

FOAM SUPPRESSION SYSTEMS PRODUCT CATALOGUE

VERSION 3.0 DATE ISSUED JULY 2018



Fire Suppression Systems have basically not changed in concept for many decades, however Muster® II now utilises leading edge technology to produce a 24/7 fully monitored fire suppression system.

MusterFire International introduces advanced system innovations in product & system design in the Muster^{II} Fire Suppression System range. It combines the latest technologies with a simple design and quick connect components. The in-built accuracy of the Muster^{II} Fire Suppression System is controlled using intelligent 24/7 monitoring features that ensure the discharge performance meets the initial design criteria, effectively suppressing fires in the most punishing environments where many machines operate while protecting your assets and personnel.

The Muster^{II} Fire Suppression range provides leading edge fire suppression technology.

24/7 FULL SYSTEM INTEGRITY MONITORING

- Fully monitored once every second
- 24/7 assurance of system integrity

MUSTER360 CLOUD BASED SOFTWARE

- Real-time collaboration
- All aspects of Risk Assessment, Design & Installation

SYSTEM DIAGNOSTIC CAPABILITIES

- Data logging all essential system events
- Apply software updates to systems as required

FLEXIBLE HEAT DETECTION CAPABILITIES

- Linear Heat Detection fire sensing technology
- Ensures immediate activation if a fire is detected

GLOBAL PRODUCT & TECHNICAL SUPPORT

- Fully trained network of authorised distributors
- Extensive training & technical backup available

Our commitment to innovation extends to every Muster^{II} Fire Suppression System. Your personnel & equipment are protected by one of the world's most sophisticated fire suppression systems.

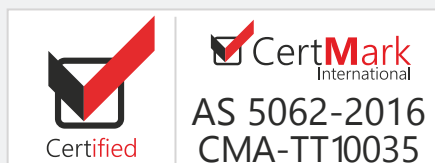
LEADING EDGE FIRE SUPPRESSION TECHNOLOGY

A full range of Safety Data Sheets are available
www.musterfire.com



AS5062-2016

Muster^{II} C6 Purity Aqueous Film Forming Foam, Fluorine Free Foam and Advanced agent systems are listed for compliance.



A high level of testing gives people the confidence in Muster^{II}

- Operation test of manual actuators and manual pull stations
- Mounting device test
- Flow distribution
- 500 cycle operation test
- Hydrostatic pressure test
- Salt spray corrosion test
- Pneumatic operation test
- Pressure relief test
- Ageing test
- Temperature cycling test
- 30-Day elevated temperature test
- Calibration test
- Vibration test
- Blow off test
- Shock test
- Light and water test
- Exposure to extinguishing agent test
- Air oven aging test
- Burst strength test
- Nameplate exposure test
- Agent Stability



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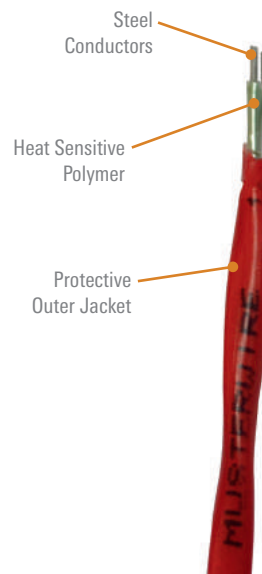
OVERVIEW

The Muster^{II} system has tri-system capability; MusterWire LHD, LOP electronic and LOP intrinsically safe. Each system uses automatic detection as their primary method of operation. Manual activation points are also incorporated into the build of fire suppression systems. Regardless of the type of actuation system you choose, the Muster^{II} system uses fast and reliable sensing to best protect your assets.

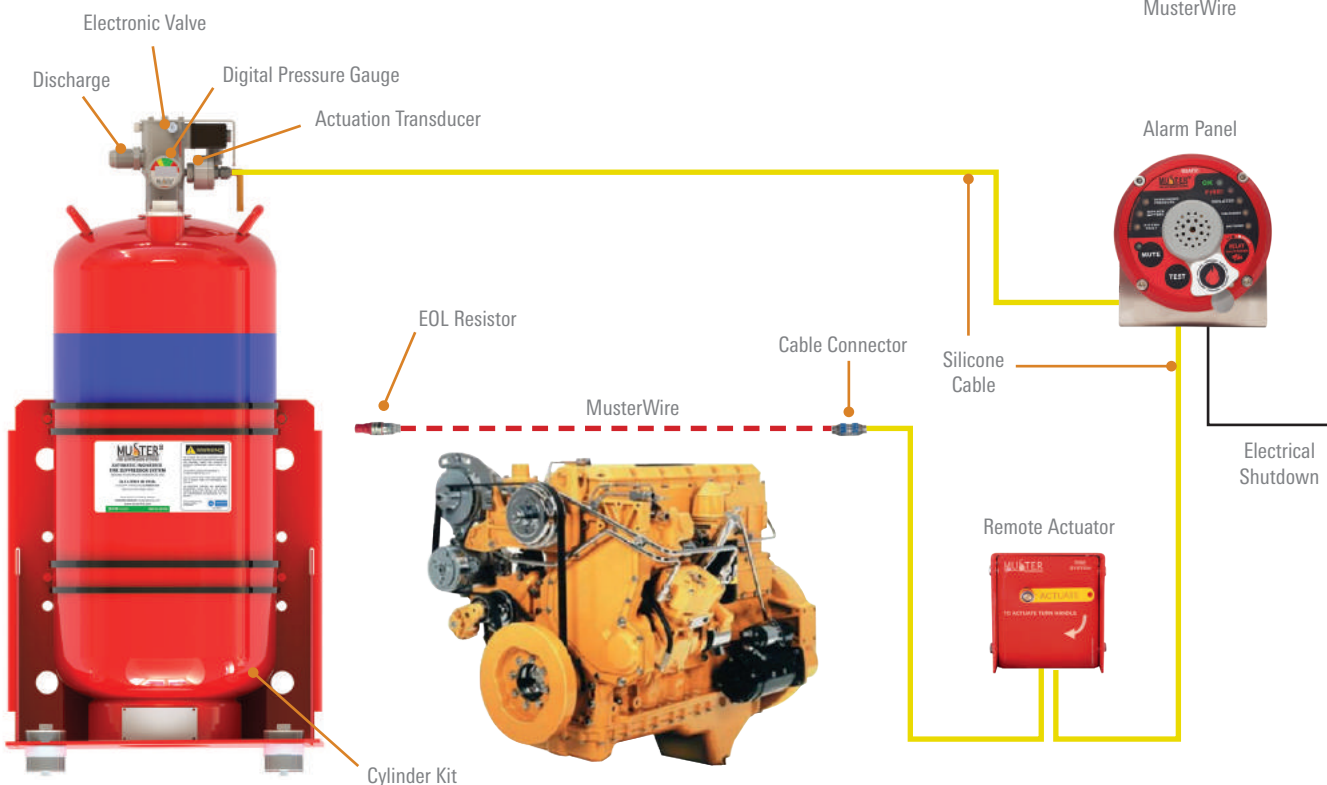
1. MusterWire Linear Heat Detection (LHD)

MusterWire uses Linear Heat Detection for fire sensing. The electrical wire can run throughout the engine bay, gear box, cable harness and other areas of high risk. It ensures a reliable fire suppression system by monitoring and reacting when exposed to high heat. MusterWire activates at 180°C, when the outer layer is subjected to heat it causes the twin steel conductor cores of the cable to touch, sending a signal directly back to the Alarm Panel. Detection is instant; giving the operator precious time to react.

- 24/7 sensing cylinder actuation monitoring
- 24/7 fire sensing monitoring
- Fully monitored by the Alarm Panel
- Reduces false discharge
- Fast signal reaction time
- Reliability
- Uses its own power source
- Very low 12 month periodic servicing cost
- Low cost to install due to easier installation process
- Electrical actuation circuit



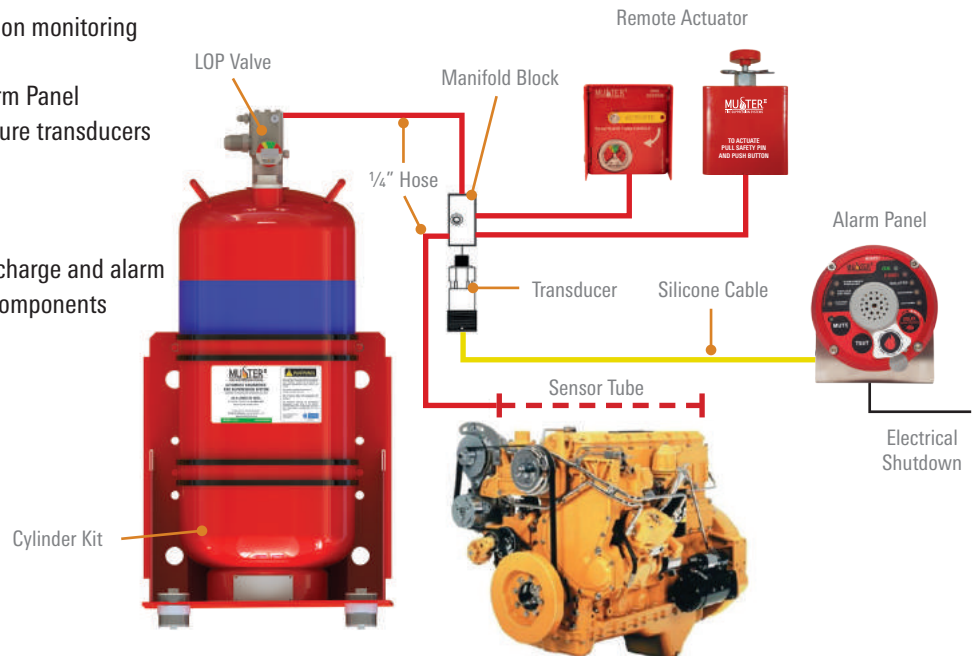
MusterWire



2.1. Loss of Pressure Detection (LOP)

Utilising a state of the art LOP pressure sensor transducer; the system updates the Alarm Panel with information every second. Pressurised tubing is strategically positioned above areas identified in the risk assessment. When the tubing is exposed to fire the rapid elevation in temperature causes the material to rupture. The resulting sudden release of pressure opens the actuation valve and releases the extinguishing solution. The pressure drop in the system will set off the fire alarm.

