

# PurgElite®

## INFLATABLE TUBE and PIPE WELD PURGING SYSTEM

From 1 to 24 inch (25 to 610 mm) diameters



Only manufacturer to produce a 1' tandem system

Inert gas is expensive; it's probably the second most costly contribution to welding after filler wire. Care needs to be taken when selecting a purging technique since the majority of pipe purging systems are flagrant abusers, particularly home made systems.

The most efficient systems are those such as **PurgElite®** and based on twin inflatable dams. The designs are such as to minimise the purge volume and incorporate automatic advanced gas flow and control technology. Losses due to leakage are insignificant.

After 40 years of manufacturing expertise in the field of Tube and Pipe Weld Purging Systems, Huntingdon Fusion Techniques HFT® brings to the market yet another great advanced innovation.

**PurgElite®** is designed to help tube and pipe welders save money, time, gas and achieve better welds.

These superior systems, which have many unique features, keep us right at the forefront of technical innovation by bringing you a simple, low cost solution to make the cleanest of welds.

Due to the new design, we have significantly reduced prices whilst continuing to bring you a technically superior product.

The volume to purge is kept small, resulting in valuable savings in both time and cost of inert gas used.

The **PurgElite®** Inflatable Pipe Weld Purging Systems have two heavily protected inflatable dams connected by a newly designed, high temperature resistant, inert gas purging tube.

The inert gas purges oxygen as well as other unwanted gases and vapours out of the space between the dams with inert gas replacing it through **IntaCal®**, a unique, much lower cost, simpler, trouble free valve than used elsewhere.

This new, low profile valve allows us to manufacture a 1" Inflatable Pipe Purging System which has never been previously achieved.

Don't use old fashioned purge bladders or homemade devices like cardboard, paper dams or foam bungs. They contain a lot of water, water vapour and air, which put your weld at risk and end up costing you more money

Use the proper tool for the job! **Purge the 'Elite' way!**

## KEY FEATURES and BENEFITS

Quick and easy to install.

### **IntaCal® innovative purge gas feed device**

No complicated valve to set.

### **Inflation and purging with only one line**

Specially developed flexible dam connection hose, with protective sleeve, resistant to hot metal of up to 700°C (1,292°F).

Low vapour pressure material.

No scratching of polished surfaces.

For all grades of stainless steel and duplex, polished interiors, titanium, zirconium, exotic metals and alloys.

**PurgElite®** cost saving systems can be positioned accurately.

### **RootGlo® centrepiece glow positioning indicator**

The glow strip in the centre of each system gives ease of use when positioning the device underneath the weld.

**RootGlo®** is resistant to high temperatures whereas competitors material shrivels up to nothing, outgassing into the purgespace.

**RootGlo®** gives 20 hours of illumination for only 10 minutes exposure to daylight.

### **Faster**

The **PurgElite®** system is very quick and easy to install. It can be positioned accurately and the dams inflate instantly.

Purging time is a fraction of that required by conventional methods leading to significant savings and waiting costs. Return on Investment charts are available on request.

The volume to be purged is localised.

### **Flexible Spinal Hose**

The hose can bend to go through the tightest of angles. For further information see the last page of this leaflet.

Size range: 1 to 24 inch (25 to 610 mm) OD

The first ever 1 inch (25 mm) ø system to the market place. Another innovation by Huntingdon Fusion Techniques HFT® is leading the way in Weld Purging Technology!



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**Low Price**

Dramatic decrease in prices over all similar models.

Cost-effective in less than only one weld.

### **Repeatability**

Highly reliable, giving regular, repeatable, controlled high quality results, with zero colour welds.

Gas pressure control ensures an even positive root bead with no notching.

Manufactured to nuclear quality standards with nuclear approved materials, these systems guarantee bright, shiny, coke and oxide-free welds.

Because **PurgElite®** Inflatable Pipe Weld Purging Systems have no metal parts exposed, internally polished stainless steel tubes are protected from contamination and scratching.



