Hydraulic Valve Solutions
For Mobile & Truck Applications
Product depth and application expertise contribute to our success. We are the only manufacturer offering customers a choice of hydraulic, pneumatic, electromechanical, or computer motion control. We also maintain the industry’s largest distributor network, with thousands worldwide. And we manufacture where we sell, with factories strategically located on five continents.

Parker Hannifin Corporation

Parker Hannifin, a Fortune 300 company with sales of $8 billion and over 400,000 customers in 46 countries, is the world’s leading supplier of motion control components and system solutions serving the mobile, industrial, and aerospace space markets.

Parker’s engineers and field sales teams are knowledgeable experts with years of experience in analyzing, evaluating, and building mobile solutions using our comprehensive line of mobile hydraulic valves. Serving our customers encourages everyone associated with Parker to develop innovative solutions to meet your unique needs.

Mobile Hydraulic Valves

Parker is your single source for mobile hydraulic valves. Our foundation of excellence is built on an extensive product line and in-depth knowledge of the construction, aerial work platform, refuse, forestry, material handling, truck, salt and sand, mining, and agriculture markets.

Introduction

Series VP170 Directional Control Valves

IQAN Mobile Electronics

Directional Control Valves

Open-Center

Load-Sense Pre and Post Compensated

Remote Control Systems

Manifold Mounted Valves

Directional Control Valves

Manapak Sandwich Valves

Proportional Directional Control Valves

Mobile Accessories

In-Line Mounted Valves

Check Valves

Flow Control Valves

Ball Valves

Action Directory

Sales Offices

CD Catalog

Use the CD search codes provided in this catalog to go directly to the section for that product.

Use the web addresses provided with each product to go directly to that product or series on the Parker website.

© Copyright 2005, Parker Hannifin Corporation. All rights reserved.
Breadth of Line

Parker is your single source for any hydraulic valve requirement. We provide a wide selection of open-center and load-sense directional control valves for any construction, off-highway, or on-highway application. Many of our open-center valves can be adapted and used as closed-center, constant-pressure, and constant-pressure unloaded valves. Each of these technologies offers unique features for improved machine performance over traditional, open-center control valves.

When remote control is required, Parker provides a broad line of pilot controllers that are compact and pressure-matched with our control valves to provide consistent and optimized machine control. There are a variety of electric-switch handle options available for additional function control by the operator.

Parker’s premier IQAN electronics packages range from simple stand-alone controllers to large, multiple CAN bus systems with color displays. For example, IQAN interfaces with new electronic diesel engines over the SAE J1939 CAN bus.

Package components are designed and tested for mobile applications to help increase machine uptime. The IQAN valve drivers offer superior control of proportional hydraulic functions for increased machine productivity. Non-programmers find IQAN’s programming interface easy to use, reducing development time. Furthermore, excellent diagnostic tools and remote modem connection help cut field service time.

Total Machine Motion Control

You can turn to us for all your mobile motion control solutions. We offer stand-alone valves, as well as custom-designed manifolds with integrated directional control valves.

No matter what type of system you choose, Parker solutions provide top-notch performance and reliability. Our systems are optimized to reduce complexity, size, cost, and fluid leakage. Therefore, working with Parker can significantly cut your machine-build time.

State-of-the-Art Manufacturing

Parker is committed to using lean manufacturing to eliminate waste while streamlining processes. Lean technology helps us meet customer request dates quickly and cost-effectively. We also rely on state-of-the-art equipment and technology, such as computer-aided machining, to ensure product quality.

We regularly invest in our ISO 9001 certified manufacturing facilities because we are committed to meeting all international standards for safety and quality. The hydraulic valves we manufacture comply with relevant ISO, CSA, CE, and AMEX standards.

In addition, Parker hydraulic valves and valve manifolds are fully tested and certified before being released to the customer. You can expect Parker hydraulic valves to work the first time, every time.
**Premier Customer Service**

**Global Reach**

Parker’s worldwide network of field sales engineers and Mobile Systems Engineers (MSEs) are the best in the business. A field sales engineer works with you for the long haul, acting as a single point of contact to evaluate applications and design solutions. MSEs support field sales efforts by managing difficult design problems and complex circuit design.

You also benefit from Parker Mobile Technology Centers (MTCs) that are staffed by specially trained distributors who provide only the highest levels of customer service. These one-stop shops offer complete hydraulic systems design for mobile applications, as well as technology services such as diagnostics, troubleshooting, computer design, testing, and integration of electronic controls.

Finally, our thousands of dependable distributors are strategically located in your markets. They carry inventory to meet specific, local market needs, and they ensure that products arrive when and where they are needed. You can count on Parker distributors to minimize downtime.
One-Click Access
This product solution guide features Parker’s “ZIP” URLs. Simply enter the short URL located above the product photo into the Web browser’s search field to go to the product on our Website, www.parker.com/XXXX. The Website offers you the latest product and technical information related to our valves, controllers, circuitry, spool positioners, and port accessories.

The accompanying CD contains a full line of sales materials for individual products that can be searched in Adobe Acrobat. Just type the product code printed next to the CD icon into Acrobat’s search field to find the relevant product bulletins, catalogs, and service literature.

Training Excellence
Parker’s world-class training for hydraulic technology includes comprehensive hands-on classes and computer training that fully prepare our customers and distributors to install and maintain even the most complex Parker hydraulic valves and systems. In addition, our MTCs are partners in the training process, teaching customers how to specify and maintain Parker hydraulic valves and systems.

Moreover, hundreds of North American colleges and universities use Parker textbooks in motion and control courses. Parker provides instructor guides, computer-based training discs, digital overheads on CD, final exams, drafting and simulation software, lab manuals, and trainer stands.

Find out more about Parker training by calling 216-896-2495 or by visiting us at www.parker.com/training.

Three-Year Warranty
Parker extends its standard limited warranty to 36 months on all hydraulic valves used in properly installed and maintained systems supplied by the company and/or its authorized distributors. Contact your local Parker representative for details.

For Single Source Dependability
Count on Parker. As the world leader in Motion Control, we provide the best value for the design and manufacture of innovative hydraulic system solutions. When it comes to our customers, we truly believe that anything’s possible.
Series VP170 directional control valve was designed with machine productivity, horsepower utilization, and reliability in mind. These benefits are instrumental drivers in today’s machine design, as the market “raises the bar” on expected value.

