MEDIUM VELOCITY WATER SPRAY NOZZLE

TECHNICAL DATA

MODEL
MV-A & MV-AS Brass Material
MV-B & MV-BS Stainless Steel Material
MV-E is with Aluminium Bronze Material

TYPE
MV-A, MV-B & MV-E are without strainer
MV-AS & MV-BS are with strainer

MAXIMUM WORKING PRESSURE
12 Bar (175 PSI)

EFFECTIVE WORKING PRESSURE
1.4 to 3.5 Kg/Sq.cm
(20 - 50 PSI)

END CONNECTION
½" BSPT
(¼" NPT OPTIONAL)

MATERIAL
Refer Table-I

INCLUDED WATER SPRAY ANGLE FOR EACH K-FACTOR
140°, 120°, 110°, 100°, 90°, 80° & 65°

K FACTOR
MV-A/MV-B
Metric (US) K-18 (1.26) K-22 (1.54) K-30 (2.10) K-35 (2.45) K-41 (2.87)
MV-AS/MV-BS
Metric (US) K-18 (1.26) K-22 (1.54) K-30 (2.10) K-35 (2.45) K-41 (2.87)
MV-E

WEIGHT (Approx)
0.110 Kg

FINISH
MV-A & MV-AS
Natural Brass finish.
Chrome plated Nickel,
Electroless Nickel plated,
Epoxy powder coated.
MV-B, MV-BS & MV-E
Natural finish

APPROVALS
Nozzle - UL Listed & FM Approved
Blow-off Plug - FM Approved

ORDERING INFORMATION
Specify K-Factor, spray angle, finish, model and end connection

DESCRIPTION
The HD® Medium Velocity Water Spray Nozzles are open type non-automatic nozzles, designed for directional spray application in fixed fire protection system.

Medium velocity water spray nozzle has an external deflector, which discharges water in a directional cone shaped pattern of small droplet size. The water is uniformly distributed over the surface to be protected.

The Nozzles are effectively designed to apply water to exposed vertical, horizontal, curved and irregular shaped surfaces to allow cooling to prevent excessive absorption of heat from external fire and avoid structural damage or spread of fire. In some application nozzles may be installed to control or extinguish the fire depending on water design density as per applicable codes. The nozzle is used in deluge water spray system for special hazard fire protection application.

As the design and intent of specific water spray system may vary considerably, MV nozzle is made available in several combinations of orifice sizes and spray angles.

The minimum desirable pressure to achieve a reasonable spray pattern is 1.4 Kg./Sq.cm. The water distribution pattern as shown in the graph in following pages is at an average pressure of 2.0 Kg/Sq.cm. The change in pressure between 1.4 to 3.5 Kg./sq.cm. does not affect considerable change in spray angle.

The spray pattern shown is with indoor application. System designer must consider wind velocity while designing the system for outdoor application. Field obstruction if any affecting the spray pattern of the nozzle must also be considered. The nozzle may be oriented to any position as deemed necessary to cover the hazard.
The Blow-off plugs can be used to prevent the depositing of foreign materials in the water way of the nozzles, which could interfere with discharge of the spray nozzle. Blow-off plugs are optional and are FM Approved. Blow-off Plugs have identification mark with respect to K factor. Blow off plug for nozzle having K-factor 22 will have identification mark of 22. Minimum operating pressure for nozzle having Blow-off plug is 1.4 Kg./Sq.cm (20 PSI).

The main pipeline strainer as per NFPA-15 is required for system utilizing nozzle orifice diameter less than 9.5mm (3/8 inch), i.e. MV Nozzle having K-factor 51 and less, and also for the system water likely to contain obstructive materials.

**INSTALLATION & MAINTENANCE**

The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed. Use Teflon tape or soft thread sealant on male thread of the nozzle.

