



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





# **Process Control Product Selection Guide**





ENGINEERING YOUR SUCCESS.

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## 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.



Parker Hannifin Corp. Headquarters, Cleveland, OH



## **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:

- MPI<sup>™</sup>, CPI<sup>™</sup> and A-LOK<sup>®</sup> Tube Fittings
- UltraSeal<sup>™</sup> and VacuSeal<sup>™</sup> Fittings
- Ball, Needle and Check Valves
- Instrumentation Pipe Fittings
- Orbital Tube Weld Fittings
- MiniButtweld<sup>™</sup> Fittings
- Manifolds and Flanged Products
- Filters

## **Fittings/Quick Couplings**



### CPI<sup>™</sup> 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<sup>™</sup> 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<sup>®</sup> Fittings (Catalog 4230/4233)

- · Industry standard design for all instrumentation grade tubing
- · Silver coated threads to reduce galling
- Back ferrule is treated with Suparcase<sup>™</sup> technology to provide a strong mechanical grip on the tube
- Industry double ferrule design for system specifications



### MPI<sup>™</sup> Fittings (Catalog 4234)

- · Compression fitting for medium pressure applications up to 15,000 psi (1,034 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<sup>®</sup> (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



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### 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



### Cylinder Connections (Bulletin 25000248)

- High integrity and ultra high integrity
   (DISS) connections
- Complete line consists of nipples, nuts, gaskets, adapters, caps, plugs, assemblies, seal enhancers, flexible pigtails, torque wrenches
- Cleaned and packaged for O<sub>2</sub> service
- Seal enhancer improves connection integrity



### Brass Push-to-Connect Fittings (Bulletin 3500-QRG)

- Prestolok<sup>®</sup> 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



### Quick Couplings (Catalog 4220)

- Non-Spill designs virtually eliminate fluid loss upon disconnection and drastically minimize air inclusion during connection
- Common industrial and global interchanges available
- Various body and seal materials available for transfer and sealing off media in corrosive or high purity applications
- Working pressures available up to 10,000 psi (690 bar)

| Fitting  | Working Pressure                                     | Connection Type                     | Size Range                           |
|--|--|-------------------------------------|--------------------------------------|
| СРІ™   | Instrumentation Tubing*                              | Single ferrule compression          | 1/16" - 2"/2mm - 25mm Tube Diameter  |
| A-LOK®   | Instrumentation Tubing*                              | Double ferrule compression          | 1/16" - 2"/2mm - 25mm Tube Diameter  |
| MPI™   | Up to 15,000 psi (1,034 bar)                         | Inverted double ferrule compression | 1/4" - 1" Tube Diameter              |
| Phastite®  | Up to 13,300 psi (917 bar)*                          | Permanent crimp*                    | 1/4" - 1/2"/6mm - 12mm Tube Diameter |
| Weld-lok™  | Instrument Tubing*                                   | Tube Socket Weld                    | 1/8" - 2" Tube Diameter              |
| Pipe   | Up to 6,000 psi (414 bar)                            | NPT Pipe Thread                     | 1/16" - 2" Pipe Size                 |
| Pipe Adapters                                    | Up to 6,000 psi (414 bar)                            | NPT, BSPT, and BSPP Pipe Threads    | 1/8" - 1"                            |
| Cylinder Connections                             | Up to 3,000 psi (207 bar)                            | Tube Stub, VacuSeal Male, NPT Male  | 1/4"                                 |
| *Maximum suggested working pressure as indicated | in Instrument Tubing Selection Guide Bulletin 4200-1 | S                                   |                                      |

## Ball/Plug Valves





### PR Series (Catalog 4121-BV)

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

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## Pneumatic/Electric Actuators (Catalog 4121-BV)

- 60 Series pneumatic actuators provide 90° and 180° rotation in both double acting and spring return models
- 70, 80 and 90 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
- 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<sup>®</sup> anti-vibration locking system on gland adjuster for 100% security

|                 |                 |                             |                                  | Tempe          | rature         | Cv    | Body  | / Mat           | erial | Ac     | tuati     | on       |       |               | s                            | eat/S                              | eal Ma                 | iteria | I        |      |      | End Con<br>Size F |                 |                  |
|-----------------|-----------------|-----------------------------|----------------------------------|----------------|----------------|-------|-------|-----------------|-------|--------|-----------|----------|-------|---------------|------------------------------|------------------------------------|------------------------|--------|----------|------|------|-------------------|-----------------|------------------|
| Valve<br>Groups | Model<br>Series | Product<br>Description      | Maximum<br>Operating<br>Pressure | Min            | Max            | Max   | Brass | Stainless Steel | Alloy | Manual | Pneumatic | Electric | PCTFE | Buna-N Rubber | Ethylene Propylene<br>Rubber | Highly Fluorinated<br>Fluorocarbon | Fluorocarbon<br>Rubber | PFA    | GRAFOIL® | PEEK | PTFE | Min               | Max             | Catalog          |
|                 | MB              | Mini Barstock<br>Ball Valve | 3,000 psi<br>207 bar             | -65 F<br>-54 C | 300 F<br>149 C | 11.00 | Х     | х               |       | х      | х         | х        |       |               |                              |                                    |                        | х      |          |      |      | 1/16 in<br>3mm    | 3/4 in<br>12mm  | 4121-BV          |
|                 | В               | Ball Valve                  | 6,000 psi<br>414 bar             | -65 F<br>-54 C | 400 F<br>204 C | 6.40  | Х     | Х               | Х     | Х      | Х         | х        | Х     | х             | х                            | Х                                  | Х                      |        |          | х    | х    | 1/16 in<br>3mm    | 3/4 in<br>12mm  | 4121-BV          |
|                 | SWB             | Swing Out Ball<br>Valve     | 2,500 psi<br>172 bar             | -65 F<br>-54 C | 600 F<br>316 C | 35.00 |       | Х               |       | Х      | Х         | х        |       | х             | х                            |                                    | Х                      |        | Х        | Х    | Х    | 1/4 in<br>n/a mm  | 1 in<br>n/a mm  | 4121-BV          |
| Ball/Plug       | HB              | Ball Valve                  | 10,000 psi<br>689 bar            | -65 F<br>-54 C | 400 F<br>204 C | 1.00  |       | Х               |       | Х      | Х         | х        | Х     | Х             | х                            |                                    | Х                      |        |          | Х    |      | 1/4 in<br>6mm     | 1/2 in<br>12mm  | 4121-BV          |
| Valves          | MPB             | Med. Pressure<br>Ball Valve | 20,000 psi<br>1379 bar           | -10 F<br>-23C  | 400 F<br>204 C | 8.80  |       | Х               |       | Х      | Х         | х        |       | Х             | х                            | Х                                  | Х                      |        |          | Х    |      | 1/8 in<br>n/a mm  | 1 in<br>n/a mm  | 4234 and 4121-BV |
|                 | PR              | Plug Valve                  | 3,000 psi<br>207 bar             | -10 F<br>-23C  | 400 F<br>204 C | 3.20  | Х     | Х               |       |        |           |          |       | Х             | х                            | Х                                  | Х                      |        |          |      |      | 1/8 in<br>3mm     | 1/2 in<br>12mm  | 4121-BV          |
|                 | HBV             | Ball Valve                  | 10,000 psi<br>689 bar            | -65 F<br>-54 C | 450 F<br>232 C |       |       | Х               | х     | Х      | Х         |          |       |               |                              |                                    |                        |        | Х        | Х    | х    | 1/8 in<br>6mm     | 1 in<br>25mm    | 4190-HBV         |
|                 | 20K<br>HPBV     | Hi-Pro Ball<br>Valve        | 20,000 psi<br>1379 bar           | - 4F<br>-20C   | 392 F<br>200 C | 1.56  |       | Х               |       |        |           |          |       |               |                              |                                    |                        |        |          | х    |      | 1/4 in<br>6mm     | 9/16 in<br>14mm | 4190-HH<br>20K   |

