Valves for abrasive applications
Isogate® Slurry Valves

Isogate® slurry valves are the proven choice for today’s highly abrasive slurry applications with unique designs developed with both ease of maintenance and overall ownership costs in mind.

Weir Minerals’ proven experience in abrasion and corrosion resistant materials including premium Linatex® rubber products makes for exceptional performance and wear life in abrasive flow applications.

Conventional valves, designed only for liquid service, have sometimes been applied in abrasive/corrosive slurries, though seldom with satisfactory results. Typical problems include rapid wear of valve seats and liners, sticking, and leakage to the atmosphere during operation. Isogate® slurry valves are designed to eliminate these problems and improvements are constantly being made in material, product design, engineering and manufacturing to ensure minimised downtime and reduced risk of disruption during operation.

**Reliable and versatile.** Isogate® slurry valves can operate under wide pressure and temperature ranges and are designed to handle the harshest and most abrasive process flow conditions.

**Superior sleeve materials.** Sleeves are available in a variety of materials to handle abrasive and chemical applications: natural rubber, EPDM, nitrile, neoprene and others as required by the application. Only Isogate® slurry valves offer genuine Linatex® and Linard® premium abrasion resistant natural rubber liners.

**Simplified maintenance.** All Isogate® valve wear parts are easily replaced in the field, reducing down time and overall cost of ownership.
Weir Minerals provides a comprehensive range of slurry valves for a wide variety of applications in many industries.

**Mining and Minerals Processing**
Isogate® slurry valves operate in some of the harshest and most demanding environments across the globe. Our valves are used in a wide range of minerals processing and metallurgical applications in basic metals production (copper, nickel, iron); precious metals and gems production (gold, silver, platinum, diamonds), and industrial minerals (phosphates, talc, kaolin, silica, clays).

**Corrosive Minerals Processing**
Customised Isogate® slurry valves have been developed specifically for abrasive applications in corrosive media. Isogate® slurry valves manufactured from Hastalloys, Super Duplex stainless steels and other exotic materials provide the perfect solution for high pressure acid leach (HPAL) and phosphate plants.

**Other Industries**
Isogate® slurry valve products are a cost effective solution for on/off, throttling and reverse flow control of flowing media in industrial processes that involve abrasive or corrosive materials. Some of the many industries that have enjoyed the performance benefits of Isogate rubber lined valve products include sand and gravel, dredging, water and waste water, food collection, preparation and processing companies, coal fired power plants, pulp and paper mills, shot and sand blasting equipment manufacturers, and wineries.
**Isogate® Mechanical Pinch Valves**

The Isogate® MP Valve is a mechanical pinch valve used for effective control of abrasive and corrosive flow in industrial process systems. The valve uses a flexible rubber lined pinch sleeve that is collapsed between two mechanical bars to effect accurate modulating control, positive closure, and drip tight shut off. The pinch sleeve inside diameter is full line size for maximum throughput and minimum pressure drop.

**Open Body Valve**

**Isogate® Series MP OB**

The open body pinch valve features a weight saving fabricated steel body that allows for easy pinch sleeve replacement and permits quick and positive indication of valve position.

**Features:**

- Linatex® Premium Rubber is the standard pinch sleeve wear liner material. A wide range of natural and synthetic rubber liner materials are also available.
- Centre pinch operation and flexible pinch sleeve construction ensure accurate flow control and long pinch sleeve life.
- Reduced weight fabricated steel body.
- The compact short length design features integral end flange gaskets on the pinch sleeves that ensure leak tight installation into process piping.
- The heavy duty pinch mechanism requires low input force for smooth hand wheel operation at maximum working pressures.

**Closed Body Valve**

**Isogate® Series MP CB**

The closed body includes a cast metal body that encloses and protects the pinch sleeve and pinch bars while providing initial splash protection against leaking flow media.

**Features:**

- Linatex® Premium Rubber is the standard pinch sleeve wear liner material. A wide range of natural and synthetic rubber liner materials are also available.
- Centre pinch operation and flexible pinch sleeve construction ensure accurate flow control and long pinch sleeve life.
- The robust cast metal body encloses and protects the pinch sleeve and pinch bars while providing initial splash protection against leaking flow media.
- The compact short length design features integral end flange gaskets on the pinch sleeves that ensure leak tight installation into process piping.
- The heavy duty internal pinch mechanism requires low input force for smooth hand wheel operation at maximum working pressures.

