FIREFIGHTING INSTALLATIONS WITH ADDITIVATED WATER

APPLICATIONS OF THE ENCAPSULATING AGENT F-500 ON THE MMI UNITS

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Speaker: C. V. (GN) Angelo COLONNA
NAVARM – 7th DIVISION

Fire Fighting Systems with F-500 Encapsulator Agent Water Additive

- Fire Fighting Stations per UMM 1071 ed 2007
- Nubilization with Additives for the living quarters (Only Cavour Aircraft Carrier)
- Nubilization for the operating quarters (Cavour and Orizzonte)
- Nubilization with Additives for the AA.MM. and Auxiliary quarters (Cavour and Orizzonte)
- Fixed and semi-fixed nubilization of Mine Sweeping Vessels

STAZIONI ANTINCENDIO UMM 1071 ed 2007

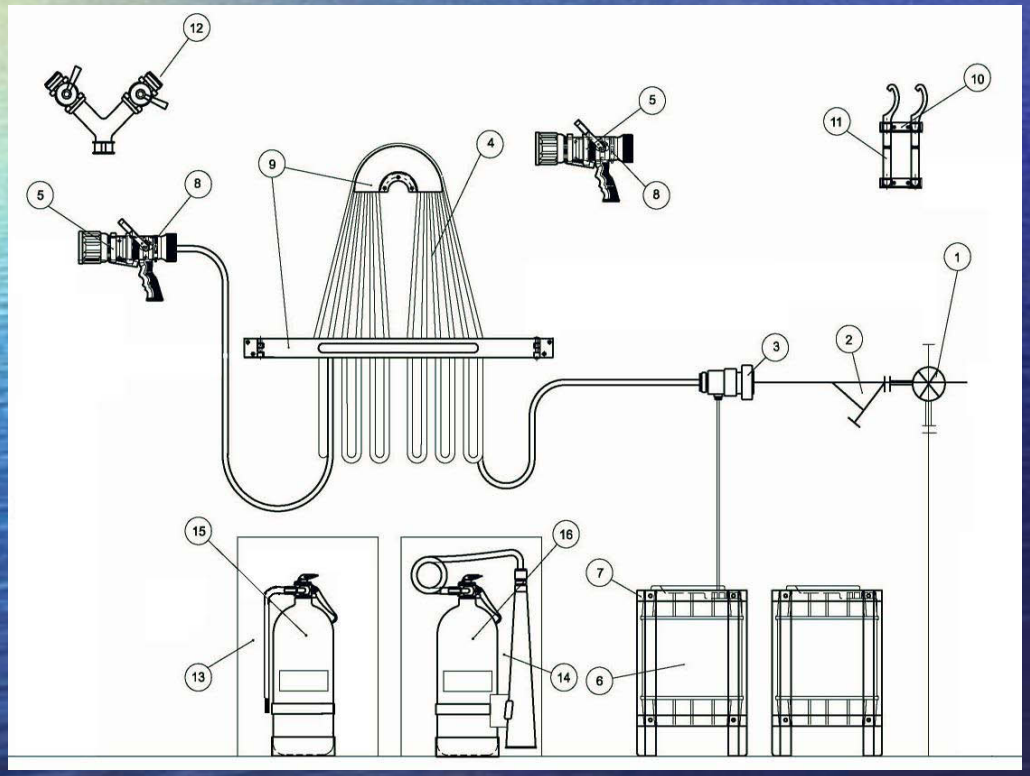
Navarm has described the new fire fighting stations in the UMM 1071 chart, the 2007 edition.

This introduces the new accessories, which can be used in order to facilitate the intervention in case of fire.

One of the novelties mentioned is the water additive F-500, which helps extinguish fires of classes A and B, at percentages ranging from 1 to 3.

Firefighting stations UMM 1071 ed 2007

New interior installations



	Description	Q-ty
1	Command valve	1
2	Auto-filter	1
3	Adjustable in-line micellator	1
4	Hoze fittings 12	2
5	Firefighting nozzle	2
6	Pales of additives: F-500 and foam	1 + 1
7	Rack for the F-500 pale and the UMM 1111 foam pale	1 + 1
8	Rack for the nozzle	2
9	Rack for the fittings	1
10	Rack for 2 wrenches used for the fittings	1
11	Wrenches for the fittings	2
12	V-shaped separator DN 45	1
13	CO2 extinguisher	1
14	Powder extinguisher	1
15	Rack for the powder extinguisher	1
16	Rack for the CO2 extinguisher	1