## **Check Valves**



### C Series (Catalog 4135-CV)

- Resilient, custom molded, seat design
- Back stopped poppet to minimize spring stress
- Cracking Pressures: 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<sup>™</sup>, A-LOK<sup>®</sup>, UltraSeal<sup>™</sup>, VacuSeal<sup>™</sup>, BSP, SAE and Seal-Lok<sup>®</sup>



### **CO Series** (Catalog 4135-CV)

- Suitable for applications requiring high integrity leak rates and re-sealing capabilities
- Seal integrity to 4 x 10<sup>-9</sup> std. atm-cc/sec
- Back stopped poppet to minimize spring stress

#### **CB Series** (Catalog 4135-CV)

- 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)

· Variety of elastomeric poppet seals

5 psi (.345 bar) cracking pressure

.69, 1.72, 3.45, 5.17, 6.9 bar)
Available with highly fluorinated fluorocarbon rubber

50, 75 and 100 psi (.023, .069, .345,

Cracking Pressures: 1/3, 1, 5, 10, 25,

 Only check valve with published helium leak rate



For high temperatures with highly viscous medias



### MPC Series (Catalogs 4234 and 4135-CV)

- MPI<sup>™</sup>, cone & thread and female NPT connections available
- For pressures up to 20,000 psi (1,379 bar)





## MPCB Series (Catalogs 4234 and 4135-CV)

- Metal to metal seat for use in applications that cannot accept fluorocarbon rubber
- 5 psi (.345 bar) cracking pressure
- MPI<sup>™</sup>, cone & thread and female NPT connections available
- For pressures up to 20,000 psi (1379 bar)



### LC Series (Catalog 4135-CV)

- For extreme temperature applications
- The gravity assisted poppet uses reverse flow to achieve a seal to within 99.9% of forward flow

|                 |                 |                                  | Tempe           | erature        | Cv   | Cracking<br>Pressure | Bo<br>Mate |                 |                             |               |                              | Seal M                             |                     | I               |       |      | End Con        | nections       |                  |
|-----------------|-----------------|----------------------------------|-----------------|----------------|------|----------------------|------------|-----------------|-----------------------------|---------------|------------------------------|------------------------------------|---------------------|-----------------|-------|------|----------------|----------------|------------------|
| Valve<br>Groups | Model<br>Series | Maximum<br>Operating<br>Pressure | Min             | Max            | Max  | Max                  | Brass      | Stainless Steel | Parkerfill/<br>Parkercarbon | Buna-N Rubber | Ethylene Propylene<br>Rubber | Highly Fluorinated<br>Fluorocarbon | Fluorocarbon Rubber | Neoprene Rubber | Metal | PTFE | Min            | Мах            | Catalog          |
|                 | С               | 6,000 psi<br>414 bar             | -65 F<br>-54 C  | 400 F<br>204 C | 6.70 | 100 psi<br>6.9 bar   | х          | х               |                             | Х             | х                            | х                                  | Х                   | х               |       | х    | 1/8 in<br>3 mm | 1 in<br>25 mm  | 4135-CV          |
|                 | CO              | 6,000 psi<br>414 bar             | -15 F<br>-26 C  | 400 F<br>204 C | 2.70 | 100 psi<br>6.9 bar   |            | х               |                             | Х             | Х                            | х                                  | Х                   |                 |       |      | 1/4 in<br>6mm  | 1/2 in<br>12mm | 4135-CV          |
| Check           | CB              | 3,000 psi<br>207 bar             | -65 F<br>-54 C  | 450 F<br>232 C | 6.00 | 120 psi<br>8.27 bar  |            | х               | х                           |               |                              |                                    |                     |                 |       |      | 3/8 in         | 3/4 in         | 4135-CV          |
| Valves          | MPC             | 20,000 psi<br>1379 bar           | -10 F<br>-23C   | 400 F<br>204 C |      | 5 psi<br>.345 bar    |            | х               |                             | Х             | х                            | х                                  | Х                   |                 |       |      | 1/4 in         | 1 in           | 4234 and 4135-CV |
|                 | MPCB            | 20,000 psi<br>1379 bar           | -100 F<br>-73 C | 600 F<br>316 C |      | 5 psi<br>.345 bar    |            | х               |                             |               |                              |                                    |                     |                 | x     |      | 1/4 in         | 1 in           | 4234 and 4135-CV |
|                 | LC              | 6,000 psi<br>414 bar             | -100 F<br>-73 C | 900 F<br>482 C | 2.30 |                      |            | Х               |                             |               |                              |                                    |                     |                 | Х     |      | 1/8 in         | 1/2 in         | 4135-CV          |

## **Filters**



## F Series (Catalog 4135-CV)

- Replaceable sintered 316 stainless steel filter element
- Optional 250 and 450 micron wire cloth filter elements



### FT Series (Catalog 4135-CV)

- 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 (Catalogs 4234 and 4135-CV)

- · High pressure applications up to 20,000 psi (1,379 bar)
- · Sintered 316 stainless steel filter disc
- Inline filters help protect valuable equipment in the process system
- MPI<sup>™</sup>, cone & thread and female NPT connections available

|   |                 |                 |                           |                                  | Tempe           | rature         | Cv   |                 | Body M | laterial        |                        |               | Sea                          | al Mate                            | rial            |      |                               | End Con       | nections       |                  |
|---|-----------------|-----------------|---------------------------|----------------------------------|-----------------|----------------|------|-----------------|--------|-----------------|------------------------|---------------|------------------------------|------------------------------------|-----------------|------|-------------------------------|---------------|----------------|------------------|
|   | Valve<br>Groups | Model<br>Series | Product<br>Description    | Maximum<br>Operating<br>Pressure | Min             | Max            | Max  | Micron<br>Range | Brass  | Stainless Steel | Fluorocarbon<br>Rubber | Buna-N Rubber | Ethylene<br>Propylene Rubber | Highly Fluorinated<br>Fluorocarbon | Neoprene Rubber | PTFE | Silver Plated<br>Nickel Alloy | Min           | Max            | Catalog          |
|   |                 | F               | Inline Filter             | 6,000 psi<br>414 bar             | -65 F<br>-54 C  | 400 F<br>204 C | 3.40 | .5 to 500       | Х      | Х               | х                      | Х             | х                            |                                    | х               | х    |                               | 1/8 in<br>3mm | 1 in<br>25mm   | 4135-CV          |
| I | Filters         | FT              | Tee Filter                | 6,000 psi<br>414 bar             | -100 F<br>-73 C | 900 F<br>482 C | 2.50 | .5 to 500       | Х      | Х               | х                      | х             | х                            | х                                  | Х               | х    | х                             | 1/8 in<br>6mm | 1/2 in<br>12mm | 4135-CV          |
|   |                 | MPF             | Medium<br>Pressure Filter | 20,000 psi<br>1379 bar           | -10 F<br>-23C   | 400 F<br>204 C | 0.59 | .5 to 100       |        | Х               |                        |               |                              |                                    |                 | Х    |                               | 1/4 in        | 9/16 in        | 4234 and 4135-CV |



