CABINETSAFER
by HoodSafer

CabinetSafer “**FK-5-1-12**” Automatic Fixed Fire Suppression Systems For **Electrical Applications**

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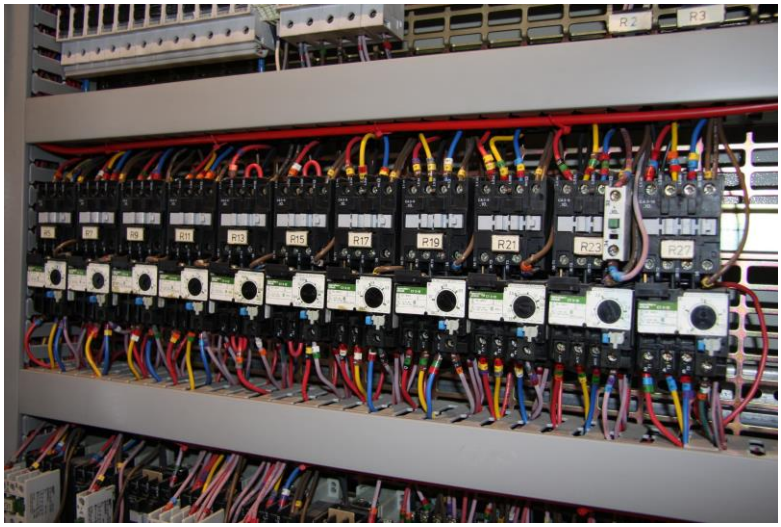
Gaziler Mah. 247 Sokak No: 6A KEPEZ / ANTALYA / TÜRKİYE

Contents



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System Overview

The CabinetSafer® 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 CabinetSafer® linear detection tubing that is installed throughout the risk area. This CabinetSafer® tubing is heat sensitive and when subjected to a temperature above 100 Degrees centigrade, or when touched by flame, the CabinetSafer® tubing will rupture and form a diffuser.

The FK-5-1-12 extinguishant is then deployed via this diffuser directly into the heart of the fire.

The CabinetSafer® 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 Fire area.

The system can be fitted with a volt free single pressure switch (CS300) which when connected to the cylinder provides constant monitoring of the system.CS300 can also send a signal to fire alarm panel when connected.

It is important that both the cylinder & CabinetSafer® tubing are correctly installed and that the system is subjected to a regular maintenance regime in line with BS5306-3 by a competent engineer.

CabinetSafer model selector

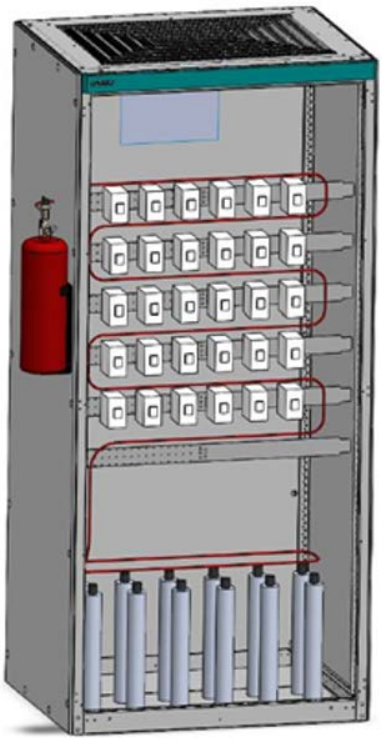
Volume of Cabinet	Suitable CabinetSafer model	Maximum tubing length
0,1 m3 – 1 m3	**CS2** (1kg agent)	5m
1 m3 – 2 m3	**CS2** (1kg agent)	5m
2 m3 – 3 m3	**CS4** (2kg agent	9m
3 m3 – 4 m3	**CS4** (2kg agent)	9m
4 m3 – 5 m3	**CS6** (4kg agent)	12m
5 m3 – 6 m3	**CS6** (4kg agent)	12m

Note : Add 0,5 kg of CabinetSafer clean agent for each 1m³ if Volume of cabinet is larger than 6 m³

DESIGN RULE :

Detection tubing shall be installed 3 cm as maximum far away from above and below component.

Please see figure at right.