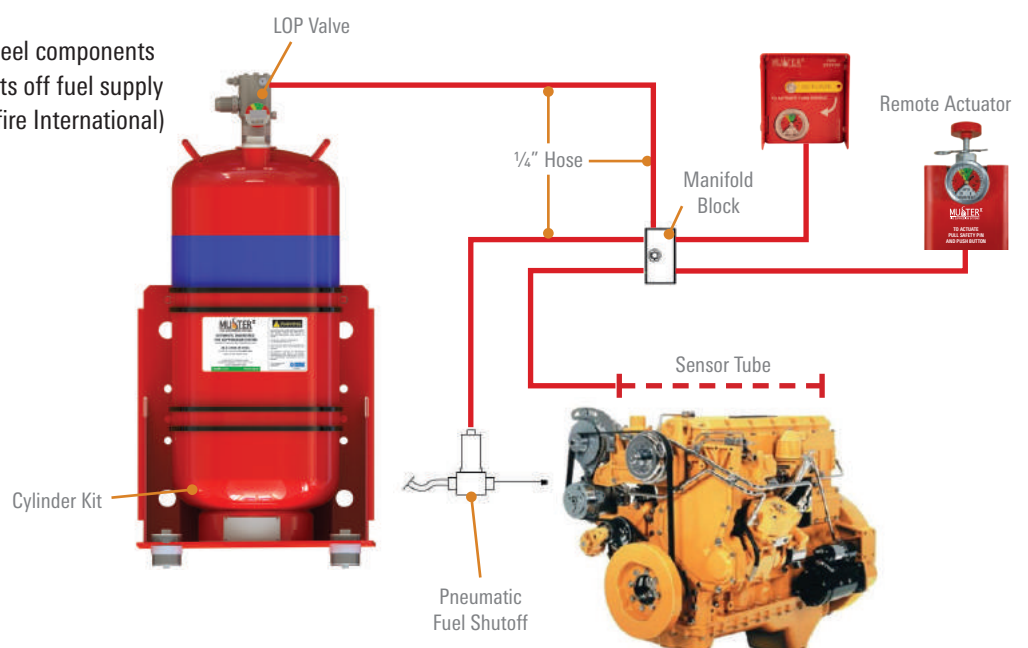
- 24/7 sensing cylinder actuation monitoring
- 24/7 fire sensing monitoring
- Is fully monitored by the Alarm Panel
- Utilises state of the art pressure transducers
- Reliability
- Fast manual actuation
- Uses its own power source
- Designed to reduce false discharge and alarm
- High quality stainless steel components



2.2. Loss of Pressure Detection – Intrinsically Safe

Muster[®] also offers an intrinsically safe alternative for use in a range of applications such as underground mining, petro chemical etc. Incorporating nylon tube for fire detection, all the actuation components are pneumatically operated. This includes a pneumatic valve which is used to cut the fuel supply. A manually operated remote actuator puts the system in the hands of the operator.

- Eliminates the use of electronics
- Fast manual activation
- High quality stainless steel components
- Pneumatic solenoid shuts off fuel supply (not in scope of Musterfire International)



ALARM PANEL

The Muster^{II} Alarm Panel is an advanced electronic control system for both the MusterWire Linear Heat Detection (LHD) and Loss of Pressure (LOP) Fire Suppression Systems. The Alarm Panel provides integrated monitoring, control and activation of the Muster^{II} fire systems and is used in conjunction with the various Muster^{II} transducers, actuators and detectors providing a flexible and complete solution to fire protection.

Alarm Panel

PART NO.	DESCRIPTION	COMMENTS
M2APK01	Alarm Panel kit	Alarm Panel kit consists of; Alarm Panel (with 1m cable and external data port), battery pack, 10m of 2 core silicone cable, Electronic and LOP actuation tags, 2mm stainless steel bracket with bolts, 10 cable splices, 4 heat shrinks and installation manual
M2AP01	Alarm Panel only	Includes Alarm Panel and battery only



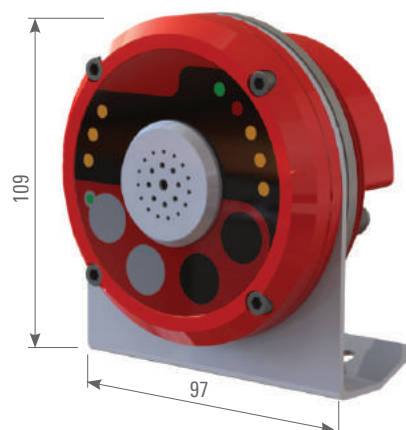
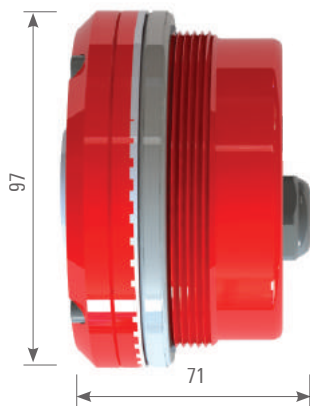
MusterWire LHD Configuration

General Specifications

Ingress Protection	IP66
Battery	15 V 1.5Ah Lithium Manganese Dioxide with internal fuse
Battery Life	Min. 2 years + 6 months warning
Operating Temperature	-40°C to + 70°C
Alarm Panel Dimensions	97mm (l) x 71mm (w) x 97mm (h)
Bracket Dimensions	97mm (l) x 66mm (w) x 109mm (h)
Cable	1.1m 10 core x 0.75mm
Buzzer	98dB @ 1m in free air
Outputs	3 x relay contacts @ 30 V 1 Amp max.
Detection Input	Max. 50m LHD wire with 4.7k EOL resistor
Activation Output	12 V 1 Amp
Fuse	5 internal fuses – LittleFuse Nano2A
Activation Response	Approx. 1 sec
Circuit Integrity	Pulse every 1 sec



Loss Of Pressure Configuration



Tamper Evident Seals & LOP Blanking Seals

There are two seal kits supplied with each Alarm Panel. An LOP blanking seal and a FIRE tamper seal.

The blanking seal and disk is to be used on an LOP installation only. In an LOP system the Alarm Panel cannot activate the system and so the manual FIRE! Button must be blanked off to avoid confusion. Place the disk over the FIRE! button and secure with the blanking seal.

In MusterWire LHD installations the FIRE! tamper seal is used to discourage tampering with the manual activation button. Place the metal toggle over the FIRE button and secure with the FIRE tamper seal. Any attempt to remove the seal causes it to de-laminate as evidence that it has been tampered with. In high traffic areas insert toggle facing downwards to avoid it being accidentally dislodged.

PART NO.	DESCRIPTION	COMMENTS
M2TA01	Actuation tag with label kit	LHD Configuration
M2AT01-L	Actuation tag label	LHD configuration
M2AT02	Actuation tag with label kit	LOP configuration



Battery and Fuse Pack

Observe the INSTALL BY date printed on the battery as indicated below.

PART NO.	DESCRIPTION	COMMENTS
M2FP01	Alarm Panel Fuse Pack	2Amp x 10 units
M2BP01	Alarm Panel Battery - Single	Long life non rechargeable lithium manganese



Fuse Pack M2FP01



Battery Pack - M2BP01



IMPORTANT

- Dispose of used batteries in an environmentally responsible manner or preferably return to your dealer for correct disposal.

Muster^{II} Diagnostic Module

The Muster^{II} Diagnostic Module (M2DM01) features an easy to read LCD screen and simple to follow navigation. It will allow for fast and accurate monitoring of your Muster^{II} Fire Suppression System.

Program features;

- Assessment of system Pressure and Battery status
- Show detailed information on system faults
- Update the Alarm Panel software
- Program special functions to the Alarm Panel
- Change settings without disconnection from the system
- Download history and past events
- Reset and Isolate the Alarm Panel



General Specifications

Size	45mm (w) x 85mm (h)
Power	Internal rechargeable battery
Screen	35mm x 25mm, backlit
Cable length	1m
Connector	3 pin plug
Charger adaptor	Female Mirco USB



Diagnostic Module M2DM01

PART NO.	DESCRIPTION	COMMENTS
M2DM01	Alarm Panel Diagnostic Module	Includes connections to the Alarm Panel and PC
M2DEC01	Diagnostic Module extension cable	Used when the Alarm Panel is mounted in dash



Extension Cable M2DEC01



Diagnostic Module connected to Alarm Panel

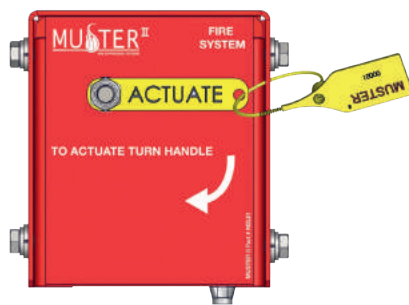
REMOTE ACTUATORS

The Muster^{II} Remote Actuator is an advanced activation feature of the Muster^{II} Fire Fire Suppression Systems. When used in conjunction with the various Muster^{II} transducers, control systems and detectors, it provides a flexible and complete solution to fire protection.