## **Relief Valves**



### RL4 Series (Catalog 4135-CV)

- Handle for field maintenance
- Externally adjustable pressure settings while valve is in operation

RH4 Series (Catalog 4135-CV)

· Seven different springs

Eight 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



### Manual override option with positive stem retraction is available for pressures up to 1,500 psi (103 bar)

 Preset from factory and comes with standard springs

## HPRV – PED High Pressure 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



## HPRV – PED Low Pressure Proportional Relief Valve

(Catalog 4190-HPRV)

- Pressure settings are externally adjustable. Six different spring ranges provide greater system sensitivity and enhanced performance
- Back pressure has minimum effect on cracking pressure
- Color coded springs and labels indicate spring cracking range
- Orifice sizes: 5.2mm (0.203")
- · Lock wire feature secures a given pressure setting
- · Multiple end connections available

|                 |                         |                                  | Tempe         | rature         | Cv  | Body<br>Material |               | S                            | eal Materia                        | al                     |                 | End Con       | nections      |           |
|-----------------|-------------------------|----------------------------------|---------------|----------------|-----|------------------|---------------|------------------------------|------------------------------------|------------------------|-----------------|---------------|---------------|-----------|
| Valve<br>Groups | Model Series            | Maximum<br>Operating<br>Pressure | Min           | Max            | Max | Stainless Steel  | Buna-N Rubber | Ethylene<br>Propylene Rubber | Highly Fluorinated<br>Fluorocarbon | Fluorocarbon<br>Rubber | Neoprene Rubber | Min           | Max           | Catalog   |
|                 | RL                      | 400 psi<br>28 bar                | -70 F<br>-57C | 400 F<br>204 C | 0.8 | х                | х             | х                            | х                                  | х                      | х               | 1/4 in<br>6mm | 1/4 in<br>8mm | 4135-CV   |
| Relief          | RH                      | 6,000 psi<br>414 bar             | -70 F<br>-57C | 400 F<br>204 C | 0.4 | х                | х             | х                            | х                                  | Х                      | Х               | 1/4 in<br>6mm | 1/4 in<br>8mm | 4135-CV   |
| Valves          | HPRV –<br>High Pressure | 6,000 psi<br>414 bar             | -45 F<br>-43C | 250 F<br>121 C | .41 | х                |               | х                            | Х                                  | Х                      | Х               | 1/4 in<br>6mm | 1/4 in<br>6mm | 4190-HPRV |
|                 | HPRV –<br>Low Pressure  | 400 psi<br>27.6 bar              | -45 F<br>-43C | 250 F<br>121 C | .41 | х                |               | х                            | Х                                  | Х                      | Х               | 1/4 in<br>6mm | 1/4 in<br>6mm | 4190-HPRV |

## **Bleed and Purge Valves**



### BV Series (Catalog 4135-CV)

- 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 4135-CV)

- 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

|                           |                 | Maximum                | Tempe          | erature        | Cv  |       | Body Material      |       | End Con | nections |                  |
|---------------------------|-----------------|------------------------|----------------|----------------|-----|-------|--------------------|-------|---------|----------|------------------|
| Valve<br>Groups           | Model<br>Series | Operating<br>Pressure  | Min            | Max            | 0.1 | Brass | Stainless<br>Steel | Alloy | Min     | Max      | Catalog          |
|                           | BV              | 10,000 psi<br>690 bar  | -65 F<br>-54 C | 850 F<br>454 C | Х   |       | Х                  | Х     | 1/4"    | 1/2"     | 4135-CV          |
| Bleed and<br>Purge Valves | PG              | 4,000 psi<br>276 bar   | -65 F<br>-54 C | 400 F<br>204 C |     | Х     | Х                  | Х     | 1/8"    | 1/2"     | 4135-CV          |
|                           | MPBV            | 30,000 psi<br>2068 bar | -10 F<br>-23C  | 400 F<br>204 C |     |       | Х                  |       | 9/16"   | 9/16"    | 4234 and 4135-CV |



## Metering Valves



### N Series (Catalog 4170-MV)

- Panel or in-line mounting
- Angle or in-line patterns
- Valve stem threads not in contact with process fluid



### HR Series (Catalog 4170-MV)

- Bubble tight shut-off capability
- High resolution metering valve with limited hysteresis
- Seven optional valve stem tapers



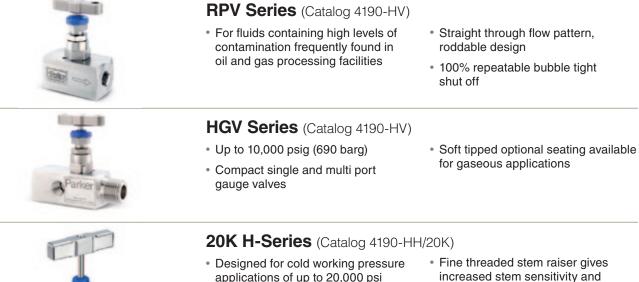
### Cartridge Valve (Catalog FM-1058)

- Valve pin o-ring guarantees positive Seven available needle tapers shut off without stem damage
- Self-lubricating orifice liner

|                 |                    |                                  | Tempe          | rature         | Cv    | Body M | laterial        |               | Se                           | at Mater                           | ial                 |                 | End Con        | nections      |         |
|-----------------|--------------------|----------------------------------|----------------|----------------|-------|--------|-----------------|---------------|------------------------------|------------------------------------|---------------------|-----------------|----------------|---------------|---------|
| Valve<br>Groups | Model<br>Series    | Maximum<br>Operating<br>Pressure | Min            | Max            | Max   | Brass  | Stainless Steel | Buna-N Rubber | Ethylene Propylene<br>Rubber | Highly Fluorinated<br>Fluorocarbon | Fluorocarbon Rubber | Neoprene Rubber | Min            | Max           | Catalog |
|                 | NS                 | 2,000 psi<br>138 bar             | -50 F<br>-46 C | 400 F<br>204 C | 0.040 | Х      | Х               | Х             | Х                            | Х                                  | Х                   | Х               | 1/16 in<br>3mm | 1/4 in<br>6mm | 4170-MV |
|                 | NM                 | 1,000 psi<br>69 bar              | -50 F<br>-46 C | 400 F<br>204 C | 0.100 | Х      | Х               | Х             | Х                            | Х                                  | Х                   | Х               | 1/8 in<br>3mm  | 1/4 in<br>6mm | 4170-MV |
| Metering Valves | NL                 | 1,000 psi<br>69 bar              | -50 F<br>-46 C | 400 F<br>204 C | 0.200 | Х      | Х               | х             | Х                            | Х                                  | Х                   | Х               | 1/8 in<br>6mm  | 3/8 in        | 4170-MV |
|                 | HR                 | 250 psi<br>17 bar                | -50 F<br>-46 C | 400 F<br>204 C | 0.100 | х      | х               | х             | Х                            | х                                  | х                   | Х               | 1/16 in<br>3mm | 1/4 in<br>6mm | 4170-MV |
|                 | Cartridge<br>Valve | 250 psi<br>17.2 bar              |                |                |       |        |                 |               |                              |                                    |                     |                 |                |               |         |

