Process Control
Product Selection Guide
Catalog 4204 - Process
Parker Hannifin Corp.

Parker 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

Process Control

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.

Global Distribution

With over 8,200 distributors, our worldwide distribution network is the strongest in the industry, providing comprehensive technical support and after-sales support. This global support provides optimum services for projects worldwide.
Premier Customer Service

Parker is driven to provide our customers with premier customer service through on time delivery of quality products and value added services such as the Veriflo Division Express Service Program, custom assemblies and tube fabrication classes.

Engineering Excellence

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

Using the latest in virtual engineering tools, Parker 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.

Heat Code Traceability

Parker 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, 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
- Manifolds and Flanged Products
- Filters
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. 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
- Excellent in high thermo cycling applications

**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

**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 13,300 psi (917 bar)

**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

**Welded Fittings** (Catalog 4280)
- Available in socketweld, buttweld and automatic buttweld 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

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Working Pressure</th>
<th>Connection Type</th>
<th>Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI™</td>
<td>Instrumentation Tubing*</td>
<td>Single ferrule compression</td>
<td>1/16&quot; - 2&quot;/2mm - 25mm Tube Diameter</td>
</tr>
<tr>
<td>A-LOK®</td>
<td>Instrumentation Tubing*</td>
<td>Double ferrule compression</td>
<td>1/16&quot; - 2&quot;/2mm - 25mm Tube Diameter</td>
</tr>
<tr>
<td>MPI™</td>
<td>Up to 15,000 psi (1034 bar)</td>
<td>Inverted compression</td>
<td>1/4&quot; - 1&quot; Tube Diameter</td>
</tr>
<tr>
<td>Phastite®</td>
<td>Up to 13,300 psi (917 bar)*</td>
<td>Permanent crimp*</td>
<td>1/4&quot; - 1/2&quot;/6mm - 12mm Tube Diameter</td>
</tr>
<tr>
<td>Weld-lok™</td>
<td>Instrument Tubing*</td>
<td>Tube Socket Weld</td>
<td>1/8&quot; - 2&quot; Tube Diameter</td>
</tr>
<tr>
<td>Pipe</td>
<td>Up to 6000 psi (414 bar)</td>
<td>NPT Pipe Thread</td>
<td>1/16&quot; - 2&quot; Pipe Size</td>
</tr>
<tr>
<td>Pipe Adapters</td>
<td>Up to 6000 psi (414 bar)</td>
<td>NPT, BSPT, and BSPP Pipe Threads</td>
<td>1/8&quot; - 1&quot;</td>
</tr>
</tbody>
</table>

*Maximum suggested working pressure as indicated in Instrument Tubing Selection Guide Bulletin 4200-TS.*
### Ball/Plug Valves

#### 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™ trunnion bearings provide high cycle life
- 10,000 psi (689 bar) rating with PEEK™ seats
- Excellent for CNG

#### 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-HV)

- Suitable for the most demanding applications in the oil, gas and process control industries
- Integral compression ends available, eliminating taper threads and thread sealants
- Two piece barstock design reduces body leakage paths
- Complies with ANSI/ASME B16.34 requirements where applicable
- NACE MR-01-75/ISO 15156 compliant materials available
- Fire safe option

20K Hi-Pro Ball Valve (Catalog 4190-HH/20K)

- Designed for cold working pressure applications of up to 20,000 psi (1,379 bar)
- Two piece body design
- Bi-directional
- Low torque operation
- Tru-Loc® anti-vibration locking system on gland adjuster for 100% security

