



# NFF XFLOW<sup>®</sup> WET PIPE AND DELUGE SYSTEMS

FOR PROTECTION OF RO-RO SPACES AND  
SPECIAL CATEGORY SPACES ↓

The Novenco Fire Fighting (NFF) XFlow<sup>®</sup> Wet Pipe system is designed to protect closed ro-ro and special category spaces against fires. The NFF XFlow<sup>®</sup> Deluge system is developed for protection of small open ended ro-ro and special category spaces. Both systems have prescriptive based design and meet the latest IMO MSC.1/Circ.1430 regulation, providing improved fire protection for ro-ro and ro-pax vessels.

## FEATURES

- LOW PRESSURE COMPONENTS AND PIPING - EASY AND COST SAVING INSTALLATION
- EXTENSIVE DOCUMENTATION - BETTER PLANNING AND DESIGN OF THE RO-RO SPACE
- STANDARDISED PRODUCT RANGE - SHORT AND PREDICTABLE DELIVERY TIME
- LARGE BORE NOZZLES REDUCE THE RISK OF CLOGGING
- USE SEAWATER DURING OPERATION
- FRESH WATER CONNECTION FOR AVOIDING CORROSION AND CLEANING UP AFTER TESTING
- STANDARD TOOL- AND SPARE PART KITS ARE AVAILABLE FOR COMMISSIONING AND SERVICE TO ENSURE EFFICIENT OPERATIONS
- A COMBINABLE OPTION OF TOTAL WATER MIST SOLUTIONS



# NFF XFLOW<sup>®</sup> WET PIPE AND DELUGE SYSTEMS

## Your safety partner

The low pressure NFF XFlow<sup>®</sup> Wet Pipe and Deluge systems have been developed by our experienced and competent industry experts, and are extensively tested at the SP\* laboratory in Sweden.

The high quality low pressure systems are easy to maintain, making them cost effective solutions throughout the life time of the vessel.

The wet pipe and deluge systems can be combined with NFF XFlow Water Mist Systems protecting ro-ro, machinery and accommodation spaces with one system.

For easy access to support and service, Survitec Marine & Fire Solutions takes responsibility for the system throughout its lifetime

- Consultancy
- Design
- System delivery
- Commissioning
- Service

Survitec Marine & Fire Solutions deliver fire prevention and suppression solutions for all vessel applications and provide one point of contact for design and installation support for your fire systems.

\*SP Technical Research Institute of Sweden, a leading international research institute

## Application

The NFF XFlow<sup>®</sup> Wet Pipe and Deluge systems are designed to protect ro-ro and ro-pax vessels against fires.

- Weather deck area
- Open ro-ro spaces
- Closed ro-ro spaces
- Special category spaces

Open ro-ro spaces are those ro-ro spaces that are either open at both ends or have an opening at one end.



# NFF XFLOW<sup>®</sup> WET PIPE AND DELUGE SYSTEMS

## System description

The NFF XFlow<sup>®</sup> Wet Pipe and Deluge systems can be installed independently or in combination. However, the systems cannot be combined in the same protected space.

**The NFF XFlow<sup>®</sup> Wet Pipe system** with automatic sprinklers is designed for closed ro-ro spaces and special category spaces. The nozzles are fitted with a glass bulb, and are attached to a pressurised piping system, connected to water pumps. In the case of a fire, the glass will be heated, liquid will then absorb the air bubble where it expands until the glass is broken. The water will then subsequently flow from the nozzle.

The volume and composition of the liquid and the size of the air bubble determine the temperature at which the head activates as well as the speed with which it responds. In line with regulations, the wet pipe system is designed for covering minimum 280 m<sup>2</sup> of the area which is the highest or farthest away from the pump, based on water discharge density as defined for the various deck heights.

**The NFF XFlow<sup>®</sup> Deluge system** is a dry pipe system primarily designed to protect open ro-ro spaces, using open nozzles attached to a piping system connected to water pumps. The protected space is divided into sections, each with a section valve located outside of the protected area. In the case of a fire in a section, the section valve is opened, and water will flow from all nozzles in that section.

In line with regulations, the deluge system is designed for simultaneous activation of two adjacent deluge sections that are highest or farthest away from the pump, based on water discharge density as defined for the various deck heights.

## Approvals

According to the new IMO MSC.1/Circ.1430 regulation, all ro-ro and ro-pax vessels shall have a fixed fire fighting system for ro-ro spaces and special category spaces. The systems shall suppress fires on open ended decks and in enclosed spaces where vehicles and passengers have access.

The new regulations were introduced after several accidents with ro-ro fires. Investigations into existing requirements for water based systems, done by SP, proved that existing coverage according to IMO resolution A.123, a drencher system with 5 lpm/m<sup>2</sup> was not sufficient. As a consequence, the new MSC.1/Circ.1430 regulation reflecting the requirements for prescriptive and performance based systems from the SP tests was adopted.