## **Needle Valves**

| V Series (Catalog 4110-NV)       • Wide variety of size and e connections         • Choice of three stem types       • Wide variety of size and e connections         • Choice of three stem types       • In-line and angle patterns         • Choice of two stem types       • In-line and angle patterns         • Choice of two stem types       • In-line and angle patterns         • Choice of two stem types       • Color-coded handles         • US Series (Catalog 4110-NV)       • In-line and angle patterns         • In-line and angle patterns       • Color-coded handles         • Panel mountable       • Panel mountable         • Fracture resistant nylon ha       • Panel mountable         • Packing below power threads       • Panel mountable         • Fracture resistant nylon ha       • Bonnet lock plate resists a b  | ıd         |
|---|------------|
| regulation of fluids       connections         • Choice of three stem types       connections         • Choice of three stem types       sN6 Series (Catalog 4110-NV)         • Provides shut-off and coarse regulation of liquids and gases       • In-line and angle patterns         • Choice of two stem types       • In-line and angle patterns         • Choice of two stem types       • Color-coded handles         • VQ Series (Catalog 4110-NV)       • In-line and angle patterns         • Panel mountable       • Color-coded handles         • Panel mountable       • Color-coded handles         • DYG Series (Catalog 4110-NV)       • Choice of two non-rotating stem types         • Packing below power threads       • Panel mountable         • Packing below power threads       • Panel mountable         • Panel mountable       • Roddable, straight through flow path         • Gauge port option       • Bonnet lock plate resists a bonnet disengagement         • PEEK", Acetal, PFA seat r available  |            |
| • Choice of three stem types         • Choice of three stem types         • SN6 Series (Catalog 4110-NV)         • Provides shut-off and coarse regulation of liquids and gases         • Choice of two stem types         • Choice of two stem types         • Choice of two stem types         • Color-coded handles         • Quick actuation for low pre-applications         • Choice of two non-rotating stem types         • Panel mountable         • Packing below power threads         • Panel mountable         • Panel mountable         • Fracture resistant nylon ha         • Gauge port option         • Bonnet dock plate resists a bonnet disengagement available  |            |
| <ul> <li>Provides shut-off and coarse regulation of liquids and gases</li> <li>Choice of two stem types</li> <li>In-line and angle patterns</li> <li>Ideal cylinder valve</li> <li>Ideal cylinder valve</li> <li>VQ Series (Catalog 4110-NV)</li> <li>In-line and angle patterns</li> <li>Panel mountable</li> <li>Color-coded handles</li> <li>Quick actuation for low propriations</li> <li>Panel mountable</li> <li>Panel mountable</li></ul>  |            |
| <ul> <li>Provides shut-off and coarse regulation of liquids and gases</li> <li>Choice of two stem types</li> <li>In-line and angle patterns</li> <li>Ideal cylinder valve</li> <li>Ideal cylinder valve</li> <li>VQ Series (Catalog 4110-NV)</li> <li>In-line and angle patterns</li> <li>Panel mountable</li> <li>Color-coded handles</li> <li>Quick actuation for low propriations</li> <li>Panel mountable</li> <li>Panel mountable</li></ul>  |            |
| regulation of liquids and gases<br>• Choice of two stem types       • Ideal cylinder valve         VQ Series (Catalog 4110-NV)<br>• In-line and angle patterns<br>• Panel mountable       • Color-coded handles<br>• Quick actuation for low pro-<br>applications         NP6 Series (Catalog 4110-NV)<br>• Choice of two non-rotating<br>stem types<br>• Packing below power threads       • Panel mountable<br>• Fracture resistant nylon ha<br>• Fracture resistant nylon ha         PV Series (Catalog 4110-NV)<br>• Roddable, straight through flow path<br>• Gauge port option       • Bonnet lock plate resists a<br>bonnet disengagement<br>• PEEK", Acetal, PFA seat r<br>available  |            |
| Choice of two stem types     · Ideal Cylinder Valve     · Choice of two stem types     · Choice of two stem types     · Color-coded handles     · Quick actuation for low pre     applications     · Quick actuation for low pre     applications     · Panel mountable     · Choice of two non-rotating     stem types     · Packing below power threads     · Panel mountable     · Fracture resistant nylon ha     · Gauge port option     · PEEK", Acetal, PFA seat r     available   |            |
| VQ Series (Catalog 4110-NV)         • In-line and angle patterns         • Panel mountable         • Panel mountable         • Color-coded handles         • Quick actuation for low preapplications         • Panel mountable         • Choice of two non-rotating stem types         • Packing below power threads         • PY Series (Catalog 4110-NV)         • Roddable, straight through flow path         • Gauge port option         • Bonnet lock plate resists at bonnet disengagement         • PEEK", Acetal, PFA seat ravialable  |            |
| <ul> <li>In-line and angle patterns</li> <li>Panel mountable</li> <li>Color-coded handles</li> <li>Quick actuation for low preapplications</li> <li>Quick actuation for low preapplications</li> <li>NP6 Series (Catalog 4110-NV)</li> <li>Choice of two non-rotating stem types</li> <li>Packing below power threads</li> <li>Panel mountable</li> <li>Fracture resistant nylon has</li> <li>PV Series (Catalog 4110-NV)</li> <li>Roddable, straight through flow path</li> <li>Gauge port option</li> <li>Bonnet lock plate resists a bonnet disengagement</li> <li>PEEK", Acetal, PFA seat r available</li> </ul>  |            |
| • Panel mountable       • Quick actuation for low preapplications         • Panel mountable       • Quick actuation for low preapplications         • NP6 Series (Catalog 4110-NV)       • Panel mountable         • Choice of two non-rotating stem types       • Panel mountable         • Packing below power threads       • Panel mountable         • Pocking below power threads       • Perecurve resistant nylon has         • PV Series (Catalog 4110-NV)       • Bonnet lock plate resists a bonnet disengagement         • Gauge port option       • PEEK <sup>™</sup> , Acetal, PFA seat r available  |            |
| Image: Section of the one-rotating stem types       • Panel mountable         • Packing below power threads       • Panel mountable         • Packing below power threads       • Fracture resistant nylon hat         • Power threads       • Power threads         • Power threads       • Percent of the open o  |            |
| Image: Normal system is a system of the image with | ssure      |
| <ul> <li>Choice of two non-rotating stem types</li> <li>Packing below power threads</li> <li>Packing below power threads</li> <li>PV Series (Catalog 4110-NV)</li> <li>Roddable, straight through flow path</li> <li>Gauge port option</li> <li>Bonnet lock plate resists a bonnet disengagement</li> <li>PEEK™, Acetal, PFA seat r available</li> </ul>  |            |
| stem types       • Fracture resistant nylon has         • Packing below power threads       • Fracture resistant nylon has         • PV Series (Catalog 4110-NV)       • Bonnet lock plate resists a bonnet disengagement         • Gauge port option       • PEEK™, Acetal, PFA seat ravailable  |            |
| <ul> <li>Packing below power threads</li> <li>Packing below power threads</li> <li>PV Series (Catalog 4110-NV)</li> <li>Roddable, straight through flow path</li> <li>Gauge port option</li> <li>Bonnet lock plate resists a bonnet disengagement</li> <li>PEEK<sup>™</sup>, Acetal, PFA seat r available</li> </ul>  |            |
| Image: PV Series (Catalog 4110-NV)         • Roddable, straight through flow path         • Gauge port option         • PEEK™, Acetal, PFA seat ravailable  | ndle       |
| <ul> <li>Roddable, straight through flow path</li> <li>Gauge port option</li> <li>Bonnet lock plate resists a bonnet disengagement</li> <li>PEEK<sup>™</sup>, Acetal, PFA seat r available</li> </ul>   |            |
| Gauge port option     Gauge port option     Det disengagement     PEEK™, Acetal, PFA seat r     available   |            |
| • Gauge port option     • PEEK™, Acetal, PFA seat r<br>available  | ccidental  |
| available   | aterials   |
| U Series (Catalog 4110-NV)  | atenais    |
|   |            |
| Stem packing below the threads     Severe service application   | S          |
| isolates the thread lubricant from<br>the flow • Panel mountable  |            |
| Ideal for steam blowdown  |            |
| HNV Series (Catalog 4190-HV)  |            |
| Compact needle valves     Available with integral A-Li  |            |
| • For applications up to 10,000 psi (600 bar)   |            |
| Soft tipped optional seatin   |            |
| for gaseous applications  | j avallabi |



