

Use and Maintenance Technical Manual



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21042-1 : Portable Fire Extinguisher, 4 Kg ABC Powder



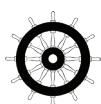
- **CYLINDER**
In high-strength alloy steel, deep drawing, external powder painting Red Ral 3000.
- **EXTINGUISHING AGENT**
ABC Powder - MAP 20 %.
- **PROPELLANT**
Dehumidified air or nitrogen (N₂).
- **VALVE**
M. 30x1.5, lightweight aluminum alloy AA6061 body, levers with red painting Ral 3000.
- **USE**
A B C fire rating (solid materials, flammable liquids, flammable gas).

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Note: image is for illustrative purpose only, the product purchased can has some difference

4 Kg powder fire extinguisher, temperature range from -30°C to +60°C, manufactured in accordance to **UNI EN 3-7, (D.M. 7.1.2005)**, approved Marine Equipment Directive **MED 2014/90/EU**, certified according to the directive for pressure equipment PED 2014/68/EU. Manufactured according at productions checks as agreed with **EN 3-10**. Quality Product certification guaranteed by Bureau Veritas Italia. Suitable for use on fire involving electrical voltages up to 1'000 V, at a minimum distance of 1 meter.

APPROVED/CERTIFIED FIRE EXTINGUISHER:



FIRE RATING :



21

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TECHNICAL SPECIFICATIONS

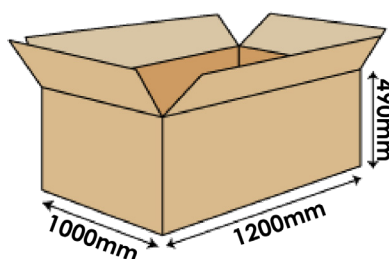
FIRE RATING	21 A 183 B C
EXTINGUISHING AGENT	ABC Powder - MAP 20 % EPW 18462 (ABC Favorit Tertia - Rühl)
PROPELLANT	Dehumidified air or Nitrogen (N ₂), 15 bar at 20°C
TEMPERATURE RANGE	-30°C / +60°C
NOMINAL CHARGE	4 Kg
FULL WEIGHT	~ 6,3 Kg
DIMENSIONS	Height (base - valve) 460 +/- 5 mm Diameter (cylinder) 130 +/- 2 mm
DISCHARGE TIME	~ 18,4 seconds
VALVE TIGHTENING TORQUE	Minimum 35 Nm, Maximum 55 Nm
CYLINDER PRESSURE TEST	PT 27 bar
CYLINDER VOLUME	4,3 L.
SAFETY DEVICE	Set between 20 and 26 bar
CYLINDER MATERIAL	Alloy steel
EXTERNAL TREATMENT	Sandblast and powder painting, Red Ral 3000 colour

PACKAGING

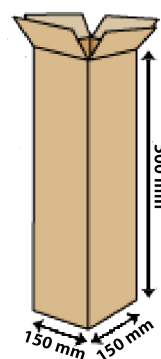
(Note: the packaging quantities and measurements are indicative and can be subject at changes)

STANDARD

Maximum nr. 126 pieces for pallet
(63 pieces for box, max 2 box for pallet)
Pallet dimensions 100x120x115(h) cm



ON REQUEST: SINGLE PACKAGING



TRANSPORT DISPOSAL

Land transport : Exemption for the purposes of ADR disposal 594

Ship Transport : IMDG Code - UN 1044 class 2.2 Fire Extinguishers

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COMPONENTS AND SPARE PARTS LIST