## OUT OF DATE

- Large metal valve
- Complicated valve adjustment
- Occasional burst bladders
- Metal parts scratch interiors of polished pipes
- High vapour pressure materials that outgas when heated



## NEW PURGELITE® SYSTEM

- No metal parts to scratch interior of polished pipes
- No large complicated valve
- No wasted time setting valve
- Low vapour pressure materials



## MIX and MATCH

Any one size of dam can be connected with any other diameter, see example below, great for reducing pipelines.



**PurgElite® Inflatable Pipe Weld Purge Systems** in use together with the latest state of the art technology **PurgEye® Weld Purge Monitor®**. The PurgEye® Monitors allow the user to see when the conditions are perfect for welding.

In this way, bright clean welds are easily achieved.



This range of PurgElite® Tube and Pipe Purging Systems are for pipes of nominal diameters from 1 inch (25 mm) to 24 inch (610 mm).

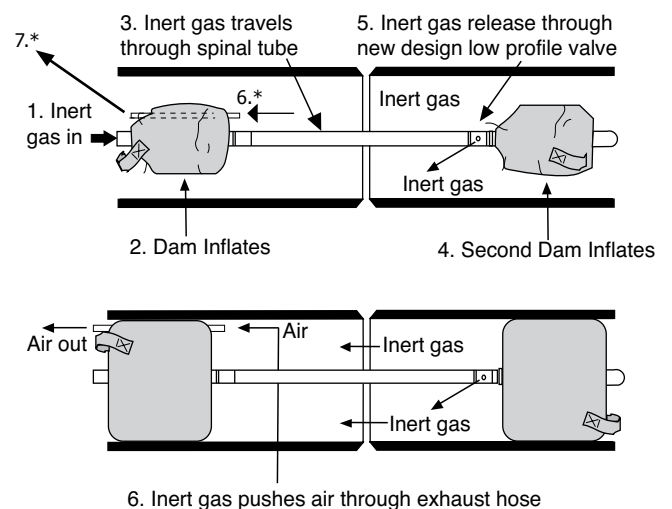
The connecting spinal tube can be shortened or lengthened to accommodate specific requirements.



## Simple steps for tube and pipe weld purging for that perfect oxide free clean weld!

6\*. Air is pushed out of the exhaust tube to Weld Purge Monitor®.

7\*. Exhausting air can be measured by Weld Purge Monitor® or it can be just emptied to atmosphere.



## HEAT PROTECTIVE COVERS

The Heat Resistant Covers are held on with ties and there are holes provided for the PurgElite® fittings, such as inlet, exhaust and crimped end.

Temperature rating up to 300°C.

The heat covers are provided in sets of two and they are available for each specific diameter from 1 - 24 inch.



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## PURGE TIME (to 0.1% oxygen and less)

By using **PurgElite®** Tube and Pipe Purging Systems, the main savings are obtained in reduced purging and waiting time, and in the much lower quantity of inert gas used.

Purging with old fashioned systems and home made devices will require a flow rate of at least 24 ltrs/min (50 cu ft/hr) for longer periods.

The chart below shows a typical purge time to reduce the air space to less than 0.01% oxygen.

Do not use old fashioned purge bladders that burst or homemade devices like cardboard, paper dams or foam bungs. They contain a lot of water, water vapour and air, which put your weld at risk and end up costing you more money.

Use the proper tools for the job!

**A PurgElite® System to Purge your tubes and pipes the 'Elite' way!**



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*Suitable for fabrications with bends*



# QuickPurge®

## TUBE, PIPE and PIPELINE WELD PURGING SYSTEMS



HUNTINGDON FUSION  
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Inert gas is expensive; it's probably the second most costly contribution to welding after filler wire. Care needs to be taken when selecting a purging technique since the majority of pipe purge systems are flagrant abusers that demand very high levels of inert gas use.

The most efficient systems are those such as **QuickPurge®** and based on twin inflatable dams. The designs are such as to minimise the purge volume and incorporate automatic advanced gas flow and control technology. Losses due to leakage are insignificant.