Listed below are crucial features incorporated into Series VP170 to increase value to the machine designer:

- Individual pressure compensation in each work section provides predictable simultaneous metering that improves productivity and reduces operator fatigue.
- Pump over-demand conditions are handled by flow-sharing technology that uses spool notch openings to apportion available flow. As a result, the selected functions maintain their speed relationship, but at a slower overall speed.
- Automatic adjusting by the valve improves machine productivity and might enable the sizing of a smaller engine.
- Optional, induced load protection enhances operator control.
- Improved system efficiency of load-sense, pressure-compensated valves alleviates the horsepower distribution concerns associated with Tier 2 and Tier 3 engines.
- Wide flow range offers application potential on small and midsize mobile equipment.
- Unique, low-pressure regeneration feature combats cavitation, which can damage hydraulic components. It also deals with the “sponginess” associated with cavitation in hydraulic systems.
- Dual, load-sense check arrangement option improves system responsiveness and productivity.
- Unique design of the 4-way, 4-position, and float work section enables a work port to draw oil as it returns from the other side of the cylinder as well as from the tank cores. This feature further reduces cavitation and the system problems associated with it.
- All load-sense checks are located on top of the valve, making it a “service friendly” design that reduces potential machine downtime.

The customer benefits of the extensive use of Pro/ENGINEER® 3D modeling and finite element analysis (FEA) in this design are reduced development time and costs, and improved reliability – decidedly more value.

Parker

Series VP170 is an excellent choice for application in all mobile markets we serve. However, it is specifically targeted for the following machines:

- Wheel loaders and bulldozers
- Cranes
- Log loaders, feller-bunchers, skidders, and forwarders
- Refuse collection vehicles
- Salt and sand trucks

Specifications:

- Maximum operating pressure – 345 Bar (5000 PSI)
- Maximum pump input flows – 227 LPM (60 GPM)
- Work section flows – 189 LPM (50 GPM)
- Spool flow ranges – 30 to 189 LPM (8 to 50 GPM)
- Sectional construction
- ISO 18/14
**Rugged Hardware**

The wide range of outdoor modules with flexible I/O available with IQAN ensures complete machine management. The system offers a building-block approach that simplifies component design and installation and reduces development time and expense.

IQAN hardware is tested for robust operation and compatibility with mobile hydraulic equipment. In addition, it meets industry and government standards for operation in severe conditions that include extremely high or low temperatures, vibrations, mechanical impact, and electromagnetic interference.

**Electronic Control**

The state-of-the-art IQAN system is a unique, totally electronic approach that replaces mechanical and electro-mechanical systems for controlling and monitoring hydraulics in mobile machines. With Parker’s IQAN you have complete freedom to design customized software without advanced programming skills. The functions available within the IQAN system are so flexible that sophisticated applications are quickly programmed and optimized.
Simple Software
IQANdesign and IQANdevelop offer system designers a complete set of tools for building competitive features and functionality into their hydraulic machine controls.

IQANdesign and IQANdevelop are high-level graphical software tools that simplify application design and dramatically reduce development time by allowing the machine designer to program IQAN.

IQANdesign programs the latest IQAN controller, the MDL master module. The software features an advanced display programming tool with drag-and-drop functionality and an integrated application simulator.

IQANdevelop programs the MDM master module as well as our TOC standalone controllers.

Mobility
Rapidly develop complex functionality for your mobile machinery using IQAN software platforms -- the best tools for the job.

Simplicity
IQAN’s graphical programming language and diagnostic tools allow for rapid application development without any specialized knowledge or expertise.
Time to Market
Application simulation allows your machine’s functionality to be checked while at the safety and comfort of your desk. This speeds development time and reduces costs.

Machine Management
IQAN diagnostic tools reduce field service time and costs. Remote capabilities allow specialized diagnostics to be done away from the machine.

<table>
<thead>
<tr>
<th>System Types</th>
<th>IQANdevelop platform</th>
<th>IQANdesign platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANbus masters</td>
<td>IQAN-MDM</td>
<td>IQAN-MDL</td>
</tr>
<tr>
<td>CANbus modules</td>
<td>IQAN-XP, IQAN-XS, IQAN-XP2, IQAN-XT2</td>
<td>IQAN-XA2, IQAN-XS2, IQAN-XT2</td>
</tr>
<tr>
<td>CANbus joysticks</td>
<td>IQAN-LL, IQAN-LM</td>
<td>IQAN-LL, IQAN-LM</td>
</tr>
<tr>
<td>Standalone controls</td>
<td>IQAN-TOC8, IQAN-TOC2</td>
<td></td>
</tr>
<tr>
<td>Analog joysticks</td>
<td>IQAN-LSL, IQAN-LST, IQAN-LF1, ICL4, ICM4</td>
<td></td>
</tr>
<tr>
<td>Sensors</td>
<td>IQAN-SP035, IQAN-SP500</td>
<td></td>
</tr>
</tbody>
</table>
Flexible Valves Offer Superior Operation

Parker offers a wide range of open-center directional control valves for mobile markets that also can be used as closed-center, constant-pressure, and constant-pressure unloaded valves. Each valve technology offers unique features for improved machine performance and cost.

Parker also provides machine designers with a broad choice of circuitries, spool positioners, and port accessories within each valve model. Field-proven differential area and pilot-operated relief valves also are available.

Parker’s valve models come with a wide selection of special metering spools designed to optimize machine control and enhance operator comfort. Our market experience in machine control will direct you to the right solution.

A full line of pilot controllers with spring packs matched to our remote-actuated directional control valves ensures predictable and reliable machine performance. For electrohydraulic operation, all of our valves are designed to interface with our IQAN electronics package.