<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>
<th>Seat/Seal Material</th>
<th>End Connection Size Range</th>
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</thead>
<tbody>
<tr>
<td>Ball/Plug Valves</td>
<td>MB</td>
<td>Mini Barstock Ball Valve</td>
<td>3000 psi</td>
<td>-85 F -54 C</td>
<td>11.00</td>
<td>x x x x x x</td>
<td>x</td>
<td>x</td>
<td>1/16 in 3/4 mm 4121-MB</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Ball Valve</td>
<td>6000 psi</td>
<td>-85 F -54 C</td>
<td>6.40</td>
<td>x x x x x x</td>
<td>x x x x</td>
<td>x</td>
<td>1/16 in 3/4 mm 4121-B</td>
</tr>
<tr>
<td></td>
<td>SWB</td>
<td>Swing Out Ball Valve</td>
<td>2500 psi</td>
<td>-85 F -54 C</td>
<td>35.00</td>
<td>x x x x x x</td>
<td>x x x x</td>
<td>x x</td>
<td>1/4 in n/a mm 4125-SWB</td>
</tr>
<tr>
<td></td>
<td>HB</td>
<td>Ball Valve</td>
<td>6000 psi</td>
<td>-85 F -54 C</td>
<td>1.00</td>
<td>x x x x x x</td>
<td>x x</td>
<td>x</td>
<td>1/4 in n/a mm 4121-HB</td>
</tr>
<tr>
<td></td>
<td>MPB</td>
<td>Med. Pressure Ball Valve</td>
<td>20000 psi</td>
<td>-10 F -23 C</td>
<td>8.80</td>
<td>x x x x x x</td>
<td>x x x x</td>
<td>x</td>
<td>1/4 in n/a mm 4234</td>
</tr>
<tr>
<td></td>
<td>PR</td>
<td>Plug Valve</td>
<td>3000 psi</td>
<td>-10 F -23 C</td>
<td>3.00</td>
<td>x x</td>
<td>x x x x</td>
<td>x</td>
<td>1/4 in n/a mm 4126-PR</td>
</tr>
<tr>
<td></td>
<td>HBV</td>
<td>Ball Valve</td>
<td>10,000 psi</td>
<td>-85 F -54 C</td>
<td>x x</td>
<td>x</td>
<td>x x</td>
<td>x x</td>
<td>1/4 in n/a mm 4190-HBV</td>
</tr>
<tr>
<td></td>
<td>20K</td>
<td>Hi-Pro Ball Valve</td>
<td>20,000 psi</td>
<td>-85 F -54 C</td>
<td>x</td>
<td>1.56</td>
<td>x</td>
<td>x</td>
<td>1/4 in n/a mm 4190-HH 20K</td>
</tr>
</tbody>
</table>
Valves

Check Valves

C Series (Catalog 4130-C)
- Resilient, custom molded, seat design
- Back stopped poppet to minimize spring stress
- Cracking Pressures: \( \frac{1}{3}, 1, 5, 10, 25, 50, 75 \) and 100 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9 bar)
- Port connections include male and female NPT, CPI™, A-LOK®, UltraSeal™, VacuSeal™, BSP, SAE and Seal-Lok®

CO Series (Catalog 4130-CO)
- Suitable for applications requiring high integrity leak rates and re-sealing capabilities
- Seal integrity to \( 4 \times 10^{-9} \) std. atm-cc/sec
- Back stopped poppet to minimize spring stress
- Cracking Pressures: \( \frac{1}{3}, 1, 5, 10, 25, 50, 75 \) and 100 psi (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9 bar)
- Available with highly fluorinated fluorocarbon rubber
- Only check valve with published helium leak rate

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 (.023, .069, .345, .69, 1.72, 3.45, 5.17, 6.9, 8.27 bar)
- Rugged ball design for demanding applications
- For high temperatures with highly viscous medias

MPC Series (Catalog 4234)
- Variety of elastomeric poppet seals
- 5 psi (.345 bar) cracking pressure
- MPI™, 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
- MPI™, 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 to within 99.9% of forward flow

<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>
</tr>
</thead>
<tbody>
<tr>
<td>Check Valves</td>
<td>C</td>
<td>Min Max</td>
<td>Min Max Max Max</td>
<td>6.70</td>
<td>6.9 bar</td>
<td>Stainless Steel</td>
<td>Parkerfill/</td>
<td>Fluorocarbon</td>
</tr>
<tr>
<td></td>
<td>CO</td>
<td>-54 F -26 C Max 2C</td>
<td>100 psi 6.9 bar</td>
<td>x x x x 1/4 in 12 mm 1/2 in 12 mm 4130-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB</td>
<td>-54 F -26 C Max 2C</td>
<td>300 psi 2.7 bar</td>
<td>x x x x 1/8 in 3/4 in 4130-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MPC</td>
<td>-23C Max 2C</td>
<td>400 psi 60 psi</td>
<td>x x x x 1/4 in 1 in 4234</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MPCB</td>
<td>-73C Max 2C</td>
<td>5 psi 345 bar</td>
<td>x x x x 1/4 in 1 in 4234</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC</td>
<td>-73C Max 2C</td>
<td>800 psi 2.30</td>
<td>x x x x 1/8 in 1 in 4130-LC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 (1379 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