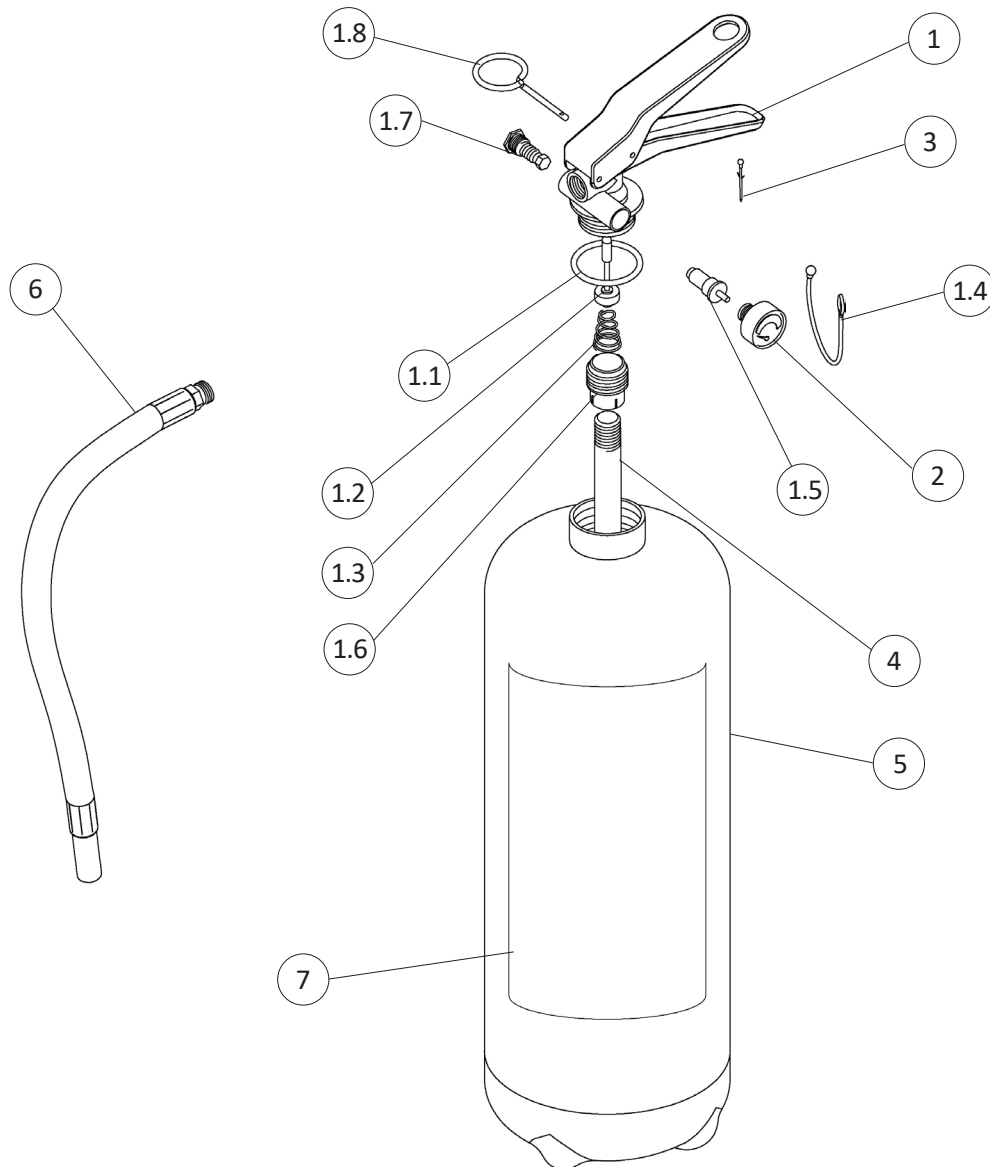


Table 1

NUM.	DESCRIPTION	CODE	NUM.	DESCRIPTION	CODE
1	Valve M. 30x1.5	0212-9	3	Safety pin seal (green)	0285
1.1	O-ring valve	0201R	4	PVC dip tube	0153
1.2	Valve stem	n.a	5	Cylinder	0103
1.3	Internal spring of the valve	n.a	6	Hose	0291
1.4	Rubber link (red)	0286	7	Label	0085-1
1.5	Test valve for pressure gauge	1163	OPTIONAL	Iron marine bracket red painting	0315
1.6	Dip tube holder	n.a			
1.7	Safety device	n.a			
1.8	Safety pin	0282-1			
2	Pressure gauge	0271-1			

The spare part at number 1 includes already all others components indicated from 1.1 to 1.8
 "n.a." mean that the component is not available as single spare part

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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

2) REFERENCE RULES

Fire Extinguishers produced by Emme Antincendio are manufactured in compliance with the following rules:

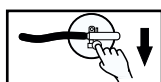
- EN 3-7: 2008 Portable fire extinguishers;
- EN 1866-1: 2008 Wheeled fire extinguishers;
- PED Directive 2014/68/EU pressure equipment;
- MED Directive 2014/90/EU devices for marine use (only for products bearing the relative MED certification mark, see pag 1 of this document)

3) INSTALLATION

- 1) Install the fire extinguisher with the appropriate bracket, with the handle at a maximum recommended height of 110 cm.
- 2) When installed in a vehicle the fire extinguisher must be held in a specific truck bracket.
- 3) 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.)
- 4) Do not expose the fire extinguisher to the direct sunlight.
- 5) Verify that the gauge pressure indicator is inside the green area.
- 6) Keep children away from fire extinguisher.
- 7) For Marine equipment or outdoor installation we recommend use of cover or cabinet.

4) MODALITY AND PRECAUTIONS FOR THE USE

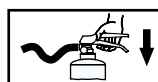
- 1) Follow the operating Instructions printed on the main fire extinguisher label



1) REMOVE SAFETY PIN



2) HOLD THE HOSE



3) SQUEEZE GRIP LEVER



4) AIM THE JET AT
BASE OF FIRE

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- 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.