Series BV18
- Complete system solution with optimized functions
- Minimal heat build-up because of low pressure drop
- Four land spools for smooth shifting
- One-piece coils for ease of maintenance
www.parker.com/hyd/bv18

Series BV06
- Complete system solution with optimized functions
- High back pressure; all ports withstand maximum working pressure
- High flow capacity with reduced space requirements
- One-piece coils for ease of maintenance
www.parker.com/hyd/bv06

Series MV3
- Superior versatility
- Excellent metering characteristics
- Beyond-power feature
- Both open and closed-center configurations
www.parker.com/hyd/mv3

Series P70CF, P70CP
- Compact modular open-center valve
- Adaptable to most systems including closed-center systems
- Multi-pump capability using mid-inlet
- 5000 PSI capability for future system upgrades
- Systems solutions with built-in safety features such as spool position monitoring
www.parker.com/hyd/p70

Series MD06
- Compact for easy mounting
- Complete system solution with optimized functions
- A range of spool configurations to be applied in various applications
- 12 and 24 VDC coils fit most mobile applications
www.parker.com/hyd/md06
**Series VA20, VG20**
- Exceptional size to pressure drop ratio
- .41" spool stroke – industry leader; provides outstanding feathering control
- Stackable circuit flexibility via parallel, series, or tandem combinations
- Differential main relief’s – quick response and low pressure rise
- Low cost VA iron option for medium duty applications

**Series V20**
- Most recognizable and versatile valve in the mobile market
- Stackable circuit flexibility via parallel, series, or tandem combinations
- .31" spool stroke – industry leader; outstanding feathering control
- SAE-12 work port option is the largest for this size valve in the market

**Series VA35, VG35**
- Exceptional size to pressure drop ratio
- .47" spool stroke – industry leader; outstanding feathering control
- Electrohydraulic operation now available
- Differential main relief’s – quick response and low pressure rise
- Low cost VA iron option for medium duty applications

**Series V70, V90**
- Stackable circuit flexibility via parallel or tandem combinations
- SAE 4-Bolt, split flange or SAE straight thread porting
- Manual, HR, and electrohydraulic operation
- Largest stack valve in the mobile market

**Series V10**
- Stackable circuit flexibility via parallel or tandem combinations
- Compact size
- Enclosed handles
- Standard high or low flow spools
- Dual-function mechanical joysticks

---

**Directional Control Valves Open-Center**

<table>
<thead>
<tr>
<th>Series</th>
<th>Max Input Flow LPM (GPM)</th>
<th>Max Work Flow LPM (GPM)</th>
<th>Max Pressure PSI</th>
<th>Max Pressure Bar</th>
<th>Open Center</th>
<th>Closed Center</th>
<th>Constant Pressure</th>
<th>Constant Pressure Unloaded</th>
<th>Load Sense</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV3</td>
<td>30 (8)</td>
<td>30 (8)</td>
<td>3000</td>
<td>207</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BV06-solenoid only</td>
<td>38 (10)</td>
<td>38 (10)</td>
<td>3000</td>
<td>207</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V10</td>
<td>57 (15)</td>
<td>57 (15)</td>
<td>3500</td>
<td>240</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BV18</td>
<td>76 (20)</td>
<td>76 (20)</td>
<td>3500</td>
<td>241</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P70CF, P70CP</td>
<td>76 (20)</td>
<td>76 (20)</td>
<td>4600</td>
<td>315</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MD06-solenoid only</td>
<td>95 (25)</td>
<td>95 (25)</td>
<td>3500</td>
<td>240</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>V20</td>
<td>95 (25)</td>
<td>95 (25)</td>
<td>3500</td>
<td>207</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA20</td>
<td>170 (45)</td>
<td>170 (45)</td>
<td>2500</td>
<td>172</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>VG20</td>
<td>246 (65)</td>
<td>246 (65)</td>
<td>2500</td>
<td>172</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>VA35, VG35</td>
<td>246 (65)</td>
<td>246 (65)</td>
<td>2500</td>
<td>172</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>V70, V90</td>
<td>379 (100)</td>
<td>379 (100)</td>
<td>3500</td>
<td>240</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Pre & Post Compensated

Parker’s range of load-sensing control valves includes three models of load-sense only valves, five models of pre-compensated valves, and three models of post-compensated valves. All of our load-sense control valves offer improved machine control and efficiency. Market demands for improved productivity and reduced horsepower consumption make all of these control valves excellent candidates for your machines.

Pre-compensated valves use traditional technology for load-sense pressure-compensation, and can limit pressure on selected work ports without flow loss. Post-compensated valves share flow during pump over-demand conditions.

All models have a full line of manual, hydraulic pilot, and electrohydraulic spool positioners. Additionally, a wide variety of special metering spools are available to maximize machine control or to limit the speed of a function.

A full line of pilot controllers with spring packs matched to our remote-actuated directional control valves ensures predictable and reliable machine performance. For electrohydraulic operation, all of our valves are designed to interface with our IQAN electronics package.

Series V20LS
- Most recognizable and versatile valve in the mobile market
- Stackable circuit flexibility via parallel, series, or tandem combinations
- .31” spool stroke – industry leader; provides outstanding feathering control
- SAE-12 work port option is the largest for this size valve in the market
  www.parker.com/hyd/v20

Series PC25, PC55
- Flow-sharing during pump over-demand: maintains machine speed relationships and productivity
- Full flow compensator efficiency
- Induced load protection from function pressure intensification
- 4-position float and 3-position regeneration available
- By-pass inlet unloader available for fixed displacement pumps

Series VG80LS
- High flow load-sense only circuitry
- Priority to upstream sections
- Low pressure regeneration
- Pilot operation only
- 3-position & 4-position float

Series V86
- High flow, pressure compensation unique in the marketplace
- Flow-sharing during pump over-demand: maintains machine speed relationship & productivity
- By-pass inlet unloader available for fixed displacement pumps
- Electrohydraulic operation available
  www.parker.com/hyd/v86

Series M200LS, M400LS
- 240 GPM pump flow capacity
- Unique zero leak work port solution
- Load-sensing for energy savings
- Function adapted spools
- Priority function
  www.parker.com/hyd/m200ls
  www.parker.com/hyd/m400ls

Series VPL
- Electric, hydraulic and manual control
- Unique digital pilot
- Flexible in design to reduce inventory
- I/S & XP solenoids for hazardous environments
  www.parker.com/hyd/vpl
**Series VP170**
- Individual pressure compensation in each work section
- Pump over-demand conditions handled by flow-sharing technology
- Optional induced load protection enhances operator control
- Wide flow range
- Unique, low-pressure regeneration feature combats cavitations
- Dual, load-sense check arrangement options
- Unique design of the 4-way, 4-position and float work section
- Service friendly design with load-sense checks located on top of the valve

