

Technical Bulletin 019 – Zero 36₂₀ Data Sheet

Rev6 07/07/2017

Other References	
TB016	Zero 36 ₂₀ Installation Guide
TB017	Zero 36 ₂₀ Kit Content and Spares
TB018	FIA 8865-2015 Extinguisher Regulations
TB020	Motorsport Regulation Changes
TB035	Zero 36 ₂₀ FM – Kit Content and Spares
TB036	Zero 36 ₂₀ FM – Installation Guide

Overview

The patented Lifeline® Zero 36₂₀ systems (UK Patent No. GB2523902, UK Patent Application No. 1516832.1.) are a step change in motorsport fire suppression technology representing the safest, most advanced, fastest and most validated product available to competitors. 20 years of experience, knowledge, continuous improvement, testing and real world customer feedback have been put into this product, as well as validation from the FIA, BSI and the UK MOD.

From 01/01/2016 FIA RC1 WRC competition vehicles are mandated to have an extinguisher system which meets the stringent FIA 8865-2015 standard and from 01/01/2017 for R5, S2000 rally and other categories (see TB020 for full list); this specification is recommended for all FIA events (see FIA Appendix J 13.07.2015 ART. 7). The 8865-2015 (FIA Technical List 52.) standard is intended to eventually replace FIA Technical List 16 extinguishers but no schedule has been set for this at the time of writing; see TB020 for updates.

Using a combination of 3M® Novec 1230™ and an AR-AFFF blend discharged through high discharge nozzles in the cockpit and in the engine bay, both performance and ease of installation are ensured.

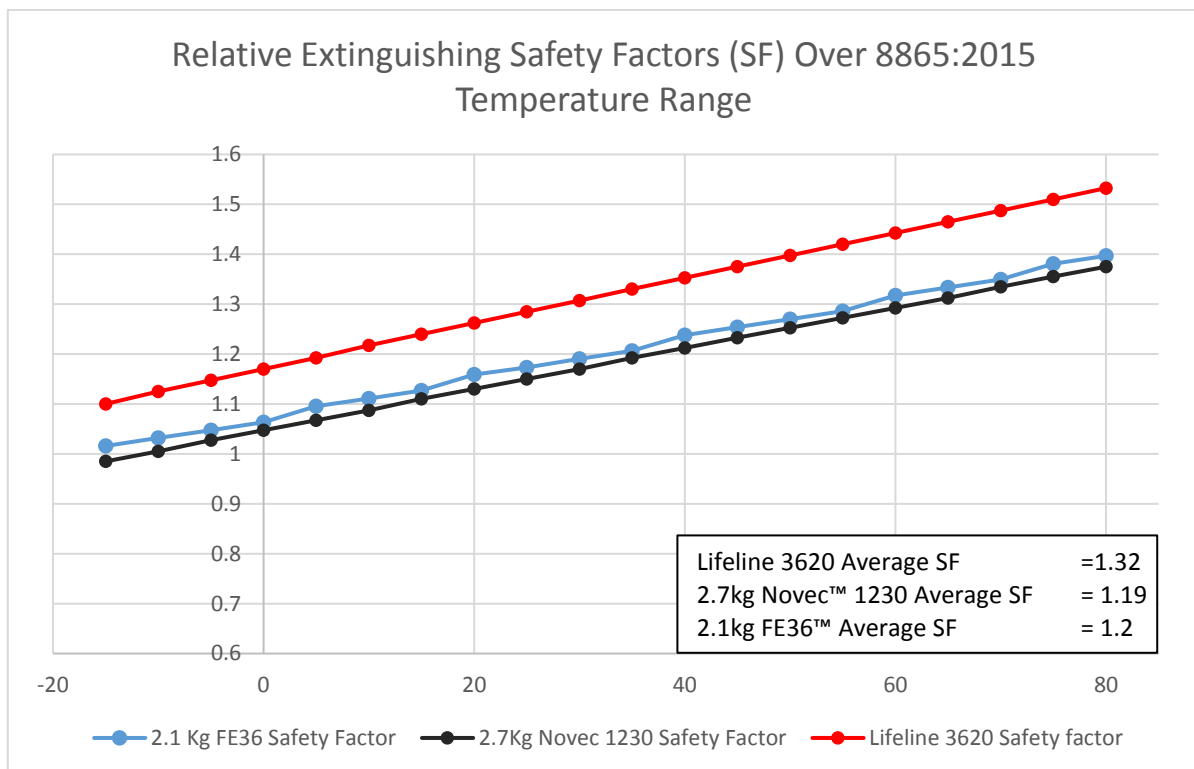
When choosing an FIA 8865-2015 system it is critical to specify by the cockpit volume (m³) in order to maintain protection from a fire and for the safety of the driver/co-pilot. All Lifeline Zero 36₂₀ systems are described by cockpit volume to make this choice simple. Due to mandated ballast being built into the smaller system there is no weight advantage in selecting the smaller systems.