CabinetSafer Installation Instructions

Cylinder

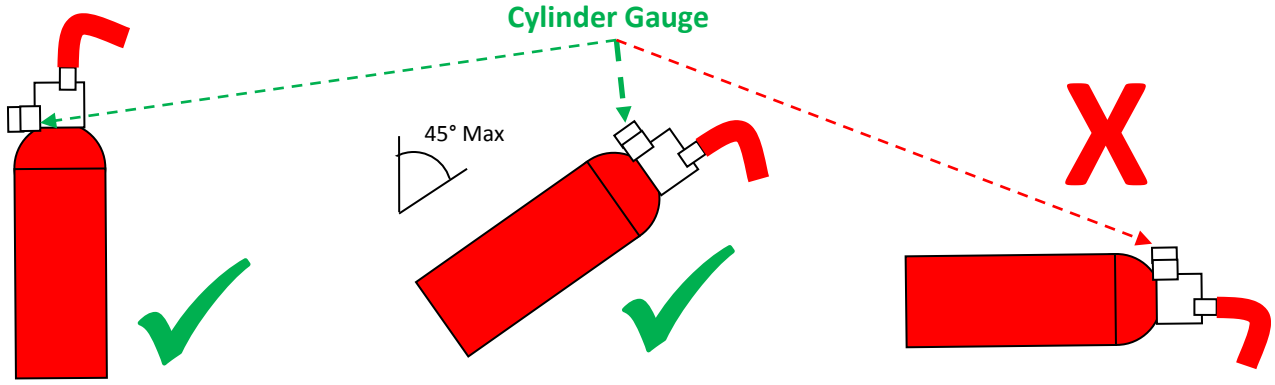
When installing the CabinetSafer® system it is important that a suitable cylinder location is selected and that the cylinder is orientated correctly.

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 60 Degrees centigrade.

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

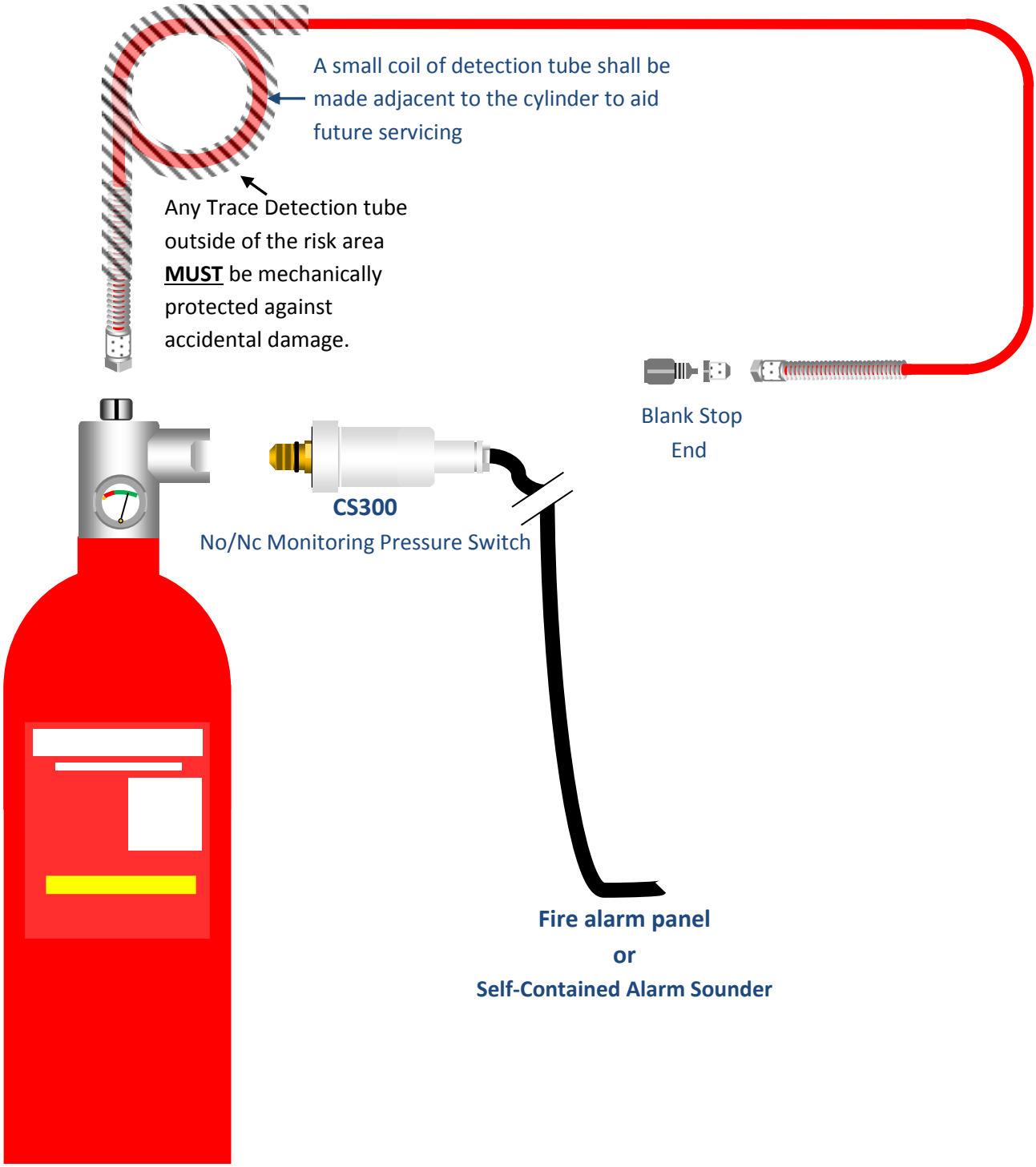
The cylinder shall be adequately fixed to a suitable load bearing surface.