Manual actuation is a process that puts the power into the hands of the operator. It is important for the operator to know where the manual activation panel is and how to use it. The fast actuation design gives the operator and machine the best chance of a fast response and the best chances for protection. There are 2 types of remote actuators available in the Muster^{II} range; the lever- handle type and the push-button type. Both types have LHD and LOP variants.

General Specifications

PART NO.	DESCRIPTION	DIMENSIONS	WEIGHT
M2RA31	LHD Lever Remote Actuator	120mm (l) x 100mm(w) x 120mm (h)	Approx. 1.6kg
M2RA31PB	LHD Push Button Remote Actuator	110mm (l) x 65mm(w) x 150mm (h)	Approx. 1.6kg
M2RA32	LOP Lever Remote Actuator	120mm (l) x 95mm(w) x 120mm (h)	Approx. 1.9kg
M2RA32PB	LOP Push Button Remote Actuator	110mm (l) x 70mm(w) x 150mm (h)	Approx. 1.9kg



Muster^{II} LHD Lever Remote Actuator - M2RA31



Muster^{II} LHD Push Button Remote Actuator - M2RA31PB



Muster^{II} LOP Lever Remote Actuator - M2RA32



Muster^{II} LOP Push Button Remote Actuator - M2RA32PB

REMOTE ACTUATOR SERVICE COMPONENTS

PART NO.	DESCRIPTION	COMMENTS
M2ST01	Remote Actuator Security Tie	Used with actuators
M2L31	Lever Actuator Replacement label	Suits both Turn Handle Type remote actuators
M2L31PB	Button Actuator Replacement label	Suits both Push Button Type remote actuators
M2PBK01	Actuator Replacement Button with decal	Suits both Push Button Type remote actuators
M2RA32PB-RPIN	R-Pin – Button Remote Actuator	Suits both Push Button Type remote actuators
M2RA31PBSHR	Push Button Switch Housing Replacement kit	Suits both Push Button Type remote actuators including the O-ring kit
M20KRA32PB	Button Actuator O-ring Kit	Suitable for LOP Push Button Actuators



Push Button Switch Housing Replacement kit - M2RA31PBSHR



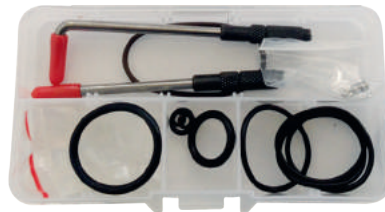
Security Tie - M2ST01



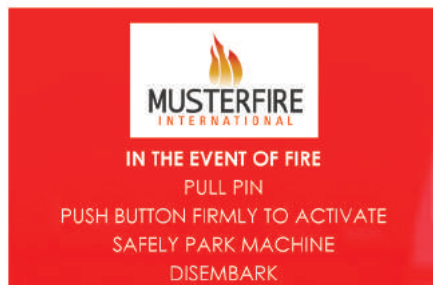
R-pin - M2RA32PB-RPIN



Replacement knob - M2PBK01



Button Actuator O-ring Kit
M20KRA32PB



Replacement Label - M3L31PB



Lever Actuator replacement Label
M2L31

AUTOMATIC SENSING AND CONNECTION COMPONENTS

MusterWire

MusterWire is an electronic linear heat detection (LHD) system which actuates at 180°C. MusterWire has a high performance fluoro polymer jacket which gives it superior protection from abrasion, chemical permeation, weather and direct sunlight. The internal design of the wire has two conductive strands which are separated by a heat sensitive polymer. When the jacket is exposed to temperatures of 180°C the polymer melts, the conductive strands arc and send a signal to the Alarm Panel (M2AP01) which in turn signals the Electronic Valve (M2VA31) to activate the system.

PART NO.	DESCRIPTION	COMMENTS
M2FW01	MusterWire kit 10m	Includes end of line resistor 2 cable splices, heat shrink and 10m of MusterWire
M2FW02	MusterWire kit 20m	Includes end of line resistor 2 cable splices, heat shrink and 20m of MusterWire
M2FW05	MusterWire kit 5m	Includes end of line resistor 2 cable splices, heat shrink and 5m of MusterWire
M2FWPM	MusterWire Per Meter	No accessories included



MusterWire - M2FW01

LHD End of Line Resistor Kits

The MusterWire End of Line (EOL) Resistor Plug must be used with the MusterWire circuit detection system. Its purpose is to complete the MusterWire circuit and must be placed at the end of the electronic actuation circuit.

PART NO.	DESCRIPTION	COMMENTS
M2RP01	EOL Resistor Plug Kit	Supplied as standard in Musterwire kits & sold individually
M2DPRP01	EOL Resistor Deutsch Plug Kit	Supplied individually



Resistor Plug - M2RP01



Deutsch Resistor Plug - M2DPR01

Silicone Cable Kits

The Muster^{II} electronic signals travel through flexible Silicone cable. The cable will carry the signal in the electronic system so the use of MusterWire can be limited to the high risk or fire detection areas. Muster^{II} installations have been made simpler by having various kits available for connecting the actuation circuits.

PART NO.	DESCRIPTION	COMMENTS
M2SC101	Silicone cable Kit- 10m	Includes MusterSplice connectors and 200mm heat shrink
M2SC102	Silicone cable Kit - 20m	Includes MusterSplice connectors and 200mm heat shrink



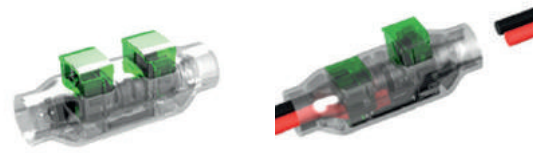
Silicone Cable - M2SC101

Note: A 10m length of silicone cable is already supplied in the Panel kit and electronic actuator kit. If you need extra these Muster^{II} Silicone cable kits comes in 10m and 20m, complete with MusterSplice connectors and heat shrink.

Cable Connections

MusterSplice Connectors

The MusterSplice has been designed to cope with -40°C to + 85°C in continuous conditions. MusterSplice connectors are UV stabilised and will fit within a 16mm diameter hole or tube. The only application tool needed for installation is a pair of standard pliers and a heat gun.



Bare MusterSplice connector

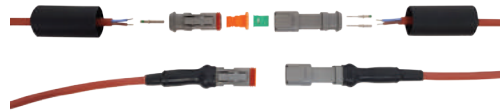
Closed MusterSplice connector with wires in position

Deutsch Connectors & Grommets

The Deutsch Plug sets used in Muster^{II} systems are commonly used in industry to enable effective cable connectivity. They are simple to connect and disconnect when required and provide superior resistance to ingress of dust and moisture. These plugs are rated to IP68 with an operating temperature range of -40°C to +85°C. The use of Deutsch Plug connectors require specialised crimp pliers to secure pins before assembly into the plug housing.



MusterSplice Connector kit - M2CP01



Deutsch Connector Plug Set - M2DP01

PART NO.	DESCRIPTION	COMMENTS
M2CP01	MusterSplice connector kit	Includes connector plugs & 200mm of heat shrink
M2DP01	Deutsch connector kit	Includes housings, wedges, pins & sockets, 2 x 16mm heat shrink & 2 x 12mm heat shrink
M2G01	MusterWire Silicone Grommet 2mm	Holds MusterWire use with M2PC02, p-clamps
M2G02	LOP Tube Silicone Grommet 5mm	Holds LOP Sensor tube use with M2PC02, p-clamps



Grommet red silicone 2mm (M2G01) and 5mm (M2G02)

LOP Sensing Components

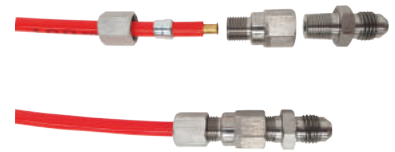
LOP Sensor Tube

The Sensor tube is used in the LOP System and the LOP Intrinsically Safe system. Pressurised air is sealed inside the nylon sensor tube. This tube is strategically placed around the high risk areas on the equipment. Pressurised air is then sealed inside the sensor tube. If a fire occurs the tube weakens due to the heat and the internal pressure of the compressed gas ruptures the tube. This then causes the gas to escape and send a reduction in pressure signal to the Alarm Panel (M2AP01, if not intrinsically safe) and the LOP Cylinder valve activating the system alarm and discharge.



LOP Sensor Tube - M2STK01

PART NO.	DESCRIPTION	COMMENTS
M2STK01	LOP sensor tube kit 4m	Includes terminal S/S fittings, nipples, plugs and 4m of sensor tube
M2STK02	LOP sensor tube kit 8m	Includes terminal S/S fittings, nipples, plugs and 8m of sensor tube
M2STF01	LOP sensor tube fittings kit	Includes terminal S/S fittings, nipples and plugs only



LOP Sensor Tube Fittings Kit - M2STF01

Transducer Assembly for LOP Systems

Muster^{II} uses transducer technologies which are more reliable and accurate than other traditional methods of pneumatic signaling. This allows for a superior level of monitoring of the pressure in the LOP system. There is one transducer required per system; it is fastened into the stainless steel manifold block and the wiring must be installed in accordance with the wiring diagram that is supplied with the product.