Safety and Environment

How safe is safe? The Zero 36₂0 range of extinguishers have been designed as a no compromise system offering the highest safety levels of any 8865:2015 system. As can be seen below, the Zero 36₂0 extinguisher provides unrivalled Safety Factors for competitors.

NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems is the globally recognised standard for specification and calculation of clean agent fire suppressant agents. Lifeline systems have been carefully calculated to meet the required Safety Factor of 1.3 at typical cockpit volumes and temperatures while still maintaining adequate Safety Factors at low temperatures.



While maintaining Safety Factors required to extinguish a fire, safety is also maintained during accidental discharge of the cylinder at high cockpit temperatures and small cockpit volumes by not exceeding the NOAEL/LOAEL (No Observable Adverse Effect Level/Lowest Observable Adverse Effect Level) of the suppressant agent. NOAEL/LOAEL 3M® Novec 1230™ = 10% with a Safety Margin of up to 150%.

At 80°C our 2.3-4m³ systems have a concentration level of 10% at the smallest cockpit volume and 9.94% with our 1.6-2.3m³ system.

Lifeline only uses 3M® Novec 1230™ and no longer uses FE36™ (HFC236fa) in new motorsport extinguishers for environmental reasons and due to EU/global HFC phase downs and import restrictions. We will continue to service until the cylinder reaches the end of its service life or until FE36™ becomes economically unviable.

3M® Novec 1230™ is an environmentally friendly product having **ZERO** Ozone Depletion Potential (ODP) and more importantly a Global Warming Potential (GWP) of **ONE** – identical to Co2. Other agents such as FE36™, which is an HFC, have a GWP of 8100 according to IPCC AR5 and are now subject to an EU F-Gas phase down.

In October 2016 in Kigali - Rwanda, an amendment to the Montreal Protocol was agreed by 196 countries, approving an 85% F-Gas phase down; similar to the EU F-Gas phase down already in place.

Restrictions on F-Gases including FE36™, up to and including bans, already exist in some countries including Australia, Denmark and Sweden. The table below shows where these restrictions are currently; it is not exhaustive.

Country	Limits	Use Ban	Fiscal Incentives	Licensing
Australia				X
Austria		X		
Belgium			X	
Canada				X
Denmark		X	X	
EU	X	X		
Japan		X		
Macedonia				X
Montenegro				X
New Zealand			X	
Norway			X	X
Poland			X	
Serbia				X
Slovenia			X	
Spain			X	
Sweden	X			
Switzerland		X		
US		X	X	

Source: National Legislation on Hydrofluorocarbons – Duncan Brack – 11 Sep 2015

Lifeline can advise on alternatives if you have an old system containing FE36™ and require a replacement.

EN3 pressure gauges have a small scale and are not very accurate. Lifeline has opted to provide our stored pressure 8865-2015 systems with a better quality of gauge that is both more accurate and easier to read. It remains possible to fit a smaller gauge but this is only by special order and Lifeline recommends the use of the standard, more accurate, pressure gauge.

Specification

Description	Zero 36 ₂ 0
FIA Homologation	EX.001.15, EX.005.15, EX.???.16 (TBC)
Contents	Novac 1230™/AR-AFFF
Discharge System	Electrical, Remote
Cylinder Material	Aluminium Alloy
Temperatures	-15 to +80°C
Options	2 sizes for cockpit volumes 1.6-2.3m ³ and 2.3-4.0m ³ Direct fit or remote cockpit nozzle Wireless control of system activation Souriau connectors Extra nozzles to target specific areas (options available varies with product type)

