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Instrumentation Group of Parker Hannifin
The Instrumentation Group of Parker Hannifin is dedicated to being the global leader in the design, manufacture and distribution of high quality, critical flow and ultra high purity components for the Petrochemical, Chemical Processing, Oil and Gas, Power Generation, Water Analysis, Biopharmaceutical, Semiconductor Manufacturing and Analytical Equipment industries.

With 11 manufacturing plants and over 300 authorized distributors worldwide we can provide local inventory and technical support to our customers anywhere in the world.

Parker Hannifin Corp.
Parker Hannifin is the world’s leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of commercial, mobile, industrial and aerospace markets.
- 263 manufacturing sites around the world
- 8,200 distributors
- 400,000 customers
- 3,200 product lines
- Listed as PH on the NYSE

Premier Customer Service
The Instrumentation Group is driven to provide our customers with premier customer service through on time delivery of quality products and value added services such as the Verilfo Division Express Service Program, custom assemblies and selection safety and installation training.

Engineering Excellence
By remaining focused on our customers we have been able to introduce products that not only solve our customer’s business challenges but address specific industry needs and issues.

Using the latest in virtual engineering tools, Parker Instrumentation engineers have reduced the time to develop, test and manufacture our latest product innovations.

To assist our customers with their designs, our 2D and 3D CAD drawings are available online.

New Innovations
The result of innovative processes and techniques that run throughout the Instrumentation Group has been the manufacture of truly innovative product solutions. Recently, we have launched a series of breakthrough products that deliver a huge increase in safety, whilst also dramatically reducing installation and maintenance time. Other developments have included the production of a wide range of products aimed at eliminating fugitive emissions into the environment.

Some recent innovations include:
- CCIMS
- PHASTITE
- Pro-Bloc® (Fe)
- Monoflange (Fe)

Heat Code Traceability
Parker Hannifin’s Instrumentation Group offers Heat Code Traceability (HCT) to meet or exceed all applicable specifications to assure our customers that they are working with a high quality product. It acts as an assurance for today and for tomorrow.

These specifications ensure high quality instrumentation components for use in fossil fuel power plants, chemical refineries, general instrumentation and processing plants. Requirements are now emerging in the semiconductor and pharmaceutical industries.

Not only are the materials continuously monitored, but Parker adheres to a formal, documented Quality Assurance Program that controls manufacturing, marking, testing and examination procedures, cleaning and packaging.

HCT is offered on the following quality stainless steel components:
- CPI® and A-LOK® Tube Fittings
- UltraSeal™ and VacuSeal™ Fittings
- Ball, Needle and Check Valves
- Instrumentation Pipe Fittings
- Orbital Tube Weld Fittings
- MiniButtweld™ Fittings
- Filters

Together, We Are Innovators
With such a strong global team, including a diverse customer base, we are proud to nurture an innovative environment. Together, we are producing solutions that make us Faster, Smarter, Safer and Cleaner. If you would like to find out more about how we can work together to this end, please contact us today.
Valves

Needle Valves

V Series (Catalog 4110-V)
- For positive leak tight shut-off and regulation of fluids
- Choice of three stem types
- Wide variety of size and end corrections

SN6 Series (Catalog 4110-SN)
- Provides shut-off and coarse regulation of liquids and gases
- Choice of two stem types
- In-line and angle patterns
- Ideal cylinder valve

VQ Series (Catalog 4110-VQ)
- In-line and angle patterns
- Panel mountable
- Color-coded handles
- Quick actuation for low pressure applications

NP6 Series (Catalog 4110-NP)
- Choice of two non-rotating stem types
- Packing below power threads
- Panel mountable
- Fracture resistant nylon handle

PV Series (Catalog 4110-PV)
- Roddable, straight through flow path
- Gauge port option
- Bonnet lock plate resists accidental bonnet disengagement
- PEEK®, Acetal, PFA seat materials available

U Series (Catalog 4110-U)
- Stem packing below the threads isolates the thread lubricant from the flow
- Severe service applications

HNV Series (Catalog 4190-HV)
- Compact needle valves
- For applications up to 10,000 psi (690 barg)
- Available with integral A-LOK® or CPI® connections, reducing leak paths and reducing installation costs
- Soft tipped optional seating available for gaseous applications

RPV Series (Catalog 4190-HV)
- For fluids containing high levels of contamination frequently found in oil and gas processing facilities
- Straight through flow pattern, rodgable design
- 100% repeatable bubble tight shut off

HGV Series (Catalog 4190-HV)
- Up to 10,000 psi (690 barg)
- Compact single and multi port gauge valves
- Soft tipped optional seating available for gaseous applications

**Table:**

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Maximum Operating Pressure</th>
<th>Body Material</th>
<th>Actuation</th>
<th>Seat/Seal Material</th>
<th>End Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle Valves</td>
<td>V Series</td>
<td>8000 psi (560 bar)</td>
<td>Stainless Steel</td>
<td>Manual</td>
<td>PTFE</td>
<td>1/8 in (3mm)</td>
</tr>
<tr>
<td></td>
<td>SN6 Series</td>
<td>8000 psi (560 bar)</td>
<td>Stainless Steel</td>
<td>Manual</td>
<td>PTFE</td>
<td>1/8 in (3mm)</td>
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<tr>
<td>VQ Series</td>
<td>NP6 Series</td>
<td>8000 psi (560 bar)</td>
<td>Stainless Steel</td>
<td>Manual</td>
<td>PTFE</td>
<td>1/8 in (3mm)</td>
</tr>
<tr>
<td></td>
<td>PV Series</td>
<td>8000 psi (560 bar)</td>
<td>Stainless Steel</td>
<td>Manual</td>
<td>PTFE</td>
<td>1/8 in (3mm)</td>
</tr>
<tr>
<td></td>
<td>U Series</td>
<td>8000 psi (560 bar)</td>
<td>Stainless Steel</td>
<td>Manual</td>
<td>PTFE</td>
<td>1/8 in (3mm)</td>
</tr>
</tbody>
</table>
**Valves**

