OPERATING AND MAINTENANCE INSTRUCTIONS

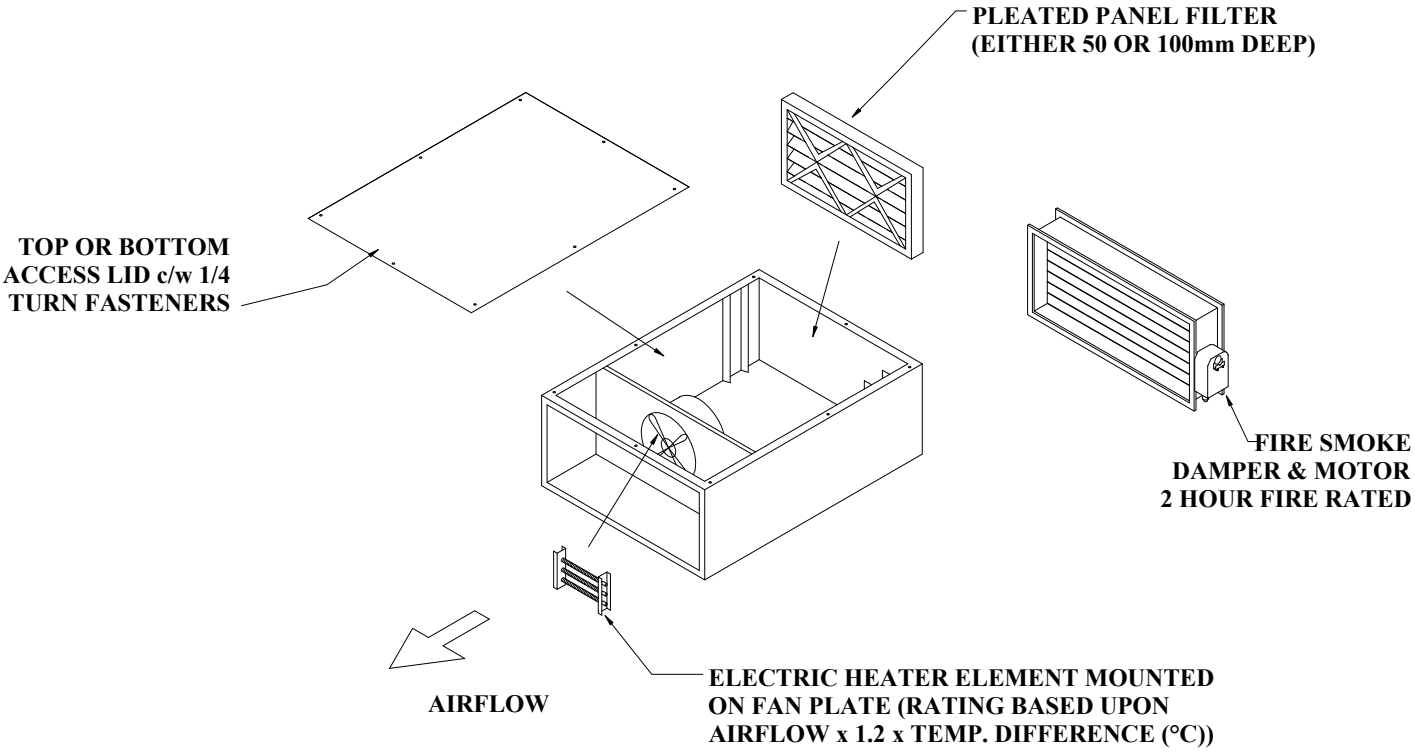
FRESH AIR UNIT - MODEL 'S' & 'Q'

DESCRIPTION

All Puma units are manufactured to a very high standard. The fresh air unit is fitted with a high efficient, single phase, axial or centrifugal flow fan. A heater battery is fitted as standard (unless specified otherwise) with adjustable integral thermostat control. G3 or G4 grade panel filter to BS EN 779:2012 fitted as standard. High Efficiency Filters (HEF) are available on request. The unit is insulated with black thermal insulation 3mm thick for anti-condensation purposes.

The optional Fire Smoke Damper (FSD) is fitted on the air intake side. The damper should be located as close as possible to the wall cut-out. This will ensure the fire integrity of the wall is maintained. The fire rating is 2 hours, tested to BS EN 1634:2008.

