



Operating and Maintenance Instructions

GRAVITY DIVERTER VALVE

Including

ATEX Zoned Areas

Britton Procol Valves

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GENERAL HEALTH & SAFETY

This partly completed machine requires to be installed with corresponding equipment to enable correct operation and must not be run as a standalone piece of machinery and must be properly installed and guarded by a suitably qualified and experienced personnel only.

Only qualified or approved personnel should undertake the installation, commissioning and maintenance of Britton Procol Diverter Valves.

Health and Safety aspects cannot be over-emphasised. The following notes highlight the major precautionary steps which must be adhered to.

In the interest of Health and Safety at Work it is essential that, before installation, all aspects relating to installation, mounting position, support and all other related matters should be thoroughly investigated. Technical details relating to this equipment are either shown in the relevant leaflets or are freely available on demand from our technical department. If further advice is required, do not hesitate to contact us.

HANDLING

Gravity diverters are normally delivered shrink wrapped onto a pallet and should remain in this packaging until ready for installation. They may be moved in this condition by suitable equipment i.e. forklift, pallet truck etc.

After the diverter has been removed from the pallet it may be lifted by using eyebolts through the flange holes. Do not lift by slings around the actuator.

INSTALLATION

Check for external damage and remove foreign bodies from inside the valve. Install the diverter with the inlet flange uppermost – check the general assembly drawing if unsure.

The valve flanges are supplied flat and it is important, in order to prevent distortion or stress within the diverter body, that the mating flanges are also flat and level. A soft gasket or mastic

should be inserted between the valve and the mating flange. This will ensure a dust and weather-tight seal and will help to prevent valve body distortion.

Tighten the fixing bolts evenly and check that the rotor rotates freely.

Connect the air control valve to a suitable air supply and the solenoid coil to an electrical supply as shown on the rating plate. Check that the diverter vane moves when the air valve is operated. Before operating the diverter the approach equipment should be thoroughly cleaned and free from foreign matter. Serious damage will be caused to the diverter vane seals by weld spatter, nuts, bolts etc. if they are allowed to enter it.

ATEX REGULATIONS

Where diverter valves are installed in potentially explosive atmospheres they will be certified for use in Zone 21 or Zone 22 areas. The installer must ensure that the valves are adequately earthed to prevent static discharges caused by non-conductive media.

START-UP PROCEDURE

Check the following:

- 1) Before material is allowed through the valve, operate it several times and check that the vane moves freely to each of its diverting positions.
- 2) Check that the limit switches signal correctly at each end of the actuator stroke. The limit switch cams may need slight adjustment if the switches do not operate correctly. A cranked Allen key is provided within the switch housing to facilitate the adjustment.
- 3) All safety equipment, i.e. guards, cutout flaps and inspection flaps and lids are closed, and the valve is empty.
- 4) Where the valve is part of a material handling system, a check should be made to ensure that the valve controls are correctly interlocked with those of other units in the system.

If these components are satisfactory, the valve is ready for production.

GENERAL MAINTENANCE

Maintenance, apart from planned overhaul, should be adequately covered by regular attention to the air supply lubrication and a general external inspection to check that the retaining screws on the actuator mounting bracket and the vane bearings are all tight.

The diverting vane seals are made from materials selected to give a long trouble-free life. However, these components are subject to wear and will eventually need replacing. It is recommended that the diverter valve is dismantled for cleaning, inspection and overhaul as necessary at regular intervals.

The intervals between such routine overhauls will vary with the product being handled and total operating time. To a large degree the rate of wear for a particular application would be assessed by practical experience.

PNEUMATIC EQUIPMENT

The air valve and air actuator fitted to the diverter valve will require virtually no maintenance. If faults with this equipment occur it is recommended that the faulty item is replaced rather than repaired.

GENERAL

Britton Procol gravity diverter valves are designed to control the flow of dry free flowing powders and granules in solids handling systems operating under gravity conditions.

The diverter is not designed to operate through a flowing column of material. It should be set to the required flow path before material is allowed to pass through.

The valves bodies are fabricated and fitted with a sealed vane assembly. The valves are supplied for use in a particular application - they should not be used for other applications without reference to our technical department.

Always refer to the valve serial number if

further information or spare parts are required.

RESIDUAL HAZARDS

Gravity diverter valves are for use in fully enclosed systems with feed and discharge equipment connected to the valve inlet and outlet ports to prevent access to the moving vane. The valve must not be used if any port remains uncovered.

Product leakage may occur along the shaft. This can be prevented by fitting nitrile rubber shaft seals beneath the bearings. Contact Britton Procol Valves Technical Dept. for further information.

Product may be retained within the valve when the body side-plates are removed. Provision must be made for safely removing this product.

NOISE

Under normal circumstances the valve generates little noise. If the valve becomes noisy it indicates product build up, mechanical failure or trapped particles within the valve.

OPERATION & COMMISSIONING

The diverter vane is operated by an actuator direct coupled to the vane shaft. Pneumatic actuators are set in our works to give the correct stroke and indicator switches are adjusted to operate at the end position of each stroke.

If the diverter does not operate correctly the following causes should be investigated:

- a) Air pressure to the actuator is correct (between 4.5 and 7 bar g).
- b) The air control valve operates correctly.
- c) Product build up within the diverter preventing the vane from moving.

SERVICES

Compressed Air: Max. Working: 7 bar g
(100 psig)
Max. Overload: 10 bar g
(15 psig)

Electricity: 24 vdc to air valve solenoid
coils.
125 – 250 vac to indicator
switches.
Max resistive load: 15A

All units are works tested before despatch and are ready for installation.

If the valve is to be stored prior to installation it is important that it is stored in a clean and dry environment to prevent the rusting of mild steel components.