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	Ispection	Check internal pressure using an independent tool
5.2	5 Years	Maintenance	Check the fluidity of extinguishing agent. Check the thread of the valve body and if a non-compliance is detected, replace it.
5.3	10 Years	Hydrotest Cylinder	Check the conservation status and perform the hydraulic test of the cylinder with suitable tool. Is recommended the replacement of the dispensing valve
5.4	*20 Years		Is recommended the replacement of the fire extinguisher

* If it located in particular environments the timing can be reduced.
(it is recommended to reduce to 10 years)

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	Remove the fire extinguisher from the bracket and check the fixing stability
2	Check the internal pressure with an independent tool
3	Check the safety seal and the safety pin
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	Remove the fire extinguisher from the bracket and check the fixing stability. Check the marking label and replace it if damaged	
2	Remove the hose and discharge the fire extinguisher with suitable tool, comply at rules for a correct disposal	
3	Remove the dispensing valve. Check the fluidity of extinguishing powder, that agglomerates are not present in the cylinder (if powder is suitable, can be reused for recharge the fire extinguisher)	
4	Check internally the cylinder that no shows corrosion signs. For the hose, check the internal passage with compressed air	
5	Recharge the fire extinguisher with extinguishing agent	
6	Valve with aluminum body	Check the thread of valve body with suitable tool and if damaged replace with a new valve. For valves without safety device, replacement is recommended in any case. Screw the valve with a tightening torque as shown : min. 35 Nm - max 55 Nm
7	Pressurize the fire extinguisher with dehumidified air or nitrogen (15 bar at 20 °C) and check for leaks	
8	Reset the safety pin and secure it with safety seal, screw the hose	
9	Record the inspection activity on the maintenance tag and on the fire protection register	

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5.3) Hydraulic test step







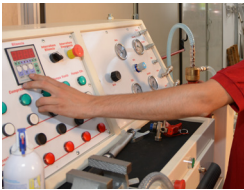





At least every 10 years from the production date the fire extinguisher must be overhauled by a hydraulic pressure test in accordance with the pressure values "PT" stamped on the cylinder.

1	Remove the fire extinguisher from the bracket and check the fixing stability. Check the marking label and replace it if damaged	
2	Remove the hose and discharge the fire extinguisher with suitable tool, comply at rules for a correct disposal	
3	Remove the dispensing valve. Check the fluidity of extinguishing powder, that agglomerates are not present in the cylinder (if powder is suitable, can be reused for recharge the fire extinguisher)	
4	Check internally the cylinder that no shows corrosion signs. 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 cylinder drying with suitable tool	
7	Recharge the fire extinguisher with extinguishing agent	
8	Valve with aluminum body	Is recommended the replacement of dispensing valve. Screw the valve with a tightening torque as shown : min. 35 Nm - max 55 Nm
9	Pressurize the fire extinguisher with dehumidified air or nitrogen (15 bar at 20 °C) and check for leaks	
10	Reset the safety pin and secure it with safety seal, screw the hose	
11	Record the inspection activity on the maintenance tag and on the fire protection register	

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Executive details Inspection steps, Maintenance, Hydraulic test

	<p>1 - Remove the fire extinguisher from the bracket; check marking label and replace it if damaged, check stability of the bracket, cleaning, general conditions</p>	 <p>2 - Remove the hose and unload completely the fire extinguisher with suitable tool. Comply at local rules for the correct disposal.</p>
 	<p>3 - Remove the valve. Check the fluidity of extinguishing powder. If necessary, replace with new powder</p>	  <p>4 - Perform an internal check of the cylinder with an inspection lamp. Verify that the hose allows a correct air passage and replace it if necessary. Replace the o-ring, clean and grease the parts.</p>
	<p>5 - Hydraulic cylinder test: maintain hydraulic pressure at "PT" for 30 seconds and proceed with depressurization.</p>	 <p>6 - Cylinder drying</p>
	<p>7 - Recharge the fire extinguisher with checked or new extinguishing agent.</p>	 <p>8 - 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>9 - Pressurize the fire extinguisher with a suitable pneumatic gripper and check for any pressure loss using a "leak detector"; to secure the device with safety pin and safety seal</p>	 <p>10 - Screw the dispensing hose, check for the correct pressure gauge reading</p>
	<p>11 - Record the inspection activity on the maintenance tag and on the fire protection register</p>	

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5.4) Twenty-year control

End-of-life fire extinguishers must be disposed in accordance with local waste management rules. Before disposal or disassembly, the fire extinguisher MUST BE DEPRESSURIZED by a competent person. Fire extinguishers should always be disposed of through an approved disposal company and in accordance with applicable local and national codes.

* If the fire extinguisher is located in particular environments, the "life time" timing can be reduced (see table 2 at point 5.4).

6) SPARE PARTS LIST AND MAINTENANCE TOOLS

6.1) Spare parts list

For the spare parts list see the table 1 at pag 3.
For more details see web site www.emme-italia.com

6.2) Inspection/Maintenance Tools

For a complete list of recommended tools see web site 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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