Natural Gas or LPG Flare Unit Twin head assembly

This Flare Unit is designed for the direct venting of natural gas and LPG. The flare burner can operate at pressures up to 2 bar and if necessary higher pressure supplies can be regulated to this pressure. The flare burner unit also enables the unit to be used to burn off any vented gas, where vented gas could cause a problem, due to smell etc. The twin Flare Unit is similar to the smaller unit except that it has two burners and two ignition units

The unit contains 2 continuously rated high voltage and switched transformers (each fed from 110V source) that provide a continuous spark for ignition of the flames. This is particularly important so that a flame can be maintained as the gas concentrations fall. When the purge is nearing completion the flame will not be maintained and normal gas venting will continue through the stack.

The burner heads are 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 Flare 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 mounts 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 no contain any potentially hazardous flammable products that could ignite or explode. No Smoking signs are attached to rear and sides of the Flare Unit. It is recommended that the area be cordoned off to keep people more than 5 metres away from the Flare Unit especially when flaring.

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.

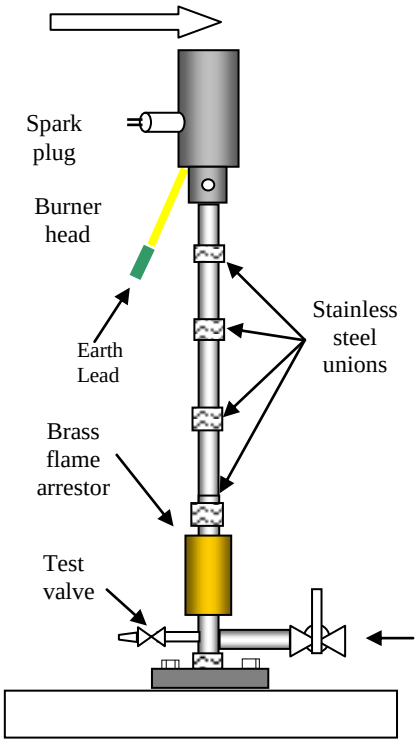
Assembly:

The Flare Unit door must be fully opened when flaring, 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.

½" bsp inlet valve, sample valve and in-line flame arrestor to mount on top of the box.

Wind direction



Attach one of the three 18" long ½" 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 ½" 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 ½" 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.

Repeat for the other burner assembly, if needed.
Note: Make doubly sure that the main Flare Unit 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 ¼" bsp HP regulators (see information below) **must not be** exposed to pressures above 19barg. 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 Flare Unit 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 Flare 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 heads to cool, disassemble the ½" BSP stacks and burner assemblies, replace the ½" bsp pipes, the burner and flame arrestor units into the box and close the door making sure that the wiring is not trapped and damaged.

General

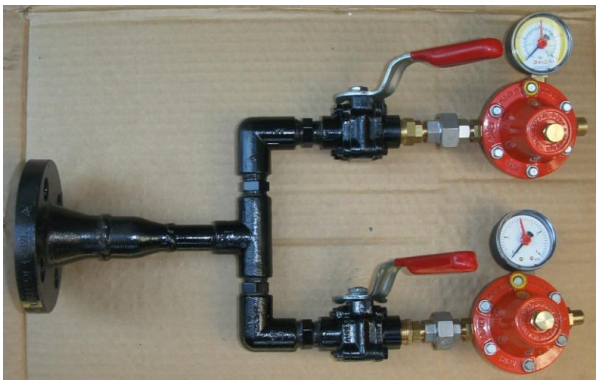
When opening pipework and vessels it is essential to purge to air and to an end state of less than 40% LFL or more than 20.5% oxygen. An optional airflow mover (purge fan unit) is available for gas to air purges. For 'hot work' a lower end point of say 5% LEL may be more appropriate.

Pipework must not be left with open ends.

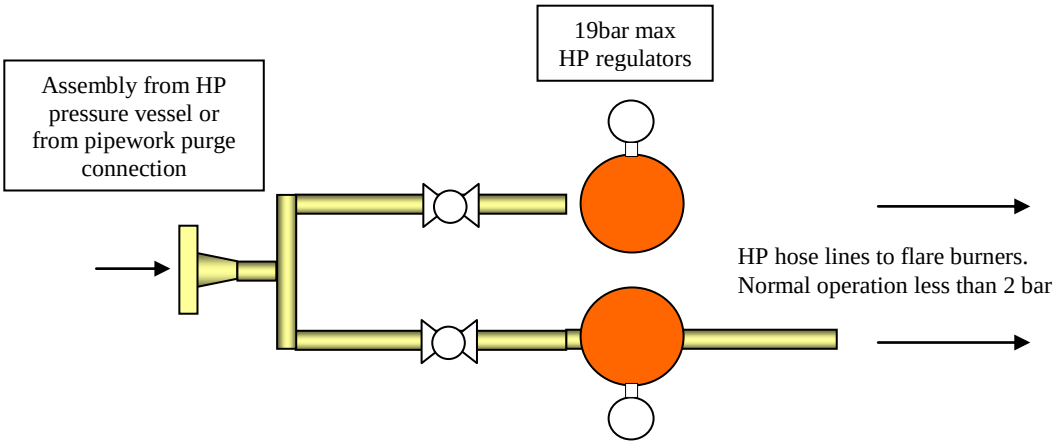
And lastly, expose the disconnected Purge Hose to the open air for several minutes or blow through with air to vent out the gas and then carefully wind the Purge Hose into the box. If it is extremely cold, the hoses may be too stiff to safely get back inside without damage to the box or meter.

High pressure connection with twin regulators

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.



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



Manufacturer's Instructions for GEA supplied HP Regulator

Cod. 910AP/40 – IM = 02

NOVACOMET

AP40

DETENDEUR HAUTE PRESSION

REGOLATORI ALTA PRESSIONE

REGULADOR DE ALTA PRESION

REGULADOR DE ALTA PRESSAO

HOCHDRUCKREGLER FUR FLUSSIGKEITEN

HOOGDRUK REGELAAR

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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.