**Series L90LS**
- Load-sensing and pressure-compensated valve
- Adaptable to most systems
- Complete spool control offering
- Precise LS pressure control on each work port
- Compact package with highly efficient total system solution
- Pre-compensated, flow-sharing feature for saturated pump flow

**Series K170LS**
- Load-sensing and pressure-compensated valve
- Adaptable to most systems
- High flow density in a small package
- Precise LS pressure control on each work port
- Spool offering for any functionality

**Series K220LS**
- Load-sensing and pressure-compensated valve
- Adaptable to most systems
- Spool offering for any functionality
- Precise LS pressure control on each work port
- Pre-compensated, flow-sharing feature for saturated pump flow

**Series VP, VPO**
- Electric, hydraulic and manual control
- Unique digital pilot
- Flexible in design to reduce inventory
- I/S and XP solenoids for hazardous environments

---

<table>
<thead>
<tr>
<th>Series</th>
<th>Max Input Flow LPM (GPM)</th>
<th>Max Port Flow LPM (GPM)</th>
<th>Max Pressure PSI</th>
<th>Max Pressure Bar</th>
<th>Load Sense</th>
<th>Load Sense Post-Pressure Compensated</th>
<th>Load Sense Pre-Pressure Compensated</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20LS</td>
<td>114 (30)</td>
<td>114 (30)</td>
<td>3500</td>
<td>240</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VG80LS</td>
<td>454 (120)</td>
<td>379 (100)</td>
<td>3500</td>
<td>240</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M200LS, M400LS</td>
<td>901 (238)</td>
<td>454 (120)</td>
<td>4000</td>
<td>275</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC25</td>
<td>227 (60)</td>
<td>170 (45)</td>
<td>4000</td>
<td>275</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC55</td>
<td>284 (75)</td>
<td>246 (65)</td>
<td>4000</td>
<td>275</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VP170 - New Late 2005</td>
<td>227 (60)</td>
<td>170 (45)</td>
<td>5000</td>
<td>345</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V86</td>
<td>416 (110)</td>
<td>341 (90)</td>
<td>3500</td>
<td>240</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VPL</td>
<td>189 (50)</td>
<td>114 (30)</td>
<td>5000</td>
<td>345</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VP, VPO</td>
<td>379 (100)</td>
<td>208 (55)</td>
<td>4000</td>
<td>275</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L90LS</td>
<td>151 (40)</td>
<td>91 (24)</td>
<td>4600</td>
<td>315</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K170LS</td>
<td>284 (75)</td>
<td>170 (45)</td>
<td>3800</td>
<td>262</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K220LS</td>
<td>379 (100)</td>
<td>220 (58)</td>
<td>5000</td>
<td>345</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Remote Control Systems

**PCL4**

The PCL4 is a hydraulic pilot system for the proportional remote control of directional valves, pumps, motors, etc. It is available with coordinate 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.

All connection ports can be obtained with "G ¼", M14x1.5 or ¾" UNF connection threads. The coordinate valve is available in a version with all connections in the base plate. Up to 6 linear units can be built together in a block.

**VP04**

The VP04 is a pneumatic pilot valve for the proportional remote control of directional valves, positioning cylinders, etc. Either linear or coordinate-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. The signal ports can be obtained for 6 mm or ¼" O.D. hoses. The primary ports and tank ports are available in 6 mm, 8 mm, ¾" or ¾" I.D.

---

**Series PCL4**

- Precision control at your finger tips
- Ergonomic grips for operator comfort
- Top serviceable without removing the base casting
- Long service life from years of application experience
- Cast iron housing for low friction between control spool and valve body

www.parker.com/hyd/pcl4

<table>
<thead>
<tr>
<th>System Type</th>
<th>Hydraulic Pilot Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control pressure range</td>
<td>1–69 Bar (14–1000 PSI)</td>
</tr>
<tr>
<td>Control flow</td>
<td>Max 4 LPM (1 gPM)</td>
</tr>
<tr>
<td>Individual control characteristics for each direction</td>
<td>X</td>
</tr>
<tr>
<td>Selectable start and final pressures</td>
<td>X</td>
</tr>
<tr>
<td>Selectable lever force</td>
<td>X</td>
</tr>
<tr>
<td>Curves with straight characteristics</td>
<td>X</td>
</tr>
<tr>
<td>Curves with two-step characteristics</td>
<td>X</td>
</tr>
<tr>
<td>Curves with forced opening (final step)</td>
<td>X</td>
</tr>
<tr>
<td>Friction brake for retention in any position</td>
<td>X</td>
</tr>
<tr>
<td>Mechanical or electromagnetic end-position detent</td>
<td>X</td>
</tr>
</tbody>
</table>

**Series VP04**

- Precision control at your finger tips
- Ergonomic grips for operator comfort
- Long service life from years of application experience
- Industry standard for pneumatic remote control
- Long life due to rugged universal joint design

www.parker.com/hyd/vp04

<table>
<thead>
<tr>
<th>System Type</th>
<th>Pneumatic Pilot Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control pressure range</td>
<td>0–8 Bar (0–115 PSI)</td>
</tr>
<tr>
<td>Control flow</td>
<td>Max 7 Nl/s (14.8 cfm)</td>
</tr>
<tr>
<td>Control curves with straight characteristics</td>
<td>X</td>
</tr>
<tr>
<td>Mechanical end-position detent</td>
<td>X</td>
</tr>
</tbody>
</table>
Directional Control Valves

Parker offers industry’s largest selection of manifold mounted directional control valves. Our industrial markets include machine tools, power generation, metal forming, compacting and bailing, materials testing, ground support, and primary metals processing.

Parker provides solenoid controlled as well as manually operated valves controlled by levers, cams, air or oil pilot. Our valves are some of industry’s most adaptable, with a large number of coil termination options available.

Valve options include 21 standard spool configurations that meet a range of application specifications. For example, the soft shift and decompression features of our V-Notch spool reduces shock by slowing the spool shift time. We offer UL/CSA-recognized and ATEX-certified valves, as well as IP67-rated coils.