Model 'S' Mk 3



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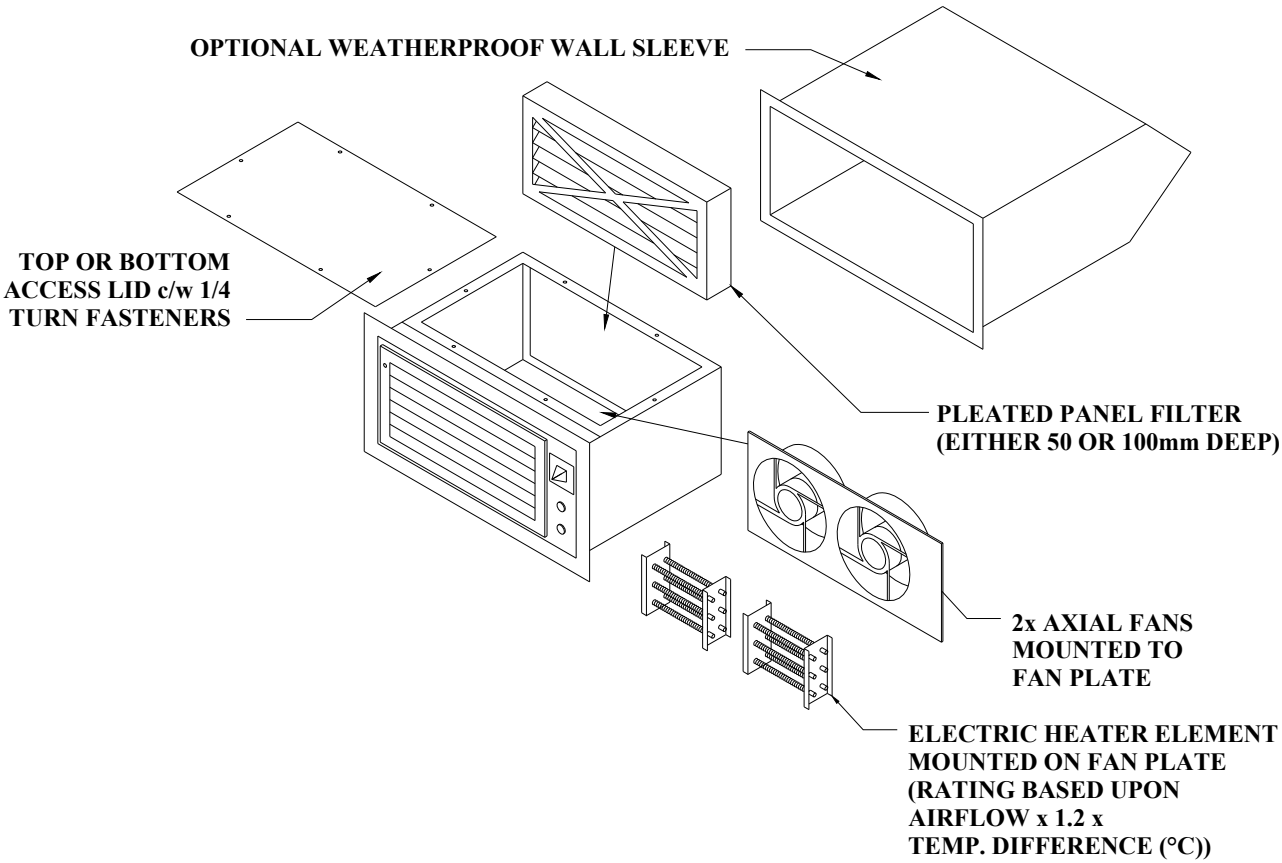
Model 'S' Mk3 units are internally flanged and fitted with M4 nutserts as standard to allow for connection to a suitable duct, (or the optional Puma Telescopic Duct (TD) and Weather Louvre (WL)).Optional silencers available for intake and discharge sections. Silencers are formed from galvanised steel casing and 20 SWG 30% free area perforated pods. Sound absorption material is Rockwool slab to a density of 60kg/cm^{3}and tissue faced to eliminate fibre shedding.

Model 'Q' Unit



OPERATION

The fresh air section requires a 230 V ac single phase supply. This supply will normally be interlocked with the air-conditioning system in relation to power shutdown in the event of fire detection. A suitably sized 3 core cable of 1.5 metres in length is supplied through a cable grommet in the side of the casing.
This cable is connected through the fitted mains isolator, and the supply to the fan and heater (via the thermostat) is from this isolator.