Wherever possible the cylinder shall be **mounted vertically** and in no circumstances must the cylinder be positioned at an angle of more than 45 Degrees from vertical.
The cylinder gauge shall face uppermost to aid inspection.



It is recommended wherever possible that CabinetSafer® cylinders be mounted vertically.
CabinetSafer® SYSTEMS ARE NOT SUITABLE FOR HORIZONTAL MOUNTING.

Direct Low Pressure CabinetSafer® System



CabinetSafer® Automatic Detection Tubing

The CabinetSafer® 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 FK-5-1-12.

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.

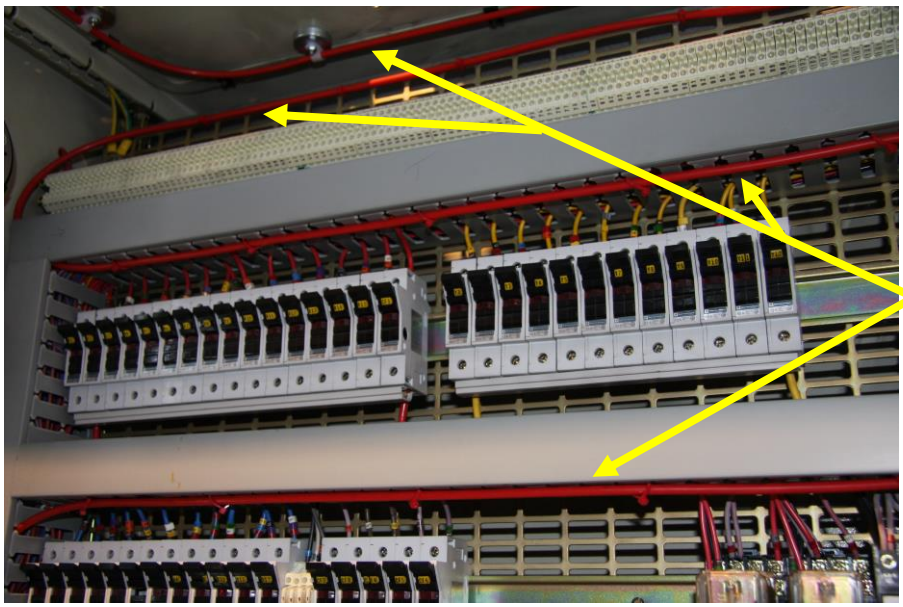
As heat rises, the CabinetSafer® tubing is most efficient when mounted directly above the risk.

The tubing will activate at approximately 100 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.