### Series D1V, D3W
- High performance, direct operated
- 4-chamber, 3 or 4-way, 2 or 3-position (cam controlled 2-position only)
- Solenoid, cam, lever, air or oil pilot controlled

### Series D31V, D61V, D81V, D101V
- High performance, solenoid controlled, pilot operated
- 5-chamber, 2-stage, 4-way valves, 2 or 3-position
- Rugged four land spools
- Solenoid, lever, air or oil pilot controlled

<table>
<thead>
<tr>
<th>Series</th>
<th>D1V</th>
<th>D3W</th>
<th>D31V</th>
<th>D61V</th>
<th>D81V</th>
<th>D101V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum flow* (LPM) (GPM)</td>
<td>83 22</td>
<td>150 40</td>
<td>175 45</td>
<td>390 100</td>
<td>622 180</td>
<td>946 250</td>
</tr>
<tr>
<td>Max operating pressure (Bar) (PSI)</td>
<td>345 5000</td>
<td>345 5000</td>
<td>345 5000</td>
<td>207 3000</td>
<td>345 5000</td>
<td>207 3000</td>
</tr>
<tr>
<td>Mounting style (NFPA) (CETOP) (NG)</td>
<td>D03 3</td>
<td>D05 5</td>
<td>D05H 5H</td>
<td>D08 8</td>
<td>D08 8</td>
<td>D10 10</td>
</tr>
</tbody>
</table>

*Depending on spool

www.parker.com/hyd/dcv
Manapak Sandwich Valves
Manapak sandwich valves are auxiliary type valves that provide check, flow control, pressure reducing and relief functions in a convenient package. These “sandwich” type valves are meant to be mounted between the directional control valve and the subplate, or the main valve of a pilot operated style valve.

All bodies and hardened internal components are made from steel to assure strength and durability. A full range of options include cracking pressure, knob adjustments and pressure ranges.

<table>
<thead>
<tr>
<th>Series</th>
<th>CM</th>
<th>CPOM</th>
<th>FM</th>
<th>PRDM</th>
<th>PRM</th>
<th>RM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Check</td>
<td>P.O. Check</td>
<td>Flow control</td>
<td>Direct operating pressure reducing</td>
<td>Pressure reducing</td>
<td>Pressure relief</td>
</tr>
<tr>
<td>Maximum flow LPM (GPM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D03 Mounting, Size 2</td>
<td>76 (20)</td>
<td>53 (14)</td>
<td>76 (20)</td>
<td>151 (40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D05 Mounting, Size 3</td>
<td>113 (30)</td>
<td>76 (20)</td>
<td>113 (30)</td>
<td>303 (80)</td>
<td>64 (17)</td>
<td>53 (14)</td>
</tr>
<tr>
<td>D08 Mounting, Size 6</td>
<td>340 (90)</td>
<td>227 (60)</td>
<td>340 (90)</td>
<td>189 (50)</td>
<td>340 (90)</td>
<td></td>
</tr>
<tr>
<td>Max optional pressure: (Bar)</td>
<td>345</td>
<td>345</td>
<td>345</td>
<td>315</td>
<td>345</td>
<td>345</td>
</tr>
<tr>
<td>(PSI)</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>4560</td>
<td>5000</td>
<td>5000</td>
</tr>
</tbody>
</table>

Series CPOM
- Block leakage from the actuator ports to tank when the directional valve is in the center position
- Reverse flow is blocked
- CM2 and CM3 offer a combined P and T version

Series PRM
- Used to regulate pressure in one area of a circuit below normal system pressure. The Manapak style valve is well suited for this function as it mounts directly below the directional control valve.

Series FM
- Permit free flow from the directional valve to the actuator
- Adjustable independent flow regulation in each return line from the actuator (meter-out)
- FM2 and FM3 can be inverted for meter-in applications

Series PRDM
- Used to regulate pressure in one area of a hydraulic circuit at a predetermined level below normal system pressure
- An integral pressure relieving function for the secondary reduced pressure circuit is incorporated into the design

www.parker.com/hyd/manapak
Proportional Directional Control Valves

Proportional Valves
Parker proportional valves employ powerful voice-coil valve technology, which allows higher flows from smaller valves. Our valves offer extremely high response up to 300 Hz, and are offered with or without on-board control electronics. Three performance levels are provided:

- Economical standard performance valves are suitable for automotive, marine equipment, and metal fabrication applications, offering open-loop controlling velocity.
- Medium performance valves employ spool feedback and use both open and closed-loop control in applications such as material feeding and edge grinding.
- Applications requiring pressure and force control, as well as closed-loop control for tight positioning, all for Parker’s high-performance valves.

Mobile Accessories
- Flow controls, flow dividers, pilot operated check valves, relief valves, selector valves and bankable/stackable directional control valves
- Flows to 225 LPM (60 GPM)
- Pressures to 207 Bar (3000 PSI)
- Cast iron bodies

<table>
<thead>
<tr>
<th>Series</th>
<th>D1FW</th>
<th>D3FW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>Std.</td>
<td>Std.</td>
</tr>
<tr>
<td>Mounting: NG06, ISO/CETOP 3</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>NG10, ISO/CETOP 5</td>
<td>315</td>
<td>315</td>
</tr>
<tr>
<td>Max operating pressure (Bar)</td>
<td>4500</td>
<td>4500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve</th>
<th>Function</th>
<th>Pressure Flow</th>
<th>Pressure (SAE Porting)</th>
<th>Pressure (NTPF Porting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFD</td>
<td>Priority-type flow control</td>
<td>56 Liters/Min (15 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>CFD</td>
<td>P.C.: Priority-type flow control</td>
<td>56 Liters/Min (15 GPM)</td>
<td>172 Bar (2500 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>DC</td>
<td>P.C.: Priority-type flow control</td>
<td>98 Liters/Min (26 GPM)</td>
<td>241 Bar (3500 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>PD/PDC</td>
<td>Flow divider/combiner</td>
<td>75 Liters/Min (20 GPM)</td>
<td>172 Bar (2500 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>LO</td>
<td>Sgl./Dbi. pilot operated check</td>
<td>94 Liters/Min (25 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>LOA</td>
<td>Sgl./Dbi. pilot operated check</td>
<td>38 Liters/Min (10 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>WJL</td>
<td>Diff. area poppet relief</td>
<td>94 Liters/Min (25 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>RPJL</td>
<td>Pilot operated relief</td>
<td>94 Liters/Min (25 GPM)</td>
<td>345 Bar (5000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>RPL</td>
<td>P.O. poppet type relief</td>
<td>225 Liters/Min (60 GPM)</td>
<td>345 Bar (5000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>DXV</td>
<td>Ball-type crossover relief</td>
<td>38 Liters/Min (10 GPM)</td>
<td>172 Bar (2500 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>DWV</td>
<td>Diff. area crossover relief</td>
<td>113 Liters/Min (30 GPM)</td>
<td>345 Bar (5000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>HP 20</td>
<td>Hydraulic pilot pressure</td>
<td>75 Liters/Min (20 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>HP 50</td>
<td>Hydraulic pilot pressure</td>
<td>188 Liters/Min (50 GPM)</td>
<td>345 Bar (5000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>S-50</td>
<td>Manual selector</td>
<td>75 Liters/Min (20 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>S-75</td>
<td>Manual selector</td>
<td>113 Liters/Min (30 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>S-100</td>
<td>Manual selector</td>
<td>225 Liters/Min (60 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>SM</td>
<td>Manual selector</td>
<td>75 Liters/Min (20 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>HM</td>
<td>Manual selector</td>
<td>38 Liters/Min (10 GPM)</td>
<td>172 Bar (2500 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
<tr>
<td>DS12,71,75</td>
<td>Manual double selector valve</td>
<td>94 Liters/Min (25 GPM)</td>
<td>207 Bar (3000 PSI)</td>
<td>138 Bar (2000 PSI)</td>
</tr>
</tbody>
</table>

