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ANDANTEX

GRAVITY DIVERTER VALVE

OPERATING & MAINTENANCE

INSTRUCTIONS FOR

GRAVITY DIVERTER VALVE

BULK HANDLING SPECIALISTS

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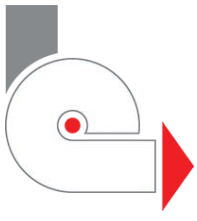

OPERATING & MAINTENANCE INSTRUCTIONS
GRAVITY DIVERTER VALVES

Indicates relevance to Manual operation

Indicates relevance to Pneumatic operation

Indicates relevance to ATEX applications

Description

Gravity Feed Diverter Valves are used in the bulk handling field to re-route powder, pellets or granules from one discharge point to another.

The Rotolok Diverter consists of a fabricated body with an internal flap and wiper seal. It is fabricated to ensure that the internal flap is always in close proximity to the body side plates. The rubber wiper seal is clamped to the flap and the whole assembly being then fitted to the drive and tail side shafts which operate within self aligning flanged bearings attached on the outside of the body.

An operating lever with handle is fixed to the drive shaft.

An air cylinder, complete with solenoid valve and piping, actuates the valve. Limit switches are fitted and positioned to indicate open/closed conditions.

Flow restrictors are fitted to the cylinder airlines and set to restrict the flap operation speed to less than 1m/s. **The restrictor settings should not be altered**. The flap seal clamp plate fixings will be secured in their tapped holes with Loctite 270 (or equivalent).

Construction

Body:	Fabricated Mild Steel or Stainless Steel.
Flap Plates and Shafts:	Mild Steel or Stainless Steel
Wiper Seal *:	Polyurethane, Viton, Neoprene, Rubber.
Actuation:	Manual lever or Air Cylinder with five port two way single Solenoid spring return valve.
Limit Switches:	Mechanical roller.
Earthing:	Threaded stud with nuts and anti-rotation washer.

*** The wiper seal material must have a surface resistivity less than 10^9 ohms for Atex applications.**

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Actuation

A simple manual handle is keyed directly to the main shaft and is used to move the Flap from one position to the other. In the case of the standard 0 x 30 Valve a lobe knob and tapped boss is provided to lock the Flap Plate in the vertical position as gravity and the force of product cannot be relied on to hold the Flap vertically.

Fitted with a single solenoid spring return valve with nylon piping feeding a double acting cylinder, front clevis/rear trunnion mounted type. All internal piping from the solenoid to the cylinder is supplied. The client needs to bring the air supply only to the solenoid valve.

Operation

It is important to ensure that the valve internals are free from product and any tramp materials before first operation and any subsequent reset or maintenance.

The operating lever is moved from side to side, either manually or by air cylinder, which moves the internal flap and wiper seal to block off one or other of the valve outlet ports. Product then falls under gravity from the inlet to the open outlet port.

The air cylinder needs a supply of clean, dry air at 80 psi.

Maintenance

Ensure the valve is completely empty of product prior to carrying out any maintenance. Isolate the valve electrically and pneumatically prior to carrying out any maintenance.

The valve is basically maintenance free as the only moving internal parts are the shafts, flap plate and wiper seal. The bearings oscillate under a minimal load compared to their rated capacity. Depending on the valve usage, product handled, actuation time and frequency will obviously affect the preventative maintenance schedule.

As a minimum it is recommended that the wiper seal and the valve internals should be checked at twelve months for general wear. It is preferable, and usually easier, to remove the valve from the system. Loosen the grub screws in the bearing collars that lock the shafts in position. Remove the bolts/scroll pins inside the valve holding the flap assembly to the shafts. Support the flap assembly and remove the two shafts by sliding them through the bearing inner collar. Withdraw the flap assembly through one of the ports.

The wiper seal can be removed and replaced by releasing the countersunk head screws sandwiching the clamp plate to the flap plate welded to the spindle. On reassembly it is important that the screws are tightened adequately and suitable threadlock applied in any ATEX environment. Dress the sides of the new flap seal if required to minimise the friction on the body.