Using a 400 mm diameter QuickPurge® solution compared to a home-made product the savings on gas for a single pipe weld alone is in the region of US\$ 20,00.

After a decade of manufacturing **QuickPurge®** Inflatable Tube and Pipe Purging Systems, HFT® launched the vastly improved QuickPurge® Mark III System. This model has new innovations that place the design firmly ahead in the field of tube and pipe weld purging. Developed specifically for high speed weld joint purging of pipes, tubes and vessels, the QuickPurge® is already in use internationally.

QuickPurge® provides dramatic savings in time and volumes of inert gas giving a return on investment to be less than one weld.

**QuickPurge®** is used for high quality, weld purging of reactive metal tube and pipe joints, as well as other cylindrical product joints, to ensure that zero colour welds are achieved.

### INNOVATIONS INCLUDE:

- **IntaCal®** technology eliminates the old fashioned valve system and all of the presetting necessary, as well as helping to prevent the risk of over inflation.
- Typical purge times for the **QuickPurge®** would be less than 3 minutes for a 12" ø joint and 8 minutes for a 36" ø joint, down to 0.1% oxygen and correspondingly faster for smaller diameters.
- **RootGlo®** positioning strip is a highly luminescent central band that allows the operator to position the QuickPurge® quickly and accurately. It can be clearly seen through the weld root gap. RootGlo® absorbs enough energy during daylight hours to provide up to 20 hours of luminescence inside the joint.
- **PurgeGate®** is an addition to QuickPurge® Systems that will prevent the inflatable dams from bursting due to excess pressure or flow.

## HEALTH AND SAFETY:

Using QuickPurge® will avoid the filling of complete pipe systems with argon, reducing cost and obviating a risk to life, when releasing a pipe system full of argon at the end of a weld.

Key applications include weld purging of weld joints from 6 to 88" (152 to 2,235 mm) in fields including refineries, mining operations, power stations, LNG terminals, compressor stations, LNG carriers, pipelines, biomass systems and all process industry joints in tubes, pipes and vessels.

## FEATURES:

- QuickPurge® is manufactured from a heat resistant material so that the high temperatures at close proximity to the weld do not damage the devices.
- Leak tight quick fit coupling for purge / inflation hose are complete with "o" ring for gas tight sealing and stainless steel collet to hold the tube mechanically tight. Also fitted with "anti-release" circlip to prevent parts accidentally separating inside the pipe.
- Light weight, allowing easy insertion, easy positioning and easy movement from joint to joint.
- Special attention has been paid to the selection of low vapour pressure materials to minimise outgassing in the purge space during welding, giving greater assurance of obtaining a clean, oxide free weld root.
- The unique design of the central sleeve dramatically reduces purge volumes.
- QuickPurge® Systems are ready to use with little set-up time.
- Perfect central alignment and weld root observation with the new RootGlo® centring band.
- There are no metal parts in the proximity of the weld ensuring that NDT examination is not disrupted and there is no scratching of internal pipe surfaces.
- The weld purge gas is dispersed evenly through IntaCal® to avoid turbulence in the purge space.
- Four pull straps are manufactured on each dam, which are multiple stitched with tough kevlar thread, each with a breaking strain of over 1000 lbs, enables easy manipulation around bends and fittings as well as in straight pipes.
- Friction free coatings are applied to allow easy movement through pipes from one joint to another.
- Lower operating costs, with gas and time savings.

## OPERATION:

The system has a large diameter sleeve to reduce the volume to be purged and this connects to its two inflatable dams that isolate the purge volume.

Inside this sleeve is a black hose for inert purge gas entry, which is connected to the new IntaCal® system. There are no complicated valves to set.

There is an additional hose (blue) for auxiliary purging with extra inert gas, plus a **Weld Purge Monitor**® hose (red) that connects directly to any one of the **PurgeEye**® Weld Purge Monitors®.