Weights and Dims

Package Description	Zero 3620 - Engine + 1.6-2.3m ³ Cockpit System		Zero 3620 - Engine + 1.6-2.3m ³ Cockpit Remote System	
Package Part Number	105-001-001		105-001-002	
Cylinder Variant	Engine Cylinder	Cockpit Cylinder	Engine Cylinder	Cockpit Cylinder
Cylinder Part Number	104-400-001-B	104-400-003-B	104-400-001-B	104-400-004-B
Cylinder Mass	3.4kg	4.9kg	3.4kg	4.9kg
Cylinder Length	321mm	362mm	321mm	349mm
Overall Height	142mm	106mm	150mm	106mm
Overall Width	148mm	106mm	168mm	106mm
Bracket Length	318mm	327mm	318mm	327mm

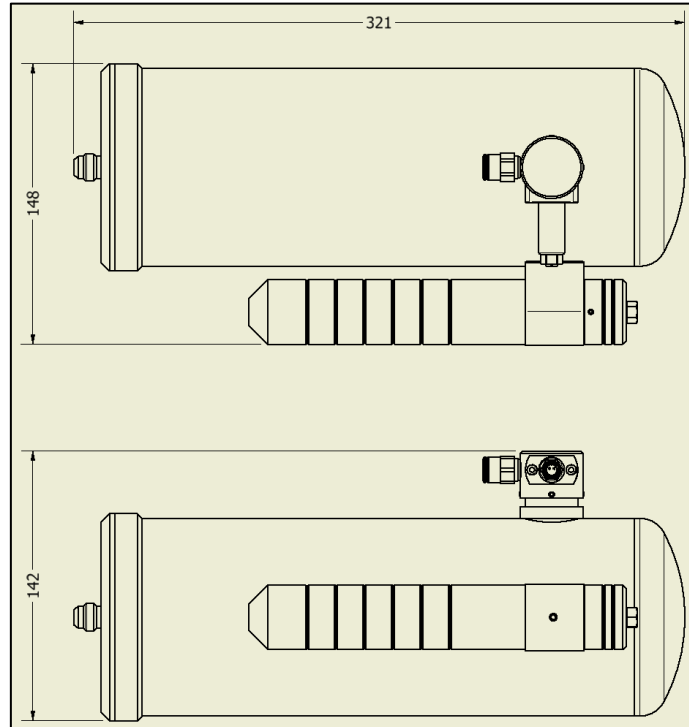
Package Description	Zero 3620 - Engine + 2.3-4m ³ Cockpit System		Zero 3620 - Engine + 2.3-4m ³ Cockpit Remote System	
Package Part Number	105-001-003		105-001-004	
Cylinder Variant	Engine Cylinder	Cockpit Cylinder	Engine Cylinder	Cockpit Cylinder
Cylinder Part Number	104-400-002-B	104-400-005-B	104-400-002-B	104-400-006-B
Cylinder Mass	3.4kg	4.9kg	3.4kg	4.9kg
Cylinder Length	321mm	402mm	321mm	389mm
Overall Height	150mm	106mm	150mm	106mm
Overall Width	168mm	106mm	168mm	106mm
Bracket Length	318mm	362mm	318mm	362mm

Package Description	Zero 3620 Fire Marshal 1.6-2.3m ³	Zero 3620 Fire Marshal 1.6-2.3m ³ - Souriau
Package Part Number	105-001-009	105-001-010
Cylinder Variant	Dual Chamber for Engine and Cockpit	Dual Chamber for Engine and Cockpit
Cylinder Part Number	105-001-009-B	105-001-010-B
Cylinder Mass	7.42kg	7.42kg
Cylinder Length	363mm	363mm
Overall Height	192mm	192mm
Overall Width	155mm	155mm
Bracket Length	2 No. 104mm EA	2 No. 104mm EA

