

# Use and Maintenance Technical Manual



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## 19508-15 : Wheeled Fire Extinguisher, 50 L Water + Additive

**TESTED SUCCESSFULLY ON  
LITHIUM BATTERY WITH CAPACITY:**

**25,9 v 5076 Wh 196 Ah**



### DIELECTRIC

Suitable for use on fire involving electrical voltages up to 1'000 V, at a minimum distance of 1 meter.



**DISPENSING PISTOL**  
Body in plastic material.  
The rotating connection  
allow an easy unroll of hose

### CYLINDER

Stainless steel AISI 304,  
epoxypolyestere powder painting,  
Red Ral 3000.

### EXTINGUISHING AGENT

Lith-M 2 Water + additive.

### PROPELLANT

Dehumidified air or Nitrogen (N<sub>2</sub>).

### VALVE

2"-F , brass body, lever with  
green painting Ral 6029.

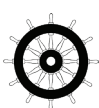
### USE

Class A Fires (solid materials)  
Class B Fires (flammable liquids)  
Lithium-ion batteries

Note: image is for illustrative purpose only, the product purchased can have some differences

50 L water + additive wheeled fire extinguisher, temperature range from +5°C to +60°C, manufactured in accordance to **UNI EN 1866-1 (D.M. 6.3.92)**, approved Marine Equipment Directive **MED 2014/90/EU**, certified according to the directive for pressure equipment **PED 2014/68/EU**.  
Quality Product certification guaranteed by Bureau Veritas Italia.

APPROVED\CERTIFIED FIRE EXTINGUISHER:



**FIRE  
RATING :**



**IV**



**5076 Wh**

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## TECHNICAL SPECIFICATIONS

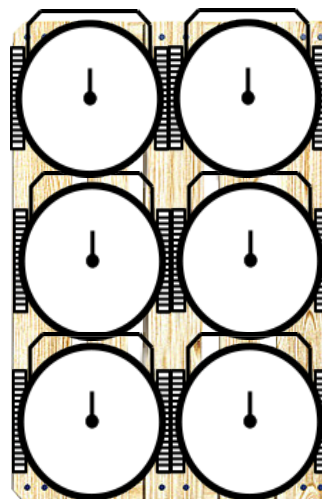
FIRE RATING	A IV B
EXTINGUISHING AGENT	Lith-M 2
PROPELLANT	Dehumidified air or Nitrogen (N <sub>2</sub> ), 15 bar at 20°C
TEMPERATURE RANGE	+5°C / +60°C
NOMINAL CHARGE	50 L.
FULL WEIGHT	~ 75,5 Kg
DIMENSIONS	Height 1100 +/-10 mm ; Width 490 +/-10 mm Depth 560 +/-10 mm
DISCHARGE TIME	~ 253,5 seconds
VALVE TIGHTENING TORQUE	Minimum 60 Nm, Maximum 70 Nm
CYLINDER PRESSURE TEST	PT 30 bar
CYLINDER VOLUME	62 L.
SAFETY DEVICE	Set between 21 and 26 bar
CYLINDER MATERIAL	Stainless steel AISI 304
EXTERNAL\INTERNAL TREATMENT	Sandblast and epoxy polyester powder painting, Red Ral 3000 colour.

## PACKAGING

*(Note: the packaging quantities and measurements are indicative and can be subject at change)*

### STANDARD

Maximum nr. 6 pieces for pallet  
Dimensions pallet 100x120x135(h) cm



## TRANSPORT PROVISIONS

Land transport : ADR exemption as provision 594

Sea transport : IMDG - UN 1044 code 2.2 class Extinguishers

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## COMPONENTS AND SPARE PARTS