Once inserted and positioned, the QuickPurge® System is inflated by the inert purge gas supply to seal the dam ends, after which the excess gas purges the interspace.

The two inflatable end dams seal the purge zone with gas tight seals to prevent any ingress of air during the root pass, the hot pass, right through to the end of any post weld heat treatment.

No contamination can reach the inside of the weld zone and it is highly unlikely that there can be any weld failures attributable to root oxidation.

QuickPurge® is the perfect choice for the golden welds, as well as all other welds in stainless, duplex, titanium and nickel alloy pipes.

When welding chrome steel and high strength stainless steel joints, our HotPurge® range is recommended due to the requirements for preheating and post heating (see separate literature for more information).

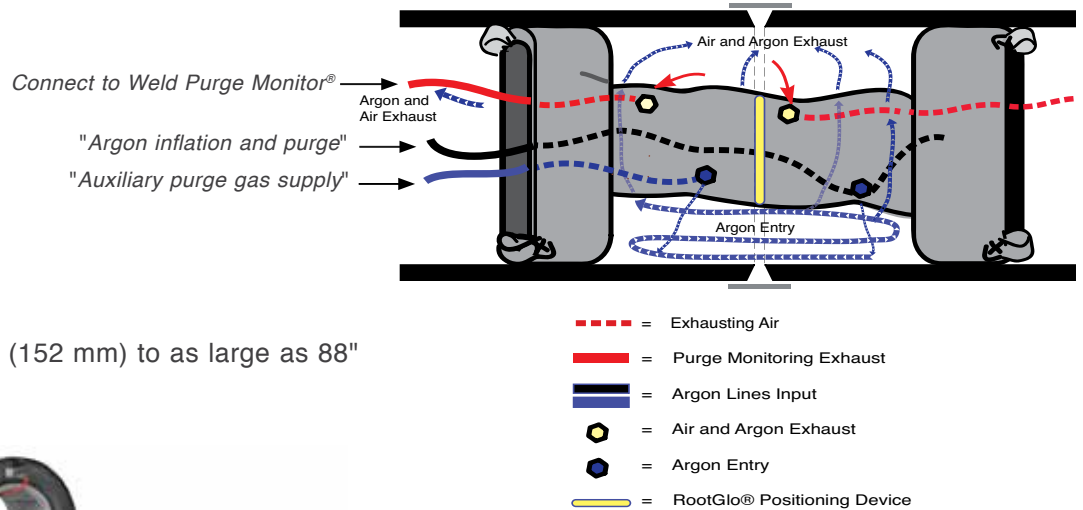


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## SPECIFICATION:

- Range from 6 to 88" (152 to 2,235 mm).
- Most sizes are kept in stock for immediate delivery.
- Rugged material, no outgassing, high temperature resistant and friction free to allow easy movement through pipes.
- Operating temperature 250°C (482°F) continuous use and up to 280°C (536°F) for short periods. (HotPurge™ Systems are recommended for use where temperatures could be as high as 760°C).
- RootGlo® central band will glow up to 20 hours after exposure to daylight.
- As standard, PurgeGate® is fitted to all systems and protects the inflatable dams from bursting due to over pressurisation. QuickPurge® is really the easiest 'plug and play' system available for tube, pipe, vessel and pipeline weld purging.
- Purge gas release system IntaCal® prevents complicated valve setting, ensuring the inert gas is dispersed evenly and helps eliminate over inflation of the dams.

## Typical installation of a standard QuickPurge® System



Sizes from as small as 6" (152 mm) to as large as 88" (2,235 mm).



1. The QuickPurge® System is positioned using the pull straps.
2. It is inflated using the same inert gas source for purging.
3. Once the purging system is inflated and seals in the pipe, the air space is purged by the inert gas, displacing the air between the dams to the outside via the exhausts, until the oxygen reading on your Weld Purge Monitor® is low enough to commence welding.
4. During welding, the flow rate of inert gas should be maintained, to purge any unusual outgassing around the weld zone caused by increasing temperature.
5. When the weld is completed and allowed to cool below oxidation temperature, the purge gas hose can be disconnected.

