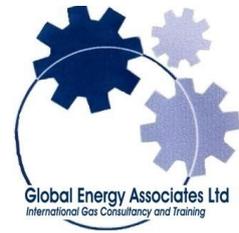


LPG or Natural Gas Flare Unit Single head assembly



This purge unit is designed for the direct venting of natural gas and LPG up to 2bar. The flare burner unit also enables the unit to be used to burn off any gas where vented gas could cause a problem, due to smell etc. The single Flare Unit is similar to the large unit except that it has one burner and one ignition unit.

The unit contains a continuously rated high voltage and switched transformer (fed from 110V source) that provide a continuous spark for ignition of the flame. This is particularly important when the gas is being purged with air or nitrogen and as the gas concentrations fall. When the concentration falls below 50% nitrogen and gas, the purge is nearly completed and the flame will be difficult to keep ignited. It is normal to use a 110V safety supply/transformer.

The burner head is mounted approximately 2.5m above the ground level and in most conditions will not cause a hazard to persons nearby. However, use is not recommended in gusting winds.

The main Purge Unit is mounted in a vinyl coated wooden and aluminium framed purge box that provides a stable base on firm ground conditions. The Flare Assembly consists of three vertical 15mm steel pipes connected with stainless steel unions together with a valved section containing an in-line flame arrestor and are connected above the flange mount in the roof of the box.

When flaring, it is vital to ensure that the flame cannot ignite any adjacent materials and that the area does not contain any potentially hazardous flammable products that could ignite or explode. No Smoking signs are attached to rear and sides of the purge box. It is recommended that the area be cordoned off to keep people more than 5 metres away from the Purge Unit especially when flaring.

Always keep a **fire extinguisher** handy. When flaring, it may be advisable to notify other interested parties e.g. **Fire Brigade, your gas supplier/transporter, your Safety Department etc** of your operations.

A Risk Assessment and Procedure (method statement) must always be completed before commencement of operations.

Assembly:

The purge box door must be fully opened when purging, to give the box stability. The length of purge hose [1/2" BSP for LPG/high pressure NG and 1" BSP for low pressure NG] should be carefully removed from the purge box and connected to the union at the inlet valve on top of the box and to the pipework or vessel to be vented. Additional lengths of hose are available. **The pressure NG**

hose must not be used above 100 mbar or with LPG. The HP hose must not be exposed to pressures above 4 bar.

For high pressure supplies, an adjustable regulator with pressure gauge similar to that shown below must be attached to the inlet end of the supply hose to limit the pressure to the burner to less than 2bar.



HP Regulator on left.

On the right, 1/2" bsp inlet valve, sample valve and in-line flame arrestor to mount on top of the box.



Note: Do not over-tighten unions as they achieve gas tightness quite easily if not damaged.

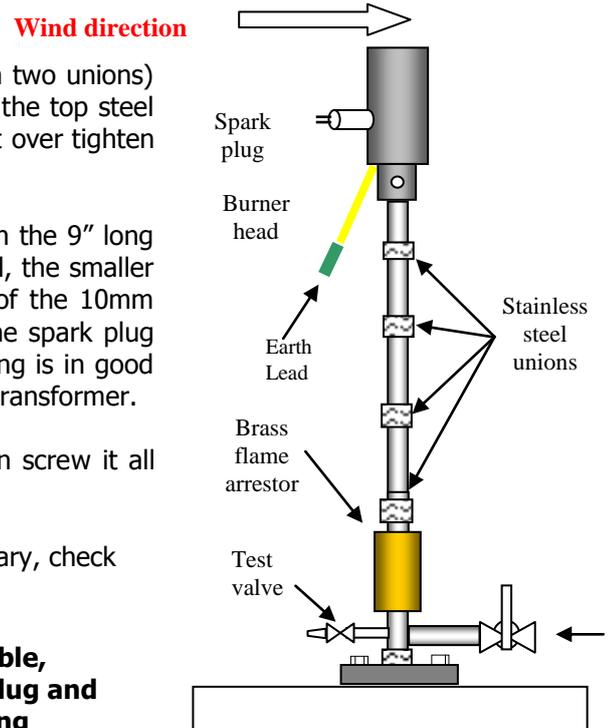
Attach one of the three 18" long 1/2" BSP steel uprights (with two unions) to the flame arrestor and valve assembly. Then screw it into the top steel flange of the main Purge Box using PTFE tape/sealant. Do not over tighten the joints.