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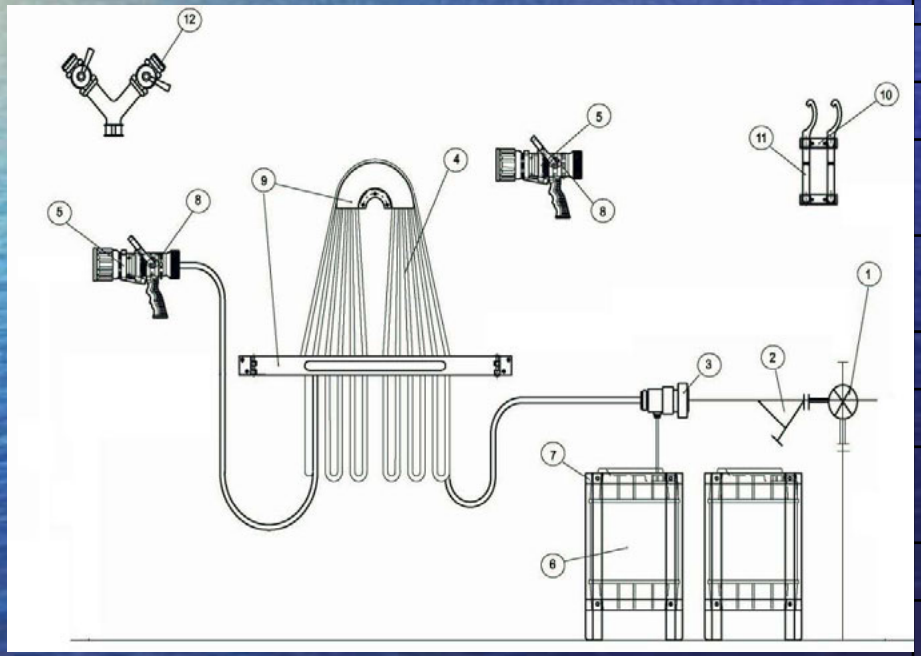
New external installations



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6	Pales of additives: F-500 and foam	1 + 1
7	Rack for the F-500 pale and the UMM 1111 foam pale	1 + 1
8	Rack for the nozzle	2
9	Rack for the fittings	1
10	Rack for 2 wrenches used for the fittings	1
11	Wrenches for the fittings	2
12	V-shaped separator DN 45	1

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In-line Units

The in-line units will be added to the UMM 1071 chart following a three-year plan; the necessary materials are bought by Navarm in three financial exercises and installed by the Arsenal.

As a difference from the newly built units, the new nozzle will be installed on the pre-existing lines, while the already existing nozzle will become the old “special” one, continuing to be used in any necessary fight.

The minesweeping vessels are representative of the use of the installations which are already developped according to the accepted standard.

Nubilisation with additives for the living quarters

Crew cabins, offices, hospitals, quarters, corridors and rest areas are protected by such installations.

The protected areas are protected by modules that are built in order to protect areas no greater than 280 sqm. (These dimensions are related to the greatest area of interest, namely SOLAS cap II).

The modules are controllable directly, by remote and automation.

General characteristics of the installation:

-The pressure in the installation should be approx. 10 bar

-Micellation of water and F-500 at 3% through "micellators"

-Selective distribution of the mixture through sprinklers with closed heads with thermosensitive vials.

- Enough reaction time (15 minutes of dispersion in the biggest protected area)

Nubilisation with additives in the living quarters: the micellator module

Nubilisation with additives in the living quarters: a sprinkler head

Nubilisation with additives in the living quarters: a sprinkler head

The central control areas and the navigation systems areas are protected by this system.

The areas are protected by modules dimensioned according to the surface, in this case by 5 l/min installations (this dimension refers to the biggest area of interest in the protected zone– FSS Code).

The quarters are protected either directly, or by remote, through automation.

General characteristics of the installation:

- The pressure in the system is 10 bar
- The mixture of water and F-500 at 3% through in-line micellators
- Deluge system (open-head sprinklers)
- Secondary systems which protect the installation from accidental spills

Nubilisation in the living quarters: inside layer in the protected areas

Nubilization in the engine room and in auxiliary rooms

The local engine room of category A (power superior to 375 KW) and other rooms containing machinery and auxiliary installations on the platform are protected through this system.

The areas are protected by modules dimensioned according to the surface, in this case by 5 l/min installations (this dimension refers to the biggest area of interest in the protected zone– FSS Code).