The system then auto-deflates and is removed using the pull straps.

Do not use makeshift or homemade devices like cardboard dams or foam bungs. They contain a lot of water, water vapour and air, putting your weld at risk and end up costing you more money.



RootGlo® to position QuickPurge® in pipe



# HotPurge®

Pipe Weld Purging Systems for Heat Treated Chrome and High Strength Stainless Steels



with PurgeGate®



## INTRODUCTION:

A wide range of high strength steels containing chromium, vanadium and molybdenum as alloying elements (generally referred to as CMV steels) is prone to cracking during welding.

The crack tendency can be reduced by a combination of preheat and post weld heating since this prevents steep temperature excursions and the formation of brittle and undesirable intermetallic phases.

Pre- and post-weld heating is required to prevent cracking of many ferritic and martensitic steels.

Ferritic stainless steels have a chromium content in the range of 11-28% and commonly used in alloys including the 430 and 407 grades. These alloys exhibit poor heat affected zone (HAZ) toughness and preheating will reduce the HAZ cooling rate, maintain the weld metal above the ductile-brittle transition temperature and may reduce residual stresses. Preheat temperature should be within the range 50 - 250°C depending on material composition.

The most common martensitic alloys e.g. type 410, have a moderate chromium content of 12-18% and this type of stainless steel is very prone to hydrogen cracking. The risk of cracking can be reduced by preheating to between 200 and 300°C and by carrying out post-weld heat treatment, typically at 650-750°C.

HotPurge® Pipe Weld Purging Systems for Heat Treated Chrome and High Strength Stainless Steels have been developed so that preheating, welding and post-weld heat treatment (PWHT) can be carried out with the purge system in place.

The systems are suitable for use where temperatures may exceed 300°C for up to 24 hours.

## KEY FEATURES:

HotPurge® is now fitted with PurgeGate® which guarantees that the systems will never burst due to over inflation.

Each system incorporates RootGlo®, a band around the centre, for positioning purposes, which will glow up to 20 hours inside the pipe after only 10 minutes exposure to light.

IntaCal® technology eliminates complicated valves and valve setting procedures.

The Inflatable Dams provide an excellent leak tight seal at both ends of the purge zone.

Each system is manufactured to meet a specified internal diameter and has an expansion range of  $\pm 12$  mm.

All purging systems are re-usable.

## AVAILABLE SIZES:

The Argweld® HotPurge® Systems are available in sizes from 6 to 88" (150 - 2,440 mm).

## OPERATION:

The system is connected to an inert gas supply and inserted into the pipe to be welded.

The two inflatable dams are connected by an extra long sleeve so that they sit at the outer edge of the zone being heat treated.

After positioning the system the argon source is opened, the dams inflate to size and the interspace is purged.

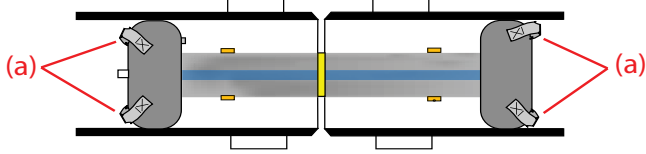
The purge will remain on during preheat, welding and post weld heat treatment.

Do not use makeshift or homemade devices like cardboard dams or foam bungs. They contain a lot of water, water vapour and air, putting your weld at risk and end up costing you more money. Use the proper tools for the job!