Tube Routing

As the CabinetSafer® detection tube is flexible the exact tube route can vary from cabinet to cabinet. The basis of the system design is to circumnavigate the electrical cabinet so that any potential risks are covered. (Please see tube bending radius guide on page 11)



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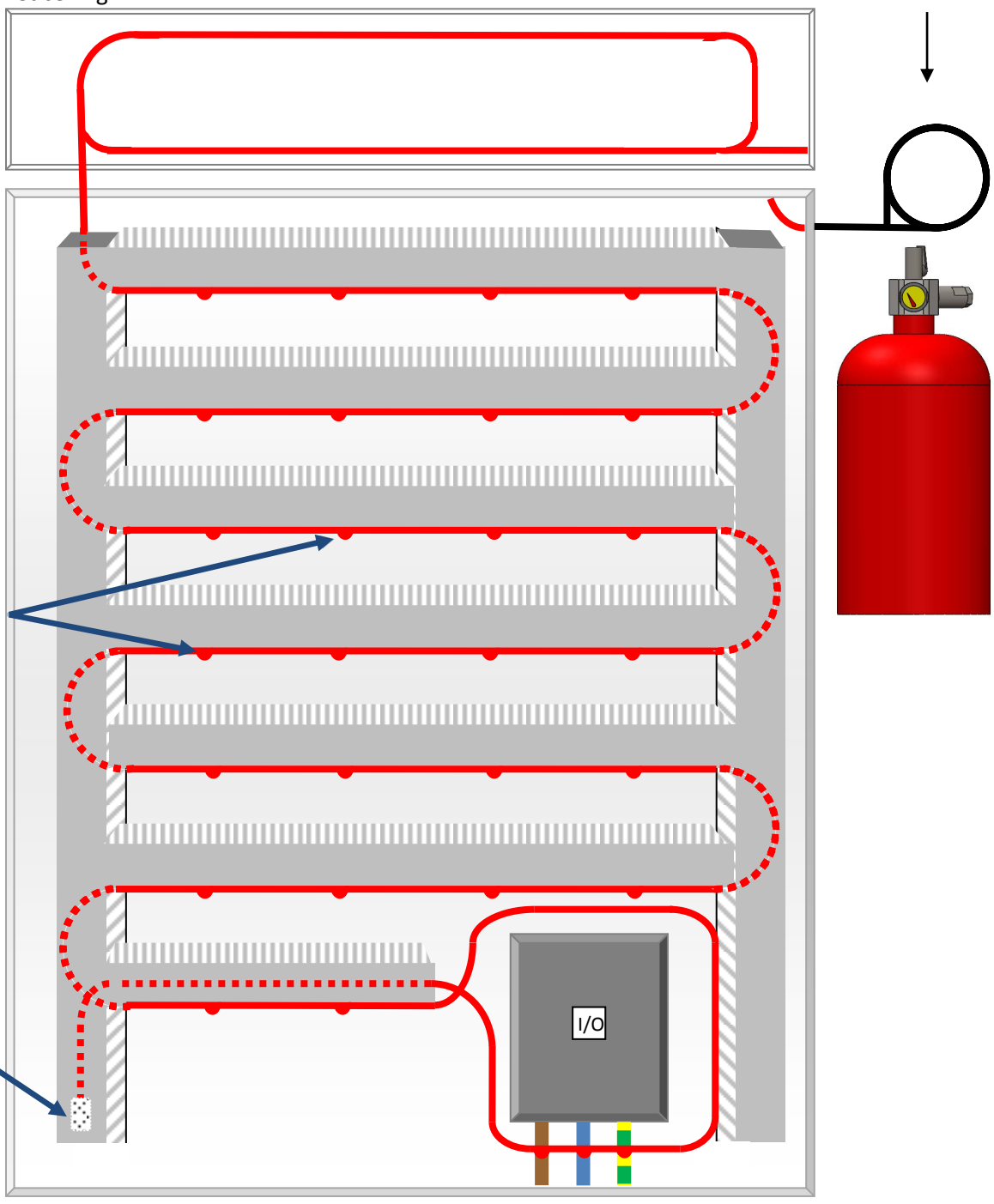
Single Cabinet Installations

The extinguishant must have no further than 20m to travel from the cylinder to the furthest burst

The detection tube outside of the risk area must be protected by flexible conduit

