

FIRETRACE[®] LTD

AUTOMATIC FIRE SUPPRESSION SYSTEMS

Firetrace™ “INDIRECT” Automatic Suppression Systems for Fume Cabinet applications



Please read instructions carefully
prior to starting installation.

All systems
CE & Fully
PED
Compliant



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System Overview.

The Firetrace™ system is a simple self actuating device that is designed to suppress fires within an identified risk area.

The system works by using pressurised Firetrace™ linear detection tubing that is installed throughout the risk area. This tubing is heat sensitive and when subjected to a temperature above 120 Degrees centigrade, or when touched by flame, the Firetrace™ tubing will burst.



The extinguishant is then deployed via discharge pipe work and diffusers onto the fire.

The Firetrace™ system requires no external power source or separate detectors and owing to its simple design ensures that all of the extinguishant is always deployed in the risk area.

The Firetrace™ system can be fitted with a volt free single pressure switch (FT0124) or volt free twin pressure switch (FT0124/T75) which, when connected to the cylinder, not only provides constant monitoring of the system but can also send a signal to indicate a discharge via a Self contained Alarm Sounder (FT0178) or building alarm.

It is important that the cylinder, Firetrace™ detection tubing and discharge pipe work are correctly installed and that the system is subjected to a regular maintenance regime in line with BS5306-3 by a competent engineer.

FT0178 Self Contained Alarm Sounder



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Firetrace™ Installation Instructions.

Cylinder

When installing the Firetrace™ system it is important that a suitable cylinder location is selected and that the cylinder is orientated correctly.

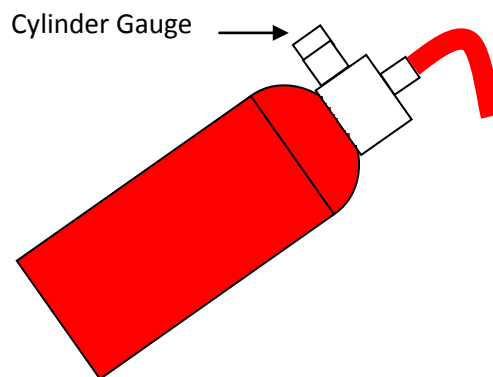
The cylinder location should ideally be in a clean area away from direct heat. The cylinder should not be placed in a location where the ambient temperature is above 80 Degrees centigrade.

The cylinder should be readily accessible to allow future servicing / inspections and as close as practicable to the risk area.

The cylinder should be adequately fixed to a suitable load bearing surface.

Wherever possible the cylinder should be **mounted vertically** and in no circumstances should the cylinder be positioned at an angle of more than 45 Degrees from vertical.

The cylinder gauge should face uppermost to aid inspection.



It is recommended wherever possible that Firetrace cylinders be mounted vertically. Where vertical locating is not possible the systems can be mounted within 45° of vertical.

As indicated in the above drawing when cylinders are fitted at an angle the gauge must face uppermost.

MOST FIRETRACE SYSTEMS ARE NOT SUITABLE FOR HORIZONTAL MOUNTING.

A free training course at our Ipswich facility is available to have a better understanding of Firetrace installation and products. Please contact us for more details.