Nozzles with Blow-off Plug

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**MODEL MV-A, MV-B & MV-E**

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**MODEL MV-AS, & MV-BS**

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**TABLE - I : MATERIAL OF CONSTRUCTION**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>MODEL MV-A &amp; MV-AS</th>
<th>MODEL MV-B &amp; MV-BS</th>
<th>MODEL MV-E</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING</td>
<td>BRASS, IS 291 GR. -1 (EQUIVALENT TO ASTM B21)</td>
<td>A381-CF8M (Aluminium Bronze IS-305)/AB1 (Equivalent to ASTM-A148)</td>
<td></td>
</tr>
<tr>
<td>PIN</td>
<td>BRASS IS-291, GR. -1 (EQUIVALENT TO ASTM B21)</td>
<td>ASTM-A479/GR 31903</td>
<td>Ph.Bronze IS:7811 (Equivalent to BS139/BS2874-PB102)</td>
</tr>
<tr>
<td>DEFLECTOR</td>
<td>BRASS IS:2769 (EQUIVALENT TO ASTM B361)</td>
<td>ASTM A240/GR 2205</td>
<td>Ph.Bronze IS:7814-GR-II (Equivalent to BS2870-PB102)</td>
</tr>
<tr>
<td>STRAINER</td>
<td>COPPER (FOR MV-AS)</td>
<td>STAINLESS STEEL 316 (FOR MV-BS)</td>
<td>-</td>
</tr>
<tr>
<td>BLOW-OFF CAP</td>
<td>ELASTOMER</td>
<td>ELASTOMER</td>
<td>ELASTOMER</td>
</tr>
</tbody>
</table>

The nozzles must be hand tightened into the fitting. After hand tightening use Nozzle Wrench-NW-M for wrench tightening into nozzle fittings. Excessive tightening torque may result into serious damage to nozzle arms and the deflector, which may affect spray pattern of the nozzle and its performance.

It is recommended that water spray system be inspected regularly by authorised technical personnel.

The nozzle must be checked for atmospheric effects, external and internal obstruction, blockage if any. The system must be operated with optimum water flow at least twice in a year or as per the provisions of NFPA /TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and the components there in so that it performs properly when required.
DISCHARGE CHARACTERISTICS

\[ Q = K \sqrt{P} \]

where \( P \) is supply pressure in Kg/sq.cm., \( K = \) nozzle constant (K-factor) in metric

US K factor = Metric K factor \( \times \) MK \( \div \) 14.2745

SPRAY PATTERN

SPRAY ANGLE 65°

SPRAY ANGLE 80°

ALL DIMENSIONS ARE IN METERS
SPRAY PATTERN

SPRAY ANGLE 90°

SPRAY ANGLE 100°

ALL DIMENSIONS ARE IN METERS
SPRAY PATTERN

SPRAY ANGLE 110°

SPRAY ANGLE 120°

ALL DIMENSIONS ARE IN METERS
LIMITED WARRANTY

HD FIRE PROTECT PVT. LTD. hereby referred to as HD FIRE warrants to the original purchaser of the fire protection products manufactured by HD FIRE and to any other person to whom such equipment is transferred, that such products will be free from defects in material and workmanship under normal use and care, for two (2) years from the date of shipment by HD FIRE. Products or Components supplied or used by HD FIRE, but manufactured by others, are warranted only to the extent of the manufacturer’s warranty. No warranty is given for product or components which have been subject to misuse, improper installation, corrosion, unauthorized repair, alteration or un-maintained.

HD FIRE shall not be responsible for system design errors or improper installation or inaccurate or incomplete information supplied by buyer or buyer’s representatives.

HD FIRE will repair or replace defective material free of charge, which is returned to our factory, transportation charge prepaid, provided after our inspection the material is found to have been defective at the time of initial shipment from our works. HD FIRE shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product including damages for injury to person, damages to property and penalties resulting from any products and components manufactured by HD FIRE. HD FIRE shall not be liable for any damages or labour charges or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire’s product liability exceed an amount equal to the sale price. The foregoing warranty is exclusive and in lieu of all other warranties and representation whether expressed, implied, oral or written, including but not limited to, any implied warranties or merchantability or fitness for a particular purpose. All such other warranties and representations are hereby cancelled.

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Note:
1) The design spray pattern given in graph are included spray angle of 65 Deg. to 140 Deg. at nozzle inlet pressure of 1.4 to 3.5 Bar. When the nozzle pressure above 3.5 is applied, the coverage area will decrease because the spray pattern tends to draw inward at higher pressure.

2) The spray data are obtained from the test in still air.

ALL DIMENSIONS ARE IN METERS
REVERSE ACTION WATER SPRAY NOZZLE (BRASS)

TECHNICAL DATA

MODEL
MV C - Without Strainer
MV CS - With Strainer

MAXIMUM WORKING PRESSURE
12.3 Kg./Sq.Cm. (175 PSI)

MINIMUM EFFECTIVE WORKING PRESSURE
1.4 to 3.5 Bar (20 - 50 PSI)

END CONNECTION
½" BSPT (¼" NPT OPTIONAL)

MATERIAL
Refer Table-I

INCLUDED WATER SPRAY ANGLE FOR EACH K-FACTOR
140°, 120°

K-FACTOR
K18 (1.26)
K22 (1.54)
K30 (2.10)
K35 (2.45)
K41 (2.87)
K51 (3.57)
K64 (4.48)
K79 (5.53)
K91 (6.37)
K102 (7.14)

(Only K-factors K18, K22, K30, K35 & K41 are available with strainer as Model-CS)

WEIGHT (Approx)
0.130 Kg

FINISH
Natural Brass finish, Chrome plated brass, Electroless Nickel plated, Epoxy plated

ORDERING INFORMATION
Specify K-Factor, spray, angle, finish, model and end connection

DESCRIPTION
HD® Reverse Action Medium velocity water spray nozzles are open type (non-automatic) nozzles, designed for directional spray application in fixed fire protection system.