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While there is no load on the bearings, check their movement and rotation to ensure they have not worn excessively and become loose and that they rotate freely. Regrease and/or replace if required.

Check the cylinder movement is smooth at twelve monthly intervals, more frequently if the atmosphere is dusty or at an elevated temperature. Check at six monthly intervals that the actuation arm strikes the limit switches to ensure that the switches are not being overloaded by over travel.

Recommended Spares

When spare parts are required, always quote the valve serial number.

Flap Seal
Flap Plate, Clamp Plate and Seal Assembly
Limit Switches
Bearings

Handling

Lift valves from under the base of the unit. Avoid lifting from the shafts. If fork trucks are used to move the valves, take care to prevent damage to the underneath parts. Improper handling can cause distortion, misalignment and breakage, particularly on flange corners.

Safety

In addition to standard safety regulations, the operator and maintenance personnel should be instructed to observe the following safety rules with pneumatically actuated diverter valves.

1. Ensure the valve cannot be operated remotely before removing any guards or performing any maintenance.

2. Ensure adequate guarding of all exposed moving parts.

3. Isolate the valve electrically and pneumatically prior to any maintenance.

4. Do not put body parts or tools inside the valve while in operation.

5. Ensure a continuous and suitable electrical earth connection is fitted to the threaded stud provided and tested for grounding.

Ignoring the safety rules could result in serious injury.

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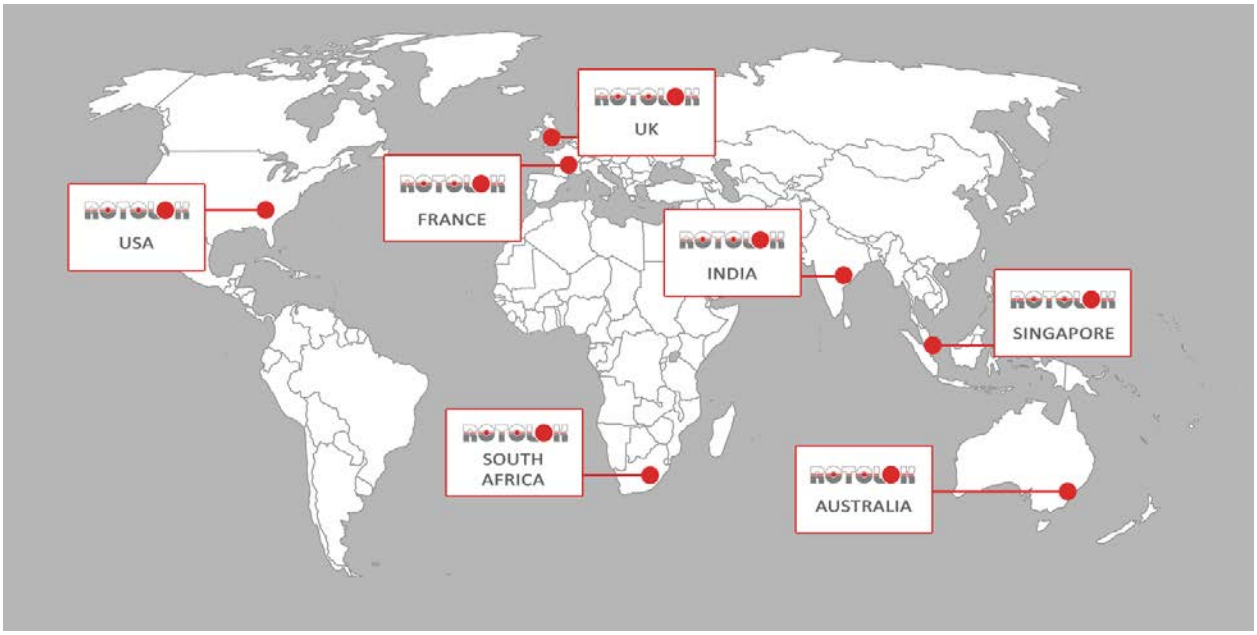

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