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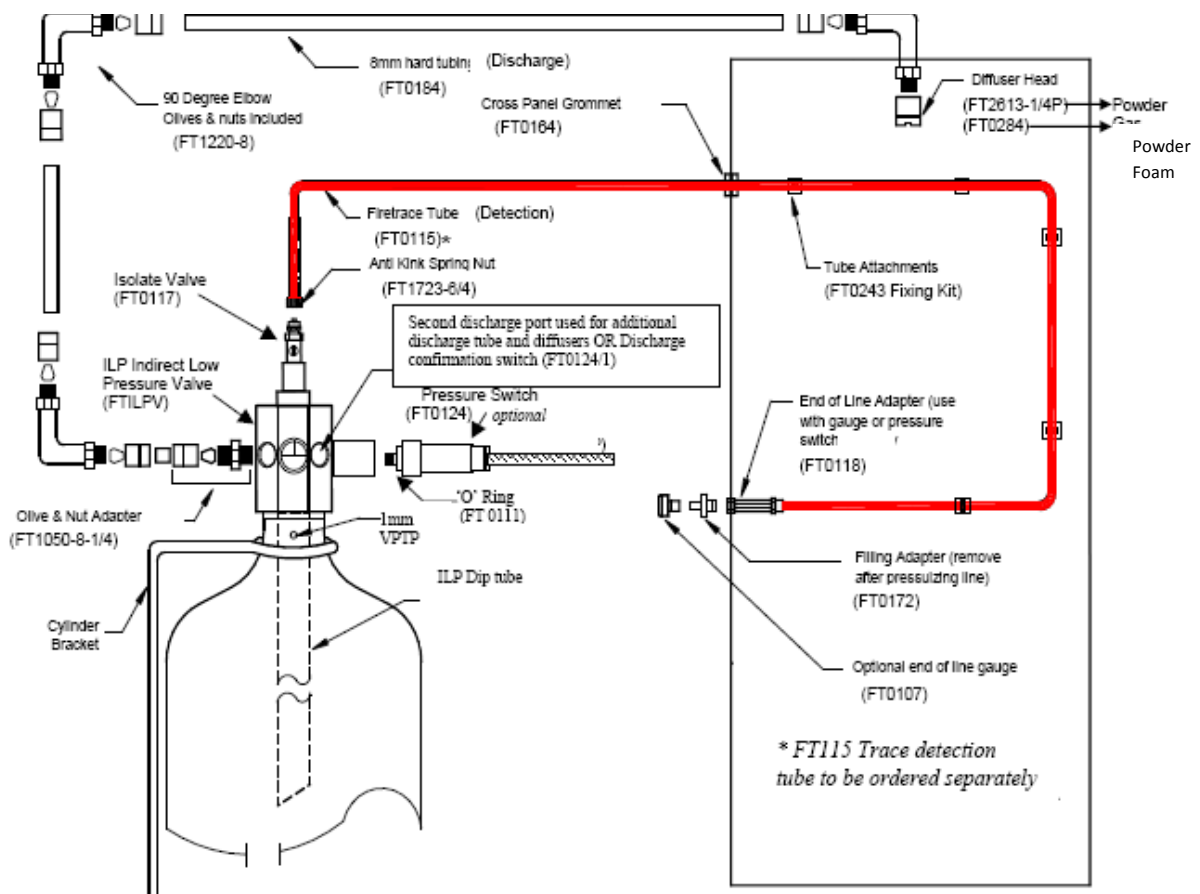
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Fume Cabinets

Where this is necessary the cylinder should be mounted in an area with good air flow and care should be taken to avoid the hottest areas.

Suitable fixings should be utilised.

Below shows a typical Firetrace™ Indirect Low Pressure system layout.



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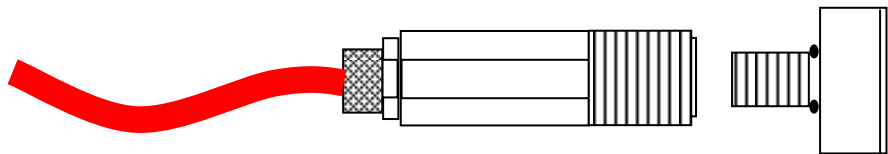
Warning Firetrace™ cylinders are pressurised to 10.5bar. Proceed with caution.

This procedure should be read in conjunction with typical Firetrace™ Indirect Low Pressure system layout.