<table>
<thead>
<tr>
<th>Valve Groups</th>
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<th>Product Description</th>
<th>Maximum Operating Pressure</th>
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<th>Cv</th>
<th>Body Material</th>
<th>Seal Material</th>
<th>End Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filters</td>
<td>F</td>
<td>Inline Filter</td>
<td>6000 psi 414 bar 80°F 54°C</td>
<td>-65°F -54°C</td>
<td>400°F -204°C</td>
<td>3.40</td>
<td>.5 to 500</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>FT</td>
<td>Tee Filter</td>
<td>6000 psi 414 bar 80°F 54°C</td>
<td>-10°F -23°C</td>
<td>900°F 482°C</td>
<td>2.50</td>
<td>.5 to 500</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>MPF</td>
<td>Medium Pressure Filter</td>
<td>20000 psi 1379 bar 80°F 54°C</td>
<td>-10°F -23°C</td>
<td>400°F -204°C</td>
<td>0.59</td>
<td>.5 to 100</td>
<td>x</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

### HPRV Proportional Relief Valve (Catalog 4190-HPRV)
- Captured moulded seat design is blow-out and chip resistant
- Color coded springs and labels indicate spring cracking range
- Unique Tru-Loc facility prevents accidental adjustment
- Low friction stem seal design prevents friction which increases accuracy of cracking pressure and reseat pressure
- Balanced poppet design ensures consistent cracking pressure regardless of system back pressure
- Multiple end connections available

### Valve Types and Specifications

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<th>Valve Groups</th>
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<tr>
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<tr>
<td>Relief Valves</td>
<td>RL</td>
<td>400 psi 28 bar</td>
<td>-70 F -57C</td>
<td>0.8</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>RH</td>
<td>6000 psi 414 bar</td>
<td>-70 F -57C</td>
<td>0.4</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>HPRV</td>
<td>6000 psi 414 bar</td>
<td>-45 F -43C</td>
<td>.41</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
Valves

Bleed and Purge Valves

**BV Series** (Catalog 4133-BP)
- Recommended for use in bleeding hydraulic systems
- Valve vents line pressure to atmosphere or to containment
- Multi-valve manifolds or gauge/root valves

**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
- Crimped cap ensures safe relief of system pressures

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<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Maximum Operating Pressure</th>
<th>Temperature</th>
<th>Cv</th>
<th>Body Material</th>
<th>End Connections</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td>0.1</td>
<td>Brass</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Bleed and Purge Valves</td>
<td></td>
<td>10000 psi 690 bar</td>
<td>-65 F</td>
<td>850 F</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>PG</td>
<td>4000 psi 276 bar</td>
<td>-65 F</td>
<td>400 F</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>MPBV</td>
<td>30000 psi 2068 bar</td>
<td>-10 F</td>
<td>204 C</td>
<td>x</td>
<td>x</td>
<td>9/16&quot;</td>
</tr>
</tbody>
</table>
# 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