- applications of up to 20,000 psi (1,379 bar)
  - · Non-rotating spindle for bubble tight shut off
  - · Externally adjustable gland
- increased stem sensitivity and accuracy
- Tru-Loc<sup>®</sup> anti-vibration locking system on gland adjuster for 100% security

|                 |                 |                                  | Tempe          | erature         | Cv   | Bo<br>Mat       |       | Actu   | ation     |      |               | Seat/S                          | Seal Mater                            | ial                    |                |                 | End Con       | nections        |                  |
|-----------------|-----------------|----------------------------------|----------------|-----------------|------|-----------------|-------|--------|-----------|------|---------------|---------------------------------|---------------------------------------|------------------------|----------------|-----------------|---------------|-----------------|------------------|
| Valve<br>Groups | Model<br>Series | Maximum<br>Operating<br>Pressure | Min            | Max             | Max  | Stainless Steel | Alloy | Manual | Pneumatic | PTFE | Buna-N Rubber | Ethylene<br>Propylene<br>Rubber | Highly<br>Fluorinated<br>Fluorocarbon | Fluorocarbon<br>Rubber | Silicon Rubber | <b>GRAFOIL®</b> | Min           | Max             | Catalog          |
|                 | ۷               | 6,000 psi<br>414 bar             | -65 F<br>-54 C | 450 F<br>232 C  | 1.30 | х               | Х     | Х      |           | Х    | Х             | Х                               |                                       | х                      |                |                 | 1/8 in<br>3mm | 3/4 in<br>12    | 4110-NV          |
|                 | SN6             | 6,000 psi<br>414 bar             | -65 F<br>-54 C | 450 F<br>232 C  | 0.30 | х               |       | Х      |           | Х    |               |                                 |                                       |                        |                | Х               | 1/4 in        | 1/4 in          | 4110-NV          |
|                 | VQ              | 300 psi<br>21 bar                | -20 F<br>-29 C | 200 F<br>93 C   | 0.80 | х               |       | Х      | Х         | Х    | Х             | Х                               | х                                     | х                      |                |                 | 1/8 in<br>3mm | 1/2 in<br>10mm  | 4110-NV          |
|                 | NP6             | 6,000 psi<br>414 bar             | -70 F<br>-57 C | 700 F<br>371 C  | 0.60 | х               |       | Х      |           | Х    | Х             | Х                               | х                                     | х                      |                | Х               | 1/4 in<br>6mm | 3/8 in<br>8mm   | 4110-NV          |
|                 | PV              | 6,000 psi<br>414 bar             | -20 F<br>-29 C | 400 F<br>204 C  | 2.00 | х               |       | Х      |           |      | Х             | Х                               | х                                     | х                      | Х              |                 | 1/4 in        | 3/4 in          | 4110-NV          |
|                 | U               | 6,000 psi<br>414 bar             | -65 F<br>-54 C | 1200 F<br>649 C | 2.70 | х               |       | Х      |           | Х    |               |                                 |                                       |                        | Х              |                 | 1/8 in<br>6mm | 1 in<br>25mm    | 4110-NV          |
| Needle          | MPN             | 20,000 psi<br>1379 bar           | -65 F<br>-54 C | 800 F<br>427 C  |      | х               |       | Х      | Х         | х    |               |                                 |                                       |                        | Х              |                 | 1/4 in        | 1 in            | 4234 and 4110-NV |
| Valves          | MPGV            | 30,000 psi<br>2068 bar           | -10 F<br>-23C  | 400 F<br>204 C  |      | х               |       | Х      |           |      | Х             | Х                               | Х                                     | х                      |                |                 | 9/16 in       | 9/16 in         | 4234 and 4110-NV |
|                 | HNV             | 10,000 psi<br>690 bar            | -65 F<br>-54 C | 1000 F<br>538 C | 0.35 | х               | Х     | Х      |           | Х    |               |                                 |                                       |                        |                | Х               | 1/4 in<br>6mm | 1/2 in<br>12mm  | 4190-HV          |
|                 | HRPV            | 10,000 psi<br>690 bar            | -65 F<br>-54 C | 1000 F<br>538 C | 1.80 | х               | Х     | Х      |           | Х    |               |                                 |                                       |                        |                | Х               | 1/4 in<br>6mm | 1/2 in<br>12mm  | 4190-HV          |
|                 | HGV             | 10,000 psi<br>690 bar            | -65 F<br>-54 C | 1000 F<br>538 C | 0.35 | Х               | Х     | Х      |           | Х    |               |                                 |                                       |                        |                | Х               | 1/4 in<br>6mm | 1/2 in<br>12mm  | 4190-HV          |
|                 | HVG             | 6,000 psi<br>414 bar             | -65 F<br>-54 C | 1000 F<br>538 C | 0.35 | Х               | Х     | Х      |           | Х    |               |                                 |                                       |                        |                | Х               | 1/4 in<br>6mm | 1/2 in<br>12mm  | 4190-HV          |
|                 | HYNV            | 10,000 psi<br>690 bar            | -65 F<br>-54 C | 1000 F<br>538 C | 0.35 | Х               |       |        |           | Х    |               |                                 |                                       |                        |                | Х               | 1/4 in<br>6mm | 1/2 in<br>12mm  | 4190-HV          |
|                 | 20K HNV         | 20,000 psi<br>1379 bar           | -63 F<br>-54 C | 392F<br>200 C   | 0.66 | Х               |       |        |           | Х    |               |                                 |                                       |                        |                |                 | 1/4 in<br>6mm | 9/16 in<br>14mm | 4190-HH<br>20K   |

## **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<sup>®</sup> 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<sup>®</sup> (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<sup>®</sup> (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