This circuit connects the Alarm Panel to the M2TA02 Pressure Transducer for LOP systems. This circuit is polarity sensitive. The Transducer is connected via its two-core silicon cable tail with blue and brown cores as provided to assist in maintaining correct polarity when connecting.



Transducer Assembly - M2TA02

PART NO.	DESCRIPTION	COMMENTS
M2TA02	LOP Transducer Kit	Monitors system pressure supplied with connector & heat shrink

CYLINDERS

There are two kinds of cylinders in Muster^{II} range:

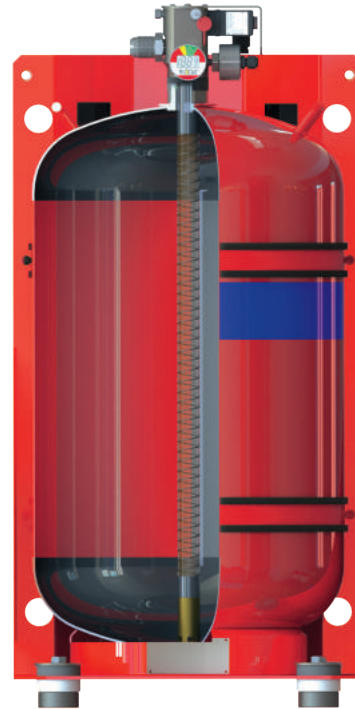
1. Traditional cylinder type which includes 22L, 38L, 66L, 110L capacities.
2. Slimline type which includes 15L and 23L capacities.

Traditional Cylinders

Stainless steel components have been used to ensure longevity and durability in harsh conditions, culminating in a high quality product with greater accuracy in performance.

Constructed to AS2470 the cylinders are made from 304 grade stainless steel including; the brackets the neck ring, relief valve and handles. The cylinders are protected by a UV stabilised powder coated finish.

- Cylinders are manufactured in stainless steel and externally powder coated
- Each cylinder incorporates a stainless steel filler plug and a safety relief valve
- Cylinder assemblies use flexible pick-up tubes to allow the cylinders to be mounted vertically or a 45° angle
- Robust welded stainless steel cylinder brackets have been designed to integrate with the cylinders sizes to minimise space usage
- The robust base plate has been designed for compactness and provides the smallest footprint possible
- Vibration eliminators are used to reduce machine vibration & impact passing to the cylinder
- Silicone liner on the mounting brackets to control vibration



Slimline Cylinder

- Constructed to AS2470, Slimline cylinder with mild steel brackets do not require vibration eliminators thanks to their lighter design characteristics.
- Slimline cylinder kit contains a specially designed pressure relief valve. This will be secured directly on the cylinder valve.
- All other features and components including the straps to secure the cylinder are same as the traditional type cylinder system with stainless steel components to ensure longevity and durability in harsh conditions.

Cylinder Kits

PART NO.	DESCRIPTION	STRAPS	BRACKET	COMMENTS
M2CK015SL	Slimline Cylinder Kit 15L	1 strap	Mild Steel	Includes 1 x cylinder, 1 x bracket, 1 x pick-up hose, 1 x cylinder label, 1 x safety relief valve, 1 x hydrostatic test certificate & 1 x cylinder filling manual
M2CK023SL	Slimline Cylinder Kit 23L	1 strap	Mild Steel	
M2CK022	Cylinder Kit 22L	1 strap	Stainless Steel	
M2CK038	Cylinder Kit 38L	2 strap	Stainless Steel	
M2CK066	Cylinder Kit 66L	2 strap	Stainless Steel	
M2CK110	Cylinder Kit 110L	2 strap	Stainless Steel	

Cylinder Only

PART NO.	DESCRIPTION	CYL VOLUME	HEIGHT (MM)	DIAMETER (MM)
M2C015SL	Slimline Cylinder	15L	524	216
M2C023SL	Slimline Cylinder	23L	744	216
M2C022	Traditional Cylinder	22L	489	290
M2C038	Traditional Cylinder	38L	750	290
M2C066	Traditional Cylinder	66L	760	380
M2C110	Traditional Cylinder	110L	1160	380

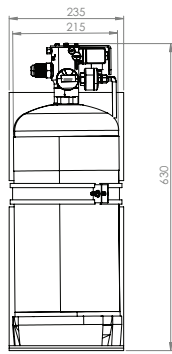


Typical Traditional Cylinder Kit

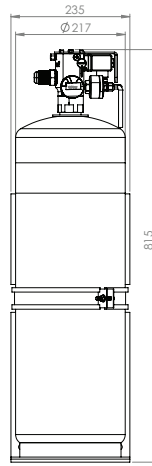


Typical Slimline Cylinder Kit

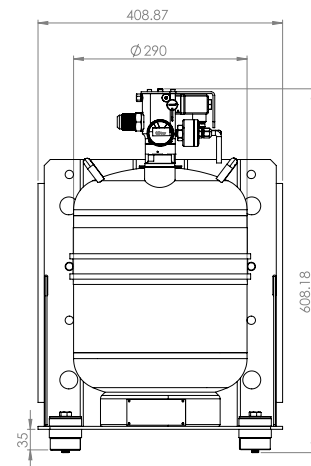
Cylinder Valve and Bracket Dimensions



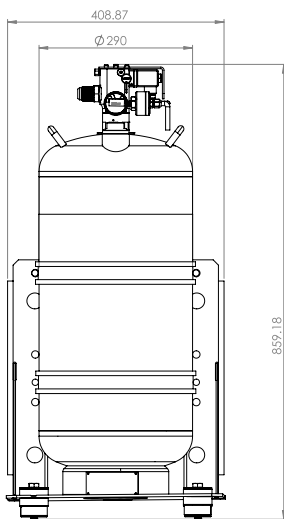
15L Cylinder



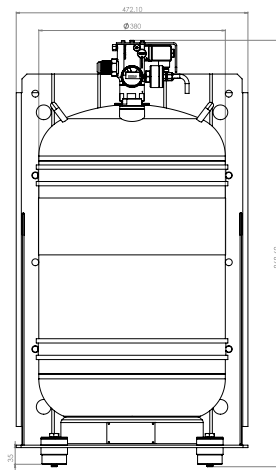
23L Cylinder



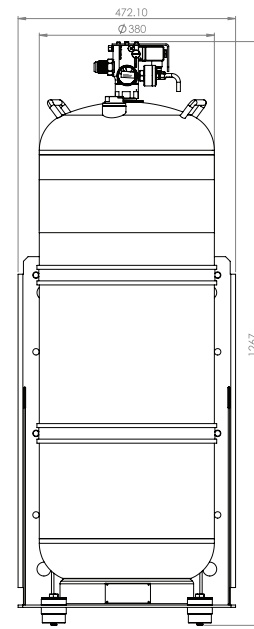
22L Cylinder



38L Cylinder



66L Cylinder



110L Cylinder

Cylinder Sizes

TOTAL VOLUME	FILL	C6 PURITY RATIO		F3 RATIO		WEIGHT (EMPTY/FULL)
		WATER	C6 PURITY AFF	WATER	F3 FOAM	
15L	12.0L	11.880L	0.120L	11.760L	0.240L	13kg/25kg
23L	18.0L	17.820L	0.180L	17.640L	0.360L	15kg/33kg
22L	17.6L	17.424L	0.176L	17.248L	0.352L	22kg/39.6kg
38L	30.4L	30.096L	0.304L	29.792L	0.608L	27kg/57.4kg
66L	52.8L	52.272L	0.528L	51.744L	1.056L	42kg/94.8kg
110L	88.0L	87.120L	0.880L	86.240L	1.760L	52kg/140kg

CYLINDER COMPONENTS

Cylinder Brackets

There are three sizes in the Muster™ cylinder brackets. The MusterII cylinder brackets are constructed from mild steel for Slimline cylinders and stainless steel for Traditional cylinders.

PART NO.	DESCRIPTION	COMMENTS
M2CB01523SL	Bracket for Slimline 15L and 23L	Mild Steel bracket includes Stainless Steel straps
M2CB02238	Bracket for 22L and 38L cylinder	Stainless Steel bracket - DOES NOT INCLUDE STRAPS
M2CB66110	Bracket for 66L and 110L cylinder	Stainless Steel bracket - DOES NOT INCLUDE STRAPS



Cylinder Bracket

Vibration Eliminator Mounting

The Vibration Eliminator is designed to minimise the vibration impact on the bracket and cylinder assembly. It is important for the white coloured bush to be installed beneath or behind the cylinder bracket and the black coloured ring placed on the inside of the cylinder bracket. At least four Vibration Eliminators are required for every cylinder though machines subjected to heavy vibration and impact may require up to six or eight per bracket assembly.

PART NO.	DESCRIPTION	COMMENTS
M2VE34	Cylinder Vibration eliminator 34mm	High density rubber and nylon Comes with: 1 x Nylon base 1 x Rubber ring 1 x M12 x 60mm bolt 1 x M12 nut 1 x 52mm OD Flat Washer 1 x 35mm OD Flat washer 1 x M12 Spring washer
M2VM50	Vibration eliminator weld mount 50mm	Mild steel



Vibration Eliminator - M2VE34



Weld Mount - M2VM50

Note: Slimline cylinders (15L and 23L capacity) are lightweight in construction and do not require vibration eliminators.