The nozzle has external deflector and discharges water in opposite direction of flow. Water is uniformly distributed over the surface to be protected.

The Nozzles are effectively designed to apply water to exposed vertical, horizontal, curved and irregular shaped surfaces to allow cooling to prevent excessive absorption of heat from an external fire and provide structural damage or spread of fire. In some application, nozzles may be applied to control or extinguish the fire depending on water design density as per applicable codes.

The nozzle is used in deluge water spray system for special hazard fire protection application.

As the design and intent of specific water spray system may vary considerably, a MV nozzle is made available in several combinations of orifice sizes and spray angles.

The minimum desirable pressure to achieve a reasonable spray pattern is 1.4 Kg./Sq.cm. The water distribution pattern as shown in the graph in following pages is at an average pressure of 2.0 Kg/Sq.cm. The change in pressure between 1.4 to 3.5 Kg./sq.cm. does not affect considerable change in spray angle.

The minimum desirable pressure to achieve a reasonable spray pattern is 1.4 Kg./Sq.cm. The water distribution pattern as shown in the graph in following pages is at an average pressure of 2.0 Kg/Sq.cm. The change in pressure between 1.4 to 3.5 Kg./sq.cm. does not affect considerable change in spray angle.

The spray pattern shown is with indoor application. System designer must consider wind velocity while designing the system for outdoor application. Field obstruction if any affecting the spray pattern of the nozzle must also be considered. The nozzle may be oriented to any position as deemed necessary to cover the hazard.

The Blow-off plugs can be used to prevent the depositing of foreign materials in the water way of the nozzles, which could interfere with the discharge of the spray nozzle. Blow-off plugs are optional and are not UL listed.

The main pipeline strainer as per NFPA-15 is required for system utilizing nozzle office diameter less than 9.5mm (3/8 inch), i.e HD Nozzle having K-factor 51 and less, and also for the system water likely to contain obstructive materials.

MAINTENANCE
The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed.

Use Teflon tape or soft thread sealant on male thread.
of the nozzle. The nozzles must be hand tightened into the fitting. Excessive tightening torque may result into serious damage to nozzle arms and the deflector which may affect spray pattern of the nozzle and its performance.

It is recommended that water spray system be inspected regularly by authorised technical personnel. The nozzle must be checked for atmospheric effects, external and internal obstruction, blockage if any. The system must be operated with optimum water flow at least twice in a year or as per the provisions of NFPA /TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and the components there in so that it performs properly when required.

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>MODEL MV-C</th>
<th>MODEL MV-CS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING</td>
<td>FORGED BRASS IS:291, GR.-I (EQUIVALENT TO ASTM B21)</td>
<td>FORGED BRASS IS:291, GR.-I (EQUIVALENT TO ASTM B21)</td>
</tr>
<tr>
<td>PIN</td>
<td>BRASS IS:291, GR.-I (EQUIVALENT TO ASTM B21)</td>
<td>BRASS IS:291, GR.-I (EQUIVALENT TO ASTM B21)</td>
</tr>
<tr>
<td>DEFLECTOR</td>
<td>BRASS IS:276B (EQUIVALENT TO ASTM B36)</td>
<td>BRASS IS:276B (EQUIVALENT TO ASTM B36)</td>
</tr>
<tr>
<td>STRAINER</td>
<td>----</td>
<td>COPPER</td>
</tr>
</tbody>
</table>
DISCHARGE CHARACTERISTICS

FLOW IN GPM

Q - DISCHARGE - LPM FROM NOZZLE

Q = K \sqrt{P} where P is supply pressure in Kg./Sq.cm., K=Nozzle constant (K-factor) in metric
US K factor = Metric K factor ÷ 14.2745