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### H-Series (Catalogs 4190-PM and 4190-FM)

- A comprehensive range of 2, 3 and 5 valve manifolds for pressure and flow measurement applications
- Available with integral PTFree<sup>®</sup> connections, reducing leakpaths and installation cost
- Available in stainless steel and many exotic alloys, including Hastelloy<sup>®</sup>, 6Mo, Monel<sup>®</sup>, 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<sup>®</sup> or CPI<sup>™</sup> connections, reducing leak paths and installation costs

|                 |                 |                                     |                                  | Tempe          | erature         | Bod                 | y Mate          | rial  | Pac             | king |       | Seat   | t/Tip |      | End Connection | on Size Range  |          |
|-----------------|-----------------|-------------------------------------|----------------------------------|----------------|-----------------|---------------------|-----------------|-------|-----------------|------|-------|--------|-------|------|----------------|----------------|----------|
| Valve<br>Groups | Model<br>Series | Product Description                 | Maximum<br>Operating<br>Pressure | Min            | Max             | <b>Carbon Steel</b> | Stainless Steel | Alloy | <b>GRAFOIL®</b> | PTFE | 316SS | PEEKTM | PCTFE | PTFE | Min            | Max            | Catalog  |
|                 | MF              | double block<br>and bleed           | ANSI 2,500<br>API 10,000         | -65 F<br>-54 C | 1000 F<br>538 C | х                   | х               | х     | х               | х    | х     | х      | х     |      | 1/4 in<br>6mm  | 1/2 in<br>12mm | 4190-FP  |
|                 | PB              | double block<br>and bleed           | ANSI 2,500<br>API 10,000         | -65 F<br>-54 C | 450 F<br>232 C  | Х                   | х               | Х     | Х               | Х    |       | Х      |       | Х    | 1/4 in<br>6mm  | 1 in<br>25mm   | 4190-FP  |
| Manifolds       | H2              | 2 valve manifolds -<br>needle style | 10,000 psi<br>689 bar            | -65 F<br>-54 C | 1000 F<br>538 C |                     | х               | Х     | х               | Х    | х     | Х      | х     |      | 1/4 in<br>6mm  | 1/2 in<br>12mm | 4190-PM  |
| Mainoius        | H3              | 3 valve manifolds -<br>needle style | 10,000 psi<br>689 bar            | -65 F<br>-54 C | 1000 F<br>538 C |                     | х               | Х     | Х               | Х    | х     | Х      | Х     |      | 1/4 in<br>6mm  | 1/2 in<br>12mm | 4190-FM  |
|                 | H5              | 5 valve manifolds -<br>needle style | 10,000 psi<br>689 bar            | -65 F<br>-54 C | 1000 F<br>538 C |                     | х               | Х     | Х               | Х    | Х     | Х      | Х     |      | 1/4 in<br>6mm  | 1/2 in<br>12mm | 4190-FM  |
|                 | HBM             | 2 & 3 valve manifolds<br>ball style | 10,000 psi<br>689 bar            | -65 F<br>-54 C | 450 F<br>232 C  |                     | х               | Х     | Х               | Х    |       | Х      |       | Х    | 1/4 in<br>6mm  | 1/2 in<br>12mm | 4190-HBM |

## **Diaphragm Valves**



### **NV17** (Bulletin 25000222)

- General purpose, high cycle, compact valve
- For regulator outlet valve, gas control panels and analyzer sampling system applications
- Air operated (NC & NO), spin handwheel, lever, indicating handwheel and mini lever options



### NV55 (Bulletin 25000053)

- General purpose, high flow compact valve
- For flowing large volumes of corrosive and non-corrosive fluids





### FS190 (Bulletin 25000034)

- · 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)"



### 16 Series (Bulletin 25000232)

- High pressure valve for gas manifold/box systems
- 316L SST machined body design
- Metal-to-metal diaphragm seal
- Packless valve design

|                     |              |                         |                                  | Tempe          | rature        | C    | V    | B     | ody Materi         | al    | Actua  | ation     |          |
|---------------------|--------------|-------------------------|----------------------------------|----------------|---------------|------|------|-------|--------------------|-------|--------|-----------|----------|
| Valve<br>Groups     | Model Series | Product<br>Description  | Maximum<br>Operating<br>Pressure | Min            | Max           | Min  | Max  | Brass | Stainless<br>Steel | Alloy | Manual | Pneumatic | Bulletin |
|                     | NV17         | Diaphragm<br>Springless | 250 psig<br>17 barg              | -15 F<br>-26 C | 150 F<br>66 C | 0.15 | 0.17 | х     | х                  | х     | х      | х         | 25000222 |
| Diaphragm<br>Valves | NV55         | Diaphragm<br>Springless | 250 psig<br>17 barg              | -15 F<br>-26 C | 150 F<br>66 C | 0.48 | 0.55 |       | х                  |       | х      | х         | 25000053 |
|                     | 16 Series    | Diaphragm Spring        | 3,000 psig<br>207 barg           | -65 F<br>-54 C | 150 F<br>60 C | 0.3  | 0.3  |       | х                  |       | Х      | Х         | 25000232 |

## Regulators

## **Pressure Regulators**



- Low actuating torque
- Available in 316L SST and Brass





### Instrument Pressure Regulators (Catalog FM- 1057)

- All models are direct acting, non-relieving and 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

|                     |                 |                      | Pre                       | essure  | C    | v    |         | Body N | laterial           |        |             |             |             |                      |                                    |
|---------------------|-----------------|----------------------|---------------------------|---|------|------|---------|--------|--------------------|--------|-------------|-------------|-------------|----------------------|------------------------------------|
| Regulator<br>Groups | Model<br>Series | Туре                 | Maximum<br>Inlet Pressure | Maximum Outlet<br>Pressure                    | Min  | Max  | 316L SS | Brass  | Hastelloy<br>C-22® | Monel® | Min<br>FNPT | Max<br>FNPT | Compression | Face Seal<br>or Tube | Bulletin                           |
|                     | IR4000          | General<br>Purpose   | 4,000 psig<br>276 barg    | 500 psig<br>35 barg                           | 0.02 | 0.15 | х       | Х      | х                  | х      | 1/8"        | 1/2"        | х           |                      | 25000226,<br>25000223,<br>25000233 |
|                     | IR5000          | Sensitive            | 3,500 psig<br>241 barg    | 250 psig<br>17 barg                           | 0.02 | 0.15 | х       |        | х                  | х      | 1/8"        | 1/2"        | Х           |                      | 25000157,<br>25000229              |
|                     | HFR900          | High Flow            | 500 psig<br>35 barg       | 150 psig<br>10 barg                           | 0.85 |      | х       | Х      |                    |        | 1/4"        | 1/2"        | Х           |                      | 25000035                           |
| Single              | APR66           | High<br>Pressure     | 6,000 psig<br>414 barg    | 6000 psig<br>414 barg                         | 0.05 |      | х       | Х      |                    |        | 1/8"        | 1/4"        |             |                      | 25000027                           |
| Stage               | HPR800          | High<br>Pressure     | 5,000 psig<br>345 barg    | 2500 psig<br>172 barg                         | 0.02 |      | х       | Х      |                    |        | 1/4"        | 1/4"        |             |                      | 25000039                           |
|                     | MIR700          | Low<br>Pressure      | 3,000 psig<br>207 barg    | 200 psig<br>14 barg                           | 0.02 |      | х       | Х      |                    |        | 1/8"        | 1/4"        |             | х                    | 25000046                           |
|                     | NPR4100         | Absolute<br>Pressure | 250 psig<br>17 barg       | -26 in Hg to 10 psig<br>-1.8 in Hg to .7 barg | 0.02 | 0.15 | х       | Х      | х                  | х      | 1/8"        | 3/8"        | Х           |                      | 25000153                           |
|                     | HF1200          | High Flow            | 1,250 psig<br>86 barg     | 200 psig<br>14 barg                           | 1    | .2   | х       |        |                    |        | 1/2"        | 3/4"        | Х           | х                    | 25000198,<br>25000217              |
| Dual<br>Stage       | IR1600          | High<br>Pressure     | 4,000 psig<br>276 barg    | 250 psig<br>17 barg                           | 0.02 | 0.15 | х       | х      | х                  | Х      | 1/8"        | 1/2"        | х           |                      | 25000141,<br>25000224,<br>25000227 |