Cylinder Straps

The cylinder straps offer stability and support to the cylinder. The straps are made from durable stainless steel (Traditional Cylinders) or high quality mild steel (Slimline Cylinders) and are finished in a red powder coat. In addition the straps are designed with a vibration eliminating rubber backing. The rubber backing holds the cylinder tight between the bracket and straps, assisting in the vibration control and wear resistance on the cylinder. The straps must be in good working order, if the rubber starts to deteriorate the straps must be replaced.

PART NO.	DESCRIPTION	COMMENTS
M2CS01	Strap for 22L and 38L Cylinder bracket	Strap includes protective rubber & nuts (Single)
M2CS02	Strap for 66L and 110L Cylinder bracket	Strap includes protective rubber & nuts (Single)
M2CS03SL	Strap for 15L and 23L Cylinder bracket	Strap includes 2 pieces with protective rubber & bolt set



Cylinder Straps

Safety Relief Valve

PART NO.	DESCRIPTION	COMMENTS
M2SRVP	Safety relief Plug with label	Used in traditional cylinder
M2SRVC	Safety Relief Plug Label	Lexan sticker (M2SRVP)
M2PRV01	Safety Relief Plug for Cylinder Valve	Used in Slimline cylinder
M2NC01	Safety Relief Dust Cover	Same as MusterCap



Safety Relief Valve - M2SRVP



Lexan Sticker - M2SRVC



Safety Relief Valve 1/8" BSP - M2PRV01



MusterCap - M2NC01

Pick Up Tubes

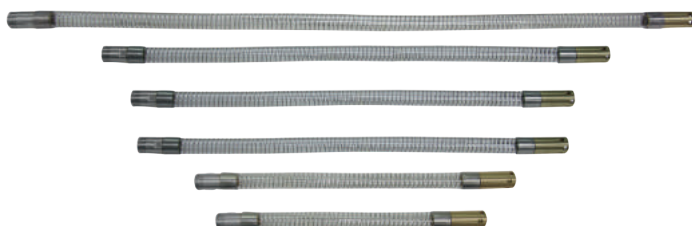
PART NO.	DESCRIPTION	THREAD/TUBE DIAMETER (MM)	TOTAL LENGTH (MM)
M2PU015SL	Pick up hose 15L Slimline Cylinder	M27/27.5mm	524mm
M2PU023SL	Pick up hose 23L Slimline Cylinder	M27/27.5mm	744mm
M2PU022	Pick up hose 22L Traditional Cylinder	M27/27.5mm	418mm
M2PU038	Pick up hose 38L Traditional Cylinder	M27/27.5mm	664mm
M2PU066	Pick up hose 66L Traditional Cylinder	M27/27.5mm	686mm
M2PU110	Pick up hose 110L Traditional Cylinder	M27/27.5mm	1093mm



Thread End



Fluid Inlet End



Pick Up Hoses

CYLINDER VALVES

Electronic Valve (LHD)

The Muster^{II} Electronic Cylinder Valve (also known as the LHD valve) is an advanced activation feature of the Muster^{II} Fire Suppression System. When used in conjunction with Muster^{II} pressure transducers, control systems and detectors, it provides a flexible and complete solution to fire protection.

Loss of Pressure Valve (LOP)

The Muster^{II} Loss of Pressure Valve is simplistic in design. The LOP valve offers flexible pneumatically activated system configuration options that may be required for specific applications. Also able to incorporate Muster^{II} pressure transducers & alarm panel monitoring.

There are 3 versions of Electronic (LHD) valve & 2 versions of Loss of Pressure (LOP) valve to suit various operating conditions.

Technical Specifications

IP Rating	IP66	
Discharge Nipple	1 JIC to M22 x 1.5	
Operating Pressure	W/P = 13.7 bar, Pmax = 30 bar	
Operating Temperature	-40°C to + 80°C	
Internal Pressure Transducer	Pmax 30 bar	
Dimensions	165mm (w) x 125mm (h)	(LHD)
	105mm (w) x 125mm (h)	(LOP)
Weight	2.5kg	(LHD)
	1.8kg	(LOP)
Housing Material	304 stainless steel	
Solenoid NC	Normally closed	
Voltage	12 VDC	
Current	3 Amp	
Exhaust Principle	Open vent with cap	

Gauge Type

PART NO.	DESCRIPTION
M2VA31	LHD Valve with Digital Gauge
M2VA31M	LHD Valve with Mechanical Gauge
M2VA32	LOP Valve with Mechanical Gauge
M2VA33	LHD Valve with Low Temp Mechanical Gauge
M2VA34	LOP Valve with Low Temp Mechanical Gauge



Electronic Valve (LHD) – M2VA31



Loss of Pressure Valve (LOP) – M2VA32

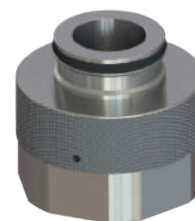
Cylinder Adapter Nuts

A unique aspect of the Muster^{II} system is its adaptability to cylinders of various manufacturer thanks to the interchangeability of the Cylinder Adaptor Nut. While the Muster^{II} valves come with an adaptor nut to suit the Muster^{II} cylinder, there are a range of adaptors that match our valve to a variety of cylinder necks and associated pick-up hoses. This allows for upgrading of many existing systems to the higher performing Muster^{II} system monitoring, detection and activation features for better protection of any machine.

The Adaptor Nuts are secured by 4 grub screws (2.5mm Allen key) and seals into the valve body via a Buna N O-ring.

Suits All LHD & LOP Valves (M2VA31, M2VA32, M2VA31M, M2VA33 and M2VA34)

PART NO.	DESCRIPTION	COMMENTS
M2CA31	Muster ^{II} Cylinder Adaptor	Suitable for Muster ^{II} Cylinder
M2CA32	Wormald Cylinder Adaptor	Suitable for Wormald Cylinder
M2CA33	FSI Cylinder Adaptor	Suitable for FSI Cylinder
M2CA34	ETI Cylinder Adaptor	Suitable for ETI 38mm Cylinder
M2CA35	ETI Cylinder Adaptor	Suitable for ETI 32mm Cylinder
M2CA36	Chubb/Qtec/BFI Cylinder Adaptor	Suitable for Chubb/Qtec/BFI (Stryker) Cylinder
M2CA37	Sandvik Cylinder Adaptor	Suitable for Sandvik Cylinder



Cylinder Adapter

Note: Careful attention must be observed when tightening grub screws into all adaptor types – sequence 1,3,2,4 nipped then 1,3,2,4 firm.

Cylinder Valve Nipples and Plugs

PART NO.	DESCRIPTION	COMMENTS
M2NP0207	Nipple 1/8" BSPM x 7/16" JICM	Stainless Steel
M2NP0407	Nipple 1/8" BSPM x 7/16" JICM	Stainless Steel
M2PL02	Plug 1/8" BSPM	Stainless Steel
M2PL04	Plug 1/4" BSPM	Stainless Steel
M2VN31	Valve Discharge Nipple 22mm to 3/4" JIC	Stainless Steel
M2VN32	Valve Discharge Nipple 22mm to 1 1/16"	Stainless Steel



Nipple



Plug

Cylinder Valve Accessories

PART NO.	DESCRIPTION	COMMENTS
M2SVR01	LHD Solenoid Valve	Used with LHD valve and 8 port LHD manifold
M2TA31	LHD Pressure Transducer	Used with LHD valve and 8 port LHD manifold
M2SDR01	Schrader Valve	Used in LHD & LOP valves and 8 port LHD manifold
M2SKVA3X	Slide Valve Kit	Used in LHD & LOP valves (Piston, Insert & O Rings)
M2GS30	Grub Screws for Cylinder Valve Adaptors	Used in LHD & LOP cylinder valve adaptors



Slide Valve Kit
M2SKVA3X



Schrader Valve
M2SDR01

FIRE SUPPRESSING SOLUTIONS









The Muster^{II} Fire Suppression System utilises solution-based fire suppressing concentrates suitable for all mobile and stationary equipment including mining haul trucks, draglines, dozers, shovels, excavators, loaders, harvesters, generators, road transport vehicles and industrial equipment.

There are three types of Muster^{II} Fire Suppressing concentrates available, Advanced Agent, C6 Purity Aqueous Film Forming Foam, Fluorine Free Foam and Advanced Agent.

- Solution forms a film on top of the fuel surface creating a vapour seal, denying oxygen to the fuel surface
- Solution provides a cooling effect and aids in preventing re-ignition
- Solution is able to flow under gravity to follow and cover fuel spills
- Longer discharge times are possible using solution
- Solution is not hazardous to personnel and unlike powder does not pose a respiratory hazard
- Solution is highly effective in suppressing Class A and B fires while being Environmentally friendly biodegradable
- Special Advanced Agent solution designed to operate in extreme cold temperatures, down to -40°C
- Solution is packed in non-spill containers and labelled very clearly as to the contents, cylinder size applicable and mixing instruction.

C6 Purity 1% AFFF Concentrate

Muster^{II} C6 Purity 1% AFFF Concentrate requires mixing ratio of 1 part concentrate with 99 parts water (1:99). This solution offers exceptional fire-fighting capability while being less harmful to the environment than other comparable AFFF concentrates.