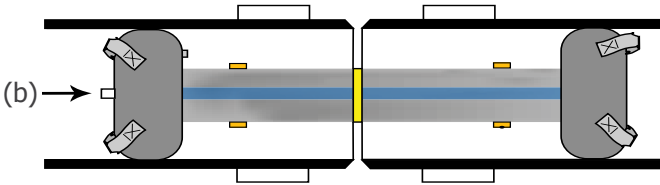


**FIVE SIMPLE STEPS FOR PERFECT RESULTS, EVERY TIME:**

1. The Argweld® **HotPurge**® is positioned using the heat resistant pull tags (a).

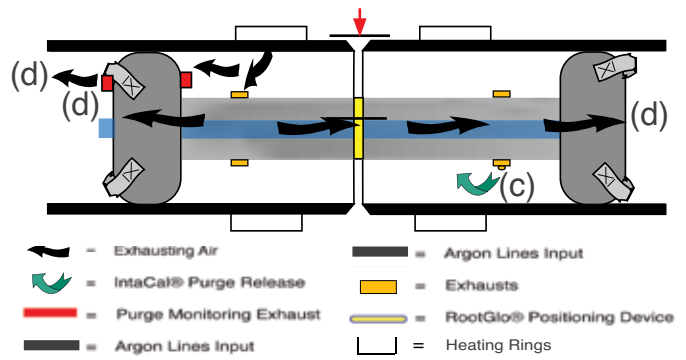


2. The **HotPurge**™ is inflated using the inert gas supply (b).



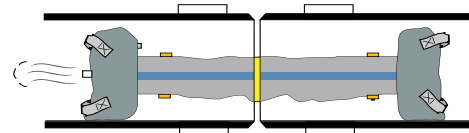
3. Once the Argweld® **HotPurge**® is inflated, the pressure opens the purge valve (c), the air space is purged by the inert gas, displacing the air between the dams to the outside (d). At the required oxygen level, the joint is ready for welding.

**Joint gap normally taped for purging and removed inch by inch during root welding.**



4. During welding an appropriate flow rate of inert gas should be maintained.

5. When the weld is completed and the pwht cycle has finished, the pipe should be allowed to cool below its oxidation temperature at which point the purge gas supply can be closed. Disconnect the hose to deflate the system, which can then be removed.



*Another perfect pipe weld!*



# Weld Purge Dams (single)

## INFLATABLE TUBE and PIPE PURGING SYSTEMS



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Professionally designed and manufactured **Argweld® Weld Purge Dams**. Buy the proper tools for the job and eliminate those sponge and expensive home made dams that will provide poor results.

HFT® Inflatable Purge Dams seal effectively all round the pipe, they do not outgas or allow oxygen or water vapour to pass through. These will help you to achieve zero colour welds much faster and for much less money!

They can be used for closure welds, T piece joints and dome end connections, where a conventional Tandem Weld Purging System cannot be used.

Each Weld Purge Dam provides an excellent grip in the pipe with an effective all-round seal.

Manufactured for pipe diameters from 6 - 88 inch.

Standard Weld Purge Dams are heat resistant up to 90°C (194°F), however, they can also be manufactured in different fabric for very high temperature applications.

Each Weld Purge Dam is easy to inflate using the purge gas. Once the Dam is inflated and seals all around the internal circumference of the pipe, the excess purge gas

spills out and purges the space around the weld joint, which then pushes the air out into the open atmosphere.

Each Weld Purge Dam is equipped with a purge / inflation hose (black), an extra purge gas hose (blue) as well as an exhaust for connecting a Weld Purge Monitor® (red).

Four pull loops are located around the circumference of the Weld Purge Dam.

It is not always practical to use a complete Inflatable Tandem Weld Purging System, so these easy to insert and easy to use, made from the correct materials for weld purging, are much more suitable.

Weld Purge Dams can be purchased for any diameter within their manufacturing range and can be used in connection with other styles or sizes of dams elsewhere within the piping system.

Now there is no more reason to put welds at risk by using cheaper materials, when for a very low cost, professionally designed and manufactured Inflatable Weld Purge Dams can be purchased instead.