## Regulators

## **Back Pressure Regulators**



### ABP1 (Bulletin 25000021)

- · Reduce contamination and accurately control back pressure
- · Internally threadless design
- Convoluted Hastelloy C-22<sup>®</sup> diaphragm
- Integral diaphragm stop
- Available in 316L SST, Hastelloy C-22®, Monel®



### **ABP3** (Bulletin 25000022)

- · Internally threadless design
- Provides sensitive pressure adjustments
- · Large convoluted Hastelloy C-22<sup>®</sup> diaphragm
- Integral diaphragm stop
- Available in 316L SST, Hastelloy C-22®



### BPR50 (Bulletin 25000030)

- · For use with corrosive and non-corrosive fluids
- Adjustable from 100 psi (7 bar) to 2,000 psi (138 bar)
- Piston sensed high pressure back pressure regulator
- Available in 316L SST

|                     |                     |                 | Pressure                     | C    | V    |         | Body Material      |        | Conne       | ctions      |          |
|---------------------|---------------------|-----------------|------------------------------|------|------|---------|--------------------|--------|-------------|-------------|----------|
| Regulator<br>Groups | Model Series        | Туре            | Maximum Inlet<br>Pressure    | Min  | Max  | 316L SS | Hastelloy<br>C-22® | Monel® | Min<br>FNPT | Max<br>FNPT | Bulletin |
|                     | ABP1                | General Purpose | Up to 500 psig<br>35 barg    | 0.06 | 0.30 | Х       | Х                  | Х      | 1/8"        | 1/4"        | 25000021 |
| Back<br>Pressure    | ABP3                | Sensitive       | Up to 60 psig<br>4 barg      | 0.06 | 0.30 | Х       | Х                  |        | 1/8"        | 1/4"        | 25000022 |
|                     | BPR50 High Pressure |                 | Up to 2,000 psig<br>138 barg | 0.45 |      | Х       |                    |        | 1/4"        | 1/4"        | 25000030 |



## **Vaporizing Regulators**



#### AVR3 (Bulletin 25000138)

- Steam heat design
- Internally threadless design
- Available in 316L SST, Monel<sup>®</sup>, Hastelloy C-22<sup>®</sup>

### AVR4 (Bulletin 25000137)

- Electrical heat design
- Field serviceable heat transfer element
- CSA, Cenelec, and ATEX certified
- Internally threadless design

- · Internal liquid volume only .5cc
- Convoluted Hastelloy C-22<sup>®</sup> diaphragm
- 120v or 240v, 50/60 Hz
- Convoluted Hastelloy C-22<sup>®</sup> diaphragm
- Available in 316L SST, Monel<sup>®</sup>, Hastelloy C-22<sup>®</sup>

|                     |              |                        | Pressure                  |                            | Cv   |     | Body Material |        |                    | Connections |             |          |
|---------------------|--------------|------------------------|---------------------------|----------------------------|------|-----|---------------|--------|--------------------|-------------|-------------|----------|
| Regulator<br>Groups | Model Series | Туре                   | Maximum Inlet<br>Pressure | Maximum Outlet<br>Pressure | Min  | Max | 316L SS       | Monel® | Hastelloy<br>C-22® | Min<br>FNPT | Max<br>FNPT | Bulletin |
| Vaporizing          | AVR3         | Steam Heated           | 3,500 psig<br>241 barg    | 500 psig<br>35 barg        | 0.06 |     | Х             | Х      | Х                  | 1/8"        | 1/8"        | 25000138 |
| Regulators          | AVR4         | Electrically<br>Heated | 3,500 psig<br>241 barg    | 500 psig<br>35 barg        | 0.   | 06  | Х             | Х      | Х                  | 1/8"        | 1/8"        | 25000137 |

## **Tied Diaphragm Regulators**



### 735 Series (Bulletin 2500004)

- Dual stage tied diaphragm regulator
- Greater consistency in outlet pressure regardless of inlet pressure fluctuations
- Provides shut off of corrosive or hazardous gases for added safety
- Available in 316L SST or Hastelloy C-22<sup>®</sup>



#### 959 Series (Bulletin 25000019)

- Tied diaphragm design to minimize regulator creep
- · Internally threadless design
- Metal to metal diaphragm seal
- Available in 316L SST and Hastelloy C-22<sup>®</sup>

|                         |              |              | Pres                      | Cv                         |      | Body Material |         | Connections        |             |             |          |
|-------------------------|--------------|--------------|---------------------------|----------------------------|------|---------------|---------|--------------------|-------------|-------------|----------|
| Regulator<br>Groups     | Model Series | Туре         | Maximum Inlet<br>Pressure | Maximum Outlet<br>Pressure | Min  | Max           | 316L SS | Hastelloy<br>C-22® | Min<br>FNPT | Max<br>FNPT | Bulletin |
| Tied<br>Diaphroam       | 735          | Two Stage    | 3,500 psig<br>240 barg    | 100 psig<br>7 barg         | 0.   | 04            | Х       | Х                  | 1/4"        | 1/4"        | 25000004 |
| Diaphragm<br>Regulators | 959          | Single stage | 3,500 psig<br>240 barg    | 150 psig<br>10 barg        | 0.04 | 0.20          | Х       | Х                  | 1/4"        | 1/4"        | 25000019 |

## **Flowmeters/Flow Controllers**



### Gas Mass Flow Controllers (Catalogs 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 including ModBus, ProfiBus and DeviceNet
- Local or remote setpoint and display capability

#### Variable Area Purgemeter (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

#### LC223S (Bulletin 25000043)

- · High pressure gas or liquid flow controller
- · For liquid chromatography, chemical injection and sampling
- Provides constant flow with varying downstream pressure
- Wide flow range: from 25scc/m to 40 slpm



#### **SC423XL** (Bulletin 25000054)

- For air and analyzing sampling systems
- · Reliable, adjustable precision flow control as low as 1scc/m
- · Stable flows over a wide temperature band
- Consistent flow control as vacuum pressure changes from 28 in. Hg to 5 in. Hg



## VCD-1000 (Catalog FM-1058)

- Turn vs. flow relationship is linear regardless of pressure fluctuations
- Flow rates from 5sccm to 1.500sccm
- · Standard panel mount configuration