**Manifold Valves**

**CCIMS®** (Catalog 4190-CCIMS)
- Close coupled solution for flow measurement applications
- Reductions in installation time of up to 75%
- Reductions in connections and leak paths of up to 85%
- Features plastifit® for rapid transmitter removal and connection

**Monoflange** (Catalog 4190-FP)
- Compact double block and bleed valves, featuring needle valves
- Reducing installations cost while improving safety through a reduction in leak paths
- Configurable options include single block, double block and double block and bleed
- Available in a range of materials including carbon steel, stainless steel, duplex, alloy 625

**Pro-Bloc®** (Catalog 4190-FP)
- Compact double block and bleed valves, featuring needle or ball valve options
- Reducing installations cost while improving safety through a reduction in leak paths
- Configurable options include single block, double block and double block and bleed
- Available in a range of materials including carbon steel, stainless steel, duplex, alloy 625
- Manufactured from forgings to give high tensile strength through improved grain structure.

**Monoflange(Fe) & Pro-Bloc®(Fe)** (Catalog 4190-FP)
- ISO 15848 approved
- Highest possible ‘A’ class leakage rates achieved
- All threads sealed from the media
- All ball valves are bi-directional
- Firesafe design available

**H-Series** (Catalog 4190-PM/4190-FM)
- A comprehensive range of 2, 3 and 5 valve manifolds for flow applications
- Available with integral PTFree® connections, reducing leak paths and installation cost
- Available in stainless steel and many exotic alloys, including Hastelloy, 6Mo, MONEL®, and alloy 625

**Hi-Pro Series** (Catalog 4190-HBM)
- A complete range of ball valves 10mm ball and needle valve manifolds
- Including block and bleed, and double block and bleed manifold options
- Working pressures up to 10,000 psi (690 bar)
- Available with integral A-LOK® or CPI® connections, reducing leak paths and installation costs

---

**Manifold Valves**

<table>
<thead>
<tr>
<th>Valve Datasheets</th>
<th>Model Series</th>
<th>Product Description</th>
<th>Maximum Operating Pressure</th>
<th>Temperature</th>
<th>Body Material</th>
<th>Packing</th>
<th>Seat Tip</th>
<th>Bolt Connection Size Range</th>
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</thead>
<tbody>
<tr>
<td>M7</td>
<td>1 valve block and bleed</td>
<td>400°F/204°C</td>
<td>-40°F/-40°C</td>
<td>1/4 in</td>
<td>Stainless steel</td>
<td>PTFE</td>
<td>PTFE</td>
<td>1/2 in Chrome</td>
</tr>
<tr>
<td>F8</td>
<td>2 valve block and bleed</td>
<td>400°F/204°C</td>
<td>-40°F/-40°C</td>
<td>1/4 in</td>
<td>Stainless steel</td>
<td>PTFE</td>
<td>PTFE</td>
<td>1/2 in Chrome</td>
</tr>
<tr>
<td>H4</td>
<td>3 valve block and bleed</td>
<td>400°F/204°C</td>
<td>-40°F/-40°C</td>
<td>1/4 in</td>
<td>Stainless steel</td>
<td>PTFE</td>
<td>PTFE</td>
<td>1/2 in Chrome</td>
</tr>
<tr>
<td>H8</td>
<td>4 valve block and bleed</td>
<td>400°F/204°C</td>
<td>-40°F/-40°C</td>
<td>1/4 in</td>
<td>Stainless steel</td>
<td>PTFE</td>
<td>PTFE</td>
<td>1/2 in Chrome</td>
</tr>
<tr>
<td>HBM</td>
<td>2 &amp; 3 valve manifold ball style</td>
<td>400°F/204°C</td>
<td>-40°F/-40°C</td>
<td>1/4 in</td>
<td>Stainless steel</td>
<td>PTFE</td>
<td>PTFE</td>
<td>1/2 in Chrome</td>
</tr>
</tbody>
</table>
Ball/Plug Valves

Parker ball and plug valves, with excellent temperature and pressure characteristics, are well established for power, process and instrumentation applications as on/off/diverter or selector valves. Options include lockout devices and round, stainless steel or T-bar handles. Clearing options include O2, high purity and grade A. Available with CPI™, A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™ end connections.