Do not turn valve FT0117 until system is fully commissioned

Locate cylinder and firmly secure with bracket provided

Connect Trace detection tube, tighten silver nuts and secure with appropriate clips



Remove gauge FT0107 from end of line gauge adapter FT0118

Fit Schrader adapter FT0172 and pressurise to **12 Bar / 175 psi using a Nitrogen Cylinder or air pump**

Remove Schrader adapter FT0172 and refit gauge FT0107

Check gauge is reading mid-green (same as cylinder gauge) mark the gauge and **leave system for a minimum of ten minutes per metre of Trace detection tube to check for any leaks on the Detection tube.**



Closed

Install FT0184 8mm diffuser pipe work, connect to cylinder using FT1050-8-1/4 stud. When installation is complete, disconnect FT0184 from cylinder and fit blank plug.

When satisfied pressure is good and no leaks have occurred open Isolate valve FT0117 slowly.



Open

Remove blank plug and reconnect FT0184 8mm discharge pipe work.

System is now live



Optional FT0124 pressure switch can be fitted in spare gauge adapter on head assembly or at end of line

Please note system will not operate with isolate valve in closed position

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Firetrace™ Automatic Detection Tubing

The Firetrace™ Automatic Detection tubing is the key part of the system and acts as the detector to activate the valve.

The correct installation of the tubing is important to achieve optimum performance from the system.

The tubing should be mechanically protected outside the identified risk area and should remain accessible to allow future servicing.

As heat rises, the Firetrace™ tubing is most efficient when mounted directly above the risk.

The tubing will activate at approximately 120 Degrees Centigrade and care should be taken to avoid attaching the tubing where temperatures above this are achieved during normal operation.

It is recommended that the tube is a minimum of 150mm away from exceptionally hot surfaces or fitted with additional sleeving to avoid false activation.

Firetrace Detection Tube and Discharge Pipe Work Routing

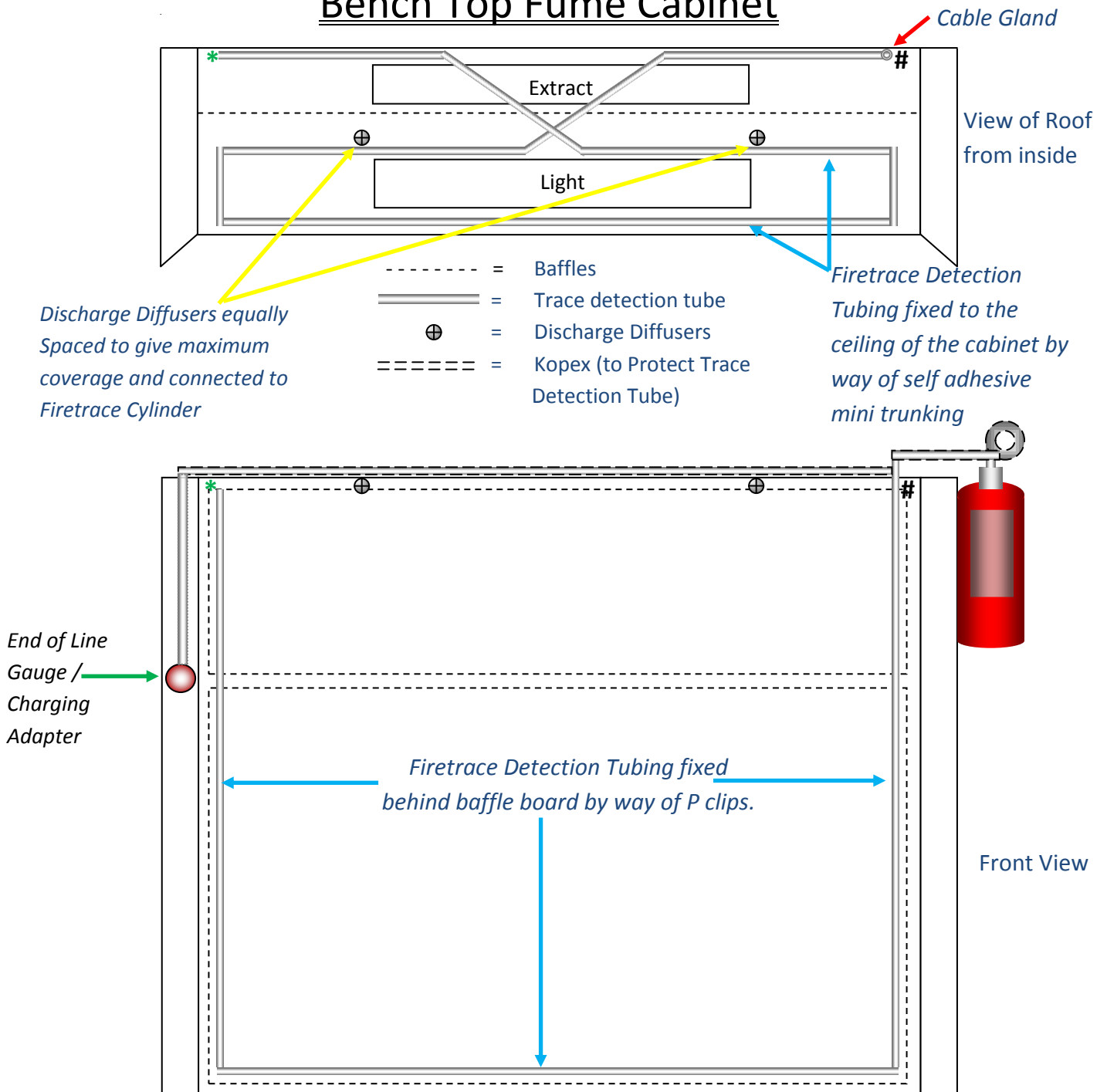
As the Firetrace™ detection tube is flexible the exact tube route can vary from cabinet to cabinet. The basis of the system design is to circumnavigate the fume cabinet (*see page 7 for suggested tube installation*) so that any potential risks are covered. (*see tube bending radius guide on page 9*).