<table>
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<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Maximum Operating Pressure</th>
<th>Temperature</th>
<th>Cv</th>
<th>Body Material</th>
<th>Seat Material</th>
<th>End Connections</th>
</tr>
</thead>
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<tr>
<td>Metering Valves</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NS</td>
<td>2000 psi 138 bar</td>
<td>-50 F -46 C</td>
<td>400 F 204 C</td>
<td>0.040</td>
<td>x x x x x x x</td>
<td>x x x x x x x</td>
<td>1/16 in 3mm 1/4 in 6mm</td>
</tr>
<tr>
<td>NM</td>
<td>1000 psi 69 bar</td>
<td>-50 F -46 C</td>
<td>400 F 204 C</td>
<td>0.100</td>
<td>x x x x x x x</td>
<td>x x x x x x x</td>
<td>1/8 in 3mm 1/4 in 6mm</td>
</tr>
<tr>
<td>NL</td>
<td>1000 psi 69 bar</td>
<td>-50 F -46 C</td>
<td>400 F 204 C</td>
<td>0.200</td>
<td>x x x x x x x</td>
<td>x x x x x x x</td>
<td>1/8 in 6mm 3/8 in</td>
</tr>
<tr>
<td>HR</td>
<td>250 psi 17 bar</td>
<td>-50 F -46 C</td>
<td>400 F 204 C</td>
<td>0.100</td>
<td>x x x x x x x</td>
<td>x x x x x x x</td>
<td>1/16 in 3mm 1/4 in 6mm</td>
</tr>
</tbody>
</table>
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 connections

**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
- Panel mountable
- Ideal for steam blowdown

**HNV Series** (Catalog 4190-HV)
- Compact needle valves
- For applications up to 10,000 psi (690 bar)
- 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, roddable design
• 100% repeatable bubble tight shut off

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

20K H-Series (Catalog 4190-HH/20K)
• Designed for cold working pressure applications of up to 20,000 psi (1,379 bar)
• Non-rotating spindle for bubble tight shut off
• Externally adjustable gland
• Fine threaded stem raiser gives increased stem sensitivity and accuracy
• Tru-Loc® anti-vibration locking system on gland adjuster for 100% security

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Maximum Operating Pressure</th>
<th>Temperature</th>
<th>Cv</th>
<th>Body Material</th>
<th>Actuation</th>
<th>Seat/Seal Material</th>
<th>End Connections</th>
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<tr>
<td>20K HNV</td>
<td>V</td>
<td>6000 psi 414 bar</td>
<td>-65 F to -54 C</td>
<td>1.30</td>
<td>Stainless Steel</td>
<td>Manifold</td>
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<tr>
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<td>U</td>
<td>6000 psi 414 bar</td>
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<td>MPN</td>
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<td>-65 F to -54 C</td>
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<tr>
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<td>MPGV</td>
<td>30000 psi 2068 bar</td>
<td>-10 F to -23C</td>
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<td>HNV</td>
<td>10000 psi 690 bar</td>
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<td>HRPV</td>
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<tr>
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<td>HGV</td>
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<td>-65 F to -54 C</td>
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<td>PTFE</td>
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<td>HVG</td>
<td>6000 psi 414 bar</td>
<td>-65 F to -54 C</td>
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<td>Stainless Steel</td>
<td>PTFE</td>
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<tr>
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<td>HYNV</td>
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<td>-65 F to -54 C</td>
<td>0.35</td>
<td>Stainless Steel</td>
<td>PTFE</td>
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<tr>
<td></td>
<td>20K HNV</td>
<td>20,000 psi 1379 bar</td>
<td>-65 F to -54 C</td>
<td>0.66</td>
<td>Stainless Steel</td>
<td>PTFE</td>
<td>PTFE</td>
<td></td>
</tr>
</tbody>
</table>
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 phastfit® 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

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 pressure and flow measurement applications
- Available with integral PTFree® connections, reducing leakpaths and installation cost
- Available in stainless steel and many exotic alloys, including Hastelloy, 6Mo, MONEL®, and Alloy 625
- Direct or remote mounting options

**HBM 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

### Valve Groups

<table>
<thead>
<tr>
<th>Valve Groups</th>
<th>Model Series</th>
<th>Product Description</th>
<th>Minimum Operating Pressure</th>
<th>Temperature</th>
<th>Body Material</th>
<th>Packing</th>
<th>Seat/Tip</th>
<th>End Connection Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF</td>
<td>double block and bleed</td>
<td>ANSI 2500</td>
<td>-65 F (-54 C)</td>
<td>1000 F</td>
<td>538 C</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>PB</td>
<td>double block and bleed</td>
<td>ANSI 2500</td>
<td>-65 F (-54 C)</td>
<td>450 F</td>
<td>232 C</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>H2</td>
<td>2 valve manifolds - needle style</td>
<td>10,000 psi</td>
<td>1000 F</td>
<td>538 C</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>H3</td>
<td>3 valve manifolds - needle style</td>
<td>10,000 psi</td>
<td>1000 F</td>
<td>538 C</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>H5</td>
<td>5 valve manifolds - needle style</td>
<td>10,000 psi</td>
<td>1000 F</td>
<td>538 C</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>HBM</td>
<td>2 &amp; 3 valve manifolds ball style</td>
<td>10,000 psi</td>
<td>450 F</td>
<td>232 C</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
Diaphragm Valves

