FIRETRACE® LTD

AUTOMATIC FIRE SUPPRESSION SYSTEMS

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Firetrace® "**Direct**" Automatic Fixed Fire Suppression Systems For Mobility Drive from Chair Applications

Please read instructions carefully prior to starting installation

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Stops fires where they start

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System Overview.

The Fixed Firetrace® system is a simple self-actuating device that is designed to suppress fires within an identified risk area. **The cylinder is not intended for portable use.**

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 rupture and form a diffuser.

Tube burst forming diffuser

The FE-36 extinguishant is then deployed via this diffuser directly into the heart of 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.

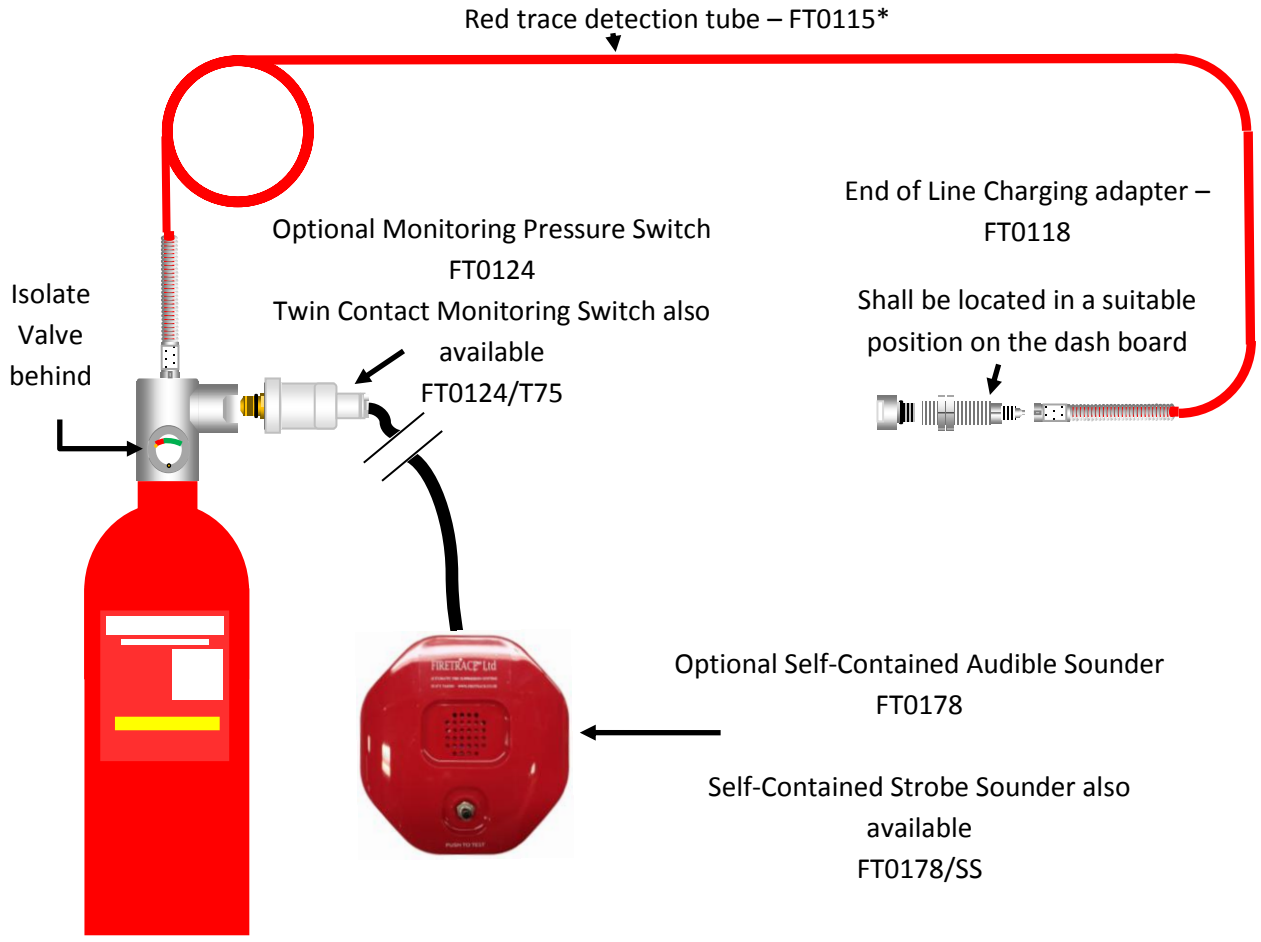
The system can be fitted with a volt free single pressure switch (FT0124) or volt free twin pressure switch (FT0124/T75) which, when connected to the cylinder, not only provides constant monitoring of the system but can also send a signal to indicate a discharge via a Self contained Alarm Sounder (FT0178).