**USE AN ENGINEERED SOLUTION and  
ELIMINATE:**

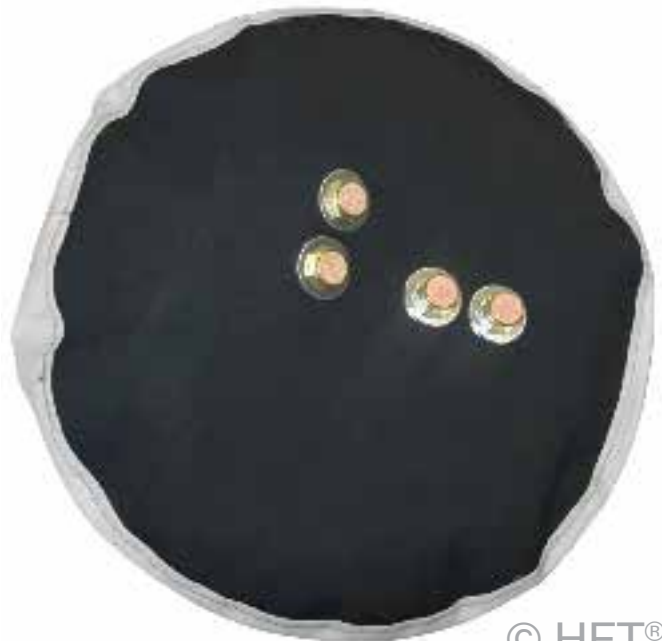
- Wasted time making foam plugs or similar dams made from unsuitable materials for weld purging.
- Weld coking.
- Oxidation.
- Weld root contamination.
- Weld cut-outs.
- Loss of corrosion resistance.
- Other issues that might occur as a result of using wood, masking tape, foam or other unsuitable materials that can release massive amounts of air, oxygen, hydrogen, carbon, gases and water into the weld zone during the welding process.

Apart from the benefit of having a metallurgically sound weld, the difficulties of cleaning an oxidised weld are eliminated, saving vast amounts of money in labour and material costs as well as the disposal costs where acids are concerned.

**HEAT RESISTANT DAMS:**

For applications where temperatures might reach as high as 300°C, such as welding chrome steels or high strength stainless steels, Argweld® Heat Resistant Dams are available.

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# Heat Resistant Covers

for Inflatable Tube and Pipe  
Purging Systems **PurgElite®**  
and other similar models



## **INTRODUCTION:**

Now that the popularity of the **PurgElite®** Systems has been established, we have released Heat Resistant Covers as accessories, to protect the systems for applications where the temperature of the metal near the dams is likely to exceed 80°C (176°F).

**Argweld® Heat Resistant Covers** are designed to prevent damage to the **PurgElite®** and **PurgExtra™** Inflatable Tube and Pipe Purging Systems, in particular when they are exposed to temperatures of up to 300°C (572°F).

These specially designed Heat Resistant Covers can endure such high temperatures, which protects the inflatable dams, preventing them being damaged or bursting.

These Heat Resistant Covers provide a simple, low cost solution to help to make the cleanest, non-oxidised, zero colour welds.

Like the purging systems, the Heat Resistant Covers are reusable time and time again, without losing their heat protecting properties.

The **HFT® HotPurge®** Systems are very popular for heat-treated pipework, however it is not possible to manufacture this design for diameters below 6", which is one reason for providing Heat Resistant Covers for the **PurgElite®** Systems.

The Heat Resistant Covers are usually provided as pairs, although they can be purchased individually in case of damage or loss.

## **MAIN FEATURES:**

- The Heat Resistant Covers have a temperature resistance up to 300°C (572°F).
- They are available for **PurgElite®** and **PurgExtra™** Systems, sizes ranging from 1 to 24" (25 to 600 mm).
- Ties on each Heat Resistant Cover ensure they are held securely to the Inflatable Tube and Pipe Purging System.
- Holes are designed and manufactured on each Heat Resistant Cover for the **PurgElite®** fittings, such as inlet, exhaust, **Weld Purge Monitor®** connection and crimped end.
- The Heat Resistant Covers are sold as a set of two, however individual ones can be purchased if necessary.
- Heat Resistant Covers can also be manufactured for any other make of Inflatable Tube and Pipe Purging System.
- **PurgElite®** Systems can be manufactured with longer spinal hoses, so that the dams sit further to the outside of the heat treated zone, where the temperature has cooled sufficiently to suit the dams and any heat protecting material used.