The discharge pipe work should be installed so an unimpeded flow is allowed. Bending of the discharge tube should be done using pipe benders to avoid kinks. The discharge diffusers should be located for maximum effectiveness on the fire.

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Bench Top Fume Cabinet



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Tube Fixings

The Firetrace™ detection tubing needs to be adequately fixed to retain its position and withstand any possible vibration.

The tubing is a soft polymer and is susceptible to wear / chaffing when repeatedly rubbed against a hard or sharp surface. The tubing should be protected where it passes through holes.

The following photograph shows a “P-clip” fixing, self adhesive mini trunking can also be used on the ceiling of the fume cabinet.



Always leave a small loop of tubing adjacent to the cylinder. Whilst this should also be secured it must be releasable to allow future servicing of the cylinder.

Where the tubing is installed with a group of other cables it must be positioned on the underside of the loom and must never be located within the centre of the loom.



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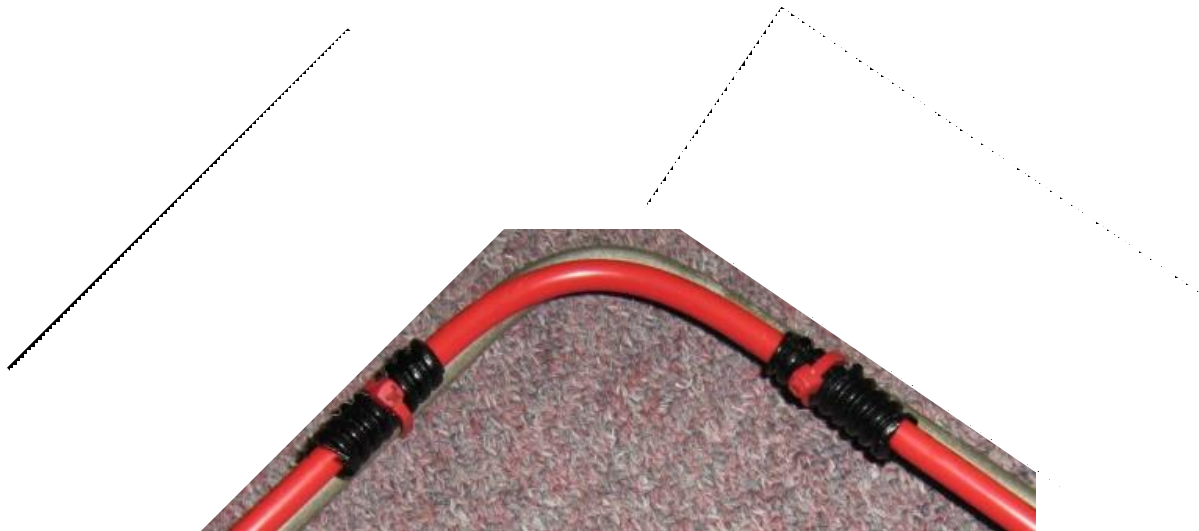
Tube bending radius