It is important that both the cylinder & Firetrace® tubing 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

System Layout

All our standard low pressure Firetrace® systems are supplied with all the necessary fixings for the Trace detection tube.



Firetrace® Installation Instructions.

Cylinder

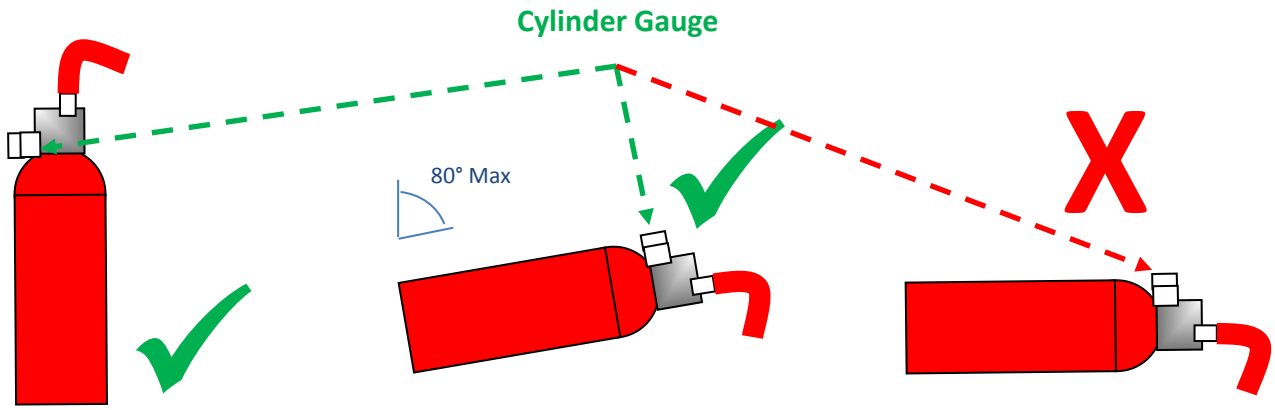
When installing the Firetrace® system it is important that a suitable cylinder location is selected and that the cylinder is orientated correctly.

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

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

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

Wherever possible the cylinder shall be **mounted vertically** and in exceptional circumstances the cylinder can positioned at an angle of no more than 80 Degrees from vertical. *(see cylinder label for clarity)*



It is recommended wherever possible that Firetrace® cylinders be mounted vertically. Where vertical locating is not possible the systems can be mounted within 80° of vertical.

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

THIS FIRETRACE® SYSTEM IS SUITABLE FOR HORIZONTAL MOUNTING.

Firetrace® Automatic Detection Tubing

The Firetrace® Automatic Detection tubing is the key part of the system and acts not only as the detector but also as the delivery method for the FE-36.

