APU 200 - Fan Purge Unit

Instruction Booklet

Application

The Fan Purge Unit is designed for the direct purging of pipework from natural gas to air. It is intended to be used in conjunction with the Purge Unit with integral meter which is available as an optional extra item in 100 and 150 mm models, contact Duomo sales department for information. sales@duomo.co.uk.

It can also be used to pressurize pipework for tightness testing. This fan is capable of providing about 100 mbar and can be used for combined strength and tightness tests.

All Soundness Testing and Purging must be carried out as set down in IGEM publications UP/1, or UP/1A if the volume is less than 1 cubic metre [35.3 cubic feet] with operating pressure below 40 mbar. Depending upon resistances, the unit provides up to about 100 m3/h of air.

The fan unit is mounted in a vinyl coated wooden and aluminium framed box that should be stable under reasonable conditions on a firm base. The box is not intended to be left outside for long periods and should be stored in the dry. Use correct Manual Handling procedures for lifting. See also fan instruction manual regarding storage, maintenance and use.

A check valve is fitted as a protection against reverse flow of gas into the fan. Some units may have a different internal layout from that shown above.

Hazards

⚠ **Do NOT use the unit inside a Hazardous Area, or a in a meter room unless it has been tested and proven to be free of gas.**

⚠ **Always visually check the connecting cable and plug before use. Fit the plug into a 110V safety transformer or 230V RCD, as appropriate. If you have any doubt about the electrical safety of the cables, fan or transformer, consult a qualified electrician.**

⚠ **NEVER run the fan under no-flow conditions for long periods as it may overheat or cause serious damage**

⚠ **Running the fan with all outlets closed may damage the fan, always keep a small volume of air flowing.**

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Assembly

1. Place the fan box in the open air in a safe, dry and level location.
2. Remove the length of hose and connect it to the fan using the union connection. Do not over-tighten the union on the fan as it achieves air tightness quite easily if not damaged.
3. Connect the other end of the hose to the installation pipe or meter assembly at an appropriate valved point.
4. Ensure this valve is closed.

Always visually check the connecting cable and plug before use. Fit the plug into a 110 V safety transformer or 230V RCD, as appropriate. If you have any doubt about the electrical safety of the cables, fan or transformer, consult a qualified electrician.

Operation

Vinyl coated wooden and aluminium framed box

WARNING: Do NOT use the unit inside a Hazardous Area, or a in a meter room unless it has been tested and proven to be free of gas. The direct gas to air purge operation is detailed in IGEM UP/1 and UP/1A.

When purging pipework, verify that the pipe size to the purge connection is large enough to provide the purge flow rate without excess pressure drops. If the meter sizes are correct and the purge rate cannot be obtained, the pipe to the purge hose point is too small. If possible move the purge connection to a larger section of pipe and purge to that point before finishing the purge on the original smaller pipe. If this is not practicable, a purge with nitrogen according to UP/1 must be carried out.

The following procedure must be followed in order to prevent the reverse flow of gas back into the Fan Purge Unit.

1. With the connecting valve to the Fan Purge Unit closed, de-pressurise the installation pipework or meter installation through the Purge vent pipe. Check the gas pressure within the pipework to ensure the pressure has dropped to atmospheric.
2. Turn on the Power to start the fan and open the valve at the end of the fan hose to admit air into the system. NEVER run the fan under no-flow conditions for long periods as it may overheat or cause serious damage
3. Immediately open the Purge valve at the base of the vent pipe and adjust to give the correct flow rate as required by UP/1 or UP/1A. When the gas concentration has reduced at the test point to give less than 40% LFL or more than 20.5% oxygen, the purge may be considered to be complete. Testing of gases must be with calibrated instrumentation in accordance with the manufacturer's instructions.
4. Running the fan with all outlets closed may damage the fan, always keep a small volume of air flowing.
5. Close all valves and turn off the Power, disconnecting the lead and transformer. Disconnect the hose.
6. All removed pipe components, meters and controls must be capped or sealed correctly. Installation pipework must not be left open ended.
7. Finally, replace the hose, union ends and cable in the box.

Special Notes

Purging meters after removal for a Gas Transporter/Shipper/Supplier.

In this instance, if the meter is to be purged without being connected to any installation pipework, e.g. on return to stores. The same basic use of the Fan Purge Unit and vent stack applies. The purge rate must not at any time cause the meter to over-speed. To achieve this, the pressure difference between the inlet and outlet of the meter should not exceed 1 mbar if the meter is not to be scrapped, measured by inlet and outlet meter pressure tappings, and controlled by a meter outlet valve. The purge end points remain as stated above. The outlet connection from the meter should always be vented to a safe open air location away from all sources of ignition.

Setting regulators prior to connection to an incoming gas supply.

The fan and associated purge unit can also be used for setting up regulators and over pressure shut off valves prior to the system being connected to an inlet gas supply. The maximum supplied pressure under low flow conditions is about 100 mbar.

Duomo Purge Unit Guide	
Flow Settings	**10m length Pipe Volumes**
Below 2" BSP - 2.5m^3	1" = 0.0064 m^3
2" - 4.5 m^3 /h, 3" - 11 m^3 /h	1¼" = 0.011 m^3
4" - 20 m^3 /h, 5" - 30 m^3 /h	1½" = 0.015 m^3 & 2" = 0.024 m^3
6" set at 10 for 38 m^3 /h	3" = 0.054 m^3
8" - 79 m^3 /h	4" = 0.09 m^3 & 6" = 0.2 m^3
10" - 141 m^3 /h	8" = 0.35 m^3 & 10" = 0.53 m^3

Engineer Notes:

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