Fire & Safety Systems Ltd

www.lifeline-fire.co.uk

TECHNICAL BULLETIN

Technical Bulletin 086

Lifeline Zero

Installation Guide

Issue Date:11/07/2025

REVISION 1

Lifeline Fire and Safety Systems Limited
Falkland Close,Charter Avenue Industrial Estate,
Coventry, West Midlands, CV4 8AU

Tel: +44 (0)24 7671 2999
Fax: +44 (0)24 7642 1322

Email: sales@lifeline-fire.co.uk

Technical Bulletin 086 – Lifeline Zero Installation Guide

REV1 11/07/2025

Other References	
TB001	System Care, Maintenance and Service
TB006	Monnex MSDS
TB0087	Lifeline Zero – Kit Content and Spares

Overview

The Lifeline Zero fire suppression system (UK Patent No. 2578666) Is homologated to FIA 8876-2022 – Cockpit Only and uses Monnex™ fire suppression powder. Monnex™ has been tested rigorously on fuels from numerous industries including aviation, as well as testing against industrial chemical, showing its versatility and effectiveness. Monnex™ is the most trusted high performance firefighting powder. The system is integrally derived from the Lifeline Zero-175 EVO system as part of the FIA 8876-2022 Homologation.

The information below provides a guide to installing your chosen system. Due to the complexity of the vehicles this system is used in, it is difficult to define the exact positions of the bottle and the accompanying ancillaries required for the installation. This document provides “best practice” advice suitable for most vehicles.

This system conforms to FIA 8876-2022 and article 14.1 of FIA Formula 1 2026 Regulations. These can be referred to for any supporting information pertaining to the system and its installation.

If you feel that your installation cannot follow these guidelines, please contact Lifeline Technical for further guidance.

Fully read and understand the instructions below before starting installation. Plan your installation carefully referring to the tables below and the system drawings. Do not cut the supplied tubing until you are certain of the location of the cylinder, connectors and nozzles.

Cylinder Installation

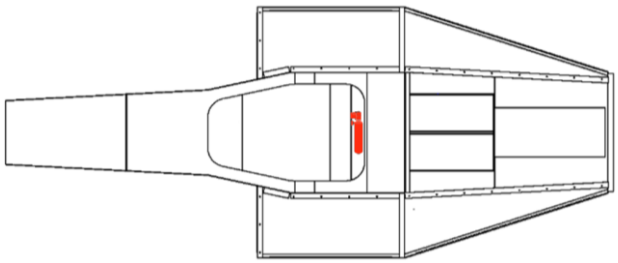


Figure 1 Cylinder position is free within the safety cell/roll cage

The cylinder must be mounted within the survival cell of the car. The location of the cylinder within the cockpit is at the discretion of the client. Though, the location should prioritise minimising the system's exposure to sources of abrasion or extreme heat.

The system has been homologated in two configurations: the first is with polyamide tubing fitted directly into the firing head and, secondly, through a 90° elbow-piece into the firing head. Either configuration can be used depending on the client's packaging preference.

Figure 2: Lifeline-Zero bottle with homologated 90° Elbow piece

The homologation label, maintenance labels, and pressure gauge must be visible for scrutineering. The firing-head connector must be accessible to check the bottle's functionality.

The method of mounting the bottle to the vehicle is at the discretion of the client. The system is available either as a bare cylinder, or with a pre-adhered carbon-nylon shroud to directly affix any mounting brackets to. Any mounting methods should not block the PRV channel located on the bottle's bottom-end, nor permanently block access to the valve caps located on the bottle's top end. The client's intended method should be communicated with Lifeline to ensure the location of the homologation and maintenance labels are suitable.

Tubing

Use a dedicated tube cutter to cut the tube, ensuring there are no sharp edges, and that the tube remains circular. Do not use a hack saw or similar tool which could leave a jagged edge which could damage the seals in the connectors. After cutting the tubing, deburr the inside and outside edges to minimise restrictions. Form the tube using high quality pipe bending equipment, taking care not to create a kink which could restrict flow. Minimum bend radius of the tube is shown below. Minimise bend quantity to allow for smooth suppressant flow and best performance.