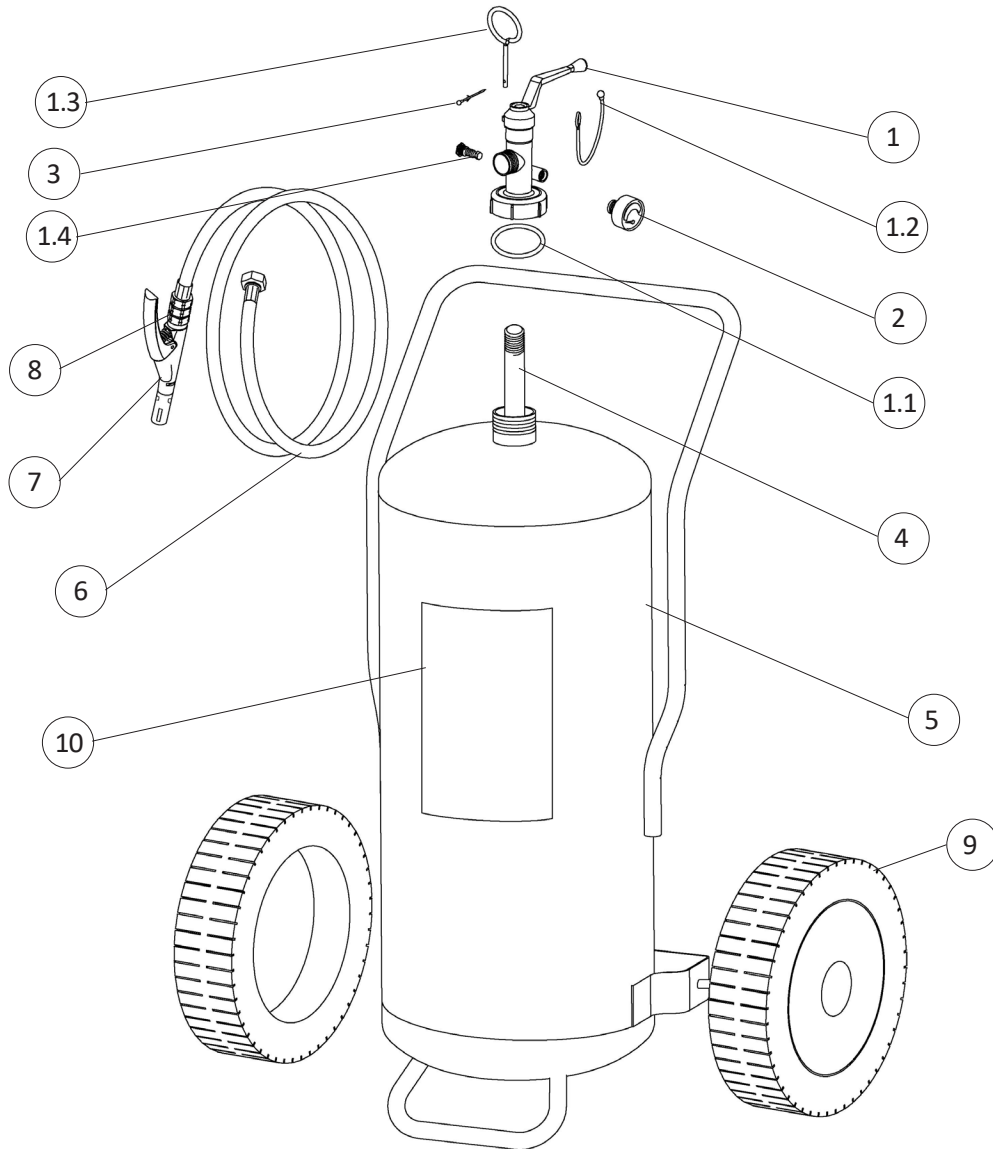


Table 1

NUM.	DESCRIPTION	CODE
1	Valve 2"-F	0214RV
1.1	O-ring	0203
1.2	Tamper seal (black)	0286N
1.3	Safety pin	0283R
1.4	Safety device	0263R
2	Pressure gauge	1576
3	Safety pin holder (green)	0285
4	PVC dip tube	0162
5	Cylinder	18323