The Firetrace™ tubing acts as the detector to activate the valve mechanism. It is imperative that the tubing is not kinked or crushed and the following minimum bending radius must be adhered to.

Should the tubing be kinked or damaged in anyway then the entire Firetrace system should be replaced:

FT0181 Clear Firetrace™ tubing 6mm:

Minimum bending radius 60mm



*(For pictorial purposes, Trace Detection tube shown is Red;
Clear Trace Detection tube is normally fitted to Fume
Cabinets)*

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Connecting the Firetrace™ Tubing onto the fitting

All compression fittings must be secured in the following manner :

- a) Cut the tube end ensuring the cut is clean and free from burrs. Check that no debris/ swarf is left in the tube.
- b) Place the nut over the end of the tube with its threaded section towards the end of the tube.
- c) Push the tube fully home into the body.
- d) The nut should be tightened finger tight and then using a 12mm Spanner pinched up to firm hand tightness
- e) Slacken off the assembly and inspect end to ensure flange has formed correctly then reconnect and tighten down to ensure an effective seal.

Method of Assembly

1. Tubing must be cut off square.



2. Insert tubing into tubing nut.



3. Offer the tubing to the fitting so that the tubing bottoms on the tubing stop.
(*this requires a firm push if cold*)



4. Hold the tubing in contact with the tubing stop and screw the tubing nut down to the recommended torque. (torque = 5.7 Nm)



The use of a tube cutter (FT0127) is recommended for an accurate cut of the Trace Detection Tube.



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6mm Trace Detection Tube Components

FT 1511-6/4-1/8
1/8 Male Stud
(Shown with FT0113 Bonded
Seal)



FT1540-6/4
Tee



FT1723-6/4
Anti Kink Spring Nut



FT1550-6/4
Elbow



FT0253
Stop End



FT1580-6/4
Straight Connector



FT0268
Single Banjo



FT1590-6/4
Bulkhead Fitting



FT0269
Double Banjo



FT1600-6/4
4 Way Connector



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8mm Discharge Pipe Work Components

Please refer to drawing on page 4 for component location of the installation.

FT1050-8-1/4
1/4 Male Stud

*Used to connect Discharge pipe
work to system valve*

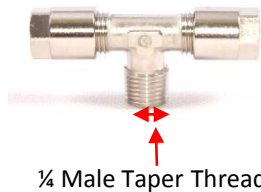


FT1250-8
Bulkhead

*Normally used to connect
Discharge pipe work to diffusers*



FT1000-8-1/4
Male Tee



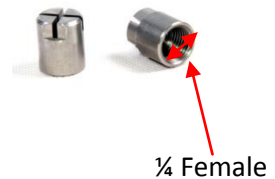
FT1020-8-1/4
1/4 Male Elbow



FT1210-8
Tee



FT2613-1/4P
Powder Diffuser



FT1220-8
Elbow



FT0284
AFFF Foam Diffuser



FT1230-8
Straight Connector



FT0184
8mm Anodised steel
discharge tube
Supplied in 3m lengths



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Firetrace™ Pressure switch (FT0124 & FT0124/T75) Optional

The optional Firetrace™ pressure switch is used to monitor the system pressure and will activate in the event of a pressure drop.