MB Series (Catalog 4121-MB)
- One piece compact barstock design
- Center off position for 3-way
- 2-way, inline, angle, 3-way, 4-way and 5-way
- Patented seat design
- Standard drop-in replacement

B Series (Catalog 4121-B)
- 2-way, 3-way diverting or spring loaded 3-way selector designs
- Wide temperature application range -65°F (18°C) to +450°F (232°C)
- Rated for up to 6000 psi (413.7 bar)
- Widest variety of seats, seals and port connections
- Connections include CPI™, A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™

SWB Series (Catalog 4125-SWB)
- Zero clearance body allows repairs in field
- Spring loaded seats and stem seals
- Fully enclosed body bolts
- ISO-type actuator mounting design
- Available up to 1” full flow design

HB Series (Catalog 4121-HB)
- Compact FNPT version for tight work areas
- Full operating pressure in any port
- PEEK trunion bearings provide high cycle life
- 10,000 psi (689 bar) rating with PEEK® seats
- Excellent for CNS

MPB Series Ball Valve (Catalog 4234)
- 2-way and 3-way ball valve for severe service applications
- Designed for 1/4 and 1/2 turn media shutoff or switching applications

PR Series (Catalog 4126-PR)
- Low operating torque
- Optional locking device, downstream vent and metal tee handles
- Typically used in laboratories
- Most compact 90° actuated valve

Pneumatic/Electric Actuators (Catalog 4123)
- 60 Series pneumatic actuators provide 90° and 180° rotation in both double acting and spring return models
- 70 and 80 Series electric actuators provide 90° and 180° actuation for our B, MB, HB, SWB series ball valves.

HBV Series (Catalog 4190-HBV)
- Suitable for the most demanding applications in the oil, gas and process control industries
- Integral compression ends available, eliminating taper threads and thread sealants
- True two piece design reduces body leakage paths
- Complies with ANSI/ASME B16.34 requirements where applicable

Valve Groups

<table>
<thead>
<tr>
<th>Valve Group</th>
<th>Model Series</th>
<th>Product Description</th>
<th>Minimum Operating Pressure</th>
<th>Maximum Temperature</th>
<th>Cv</th>
<th>Body Material</th>
<th>Actuation</th>
<th>Seat/Seal Material</th>
<th>End Connection</th>
<th>Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB Series</td>
<td>MB Mini Barstock Ball Valve</td>
<td>300 psi (207 bar)</td>
<td>-65°F (-54°C)</td>
<td>300°F (149°C)</td>
<td>11.00</td>
<td>Brass, Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>PTFE, Buna-N Rubber, Ethylene Propylene Rubber, Highly Fluorinated Fluorocarbon, Fluorocarbon Rubber, PFA, Grafitek®</td>
<td>1/16 in (3mm)</td>
<td>3/4 in (12mm) 4121-MB</td>
</tr>
<tr>
<td>B Series</td>
<td>B Ball Valve</td>
<td>6000 psi (413.7 bar)</td>
<td>-65°F (-54°C)</td>
<td>400°F (204°C)</td>
<td>6.40</td>
<td>Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™</td>
<td>1/16 in (3mm)</td>
<td>3/4 in (12mm) 4121-B</td>
</tr>
<tr>
<td>SWB Series</td>
<td>SWB Swing Out Ball Valve</td>
<td>2500 psi (172 bar)</td>
<td>-65°F (-54°C)</td>
<td>600°F (316°C)</td>
<td>35.00</td>
<td>Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>PTFE, Buna-N Rubber, Ethylene Propylene Rubber, Highly Fluorinated Fluorocarbon, Fluorocarbon Rubber, PFA, Grafitek®</td>
<td>1/4 in (6mm)</td>
<td>1 in (25mm) 4125-SWB</td>
</tr>
<tr>
<td>HB Series</td>
<td>HB Ball Valve</td>
<td>10000 psi (690 bar)</td>
<td>-65°F (-54°C)</td>
<td>450°F (232°C)</td>
<td>1.00</td>
<td>Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™</td>
<td>1/8 in (6mm)</td>
<td>1/2 in (12mm) 4121-HB</td>
</tr>
<tr>
<td>MPB Series</td>
<td>MPB Medium Pressure Ball Valve</td>
<td>20000 psi (1379 bar)</td>
<td>-10°F (-23°C)</td>
<td>400°F (204°C)</td>
<td>8.80</td>
<td>Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>PTFE, Buna-N Rubber, Ethylene Propylene Rubber, Highly Fluorinated Fluorocarbon, Fluorocarbon Rubber, PFA, Grafitek®</td>
<td>1/8 in (6mm)</td>
<td>1 in (25mm) 4234</td>
</tr>
<tr>
<td>PR Series</td>
<td>PR Plug Valve</td>
<td>3000 psi (207 bar)</td>
<td>-65°F (-54°C)</td>
<td>400°F (204°C)</td>
<td>3.20</td>
<td>Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>Buna-N Rubber, Ethylene Propylene Rubber, Highly Fluorinated Fluorocarbon, Fluorocarbon Rubber, PFA, Grafitek®</td>
<td>1/8 in (6mm)</td>
<td>1/2 in (12mm) 4126-PR</td>
</tr>
<tr>
<td>HBV Series</td>
<td>HBV Ball Valve</td>
<td>6000 psi (413.7 bar)</td>
<td>-65°F (-54°C)</td>
<td>450°F (232°C)</td>
<td>x</td>
<td>Stainless Steel, Alloys</td>
<td>Manual, Pneumatic, Electric</td>
<td>A-LOK®, male and female NPT, UltraSeal™ and VacuSeal™</td>
<td>1/8 in (6mm)</td>
<td>1/2 in (12mm) 4190-HBV</td>
</tr>
</tbody>
</table>
Check Valves

Parker check valves are designed for uni-directional flow control of fluids and gases in industries such as chemical processing, oil and gas production and transmission, pharmaceutical, pulp and paper, power and utilities.

