Instrumentation
Valve Products
Sales & Application Guide

Catalog 4102-SAG
November 2000
Ball and Plug Valves

**Function:**
Quarter-turn isolation, or half-turn diversion or selection of pressures up to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Free floating ball design allows seat wear compensation and increases valve life over single piece ball and stem designs.

**Application:**
Quick control of media at temperatures from -65 °F to 450 °F (-54 °C to 232 °C). High cycle frequency - pneumatic or electric actuation. Used extensively in plants for equipment isolation, sampling systems, and drain lines.

**Catalog 4121-B**

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**Function:**
Compact space saving quarter-turn isolation, or half-turn diversion or selection of pressures up to 3000 psi (207 bar).

**Features / Advantages / Benefits:**
Molded one-piece PFA seat/packing around ball increases temperature range and thermal cycling integrity over competitive designs. The user will have to make fewer packing adjustments during the life of the valve.

**Application:**
Quick control of media at temperatures from -65 °F to 300 °F (-54 °C to 149 °C). Low cycle frequency - pneumatic or electric actuation. Used primarily in and around plant analyzer shelters where space is at a premium. Can also be used for sample and drain lines.

**Catalog 4121-MB**

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**Function:**
High pressure quarter-turn isolation, or half-turn diversion or selection of pressures up to 10000 psi (689 bar).

**Features / Advantages / Benefits:**
Suparcase® ball and trunnions reduce galling and increase cycle life over competitive designs.

**Application:**
Quick control of media at temperatures from -65 °F to 400 °F (-54 °C to 204 °C). High pressure / low cycle frequency - pneumatic or electric actuation. Used for emergency shut-off in high pressure offshore well-head panels. Also used in refueling devices at CNG fueling stations.

**Catalog 4121-HB**

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Ball and Plug Valves

SB Series

Function:
Quarter-turn isolation of pressures up to 2500 psi (172 bar).

Features / Advantages / Benefits:
Fully enclosed body bolts permit the center section to swing out quickly to replace seats, seals, and the ball without major disruption to the system. Both maintenance and downtime are minimized with this design.

Application:
Quick control of media in pipe or tubing up to 2-inch diameter at temperatures from -65 °F to 450 °F (-54 °C to 232 °C). Used for isolation, sample, and drain lines for applications over 1/2 inch. Popular for steam condensate applications.

Catalog 4125-SB

PR Series

Function:
Quarter-turn isolation and throttling of pressures up to 3000 psi (207 bar).

Features / Advantages / Benefits:
Patented molded elastomeric seats are blow-out resistant and provide improved cycle life over conventional O-ring seat designs.

Application:
Simple on-off service where quick and easy repair of seats and seals may be required. Good utility valve for general service, sample and drain lines. Good isolation valve when high cycle life is not required.

Catalog 4126-PR

Manifold Valves

Function:
Facilitates instrument isolation, equalization, bleed, and test at pressures up to 6000 psi (414 bar).

Features / Advantages / Benefits:
Non-rotating lower stem provides regulation and minimizes seat galling for added valve cycle life.

Application:
Used with pressure transducers, temperature and flow sensors for calibration and/or repair of instruments.

Catalog 4190
**Needle Valves**

**V Series**

**Function:**
Multi-turn isolation or regulation of pressures up to 5000 psi (345 bar).

**Features / Advantages / Benefits:**
Direct drive nylon 6/6 handles are impact resistant for reliable actuation and reduced maintenance.
Strain hardened 316 stems provide differential hardness to resist galling and increase cycle life.

**Application:**
Control of media at temperatures from -65 °F to 450 °F (-54 °C to 232 °C).
Used primarily for gage isolation in plants and on equipment where coarse regulation, combined with shut-off capabilities, is required.

**Catalog 4110-V**

**NP6 Series**

**Function:**
Severe service, multi-turn isolation or regulation of pressures up to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Packing below the thread design with non-rotating lower stem minimizes seat galling and stem rotation through the packing for longer valve life.

**Application:**
Control of media at temperatures from -65 °F to 700 °F (-54 °C to 371 °C). Used where stem lubricant and media can not contaminate each other.

**Catalog 4110-NP**

**U Series**

**Function:**
Severe service, multi-turn isolation or regulation of pressures up to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Packing below the thread design with non-rotating lower stem minimizes seat galling and stem rotation through the packing for longer valve life.

**Application:**
Control of media at temperatures from -65 °F to 1200 °F (-54 °C to 649 °C).
Recommended for steam blow-down, condensate legs, and transmitter impulse lines (root valves).

**Catalog 4110-U**
**Needle Valves**

**PV Series**

**Function:**
Severe service, straight-through flow, of clean or highly particulated media at pressures up to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
O-ring packing below the thread design never requires adjustment, reducing the need for packing adjustment maintenance.

**Application:**
Block and bleed service with optional gage port and bleed valve. Provides minimum pressure drop with regulation capabilities. Often used with differential pressure transmitters.