www.parker.com/hyd/d1-d3fw

www.parker.com/hyd/accessories
Check Valves

Industry’s widest selection of check valves come from Parker. Our valves are used in a virtually limitless range of applications— from air and fuel systems to load holding. Our check valves utilize a variety of media including oil, air, water, and Skydrol, and are made from materials such as aluminum, stainless steel, brass, and carbon steel. They employ economical metal seating or zero-leak seating with elastomer seals.

### Series C, VCL
- Poppet style check
- Free flow in one direction; dependable shut-off in reverse

www.parker.com/hyd/flowcb

### Series CP
- Pilot operated
- Free flow in one direction; pilot operated flow in reverse

www.parker.com/hyd/cp

### Series LT, LTF
- Operate in any position
- Restrictors available for throttle function
- Accurate control of double-acting cylinders

www.parker.com/hyd/flowcb

### Series VLS
- Protect system in event of line rupture
- Return to open position when pressure is equalized

www.parker.com/hyd/vls

### Series AVF
- Provides automatic air line rupture shut-off
- Eliminates hose whip (pneumatic service)
- Hydraulic and pneumatic service
- Limits oil spillage and potential component damage
- Adjustable closing flow

www.parker.com/hyd/flowcb

<table>
<thead>
<tr>
<th>Series</th>
<th>C</th>
<th>VCL</th>
<th>CP</th>
<th>LT, LTF</th>
<th>VLS</th>
<th>Pneu</th>
<th>AVF</th>
<th>Hyd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Check</td>
<td>Check</td>
<td>P.O. Check</td>
<td>Line Throttle</td>
<td>Velocity Fuse</td>
<td></td>
<td>Velocity Fuse</td>
<td></td>
</tr>
<tr>
<td>Max flow range (LPM)</td>
<td>11 - 569</td>
<td>23 - 189</td>
<td>30 - 95</td>
<td>2 - 341</td>
<td>0.5 - 90</td>
<td>5 - 60</td>
<td>2 - 227</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 - 150</td>
<td>5 - 50</td>
<td>8 - 25</td>
<td>0.5 - 90</td>
<td>1.5 - 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body material:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless steel</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port types/sizes:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPT</td>
<td>½&quot; - 2&quot;</td>
<td>¾&quot; - 1¼&quot;</td>
<td>¾&quot;, ¼&quot;</td>
<td>⅜&quot;, ⅜&quot;</td>
<td>⅜&quot;, ⅜&quot;</td>
<td>⅜&quot;, ⅜&quot;</td>
<td>¼&quot; - ⅜&quot;</td>
<td></td>
</tr>
<tr>
<td>SAE</td>
<td>4 thru -32</td>
<td>1⅞ - 2&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>➡️</td>
<td></td>
</tr>
<tr>
<td>BSPP</td>
<td>½&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>➡️</td>
<td></td>
</tr>
<tr>
<td>JIC</td>
<td>⅝&quot; - 1¼&quot;</td>
<td>⅝&quot; - 1¼&quot;</td>
<td>⅝&quot; - 1¼&quot;</td>
<td>⅝&quot; - 1¼&quot;</td>
<td>⅝&quot; - 1¼&quot;</td>
<td>⅝&quot; - 1¼&quot;</td>
<td>➡️</td>
<td></td>
</tr>
<tr>
<td>Max operating pressure (Bar)</td>
<td>345</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>(PSI)</td>
<td>5000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5000</td>
</tr>
</tbody>
</table>
Flow Control Valves

Parker flow control valves are industry’s most widely known brand. Our valves are used in a range of applications such as conveyors, food-processing machines and material-handling equipment. We offer a breadth of products that ensure velocity by guaranteeing consistent flow regardless of load. Flow controls come in a variety of materials including stainless steel, brass, and carbon steel.

### Flow Control Valves

- **Series F, N**
  - Parker exclusive Colorflow® scale on stem
  - Simple set screw for locking
  - Tamperproof option
  - www.parker.com/hyd/flowcb

- **Series PC*K and PC*M**
  - Pressure compensated
  - Flow precision within ±5% of regulated flow
  - Available with reverse flow check
  - www.parker.com/hyd/flowcb

- **Series MVI**
  - Installed in machined cavity of manifold
  - Choice of three needles
  - Precise metering control and full shut-off
  - www.parker.com/hyd/mvi

- **Series MV**
  - Exclusive Colorflow scale on stem
  - Provides controlled flow in both directions
  - Fine and micro-fine needles
  - Straight and right angle body styles
  - Panel mounting kit available
  - www.parker.com/hyd/flowcb