C Series (Catalog 4130-C)
- Resilient, custom molded, seat design
- Back stopped poppet to minimize spring stress
- Cracking Pressures: 1, 1.5, 5, 10, 25, 50, 75, and 100 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9 bar)

CO Series (Catalog 4130-CO)
- Suitable for applications requiring high integrity leak rates and re-sealing capabilities
- Seal integrity to 4 x 10^-9 std. atm-cc/sec
- Back stopped poppet to minimize spring stress
- Cracking Pressures: 1, 1.5, 5, 10, 25, 50, 75, and 100 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9 bar)

CB Series (Catalog 4130-CB)
- Reduces maintenance while improving performance requirements on dual fuel turbines
- Cracking Pressures: 1, 5, 10, 25, 50, 75, 100 and 120 psi (100, 345, 690, 1,720, 3,450, 5,170, 6,900, 8,270 bar)
- Rugged ball design for demanding applications
- For high temperatures with highly viscous media

MPC Series (Catalog 4234)
- Variety of elastomeric poppet seals
- 5 psi (.345 bar) cracking pressure
- MPC™, cone & thread and female NPT connections available
- For pressures up to 20,000 psi (1379 bar)

MPCB Series (Catalog 4234)
- Metal to metal seat for use in applications that cannot accept fluorocarbon rubber
- 5 psi (.345 bar) cracking pressure
- MPC™, cone & thread and female NPT connections available
- For pressures up to 20,000 psi (1379 bar)

LC Series (Bulletin 4130-LC)
- For extreme temperature applications
- The gravity assisted poppet uses reverse flow to achieve a seal within 99.9% of forward flow

Valve Groups

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Maximum Operating Pressure</th>
<th>Temperature</th>
<th>Cv</th>
<th>Cracking Pressure</th>
<th>Body Material</th>
<th>Seal Material</th>
<th>End Connections</th>
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</thead>
<tbody>
<tr>
<td>Check Valves</td>
<td>MPC</td>
<td>20,000 psi (1379 bar)</td>
<td>-10 F (-23 C)</td>
<td>5 psi (.345 bar)</td>
<td>1/8 in</td>
<td>1/2 in</td>
<td>1 in</td>
<td>1/4 in</td>
</tr>
<tr>
<td>MPCB</td>
<td>20,000 psi (1379 bar)</td>
<td>-100 F (-73 C)</td>
<td>5 psi (.345 bar)</td>
<td>1/8 in</td>
<td>1/2 in</td>
<td>1 in</td>
<td>1/4 in</td>
<td>1/2 in</td>
</tr>
</tbody>
</table>
### Relief Valves

**RL4 Series (Catalog 4131-RL)**
- **Handle for field maintenance**
- **Externally adjustable pressure settings while valve is in operation**
- **Seven different springs**
- **Manual override option with positive stem retraction is available for the full working pressure range**
- **Color coded springs and labels indicate spring cracking range**

**RH4 Series (Catalog 4131-RH)**
- **Eight springs**
- **Manual override option with positive stem retraction is available for pressures up to 1500 psi (103 bar)**
- **Preset from factory and comes with standard springs**

### Filters

**F Series (Catalog 4130-F)**
- Replaceable sintered 316 stainless steel filter element
- Optional 250 and 450 micron wire cloth filter elements

**FT Series (Catalog 4130-FT)**
- Filter elements are easily replaced without disconnecting the tube lines
- Fast Loop bypass option enables a continuous self cleaning flow
- Replaceable sintered 316 stainless steel filter element
- Optional 250 and 450 micron wire cloth filter elements

**MPF Series (Catalog 4234)**
- High pressure applications up to 20,000 psi (1373 bar)
- Sintered 316 stainless steel filter disc
- Inline filters help protect valuable equipment in the process system
- MPI™, cone & thread and female NPT connections available

### Valve Groups

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Product Description</th>
<th>Maximum Operating Pressure</th>
<th>HFA</th>
<th>Max</th>
<th>Max</th>
<th>Max</th>
<th>Max</th>
<th>Max</th>
<th>Max</th>
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<tr>
<td>F</td>
<td>Valves Filter</td>
<td>inline filter</td>
<td>600 psi (42 bar)</td>
<td>600</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>1/8 x</td>
</tr>
<tr>
<td>F</td>
<td>Tool Filter</td>
<td>inline filter</td>
<td>600 psi (42 bar)</td>
<td>600</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>1/8 x</td>
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<tr>
<td>UPT</td>
<td>Inline Filter</td>
<td>inline filter</td>
<td>2000 psi (1400 bar)</td>
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<td>200</td>
<td>200</td>
<td>200</td>
<td>x</td>
<td>x</td>
<td>x</td>
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### Relief Valves

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Maximum Operating Pressure</th>
<th>HFA</th>
<th>Max</th>
<th>Max</th>
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<th>Catalog</th>
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<tbody>
<tr>
<td>Relief Valves</td>
<td>RL</td>
<td>4000 psi (280 bar)</td>
<td>400</td>
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<td>40</td>
<td>x</td>
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<td>1/8 x</td>
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<td>Relief Valves</td>
<td>RH</td>
<td>800 psi (56 bar)</td>
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<td>80</td>
<td>80</td>
<td>80</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>1/8 x</td>
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<td>Relief Valves</td>
<td>MPF</td>
<td>2000 psi (1400 bar)</td>
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<td>200</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>1/8 x</td>
</tr>
</tbody>
</table>

### Filters

**F Series (Catalog 4130-F)**
- Replaceable sintered 316 stainless steel filter element

**FT Series (Catalog 4130-FT)**
- Filter elements are easily replaced without disconnecting the tube lines
- Fast Loop bypass option enables a continuous self cleaning flow