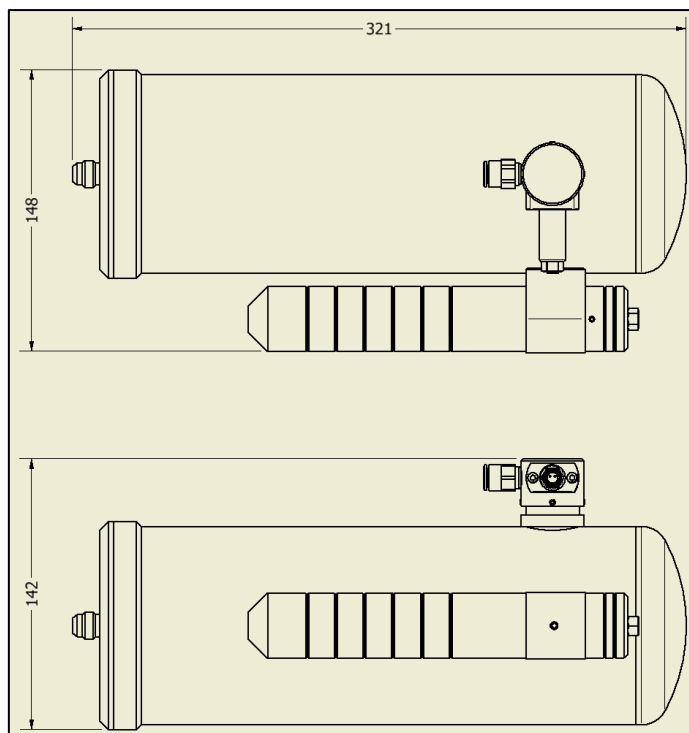
Package Description	Zero 3620 Fire Marshal 2.3-4m ³	Zero 3620 Fire Marshal 2.3-4m ³ - Souriau
Package Part Number	105-001-006	105-001-007
Cylinder Variant	Dual Chamber for Engine and Cockpit	Dual Chamber for Engine and Cockpit
Cylinder Part Number	105-001-006-B	105-001-006-B
Cylinder Mass	7.42kg	7.42kg
Cylinder Length	363mm	363mm
Overall Height	192mm	192mm
Overall Width	155mm	155mm
Bracket Length	2 No. 104mm EA	2 No. 104mm EA

* PLEASE NOTE: ALL DIMENSIONS AND MASSES ARE BASED ON THE CYLINDER ONLY, THEY DO NOT INCLUDE NOZZLES, TUBING, AND HOSES ETC.