### Flow Control Valves

<table>
<thead>
<tr>
<th>Type</th>
<th>Flow</th>
<th>PC*K</th>
<th>PC*M</th>
<th>Needle</th>
<th>Cartridge Needle</th>
<th>Metering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max flow (LPM) (GPM)</td>
<td>11 - 569</td>
<td>11 - 95</td>
<td>11 - 189</td>
<td>11 - 265</td>
<td>2 - 95</td>
<td>4 - 110</td>
</tr>
<tr>
<td>Max flow (GPM)</td>
<td>3 - 150</td>
<td>3 - 25</td>
<td>3 - 50</td>
<td>3 - 70</td>
<td>.5 - 25</td>
<td>.5 - 40</td>
</tr>
<tr>
<td>Body material</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Brass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Port types/sizes</td>
<td>1/4&quot; - 2&quot;</td>
<td>1/4&quot; - 1/4&quot;</td>
<td>1/4&quot; - 1/4&quot;</td>
<td>1/4&quot; - 1/4&quot;</td>
<td>1/4&quot; - 1/4&quot;</td>
<td>1/4&quot; - 1/4&quot;</td>
</tr>
<tr>
<td>SAE</td>
<td>-6 thru -12</td>
<td>-6 thru -16</td>
<td>-4 thru -20</td>
<td>-4 thru -16</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>BSPP</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>BSPT</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>Max operating pressure (Bar) (PSI)</td>
<td>345</td>
<td>210</td>
<td>210</td>
<td>345</td>
<td>345</td>
<td>345</td>
</tr>
<tr>
<td>5000</td>
<td>3000</td>
<td>3000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td></td>
</tr>
</tbody>
</table>

---

Flow Control Valves In-Line Mounted
Ball Valves
Ball valves complete the Parker valves line-up. As with other valves, we offer a wide product line that is fully ported to provide low pressure drops. Our port configurations support a wide range of system requirements. A unique, rotating, four-bolt SAE flange design provides for easy alignment, fewer potential leaks, and lower installation costs. Our valves also employ polyamide thrust-bearing and ball-seal compounds that allow low actuation torque and high-cycle expectancy.

Series BVHP, BVAH, BVHH
- Threaded and flange connections
- Low pressure drop
- Design minimizes torque needed to open and close the valve
- Options include locking handles, panel mounting, limit switches and high temperature seals

Series BVAM, V500CS, V502SS
- Cost effective solution when high pressure is not required
- Port sizes up to 4 inches
- Design minimizes torque needed to open and close the valve

Series BV3D, BV3H, BV4H
- A variety of ball patterns allow different flow paths
- Options include locking handles, panel mounting, limit switches and high temperature seals

Series BVAL, V500P, V590P
- PTFE seals are compatible with a wide range of media
- Can be used in pneumatic applications
- Locking handles, panel mounting and limit switches are available

<table>
<thead>
<tr>
<th>Series</th>
<th>Function</th>
<th>Pressure Bar (PSI)</th>
<th>Port Sizes</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVHP</td>
<td>2-Way</td>
<td>414 (6000)</td>
<td>¼&quot; - 1&quot;</td>
<td>Steel or Stainless Steel</td>
</tr>
<tr>
<td>BVAH</td>
<td>2-Way</td>
<td>414 (6000)</td>
<td>1½&quot; - 2&quot;</td>
<td>Steel or Stainless Steel</td>
</tr>
<tr>
<td>BVHH</td>
<td>2-Way</td>
<td>689 (10,000)</td>
<td>½&quot; - 2&quot;</td>
<td>Steel or Stainless Steel</td>
</tr>
<tr>
<td>BV3H/BV4H</td>
<td>3 &amp; 4-Way</td>
<td>414 (6000)</td>
<td>¼&quot; - 2&quot;</td>
<td>Steel or Stainless Steel</td>
</tr>
<tr>
<td><strong>Medium Pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BV3D</td>
<td>3-Way (Diverter)</td>
<td>207 (3000)</td>
<td>¼&quot; - 2&quot;</td>
<td>Steel or Stainless Steel</td>
</tr>
<tr>
<td>BVAM</td>
<td>2-Way</td>
<td>138 (2000)</td>
<td>2½&quot; - 4&quot;</td>
<td>Steel</td>
</tr>
<tr>
<td>V500CS</td>
<td>2-Way</td>
<td>138 (2000)</td>
<td>½&quot; - 1&quot;</td>
<td>Steel</td>
</tr>
<tr>
<td><strong>Low Pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVAL</td>
<td>2-Way (Suction)</td>
<td>28 (400)</td>
<td>¼&quot; - 4&quot;</td>
<td>Aluminum</td>
</tr>
<tr>
<td>V500P</td>
<td>2-Way</td>
<td>41 (600)</td>
<td>¼&quot; - 2&quot;</td>
<td>Brass</td>
</tr>
<tr>
<td>V590P</td>
<td>2-Way (Right Angle)</td>
<td>17 (250)</td>
<td>¼&quot; - ½&quot;</td>
<td>Brass</td>
</tr>
</tbody>
</table>

www.parker.com/hyd/flowcb
Parker Hydraulic Valve wants to keep you informed. Listed below are connection opportunities for you to resource additional information or speak directly with the industry’s most knowledgeable hydraulic valve professionals.

To order literature or locate a distributor by phone
**1-800-C-Parker**

For the latest hydraulic valve information
[www.parker.com/hydraulicvalve](http://www.parker.com/hydraulicvalve)

To locate your nearest hydraulic valve distributor

For North America, Europe and rest of the world regional offices, see page 22

For detailed product information Right Now!
**Use the enclosed CD-ROM or the one-click Zip URLs**

Parker Hannifin Corporation
Hydraulic Valve Division
520 Ternes Avenue
Elyria, Ohio 44035
Tel: 440-366-5200
Fax: 440-366-5253

---

**WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS 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 and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

---

**Offer of Sale**

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the full "Offer of Sale".
North America
Mobile Sales
USA
Mobile Systems
Hydraulics Group
595 Schelter Road
Lincolnshire, IL 60069
Tel: (847) 821 1500

Parker Hannifin Canada
Motion & Control Division
160 Chisholm Drive
Milton, Ontario, Canada L9T 3G9
Tel: (905) 693 3000

México
Parker Hannifin de México, S.A. de C.V.
Via de Ferrocarril a Matamoros #730
Apodaca, N.L. Mexico
C.P.66600
Tel: 01-8181-566036 y 96

México
Parker Hannifin de México,
Eje Uno Norte No. 100
Parque Industrial Toluca 2000
Estado de México
Tel: 52 722 2754200

Europe
Europe Hydraulics Group
Parker Hannifin Corporation
Hemel Hempstead, Herts
HP2 4SJ England
Tel: 44 1442 458000