**MPF Series (Catalog 4234)**
- High pressure applications up to 20,000 psi (1373 bar)
- Sintered 316 stainless steel filter disc
- Inline filters help protect valuable equipment in the process system
- MPI™, cone & thread and female NPT connections available
## Valves

### Bleed and Purge Valves

**BV Series** (Catalog 4133-BP)
- Recommended for use in blending hydraulic systems
- Valve vents line pressure to atmosphere or to containment
- Crimped cap ensures safe relief of system pressures

**PG Series** (Catalog 4133-BP)
- Vent hole in the cap bleeds, drains or purges system pressure
- Optional PTFE ball requires only finger-tight torque to achieve a leak-tight seal

### Metering Valves

**N Series** (Catalog 4170-N)
- Panel or in-line mounting
- Angle or in-line patterns
- Valve stem threads not in contact with process fluid

**HR Series** (Catalog 4170-HR)
- Bubble tight shut-off capability
- High resolution metering valve with limited hysteresis
- Seven optional valve stem tapers

### Tables

#### Bleed and Purge Valves

<table>
<thead>
<tr>
<th>Valves Groups</th>
<th>Model</th>
<th>Series</th>
<th>Maximum Operating Pressure</th>
<th>Temperature Min</th>
<th>Max</th>
<th>Cv</th>
<th>Body Material</th>
<th>End Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>BV</td>
<td>1000 psi</td>
<td>69 bar</td>
<td>-65 F</td>
<td>250 C</td>
<td>1/16”</td>
<td>3mm</td>
<td>Brass</td>
<td>1/4” 1/2” 4133-BP</td>
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<tr>
<td>PG</td>
<td>1000 psi</td>
<td>69 bar</td>
<td>-65 F</td>
<td>250 C</td>
<td>3/8”</td>
<td>1/2”</td>
<td>Stainless Steel</td>
<td>1/4” 1/2” 4133-BP</td>
</tr>
<tr>
<td>MPBV</td>
<td>20000 psi</td>
<td>2068 bar</td>
<td>-10 F</td>
<td>250 C</td>
<td>3/8”</td>
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<td>Alloy</td>
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<th>Maximum Operating Pressure</th>
<th>Temperature Min</th>
<th>Max</th>
<th>Cv</th>
<th>Body Material</th>
<th>Seal Material</th>
<th>End Connections</th>
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<tbody>
<tr>
<td>N</td>
<td>ND</td>
<td>1000 psi</td>
<td>69 bar</td>
<td>-65 F</td>
<td>250 C</td>
<td>0.040</td>
<td>Brass</td>
<td>PTFE</td>
<td>1/16” 1/4” 3mm 6mm 4170-N</td>
</tr>
<tr>
<td>N</td>
<td>MM</td>
<td>6000 psi</td>
<td>414 F</td>
<td>0.200</td>
<td>Brass</td>
<td>PTFE</td>
<td>1/16” 1/4” 3mm 6mm 4170-N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>HL</td>
<td>6000 psi</td>
<td>414 F</td>
<td>0.200</td>
<td>Brass</td>
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<td>1/16” 1/4” 3mm 6mm 4170-N</td>
<td></td>
<td></td>
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<tr>
<td>N</td>
<td>HR</td>
<td>2000 psi</td>
<td>69 bar</td>
<td>-65 F</td>
<td>250 C</td>
<td>0.200</td>
<td>Brass</td>
<td>PTFE</td>
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</tbody>
</table>

## Diagrams

- Diagram of BV Series
- Diagram of PG Series
- Diagram of N Series
- Diagram of HR Series
**Diaphragm Valves**

**NOVA Series** (Catalog 4515)
- General purpose, high cycle, compact valve
- For gas control panels and analyzer sampling system applications
- Handwheel, lever, and indicating handwheel options

**NOVAAOP** (Catalog 4515)
- General purpose, high cycle, compact valve
- Normally open and normally closed
- Various actuation pressures available

**NV55** (Catalog 4515)
- General purpose, high flow compact valve
- For flowing large volumes of corrosive and non-corrosive fluids

**944AOPHPNCSP** (Catalog 4515)
- High pressure air operated valve
- Reliable, accurate performance
- Opening function incorporates hydraulics

**16 Series** (Catalog 4515)
- High pressure valve for gas manifold/box systems
- 316L SST machined body design
- Metal-to-metal diaphragm seal
- Packless valve design

---

**Valve Groups Model Series**

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Product Description</th>
<th>Maximum Operating Pressure</th>
<th>Temperature</th>
<th>Cv</th>
<th>Body Material</th>
<th>Actuation</th>
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</thead>
<tbody>
<tr>
<td>Diaphragm Valves</td>
<td>NOVA Series</td>
<td>Diaphragm</td>
<td>250 psig 17 barg</td>
<td>-20°C - 60°C</td>
<td>150</td>
<td>Stainless Steel</td>
<td>Manual, Pneumatic</td>
</tr>
<tr>
<td></td>
<td>NOVAOAP</td>
<td>Diaphragm</td>
<td>125 psig 6 barg</td>
<td>-20°C - 60°C</td>
<td>150</td>
<td>Stainless Steel</td>
<td>Manual, Pneumatic</td>
</tr>
<tr>
<td></td>
<td>NV55</td>
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<td>150</td>
<td>Stainless Steel</td>
<td>Manual, Pneumatic</td>
</tr>
<tr>
<td></td>
<td>944AOPHPNCSP</td>
<td>Diaphragm</td>
<td>3500 psig 241 barg</td>
<td>-40°F - 60°F</td>
<td>150</td>
<td>Stainless Steel</td>
<td>Manual, Pneumatic</td>
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**www.parker.com/veriflo**
Our chemical/petrochemical process analytical systems provide a sound model for both North American and European markets, adapting with minor modifications to environmental segments, as well as laboratory and pilot plant markets. They also serve as a basis for power and pharmaceutical analytical segments. No other single supplier can offer a more complete, advanced, or adaptable sample analysis system.

