)
Solenoid operated, two-way NC or NO proportional flow control valves	207	226
Solenoid operated, two-way NO, proportional pressure control valves	207	150
Solenoid operated, two-way NC throttle valves	207	20
Solenoid operated, proportional pressure reducing valves	207	40
Solenoid operated, three-way, proportional pressure control valves	207	11

# Auxiliary Valves - Threaded Cartridge Valves

## 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		0-19
Sequence valves	345	345	0-150
Unloading relief valves	240	207	0-6
Logic elements	250	250	0-19
Thermal relief	250	250	0-30

## Flow 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	600	25-550	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

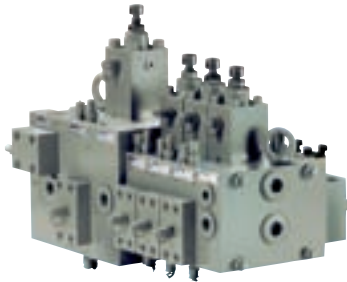
Valve Type	Max Working Pressure bar	Flow Capacity l/min
Stackable, 2-position, 4-way, solenoid operated, circuit selector control valves	210	40
Pressure reducer valve	250	25
Sequence valve	250	25
Shuttle valve	250	20

# Hydraulic Manifold Blocks



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 Hydraulic Cartridge Systems Europe Division offers value-added services such as manifold design using 3D CAD and CAM software, application engineering assistance and assembly and testing capabilities.

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.

## SAE Flange Valves



SAE flange connections are the standard in hydraulic systems. In many cases there is a huge advantage to mount components such as pressure relief valves or check valves directly on the outlet flange of pumps or the inlet flange of actuators. Additionally the Parker flange-mounted product range offers the possibility to build complete functions or systems with standard components. Pressure, flow, check and directional seat valves with SAE flange:

- Compact and space-saving solutions
- Leakage prevention
- Easy mounting and reduced piping
- Modular concept of control units
- All hydraulic standard functions can be achieved



zv 22



zv 23

# Cylinders / Actuators

Multi-stage, Double-acting Telescopic with Mechanical Plunger and Load Holding Valve



Multi-stage, Single-acting Telescopic



MWA/MWB & HC20 Single Stage Cylinder



Double-sided Steering Cylinder



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.

- 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



zc 01, zc 03

Cylinder	Cyl. Bore Ø mm	Pressure bar	Max Stroke mm	Load Holding Valves	Optional Seal Types	Position Switches	Customized Variants
MWA	50-200	250	4000	X	V	X	X
MWB	32-200	160	4000	X	X	X	X
HC20	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



# Accumulators - Piston, Bladder and Diaphragm

## A & ACP Series Piston Accumulators



- Standard capacities from 0.08 to 76 litres
- 250 bar and 350 bar maximum 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 maximum 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 07

## Accumulator Charging Kit and Mounting Accessories



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



za 01

# Filtration

## 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.

- 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

### Low Pressure



Model	Max Flow Rate (l/min)	Max Pressure (bar)	Mounting Style
Suction Return	250	10	Tank Top
ETF 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



Model	Max. Flow Rate (l/min)	Max Pressure (bar)	Mounting Style
CN Series	660	70	Inline
45 Series	250	40	Inline
130 '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 1,000 l/min at 414 bar



Model	Max Flow Rate (l/min)	Max Pressure (bar)	Mounting Style
100 P Series	1000	414	Inline
8 Series	520	414	Inline
70 Series	450	420	Inline
15P/30P Series	200	207	Inline



# Filtration

## 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 – 10MFP 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 20,000 competitive inter-change listings help consolidate vendor base by allowing users to acquire all replacement elements from one source. Check out our online selector at [www.parker.com/parfit](http://www.parker.com/parfit)
- Provides proven Parker performance in competitive filter housings

[www.parker.com/hfde](http://www.parker.com/hfde)



# Fluid Analysis

## LaserCM – Portable Particle Counter



There are many reasons why the 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

## Moisture Sensor Group



- Continuous, online moisture indication for hydraulic and lube systems
- A compact, real time solution to water contamination monitoring.
- MS150 - 10 bar max. reporting of % relative humidity of water content.
- MS200 - Programmable outputs provide user flexibility for this option.
- MS300 - Programmable and ATEX certification for this intrinsically safe model offers fast, reliable and accurate detection of moisture in fluids for use in hazardous areas.



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

# Fluid Analysis / Brake and 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



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.

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



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

# Compact Hydraulics - Oildyne

## 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



zs 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.

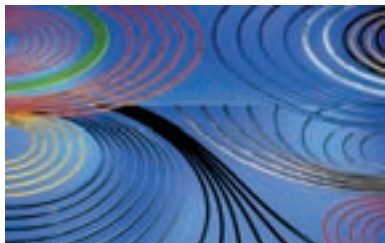


zfc 03

Catalogue 4460 and 4467 (PTA/PTB)

## Polyflex 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

# Hydraulic Fittings

## EO-Plus, EO2-Plus, EO2 Form

EO-PLUS



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.