### MP CB and MP OB maximum working pressures

<table>
<thead>
<tr>
<th>Size</th>
<th>Pressure</th>
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<tbody>
<tr>
<td>1/2” to 6” (15 mm to 150 mm)</td>
<td>150 psi (1035 kPa)</td>
</tr>
<tr>
<td>8” (200 mm)</td>
<td>125 psi (865 kPa)</td>
</tr>
<tr>
<td>10” to 12” (250 mm to 300 mm)</td>
<td>100 psi (690 kPa)</td>
</tr>
<tr>
<td>14” (350 mm)</td>
<td>75 psi (520 kPa)</td>
</tr>
<tr>
<td>Up to 24” (600 mm)</td>
<td>50 psi (345 kPa)</td>
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</table>
Isogate® Pneumatic Pinch Valves

The Isogate® PPV Valves are pneumatic or hydraulic actuated enclosed body pinch valves used for control of abrasive and corrosive flowing media in industrial process systems. They are ideal for remote operation using typical plant air and do not require auxiliary cylinder operators.

Isogate® PPV Valves use flexible rubber lined pinch sleeves and pinch liners enclosed in robust cast metal bodies that collapse when plant air or hydraulic pressure is applied to them. Our PPV Valves are available with premium quality Linatex® natural rubber liners and are specifically designed for harsh, highly abrasive flow control applications in liquid-solids slurries.

Pneumatic Pinch Valves

One piece pinch sleeve or two piece pinch liner pneumatic pinch valves

One Piece Pinch Sleeve
Isogate® Series PPV 1PS

The Series PPV 1PS uses a full bore pinch sleeve that delivers maximum flow at minimum pressure drop when fully open and drip tight shut off when fully closed. It is ideal for use in on/off control of coarse particle slurries.

Features:
- Linatex® Premium Rubber is the standard pinch sleeve wear liner material. A wide range of natural and synthetic rubber liner materials are also available.
- Flexible pinch sleeve construction ensures positive closure and long pinch sleeve life.
- The robust cast metal body contains the pneumatic/hydraulic supply pressure, encloses and protects the pinch sleeve and provides secondary process containment.
- The full bore pinch sleeve has integral end flange gaskets to ensure leak tight installation into process piping.
- The PPV 1PS can be operated in any pipeline position.

Two Piece Pinch Liner
Isogate® Series PPV 2PL

The Series PPV 2PL uses a two piece split pinch liner that responds quickly to changes in operating fluid control pressure. The PPV 2PL is ideally suited for flow control in process applications requiring frequent and/or rapid on/off flow cycles.

Features:
- Linatex® Premium Rubber is the standard wear liner material. A wide range of natural and synthetic rubber liner materials are also available.
- Flexible pinch liner construction and short stroke design ensures positive closure and long pinch liner life.
- The robust cast metal body contains the pneumatic/hydraulic supply pressure, encloses and protects the pinch liner and provides secondary process containment.
- The moulded rubber pinch liners have integral end flange gaskets to ensure leak tight installation into process piping.
- Can be operated in any pipeline position.

Maximum working pressures

<table>
<thead>
<tr>
<th>Valve</th>
<th>Size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPV 1PS</td>
<td>1” to 14” (25 mm to 350 mm)</td>
<td>100 psi (690 kPa)</td>
</tr>
<tr>
<td>PPV 2 PL</td>
<td>1” to 6” (25 mm to 150 mm)</td>
<td>150 psi (1035 kPa)</td>
</tr>
<tr>
<td>PPV 2 PL</td>
<td>8” (200 mm)</td>
<td>125 psi (865 kPa)</td>
</tr>
<tr>
<td>PPV 2 PL</td>
<td>10” to 14” (250 mm to 350 mm)</td>
<td>100 psi (690 kPa)</td>
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Isogate® Knife Gate Valves

Using materials proven by Weir Minerals’ experience in abrasion and corrosion resistance, the Isogate® heavy duty slurry knife gate valve combines a low maintenance design with a wide range of available materials making the valve suitable for a variety of applications.

Knife Gate Valves
Wide body or wafer style heavy duty knife gate valves for highly abrasive and corrosive applications

Wide Body Valve
Isogate® Series WB

WB series wide body heavy duty slurry knife gate valve is specifically designed for highly abrasive and corrosive applications.