PART NO.	DESCRIPTION	SIZE	COMMENTS
M2SFC015	C6 Purity 1% AFFF - 15L Cylinder	120ml	0.120L in a 250ml bottle 
M2SFC022	C6 Purity 1% AFFF – 22L Cylinder	176ml	0.176L in a 250ml bottle 
M2SFC023	C6 Purity 1% AFFF – 23L Cylinder	180ml	0.180L in a 250ml bottle 
M2SFC038	C6 Purity 1% AFFF – 38L Cylinder	304ml	0.304L in a 500ml bottle 
M2SFC066	C6 Purity 1% AFFF – 66L Cylinder	528ml	0.528L in a 1000ml bottle 
M2SFC110	C6 Purity 1% AFFF – 110L Cylinder	880ml	0.880L in a 1000ml bottle 
M2SFB005	C6 Purity 1% AFFF – 5L Bulk	5L	5L Container 
M2SFB020	C6 Purity 1% AFFF – 20L Bulk	20L	20L Container 



C6 Purity 1% AFFF concentrate safety data sheets are available at www.musterfire.com

Fluorine Free Foam Concentrate

Muster[®] Fluorine Free Foam (F3) 1% Concentrate requires mixing of 2 parts concentrate with 98 parts water (2:98). This solution contains no Fluorine's that are considered bio-persistent and therefore not harmful to the environment.

PART NO.	DESCRIPTION	SIZE	COMMENTS
M2SFC015FF	Fluorine Free Foam - 15L Cylinder	120ml	0.120L in a 250ml bottle 
M2SFC022FF	Fluorine Free Foam - 22L Cylinder	176ml	0.176L in a 250ml bottle 
M2SFC023FF	Fluorine Free Foam - 23L Cylinder	180ml	0.180L in a 250ml bottle 
M2SFC038FF	Fluorine Free Foam - 38L Cylinder	304ml	0.304L in a 500ml bottle 
M2SFC066FF	Fluorine Free Foam – 66L Cylinder	528ml	0.528L in a 1000ml bottle 
M2SFC110FF	Fluorine Free Foam – 110L Cylinder	880ml	0.880L in a 1000ml bottle 
M2SFC005FF	Fluorine Free Foam – 5L Bulk	5L	5L Container 
M2SFC020FF	Fluorine Free Foam – 20L Bulk	20L	20L Container 



F3 Foam concentrate safety data sheets are available at www.musterfire.com

Advanced Agent 100%

Muster[®] Advanced Agent is a 100% concentrate and must not be mixed with water. Advanced Agent can be used in sub-zero temperatures up to minus -40°C.

PART NO.	DESCRIPTION	SIZE	COMMENTS
M2AFB005	Advanced Agent 100% 5L Bulk	5L	Do not mix with water
M2AFB020	Advanced Agent 100% 20L Bulk	20L	Do not mix with water

Note: Advanced Agent can react detrimentally with zinc plated steel components so any contact with plated items should be avoided but if not possible rinse off with clean fresh water as soon as possible to avoid damage.



Safety Data Sheets are available at www.musterfire.com

ACTUATION LINE AND DISCHARGE NETWORK COMPONENTS

Manifold Block

There are 2 types of manifold blocks within the Muster^{II} range, one for LHD applications and one for LOP applications.

The LHD Transducer Solenoid Manifold (M2TSM01) is specially design for use in LHD systems where 4 or more cylinders are to be activated together and therefore replaces the primary LHD valve. The LHD manifold has eight 1/8" BSP female ports to receive JIC nipples required or 1/8" BSPM plugs when not required. The manifold is pre-assembled to include solenoid & transducer, schrader valve plugs and a protective plate shielding all components. This manifold is to be centrally mounted to cylinders so as to provide even venting for best activation of the system.

The LOP manifold block is used as part of LOP systems to connect the actuation circuit. The block is made from stainless steel and uses a mild steel mounting plate. This manifold has two 1/8" BSP female ports & four 1/4" BSP female ports to receive various JIC nipples and plugs as required. The manifold block can be mounted without the use of the welding plate. This allows the installer to drill and tap straight into the machine or drill through sheet surfaces to utilise nut and bolt to secure.

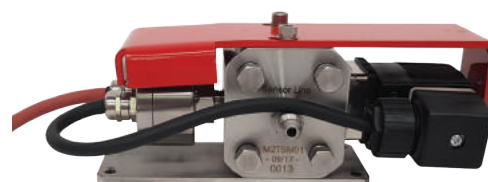
PART NO.	DESCRIPTION	COMMENTS
M2MB01	LOP 6 Port Manifold Block	Used for LOP systems
M2TSM01	LHD 8 Port Manifold Block	Used for LHD systems with 4 or more cylinders



LOP Manifold Block - M2MB01



Image shows how the Transducer Assembly (M2TA02) screws into the Manifold block. This design will convert the nitrogen pressure signal to an electronic signal.



LHD Manifold block 8 port-M2TSM01

Hose & Hose Wrap

The Muster^{II} hoses are smooth covered, with a natural and a synthetic braided rubber which is high tensile, abrasion, ozone and weather resistant. Hoses are coloured Red for ease of identification and are temperature rated to -40°C to +100°C.

PART NO.	DESCRIPTION	MIN. BEND RADIUS	COMMENTS
M2SH01	Red Fire Hose 1/4" per metre	75mm	MSHA Approved
M2SH02	Red Fire Hose 1/2" per metre	130mm	MSHA Approved
M2SH03	Red Fire Hose 3/4" per metre	180mm	MSHA Approved
M2SW01	Red spiral wrap 1/4" per metre		Sold per meter
M2SW02	Red spiral wrap 1/2" per metre		Sold per meter
M2SW03	Red Spiral wrap 3/4" per metre		Sold per meter
M2FSC13	Flexible Split Conduit 13mm		Sold per meter



Spiral Wrap (Typical)



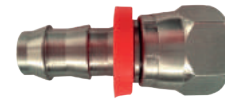
Hose (Typical)

Hose Tails

Muster^{II} Special 3/4" and 1/2" push on hose fittings speed up the installation process. Strong barbs remove the need to crimp the hose so assembly can be carried out quickly and easily on the machine. These hose tails are made of stainless steel to ensure longevity and reliability.

They are available in Straight or 90° compact configurations.

PART NO.	DESCRIPTION	COMMENTS
M2HTP01	Push On Hose Tail - 1/4" - Straight	7/16" JIC F
M2HTP02	Push On Hose Tail - 1/4" - 90°	7/16" JIC F
M2HTP03	Push On Hose Tail - 1/2" - Straight	3/4" JIC F
M2HTP04	Push On Hose Tail - 1/2" - 90°	3/4" JIC F
M2HTP05	Push On Hose Tail - 3/4" - Straight	1 1/16" JIC F
M2HTP06	Push On Hose Tail - 3/4" - 90°	1 1/16" JIC F



Straight Hose Tail



90° Hose Tail

Tube and Tube Fittings

The hoses are smooth covered, with a natural and a synthetic rubber which is high tensile, braided, abrasion, ozone and weather resistant. Hoses are coloured Red for ease of identification and are temperature rated to -40°C to +100°C.

PART NO.	DESCRIPTION	COMMENTS
M2SST01	Stainless Steel Tube 12.7mm - 2 Metre Lengths	Stainless steel
M2SST02	Compression Nut - Stainless Tube	Stainless steel 3/4" JIC F, includes olive



Tube - M2SST01

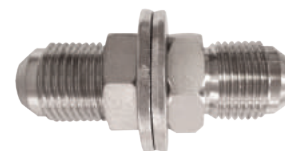


Nut and Olive - M2SST02

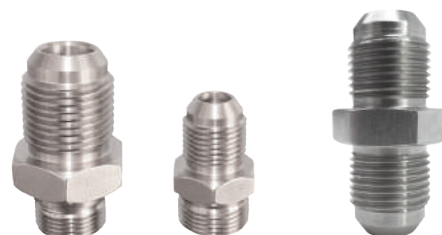
Fittings

Muster^{II} has a comprehensive range of high quality stainless steel fittings available.

PART NO.	DESCRIPTION	COMMENTS
M2BH01	Bulkhead 7/16" JIC M	Stainless steel
M2BH02	Bulkhead 3/4" JIC M	Stainless steel
M2BH03	Bulkhead 1 1/16" JIC M	Stainless steel
M2NP0808	Nipple 3/4" JIC MM	Stainless Steel
M2CG01	Cable Gland Bulkhead	IP66 Rated



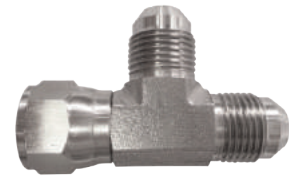
Bulkhead



Valve Nipple

Nipple

PART NO.	DESCRIPTION	COMMENTS
M2T07	Tee 7/16" JIC M-F-M	Stainless steel
M2MT01	Tee 3/4" JIC M-F-M	Stainless steel
M2MT02	Tee 1 1/16" JIC M, 3/4" JIC F-M	Stainless steel



Tee

PART NO.	DESCRIPTION	COMMENTS
M2NAE01	Elbow 45° 1/4" BSP M/F	Stainless steel, suit nozzle assembly
M2NAE02	Elbow 90° 1/4" BSP M/F	Stainless steel, suit nozzle assembly



Elbow

SUPPORT COMPONENTS

Clamp & Ties

To assist the installation process, Muster^{II} includes a range of quality ties and clamps. These can be used to keep hoses and cables out of harm's way.