Interior view of cabinet ceiling



Small Cable Ties

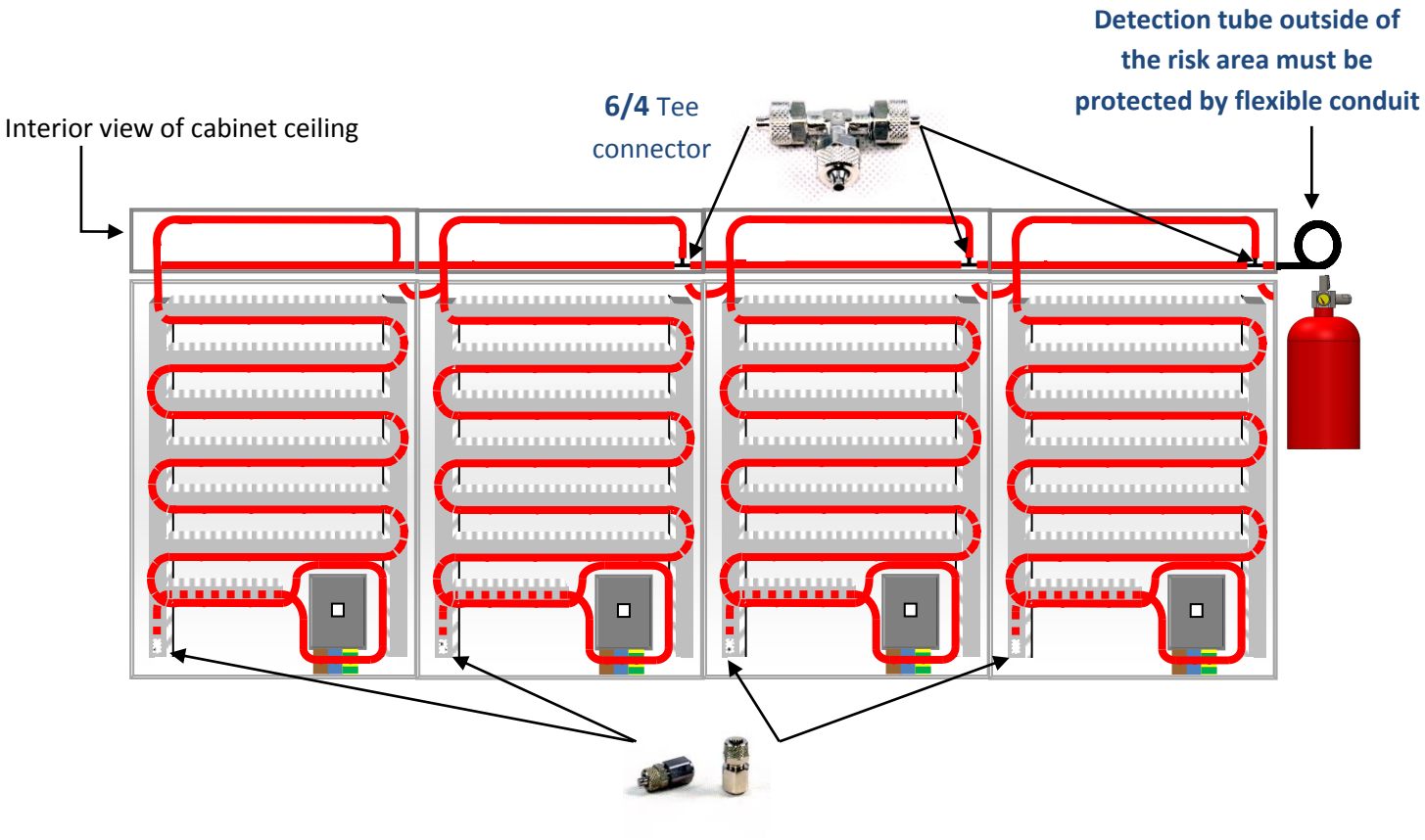
Blank Stop end is typically used

Multiple Cabinet Installations

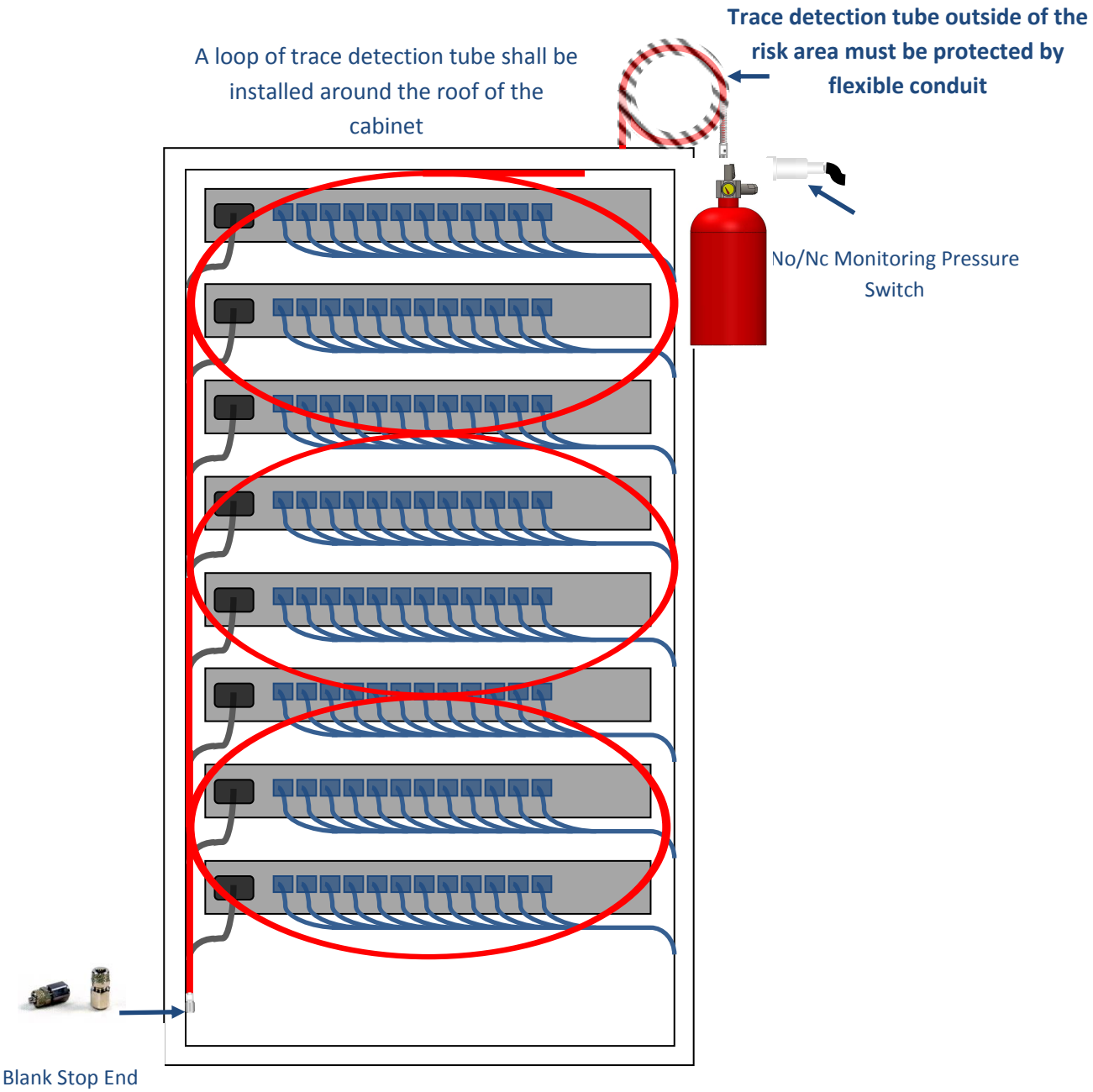
The extinguishant must have no further than 20m to run from the cylinder to the furthest burst

When installing a CabinetSafer® system to multiple adjacent cabinets, it is important to keep the distance from the cylinder to the furthest blank stop end to a minimum.

This can normally be easily achieved by using a tee connector between banks of cabinets as shown below.



Data Rack Installation



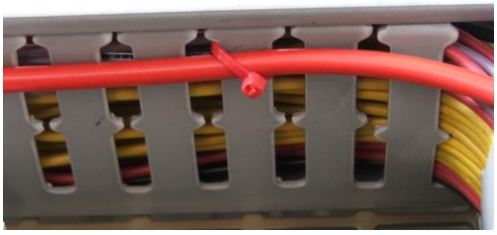
Multiple cabinets shall be installed using tee connectors and blank stop end in the same manner as electrical cabinets

Tube Fixings

The CabinetSafer® detection tubing needs to be adequately fixed to retain its position.

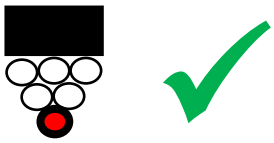
The tubing is a soft polymer and is susceptible to wear / chaffing when repeatedly rubbed against a hard or sharp surface. The tubing should be protected where it passes through holes.

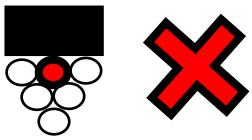
The following photograph shows “Tyrap” fixing to the underside of the cable ducting.



