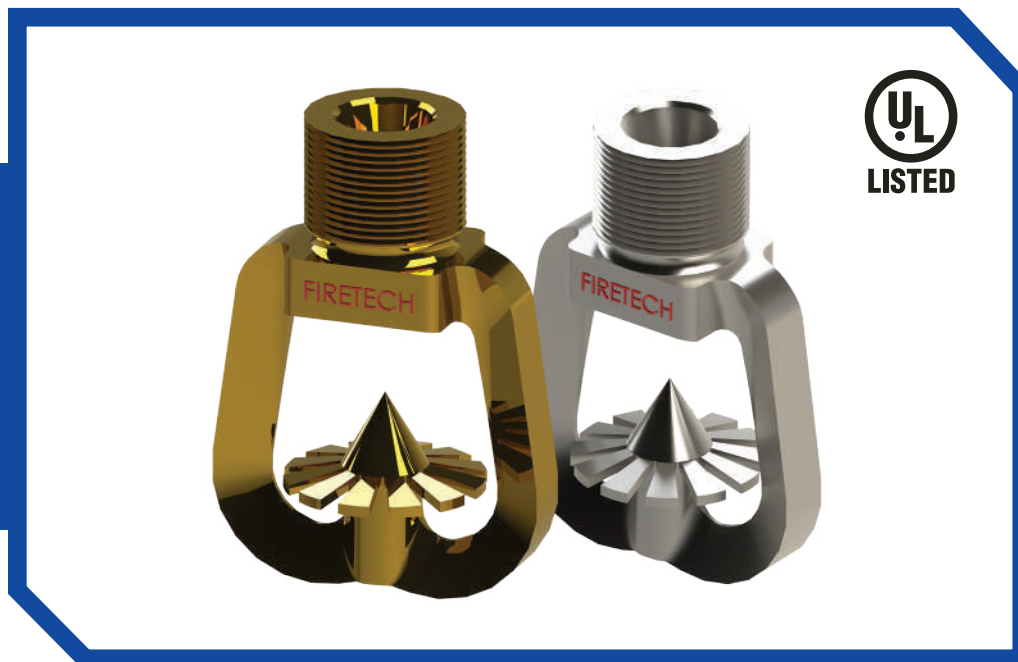


Document No.: FPC-702-MKT-MV
 Revision: 0
 Product Number: 702



FIRETECH MEDIUM VELOCITY WATER SPRAY NOZZLE - UL LISTED

SPECIAL FEATURES

- Non-clogging open type lightweight, compact design
- Solid uniform water spray
- Lowest operating pressure at farthest nozzle starting 1.4 Bar
- Wide range of K-Factors and Spray Angles
- UL Listed

DESCRIPTION

FIRETECH UL listed Medium Velocity Water Spray Nozzles (MVWSN) are non-clogging open type directional spray nozzles designed for discharging a solid, uniform cone spray of medium velocity water droplets. FIRETECH UL listed MVWSN are used in fixed water spray systems employed for;

- Cooling of storage tanks & vessels
- Exposure protection of structures
- Controlled burning
- Dilution & Dispersion of flammable vapours

- Extinguishment of Class-A fire

The general arrangement of FIRETECH UL listed Medium Velocity Water Spray Nozzle is as shown in fig. 702-1. The spray nozzle consists of a body, splitter pin & a deflector. The nozzles are provided with ½ Inch (15 NB) male taper threads as per BSPT (M) or NPT (M) connection. The Flow Vs Pressure graph for this nozzle shall be as per shown in graph fig. 702-2. The spray patterns for 90° or 120° or 140° (Degrees) spray angle nozzles shall be as shown in graph fig. 702-3, fig. 702-4 & fig. 702-5 respectively.

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OPERATION

The water spray system is operated manually/automatically. On supply of fire water, the nozzles discharge water in the form of solid uniform cones of medium velocity water droplets in a predetermined spray angles and direction as shown in fig. 702-3, fig. 702-4 & fig. 702-5.

SPECIFICATION

FIRETECH UL listed Medium Velocity Water Spray Nozzle shall be manufactured in Brass, Stainless Steel 316 and Nickel Aluminium Bronze (NAB) construction for longer life. The brass constructed nozzles are available either in natural finish or chrome finish. The end connection shall be 15 NB (1/2") NPT (M) or BSPT (M) as per requirement.

K-Factor:

K-Factor is a Discharge Coefficient (constant) calculated for working pressure between and including 1.4 to 3.5 Bar. Besides standard K-Factors, nozzles of intermediate K-Factors can also be supplied with individual test results; however approval shall not be applicable in those cases.

The UL listed FIRETECH MVWSN discharge coefficients or K-Factors are available as K-18, K-22, K-30, K-35, K-41, K-43, K-51, K-64, K-79, K-91 & K-102 as applicable and derived from design calculation of water spray system.

Spray Angle:

Spray nozzle of the nozzle is specified on the basis of actual spray pattern and spray coverage at working pressure between and including 1.4 to 3.5 Bar. The discharge angle for these nozzles are available for 90° or 120° or 140° (Degrees) and these shall be with UL approval.

Pressure at nozzle between and including 1.4 to 3.5 Bar results in optimum discharge of water. At pressure above 3.5 Bar, the spray pattern tends to draw inwards resulting in less spray coverage.

NOZZLE SELECTION

The K-Factor and spray angle of FIRETECH UL listed MVWSN to be employed in a fixed water spray system depends upon the spray system design codes such as NFPA/FOC/TAC/OISD or authority having jurisdiction. The common parameters that determine nozzle selection are;

- Water application density
- Pressure available at nozzle
- Spray coverage of nozzle

Determination of K-Factor:

On the basis of pressure and flow required at nozzle, the nozzle K-Factor can be determined, with the help of formula given below when pressure and flow at the nozzle is known.

$$Q = K \times \sqrt{P}$$

$$K = Q / \sqrt{P}$$

Where, Q = Required flow at the spray nozzle (LPM)

P = Pressure at the spray nozzle (Bar)

Sample Calculation:

$$Q = 45 \text{ LPM}$$

$$P = 1.4 \text{ Kg/Sq.cm}$$

$$K = Q / \sqrt{P}$$

$$K = 38.03$$

Hence nozzle of K-Factor 41 shall be appropriate. Please note that whenever the value of calculated K-Factor exceeds the K-Factors established by the manufacturer (FESPL), always select the next higher K-Factor.

ORDERING INFORMATION

While ordering a FIRETECH UL listed Medium Velocity Water Spray Nozzle, specify the following:

- Item Code
- K-Factor
- Spray Angle
- Material of Construction
- Finish
- Quantity Required

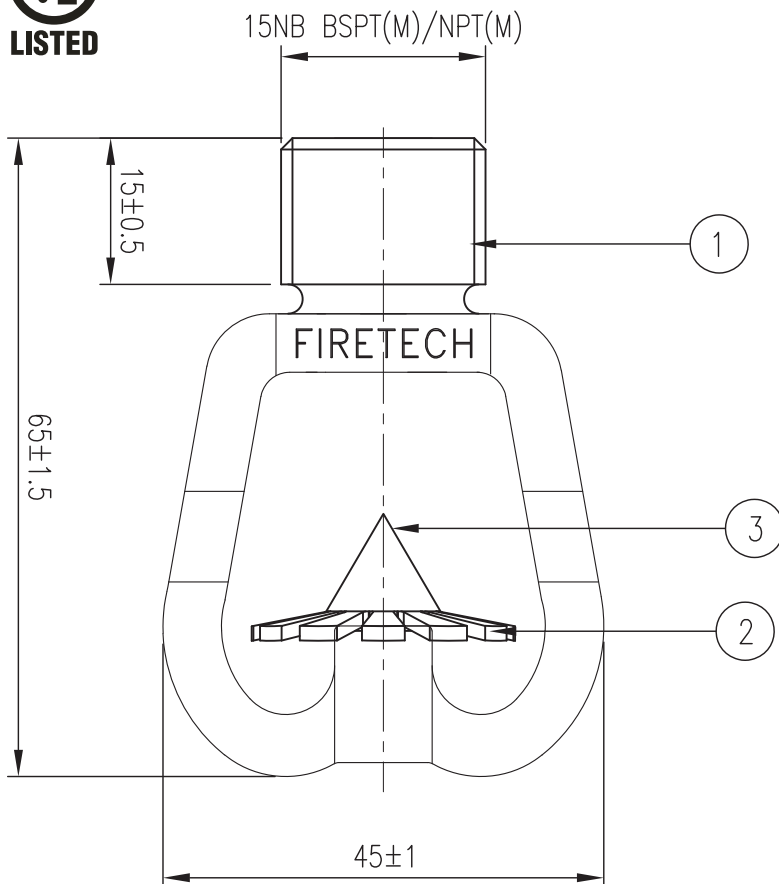
For more technical detail, please refer to technical product datasheet 702-MKT-A1-B/S/AB_REV.2

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TECHNICAL DETAILS:-

SPRAY ANGLES 90°,120°140°	'K' FACTOR AVERAGE BETWEEN 1.4-3.5 BAR	
	METRIC	US
WORKING PRESSURE 1.4-3.5 BAR	K-18	1.26
	K-22	1.54
WEIGHT - 0.095 KG (APPROX.)	K-30	2.10
	K-35	2.45
K FACTOR = $\frac{\text{FLOW IN LPM}}{\sqrt{\text{PRESSURE}}}$	K-41	2.87
	K-43	3.01
	K-51	3.57
	K-64	4.48
	K-79	5.53
	K-91	6.37
	K-102	7.14
MARKING	MFG.NAME OR IDENTIFYING SYMBOL OF THE MFG,K-FACTOR,ANGLE&MODEL	
END CONNECTION	1/2" BSPT(M) 1/2" NPT(M)(OPTIONAL)	
APPROVAL	UL LISTED	
ORDERING INFORMATION	SPECIFY K-FACTOR, SPRAY ANGLE, FINISH MODFL AND FND CONNCTION	
NOTE.:-		
1. ALL DIMENSIONS ARE IN mm,UNLESS OTHERWISE SPECIFIED.		
MEDIUM VELOCITY WATER SPRAY NOZZLE		

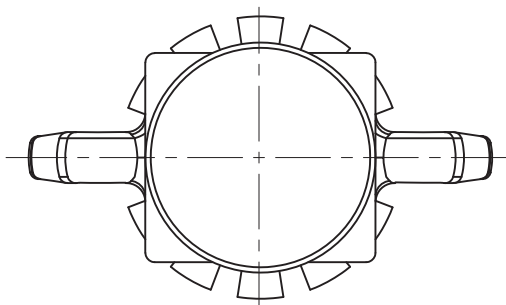


Fig. 702-1

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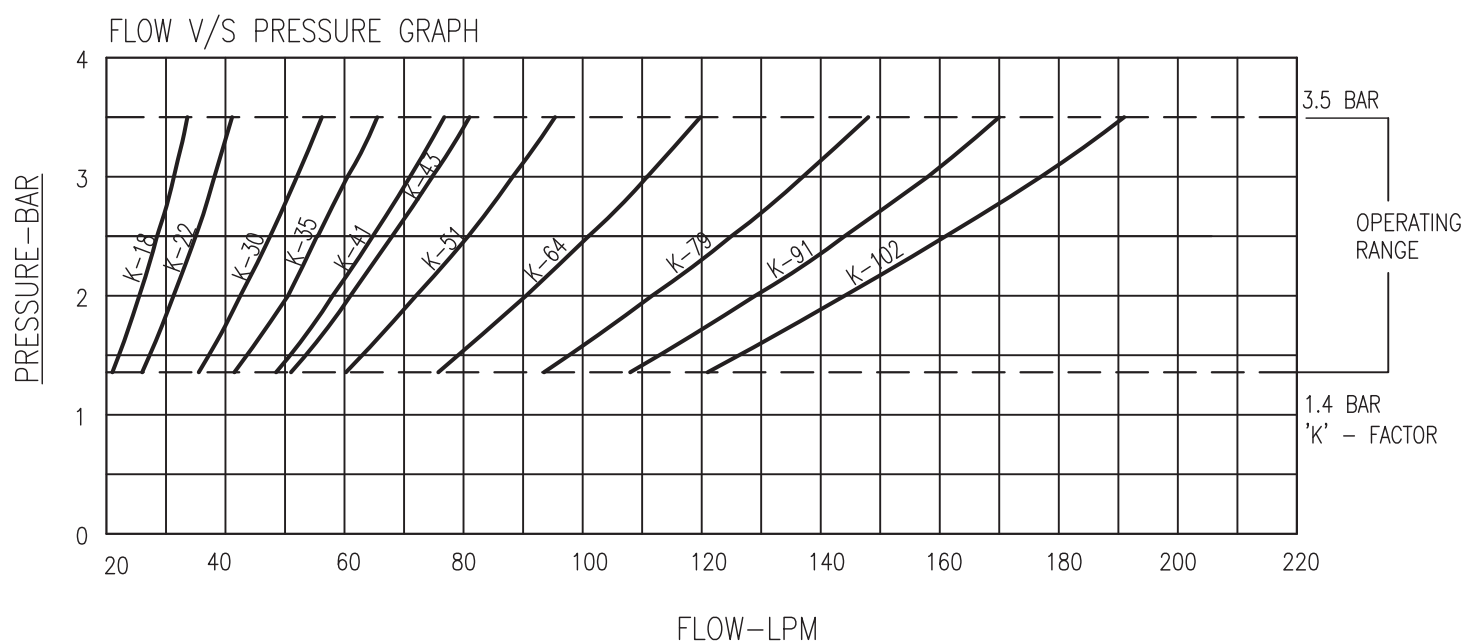


Fig. 702-2

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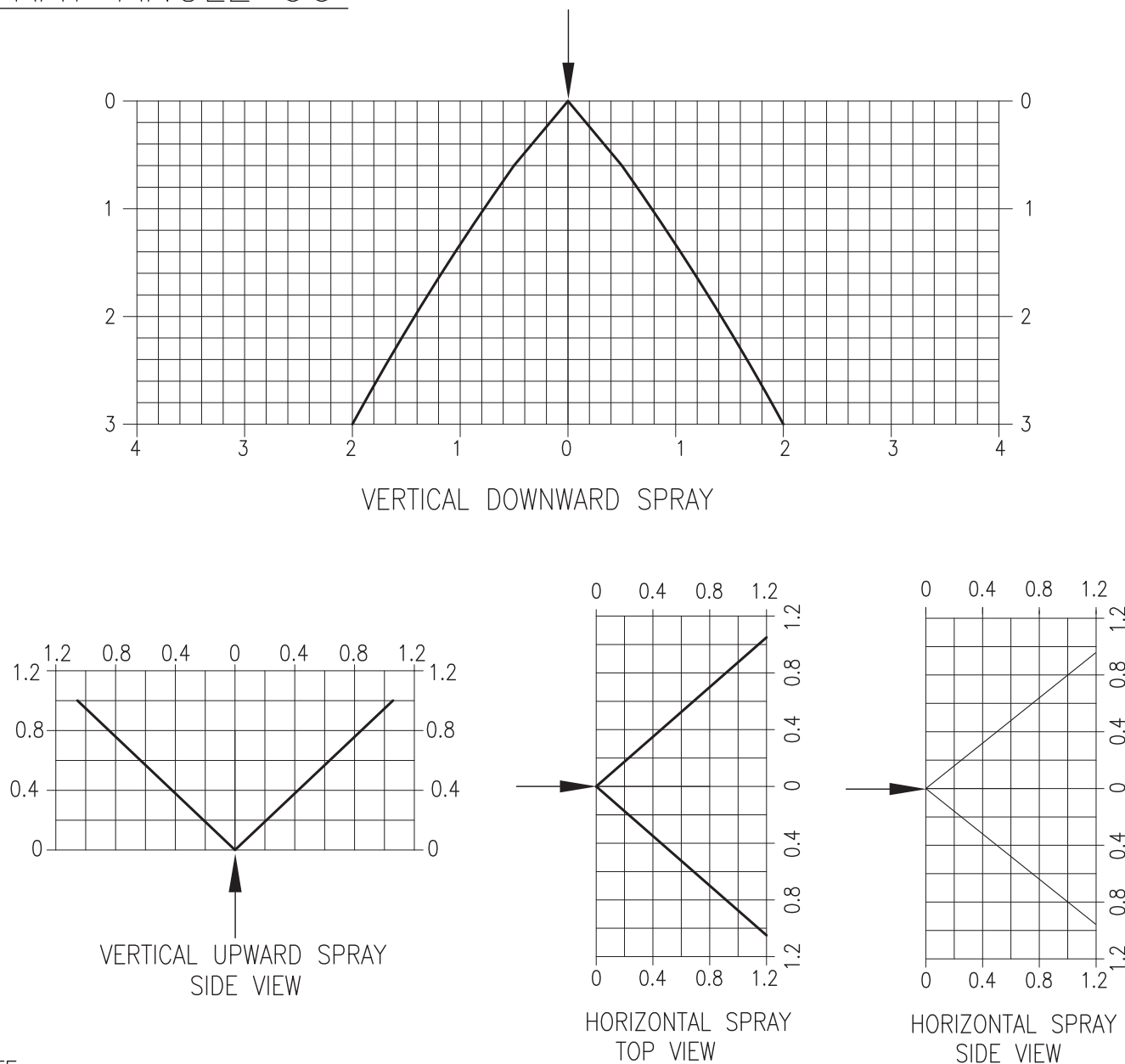
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SPRAY ANGLE 90°



NOTE:

1. ALL DIMENSIONS ARE IN METERS.
2. THE SPRAY PATTERN GIVEN IN GRAPH IS FOR SPRAY ANGLE OF 90 DEG, AT NOZZLE INLET PRESSURE OF 1.4 TO 3.5 BAR.
3. TEST SPRAY PATTERN OBTAINED IS IN STILL AIR CONDITION.

Fig. 702-3

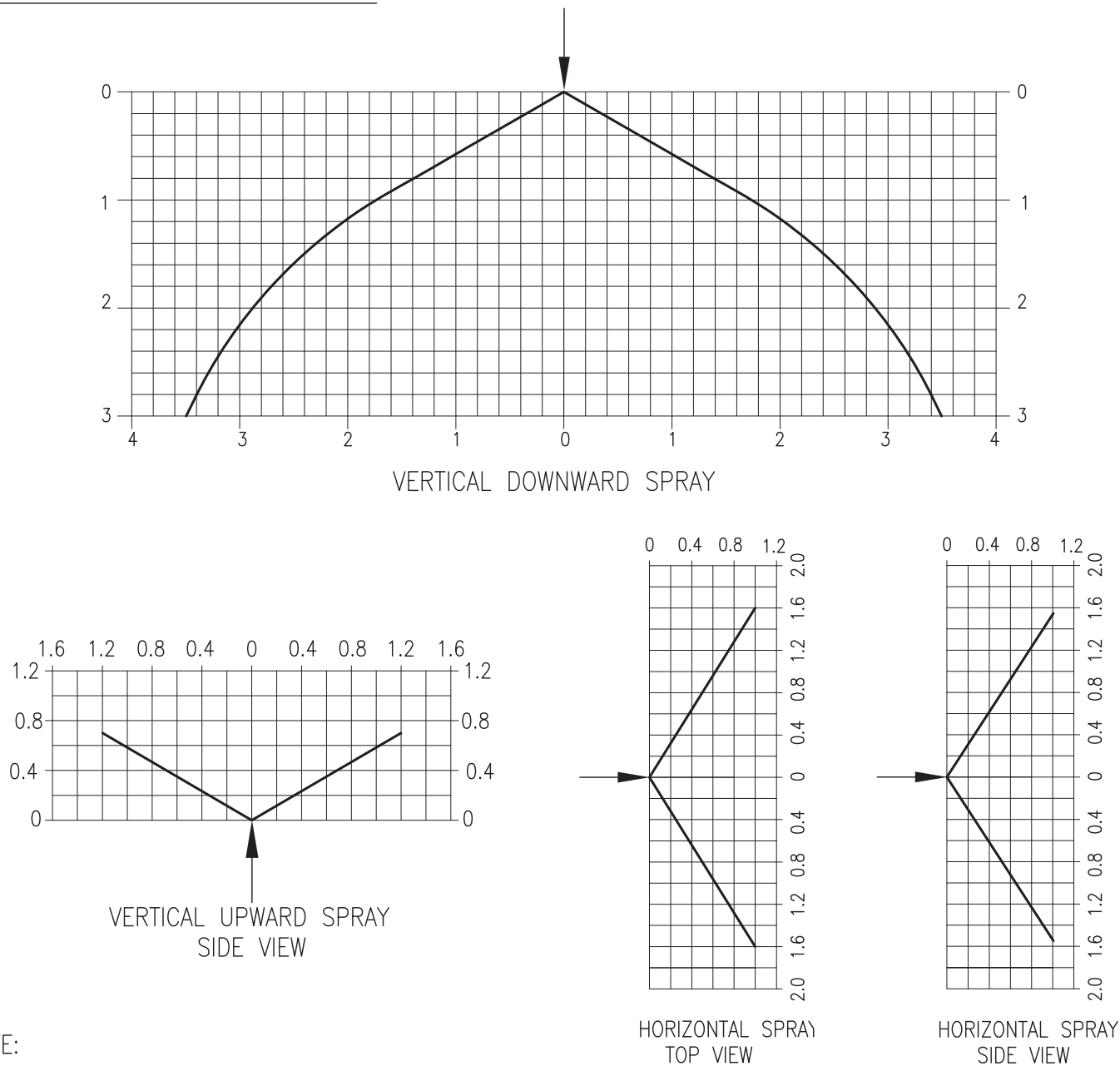
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SPRAY ANGLE 120°



NOTE:

1. ALL DIMENSIONS ARE IN METERS.
2. THE SPRAY PATTERN GIVEN IN GRAPH IS FOR SPRAY ANGLE OF 120 DEG, AT NOZZLE INLET PRESSURE OF 1.4 TO 3.5 BAR.
3. TEST SPRAY PATTERN OBTAINED IS IN STILL AIR CONDITION.

Fig. 702-4

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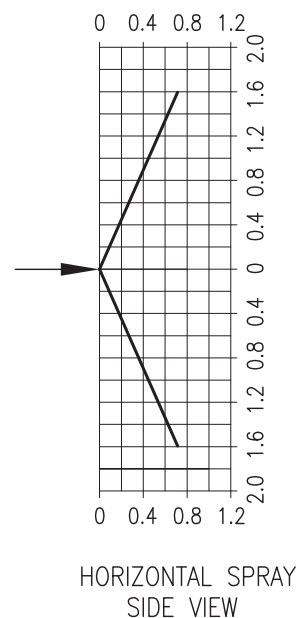
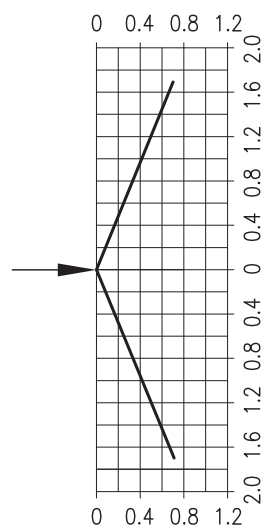
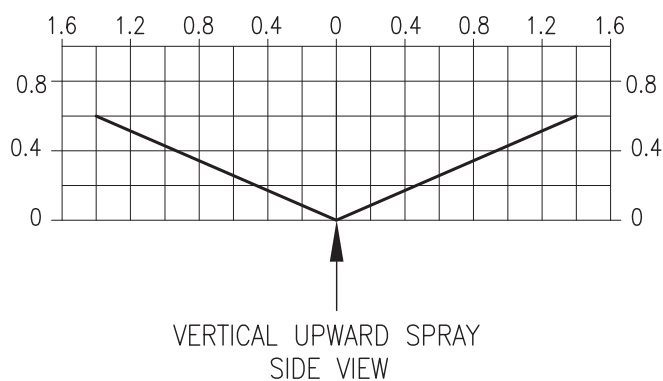
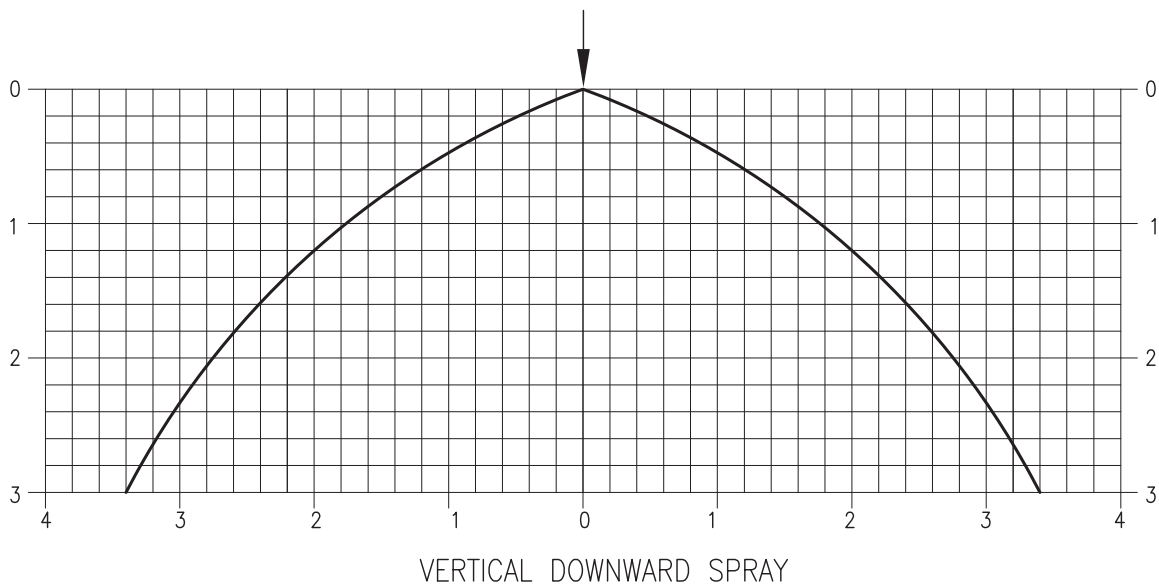
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SPRAY ANGLE 140°



NOTE:

1. ALL DIMENSIONS ARE IN METERS.
2. THE SPRAY PATTERN GIVEN IN GRAPH IS FOR SPRAY ANGLE OF 120 DEG, AT NOZZLE INLET PRESSURE OF 1.4 TO 3.5 BAR.
3. TEST SPRAY PATTERN OBTAINED IS IN STILL AIR CONDITION.

Fig. 702-5

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