Tube Ø	Minimum Bend Radius
8mm	16mm when using pipe bending tool

Secure the tube using cable ties and saddles or P-clips. Tubes passing through a bulkhead must be protected using a rubber grommet.

The 2026 Formula 1 Technical Regulations require the nozzle to be aimed “at the driver’s midriff”. We recommend that the nozzle is mounted to the side of the driver, roughly in-line with the driver’s kidney, and pointing inwards as shown in figure 3.

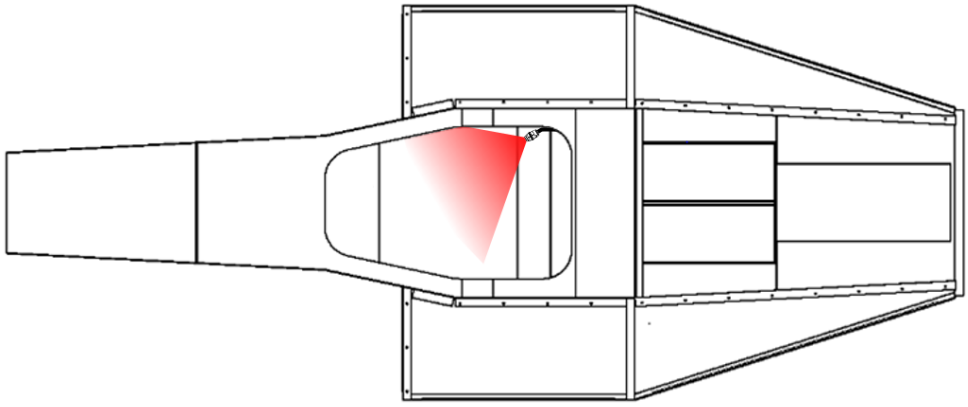


Figure 3: Cockpit nozzle position and coverage

N.B Obstruction around the nozzle could reduce the effectiveness of the extinguisher.

Cockpit Nozzle

The Zero 360 Flat-Fan (955-300-003) cockpit nozzle should be mounted ensuring there are no obstructions restricting the flow of suppressant. The nozzle features a built-in bulkhead fitting to help accommodate this. Ensure that the nozzle protrudes rearwards of surrounding items, for example, at least 5mm clear of any item within 20mm laterally or vertically. However, position nozzle as far from the driver as possible within these restrictions.

General Assembly

Figure 4: 8mm Polyamide-Coated Tube with Heatproof Overbraid

Overbraid

The tubing must be completely covered by the supplied heatproof overbraid (951-300-006). Ensure that the overbraid extends up to the push-fit connectors on each end of the bottle.

The polyamide-coated tubing and heatproof overbraid should be used to directly connect the bottle to the nozzle as shown in the schematics below:

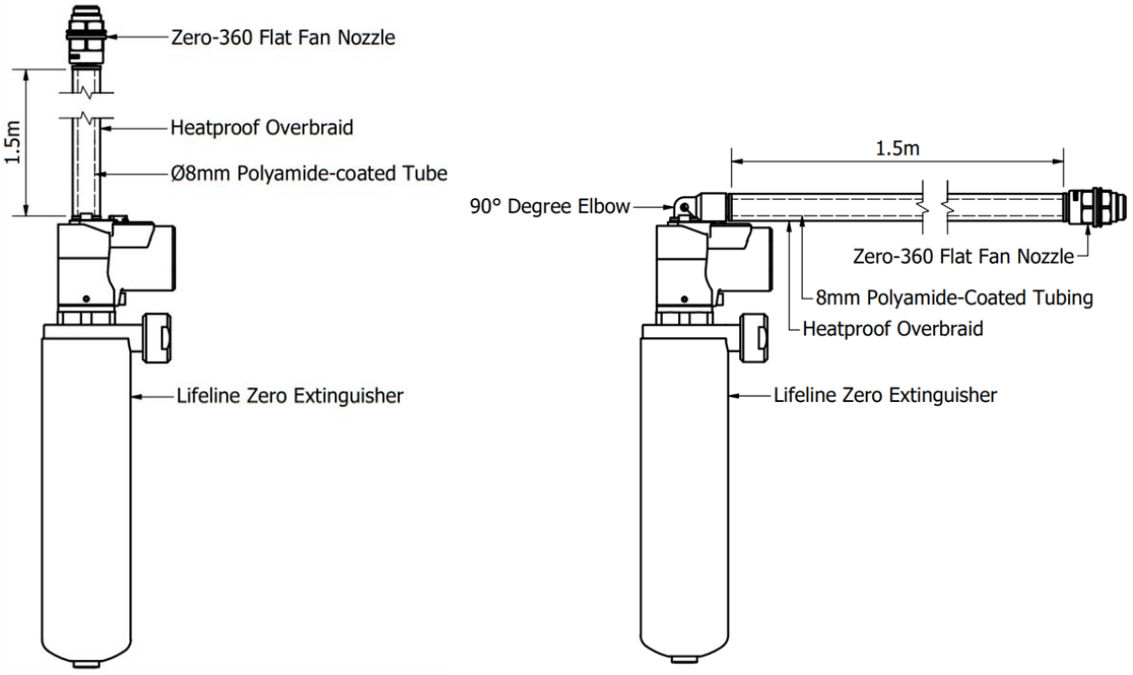


Figure 5: General assembly of the Lifeline-Zero system with a direct inlet (a) and 90-degree fitting (b)

Figure 6: Groove cut in tube for push fitting

Fitment to tubing

The nozzles provided in the kit are push fit and designed to fit on the 8mm tubing. To ensure correct fitment, cut a groove using a pipe cutter that is 0.5mm deep and located 7mm from the end of the tube. If done correctly, it should not be possible to pull the nozzle from the tube, and it should not be loose on the tube.

The bottle uses the same 8mm push-fit connector. The same preparations to the tube must be applied for both the nozzle and bottle connections.

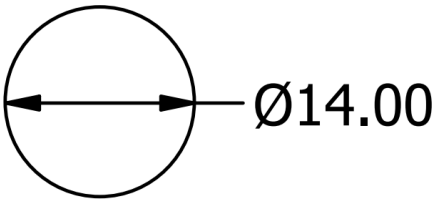


Figure 7: Hole diameter for nozzle bracket

Securing of nozzles

When securing the nozzles through the in-built bulkhead connector, a bracket with a ø14mm hole will be required. 2 x 16mm spanners will be needed to tighten the lock nuts. If the nozzles require further securing, this must be done in such a way that the nozzle is not obstructed.

Electrical Activation

The electrical system for Lifeline Zero **MUST** be independent of other vehicle systems. This is so the extinguisher can still fire in the event of an electrical failure. The system may be integrated into a vehicle wiring loom if it remains an independent circuit.

Do not connect the extinguisher to a common ground or power source. Integrating the electrical system into other electrical circuits will cause the extinguisher to malfunction and it will likely fire.

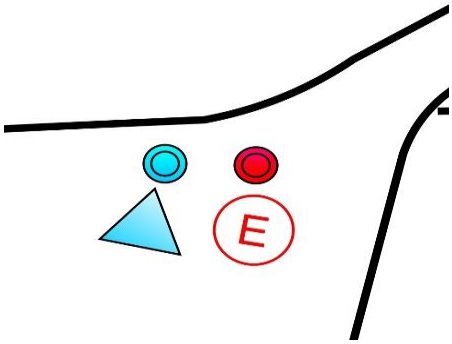


Figure 8: Locate external switch next to electrical cut off

One activation switch must be located inside the cockpit, within the reach of the driver, when seated with harnesses fastened and steering wheel in-place.

An external trigger is required and installed in accordance with article 8.7 of the 2026 regulations. It is mandatory that the external trigger is marked with a red letter “E”, at least 80mm in height and 8mm in line thickness, within a white circle of at least 100mm in diameter, with a red edge of at least 4mm in line thickness.