Features:
- Heavy duty use.
- Replaceable abrasion resistant sleeves.
- Optional lower stem guards available.
- Pneumatic, hydraulic, electric motor, and bevel gear actuators available.

Wafer Style Valve
Isogate® Series WS

The WS series wafer style slurry knife gate valve is designed to provide reliable service in tough abrasive and corrosive slurry applications. The unique design of the WS series provides reliable service together with ease of maintenance and cost effectiveness in a light weight, compact package.

Features:
- Heavy duty use.
- Replaceable abrasion resistant sleeves.
- Bellows and valve stem protected against dusty environments.
- Manual, pneumatic, hydraulic, electric motor, and bevel gears actuators available.
- Upper seal does not require periodical adjustments.

Heavy Duty Valve
Isogate® Series WH

The WH series heavy duty slurry valve is designed for those applications where high abrasion resistance is needed. The robust design and rugged, heavy duty construction of the Isogate® WH series provides greater reliability and longer life in heavy duty, highly abrasive, corrosive and coarse slurries.

Features:
- Heavy duty use.
- Field replaceable abrasion resistant sleeves; available in a variety of materials to handle abrasive and corrosive applications.
- Full port flow reduces pressure drop and turbulence, thus minimising wear.
- Open bottom allows for the purging of large solids, and solids in high concentration

<table>
<thead>
<tr>
<th>Valve</th>
<th>Size</th>
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<tbody>
<tr>
<td>WS</td>
<td>Up to 16” (400 mm)</td>
<td>150 psi (1035 kPa)</td>
</tr>
<tr>
<td>WS</td>
<td>Larger than 16” (400 mm)</td>
<td>up to 90 psi (620 kPa)</td>
</tr>
<tr>
<td>WB</td>
<td>3” to 16” (80 mm to 400 mm)</td>
<td>up to 150 psi (1035 kPa)</td>
</tr>
<tr>
<td>WB</td>
<td>18” to 24” (450 mm to 600 mm)</td>
<td>100 psi (690 kPa)</td>
</tr>
<tr>
<td>WB</td>
<td>Larger than 24” (600 mm)</td>
<td>75 psi (520 kPa)</td>
</tr>
<tr>
<td>WH</td>
<td>3” to 30” (80 mm to 750 mm)</td>
<td>300 psi (2070 kPa)</td>
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</tbody>
</table>

Maximum working pressures

WB Series available in sizes 3” (80 mm) through 34” (1350 mm)
WS Series available in sizes 2” (50 mm) through 24” (600 mm)
WH Series available in sizes 3” (80 mm) through 30” (750 mm)
Autoball® Valves

The Autoball® AB3 valve is specially designed to enable quick changeover between duty and standby pumps in the toughest slurry applications.

Features:
- Heavy duty use.
- Interior anti-abrasive coating.
- Actuates with differential pressures.

Isogate® Check Valves

Isogate® check valves are designed specifically for use in tough abrasive and corrosive slurries. Their fully lined bodies and coated internal components are ideal for use in liquid-solids slurry applications. With more than 20 years of check valve experience, Weir Minerals provides simple, fully field serviceable check valves for the most arduous slurry applications.

Check Valves

Single non-return swing check valve for prevention of reverse flow

Single Non-Return Check Valve
Isogate® Series CV

The single non-return valve CV series is specifically designed for reverse flow prevention for harsh, highly abrasive applications in liquid-solids slurry services.

Features:
- Linatex® Premium Rubber is the standard wear liner and disc material. A wide range of natural and synthetic rubber liner and disc materials are also available.
- Full bore design with low friction loss and high flow capacity.
- Drip tight shut off.
- The replaceable moulded rubber liners and disc are held in place by the body fasteners - no adhesives are required.
- Robust cast metal bodies.

<table>
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<tr>
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<tbody>
<tr>
<td>Up to 6” (150 mm)</td>
<td>150 psi (1035 kPa)</td>
</tr>
<tr>
<td>8” to 14” (200 mm to 350 mm)</td>
<td>100 psi (690 kPa)</td>
</tr>
<tr>
<td>Larger than 14” (350 mm)</td>
<td>75 psi (520 kPa)</td>
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CV Series maximum working pressures

<table>
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<th>Size</th>
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<tbody>
<tr>
<td>3” to 14” (80 mm to 350 mm)</td>
<td>125 psi (865 kPa)</td>
</tr>
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AB3 maximum working pressures