EO2-PLUS



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

EO2-FORM



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.



zfc 05  
Catalogue 4100-8

## 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.



zfc 08  
Catalogue 4100-8

## Triple-Lok Fittings



Triple-Lok fittings are rated up to 500 bar nominal pressure with 4x design factor. The robust adjustable port connections eliminates potential assembly errors. All fittings are with Cr(VI)-free surface and achieve a corrosion resistance of 120 hours to first white rust, exceeding industry standards. Triple-Lok fittings offer the broadest range of sizes and configurations of any fitting.



zfc 07  
Catalogue 4100-8

# 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)



zfc 09  
Catalogue 0093

## 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.



zfc 10  
CD3530-2/UK

## Metrolok

Medium Pressure Brass Tube Fittings



Metrolok 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. Metrolok 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.

(depending on tube size)

Working temperature: -60 °C to +190 °C.



zfc 11  
Catalogue 0093

# 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

# Quick Couplings

## Middle Pressure – TEMA Multi Line™



TEMA MULTI-LINE® coupling systems can be used for a wide variety of applications and open up huge potential in handling and efficiency. Developed by our Swedish design engineers, they have been tested under extreme conditions, for practical suitability in numerous applications. The systems are completely compliant with the high function, safety and durability demands of industrial users as well as being an efficient alternative to individual systems in the mobile hydraulics.

C-Line Compact for mobile hydraulics.

C-Line Standard for mobile hydraulics with up to four connections.

I-Line Industry for industrial mechanical engineering.

Max. pressure range: 350 bar.

Equipped with: Pressure eliminator and FlatFace couplings.

Connections: 3/8", 1/2" or 3/4".

C-Line multi plates are provided with protective cap and support plate as standard. Optional assembly brackets are available.

## 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, NPTE, NPSE, UNE.

Rated pressure: up to 280 bar.



zfc 27  
Catalogue 3800

## Parflange® 1050



The Parflange® 1050 is an orbital 37° flaring and 180° flanging machine. By using the patented Parflange® process, it achieves an excellent sealing surface and a high-strength tube connection.

It represents a complete tube forming WorkCenter. For professional mass production of O-Lok® connections, the Parflange® 1050 PRO can be ordered with an automatic sleeve feeder.

The Parflange® 1050 BASIC is ideal workshop use and project work, the 1050 PRO is ideal for professional mass production.

180° flanging of: O-Lok®

37° flaring of.: Triple-Lok®

Assembly method: Orbital flaring

Tube O.D.: 6–50 mm

Total cycle time: 15–20 sec.

Economic production quantity: max. 500 assemblies per day

Quantity with sleeve feeder: max. 1200 assemblies per day

Dimensions (L x W x H): 700 x 840 x 1035 mm.

Weight: 380 kg.

Power supply: 400 V, 3-phase, 50 hz, 4,5 KW.



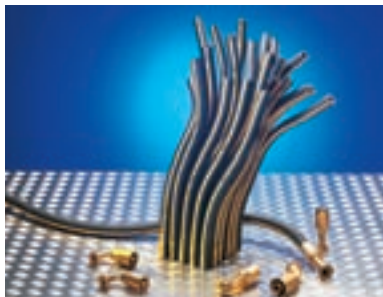
zfc 28  
Catalogue 4100-8





# Rubber Hoses

## Multispiral Hoses *No-Skive*



The Multispiral No-Skive hose range contains all 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 No-Skive Compact hose types:

371LT - (3 wire braid Low Temperature Compact hose with 4SP working pressures).

372 and 372TC - (3 wire braid Compact hose with 4SP working pressures).

372RH - (with fire-retardant cover).

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



# Rubber Hoses

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



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

- Elite Compact hoses exceeding EN specifications
- No-Skive hoses according to specifications: EN 853, SAE 100 R1AT, SAE 100 R2AT and SAE 100 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 1 & 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 16  
Catalogue 4400-UK

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



This range of hoses is 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 pressures: up to 210 bar.

Temperature range: -40 °C to +80 °C.

Dimensions: size -4 to -10.

Pretension: 3-5 %.



zfc 20  
Catalogue 4400-UK

# Rubber Hoses

## Push-Lok Hoses

(Low Pressure Self-grip Hose and Fitting System)



For the following good reasons Parker Hannifin is worldwide 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.



zfc 16  
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 No-Skive 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



# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sup>2</sup> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



# Notes

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# DVD Information

## System Requirements

To view the DVD, the following are required:

- Pentium®-class processor
- Win® XP
- 128 MB of RAM (512 MB recommended)
- 335 MB of available hard-disk space if Acrobat Reader need to be installed.

## Acrobat Reader

Catalogue files are viewed using a customized document viewer based on Adobe Acrobat Reader. If you do not have Acrobat Reader 8.0 installed on your PC, you will be given the option to install Acrobat Reader 8.0 from the DVD.

## To View the DVD

The document viewer application will launch, and the opening page will appear on your monitor. If the application don't start when you have inserted the disc, right-click on the DVD icon in the Explorer view and select Explore. Double click on start.bat. From this page you can navigate in to the different sections of the DVD.

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Using the DVD search codes provided in this catalogue will take you directly to the section for that product or to a page to select different languages of that product.

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# DVD Catalogue



## **WARNING — USER RESPONSIBILITY**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

## **Offer of Sale**

Please contact your Parker representation for a detailed 'Offer of Sale'.

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