

Operating and Maintenance Instructions

PNEUMATICALLY OPERATED SLIDE VALVES

Britton Procol Valves

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HEALTH & SAFETY NOTES

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

Check list before running

- 1) Observe fully all slide valve and actuator operating and safety leaflets supplied with the Slide Valve.
- 2) Ensure that the valve inlet and outlet are protected by the feed and discharge ducting or other equipment so that it is impossible for operatives or maintenance personnel to insert fingers, hands or any part of their bodies into the slide valve.
- 3) Where the valve outlet is not connected to other equipment or ducting a mesh grille must be securely fastened to the exposed flange. The grille should be sufficiently small to prevent the insertion of fingers.
- 4) Always isolate and lock-off all the electrical power supply to the geared motor before attempting any maintenance or other work on the valve.

VALVE SPECIFICATION

Britton Procol Slide Valves are designed to metric standards and all fasteners or threads are metric.

Frame: Fabricated from mild or stainless steel channel section.

Covers: Mild or stainless steel sheet bolted to the valve frame to guard the moving slide plate.

Slide Plate: Mild or stainless steel plate.

Plate Supports: Fixed Nylon or stainless steel flanged rollers with nylon bearings

Plate Seal: White felt packing gland with adjustable seal follower.

Valve Seal: Metal to metal seal between the slide plate and the valve inlet deflector.

Actuation: Heavy duty double acting air cylinder centrally mounted from the back of the frame.

Indicators: 2off magnetically operated indicator switches positioned on the air cylinder to indicate valve Open and Closed positions.

Air Valve: Single solenoid operated spring return air control valve piped to the cylinder in flexible nylon tube.

Finish: Stainless: 2B mill finish. All welds acid etched and passivated.
Mid Steel: Painted semi-gloss Blue BS4800 20D45

All units are Works tested prior to despatch and are ready for installation.

It is important that if the valve is to be stored before installation adequate precautions should be taken to prevent the formation of rust. The valve must be stored in a clean dry environment.

OPERATION

Britton Procol pneumatically operated slide valves are operated by a double acting air cylinder direct coupled to the slide plate. The cylinder pulls the slide plate out of the frame to open the valve and pushes it back into the frame to close.

A solenoid operated spring return air control valve piped to the cylinder in flexible nylon pipe controls the slide valve. When the air valve solenoid is actuated the cylinder instrokes and pulls the slide plate out of the frame to open the valve. The electrical supply to the solenoid must be maintained in order to keep the valve open. When the solenoid is de-energised the cylinder outstrokes pushing the plate into the frame to close the valve. This method of operation ensures that in the event of electrical failure the slide valve fails to the closed position.

The magnetic wear strip around the cylinder piston operates the indicator switches mounted on the cylinder. The switches are designed for remote indication of the fully open and fully closed slide plate positions. They are set to these positions in our Works before despatch but may require adjustment during installation/commissioning to ensure correct operation.

INSTALLATION

Slide Valves are supplied with flanges pre-drilled to suit the proposed support flanges. Insert a gasket or gasket compound between the valve and support flanges to ensure a dust tight seal and to prevent distortion of the valve frame.

Tighten the bolts evenly and ensure the bolts in the valve chest area do not protrude into the valve frame by more than 15mm (5/8"). Bolts longer than this may clamp the slide plate.

Once installed check that the valve frame has not been twisted by uneven bolt tightening or distorted support flanges.

START UP PROCEDURE

Before material is passed through the valve it should be operated several times to ensure the slide plate moves freely and travels to the fully open and fully closed positions.

Indicator switches should be checked for correct operation and that the correct signal is given when the switches are operated.

SAFETY PRECAUTIONS

Before attempting any repair or maintenance work on the slide valve obey the following rules:-

ISOLATE AND LOCK OFF ALL POWER SUPPLIES TO THE VALVE

Isolate and lock off the electrical supply.

Ensure air pressure at the cylinder is zero. Isolate and lock off the air supply.

DO NOT work on the slide valve if material is over the valve. Ensure all hoppers and chutes above the valve are empty.

DO NOT insert any body parts into the valve even if the power is switched off.

Never operate the valve without covers, grids and safety devices in place.

Never loosen pneumatic piping whilst it is pressurised.

Always remove extraneous materials from around the slide valve.

MAINTENANCE

Britton Procol slide valves are designed to give a long trouble free life and virtually no maintenance is required. However the following checks are recommended.

After 1 weeks Operation:

Remove the covers and check:

- a) the piston rod nut for tightness
- b) the slide plate seal follower and adjust as necessary.
- c) the air cylinder mounting bolts for tightness.

At 3 monthly intervals

Remove the covers and adjust the seal follower as required.

At 12 monthly intervals

- a) Inspect the plate seal and replace the packing gland if required.
- b) Inspect the slide plate supports and adjust or replace as required.
- c) Inspect the slide plate for wear and replace as required.

GENERAL MAINTENANCE

Slide plate supports

There are 2 types of slide plate support:-

Nylon Fixed Supports: When worn these may be turned through 90° to allow the slide plate to rest on a none worn area of the support.

Stainless Steel Rollers: This type of support rotates when the slide plate moves. The roller support surface and the nylon bearing will wear and need replacing as required.

Slide Plate Seal

In order to prevent material leaking out of the valve, the slide plate is sealed by a felt packing gland where it passes through the valve frame. This gland is pressurised by an adjustable follower which should be regularly adjusted.

FAULT FINDING

Slide valve does not operate

Check

Air pressure- minimum pressure 4 bag.
Air valve correctly piped to cylinder.
Exhaust ports on air valve clear.
Air valve operates correctly.
Slide plate not jammed.

Plate seal leaks material

Check

Seal follower adjustment
Gland seal needs replacing
Slide plate badly worn

Grinding noise during operation

Check

Slide plate supports worn.
Material trapped beneath inlet frame

Indicator switches not operating

Check

Position of switches on air cylinder.
Wiring of switch.
Is switch operating correctly.

Air valve not operating

Check

Solenoid is operating
Air pressure
Electrical wiring and controls

SPARES

Recommended Spares

1off Set of Slide Plate Supports
1off Packing Gland

Optional Spares

2off Indicator Reed Switches
1off Air Control Valve
1off Air Cylinder

ATEX

Britton Procol Slide Valves are available for use in ATEX Zone 21 or Zone 22 areas and are “CE” marked and certified accordingly. They are assessed and designed to comply with BS EN 13463-5 Protection by Constructional safety “c”.

If the valve is to be installed in an ATEX area all electrical and mechanical equipment on the slide valve is suitable for use in the designated ATEX Zone.

During installation care must be taken to ensure the Slide Valve frame is properly earthed to ensure no static build up occurs.