PART NO.	DESCRIPTION	COMMENTS
M2CT01	Cable ties 200mm x 4.8mm	UV stabilised high temp
M2CT02	Cable ties 370mm x 4.8mm	UV stabilised high temp
M2CT03	Cable ties 380mm x 7.6mm	UV stabilised high temp



Cable Ties

PART NO.	DESCRIPTION	COMMENTS
M2PC01	P-Clamp - 1/4" Hose	Suits 1/4" hose and 12.7mm stainless steel tube, resistor and joiner plugs – 10mm mounting hole
M2PC02	P-Clamp - 1/2" hose,	Suits 1/2" hose, grommets for and LOP Sensor Tube 10mm mounting hole
M2PC03	P-Clamp - 3/4" Hose	Suits 3/4" hose 10mm mounting hole



P Clamp

PART NO.	DESCRIPTION	COMMENTS
M2SC01	Support clamp 1/4" hose	Suits 1/4" hose and 12.7mm stainless steel tube. High Temperature rated.
M2SC02	Support clamp 1/2" hose	Suits 1/2" hose high temp. High Temperature rated.
M2SC03	Support clamp 3/4" hose	Suits 3/4" hose high temp. High Temperature rated.



Support Clamp - M2SC01

NOZZLES

Muster[®] Nozzles are available in 120° and 60° spray patterns and are manufactured in stainless steel. Both have a 2.6mm diameter orifice with an internal helix. The average flow rate is 3.6L/min when installed in a typical system.

Nozzles are compatible for use with C6 Purity AFFF, Fluorine Free Foam and Advanced Agent in mobile and fixed suppression systems.

The specially engineered helix plate design used in the M2NA01 and M2NA02 nozzles produce a solid conical pattern resulting in a large droplet size as fluid passes through the nozzle tip providing a strong suppressing effect.

PART NO.	DESCRIPTION	COMMENTS
M2NA01	Nozzle with Cap - 120°	120° Spray pattern, includes cap
M2NA02	Nozzle with Cap - 60°	60° Spray pattern, includes cap
M2NC01	Muster Cap	Includes lanyard

General Specifications

Nozzle Type	Swirl chamber solid cone
Max. Working Pressure	16 bar
Working Pressure	13.75 bar
Flow	6.5 LPM @ 6 bar
Discharge Coefficient	2.65 LPM/sqrt (bar)
Orifice	2.6mm
Avg. Protection Area/Nozzle	0.86m ²
Axial Distance 60° Nozzle	600mm to 1200mm
Axial Distance 120° Nozzle	200mm to 650mm
Operating Temperature	-40°C to +200°C
Dimensions	L24.8mm – Hex 14mm
Material	Stainless steel 304L
Weight	25g
Thread Connection	¼" BSP T



120° Nozzle - M2NA01



60° Nozzle - M2NA02



MusterCap - M2NC01

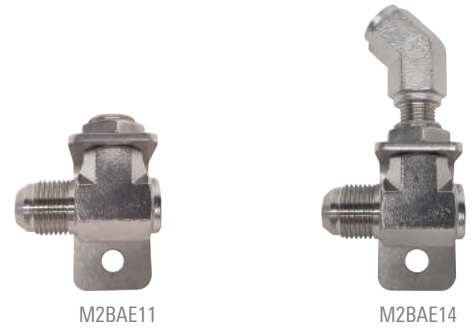
Nozzle Assemblies

The ranges of Muster^{II} nozzle assemblies have been configured to suit a variety of applications and environments. They can easily be positioned and angled to maximise their effectiveness. High quality stainless steel fittings come complete with a stainless steel mounting bracket.

Note: Nozzle bracket includes 8mm bolt and washer. Each of the nozzle assembly join requires use of Muster thread seal (M2TS01) to lock the thread.

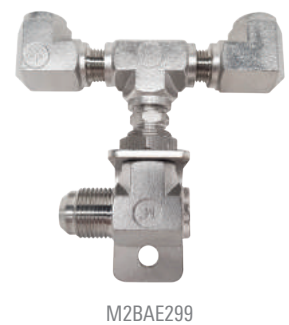
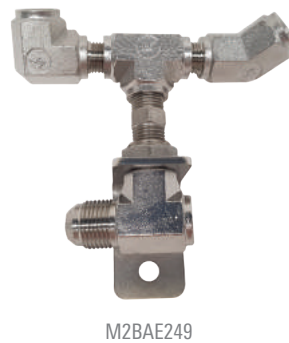
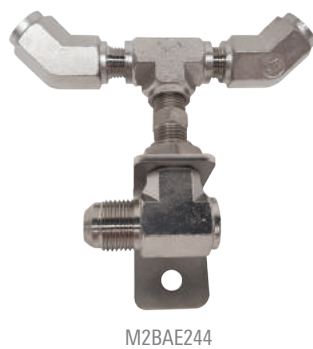
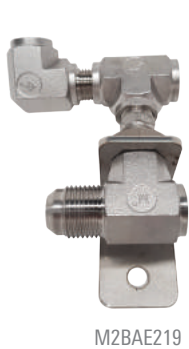
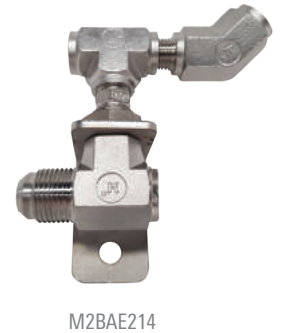
End of line Assemblies – Single Nozzle

PART NO.	DESCRIPTION	COMMENTS
M2BAE11	Single EOL - Straight	Elbow only
M2BAE14	Single EOL - 45°	Elbow & 45° elbow
M2BAE19	Single EOL - 90°	Elbow & 90° elbow



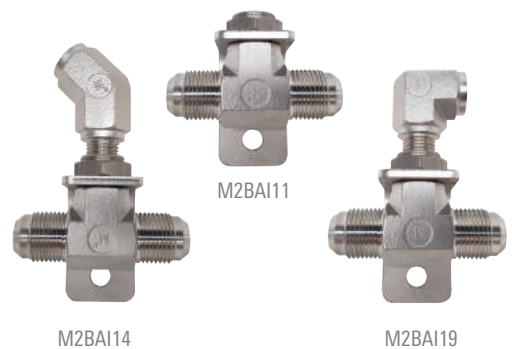
End of Line Assemblies – Twin Nozzles

PART NO.	DESCRIPTION	COMMENTS
M2BAE211	Twin EOL - STR/STR	Elbow & tee only
M2BAE214	Twin EOL - STR/45°	Elbow, tee & 45° elbow
M2BAE219	Twin EOL - STR/90°	Elbow, tee & 90° elbow
M2BAE244	Twin EOL - 45°/45°	Elbow, tee, 45° & 45° elbows
M2BAE249	Twin EOL - 45°/90°	Elbow, tee, 45° & 90° elbows
M2BAE299	Twin EOL - 90°/90°	Elbow, tee, 90° & 90° elbows



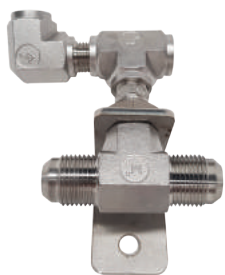
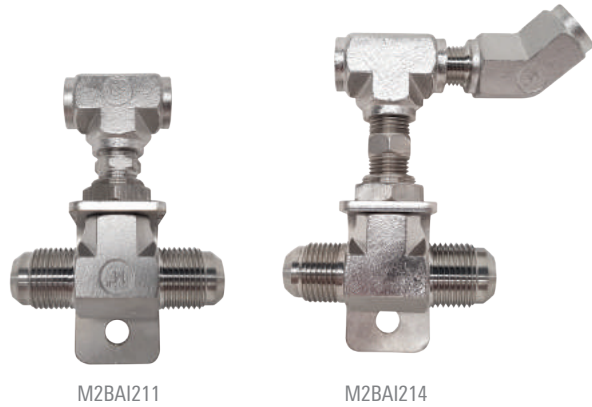
Inline Assemblies – Single Nozzle

PART NO.	DESCRIPTION	COMMENTS
M2BAI11	Single Inline - STR	Tee only
M2BAI14	Single Inline - 45°	Tee & 45° elbow
M2BAI19	Single Inline - 90°	Tee & 90° elbow

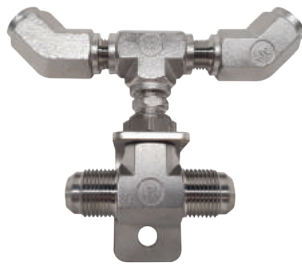


Inline Assemblies – Twin Nozzles

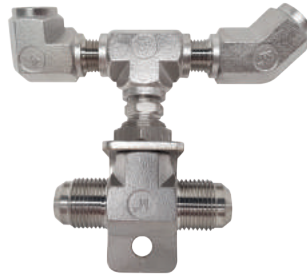
PART NO.	DESCRIPTION	COMMENTS
M2BAI211	Twin Inline - STR/STR	Tee & tee only
M2BAI214	Twin Inline - STR/45°	Tee, tee & 45° elbow
M2BAI219	Twin Inline - STR/90°	Tee, tee & 90° elbow
M2BAI244	Twin Inline - 45°/45°	Tee, tee, 45° & 45° elbows
M2BAI249	Twin Inline - 45°/90°	Tee, tee, 45° & 90° elbows
M2BAI299	Twin Inline - 90°/90°	Tee, tee, 90° & 90° elbows



M2BAI219



M2BAI244



M2BAI249



M2BAI299

Nozzle Bracket

Each nozzle bracket is pre-drilled with both 8mm and 10mm hole to suit various mounting options. Supplied to compliment the nozzle bracket and hose clamps within the Muster[®] range is an 8mm bolt and washer.