**Catalog 4110-PV**

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**VQ Series**

**Function:**
Quick, economical isolation valve with pressures up to 300 psi (21 bar) in the manual design or up to 600 psi (41 bar) in the pneumatic design.

**Features / Advantages / Benefits:**
Nylon 6/6 handle minimizes flexing and fracture for longer life. O-ring stem seal requires no adjustment and thereby reduces maintenance.

**Application:**
Fail safe sampling systems with anti-locking handle option. Popular in laboratory gas isolation, OEM analyzer and instrument manufacturers, and plant instrument shops.

**Catalog 4110-VQ**

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**VL Series**

**Function:**
Low pressure multi-turn isolation or regulation of pressures up to 600 psi (41 bar) and temperatures to 300 °F (149 °C).

**Features / Advantages / Benefits:**
Operable at full pressure at maximum temperature.

**Application:**
High volume OEM manufacturers of compressors, pressure washers, cleaning equipment/utility products.

**Catalog 4110-VL**

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**SN6 Series**

**Function:**
Compact multi-turn isolation or regulation of pressures up to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Direct drive handle safely actuates the valve without reliance on a handle set screw.

**Application:**
Space savings in control cabinets.

**Catalog 4110-VQ**
**Metering Valves**

**NS Series**

**Function:**
Ultra-fine metering at pressures up to 2000 psi (138 bar) and temperatures up to 400 °F (204 °C).

**Features / Advantages / Benefits:**
Precise control of flow up to 0.04 \(C_v\) providing up to 13 turns of reliable resolution.

**Application:**
Used in plant analyzer shelters to meter flow prior to the analyzer or gas chromatographs. Also used in plant labs for precise metering applications.

**NM/NL Series**

**Function:**
Very fine to fine metering at pressures up to 1000 psi (69 bar) and temperatures to 400 °F (204 °C).

**Features / Advantages / Benefits:**
Precise control of flows to 0.055 or 0.29 \(C_v\) providing 9 to 10 turns of reliable resolution.

**Application:**
Same as above.
Catalog 4170-N

**HR Series**

**Function:**
Precise metering of pressures up to 250 psi (17 bar).

**Features / Advantages / Benefits:**
Seven optional stem designs for control of flows from 0.0004 to 0.118 \(C_v\), provide precise control. Elastomeric seat provides bubble-tight shut-off not found in other metering valves.

**Application:**
Used in plant analyzer shelters, labs, chemical injection systems, and sample conditioning systems where precision metering and shut-off are required.

**Sample Cylinders and Accessories**

**Cylinders**

**Function / Application:**
Sample collection for on or off-site analyses up to 1800 psi (124 bar) in aluminum and stainless steel.

**Miniature Valve**

**Function / Application:**
Compact isolation valve for use on sample cylinders with or without end caps.

**Rupture Unit**

**Function / Application:**
Effective for safely venting contents of sample cylinders when pressures exceed desired settings.
## Check Valves

### C Series

**Function:**
Checks for directional one-way flow. Prevents back-flow or bleed-down at pressures up to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Molded captured seat resists blow-out associated with O-ring seats.

**Application:**
Used in plants, processes, and equipment to prevent back flow of media.

**Catalog 4160-C**

### CO Series

**Function:**
High integrity flow checking under vacuum or pressure service to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Leak tested up to $4 \times 10^{-9}$ cc/sec ($4 \times 10^{-10}$ kPa-L/sec) helium ensures high-integrity.

**Application:**
Used in clean service and high purity gas where elimination of back flow is critical.

**Catalog 4130-CO**

## Filters

### F Series

**Function:**
For upstream in-line filtration at pressures to 6000 psi (414 bar).

**Features / Advantages / Benefits:**
Elastomeric seal prevents particulate flow around the filter element for reliable filtration. Available with optional elements from 1 to 450 micron.

**Application:**
Used in plants and on equipment as a final filter upstream from a critical component where particulate contamination of components is of concern.

**Catalog 4130-F**

### FT Series

**Function:**
Same purpose as the in-line filter, but with the advantage of filter maintenance without removal from the system.

**Features / Advantages / Benefits:**
Similar advantages to the in-line filter, with fast loop sample filtration to 900 °F (482 °C).

**Application:**
Same as above.

**Catalog 4130-FT**

## Relief Valves

### RL Series

**Function / Application:**
Low pressure relief up to 400 psi (28 bar) and temperatures up to 400 °F (204 °C).

**Features / Advantages / Benefits:**
Eight different spring crack pressures offer greater sensitivity and improved accuracy through the range.

**Application:**
Instrument or system protection from over-pressurization.

**Catalog 4131-RL**

### RH Series

**Function / Application:**
High pressure relief from 50 psi to 6000 psi (3 to 414 bar) and temperatures up to 400 °F (204 °C).

**Features / Advantages / Benefits:**
Captured molded seat design reduces chipping and performs better than O-ring seat designs.

**Application:**
Same as above.

**Catalog 4131-RH**