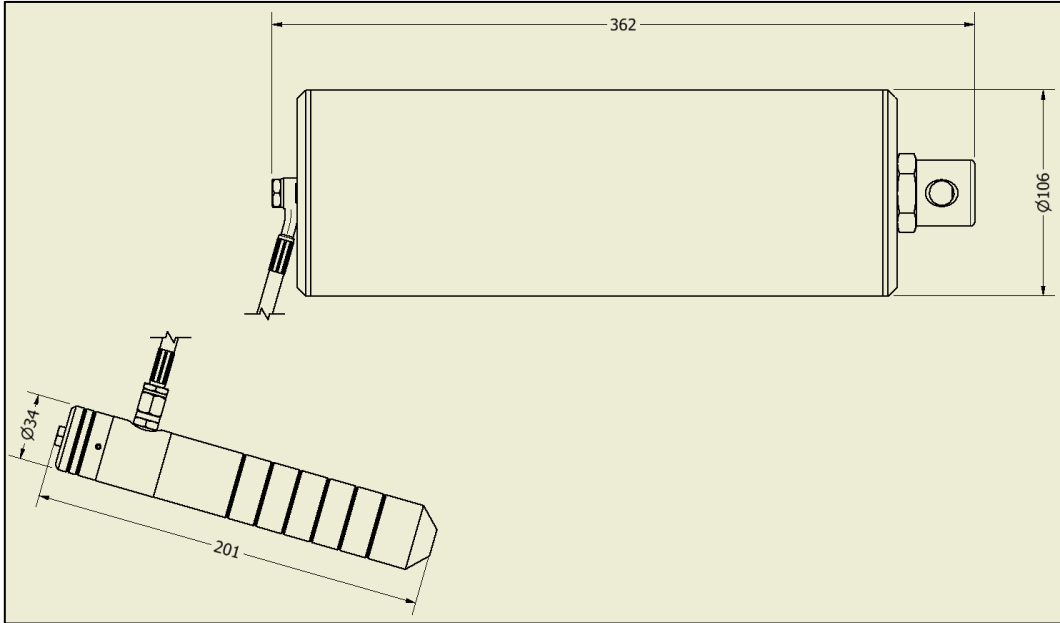
Cylinder Drawings



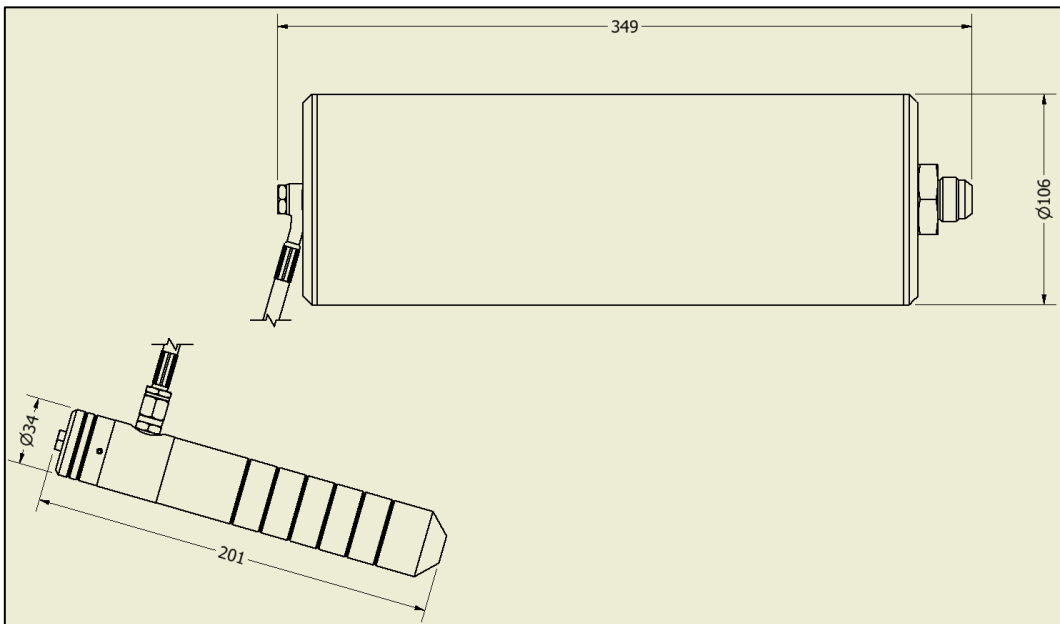
Engine Cylinder 104-400-001-B



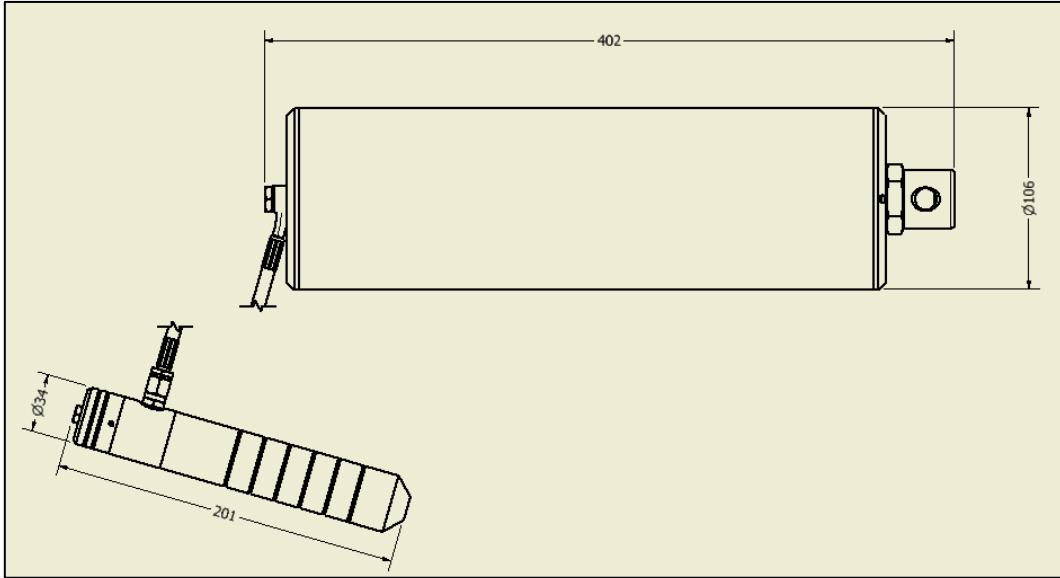
Engine Cylinder 104-400-002-B



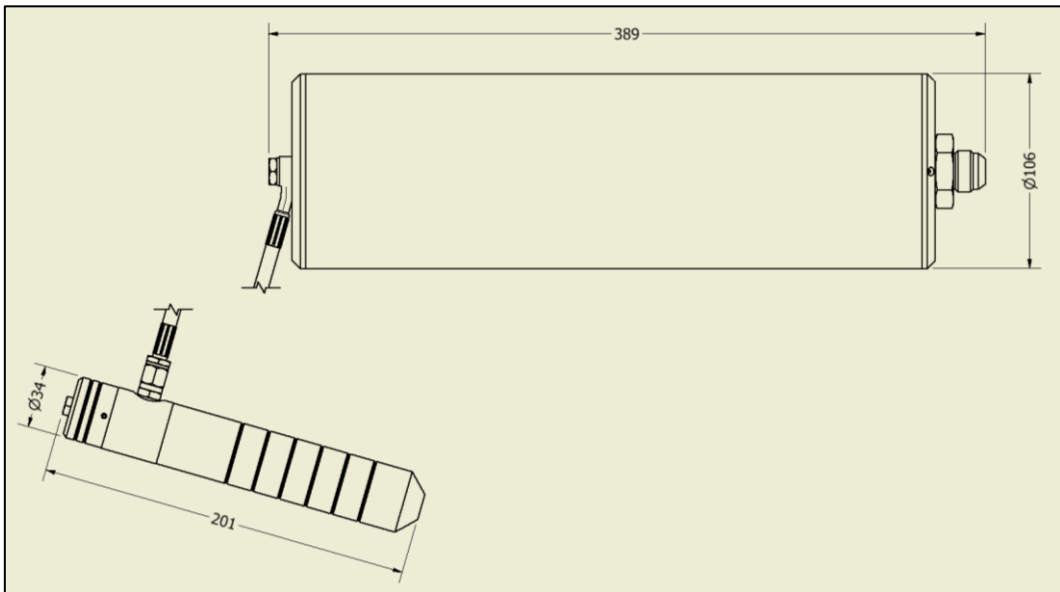