### Severe Duty Gas Mass Flow Controllers (Bulletin FM-1164)

- NEMA 4X / IP66 certified and available in Class1, Div. 2, ATEX Zone 2 and IEC Ex certified versions with industry standard connectors
- Available with Analog or Digital I/O including ModBus, ProfiBus and DeviceNet
- Models available with flow ranges of 100sccm to 100SLPM and accuracy of 1% rate

### Acrylic Flowmeters (Bulletin FM-1160)

 Brass, PVC or stainless steel process connections

Metering tube of machined

cast acrylic

 Scales can be produced in any volumetric unit

### Glass Tube Flowmeters (Bulletin FM-1163)

- Available in 35 flow ranges in 6 tube sizes
- Industry standard dimensions
- Latching reed switch alarm option



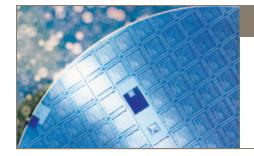


### Metal Tube Variable Area Flowmeters

(Bulletins FM-1158, FM-1161, FM-1162)

- Multiple process connection options including NPT and ANSI flanges
- Optional inductive slot sensor alarms and 4-20 mA transmitter
- 316SS, Monel<sup>®</sup> or Hastelloy<sup>®</sup> construction

## **PFA/PTFE Products**



## Fluoropolymer Components

Durable, leak free fluoropolymer 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.

www.parker.com/partek (Catalog PSM Partek)



# **Analytical Systems**

| 000   | Vent Master <sup>™</sup> (Catalog 4142-VM)<br>• Pre-engineered compact instrument<br>panel that includes regulators,<br>gauges, rotometer, an eductor and<br>a separate pressure controller   | <ul> <li>Creates a stable pressure within the analyzer shelter vent header system</li> <li>Provide analysis accuracy with .06% over a vent header flow of 0-18SLPM</li> </ul>          |
|-------|---|--|
|       | <ul> <li>IntraFlow<sup>™</sup> (Catalog 4250)</li> <li>ISA/ANSI SP 76.00.02-2002 compliant</li> <li>Modular process analytic sample system and lab fluid delivery system platform</li> <li>Factory system design support</li> </ul>                               | <ul> <li>Wide selection of top work components including valves, regulators, filters, stream switching and more</li> <li>Pressure rating from vacuum to 3,600 psi (248 bar)</li> </ul> |
| A CAR | <ul> <li><b>R-max<sup>™</sup></b> (Catalog 4140-R)</li> <li>Surface mount technology for stream switching valves</li> <li>Low internal volume to reduce system purge time</li> </ul>  | <ul> <li>Low pressure actuation of valves-40 psig (-2.76)</li> <li>Rated from vacuum to 500 psig (34 barg)</li> </ul>  |
|       | <ul> <li>ChangeOver System (Bulletin</li> <li>Compact turnkey module designed<br/>for continuous gas management</li> <li>Optional outlet regulator to control<br/>application specific outlet pressure</li> </ul>   | <ul> <li>25000214)</li> <li>Audio/visual alarm annunciator<br/>available</li> <li>Available in 316L stainless steel<br/>and brass</li> <li>Suitable for oxygen service</li> </ul>      |
|       | <ul> <li>COSM (Bulletin 25000234)</li> <li>Compact turnkey module designed for continuous gas management</li> <li>Outlet regulator to control application specific outlet pressure</li> </ul>   | <ul> <li>Maximum inlet pressure of<br/>3,000 psig (207 barg) with<br/>4 delivery options</li> <li>Available in 316L stainless steel<br/>and brass</li> </ul>                           |
|       | <ul> <li>Pilot Pro (Catalog 4250-Pilot Pro)</li> <li>Communication interface for process sample conditioning systems</li> <li>Applications include: Logic Control, I/O Module Application, Non-Hazardous PLC and I/O Interface, Solenoid Valve Control</li> </ul> | <ul> <li>I/O capability up to 24</li> <li>Accommodates multiple PLC types</li> <li>Allows use of basic analyzer systems</li> </ul>   |

## **Hose/Tubing**



### Push-Lok<sup>®</sup> Plus Hose (Bulletins 4480-B137 and 4480-B140)

- Unique seal ensures reliability and durability for clean-environment use
- No clamps or special tools required for installation
- Increased working pressures to 350 psi (24.13 bar)
- Increased temperature ratings to 257°F (125°C)
- Approved for both HY (crimp) and 82 (push-on) series fittings
- Broadest size range (-4 through -16)
- Inner liner is an extruded, synthetic rubber, resistant to petroleum-base oil, air and water



### Stainless Steel Metal Hose (Catalog 4690-MH-2)

- 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-2)

- 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



### Parker Tracking System (Bulletin 4480-B149)

- The Parker Tracking System is designed to help customers reduce vehicle or asset downtime through increases in the speed, timing and accuracy of necessary repairs. Using a Web-based application, PTS generates a unique identification code for each hose assembly which is printed on a durable barcode or RFID label. PTS labels are specifically engineered to withstand harsh chemicals, temperatures, UV exposure and other challenging conditions.
- PTS captures, records and recalls unique hose assembly information on demand





### Fluoropolymer Tubing (Catalog 4150-55D)

- For use in temperatures up to 500°F (260°C) and/or corrosive chemical applications or where high purity is needed
- Materials include PFA, High Purity PFA, FEP and PTFE
- Available in Smoothbore. Heat Shrink, Convoluted, Corrugated or Paratubing design
- Use of materials compliant to FDA and USP Class VI. Certified to ISO 9001:2008 and EN/JISQ/AS9100:2004



- Fluoropolymer Hose (Catalog 5162E)
- For temperatures up to 500°F (260°C) and/or corrosive chemical applications or where high purity is needed
- Inner core materials include PFA, High Purity PFA, and PTFE; braiding materials include Stainless Steel, PVDF, Polypropylene, and Nomex
- · Available with a smoothbore or convoluted seamless inner core
- The use of materials compliant to FDA, USDA, 3A, European Pharmacopoeia and USP Class VI. Certified to ISO 9001:2008 and EN/JISQ/AS9100:2004.

## **Tools/Accessories/Complementary Products**



### **Tube Fabrication Equipment** (Catalog 4290)

- · High quality hand benders, tube cutters, deburr tools and preset tools
- Tube benders from <sup>1</sup>/<sub>8</sub>" to 1" size
- Tube cutter rated for 316 stainless steel tubing

### Sample Cylinders (Catalog 4110-NV)

- 1,800 psig (124 barg) DOT rated sample cylinders
- Stainless steel construction

 Par-Lok<sup>®</sup> wrenches with 360° snap-action for flexibility

ANSI/ASME B1.20.1 internal

pipe threads

· Preset installation kits for assembling tube fittings in close spaces



- 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<sup>®</sup> coating and Wake Frequency Calculations available
- Wide variety of special alloy material in stock ready for manufacturing

## **Sanitary and Biopharmaceutical**



### 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 sightglasses 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 Pharmacopia 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



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### **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 launch an opening screen in Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader<sup>®</sup>. You can then view this Product Selection Guide, go to specific product categories or choose a specific catalog.

If your computer does not have Adobe® Acrobat® Reader® please go to http://get.adobe.com/reader/ and download this free program.

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