**IntraFlow™** (Catalog 4250)
- Modular instrument system
- ISA/ANSI SP 76.00.02 compliant
- Every component is upgradeable to Gen 2 & 3 NeSSI Technologies
- Vacuum to 500 psig (34 barg)
- System design software available

**R-max™** (Catalog 4140-R)
- Surface mount technology for stream switching valves
- Low internal volume to reduce system purge time
- Low pressure actuation of valves: -40 psig (-2.76)
- Rated from vacuum to 500 psig (34 barg)

**ChangeOver System** (Catalog 4511)
- Compact turnkey module designed for continuous gas management
- Optional outlet regulator to control application specific outlet pressure
- Aluminum panel is standard
- Audio/visual alarm annunciator available
- Available in 316L stainless steel and brass
- Suitable for oxygen service

**Vent Recovery Panel** (Bulletin 4141-VR)
- Pre-engineered compact instrument panel that includes fittings, valves, stream switching valve, regulators, and gauges
- System adjusts for variations in gas supply pressures and flows

**Vent Master™** (Catalog 4142-VM)
- Pre-engineered compact instrument panel that includes regulators, gauges, rotometer, an eductor and a separate pressure controller
- Creates a stable pressure within the analyzer shelter vent header system
- Provide analysis accuracy with .06% over a vent header flow of 0-18SLPM

**Vent Recovery Panel**

**Vent Master™**
IR6000 Series (Catalog 4511)
- Dual stage regulator
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Virtually eliminates supply pressure effect
- Provides cylinder gas pressure reduction in refineries, process analytical systems and specialty gases

APR66 (Catalog 4511)
- High pressure piston sensing regulator
- Low actuating torque
- Pressures up to 6000 psig (413.7 barg)

Quantum 959 (Catalog 4511)
- Tied diaphragm design to minimize regulator creep
- Internally threadless design
- Metal to metal diaphragm seal

DM3000 (Catalog 4518)
- Miniature pressure regulator for gas instrumentation applications
- ANSI/ISA SP76.00.02 modular surface mount interface
- No threads in wetted area
- Critically dampened to improve flow stability
- Faster purge times

NPR4100 (Catalog 4511)
- Negative pressure regulation
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- For delivery of low pressure gases from liquid sources
- White knob indicates negative pressure

IR4000 Series (Catalog 4511)
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stops prevent oil canning
- Seals available for nitrous oxide and hydrocarbon applications
- Low dead volume
- General purpose for instrument/analyzers and semiconductor applications

IR5000 Series (Catalog 4511)
- Internally threadless design
- Large convoluted Hastelloy C-22® diaphragm
- Greater sensitivity for precise pressure control
- For analyzer system gas management and instrument calibration

HFR900 (Catalog 4511)
- High flow regulator
- Self-contained replaceable valve seat
- For corrosive and noncorrosive fluid applications

www.parker.com/veriflo
### Regulators

#### Back Pressure Regulators

**ABP1** (Catalog 4510)
- Reduce contamination and accurately control back pressure
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stop

**ABP3** (Catalog 4510)
- Internally threadless design
- Provides sensitive pressure adjustments
- Large convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stop

**BPR50** (Catalog 4510)
- For use with corrosive and non-corrosive fluids
- Adjustable from 100 psi (6.7 bar) to 2000 psi (138 bar)
- Piston sensed high pressure back pressure regulator

### Vaporizing Regulators

**AVR3** (Catalog 4512)
- Steam heat design
- Field serviceable heat transfer element
- Internally threadless design
- Internal liquid volume only .3 cc
- Convoluted Hastelloy C-22® diaphragm

**AVR4** (Catalog 4512)
- Electrical heat design
- Field serviceable heat transfer element
- CSA, Cenelec, and ATEX certified
- 120v or 240v, 50/60 Hz
- Convoluted Hastelloy C-22® diaphragm

---

**Regulator Groups**

<table>
<thead>
<tr>
<th>Model Series</th>
<th>Type</th>
<th>Maximum Inlet Pressure</th>
<th>Maximum Outlet Pressure</th>
<th>Min</th>
<th>Max</th>
<th>FNPT</th>
<th>Max</th>
<th>FNPT</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABP1</td>
<td>General Purpose</td>
<td>0.55</td>
<td>0.55</td>
<td>X</td>
<td>X</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
<td>4510</td>
<td></td>
</tr>
<tr>
<td>ABP3</td>
<td>Sensible</td>
<td>0.60</td>
<td>0.60</td>
<td>X</td>
<td>X</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
<td>4510</td>
<td></td>
</tr>
<tr>
<td>BPR50</td>
<td>High Pressure</td>
<td>0.45</td>
<td>0.45</td>
<td>X</td>
<td>X</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>4510</td>
<td></td>
</tr>
</tbody>
</table>
Parker Instrumentation Tube Fittings are designed as leak-free connections for process, power, and oil and gas instrumentation applications handling liquids, gases and chemicals.