Electric Heaters

All electric heater batteries are fitted with an Element Over-heat Protection Circuit (EOPC). The circuit incorporates an Element Overheat Thermostat (EOT) (manual reset), working in conjunction with the Airflow Indication Switch (AFS).

When very low or no airflow occurs, the primary function of the AFS is to protect the heater. If no airflow passes the switch, the electric heater will be isolated. (The AFS also provides volt free contacts via a relay wired to a 3 core cable marked common, normally open, and normally closed. This 'volt free contact' device is rated at 240 V ac 5 amps).

The secondary protective function is from the EOT, if the electric heater element exceeds a certain temperature, the EOT will trip. This device has a manual reset push button, located on the electric heater.

All Puma units with heating include heater fuses, heater relay and Element Overheat Thermostat.

There are three options for heating controls:

Integral Thermostat Control

A single thermostat is supplied rated up to 4kW. The thermostat is located inside fan unit sensing air intake temperature. The thermostat has an adjustable 0 - 30° C dial, factory set at 10° C with switching differential tolerance of + or - 2° C. This means when outside temperature falls below 10° C (typically winter time), the heating will switch on until outside air temperature climbs above this set point (typically summer time).

Speed Controllers

Speed controllers can be fitted to most single phase fans for commissioning purposes. Great care must be taken when reducing airflow when electronic heater batteries are fitted.
A sufficient amount of air should pass across the elements to prevent overheating. This is normally 30 to 40% of maximum fan speed. Safety is provided by the AFS which will drop out the Heating Relay (HR) when the airflow is too low. The element overheat thermostat will act as a fail safe.
Speed controllers are generally single phase internal mounting type, located on individual fan casings. Remote wall mounting types are available on request.

When fan speed controllers are supplied loose or as a retrofit, please refer to data sheet OSI 002 for details of on site installation.

Damper and Motor Controls

If a Fire Smoke Damper and motor is fitted to the fan unit, the motor, (or actuator), is factory wired with the fan start controls, and proceeds to open when power is switched on to the fan unit. The motor takes approximately 40-75 seconds to fully open and will then 'Spring Return' on power failure in approximately 20 seconds.

INSTALLATION

Model 'S' units must be situated in a position with sufficient access to the top of the unit. A height of at least 150mm clear above the unit must be allowed, as access to all the components are via the flat plate lid. The clearance height is not necessary when the units are located underneath raised modular floors, as it is assumed that the appropriate floor tile/s are accessible and removable.

Model 'Q' units, when located in weatherproof wall sleeves, must be sealed with suitable mastic externally and general installation must comply with any relevant building regulations.

The mains supply cable must be loosely clipped to the wall to allow sufficient slack in cable to enable the unit to be withdrawn from the sleeve for filter removal. The mains supply to all units must be disconnected at source before removing lid. The unit may be suspended or supported by correctly sized anti-vibration isolators if required (supplied by others).

COMMISSIONING

Assuming all necessary power supplies fuses and inter-connecting cable have been installed to the standard of the current edition of the IEE wiring regulations, then commissioning / start up of the equipment can be carried out.

SERVICE & MAINTENANCE

The main panel filter in the fresh air section must be replaced as frequently as is necessary depending on ambient conditions. 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 the marked set point. Failure to change the filter/s at the recommended intervals will invalidate the warranty.

The (AFS) should be checked for free movement and electrical conductance.

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 wiring diagram supplied.
2. Check the mains supply.
3. Check the control circuit fuse.
4. Check the mains isolator fitted to the side of the unit.
5. Is there a voltage at the fan? Yes would indicate motor failure or a neutral/phase problem.
6. Check the fan fuse, small range located below the isolator, large range inside the electrical enclosure FS2 (single phase fans only).

ELECTRIC HEATING NOT RUNNING

Is the airflow being restricted, stopping the airflow switch from operating, i.e. a clogged or dirty filter.
Check the overheat thermostat, press the manual reset button (located next to the heater battery).
Check the heating supply fuses.
Check the heating relay for correct operation.
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).
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.

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

ISO 9001:2008
Certificate Number: 1206 Issue: 01