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

**NOVAAOP** (Catalog 4515)
- General purpose, high cycle, compact valve
- For gas control panels and analyzer sampling system applications
- 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

**FS190** (Catalog 4515)
- Excess flow shut-off valve
- Manual or pneumatic actuation
- Non-attitude sensitive
- Six pressure/flow limit settings
- Available with welded fittings as well as 1/4" NPT female fittings
- Clear indication of operating position – either “Open (Reset)” or “Auto (Shut Off)”
944AOPHPNCSP (Catalog 4515)
- High pressure air operated valve
- Reliable, accurate performance
- Opening function incorporates hydraulics
- Available with 1/4" NPT female threads

16 Series (Catalog 4515)
- High pressure valve for gas manifold/box systems
- Metal-to-metal diaphragm seal
- Packless valve design

<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>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphragm Valves</td>
<td>NOVA Series</td>
<td>Diaphragm Springless</td>
<td>250 psig/17 barg</td>
<td>-15 F/ -26 C</td>
<td>0.1, 0.3, 0.6</td>
<td>Stainless Steel, Brass</td>
<td>Manual, Pneumatic</td>
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<tr>
<td></td>
<td>NOVA-AOP</td>
<td>Diaphragm Springless</td>
<td>125 psig/9 barg</td>
<td>-15 F/ -26 C</td>
<td>150 F/ 66 C</td>
<td>x</td>
<td>x, x, x</td>
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<tr>
<td></td>
<td>NV55</td>
<td>Diaphragm Springless</td>
<td>250 psig/17 barg</td>
<td>-15 F/ -26 C</td>
<td>150 F/ 66 C</td>
<td>x</td>
<td>x, x, x</td>
</tr>
<tr>
<td></td>
<td>944AOPHPNCSP</td>
<td>Diaphragm Springless</td>
<td>3500 psig/241 barg</td>
<td>-40 F/-40 C</td>
<td>150 F/ 66 C</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>16 Series</td>
<td>Diaphragm Spring</td>
<td>3000 psig/207 barg</td>
<td></td>
<td></td>
<td>x</td>
<td>x, x, x</td>
</tr>
</tbody>
</table>

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Pressure Regulators

**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
- Available in 316L SST, Brass, Hastelloy C-22®, Monel®
- Seals available for nitrous oxide and hydrocarbon applications
- Low dead volume
- General purpose for instrument/analyst 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
- Available in 316L SST and Brass

**HF1200** (Bulletin HF1200)
- High flow welded regulator
- Inlet pressure up to 1,250 psig (86 barg)
- 1.2 Cv
- Large convoluted diaphragm provides stable pressure control
### IR6000 Series (Catalog 4511)
- Dual stage regulator
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Available in 316L SST, Brass, Hastelloy C-22®, Monel®
- 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)
- Available in 316L SST and Brass

### 959 Series (Catalog 4511)
- Tied diaphragm design to minimize regulator creep
- Internally threadless design
- Metal to metal diaphragm seal
- Available in 316L SST, Brass and Hastelloy C-22®

