



Operating and Maintenance Instructions

PNEUMATICALLY OPERATED SLIDE VALVES TYPE AP

Including

ATEX Zoned Areas

Britton Procol Valves

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HEALTH & SAFETY NOTES

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.

The valve contains moving parts which can cause injuries. It is the responsibility of the system installer and user to ensure the safe installation and operation of the valve. The valve must be adequately guarded in compliance with local Health and Safety Regulations. The motor must be isolated before any maintenance or adjustment is carried out. Do not operate the valve with the link guard or access hatches removed. Only competent persons must be allowed to maintain the valve.

It is the purchaser's responsibility to ensure that these health and safety instructions are passed to those persons deemed to be at risk.

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 power supplies to the valve before attempting any maintenance or other work.

VALVE SPECIFICATION

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

Body: Machined LM25 cast aluminium or 316 stainless steel.

Slide Plate: Stainless steel.

Plate Supports: Moulded nylon plate supports on individually adjustable stainless steel pins.

Scraper/Seal: Slide plate scraper and felt seal in an adjustable seal housing.

Actuation: Heavy duty double acting air cylinder with stainless steel piston rod.

Indicators: Standard 2off magnetically operated indicator switches positioned on air cylinder to indicate valve open and closed positions.

Customer specified sensors can be fitted as an alternative.

Air Valve: Fitted as standard is a single 5/2 solenoid operated spring return air control valve piped to the cylinder in flexible nylon tube.

Customer specified solenoid valves can be fitted as an alternative or supplied less solenoid valve.

Finish:
Aluminium: Painted air-drying semi-gloss Blue RAL5022 or customer specified colour.

Stainless: Self colour finish.

All units are works tested before 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 and 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 body to open the valve and pushes it back into the body 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 in-strokes and pulls the slide plate out of the body 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 out-strokes pushing the plate into the body 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

Ensure mating flanges are flat.

A soft gasket such as rubber should be used to take up irregularities in flanges with uneven surfaces.

The slide plate is nearest the top flange of the valve.

Important: Flanges are tapped DIN PN10 as standard (ANSI 150lb to order). Securing screws should not protrude through the top flange. Do not overtighten fixing screws.

Valve must be mounted in the horizontal plane (i.e. flanges horizontal).

Valves are tested at the works, where the slide plate/insert clearance is set. If this clearance is to be adjusted to suit product size and/or type, the following procedure should be followed:

- The nuts securing the eccentric nylon supports should be slackened.
- The supports can then be adjusted to increase or decrease the clearance by turning the pin using a hexagon key.
- The locknuts are then re-tightened while holding the pin stationary.

NOTE: If the valve has been supplied to cut through a static column of product, the standard eccentric plate supports will have been replaced by a support/wear strip which cannot be adjusted. Air supply should be approximately 5 bar g and free from moisture. Ensure the nylon piping is not kinked.

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 week's operation:

Check:

- a) Piston rod nut for tightness.
- b) Slide plate seal housing and adjust as necessary.
- c) Air cylinder mounting bolts for tightness.

At 3 monthly intervals:

Adjust the seal housing as required.

At 12 monthly intervals:

- a) Inspect the plate seal and replace the felt seal 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

After prolonged periods, wear will take place and cause the slide plate/insert clearance to increase. This is reduced by adjustment as described previously.

Replacements:

- a) The seals in the pneumatic cylinder can be replaced when worn. These are supplied in kit form.
- b) The slide plate supports can be replaced by removing the valve from position, undoing the pin retaining nut and washer, and replacing as described above.
- c) The felt seal is replaced by removing the seal housing which is retained by an M8 screw on each side of the valve body.

FAULT FINDING

Slide valve does not operate

Check:

Air pressure- minimum pressure 4 bar g.
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 housing adjustment.
Felt seal needs replacing.
Slide plate badly worn.

Grinding noise during operation

Check:

Slide plate supports worn.
Material trapped beneath inlet.

Indicator switches not operating

Check:

Position of switches on air cylinder.
Wiring of switch.
Switch is 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 Felt seal.

Optional Spares:

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

ATEX

Britton Procol slide valves are available for use in ATEX Zoned 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.