



OPERATING AND MAINTENANCE INSTRUCTIONS

TWIN FAN SUPPLY BELT DRIVEN UNITS - PENTAPOST

DESCRIPTION

All units are manufactured to a very high standard.

The Pentapost frame is pre-formed aluminium extrusion and moulded corners, which form a versatile box section. This modular construction allows single or double panels to be fitted. The panels, internal fan plates, and spigots are manufactured from 18 swg or 16 swg Zintec steel plate. The panels may be finished in a polyester powder coat RAL 9011 (Satin black), Weatherproof units are RAL 9017 (Gentian blue).

The fans are belt driven, double inlet, forward or backward curve, centrifugal type, fitted with single or three phase motors to class F insulation. They are sized to suit the duty required, with allowances for internal pressure drop within the unit. The panels are insulated with 25mm thick Pyrosorb-S class 0 insulation. This has moderate noise absorption qualities and anti-condensation properties. Double skin panels are in-filled with 60kg/cm³ Rockwool insulation for additional noise reduction.

All filters are manufactured to BS EN 779:2012. G4 grade panel filters are fitted as standard. Medium grade panel filters M5 - M6, Fine grade bag filters F7 - F9, and HEPA filters grade H10-H14 are available on request. Carbon filters are also available.

Heater batteries of the correct size are fitted when required. Internal adjustable On/Off thermostats control these, optional thyristor controllers are available.

OPERATION

The Twin Fan Pentapost units generally require a 380/415 V ac three phase and neutral supply. Where specified, a 240 V ac single phase may be required. Check serial plate on side of unit or sales literature.

All heater batteries are fitted with an Element Over-heat Protection Circuit (EOPC). The circuit incorporates an Element Overheat Thermostat, (EOT), & Airflow Failure Switch, (AFS), together with an appropriate Relay or Contactor. When low or no airflow occurs, the coil of the Relay/Contactor is de-energised. The overheat switch provides protection against the heater elements overheating in the event of fan/airflow switch failure. The AFS also provides volt free contacts via a Relay (AFR) or (HR) wired to Terminals located inside the electrical enclosure. Each unit is provided with a 20/25mm SWA cable glands to IP65, mains terminals and a mains isolator switch.

FAN CONTROL

Internal speed control devices for each fan are available, to commission fan airflow duties when required. Inverter drives are available for three phase fans.

All Twin Fan Fresh Air units require a Puma auto changeover panel to operate correctly.

When energised, the selected fan will run as the duty fan. If the fan fails then an airflow switch automatically switches on the standby fan, and illuminates a fan fail (red) light on the auto changeover panel. See data sheet on auto changeover panels for differences in the basic and deluxe panel models. The 'duty' fan can be manually selected by the fan selector switch on the auto changeover panel.

INSTALLATION

The unit must be installed with sufficient clearance for top or side access. Consideration must be given for access and removal of internal components.

The units are suitable for floor mounting on 'tico' pad or anti-vibration isolators, if required (by others). Flexible connections may be required between spigot connections and solid ductwork, to minimise transmission of noise or vibration to the building structure.

Twin Fan Fresh Air units are available as weatherproof versions, (denoted WP). Anti-vibration isolators are recommended when installed on flat roofs.

SERVICE AND MAINTENANCE

The main panel filter must be replaced as frequently as necessary, depending on ambient conditions, or as final pressure drop dictates from manometers or filter pressure switches. This should coincide with a three monthly visit for a standard service for the main air conditioning plant or, if manometers are fitted, when the pressure difference exceeds 125 pascals. Failure to change the filter/s at the recommended intervals will invalidate the warranty.

The mains supply to all units must be disconnected at source before removing the side access panels.

The Airflow Failure Switches should be checked for free movement and electrical conductance. These fans are fitted with belt driven motors with sealed for life bearings up to a frame size of 132 (11Kw), that require no maintenance.

Motors of frame size 160 (15kW) and above have open bearings with "flush through" regreasing facilities. It is recommended these motors are checked and regreased every 3 months.

Refer to Puma technical sales leaflet for further information regarding dimensions, weights and unit performance and fan curves.

FAULT FINDING

FAN/MOTOR FAILS TO RUN

1. Check the unit is connected correctly, as per the supplied wiring diagram.
2. Check the mains supply and mains isolator.
3. Check the control circuit fuse.
4. Check the Shutdown Relay (SR) link is fitted between L1 & L2 or SR1 & SR2.
5. Is there a voltage at the fan? Yes would indicate motor failure or a neutral/phase problem. If no follow, steps 5-7 below.
6. Check the fan fuse, located below the isolator, or inside the electrical enclosure FS2 (single phase fans only)
7. Three phase fans and belt driven units check the Fuses are ok, (located in the electrical enclosure on the side of the unit), and the fan overload is on by pushing the manual reset button(red) on the fan contactor, (usually situated to the side of the fan on the fan plate left or right depending on handing of the unit)
8. If the motor overload, or fuses keep tripping or blowing, check the phases are ok. On belt drive units check the belt tension is correct and the fan motor overload is set to the rating of the motor. See motor serial plate for size/rating.

ELECTRIC HEATING NOT RUNNING

1. Is the airflow being restricted or stopping the AFS from operating correctly. Check if the fliter is dirty, and status of the filter pressure switches.
2. Check the overheat thermostat, press the manual reset button (located next to the heater battery).
3. Check the heating supply fuses.
4. Check the heating contactor for correct operation.
5. Check the Air flow switch (located on the side of the fan body) for correct operation and electrical continuity, an audible click should be heard when operating the switch.
6. Check the individual thermostats are set to the desired temperature/s and they are working correctly. Again, an audible click should be heard when turning the dial up or down.
7. Where an electronic thermostat is used, check the supply to the thermostat and the display is on.
8. Check the sensor. A resistance of approximately 10k Ω should be measured across the sensor, (disconnected).
9. If a 4/8 stage electronic thermostat is fitted check the parameters are correct. Refer to the electronic thermostat set up document.

Most faults/problems can be resolved by following the above. If the unit still fails to work correctly please contact PUMA PRODUCTS LIMITED for technical assistance.



ISO 9001:2008
Certificate Number: 1206 Issue: 01

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