### 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

<table>
<thead>
<tr>
<th>Regulator Groups</th>
<th>Model Series</th>
<th>Type</th>
<th>Maximum Inlet Pressure</th>
<th>Maximum Outlet Pressure</th>
<th>Cv</th>
<th>Body Material</th>
<th>Connections</th>
<th>Face Seal or Tube</th>
<th>Catalog</th>
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<tbody>
<tr>
<td>Single Stage</td>
<td>NPR4100</td>
<td>Absolute Pressure</td>
<td>250 psig 17 barg</td>
<td>-26 in Hg to 10 psig -1.8 in Hg to 7 barg</td>
<td>0.02</td>
<td>0.15</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
<td>IR4000</td>
<td>General Purpose</td>
<td>4000 psig 276 barg</td>
<td>500 psig 34 barg</td>
<td>0.02</td>
<td>0.15</td>
<td>x</td>
<td>x</td>
<td>x x</td>
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<tr>
<td></td>
<td>IRS000</td>
<td>Sensitive</td>
<td>3500 psig 241 barg</td>
<td>250 psig 17 barg</td>
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<td>0.15</td>
<td></td>
<td></td>
<td>x x</td>
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<tr>
<td></td>
<td>HFR900</td>
<td>High Flow</td>
<td>500 psig 34 barg</td>
<td>150 psig 10 barg</td>
<td>0.85</td>
<td>0.85</td>
<td>x</td>
<td>x</td>
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<td>APR66</td>
<td>High Pressure</td>
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<td>600 psig 414 barg</td>
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<td>x</td>
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<td>Tied Diaphragm</td>
<td>3500 psig 241 barg</td>
<td>150 psig 10 barg</td>
<td>0.04</td>
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<td>DM3000</td>
<td>Surface Mount</td>
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<td></td>
<td>HF1200</td>
<td>High Flow</td>
<td>1250 psig 86 barg</td>
<td>200 psig 14 bar</td>
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</table>
Back Pressure Regulators

**ABP1 (Catalog 4510)**
- Reduce contamination and accurately control back pressure
- Internally threadless design
- Convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stop
- Available in 316L SST, Brass, Hastelloy C-22®, Monel®

**ABP3 (Catalog 4510)**
- Internally threadless design
- Provides sensitive pressure adjustments
- Large convoluted Hastelloy C-22® diaphragm
- Integral diaphragm stop
- Available in 316L SST, Brass, Hastelloy C-22®, Monel®

**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
- Available in 316L SST

<table>
<thead>
<tr>
<th>Regulator Groups</th>
<th>Model Series</th>
<th>Type</th>
<th>Pressure Range</th>
<th>Cv</th>
<th>Body Material</th>
<th>Connections</th>
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<tr>
<td><strong>Back Pressure</strong></td>
<td>ABP1</td>
<td>General Purpose</td>
<td>Up to 500 psig 34 barg</td>
<td>0.06</td>
<td>0.30</td>
<td>X</td>
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<td>ABP3</td>
<td>Sensitive</td>
<td>Up to 60 psig 4 barg</td>
<td>0.06</td>
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<td>X</td>
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<td>BPR50</td>
<td>High Pressure</td>
<td>Up to 2500 psig 172 barg</td>
<td>0.45</td>
<td>0.45</td>
<td>X</td>
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</tbody>
</table>

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## Vaporizing Regulators

### AVR3 (Catalog 4512)
- Steam heat design
- Internally threadless design
- Available in 316L SST, Monel®
- Internal liquid volume only .5cc
- Convoluted Hastelloy C-22® diaphragm

### AVR4 (Catalog 4512)
- Electrical heat design
- Field serviceable heat transfer element
- CSA, Cenelec, and ATEX certified
- Internally threadless design
- 120v or 240v, 50/60 Hz
- Convoluted Hastelloy C-22® diaphragm
- Available in 316L SST, Monel®

### Regulator Groups

<table>
<thead>
<tr>
<th>Regulator Groups</th>
<th>Model Series</th>
<th>Type</th>
<th>Pressure</th>
<th>( \text{Cv} )</th>
<th>Body Material</th>
<th>Connections</th>
<th>Catalog</th>
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<td></td>
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<td>Maximum Inlet Pressure</td>
<td>Max</td>
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<td>Min</td>
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<td></td>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td>316L SS</td>
<td>MONEL®</td>
<td></td>
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<tr>
<td></td>
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<td>Min</td>
<td>Max</td>
<td>Min FNPT</td>
<td>Max FNPT</td>
<td></td>
</tr>
<tr>
<td>Vaporizing Regulators</td>
<td>AVR3</td>
<td>Steam Heated</td>
<td>4000 psig 276 barg</td>
<td>0.06</td>
<td>X</td>
<td>X</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>AVR4</td>
<td>Electrically Heated</td>
<td>4000 psig 276 barg</td>
<td>0.06</td>
<td>X</td>
<td>X</td>
<td>1/8&quot;</td>
</tr>
</tbody>
</table>
Flow Controllers