Cockpit Cylinder 104-400-003-B



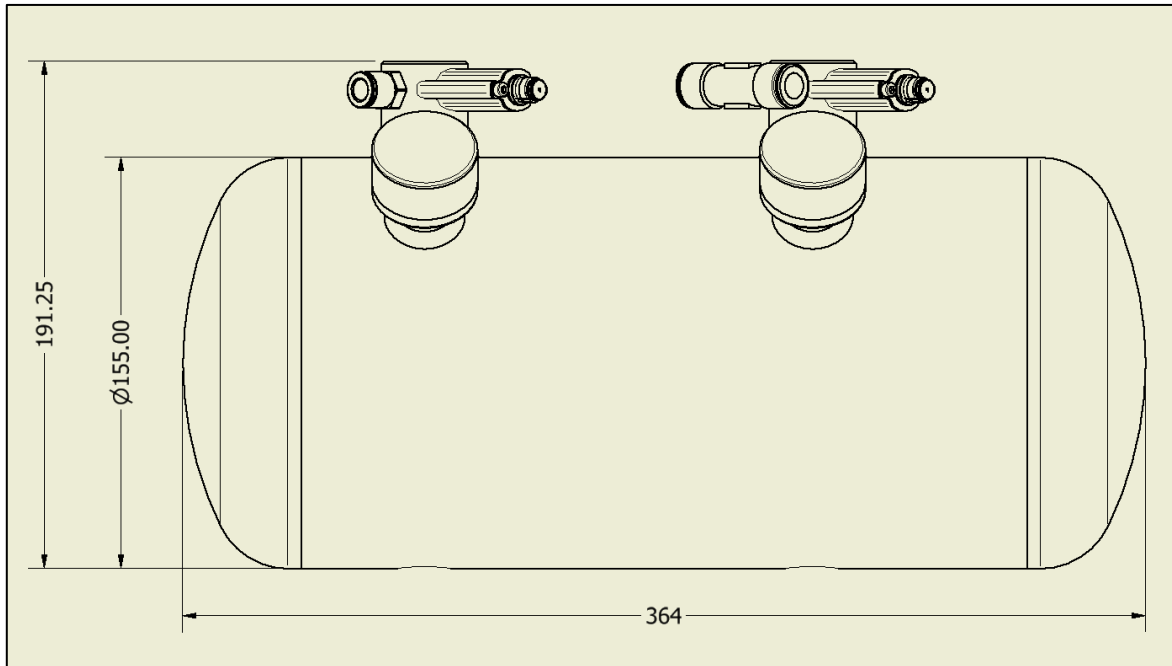
Cockpit Cylinder 104-400-004-B



Cockpit Cylinder 104-400-005-B



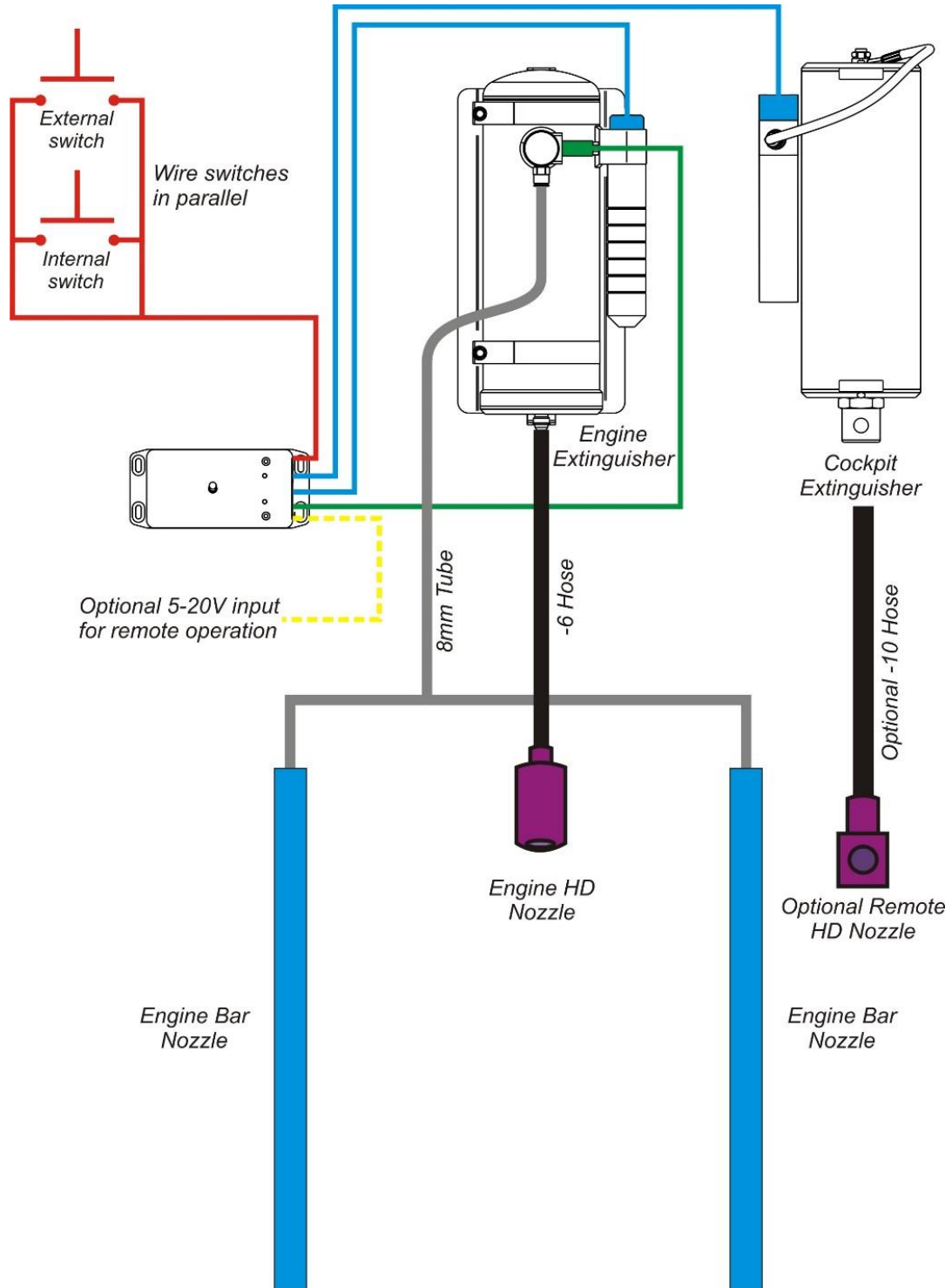
Cockpit Cylinder 104-400-006-B



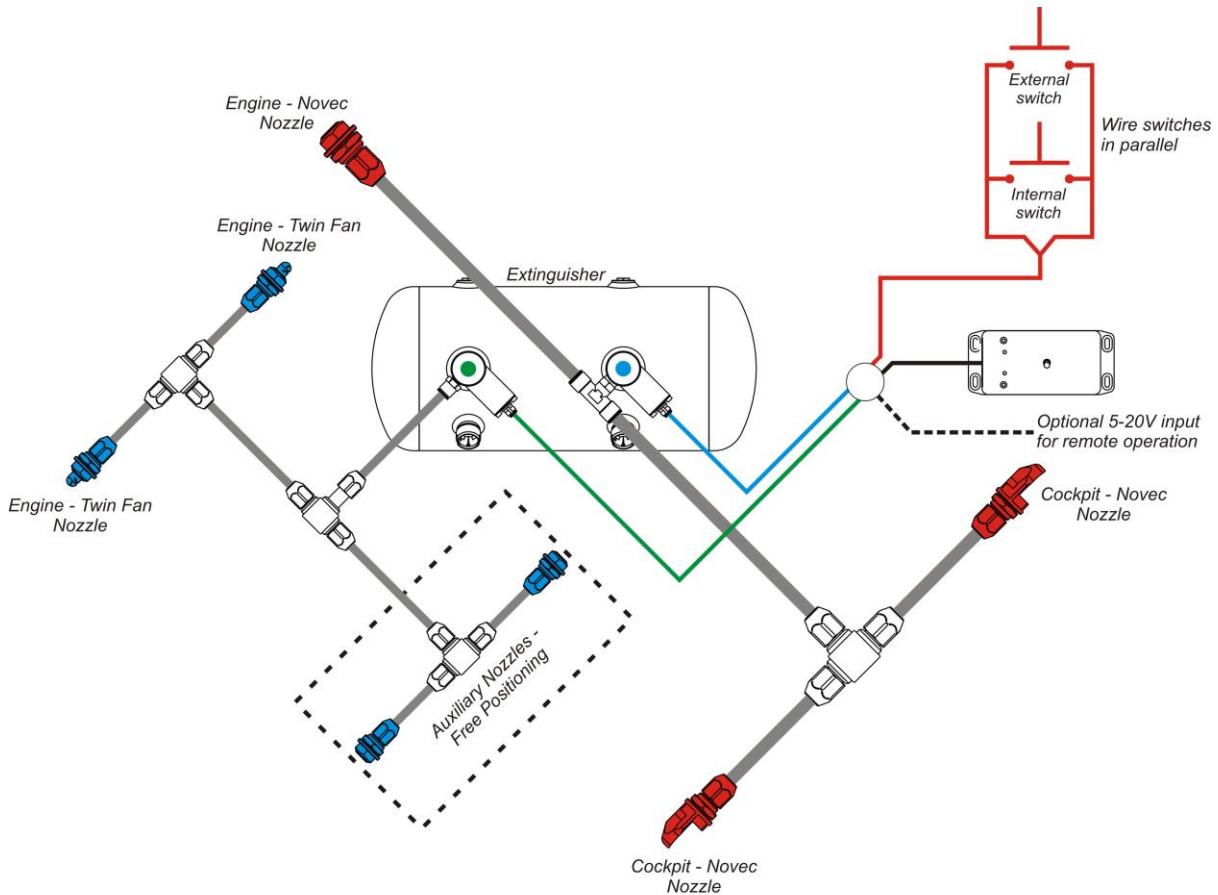
Engine & Cockpit Cylinder 105-001-006-B, 105-001-009-B

System Schematics

Systems 105-001-001, 105-001-002, 105-001-003, 105-001-004



System 105-001-006, 105-001-007



WIRING COLOURS

- 1 - **WHITE** = SWITCH
 - 2 - **BROWN** = SWITCH
 - 3 - **GREEN** = BLUE PLUG AND LEAD
 - 4 - **YELLOW** = BLUE PLUG AND LEAD
 - 5 - **GREY** = GREEN PLUG AND LEAD
 - 6 - **PINK** = GREEN PLUG AND LEAD
- (Blue and Green plug and leads have no polarity)
- 7 - **BLUE** = -VE REMOTE ACTIVATION
 - 8 - **RED** = +VE REMOTE ACTIVATION

Notes