ALL DIMENSIONS ARE IN METERS
LIMITED WARRANTY

HD FIRE PROTECT PVT. LTD. hereby referred to as HD FIRE warrants to the original purchaser of the fire protection products manufactured by HD FIRE and to any other person to whom such equipment is transferred, that such products will be free from defect in material and workmanship under normal use and care, for two (2) years from the date of shipment by HD FIRE. Products or Components supplied or used by HD FIRE, but manufactured by others, are warranted only to the extent of the manufacturer’s warranty. No warranty is given for product or components which have been subject to misuse, improper installation, corrosion, unauthorized repair, alteration or un-maintained. HD FIRE will repair or replace defective material free of charge, which is returned to our factory, transportation charge prepaid, provided after our inspection the material is found to have been defective at the time of initial shipment from our works. HD FIRE shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product including damages for injury to person, damages to property and penalties resulting from any products and components manufactured by HD FIRE. HD FIRE shall not be liable for any damages or labour charges or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire’s product liability exceed an amount equal to the sale price. The foregoing warranty is exclusive and in lieu of all other warranties and representations whether expressed, implied, oral or written, including but not limited to, any implied warranties or merchantability or fitness for a particular purpose. All such other warranties and representations are hereby cancelled.

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SPRAY PATTERN

VERTICAL DOWNWARD SPRAY

ALL DIMENSIONS ARE IN METERS

Note:

1) The design spray pattern given in graph are included spray angle of 120 Deg. and 140 Deg. at nozzle inlet pressure of 1.4 to 3.5 Bar. When the nozzle pressure above 3.5 is applied, the coverage area will decrease because the spray pattern tends to draw inward at higher pressure.

2) The spray data are obtained from the test in still air.

C-3/6, THE NANDANVAN IND. ESTATE, L.B.S. MARG, THANE 400 604., INDIA.

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HD FIRE PROTECT PVT. LTD.
Protecting What Matters Most to You
REMOVING NOZZLE

TECHNICAL DATA

<table>
<thead>
<tr>
<th>MODEL</th>
<th>RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATED WORKING PRESSURE</td>
<td>175 PSI (12 Bar)</td>
</tr>
<tr>
<td>EFFECTIVE OPERATING PRESSURE</td>
<td>2 to 7 Bar</td>
</tr>
<tr>
<td>AREA OF COVERAGE</td>
<td>10 Mtrs diameter at 2 Bar (Approximate)</td>
</tr>
<tr>
<td>FLOW</td>
<td>285 LPM to 900 LPM</td>
</tr>
<tr>
<td>END CONNECTION</td>
<td>Flanged to ANSI B16.5 #150</td>
</tr>
<tr>
<td>FINISH</td>
<td>Red epoxy painted</td>
</tr>
</tbody>
</table>
| WEIGHT (Approx) | 65 NB - 6.8 Kg  
80 NB - 7.7 Kg  
100 NB - 12.4 Kg |

DESCRIPTION

The Revolving Nozzles are generally used to protect the fixed roof storage tank top and for many other applications. The nozzle starts rotating at 2 bar water pressure. The nozzle is of bronze construction with stainless steel ball bearing. It covers about 10 diameters area at 2 Bar.

The main pipeline strainer as per NFPA - 15 is required for system utilizing nozzles orifice diameter less than 9.5 mm (3/8 inch).

MAINTENANCE

The Revolving Nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

The revolving nozzle which is visibly damaged should not be installed.

It is recommended that water spray system be inspected regularly by authorised technical personnel. The nozzle must be checked for atmospheric effects, external and internal obstruction, blockage if any. The nozzle should be cleaned or replaced if required. The system must be operated with optimum water flow atleast four times in a year or as per the provisions of NFPA / TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and the components therein so that it performs properly when required.
LIMITED WARRANTY

HD FIRE PROTECT PVT. LTD. hereby referred to as HD FIRE warrants to the original purchaser of the fire protection products manufactured by HD FIRE and to any other person to whom such equipment is transferred, that such products will be free from defect in material and workmanship under normal use and care, for two (2) years from the date of shipment by HD FIRE. Products or Components supplied or used by HD FIRE, but manufactured by others, are warranted only to the extent of the manufacturer’s warranty. No warranty is given for product or components which have been subject to misuse, improper installation, corrosion, unauthorized repair, alteration or un-maintained.

HD FIRE shall not be responsible for system design errors or improper installation or inaccurate or incomplete information supplied by buyer or buyer’s representatives. HD FIRE will repair or replace defective material free of charge, which is returned to our factory, transportation charge prepaid, provided after our inspection the material is found to have been defective at the time of initial shipment from our works. HD FIRE shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product including damages for injury to person, damages to property and penalties resulting from any products and components manufactured by HD FIRE. HD FIRE shall not be liable for any damages or labour changes or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire’s product liability exceed an amount equal to the sale price. The foregoing warranty is exclusive and in lieu of all other warranties and representation whether expressed, implied, oral or written, including any implied warranties of merchantability or fitness for a particular purpose. All such other warranties and representations are hereby cancelled.

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<table>
<thead>
<tr>
<th>SR.NO</th>
<th>DESCRIPTION</th>
<th>MATERIAL SPECIFICATION</th>
<th>FLOW RATE AT 2 BAR</th>
<th>FLANGE SIZE</th>
<th>DIMENSION A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FLANGE</td>
<td>ASTM A105</td>
<td>285 TO 450 LPM</td>
<td>65 NB</td>
<td>152</td>
</tr>
<tr>
<td>2</td>
<td>HOUSING</td>
<td>BRONZE IS:318/ASTM B62</td>
<td>451 TO 600 LPM</td>
<td>80 NB</td>
<td>152</td>
</tr>
<tr>
<td>3</td>
<td>REVOLVING ROUND HEAD</td>
<td>BRONZE IS:318/ASTM B62</td>
<td>601 TO 900 LPM</td>
<td>100 NB</td>
<td>213</td>
</tr>
<tr>
<td>4</td>
<td>BALL</td>
<td>S.S.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>CAP</td>
<td>BRONZE IS:318/ASTM B62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**WINDOW/ WATER CURTAIN NOZZLE**

**TECHNICAL DATA**

**MODEL**
- WC-15 & WC-20 in Brass IS319 / ASTM B16
- WC-15S & WC-20S in S.S. construction

**MAXIMUM WORKING PRESSURE**
- 12.3 Bar (175 PSI)

**EFFECTIVE WORKING PRESSURE**
- 1.4 to 3.5 Bar (20 - 50 PSI)

**END CONNECTION**
- WC-15 & WC-15S with ½” BSPT (NPT optional)
- WC-20 & WC-20S with ¾” BSPT (NPT optional)

**K-FACTOR**
- Model: WC-15 / WC-15S K23, K30, K37, K45, K53 & K72
- Model: WC-20 / WC-20S K98, K120, K140

**WEIGHT (Approx)**
- Model WC-15 - 0.180Kg
- Model WC-20 - 0.250Kg

**FINISH**
- Natural Brass finish, chrome plated brass or electroless brass finish (optional)
- Natural finish for WC-15S & WC-20S

**ORDERING INFORMATION**
- Specify Model, K factor and Finish

**DESCRIPTION**
Water Curtain Nozzle distributes water in a flat curtain extending all the way to the ground.

Water Curtain Nozzle when mounted in pendent position acts as a window spray nozzle to protect interior walls, windows and other openings of the building which are affected by fire.

The nozzles when mounted in horizontal position with flow towards ground, a flat water curtain is produced to segregate the area which is under fire.

Water Curtain Nozzles are available in Brass and Stainless Steel construction with different flow rate.

The main pipeline strainer as per NFPA-15 is required for system utilizing nozzle orifice diameter less than 9.5mm (3/8 inch).

**MAINTENANCE**
The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed.

Use Teflon tape or soft thread sealant on male thread of the nozzle. The nozzles must be tightened into the fitting. Excessive tightening torque may result into serious damage to nozzle arms and the deflector which may affect spray pattern of the nozzle and its performance.

It is recommended that water spray system be inspected regularly by authorised technical personnel. 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/TAC or local authority having jurisdiction.

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LIMITED WARRANTY

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DIMENSION in millimetre (Approximate)

<table>
<thead>
<tr>
<th>MODEL</th>
<th>T</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>WC-15 &amp; WC-15 S</td>
<td>1/2” BSPT</td>
<td>42</td>
</tr>
<tr>
<td>WC-20 &amp; WC-20 S</td>
<td>3/4” BSPT</td>
<td>46</td>
</tr>
</tbody>
</table>

DIMENSION in metres (Approximate)

The distance between two nozzles should be 2.5 meters (maximum) for better performance.

The distribution profile indicates approximate (maximum) trajectory and no specific density is implied through above patterns.

Note: The spray data is obtained from the tests carried out in still air.
JUMBO WATER CURTAIN NOZZLE

TECHNICAL DATA

<table>
<thead>
<tr>
<th>MODEL</th>
<th>JC - Bronze construction to IS : 318</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JCS - Stainless Steel construction</td>
</tr>
<tr>
<td>SIZE</td>
<td>65 NB, 80 NB, 100 NB</td>
</tr>
<tr>
<td>MAXIMUM WORKING PRESSURE</td>
<td>14 Bar (200 PSI)</td>
</tr>
<tr>
<td>FLOW AT 7 Kg./Sq.Cm.</td>
<td>65 NB - 1000 LPM</td>
</tr>
<tr>
<td></td>
<td>80 NB - 2000 LPM</td>
</tr>
<tr>
<td></td>
<td>100 NB - 3000 LPM</td>
</tr>
<tr>
<td>END CONNECTION</td>
<td>Flange to ANSI B16.24</td>
</tr>
<tr>
<td></td>
<td>#150 for Bronze</td>
</tr>
<tr>
<td></td>
<td>ANSI B16.5 #150 for SS</td>
</tr>
<tr>
<td></td>
<td>63 NB instantaneous male connection for 65 NB size (optional)</td>
</tr>
<tr>
<td>FINISH</td>
<td>Natural finish or Epoxy painted</td>
</tr>
<tr>
<td>ORDERING INFORMATION</td>
<td>Specify Model Number, Size, Water curtain type, Flange connection specification</td>
</tr>
</tbody>
</table>

DESCRIPTION

Jumbo Water Curtain Nozzle produces a flat curtain of water projecting upward. These nozzles are used to segregate the area by creating a water curtain.

The nozzle is made out of bronze as well as stainless steel construction. A nozzle up to 1000 LPM flow can be provided with instantaneous male connection for connecting the fire hoses for portable application. The area coverage graph provided is in standstill air condition, hence the wind velocity at the site of installation is to be considered while designing the system for area coverage.

It is recommended to install main pipeline stainer in the system.

MAINTENANCE

The Jumbo curtain nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed.

It is recommended that water spray system be inspected regularly by authorised technical personnel.

The nozzle must be checked for atmospheric effects, external and internal obstruction, blockage if any. The nozzle 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 / TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and the components therein so that it performs properly when required.
LIMITED WARRANTY

HD FIRE PROTECT PVT. LTD. hereby referred to as HD FIRE warrants to the original purchaser of the fire protection products manufactured by HD FIRE and to any other person to whom such equipment is transferred, that such products will be free from defect in material and workmanship under normal use and care, for two (2) years from the date of shipment by HD FIRE. Products or Components supplied or used by HD FIRE, but manufactured by others, are warranted only to the extent of the manufacturer’s warranty. No warranty is given for product or components which have been subject to misuse, improper installation, corrosion, unauthorized repair, alteration or un-maintained.

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HD FIRE will repair or replace defective material free of charge, which is returned to our factory, transportation charge prepaid, provided after our inspection the material is found to have been defective at the time of initial shipment from our works. HD FIRE shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product including damages for injury to person, damages to property and penalties resulting from any products and components manufactured by HD FIRE. HD FIRE shall not be liable for any damages or labour charges or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire’s product liability exceed an amount equal to the sale price.

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• EMAIL : info@hdfire.com WEBSITE : www.hdfire.com

HD FIRE PROTECT PVT. LTD.
Protecting What Matters Most to You

OCTOBER, 2013 PAGE 2 OF 2 HD 114
TANK COOLING NOZZLE

TECHNICAL DATA

| MODEL          | TC-15  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in Brass IS319 / ASTM B16</td>
</tr>
<tr>
<td></td>
<td>TC-15S in S.S. construction</td>
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<table>
<thead>
<tr>
<th>MAXIMUM WORKING PRESSURE</th>
<th>12 Bar (175 PSI)</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>EFFECTIVE WORKING PRESSURE</th>
<th>1.4 to 3.5 Bar (20 - 50 PSI)</th>
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<table>
<thead>
<tr>
<th>END CONNECTION</th>
<th>TC-15 &amp; TC -15S with ½” NPT (BSPT optional)</th>
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</table>

<table>
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<tr>
<th>K-FACTOR</th>
<th>K23, K30, K37, K45, K53 &amp; K72</th>
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<table>
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<tr>
<th>WEIGHT (Approx)</th>
<th>Model TC-15 - 0.180 Kg</th>
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<table>
<thead>
<tr>
<th>FINISH finish for TC-15</th>
<th>Chrome plated or Brass</th>
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</table>

<table>
<thead>
<tr>
<th>FINISH natural finish for TC-15S</th>
<th>Natural finish for TC-15S</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ORDERING INFORMATION</th>
<th>Specify Model, K factor and Finish</th>
</tr>
</thead>
</table>

DESCRIPTION

The Tank Cooling Nozzle distributes water in a flat curtain.

Tank Cooling Nozzle is typically mounted in upright position at a distance from the exterior wall of the tank for cooling of the tank. In case of fire in the vicinity of the tank it prevents the tank from absorbing the heat radiation.

Tank Cooling Nozzles are available in Brass and Stainless Steel construction with different k-factors.

The main pipeline strainers as per NFPA -15 are required for system utilizing nozzles with orifice diameter less than 9.5 mm (3/8 inch).