Gas Mass Flow Controllers (Catalog FM-1041 & FM 441)
- Models available with flow ranges of 0-5 sccm to 0-1000slpm N2
- Responds to a step change in setpoint in less than one second
- Accuracy options down to 1% of rate
- Available with Analog or Digital I/O
- Local or remote setpoint and display capability

Digital Liquid Mass Flow Controllers (Bulletin FM-998)
- Thermal measurement system yields accurate measurement with less than a 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 and systems for the measurement and control of low flow gases and liquids.

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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.

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(Catalog PSM Partek)
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.

**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
<table>
<thead>
<tr>
<th><strong>IntraFlow™</strong> (Catalog 4250)</th>
<th><strong>R-max™</strong> (Catalog 4140-R)</th>
<th><strong>ChangeOver System</strong> (Catalog 4511)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Modular instrument system</td>
<td>• Surface mount technology for stream switching valves</td>
<td>• Compact turnkey module designed for continuous gas management</td>
</tr>
<tr>
<td>• ISA/ANSI SP 76.00.02 compliant</td>
<td>• Low internal volume to reduce system purge time</td>
<td>• Optional outlet regulator to control application specific outlet pressure</td>
</tr>
<tr>
<td>• Every component is upgradeable to Gen 2 &amp; 3 NeSSI Technologies</td>
<td>• Low pressure actuation of valves-40 psig (-2.76)</td>
<td>• Audio/visual alarm annunciator available</td>
</tr>
<tr>
<td>• Vacuum to 500 psig (34 barg)</td>
<td>• Rated from vacuum to 500 psig (34 barg)</td>
<td>• Available in 316L stainless steel and brass</td>
</tr>
<tr>
<td>• System design software available</td>
<td></td>
<td>• Suitable for oxygen service</td>
</tr>
</tbody>
</table>
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
Tools and Accessories

**Tube Fabrication Equipment** (Catalog 4290)
- High quality hand benders, tube cutters, deburr tools and preset tools
- Tube benders from $\frac{1}{8}”$ 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

**Texas Thermowells** (Catalog 4240)
- Flanged thermowells are available in partial penetration and full penetration welds
- Each thermowell is stamped to provide full material traceability
- Teflon® coating and Wake Frequency Calculations available
- Wide variety of special alloy material in stock ready for manufacturing
Parker offers a full line of fittings, valves and related process components for the food, beverage, dairy and biopharmaceutical process industries. All components meet or exceed the stringent standards as set forth by these industries.

**Sanitary Fittings (Catalog 4270)**
- Buttweld, clamp, bevel seat and other fitting styles available
- ASME-BPE fittings for use in pharmaceutical and biotech applications
- Finishes from unpolished to 10RA electropolish available
- A large variety of threaded, socket-weld, flanged and DIN adapters is also available

**Sanitary Valves (Catalog 4270-VFC)**
- Sanitary versions of 3-pc ball, butterfly, check and sample valves
- Flow components such as sight-glasses also available
- Electric and pneumatic actuators with options such as limit switches, position indicators and solenoid valves

**Sanitary Gaskets (Catalog 4270)**
- Sanitary gaskets and o-rings that meet all applicable 3A and Pharmaceutical Class 6 standards
- Wide variety of size and materials such as Buna, EPDM, silicone, PTFE, SFY and exotic compounds for specialty applications
- Color-Grip gaskets available in a variety of colors to support SOP programs and eliminate cross contamination
- Screen, orifice, metal and sampling gaskets for tough or unique applications
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 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: 763-544-3418
- www.parker.com/qcd

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- Fax: 440-943-3129

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- Fax: (510) 232-7396
- www.parker.com/veriflo

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- Fax: 269-694-4614
- www.parker.com/brassprod

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- Ravenna, OH 44266
- Phone: 330-296-2871
- Fax: 330-296-8433
- www.parker.com/parflex

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- Europe: 00-800-C-Parker-H (00800-27-27-5374)