Wiring

The wiring within the system is self-contained within the firing-head. The bottle can be powered through a Souriau 8STA 3-pin connector. Ensure that the wiring diagram is followed regarding the pin-out configuration through the connector. The bottle is actuated through a Pyrotechnic actuator. We recommended that a 9-Volt Battery is used in-conjunction with the activation switches to power the firing head.

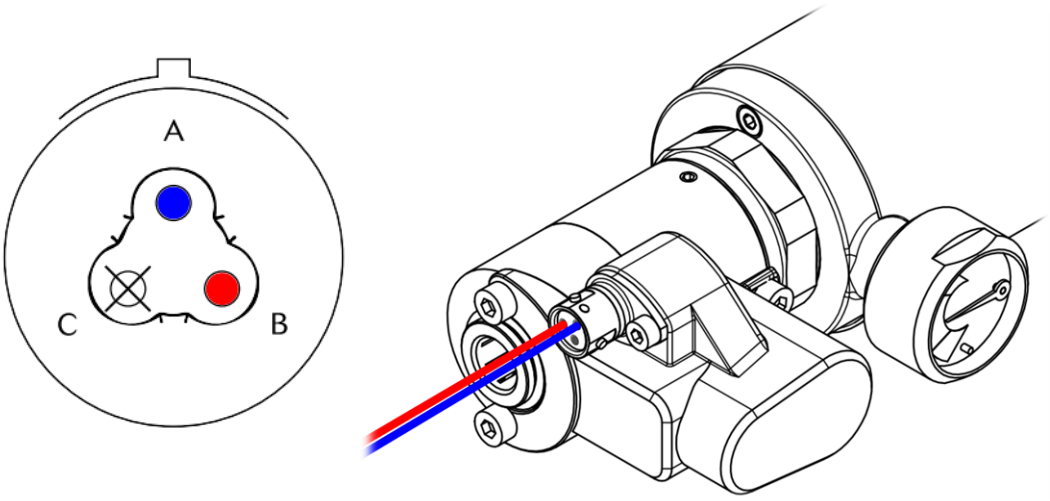


Figure 9: Diagram of pins utilised (a) and location of wiring (b)

System Checking and Maintenance

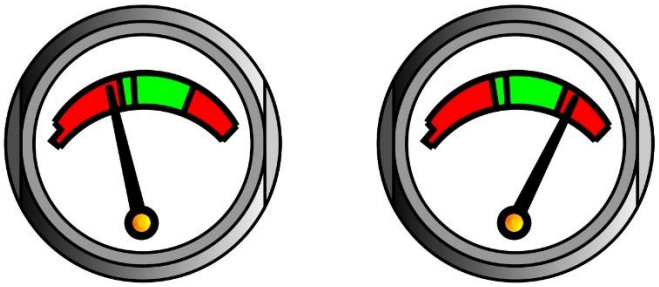
Power supply

The user must ensure that the power source to the firing head is sufficiently charged or fit for purpose before the participating event occurs.

Extinguisher Pressure Check

1. Check that the cylinder is in date and has been serviced every two years as required.
2. Check the weight of the extinguisher against that shown on the serial label. Lifeline use regularly calibrated highly accurate scales and it can be expected that some variance will be found from the weight as shown when using other equipment.
3. Check the pressure gauge is in the green area of the scale. Some fluctuation can be observed in high and low temperatures, this is normal.

Extinguisher systems with a pressure gauge showing the above readings shall be considered OK



Extinguisher systems with a pressure gauge showing the above readings shall be considered NOT OK

(ref FIASDH-17-010|)

Cylinder Maintenance

Check that the cylinder has a valid maintenance label. The cylinder must be serviced every two years by Lifeline or an approved Lifeline service agent. Do not attempt to service the system yourself or have the system serviced by a non-Lifeline approved service agent, this will void the systems validity and potentially cause injury.

Regularly check the weight of the extinguisher against that shown on the label. Some variances will be found when using different weighing equipment. If the system measures significantly underweight, return the system to Lifeline for repair.

System Part Number	**105-400-001**
System Serial Number	
Date of Manufacture	
Service 1 Date	
Service 2 Date	
Service 3 Date	
Service 4 Date	
Service 5 Date	