## Deluge nozzles

TECHNICAL DATA							
Nozzle Type	Deck height ≤ 2.5 m		2.5 m < deck height ≤ 6.5 m		6.5 m < deck height ≤ 9 m		Data sheet no.
	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	
NF9A-RR	1.2	6.1	X	X	X	X	56-09-451
NF11A-RR	X	X	1.9	10.8	3.8	15.3	56-09-452
NF13A-RR	X	X	1.2	12.3	2.1	15.9	56-09-453

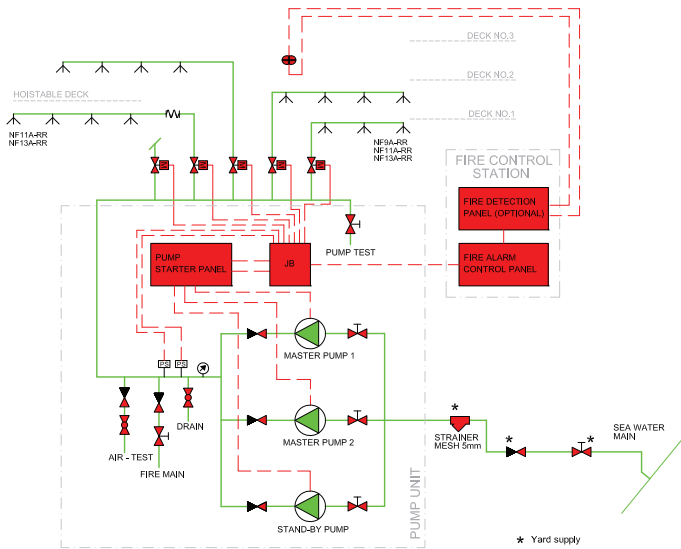
## Automatic sprinklers

TECHNICAL DATA							
Nozzle Type	Deck height ≤ 2.5 m		2.5 m < deck height ≤ 6.5 m		6.5 m < deck height ≤ 9 m		Data sheet no.
	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	
NF9A-RR-T68	1.2	6.1	X	X	X	X	56-09-451
NF11A-RR-T68	X	X	1.9	10.8	3.8	15.3	56-09-452
NF13A-RR-T141	X	X	1.2	12.3	2.1	15.9	56-09-453
NF13A-RR-T141	X	X	1.9	15.5	3.2	20.1	56-09-553

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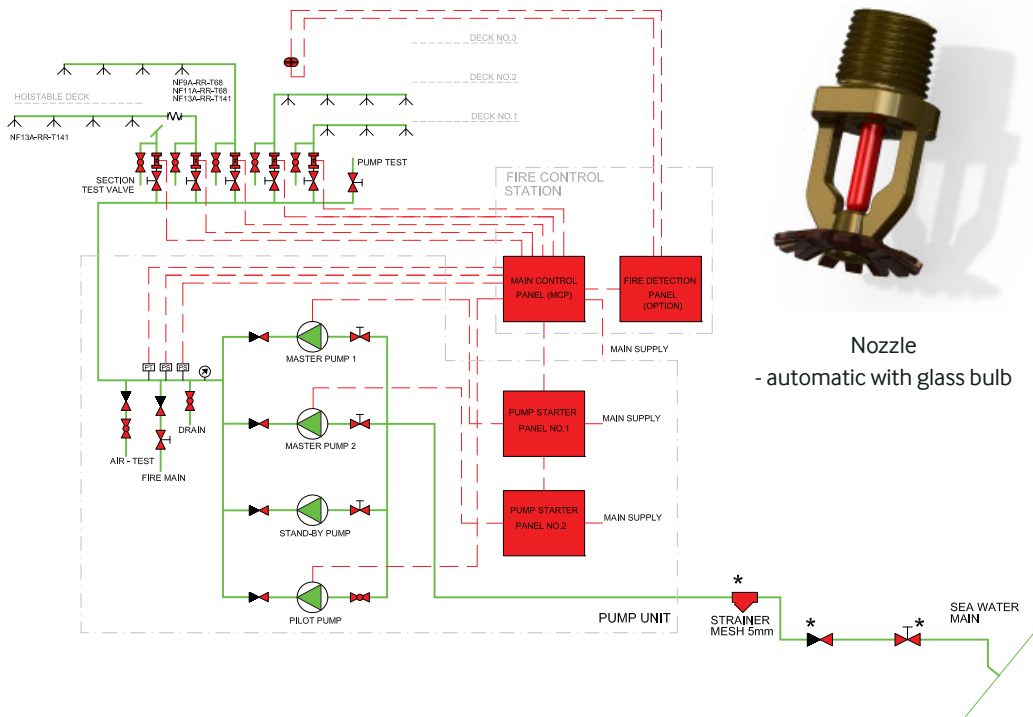
## Standard configuration

Remote operated deluge system with optional Fire Detection system for automatic activation



Nozzle - open

## Wet pipe system



Nozzle  
- automatic with glass bulb

## NFF XFlow<sup>®</sup> water based systems

### Machinery space protection

- Water Mist LAFF system
- Water Mist Total Flooding system

### Accommodation area protection

- Water Mist Accommodation system
- Water Mist Balcony system

### On-deck container protection

- Mobile Water Monitor
- Water Mist Lance

### Ro-ro space and special category space protection

- Wet Pipe system
- Deluge system

### Galley and duct protection

- Water Mist Deep-Fat Fryer system
- Water Mist Duct system