Parker’s instrument tube fittings have been engineered and manufactured to consistently provide the highest level of reliability. However, no system’s integrity is complete without considering the critical link, tubing.

Proper tube selection and installation are key ingredients in building leak-free reliable tubing systems. Parker instrument fittings are designed to work on like materials therefore, stainless steel fittings should be used only with stainless steel tubing. The practice of mixing materials is strongly discouraged. The only exception is brass fittings with copper tubing.

All working pressures have been calculated using the maximum allowable stress levels in accordance with ANSI B31.3.

**CPI™ Fittings** (Catalog 4230/4233)
- Three piece simple design to work on all instrumentation grade tubing
- Molybdenum Disulfide coated nuts to prevent galling and provide lubrication
- Single ferrule system treated with Suparcase™ technology to insure sealing
- Superior body seat surface finish to seal gases and liquids
- Single ferrule technology to provide excellent anti-vibration performance
- Single ferrule technology to provide high thermo cycling applications

**MPI™ Fittings** (Catalog 4234)
- Compression fitting for medium pressure applications up to 15,000 psi (1034 bar)
- Inverted body and nut design for added strength with thick-wall tubing
- Longer thread area for improved performance and resistance to vibration
- Molybdenum Disulfide coated nuts to prevent galling and for higher temperature applications
- Installation and rework time reduced by 50%

**Phastite®** (Catalog 4235-PH)
- Option for welded systems
- Simple assembly process provides high integrity connections, first time every time
- Installation time reduced to seconds
- No loose parts, supplied factory pre-assembled
- Permanent push fit tube connector with working pressures up to 20,000 psi (1,380 bar)

**Welded Fittings** (Catalog 4280)
- Available in socketweld, buttweld and automatic butt weld connections
- Manufactured to meet ASME Section III, and ANSI B31.1 and B31.7 codes
- Permanent, leak free connection
- For critical applications and high temperatures such as steam

**Instrumentation Pipe Fittings** (Catalog 4260)
- Manufactured from 316 stainless steel for superior corrosion resistance
- Available with NPT and ISO thread configurations
- All exposed threads protected to prevent damage
- All pipe threads meet ANSI B1.20.1 requirements

**A-LOK® Fittings** (Catalog 4230/4233)
- Industry standard design for all instrumentation grade tubing
- Silver coated threads to reduce galling
- Back ferrule is treated with Suparcase™ technology to provide a strong mechanical grip on the tube
- Industry double ferrule design for system specifications

**Pipe Adapters**
- Up to 6000 psi (414 bar)
- NPT, BSPT and BSP Pipe Threads
- 1/8” - 1”

**New Innovation**
- Molybdenum Disulfide coated nuts to prevent galling and for higher temperature applications
- Installation and rework time reduced by 50%

---

**Fitting** | **Working Pressure** | **Connection Type** | **Size Range**
--- | --- | --- | ---
CPI™ | Instrumentation Tubing* | Single ferrule compression | 1/16” - 2” Tube Diameter
A-LOK® | Instrumentation Tubing* | Double ferrule compression | 1/16” - 2” Tube Diameter
MPI™ | Up to 15,000 psi (1034 bar) | Inverted compression | 1/4” - 1” Tube Diameter
Phastite® | Up to 20,000 psi (1,380 bar) | Permanent crimp* | 1/4” - 1/2” (6 - 12mm)
Weld-lok™ | Instrumentation Tubing* | Tube Sected Weld | 1/8” - 2” Tube Diameter
Pipe | Up to 6000 psi (414 bar) | NPT, BSPT and BSP Pipe Threads | 1/8” - 2” Pipe Size
Pipe Adapters | Up to 6000 psi (414 bar) | NPT, BSPT, and BSP Pipe Threads | 1/8” - 1”

*Maximum suggested working pressure as indicated in Instrument Tubing Selection Guide Bulletin 4200-TS.

---

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*Maximum suggested working pressure as indicated in Instrument Tubing Selection Guide Bulletin 4200-TS.
Hose/Tubing/Quick Couplings

**Push-Lok® Hose** (Bulletin 4281-B1-US)
- Unique seal ensures reliability and durability for clean-environment use
- No clamps or special tools required for installation
- Inner liner is an extruded, synthetic rubber, resistant to petroleum base oil, air and water

**Quick Couplings** (Catalog 4220)
- Spill-free designs virtually eliminate fluid loss upon disconnection and minimize air inclusion during connection
- Minimize air inclusion during connection
- Double shut-off flush mating valves suitable for seal off media in corrosive applications
- Working pressures from 300 psi (21 bar) to 5,000 psi (3445 bar)

**Stainless Steel Metal Hose** (Catalog 4690-MH)
- For extreme conditions where other hoses fail
- For temperatures up to 1,500°F (816°C)
- Frequently used for the conveyance of liquid nitrogen
- Provides the lowest permeation rate of any hose available

**Multitube® Instrument and Heat Trace Tubing** (Catalog 4200-M-1)
- Available in a variety of configurations
- For containment, transmission and control of pneumatic signals, gases and liquids
- Materials include copper, stainless steel, metal alloys and PFA/PTFE

Flow Controllers

**Gas Mass Flow Controllers** (Catalog FM-441)
- Responds to a step change in setpoint in less than one second
- Actual flow is stabilized within 2 seconds, virtually without overshoot
- Models available with flow ranges of 0-5 sccm to 0-1000 sccm N₂
- High pressure models have operating pressures to 3000 psig (207 bar)