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

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

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

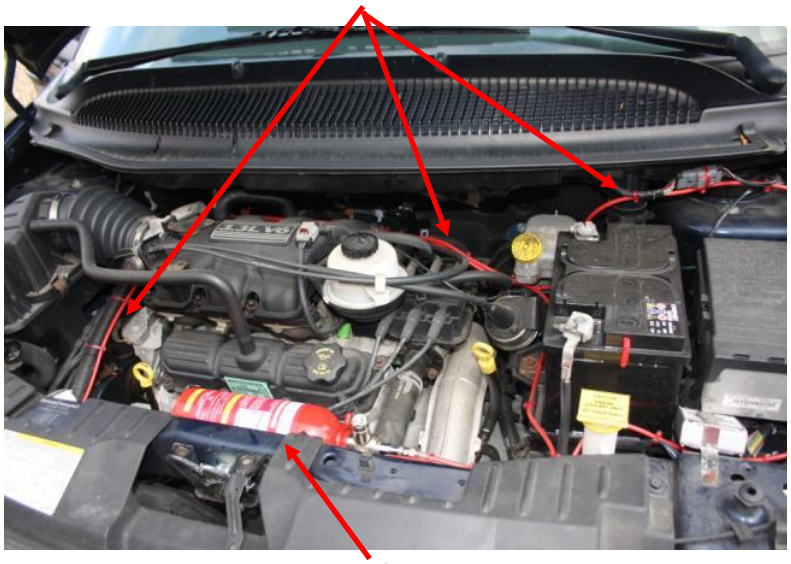
The tubing will activate at approximately 120 Degrees Centigrade and care must be taken to avoid attaching the tubing where temperatures above this are achieved during normal operation.

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.

Tube Routing

As the Firetrace® detection tube is flexible the exact tube route can vary from vehicle to vehicle. The basis of the system design is to circumnavigate the engine and dashboard area so that any potential risks are covered. (Please see tube bending radius guide)

Trace Detection Tube installed around the engine compartment



Firetrace® Cylinder
(Suitable for mounting up to 80° from vertical option)

Trace Detection Tube located behind the dashboard for extra protection terminated at an End of Line Gauge

Tube Fixings

The Firetrace® Automatic Detection tubing is the key part of the system and acts not only as the detector but as the delivery method for the extinguishant as well.

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

The tubing must be physically protected outside the identified risk area using Kopex or another flexible conduit and shall remain accessible to allow future servicing.

The detection tubing must be adequately fixed to retain its position and withstand the vibration.

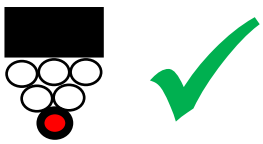
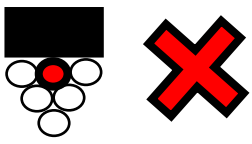
The tubing is a soft polymer and is susceptible to wear / chaffing when repeatedly rubbed against a hard or sharp surface. The tubing shall be protected using nylon Kopex at all fixing points and where it passes through holes.

The following photographs show both “Tyrap” and “P clip” fixings all of which are acceptable.

The Detection tubing shall be supported at maximum intervals of 150mm.

Always leave a small loop of tubing adjacent to the cylinder. Whilst this shall 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/pipes it must be positioned on the underside of the loom and must never be located within the center of the loom.