PART NO.	DESCRIPTION	COMMENTS
M2WM01	Small Weld mount M8	For nozzle assemblies
M2BT08	8mm x 15mm bolt	
M2WA08	8mm washer	









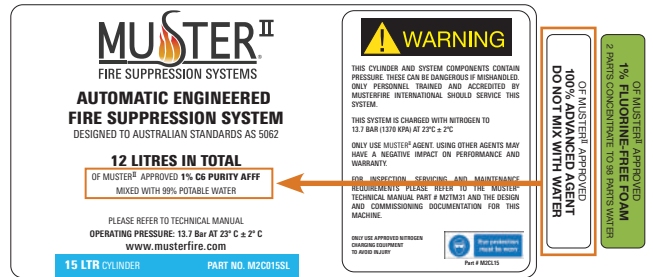
M2WM01
Weld mount for nozzle
assemblies

LABELS

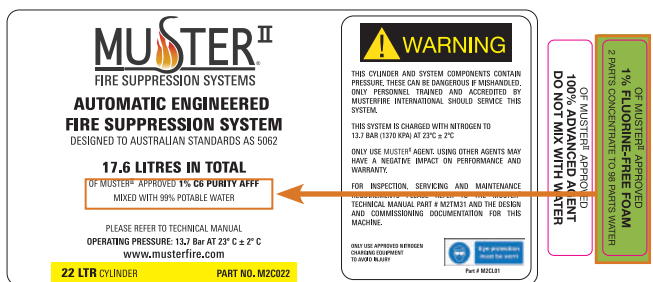
Cylinder Labels

The Muster^{II} Cylinder labels are specific to each different cylinder size and provide important information relating to fill volumes and recharge pressure. Once the Muster^{II} cylinder is installed the correct cylinder label must be placed in the most visual position on that cylinder. Please note that if using F3 or Advanced Agent, the relevant overlay should be peeled off and placed over the C6 Purity AFFF information. All Muster^{II} labels are UV stabilised print on UV stabilised vinyl.

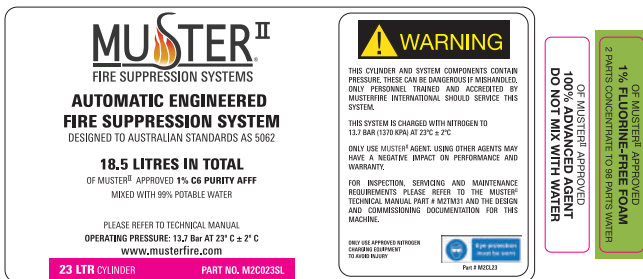
PART NO.	DESCRIPTION	COMMENTS
M2CL15	Slimline Cylinder label 15L	UV Stabilised 
M2CL01	Traditional Cylinder label 22L	UV Stabilised 
M2CL23	Slimline Cylinder label 23L	UV Stabilised 
M2CL02	Traditional Cylinder label 38L	UV Stabilised 
M2CL04	Traditional Cylinder label 66L	UV Stabilised 
M2CL06	Traditional Cylinder label 110L	UV Stabilised 



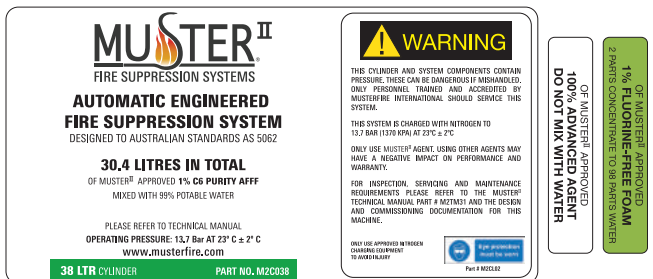
15L Cylinder Label – M2CL15
(Example of Advanced Agent overlay)



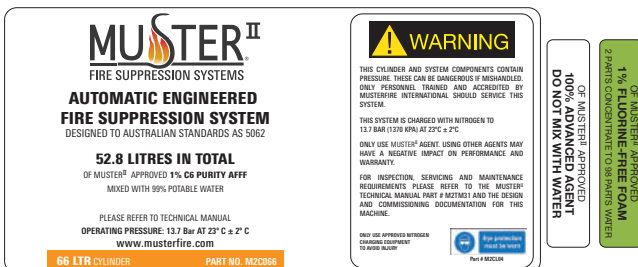
23L Cylinder Label – M2CL23
(Example of Fluorine-Free Foam overlay)



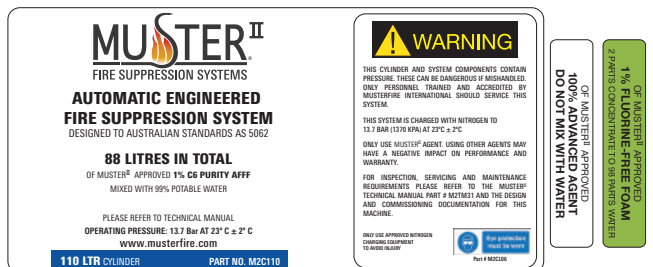
22L Cylinder Label – M2CL01



38L Cylinder Label – M2CL02



66L Cylinder Label – M2CL04



110L Cylinder Label – M2CL06

Note: See arrow indicating placement of label when Advanced Agent or Fluorine Free Foam is used.

Warning Labels - Muster^{II}

A range of replacement labels for Muster^{II} systems are available. It is important to inspect the tags and labels ensuring all are clearly identifiable during system inspection

- UV stabilised
- Have part numbers printed on labels for easy reordering

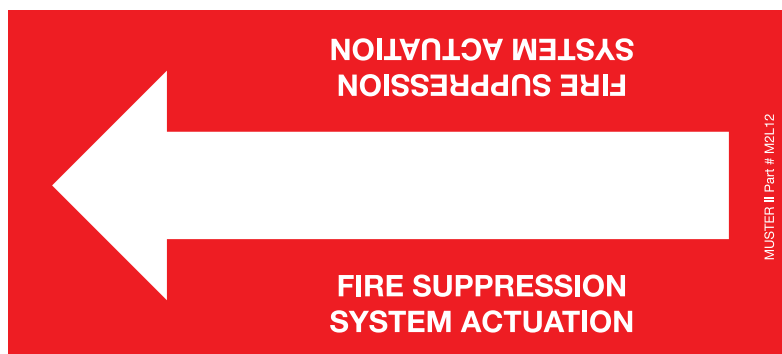
PART NO.	DESCRIPTION	COMMENTS
M2L09	'In the Event of a Fire' – small	Used in the cab to notify the operator the correct procedure in case of a fire
M2L10	'Warning' - small Engine Shutdown	Engine shutdown label has tear off numbers. These numbers are used on the label to signify the shutdown time setting. This label would be used in the cabin of the vehicle
M2L11	'Warning' - large FSS fitted	Used externally to notify of the installation of a fire suppression system
M2L12	Remote actuator location arrow	This label is used to highlight to the operator and others where the Remote Actuator is located. This label is to be used externally and is UV stabilised and reflective



'In the Event of a Fire' Label - M2L09



Small 'Warning' Label - M2L10
(Peel off numbers included with the shut down times)



Remote Actuator Location Arrow Label - M2L12



Large 'Warning' Label Label - M2L11

MISCELLANEOUS

Cylinder Filling Tube

It is recommended that a Muster^{II} Filling Tube (M2FT01) is used for accurate cylinder filling. Using this tool ensures fluid volumes are consistently achieved when a system is commissioned, annual service tests are performed, as well as post incident refilling.

The tool is marked to suit required levels for all 3 Muster suppressant solutions relevant to traditional cylinder size

PART NO.	DESCRIPTION	COMMENTS
M2FT01	Filling Tube Traditional Cylinders	Filling tube for cylinders. Cannot be used with Slimline 15 and 23L cylinders

Note: not suitable for filling Slimline Cylinders



Filling Tube - M2FT01

Test Date Tag

PART NO.	DESCRIPTION	COMMENTS
M2TT01	Date Test Tag	
M2SR01	Date Tag Split Ring	Split Ring
M2SP01	Date Tag Service Punch	Service Punch



Date Test Tag - M2TT01

Charge Rig Kit

It is recommended that a Muster^{II} cylinder charging kit (M2CR01) is used for accurate charging. This will ensure that the cylinder is safely charged and a more accurate discharge test will be achieved when commissioning.

PART NO.	DESCRIPTION	COMMENTS
M2CR01	Cylinder charging kit	Cylinder commissioning. Includes hard case, harris 825 N2 regulator, 15m and 1m x 1/4" hose, ball valve, pressure gauge, and other required adaptors



Cylinder Charging Kit - M2CR01

Pressure Gauge

Field replacement pressure gauges are available for cylinder valves and actuators.

PART NO.	DESCRIPTION	COMMENTS
M2PGR01	Digital Pressure Gauge	For field replacement
M2PGR02	Mechanical Pressure Gauge	For field replacement
M2PGR03	Mechanical Pressure Indicator	For M2RA32PB



Pressure Gauge Digital - M2PGR01



Pressure Gauge Mechanical - M2PGR02



Mechanical Pressure Indicator - M2PGR03

Valve Servicing Kit

In the event that you need to service Muster^{II} valves, there are a range of service items available to you:

- O-ring service kit which includes high performance silicone grease

PART NO.	DESCRIPTION	COMMENTS
M20K31	O-ring kit for valve assemblies	Includes tool, silicone O-ring grease suits M2VA31, M3VA32, M2VA33, M2VA31M and M2VA34
M2TS01	Loxeal 50ml	Loxeal 58:11 Tread Sealer



O ring kit - M20K31

Thread Sealer - M2TS01

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