**Digital Liquid Mass Flow Controllers** (Bulletin FM-998)
- Thermal measurement system yields accurate measurement with less than a 0.5°C increase in fluid temperature
- Exclusive control circuitry, combined with a piezoelectric-actuated control valve, provides fast, stable control at low flow rates

**Flowmeters** (Catalog FM-1058)
- Variable area flowmeters include 65mm and 150mm scale length tube assemblies
- Available in either forged body or side-plate construction
- Interchangeable flow tube assemblies and valves allow configuration changes without removal from process system

**Instrument Pressure Regulators** (Catalog FM-1057)
- All models are direct acting, non-relieving and are cleaned for analytical instrument service
- Designed specifically to provide high resolution control at the low flow rates typical in instrumentation applications
- Available with special port locations, manifold mount configurations, or with the regulator integrated into a larger, multi-functional package

Porter Instrument specializes in the design and manufacture of precision instruments for the measurement and control of low flow gases and liquids.

www.parker.com/porterinstrument
Durable, leak free Partek products are used in a variety of industries, including semiconductor manufacturing, chemical/food/pharmaceutical/ biomedical processing, as well as analytical instrumentation.

Partek fluoropolymer products are recommended for applications that encounter pressures below 120 psig (8.27 barg), and corrosive media at temperatures up to 400°F (204°C). Fluoropolymer valves and fittings offer corrosion protection and are used to ensure media/system purity. The wetted surfaces of all products are of chemically inert corrosion resistant PFA or PTFE. Partek products are available from 1/8" up to 1" in size.

Parflare PFA Tube Fittings: Parflare fittings provide low dead volume, which decreases the possibility of particle entrapment and bacterial growth.

Pargrip PFA Tube Fittings: Perfect for applications where ease of assembly is a requirement. Grooved tubing is not required.

Parbond PFA Fusible Pipe Fittings: Parbond fittings welded design eliminates threaded connections and entrapment areas and creates a leak free connection.

PFA Pipe Fittings: Available in a variety of configurations, all with standard NPT threads.

PFA Valves, Gauge Protectors, Thermocouple Fittings and Spray Guns: High cycle life, all fluoropolymer construction, with application tested and proven designs.

PTFE Valves, Regulators, and Flowmeters: Wetted areas are manufactured from fluoropolymer material which offers unmatched corrosion protection and high cycle life.

Parker Performance Stainless is a complete line of sanitary fittings, valves and related flow components for use in a variety of hygienic processing applications. These products meet the stringent standards required by processors in the food, beverage, dairy, biopharm and health & beauty industries.

Sanitary Fittings (Catalog 4270)
- Buttweld, clamp, bevel seat, I-line, and other fitting styles available
- Unpolished I.D. and unpolished O.D. Both I.D. and O.D. are mill or tumble finished
- A full line of adapters for threaded, flanged and socket weld connections also available
- Sanitary tubing and tubing hangers available to complete any project

Valves and Flow Components (Catalog 4270-VFC)
- Sanitary versions of sample, ball, butterfly and check valves available
- A complete line of pneumatic and electric actuators and control accessories. Choose from traditional rack-and-pinion style or stainless steel wash down versions
- Valves are precision manufactured from heat traceable materials and designed to perform under the most exacting conditions
- Available with a variety of elastomers and other customer-specified configurations to ensure a perfect fit within any processing system
Tools and Accessories

**Tube Fabrication Equipment** (Catalog 4290)
- High quality hand benders, tube cutters, deburr tools and preset tools
- Tube benders from 1/8" to 1" size
- Tube cutter rated for 316 stainless steel tubing
- Par-Lok® wrenches with 360° snap-action for flexibility
- Preset installation kits for assembling tube fittings in close spaces

**Sample Cylinders** (Catalog 4160-SC)
- 1800 psig (124 barg) DOT rated sample cylinders
- Stainless steel construction
- ANSI/ASME B1.20.1 internal pipe threads

**Brass Push-to-Connect Fittings** (Bulletin 3531-QRG/USA)
- Prestolok® brass and Prestolok II® composite push-to-connect fittings are designed for use with nylon, polyethylene, polyurethane and soft metal tubing
- Ideal for pneumatic applications
- Equipped with stainless steel grab rings eliminating need for tube supports
- No tools required for installation
- Designed for side-loading

**Product Selection Guide CD Operating Instructions**
Parker’s Product Selection Guide CD contains electronic versions of all catalogs referenced in the Product Selection Guide document as well as additional Parker Instrumentation product lines.

To use the CD
Simply place the disc in your CD drive.
An autorun program on the CD will search your computer for the Adobe® Acrobat® Reader® program, version 5.0 or higher.

If Acrobat Reader is found, the opening screen of the CD will appear. From the opening screen, you can view this Product Selection Guide, go to specific product categories or choose a specific catalog.

If Acrobat Reader is not found, it will be installed on your hard drive and then the opening screen of the CD will appear. From the opening screen, you can view this Product Selection Guide, go to specific product categories or choose a specific catalog.

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Fax: (256) 881-5072  
www.parker.com/ipdus

Valve Operation  
2651 Alabama Highway 21 North  
Jacksonville, AL 36265  
Phone: (256) 435-2130  
Fax: (256) 435-7718  
www.parker.com/ipdus

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Barnstaple, Devon EX31 1NP  
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