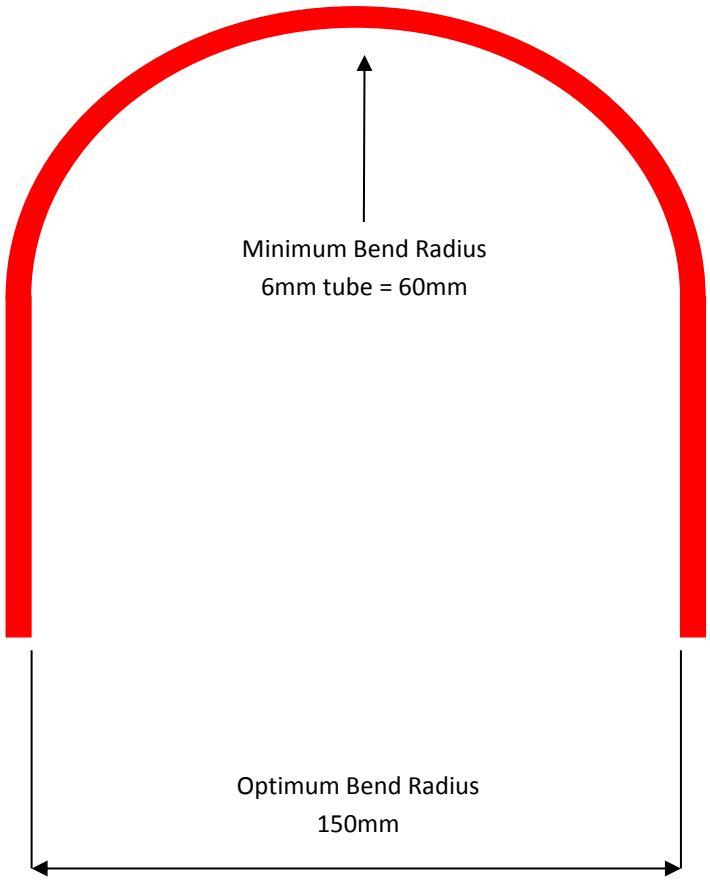



Tube bending radius

The Firetrace® tubing acts as the detector and provides the delivery of the extinguishant. 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 Firetrace® tubing must be replaced:

FT0115 Firetrace® tubing 6mm **Minimum bending radius 60mm**



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 shall 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.

5. Slacken off the assembly and inspect end to ensure flange has formed correctly then reconnect to fitting and tighten down to ensure an effective seal.

Commissioning the System

Warning Firetrace® cylinders contain 12 bar pressure

This procedure shall be read in conjunction with system layout earlier in this booklet.

Do not turn integrated isolate valve until system is fully commissioned *(pressurised)*

Locate cylinder and firmly secure with bracket provided

Remove black cap from the top of the cylinder. Connect red Trace detection tube, tighten silver nuts and secure with appropriate clips

Remove blank plug from pressure switch port

Fit Schrader adapter FT0172 and pressurise to **12 Bar / 175 psi using a nitrogen bottle or air pump.**

Remove Schrader adapter FT0172, remove gauge from gauge port and fit into pressure switch port. *(Fit blanking plug into Gauge port to keep dust and debris out)*

Using tape, mark the location of the needle on the pressure gauge *(Mid Green)* and **leave system for a minimum of ten minutes per metre of Trace detection tube to check for any leaks on the detection tube.**

When satisfied pressure is good and no leaks have occurred, remove blank plug and open isolate valve slowly using the key provided. Remove gauge from pressure switch port and fit into gauge port.

System is now live

Optional FT0124 pressure switch can be fitted in gauge adapter on head assembly or if not pressure switch supplied, replace the blank plug

Closed

Open

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

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 grease 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 shall 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** **&** GREY wires are used. The unused wires must 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	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	Grey
Normally closed	Black
Earth	Green/yellow

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 shall 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 FE-36 systems require discharge testing at maximum 10 Year intervals.

Firetrace® Limited recommends a visual inspection of a Firetrace® system at least every three months.

The following checks shall be carried out on this inspection.

- Check the pressure gauge is reading mid-green.
- Carry out a visual check of the trace detection tube.
- Check all detection tube fittings for soundness.
- Check external surface of the cylinder for evidence of rust or corrosion.
- Report any potential problems immediately.

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

If there's no visible sign of pressure drop then;

- ✓ Check date of manufacture and record when discharge test is required. *(10 years from New Date)*
- ✓ 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.
- ✓ Remove cylinder gauge and ensure correct operation. Clean and lubricate O ring and refit.
- ✓ *Remove pressure switch (if applicable) and ensure correct operation. Clean and lubricate pressure switch O ring and refit switch.
- ✓ Record details and date of service on cylinder label. Replace cylinder into bracket and ensure it is secured by clamp / Tyrap.

If there is visible sign of pressure drop then replace the cylinder and trace detection tubing.

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