Austria
Parker Hannifin GmbH
A-2700 Wiener Neustadt, Austria
Tel: 43 2622 23501-0

Belgium
Parker Hannifin SA NV
B-1400 Nivelles, Belgium
Tel: 32 67 280900

Czech Republic
Parker Hannifin s.r.o.
250 67 Klecany, Czech Republic
Tel: 420 284 083 111

Denmark
Parker Hannifin Denmark A/S
2750 Ballerup, Denmark
Tel: 45 43 56 04 00

Finland
Parker Hannifin Oy
FIN-01510 Vantaa, Finland
Tel: 358 9 476 731

France
Parker Hannifin France SAS
74130 Contamine sur Arve, France
Tel: 33 450 25 80 25

Germany
Parker Hannifin GmbH
41564 Kaarst, Germany
Tel: 49 (0) 2131 4016 0

Greece
Parker Hannifin Corporation
Athens Representative Office
171 21 Nea Smyrni, Athens, Greece
Tel: 0030 210 933-6450

Hungary
Parker Hannifin Corporation
Egressy u. 100, Hungary
Tel: 36 12204155

Ireland
Parker Hannifin Ireland Ltd.
Blackrock, Co Dublin, Ireland
Tel: 353 1 293 9999

Italy
Parker Hannifin S.p.A.
20094 Corsico (MI), Italy
Tel: 39 02 45192

The Netherlands
Parker Hannifin B.V.
7575 AT Oldenzaal, The Netherlands
Tel: 31 541 585000

Norway
Parker Hannifin A/S
N-1402 Ski, Norway
Tel: 47 64 911000

Poland
Parker Hannifin Sp.z.o.o.
02-233 Warszawa, Poland
Tel: 48 22 573 24 00

Portugal
Parker Hannifin Portugal, Lda.
Leca da Palmeira
4450-625, Portugal
Tel: 351 22 9997360

Romania
Hidro Consulting Inepx SRL
703131 Bucuresti, Romania
Tel: 40 21 2521382

Russia
Parker Hannifin Corporation
123001 Moscow, Russia
Tel: 7 095 234 00 54

Slovenia
Parker Hannifin Corporation
SI-8000 Novo Mesto, Slovenia
Tel: 386 7337 6650

Spain
Parker Hannifin España SA
Parque Industrial Las Monjas
Madrid, Spain
Tel: 34 91 6757300

Sweden
Parker Hannifin AB
SE-163 08 Spånga, Sweden
Tel: 46 (0)8 59 79 5000

Turkey
Parker Hannifin Corporation
Melter Is Merkez
34067 Merter, Istanbul, Turkey
Tel: 90 212 482 91 06

United Kingdom
Parker Hannifin GB Ltd.
Warwick, CV34 6TU, England
Tel: 44 1926 317878

Middle East
United Arab Emirates
Parker Hannifin Corporation
Abu Dhabi, United Arab Emirates
Tel: 971 2 6788587

Asia Pacific
Australia Headquarters
Parker Hannifin Pty Ltd.
Castle Hill, NSW 2154, Australia
Tel: 61 2 9634 7777
Fax: 61 2 9842 5111

China Headquarters
WOFIE II
Shanghai 201206, China
Tel: 86 21 5031 2525

China
Parker Hannifin Beijing Office
Beijing, 100004, China
Tel: 86 10 6561 0520

Asian Pacific Headquarters
Parker Hannifin Ltd.
Cheung Sha Wan, Hong Kong
Tel: 852 2428 8008

India
Parker Hannifin India Pvt Ltd.
Mahape, Navi Mumbai 400 709, India
Tel: 91 22 55907081-85

Japan
Parker Hannifin Japan Ltd.
Tokyo 108-0071, Japan
Tel: 81 3 6408 3900

Korea Headquarters
Parker Hannifin Corporation
Kyounggi-do, 445-813, Korea
Tel: 82 31 379 2200

Parker Hannifin Korea Ltd.
Kangnam-ku, Seoul, 135-090, Korea
Tel: 82 2 559 0400

Singapore
Parker Hannifin Singapore
619702 Jurong Town, Singapore
Tel: 65 6887 6300

Taiwan
Parker Hannifin Taiwan Co., Ltd.
Taipei County, Taiwan 248, R.O.C.
Tel: 886 2 22988987

Thailand
Parker Hannifin Thailand Co., Ltd.
Bangkok 10250, Thailand
Tel: 662 717 8140

Latin America
Pan American Division
Miami, FL 33126 USA
Tel: 305-470-8800

Argentina
Parker Hannifin Argentina SAIC
Buenos Aires, Argentina
Tel: 54 3327 44 4129

Brazil
Hydraulics Division
Parker Hannifin Ind. e Com. Ltda.
Cachoeirinha RS, 94930-000
Brazil
Tel: 55 51 470 9144

Chile
Parker Hannifin Chile Ltda.
Conchall - Santiago, Chile
Tel: 56-2-623-1216

Venezuela
Parker Hannifin de Venezuela, S.A.
Caracas, Venezuela
Tel: 58 212 238 5422

South Africa
Parker Hannifin Africa Pty Ltd.
Kempton Park 1620,
Republic of South Africa
Tel: 27 11 9610700
System Requirements
To view the CD, the following are required:
• Pentium®-class processor
• Win® 95 OSR 2.0, Win 98 Sec. Ed., Win ME, Win NT 4.0 (with Service Pack 5 or 6), Win 2000 or Win XP
• 16 MB of RAM (32 recommended)
• 20 MB of available hard-disk space

Acrobat Reader
Catalog files are viewed using Adobe Acrobat Reader. If you do not have Acrobat Reader installed on your PC, it will install from the CD. If you have Acrobat Reader but do not have the search plug-in, you will be given the option to install Acrobat Reader 6.0 with search.

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

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

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

Text links are easily identified by blue type. The catalog files are fully bookmarked to make navigation quick and easy. Each catalog also has a bookmark which will take you to the Parker web home page for that division if you are online while you are viewing the CD. You must first enter your web browser information into the Acrobat preferences.

Adobe and Acrobat are registered trademarks of Adobe Systems Inc.
Windows is a registered trademark of Microsoft Corp.

*Use the CD search codes provided in this catalog to go directly to the section for that product.

*Use the web addresses provided with each product to go directly to that product or series on the Parker website.

www.parker.com/hyd/X