The switch can be introduced and removed from the cylinder whilst it is under pressure. This allows its operation to be proven both during commissioning and future servicing.

The Pressure switch is fitted with a black rubber “o ring” which provides the air tight seal. This o ring must be lubricated with silicone and free of any dirt or debris. Failure to ensure the o ring is clean can lead to a leak which will require the system needing replacement.

The switch should be screwed into the cylinder hand tight ONLY.

The switch contains both normally open & normally closed contacts.

When connecting the pressure switch to the (FT0178) Firetrace™ Self-Contained Alarm Sounder the **BROWN & BLUE/GREY** wires are used. The unused wires should be sleeved / insulated.

Always leave a small loop of spare cable adjacent to the pressure switch to allow future removal.



FT0124 Monitoring Switch

Set at 5 bar falling.

Common	Brown
Normally open	Blue / Grey
Normally closed	Black
Earth	Green/yellow



FT0124/T75 Twin Monitoring Switch.

Switch 1 Set at 5 bar falling.

Switch 2 Set at 7 bar falling.

Common	Brown
Normally open	Blue / Grey
Normally closed	Black
Earth	Green/yellow

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Service & Maintenance

The Firetrace™ systems can operate in a harsh environment and are occasionally subjected to high temperatures and extreme vibration. It is essential that the systems are regularly serviced to ensure their correct operation.

In order to comply with British Standard BS 5306 (section three) the following maintenance tasks should be carried out periodically.

The British standard recommends that each system is visually inspected every 3 months and then fully serviced at maximum intervals of 12 Months by a competent engineer.

All Dry Powder and Foam systems require discharge testing at maximum 5 Year intervals

Firetrace™ Limited recommend that all systems are fully serviced every 12 Months by a competent engineer.

- ✓ Isolate the cylinder by means of the isolate valve. Remove discharge pipe work and fit blanking cap(s) to the valve.
- ✓ Drain trace detection tube by way of depressing schrader valve in the end of line adapter.
- ✓ Inspect fume cabinet and ensure Firetrace™ detection tubing is correctly installed and protecting entire risk area. Check for signs of wear/damage and tighten or replace fixings as necessary.
- ✓ Locate cylinder and record size, type and serial number. Check date of manufacture and record when discharge test is required.
- ✓ Remove the cylinder, check weigh and *agitate contents. (Invert cylinder a few times until powder feels free flowing)
- ✓ Check external condition of cylinder. Replace if there is any sign of damage or wear.
- ✓ Check gauge is facing upwards (if applicable) and that cylinder is installed as upright as possible. Where necessary reposition cylinder or highlight any required modifications for return visit.
- ✓ Remove pressure switch (if applicable) Lubricate pressure switch O ring and replace switch.
- ✓ Remove cylinder gauge and ensure correct operation. Lubricate O ring and replace.
- ✓ Remove End of Line gauge and ensure correct operation. Lubricate O ring and replace
- ✓ Record details and date of service on cylinder label. Replace cylinder into bracket and ensure it is secured by clamp / Tyrap.
- ✓ Remove gauge from End of Line, fit Schrader adapter and pressurise to **12 Bar / 175 psi using a nitrogen cylinder or air pump.**
- ✓ Remove Schrader adapter, refit gauge, check gauge is reading mid-green, mark the gauge and **leave system for a minimum of 10 minutes per metre of trace detection tube.**
- ✓ When satisfied no leaks have occurred, open isolate valve slowly. **System is now live.**
- ✓ Remove blanking cap(s) from valve and re-connect discharge pipe work.

*Dry Powder systems ONLY

Notes:

