

FOAM WATER OPEN SPRINKLER

MODEL: NH-500, NH-500S

APPLICATION

The Foam-Water Sprinklers are used in the deluge foam system to protect the risk where foam is required to be applied from overhead sprinklers and is to be followed with plain water in a standard sprinkler pattern.

Foam-Water Sprinklers protect the loading and unloading area in the event of a spill fire with low expansion foam systems. These are useful in other wide applications i.e. Air Craft Hangers, Warehousing

SPECIFICATION

Foam-Water Sprinklers are open and air aspirating type. The pattern of coverage is similar to the conventional sprinkler head. The Foam-Water Sprinkler has standard orifice with K-factor of 42.

Foam-Water Sprinklers are designed to operate at a minimum of 2 bar pressure and maximum of 7 bar. The Foam-Water Sprinkler with K-42 will deliver about 61 LPM at 2 bar pressure. The standard coverage per Foam-Water Sprinkler is 9.3 m² (100 ft²)

SYSTEM DESIGN

The following are a few guidelines for minimum requirement of foam system design.

- Foam solution discharge rate: Area of hazard x application rate.
- Minimum foam solution application rate required as per NFPA is 6.5 LPM/m² for the floor area of hazard to be protected.

INSTALLATION & MAINTENANCE

The Foam-Water Sprinkler must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only. Foam-Water Sprinkler which is visibly damaged should not be installed. Use Teflon tape of soft thread sealant on male thread of the sprinkler.

The sprinkler must be tightened in to fitting. Excessive tightening torque may result into serious damage to sprinkler arms and the deflector which may affect spray pattern of the nozzle and it's performance.

It is recommended that water foam spray system be inspected regularly by authorized technical personal. The nozzle must be checked for atmospheric effects, external and internal obstruction, blockage if any. The nozzles should be cleaned or replaced if required. The system must be operated with optimum water flow at least twice in a year or as per the provisions of NFPA or as per authority having jurisdiction. The owner is responsible for the testing, inspection and maintenance of the Foam-Water Sprinkler and system.



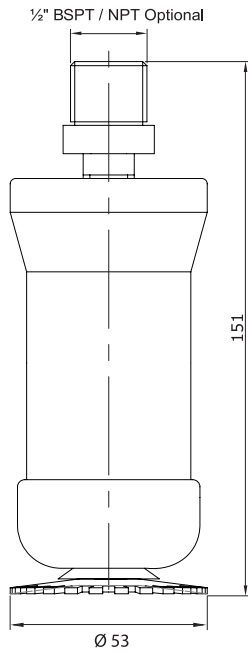
TECHNICAL DATA

Material	NH-500 - Bronze NH-500S - Stainless Steel
Inlet Size	½" NPT (Optional)/½" BSPT
Working Pressure	Max. 12 bar (175 psi)
Mounting	Pendent
Operating Pressure	2.1 bar (30 psi) minimum 7 bar (100 psi) maximum
K-Factor	K-42 standard Other K-factor can be provided as optional without approval
Flow Rate	61-111 LPM (as per UL) 136 LPM (as per FM)
Foam Proportioning	3% or 6% AFFF, AR-AFFF 1/3, 3/3, 3/6, FP 3%, FP 6%
Installation Height	0.9-3.9M
Finish	Natural, Chrome
Weight	0.460 kg Approx

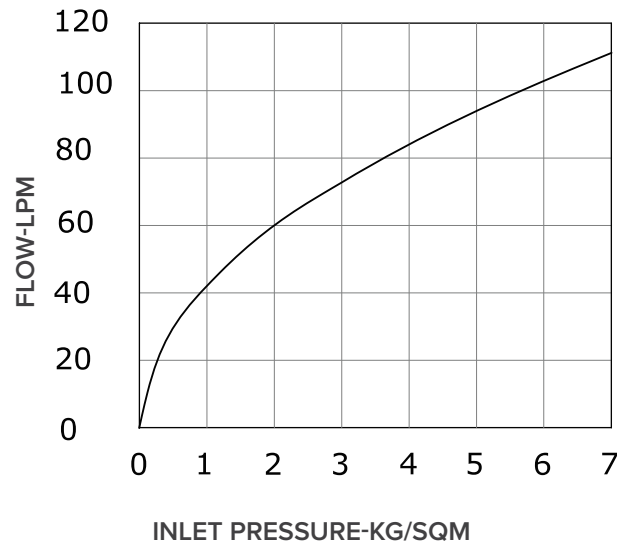
*NOTES:

- Listings, Approvals and/or Certifications for NAFFCO foam concentrate and/or equipment are valid only when used with other NAFFCO foam concentrates or equipment in a manner as outlined in the applicable Listing, Approval and/or Certification.

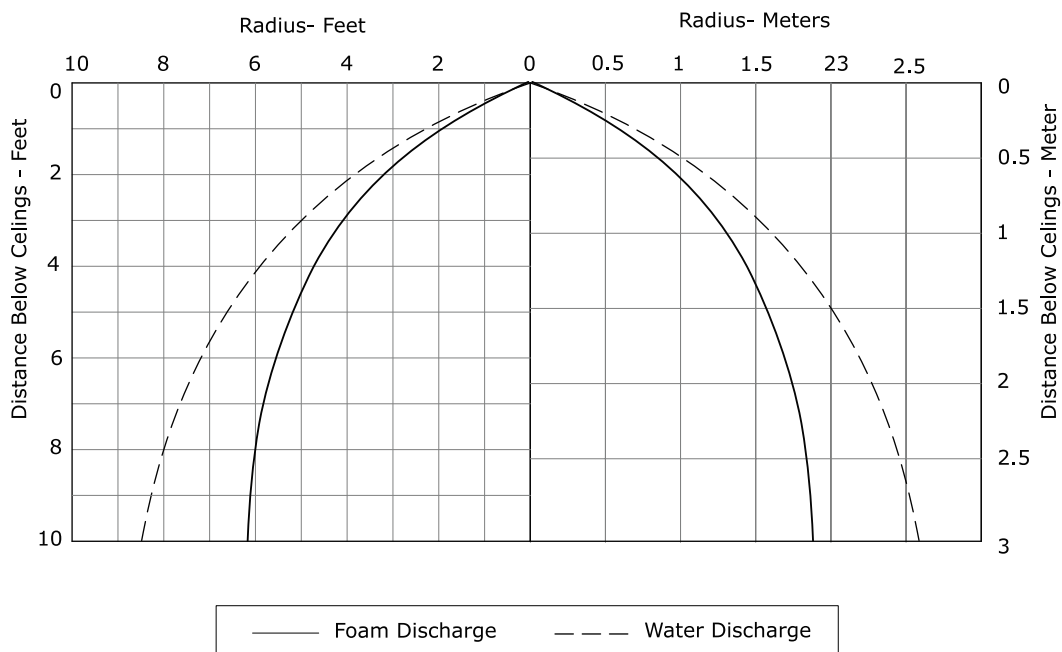
DIMENSION



PRESSURE VS FLOW PERFORMANCE CURVE



DISCHARGE PATTERN



FOAM WATER PENDANT TYPE SPRINKLER

MODEL: NH-520 & NH-550

DESCRIPTION

The Air/ Foam discharge sprinkler head is designed mainly to be used in the deluge water foam system. These sprinkler heads are engineered to discharge foam in a spray pattern.

The deluge water foam system is usually designed using non-aspirating sprinkler heads or air-aspirating foam-water sprinkler heads. The non-aspirating heads are designed to be used for AFFF and Alcohol Resistant AFFF foam concentrates and are not suitable for the use with protein and fluoro-protein type foam concentrates. The NAFFCO NH Series air-aspirating foam water sprinklers are primarily used with protein and fluoro-protein type foam concentrates, they can also be used with any type of foam concentrate.

SYSTEM DESIGN DESCRIPTION

The foam water spray system design shall be based on the NFPA 16, NFPA 13, NFPA 11 & NFPA 409 standards.

The design discharge density shall be in accordance with the applicable occupancy standard for foam water spray systems but in no case less than 6.5 mm/m² (0.16 GPM/ft²) as per NFPA 16. A minimum of two foam water sprinklers are to be installed in an area regardless of its size, in order to obtain the required pattern overlap.

The foam solution shall be designed to discharge for a minimum period of 10 minutes based on the density as specified over the entire system area for deluge foam water spray system.

SYSTEM DESIGN

- Determine the size and type of hazard.
- The application rate has to be determined.
- Estimate the number of sprinklers required.
- Determine total system discharge flow.
- Estimate the water requirement.
- Determine discharge time.
- Estimate the required quantity of foam.
- Determine the size and best type of proportioning system to be used.

APPLICATION

Deluge foam water spray system is designed to protect two dimensional fire caused by flammable liquid. The area of application are Air craft hangers, Oil pumping station, Chemical storage, Warehouses, Oil loading and unloading area.

FEATURES

- Foam discharge in Spray pattern.
- Pendant installation.
- Specially designed for low expansion foam



MAINTENANCE

Periodic inspection need to be made by authorized technical personnel. The nozzle must be checked for possible damage, obstruction or deposits of foreign objects externally and internally. If found the nozzles should be cleaned or replaced. The system must be operated with optimum water flow at least twice a year or as per the recommendation made by NFPA or as per authority having jurisdiction.

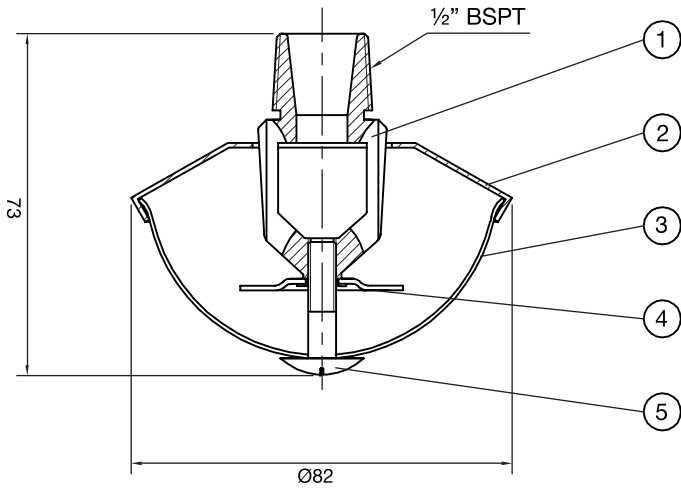
TECHNICAL DATA

Model Number	NH-520	NH-550
Inlet Size	½" NPT	¾" NPT
Working Pressure	30-100 psi	
Material	Brass, Chrome Finish	
Spray Pattern	Pendent	
K-Factor	2.8	5
Orifice Dia.	8.25 mm	9.5 mm
Maximum Flow Rate	31 GPM	50 GPM
Installation Height	0.9-3.9 meter	
Foam Proportioning	AFFF 3% & 6%, AR-FFF 3/3, 3/6	
Min. Foam Application Rate	0.2 gal/min/ft ²	
Max. Water Application Rate	0.3 gal/min/ft ²	

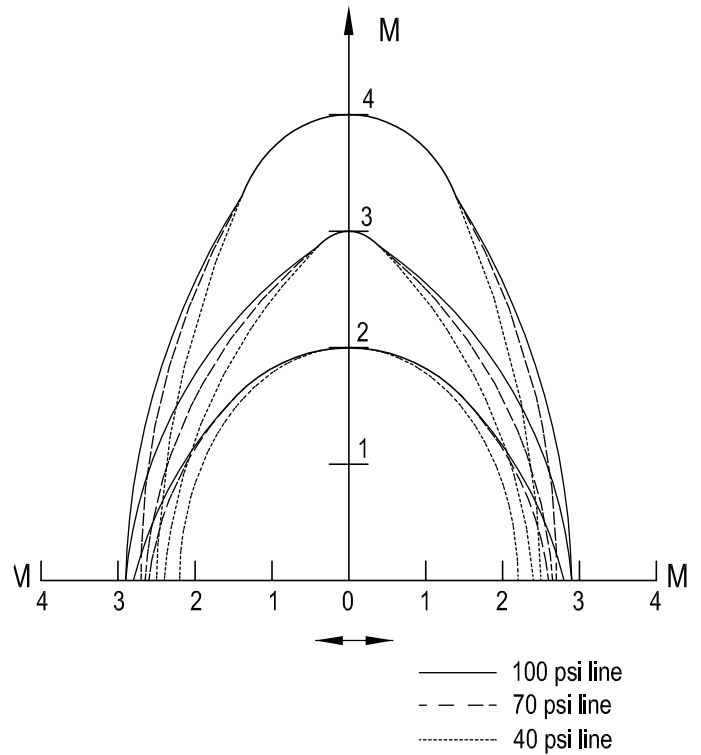
*NOTES:

- NH-520 (UL Approved only)
- Foam Concentrate-AFFF 3%, 6%, AR-FFF 3/3, 3/6
- UL Listing only for 3% Foam Proportioning
- Listings, Approvals and/or Certifications for NAFFCO foam concentrate and/or equipment are valid only when used with other NAFFCO foam concentrates or equipment in a manner as outlined in the applicable Listing, Approval and/or Certification.

DIMENSION

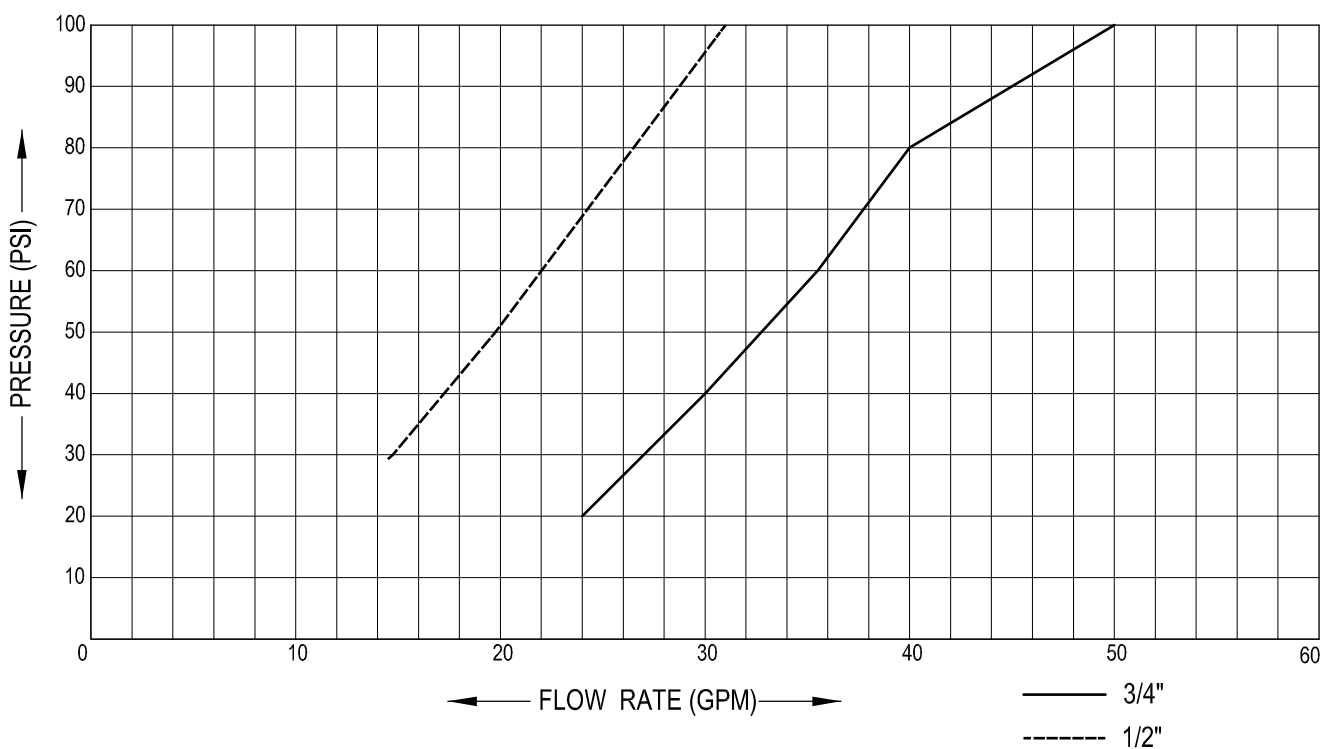


DISCHARGE PATTERN



Serial No.	Part Name	Material
1	Body	ASTM C83600
2	Cover	ASTM C83600
3	Deflector	ASTM C83600
4	Net	ASTM S30400
5	Bolt	ASTM S30400

PRESSURE VS FLOW PERFORMANCE CURVE



AUTOMATIC FOAM WATER SPRINKLER

MODEL: SD1010



DESCRIPTION

The Sprinklers SD1010 (Glass Bulb Type), Standard Orifice, Pendent type, design incorporates state-of-the-art, heat responsive, frangible glass bulb design (standard or quick response) for prompt, precise operation.

The forged frame is more streamlined and attractive than traditional sand cast frames. It is cast with a hex-shaped wrench to allow easy tightening from different angles. This sprinkler is available in various temperature ratings and finishes to meet many design requirements. All Sprinklers are manufactured using the time proven Belleville seal used exclusively by all major manufactures to ensure long life and safe operation.

SPRINKLER OPERATION

The operating mechanism is a frangible glass bulb which contains a heat responsive liquid. During a fire, the ambient temperature rises causing the liquid in the bulb to expand. When the ambient temperature reaches the rated temperature of the sprinkler, the bulb shatters. As a result, the waterway is cleared of all sealing parts and water is discharged towards the deflector. The deflector is designed to distribute the water in a pattern that is most effective in controlling the fire.

TECHNICAL DATA

Sprinkler Identification	Standard Response (bulb 5 mm)
Style	Pendent
K Factor	5.6 GPM/psi ^{1/2} . (80 LPM/bar ^{1/2})
Nominal Thread Size	1/2" NPT (15 mm)
Orifice Size	13 mm
Max. Working Pressure	175psi (1200kPa)
Factory Hydrostatic Test	100% @ 500psi (3450 kPa)
Min. Operation Pressure	7 psi (48 kPa)
Foam Proportioning	AFFF 3% & 6%, AR-AFFF 3/3, 3/6
Minimum Foam Application Rate	0.2 gal/min/ft ²
Max. Water Application Rate	0.3 gal/min/ft ²
Installation Height	1.9-3.9 m
Finish	Brass with Chrome Finish



WARNINGS

The sprinklers must be installed and maintained in compliance with this document. Depressurize and drain the piping system before attempting to install, remove, or adjust any Sprinklers. Failure to do so may impair the performance of these sprinklers. The owner is responsible for maintaining the fire protection system and devices in operation.

INSTALLATION

All Sprinklers must be installed according to NFPA 13 Standards. Deviations from these requirements and standards or any alteration to the sprinkler itself will void any warranty made by manufacturer. In addition, installation must also meet local government provisions, codes and standards as applicable.

The system piping must be properly sized to insure the minimum required flow rate at the sprinkler. Check for the proper model, style, orifice size and temperature rating prior to installation. Install sprinklers after the piping is in place to avoid mechanical damage, replace any damaged units. Wet pipe systems must be protected from freezing.

Upon completion of the installation, the system must be tested per recognized standards. In the event of a thread task, remove the unit, apply new pipe joint compound or tape, and reinstall.

TEMPERATURE RATINGS

Sprinkler Temperature Classification	Nominal Sprinkler Temperature Rating	N.F.P.A Maximum Ambient (Ceiling) Temp.(Allowed)	Glass Bulb Color
Ordinary	155°F/57°C	100°F/38°C	Orange
Ordinary	155°F/68°C	100°F/38°C	Red
Intermediate	175°F/79°C	150°F/65°C	Yellow
Intermediate	200°F/93°C	150°F/65°C	Green



Sprinkler Wrench

TOOL DESCRIPTION

All sprinklers must be installed according to the following. The Sprinkler Wrench's is a tool specifically designed for installing Sprinklers. These special wrenches must be used to provide the proper leverage when tightening the sprinkler and to minimize slippage during installation. Any other wrench may damage the sprinkler

INSTALLATION SEQUENCE

1. The unit must be installed in the Pendent position for the Pendent Sprinkler and Recessed Pendent Sprinkler.
2. Use only a non-hardening pipe joint compound or tape seal. Apply only to the male threads.
3. Hand tighten the sprinkler into fitting.
4. For Upright and Pendent Sprinklers, use a standard wrench. Tighten the unit into the fitting. A lead-tight joint requires only 150 to 200 kg.cm (14.7 to 19.6 Nm) of torque. Once torque level reach over 300 kg.cm (29.4 Nm) it may distort the orifice seal, resulting in leakage. For exposed piping systems, the sprinkler should be oriented so the frame arms are parallel with the branch line pipe.

CAUTION

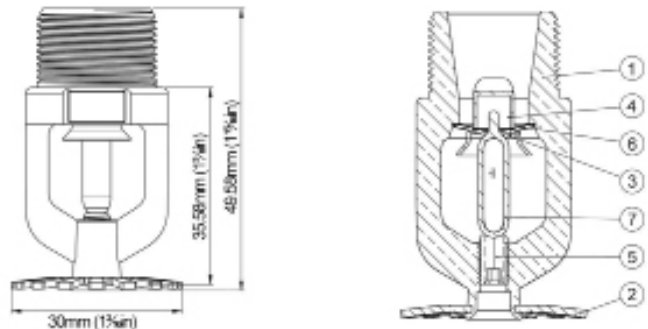
Do not over-tighten or under-tighten the sprinkler to compensate for inaccurate escutcheon plate adjustment. Protection clips are used to protect its bulb. Please have clip on at all times during transportation.

MAINTENANCE

Sprinklers must never be altered after manufacture. Any alteration such as painting and coating will directly harm the sprinkler and cause malfunctions. Sprinkler in contact with corrosive products should be replaced if they cannot be cleaned completely.

Visual inspections are recommended after installation. After installation, a close-up inspection annually will suffice. Inspection and maintenance of fire protection system is the responsibility of the owner. It is recommended that automatic sprinkler system be inspected and tested according to local and/or national regulations.

PENDENT SPRINKLER



Part No.	Part Name	Material
1	Frame	Brass
2	Deflector	Brass
3	Cap	Brass
4	Cap Seat	Stainless Steel
5	Load Screw	Brass
6	Seal	Bery Nickel Spring Teflon Tape
7	Bulb	Norbulb N5/N3