NUM.	DESCRIPTION	CODE
6	Hose	18421
7	Dispensing pistol with nozzle	2181-6
8	Adapter pistol-hose	2293
9	Wheel + wheel stop (diam. 300mm)	0124
10	Label	1958-15
	Foam refill (25 L. bottle, ready to use)	1624-1L x2

The spare part at number 1 includes already all others components indicated from 1.1 to 1.4

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## Prerequisite when using the fire extinguisher on lithium batteries

According to tests executed with this fire extinguisher, it's possible to stop the combustion of a lithium-ion battery with a water based fire extinguisher with foam additives. It has been verified that the use of the fire extinguisher allows to lower the temperature and control any re-ignitions of the cells present inside the battery (generated by the chain reaction of the same and due to their shape inside the battery pack). The battery tested has a voltage of 25,9 V with a capacity of 196 Ah and an energy value of 5076 Wh. The fire extinguisher tested is therefore effective in containing the flames emanated from a battery with same or inferior characteristics compared to the one tested.

*\*NOTE: the test was executed on a new battery and so at full efficiency.*

### **SAFETY WARNING**



Carefully read the note in paragraph "4B" regarding precautions for use on batteries

*The combustion of lithium-ion batteries releases very harmful gases and fumes. Direct exposure to high concentrations of gases emanating from the combustion of lithium-ion batteries can cause serious damage to health. Lithium-ion batteries can have unpredictable phenomena during fire, such as explosive reactions caused by the pressure of the cells inside the battery pack. it's advisable to use appropriate safety devices.*

*The use of fire extinguisher is recommended for professional and expert staff.*

*The use of fire extinguisher by uninformed people can lead to lower results and cause damage to involved people.*

### **DISCLAIMER**

The result of the tests performed refers exclusively to the fire extinguisher model used during the tests themselves. The fast development of lithium-ion batteries and portable fire extinguishers means that the performance achieved during the test phase is not guaranteed when using lithium-ion batteries or shutdown techniques other than those tested. It is not possible to understand where and to what extent these fire extinguishers can be installed due to the outer casing of the lithium-ion battery pack.

The fire extinguishers tested are intended to help contain the principle of fire resulting from the triggering of a lithium-ion battery.

## Maintenance periods for efficiency guarantee, methods and subjects accredited for maintenance

### **1) GENERAL REQUIREMENTS**

All Fire Fighting Fire Extinguishers produced by Emme Antincendio must be installed, inspected and maintained in accordance with the following manual and with the rules in force in the country of destination.

All fire extinguishers must be recharged after partial use with original spare parts.

Every ordinary / extraordinary maintenance operation must be carried out using original spare parts and compliant with the declared certified prototype. The described below maintenance operations must be carried out by recognized personnel qualified by the company Emme Antincendio.

Fire extinguishers are classified into two categories that provide for specific construction standards:

- portable fire extinguishers: fire extinguishers designed to be transported and operated by hand, with a mass not exceeding 20 kg under operating conditions. Reference standard: EN 3-7
- wheeled fire extinguishers: wheel fire extinguishers designed to be transported and operated by hand, with a mass greater than 20 kg. Reference standards: EN 1866-1

Moreover, in relation to the extinguishing agent contained in them, they are identified in:

- water based fire extinguishers including foam extinguishers;
- powder fire extinguishers;
- carbon dioxide fire extinguishers;
- clean agent extinguishers

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## 2) REFERENCE RULES

All Fire Fighting extinguishers produced by Emme Antincendio are manufactured in compliance with the following rules:

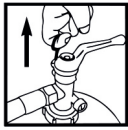
- EN 3-7: 2008 Portable fire extinguishers;
- EN 1866-1: 2008 Wheeled fire extinguishers;
- PED Directive 2014/68/EU pressure equipment;
- MED Directive 2014/90/EU devices for marine use (only for products bearing the relative MED certification mark, see pag 1 of this document)

