

VSPU - Very Small Purge Unit

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U65/G25
Purging

12V

Charging

10m

Hose



FEATURES

- Rechargeable via 12V cigarette lighter socket (No need for power supply while purging)
- 3metre hose to allow fan to be in safe area
- Quick connect connection and test points
- Carry holdall provided

OVERVIEW

The Very Small Purge Unit (VSPU) package includes a rechargeable plastic construction air fan. It can be re-charged via a vehicle 12V cigarette lighter socket or a 230V socket using the adaptors included in the package that connect to the 6V inlet connection on the rear of the fan. Being of lightweight construction, the fan must be used with care.

The unit has adequate flow capacity to purge up to U65/G25 gas meters. The air fan has a safe limited pressure capability under zero flow conditions. The fan should not be run under zero flow conditions other than for very short periods. When new, the rechargeable batteries will have a capacity of about 30 minutes but should not be run for more than 10 minutes at a time in order to keep the motor cool. The fan should be placed back on charge after each use to maintain its full capacity. The fan **MUST NOT** be run whilst on charge.

Foreign material must not be permitted to enter into the fan inlet/suction connection or collect inside the flame arrestor.

This unit can purge up to 2 1/2" pipework subject to length and fitting resistances. The fan **MUST** not be used to suck natural gas into its inlet connection and must only be used as a blower in gas free locations.

The unit is supplied with a 10m x 3/4" outlet hose for connection between the meter or pipework and the vent stack with flame arrestor for purging. There is also a 3m lightweight hose for connecting the fan to the meter or pipework.

The meter or pipework system **MUST** be de-pressurised before connecting the air fan.

OVERVIEW

Using VSPU during purge to gas

The VSPU has been designed primarily for purging gas meters and associated downstream pipework. In development it has been found that the limiting factor for purging during decommissioning is the capacity of the fan. The fan is not used when commissioning to gas and thus the VSPU may be used up 3" (80mm) if there is adequate pressure.

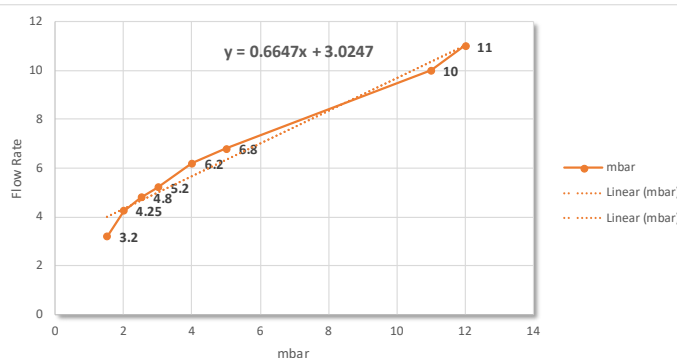
Unlike other GEA purge units, this unit does not have a flow meter but, as can be seen from the graph below, a pressure reading at the base of the stack gives a direct indication of flow rate as required by IGEM UP/1.

The required flow rate for 2.5" (65mm) pipe is 7m3/h. This requires a measured pressure at base of stack of about 7mbar

The required flow rate for 3" (80mm) pipe is 11m3/h. This requires a measured pressure at base of stack of about 12mbar

mbar	flow rate
1.5	3.2
2	4.25
2.5	4.8
3	5.2
4	6.2
5	6.8
11	10
12	11

FLOW RATE m3/h v pressure mbar



ASSEMBLY

The purge vent stack comprises four PVC pipes that can be hand tightened together, jointing compound is not needed. The flame arrestor must be mounted to the top stack with the cap removed. Extend tripod legs by releasing both clips on each leg. Raise the centre support by winding the lever. The tripod can be levelled to match ground conditions. Hang the three No Smoking signs over the tripod.

On the PVC Stack base mount the steel assembly with the test/pressure point. Clip the vent stack assembly into the tripod pipe clips. The 10m purge hose assembly comprises a $\frac{3}{4}$ " bore hose with camlock type end connectors. Connect the hose to the base of the vent stack and to the meter or gas pipework.

When using natural gas for installation pipe purging, the pressure at the test point will indicate the flow rate. A pressure reading of over 3mbar indicates that the flow rate is over 4.5m³/h (for 50mm pipes). If the pressure is not achieved, stop the purge and investigate.

When purging a diaphragm meter up to U65 or other type of meter it should be possible to complete the purge within 40 seconds at full fan flow. If required, the purge volume can be read from the meter dial @ 0.037 m³ for U25, 0.067 m³ for U40 & 0.1 m³ for U65. The purge must be confirmed with a combustible gas analyzer.

INSTRUCTIONS FOR USE

Gas to air purge

The fan must only be used in a gas free environment, well below 20% LEL. Assemble the unit as above and connect to the meter or pipework. Depressurize the meter/pipework through the vent stack and confirm the pressure reading at the base of the stack is Zero.

Connect the fan hose to the fan, turn it on and then connect it with the camlock type fittings to the meter inlet or pipework to be purged. Confirm the pressure at the base of the stack is over 3 mbar for purging all systems up to 2" bsp pipe sizes. Test at the end fitting with a Combustible gas analyser.

When removing redundant pipework and gas meters it is essential to purge to air and to get less than 40% LFL or more than 20.5% oxygen. An airflow mover is included for gas to air purges.

Air to gas purge

Assemble the unit as above and connect to the meter or pipework. Connect the $\frac{3}{4}$ " hose to a valved connection on the far end of a meter or section of pipework. Open the inlet valve. Confirm the pressure at the base of the vent stack is over 3mbar for purging all systems up to 2" bsp pipe sizes. Purge until the test gas reading at the end fitting is typically above 90%.

After use

Ensure that the internals of the flame arrestor are free of debris/dust. Ensure any hoses are free of gas by blowing air through and that the camlock type fittings have been removed from the pipework before packing away. Place the fan assembly back on charge via the cigar lighter in the vehicle.

The direct gas to air or air to gas purge operation is detailed in IGEM UP/1 and UP/1A. Never attempt to light the purge gases on the Flame Trap.

All removed components must be capped or sealed correctly. Open ended pipework must not be left.



[illegible]



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