Remove the flare burner from inside the main box and attach the 9" long 1/2" nipple to it. Where low pressure natural gas is being used, the smaller 6mm orifice (supplied if required) should be fitted in place of the 10mm high pressure NG/LPG orifice. Connect the ignition lead to the spark plug and the earth lead to the burner. Visually check that the wiring is in good condition and the ignition lead is properly connected into the transformer.

Connect the burner to the remaining 1/2" steel uprights. Then screw it all together. Do not over tighten the joints.

Now connect the power lead to the 110V supply and if necessary, check the spark is working correctly.

Note: Make doubly sure that the main Purge Box is stable, especially in windy conditions. Also ensure the spark plug and cable is upwind, so that any heat from the flame blowing downwards does not damage the wiring. The purge unit and the flame must be continuously attended during the flaring operation.



Be especially careful in wet/damp weather with high voltage power supplies.

Operation:

Ensure the flare burner is in a safe location for flaring and that the supply pressure is controlled for safe operation of the flare assembly. If supplied, the 1/4" bsp HP regulators (see picture below) **must not be** exposed to pressures above 19 barg. Where practicable, reduce the pressure in stored vessels and pipework through the any gas appliance burner at shut down.

Ensure the 110V supply is safely provided and that the ignition and earth leads are connected to the spark plug and burner body. Energise the spark electrical supply from the isolator switch inside the purge box before slowly turning on the ball valve near each flame arrestor gas to the burner head; ensure the flame lights up. The flame size can be controlled from the ball valve near the flame arrestor.

The flame should immediately light when the gas is allowed to slowly enter the burner, if it does not, turn off the gas at the purge unit and check that the spark plug is sparking correctly and that the earth connection within the box is secure. The spark gap should be not less than 1mm. The flame will also easily light with a small portable propane torch.

As the gas concentration from the pipework or pressure vessel reduces, the flame will die away. The flare gas rate should be set to obtain a good stable flame which does not produce excessive downward radiation of heat.

After the flame has died away, the purge procedure for pipework may be completed as described in to IGE/UP/1. For pressure vessels and large volume pipework, nitrogen purging is recommended.

Finally, allow the burner head to cool, disassemble the ½" BSP stacks and burner assemblies, replace the ½" bsp pipes, the burner and flame arrestor unit into the box and close the door making sure that the wiring is not trapped and damaged.

General

When opening pipework and vessels it is essential to purge to air and to an end state of less than 40% LFL or more than 20.5% oxygen. An optional airflow mover (purge fan unit) is available for gas to air purges. For 'hot work' a lower end point of say 5% LEL may be more appropriate.

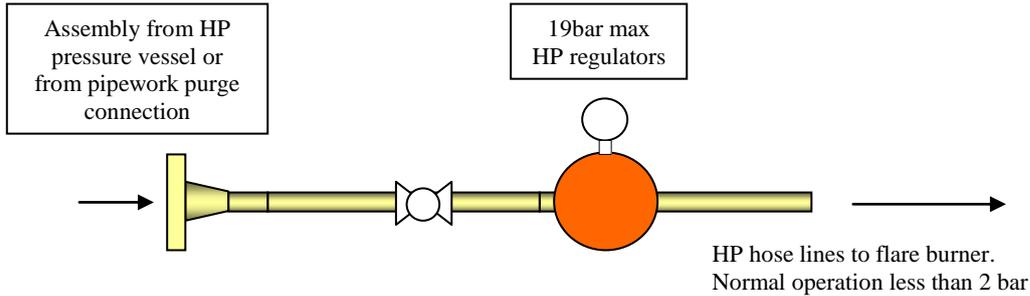
Pipework must not be left with open ends.