## 3) INSTALLATION

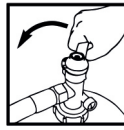
- 1) Install fire extinguishers in areas with large spaces and free from obstacles.
- 2) Do not expose the fire extinguisher to the atmospheric agents or chemicals agents.  
(Note: in these cases protect the fire extinguisher with a special cabinet or protective cover.)
- 3) Do not expose the fire extinguisher to the direct sunlight.
- 4) Verify that the gauge pressure indicator is inside the green area.
- 5) Keep children away from fire extinguisher.
- 6) For Marine equipment or outdoor installation we recommend use of cover or cabinet.

## 4) MODALITY AND PRECAUTIONS FOR THE USE

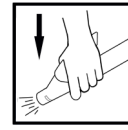
- 1) Follow the operative instructions reported in the marking label stamped on the body of the fire extinguisher :



- 1) UNROLL THE HOSE
- 2) REMOVE SAFETY PIN



- 3) OPEN THE VALVE



- 4) HOLD THE PISTOL, MOVE THE LEVER AND AIM THE JET AT BASE OF FIRE

### A) USE ON STANDARD FIRES

- 2) Do not through the fire extinguisher on to the direct flames.
- 3) This fire extinguisher is a pressurized vessel and must not be pierced, dented or subjected to external damage.
- 4) Do not direct the jet on the people.

### B) USE ON BATTERIES FIRES



- 2) In case of use of the fire extinguisher on fires from lithium-ion batteries, it's advisable to keep the security gap during dispensing.
- 3) Do not expose yourself directly to the flames during dispensing.
- 4) Dispense the extinguishing with regular intervals. Do not dispense it in a single intervention.
- 5) Let the extinguishing penetrate inside the casing containing the battery pack.
- 6) This fire extinguisher is a pressure container and must not be drilled, dented or submitted to external alterations.
- 7) Don't aim the jet at people.

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## 5) STEPS AND FREQUENCY RELATED TO MAINTENANCE OPERATIONS (For stored pressure fire extinguishers)

Note: The user have to complies to the national or international rules, if they are more restrictive of the below table

Table 2

Ref.	Periodicity	Step	Operations
5.1	12 Months	Inspection	Check internal pressure using an independent tool.
5.2	5 Years	Maintenance	Replace the extinguishing agent. Check the dispensing valve and if a not compliance is detected replace it
5.3	10 Years	Hydrotest tank	Check the state of conservation and carry out the hydraulic test of the tank with special machinery. Is raccomended the replacement of dispensing valve
5.4	*20 Years		Is recommended the replacement of the fire extinguisher.

\* If the extinguisher is installed in particularly unfavorable environments, the recommended time can be reduced.  
(a reduction to 10 years is advisable)

N.B. : All the operations must be calculated from the date of placing on the market.  
For the hydraulic test refer to the date stamped on the tank.

### 5.1) Inspection steps

1	Check the stability and the correct wheel handling.
2	Check the internal pressure with an appropriate independent tool.
3	Check the safety seal and the safety pin conditions.
4	Remove the hose and check the correct internal passage with compressed air.
5	Record the inspection activity on the maintenance tag and on the fire protection register.

### 5.2) Maintenance steps

1	Check the stability and the correct wheel handling. Check the marking label and replace it if necessary.
2	Discharge the fire extinguisher from the extinguishing agent.
3	Screw off the dispensing valve.
4	Check internally the cylinder and make sure that no signs of corrosion are present. For the hose, check the internal passage with compressed air.
5	Recharge the fire extinguisher with new extinguishing agent.
6	Check the dispensing valve and if it is found not compliance replace it with a new one. Screw the valve back on with a tightening torque: minimum 60 Nm - maximum 70 Nm
7	Pressurize the extinguisher (15 bar at 20 °C) with dehumidified air or nitrogen and check if there are leaks.
8	Reinsert the safety pin and relative seal, screw the dispensing hose back on.
9	Record the activity on the maintenance tag and on the maintenance register.