MAINTENANCE

The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed.

Use Teflon tape or soft thread sealant on male thread of the nozzle. Excessive tightening torque may result into serious damage to nozzle arms and the deflector which may affect spray pattern of the nozzle and it’s performance.

It is recommended that water spray system be inspected regularly by authorised technical personnel.

The owner is solely responsible for maintaining the water spray system and the components therein so that it performs properly when required.
LIMITED WARRANTY

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HD FIRE will repair or replace defective material free of charge, which is returned to our factory, transportation charge prepaid, provided after our inspection the material is found to have been defective at the time of initial shipment from our works. HD FIRE shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product including damages for injury to person, damages to property and penalties resulting from any products and components manufactured by HD FIRE. HD FIRE shall not be liable for any damages or labour charges or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire's product liability exceed an amount equal to the sale price. HD FIRE shall not be liable for any damages or labour charges or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire's product liability exceed an amount equal to the sale price.

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OCTOBER, 2013  HD 216
HIGH VELOCITY WATER SPRAY NOZZLE
MODEL (HV-H & HV-HB)

TECHNICAL DATA

MODEL
HV-HB Brass
HV-H Stainless steel

MAXIMUM WORKING PRESSURE
12 Bar (175 PSI)

EFFECTIVE WORKING PRESSURE
2.1 Bar to 6 Bar (30 - 80 PSI)

END CONNECTION
1” BSPT
(1” NPT OPTIONAL)

MATERIAL
Model HB
- Housing & Scroll: Brass IS : 291 (equivalent to ASTM-B21)
- Strainer: Copper

Model H
- Housing: SS 316 (CF8M)
- Strainer: Stainless steel

INCLUDED WATER SPRAY K-FACTOR
SPRAY ANGLE AND K-FACTOR
100° - K 48
100° - K 58
75° - K 61
90° - K 78

WEIGHT (Approx)
HV-HB Brass 0.25 Kg
HV-H SS 0.22 Kg

FINISH
HV-HB Brass Finish
HV-H Natural

APPROVALS
UL Listed

ORDERING INFORMATION
Specify Model, K-Factor, Spray angle, Finish and end connection.

DESCRIPTION

High Velocity Water Spray Nozzles are internal swirl plate type open nozzles designed for use in fixed water spray or deluge system for the fire protection application.

These nozzles produce solid uniform and dense core of high velocity water spray to effect fire control. Nozzles are normally used to cool the surface as well as for extinguishment. Nozzles are typically used for Deluge protection of special hazards such as oil filled transformers, switch-gear, chemical process equipments, conveyor system, diesel engines, flammable liquid storage areas and similar hazards. The minimum desirable pressure to achieve a reasonable spray pattern is 2.1 Kg./sq.cm. (30 psi). The water distribution pattern is shown in the graph in following pages giving maximum effective axial distance from the nozzle. The spray pattern shown is with indoor application. The system designer must consider wind velocity while designing the system for outdoor application. The spray pattern is drawn considering maximum of 20 Km/hr. Field obstruction if any affecting the spray pattern of the nozzle must be considered. The nozzle may be oriented in any position as deemed necessary to cover the hazard.

2.1 bar to 6 bar pressure at Nozzle is recommended for effective application requiring High Velocity Water delivery for rapid extinguishment of all fires by emulsification.

The Nozzles are having inbuilt Strainer, but still main pipeline strainer is required in the system. The Blow-off cap can be used to prevent the depositing of foreign material in the water way of the nozzle. Use of Blow-off cap is optional and not UL listed.

MAINTENANCE

The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed. Use Teflon tape or soft thread sealant on the male thread of the nozzle.

It is recommended that the water spray system be inspected by an authorised technical personnel. The nozzle must be checked for corrosion, external and internal obstruction, blockage if any. The nozzle should be cleaned or replaced if required. The system must be operated with optimum water flow at least three times in a year or as per the provision of NFPA/TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and components therein, so that it performs properly when required.
DISCHARGE CHARACTERISTICS

Q = K \sqrt{P} where P is supply pressure in Kg/sq.cm., K = nozzle constant (K-factor) in metric
US K factor = Metric K factor ÷ 14.2745
MAXIMUM RECOMMENDED AXIAL DISTANCE VS NOZZLE ORIENTATION

SPRAY PATTERN

K78 X 90°

K61 X 75°

K58 X 100°

K48 X 100°
LIMITED WARRANTY

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**HIGH VELOCITY WATER SPRAY NOZZLE MODELS HV-AS & HV-BS**

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>HV-AS &amp; HV-BS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM WORKING PRESSURE</td>
<td>12 Bar (175 PSI)</td>
</tr>
<tr>
<td>EFFECTIVE WORKING PRESSURE</td>
<td>3.5 Bar to 10.5 Bar (50 - 150 PSI)</td>
</tr>
<tr>
<td>END CONNECTION</td>
<td>¾” BSPT (¾” NPT OPTIONAL)</td>
</tr>
<tr>
<td>MATERIAL</td>
<td>HV-AS Housing &amp; Scroll Brass IS : 291 (EQUIVALENT TO ASTM-B21) Strainer - Copper HV-BS Stainless Steel CF8M (SS316)</td>
</tr>
<tr>
<td>INCLUDED WATER SPRAY ANGLE AND K-FACTOR</td>
<td>SPRAY ANGLE METRIC (US)</td>
</tr>
<tr>
<td>75°</td>
<td>22 (1.54)</td>
</tr>
<tr>
<td>80°</td>
<td>18 (1.26)</td>
</tr>
<tr>
<td>90°</td>
<td>32 (2.24)</td>
</tr>
<tr>
<td>100°</td>
<td>26 (1.82)</td>
</tr>
<tr>
<td>115°</td>
<td>42 (2.94)</td>
</tr>
<tr>
<td>120°</td>
<td>23 (1.61)</td>
</tr>
<tr>
<td>WEIGHT (Approx)</td>
<td>0.200 Kg</td>
</tr>
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<td>FINISH</td>
<td>Natural Finish Nickel Chrome Plated (optional for HV-AS)</td>
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<td>APPROVALS</td>
<td>UL Listed</td>
</tr>
<tr>
<td>ORDERING INFORMATION</td>
<td>Specify Model, K-Factor, Spray angle and Finish</td>
</tr>
</tbody>
</table>

**DESCRIPTION**

High Velocity Water Spray Nozzles are internal swirl plate type open nozzles designed for use in fixed water spray or deluge system for the fire protection application.

These nozzles produce solid uniform and dense core of high velocity water spray to effect fire control. Nozzles are normally used to cool the surface as well as for extinguishment. High Velocity Water Spray Nozzles are typically used for Deluge protection of special hazards such as oil filled transformers, switch-gear, chemical process equipments, conveyor system and flammable liquid storage areas. The minimum desirable pressure to achieve a reasonable spray pattern is 3.5 Kg./sq.cm. (50 psi). The water distribution pattern is as shown in the graph in following pages giving maximum effective axial distance from the nozzle. The spray pattern shown is with indoor application. The system designer must consider wind velocity while designing the system for outdoor application. Field obstruction if any affecting the spray pattern of the nozzle must be considered. The nozzle may be oriented in any position as deemed necessary to cover the hazard.

3.5 bar to 7 bar pressure at Nozzle is recommended for effective application requiring high velocity water delivery for rapid extinguishment of all fires by emulsification.

The Nozzles are having inbuilt Strainer, but still main pipeline strainer is required in the system.

The Blow-off cap can be used to prevent the depositing of foreign material in the water way of the nozzle. Use of Blow-off cap is optional and not UL listed.

**MAINTENANCE**

The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed. Use Teflon tape or soft thread sealant on the male thread of the nozzle.

It is recommended that the water spray system be inspected by an authorised technical personnel. The nozzle must be checked for corrosion, external and internal obstruction, blockage if any. The nozzle should be cleaned or replaced if required. The system must be operated with optimum water flow at least three times in a year or as per the provision of NFPA/TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and components therein, so that it performs properly when required.
Q = K \sqrt{P} where P is supply pressure in Kg/sq.cm., K= nozzle constant (K-factor) in metric.

US K factor = Metric K factor ÷ 14.2745
SPRAY PATTERN

K22 X 75°

K18 X 80°

K32 X 90°

SPRAY HORIZONTAL

SPRAY HORIZONTAL

SPRAY HORIZONTAL

SPRAY VERTICALLY DOWNWARD

SPRAY VERTICALLY DOWNWARD

SPRAY VERTICALLY DOWNWARD

SPRAY VERTICALLY UPWARD

SPRAY VERTICALLY UPWARD

SPRAY VERTICALLY UPWARD

SPRAY AT 45° DOWNWARD

SPRAY AT 45° DOWNWARD

SPRAY AT 45° DOWNWARD

SPRAY AT 45° UPWARD

SPRAY AT 45° UPWARD

SPRAY AT 45° UPWARD

Note: One square is 200 x 200 mm.
SPRAY PATTERN

K23 X 120°

K42 X 115°

Note: One square is 200 X 200 mm.
Note: One square is 200 X 200 mm.
LIMITED WARRANTY

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