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 it must be positioned on the underside of the loom and must never be located within the center of the loom.





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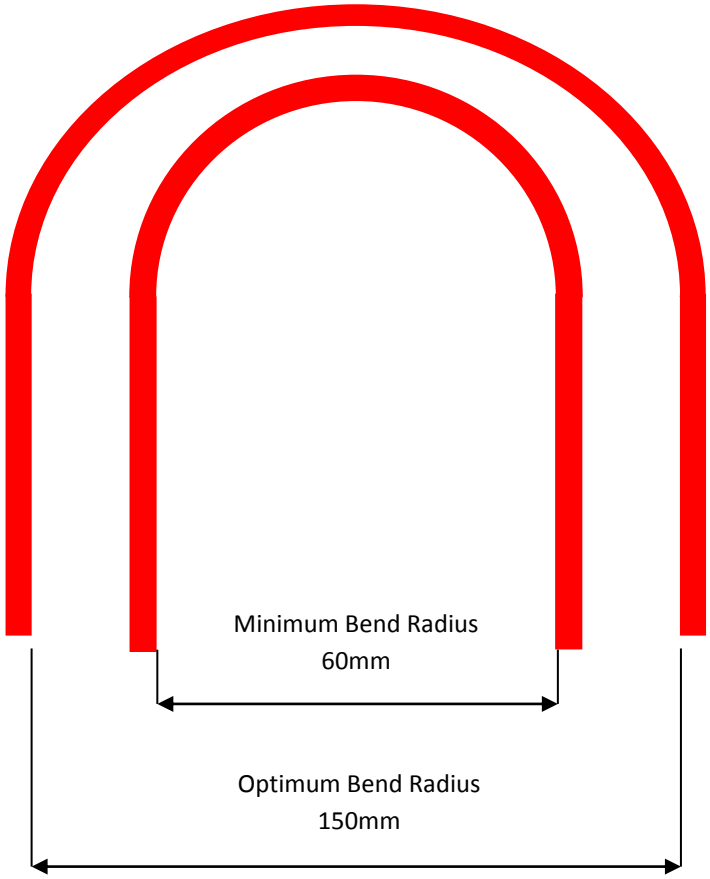
Tube bending radius

The CabinetSafer® 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.

If the tubing be kinked or damaged in anyway then the CabinetSafer® tubing in that section must be replaced:

CS400 CabinetSafer® tubing 6mm: **Minimum bending radius 60mm**



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Connecting the CabinetSafer® Tubing onto the fitting

<u>All compression fittings must be secured in the following manner:</u>

a) Cut the tube end ensuring the cut is clean and free from burrs. Check that no debris/ swarf has been 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 11mm Spanner pinched up to firm hand tightness. Maximum torque is 5.7 Nm.

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

<u>Method of Assembly</u>

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. *(<u>torque = 5.7 Nm</u>)*

The use of a tube cutter is recommended for an accurate cut of 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 Instructions

Warning CabinetSafer® cylinders contain 15 bar pressure

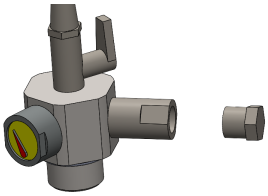
This procedure shall be read in conjunction with system layout for Direct Low Pressure systems with Integrated Isolate Valve on page 5 of this booklet.

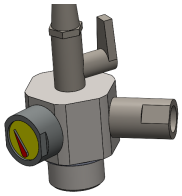
Do not turn integrated isolate valve until system is fully commissioned *(pressurised)*

Locate cylinder and firmly secure with bracket provided

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

Remove blank plug from pressure switch port





Fit connector of pressurizing adapter and pressurise to **15 Bar using a nitrogen bottle or air pump.**

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 detection tube to check for any leaks on the detection tube.**

When satisfied pressure is good and no leaks have occurred, open mini valve on top of the valve slowly.