# Argon Gas Feed Hose and Fittings



Huntingdon Fusion Techniques HFT® now manufactures tailor made Argon Gas Feed Hoses complete with end fittings to attach immediately to the Argweld® Range of Tube and Pipe Weld Purging Systems: PurgElite®, QuickPurge®, HotPurge®.

These high quality hoses can be supplied to all other TIG/GTAW welders, with their own special fittings as required.

This special, high quality Argon Gas Feed Hose, complete with leak tight end fittings, provides end users with a guaranteed method to feed non contaminated argon gas to a weld zone.

Argon Gas Feed Hose is available off the shelf complete with end fittings in a standard range of lengths, 30 m, 25 m, 15 m, 20 m, 10 m and 5 m.

Quality components are provided for attaching the hose to an argon gas regulator at one end and a selection of fittings for the other end. Specific fittings are available on request.

With our new high speed crimping machinery, we can tailor make your hoses to suit specific requirements, selecting from the range of fittings. If no option is given then we will fit a 12 mm to 12 mm adaptor as standard.

All of these high quality fittings will obviate any connection difficulties you might have on site, saving valuable hours in some cases while trying to source that special item that you need.

When you receive your hose, these connections and our crimping machinery will ensure that you have a leak tight product that puts you into action immediately.

Within the family range of Argweld® Purging Products, Argon Feed Hose Assemblies and Fittings are available from Huntingdon Fusion Techniques HFT®. All of our products are made to a high quality and standard and are the best quality available for argon gas use.

## MAIN FEATURES:

- No leaks and no dirty welds because of leaks.
- The Gas Feed Hose is manufactured for use within a temperature range from -30°C up to +80°C and conforms to BS EN 559.
- The safety factor of the Argon Gas Feed Hose is 3 times working pressure, 20 bar (300 psi).
- Each hose has a smooth black natural rubber finish. Natural rubber has mechanical properties making it particularly appreciated in environments subject to heavy wear due to friction.
- Argon Gas Feed Hose fittings also suit all Weld Purge Systems.
- Use only top quality to feed your argon gas.

# PurgeGate® for PurgElite®

and other Inflatable Tube and Pipe Weld Purge Systems



The PurgeGate® Valve is designed to fit onto HFT®'s PurgElite® Inflatable Tube and Pipe Weld Purging Systems as well as any other similar devices to prevent the dams bursting due to over inflation.

Inflatable Tube and Pipe Weld Purging Systems are at risk of overinflating during the weld purging process due to unwanted manipulation of gas pressure and flow settings.

PurgeGate® Valves will prevent unwanted and undesirable changes from causing weld failure due to lost purge as a result of dam burst.

These fit all system sizes and can be moved from system to system as the weld size is changed.

The PurgeGate® is fitted as standard onto the range of QuickPurge® and HotPurge® Tube and Pipe Purging Systems.

## OVERVIEW:

The PurgeGate® Valve System can be used with the PurgElite® Systems as well as any other manufacturers' versions of Inflatable Tube and Pipe Purging Systems to eliminate the risk of over-pressurising the pipe purging systems.

The valve system can fit all system sizes and can be moved from system to system.

## KEY FEATURES:

- PurgeGate® regulates the gas flow during purging to prevent the Inflatable Tube and Pipe Purging Systems from over inflating.
- Fitted as standard to QuickPurge® and HotPurge®.
- An accessory to be purchased separately for PurgElite® as well as for any other type of Inflatable Tube and Pipe Purging Systems.
- They can be purchased individually.
- Easy push fit connection.
- Simply plug and play.
- They fit all system sizes.
- The PurgeGate® Valve is reusable and can easily be moved from system to system.
- It is important to connect the PurgeGate® in the correct direction with the arrow shown, pointing in the direction of the purge gas flow.