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## 5.3) Hydraulic test phases


A stability test must be carried out on it every 10 years since the production date stamped on the tank. This operation consists of a hydraulic pressure test to be carried out on the basis of the punched "PT" value.

1	Check the stability and the correct wheel handling. Check the marking label and replace it if necessary.
2	Discharge the fire extinguisher from the extinguishing agent.
3	Screw off and replace the dispensing valve.
4	Check internally the cylinder and make sure that no signs of corrosion are present. For the hose, check the internal passage with compressed air.
5	Hydraulic test of the cylinder with suitable tool: maintain hydraulic pressure at "PT" for 30 seconds and proceed with depressurization. Check that the cylinder does not show any deformation, breakage or stability anomalies.
6	Proceed with the rinsing/removal of any residuals.
7	Recharge the fire extinguisher with new extinguishing agent.
8	Is recommended the replacement of dispensing valve. Screw the valve back on with a tightening torque: minimum 60 Nm - maximum 70 Nm
9	Pressurize the extinguisher (15 bar at 20 °C) with dehumidified air or nitrogen and check if there are leaks.
10	Reinsert the safety pin and relative seal, screw the dispensing hose back on.
11	Record the activity on the maintenance tag and on the maintenance register.

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## Executive details inspection phases, Maintenance, Hydraulic test

<p><b>1</b> - Check: stability and correct wheel handling, cleaning and general conditions. Check the marking label and replace it if damaged.</p>	<p><b>2</b> - Discharge completely the extinguisher from the extinguishing agent with appropriate collecting instruments .</p>
<p><b>3</b> - Screw off and remove the valve.</p>	<p><b>4</b> - Check the inside of the tank with the appropriate inspection lamp. Also check that the dispensing hose and nozzle is not obstructed, checking the correct passage of compressed air inside it, if necessary replace it with a new one. Replace the o-ring, clean and grease the parts.</p>
<p><b>5</b> - Hydraulic cylinder test: maintain hydraulic pressure at "PT" for 30 seconds and proceed with depressurization.</p>	<p><b>6</b> - Proceed with the rising\removal of any residuals.</p>
<p><b>7</b> - Recharge the fire extinguisher with new extinguishing agent.</p>	<p><b>8</b> - Reinstall the dip tube and dispensing valve. Perform the operation with suitable torque wrench, making sure you have set the correct tightening torque.</p>
<p><b>9</b> - Pressurize the extinguisher with pliers, check that there are no pressure losses, using the appropriate leak detector. Reinstall the safety pin and relative seal.</p>	<p><b>10</b> - Screw the dispensing hose back on. Check the correct reading of the pressure gauge</p>
	<p><b>11</b> - Record the activity on the maintenance tag and on the maintenance register.</p>

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## 5.4) Twenty-year control

If the extinguisher is decommissioned, it must be disposed of in accordance with local waste management regulations. Before disassembling or disposing the extinguisher it MUST BE DEPRUSSERIZED by competent personnel.

The fire extinguisher must be disposed in accordance with national rules and regulations, by authorized personnel/ companies.

\*If the fire extinguisher is installed in particularly unfavorable environments, the timing can be reduced (See table 2 point 5.4)

## 6) SPARE PARTS LIST AND MAINTENANCE TOOLS

### 6.1) List of components and spare parts

For the spare parts list see the table 1 at pag 3.

For more details see web site [www.emme-italia.com](http://www.emme-italia.com)

### 6.2) Inspection/Maintenance Tools

For a complete list of recommended tools see web site [www.emme-italia.com](http://www.emme-italia.com).

It is recommended to use instruments with controlled calibration and periodically verified (at least every 12 months) with certified sample instrument.

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