System is now live

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6mm Detection Tube Components

6/4

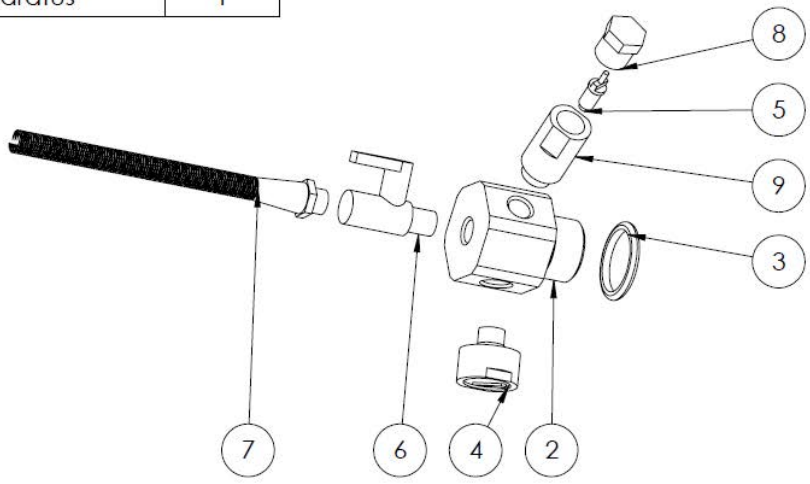
Anti Kink Spring Nut

Stop End

6/4

Tee

ITEM	PART DESCRIPTION	QTY.
2	CS1001_Valve Body	1
3	CS1003_Valve O-RING (21,89 x 2,62)	1
4	P1002_Manometer	1
5	DP1012_Shrader Valve	1
6	DP1008_Mini Ball Valve (1-8--1-8)	1
7	DP1010_Tube connector (1-8--6x4)	1
8	DP1011_1/4" Blind Plug	1
9	HSP103_Pressurizing Apparatus	1



Service & Maintenance for FK-5-1-12 Systems

The CabinetSafer® 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 FK-5-1-12 systems require discharge testing at maximum 10 Year intervals.

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

The following checks shall be carried out on this inspection.

- Check the pressure gauge is reading mid-green.
- Ensure physical changes of protected areas haven't affected cylinder suitability.
- Check external surface of the cylinder for evidence of rust or corrosion.
- Report any potential problems immediately.

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CabinetSafer recommend that all systems are fully serviced every 12 Months by a competent engineer

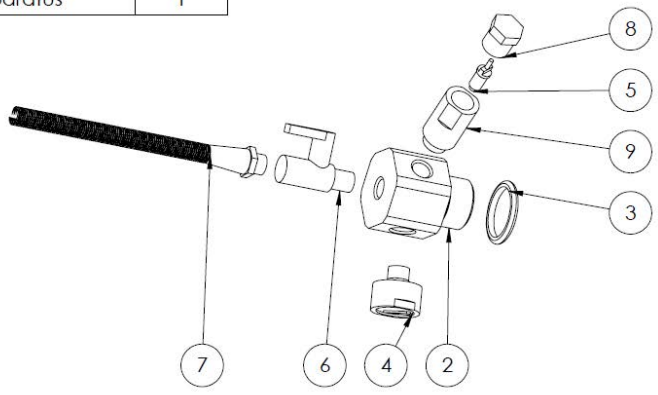
If there's no visible sign of pressure drop then;

- ✓ Check date of manufacture and record when discharge test is required (10 years from new date on cylinder).
- ✓ 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 cylinder gauge and ensure correct operation. Clean and lubricate O ring and refit the gauge.
- ✓ Remove pressure switch (if applicable) and ensure correct operation. Clean and lubricate pressure switch O ring and refit switch.
- ✓ Inspect electrical cabinet and ensure detection tubing is correctly installed and protecting entire risk area. Check for signs of wear/damage and tighten or replace fixings as necessary.
- ✓ 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;

- ✓ Remove the blind plug on pressurizing port. Push schrader valve to drain the agent and pressure.
- ✓ Fill required agent to the cylinder and pressurize by the pressurizing port.
- ✓ Fit the blind plug, refit pressure switch (if applicable), 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 mini valve slowly. **System is now live**.
- ✓ Record details and date of work carried out on the cylinder service label

ITEM	PART DESCRIPTION	QTY.
2	CS1001_Valve Body	1
3	CS1003_Valve O-RING (21,89 x 2,62)	1
4	P1002_Manometer	1
5	DP1012_Shrader Valve	1
6	DP1008_Mini Ball Valve (1-8--1-8)	1
7	DP1010_Tube connector (1-8--6x4)	1
8	DP1011_1/4" Blind Plug	1
9	HSP103_Pressurizing Apparatus	1



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Work hours

Monday - Friday: 9:00 - 18:00

Saturday - Sunday: Closed