And finally, expose the disconnected Purge Hose to the open air for several minutes or blow through with air to vent out the gas and then carefully wind the Purge Hose into the box. If it is extremely cold, the hoses may be too stiff to safely get back inside without damage to the box or meter.

High pressure connection with twin regulators fitted to the inlet of the high pressure hoses and to a purge outlet connection from a pressure vessel or the pipework. Single stream units available for this flare unit.



**Schematic of special single line kit for pressure reduction of high-pressure systems
Max pressure 19bar.**



Cod. 910AP/40 – IM = 02

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COMAP - CLESSE
16, Avenue Paul Santy B.P. 8211
F - 69355 LYON Cedex 08
Tel : 33(0)4 78 78 18 00
Fax : 33(0)4 78 78 15 25
marketing@comap.fr
commercial@clesse-industries.com

CLESSE (UK) Limited
Unit 8, Planetary Industrial Estate,
Planetary Road, Wednesfield,
Wolverhampton, West Midlands WV13 3XQ
Phone : 44(0)1902 383233
Fax : 44(0)1902 383234
sales@clesse.co.uk

COMAP Italia S.R.L.U.
Via Rassegga,1
I - 25030 TORBOLE CASAGLIA
Tel. : 39/0302151024 Fax : 39/0302151023
info@comapitalia.com

COMAP Ibérica S.A.
Roselló 14/18 - Polígono Industrial Farnades
E- 08940 CORNELLA DE LLOBREGAT
(Barcelona)
Tel. : 34/934742722 Fax : 34/934742290
marketing@comap.es

COMAP do Brasil LTDA
Av. Rudolf Dafferner, 601 Bloco F
Alto de Boa Vista, Sorocaba SP CEP
BR-18086-380 Brazil
Tel. : 55/15 3218 1222 Fax : 55/15 3218 1299
comap@comap.com.br

COMAP Benelux S.A/N.V
Aisembergsesteenweg 454
BE - 1653 DWORP
Tel. : 32(0)23710161 Fax : 32(0)23782339
info@comap.be

COMAP Hellas S.A.
138, rue G. Papandreou
GR - 144 52 METAMORPHOSI - ATHENES
Tel. : 30/10 2842684 Fax : 30/10 2840700
comap@comap.gr

COMAP Polska Sp. z o.o.
ul. Lubinowa 4A Budynek M2 -PL - 03-878-
WARSZAWA
Tel. : 48/226790025 Fax : 48/226791848
comap@comap.pl

COMAP Hungaria Kft
Gyár út 2 - H - 2040 BUDAÖRS
Tel. : 36/23 503 871 Fax : 36/1 2047720
comap@comap.hu

English

Application

High pressure regulator for LPG in the gas (butane, propane), natural gas, compressed air. Its main function is to regulate the first stage on an LPG system.

The regulation pressure depends on the models:

- fixed (B1)
- adjustable (B2)

The pressure and flow-rate characteristics are shown on the regulator (A)

Working temperature: -20 °C/+60 °C

Construction:

Body and bonnet made of Aluminium alloy

Diaphragm and valve pad made of an elastomer, resistant to LPG and natural gas.

Connections

The arrows (G) indicate the fluid passage direction.

The marks BSP or NPT under the body of the regulator (H) indicate the type of thread on the fittings.

Accessories

Some models are equipped with:

- an over-pressure valve (D)
- gauge indicating the outlet pressure (E).

Fitting

Where suitable position the regulator in the position illustrated (F).

Before operating the circuit, check for leaks with a soapy solution. (Detecto for example)

Setting (adjustable models B2)

Adjustment is made by turning the screw (J).

Adjustment must not be used as a means for closing the circuit.

The adjustment screw must not be changed in any event.

Precautions

Only persons with the necessary competence in relation to the type of gas and application may perform the installation and adjustment.

Maintenance

No maintenance is required
We recommend replacing the product after 10 years of use.