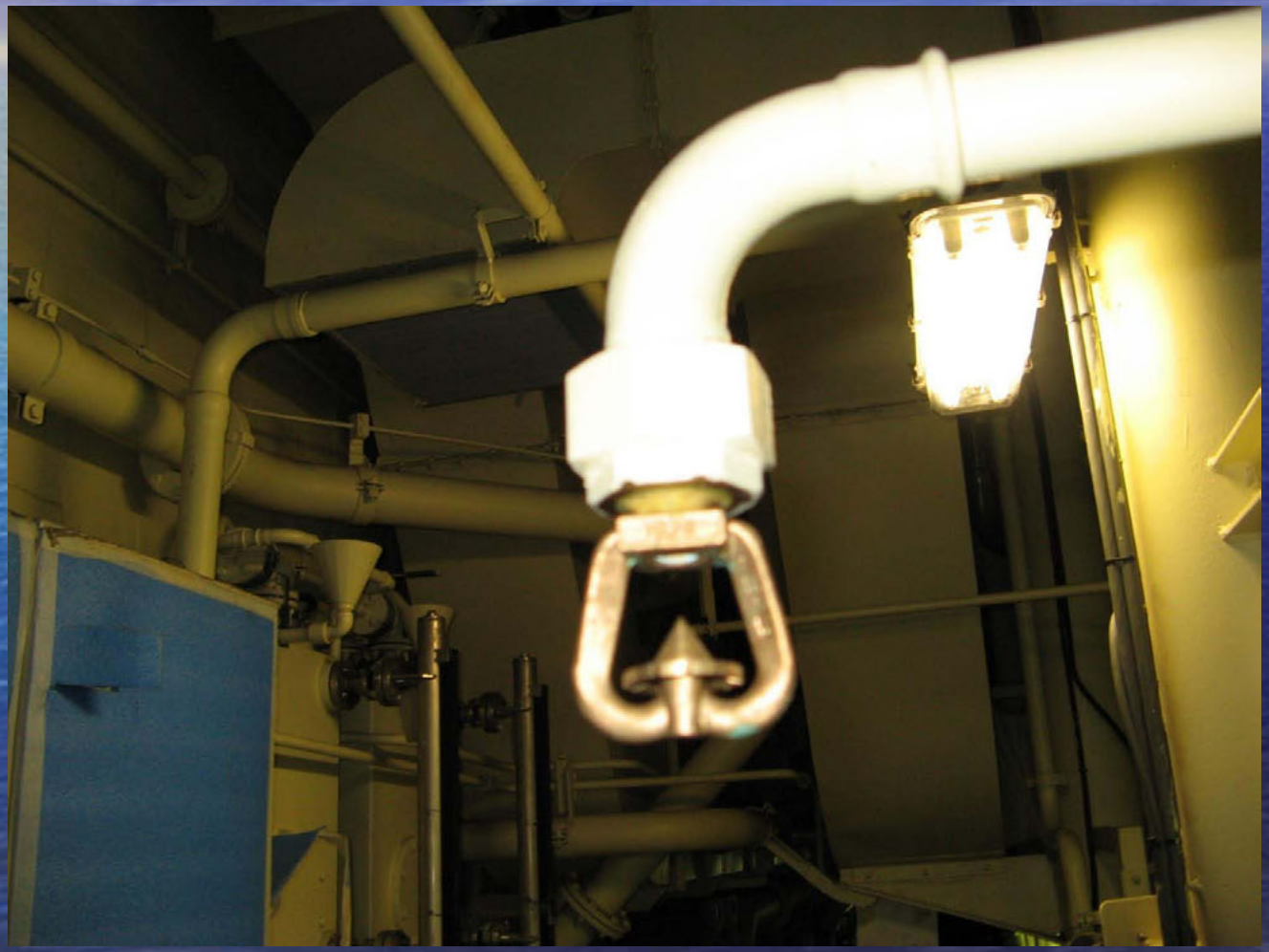
Each module is protected by remote, through automation.

General characteristics of the installation:

- The pressure in the system is 10 bar
- The mixture of water and F-500 at 3% through in-line micellators
- Deluge system (open-head sprinklers)

Nubilization in the engine and auxiliary rooms: tanks and micellators

Nubilization in the engine and auxiliary rooms: sprinkler head



Sprinkler Systems

- No environmental impact as long as a natural extinguisher such as water is used, therefore not subject to restrictions
- The extinguishing agent is non toxic, and it helps the firefighters survive during the fight – in the active phase
- Very high capacity of heat absorbtion from the ambient (it takes thea heat away very fast)
- High capacity of decreasing the toxic fumes and gas
- Allows for a fast intervention of the firefighting teams in the first stages
- Easy to install and to maintain
- Costs of the installation and maintenance included

FIREFIGHTING ADDITIVES CAVOUR

INSTALLATION	SPECIFICATIONS OF THE ADDITIVE	QUANTITY
Firefighting stations	Pale of foam: synthetic foam for low/medium extinction expansion (TAB UMM 1111) Classes A and B fire extinguisher pale: F-500	NR. 542 firefighting stations with one pale of each. Total foam q-ty: 8130 litres. Total F-500: 8130 litres.
Fixed installation with nubilized additivated water for the living quarters	Wetting agent F-500 for fires of classes A and B	Total F-500 for the living quarters: 5200 lt
Fixed installation with nubilized additivated water for the operative quarters	Wetting agent F-500 for fires of classes A and B	Total F-500 for the operative quarters: 5200 lt
Fixed installation with nubilized additivated water for the engine and auxiliary rooms	Wetting agent F-500 for fires of classes A and B	Total F-500 for the engine and auxiliary rooms: 5200 lt
Fixed installation with foam for the engine	Synthetic foam for low/medium extinction expansion (TAB UMM 1111)	Total synthetic foam for engine: 4080 lt

Nubilizing installations for the minesweeping vessels

As for the material used in building the Minesweeping vessels (fiberglass), F-500 was used on these with priority.

As a difference from traditional products, F-500 can also be used in nubilizing installations, as long as there are in-line micellators which are proportional to the water quantity used in the installation.

The nubilizing installations which are modified according to this standard can ensure the rapid extinguishment of fire,lowering the temperature of the surrounding structures, which would easily lose their structural resistance, collapsing under their own weight.

The intervention procedures should include the use of operators (re-entering), as long al the conditions allow for this.