**Water Mist Fire Suppression**

**MULTI FOG RI-15 Head**

discharges 1.26 liter/min @ 70bar of critical mass fine Fog with a 360 degrees coverage.
Critical Mass Fog slow descent deprives oxygen in fire prone area thus suppressing its expansion.

**MAIN ENGINE**

**GENERATOR ENGINE**

**DESCRIPTION**

Model : MFRI-15
Size : 1 1/2 inch (F) NPT
Flow rate : 1.26 liter/min @ 70 bar
Spray angle : 360 degrees Fog
Material : 316 stainless steel

How Watermist Works
By evaporating very small water droplets in front of a fire, three main objectives can be reached:
The atmosphere composition is changed, insofar the steam produced by evaporation reduces the partial pressure of the pre-existing gases and therefore the partial pressure of oxygen. Oxygen being the one gas required to feed the combustion (fire), at the very moment when the oxygen partial pressure is reduced below a given limit, the fire cannot continue.
The limit for oxygen partial pressure varies with the type of fire, being around 13% for hydrocarbon vapours, and much lower for solid fuels like char and wood cribs.

The evaporation process requires a noticeable energy (539 Kcal/Kg), hence the process of evaporating droplets produces a strong local cooling effect, which is also against the combustion reaction.
Theoretically a combustion reaction cannot sustain a flame if the temperature drops below 1327° C.

The great number of droplets around the fire is a protection against radiating heat from the fire to increase the temperature in the surroundings of the fire.
While this effect may have a minor importance for the process of fire suppression, it can prove very useful in certain special cases for example since a reduced radiation will lower the evaporation rate from a surface of liquid fuel.

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**Wilson Spray Nozzle PTE LTD**

www.wilsonspraynozzle.sg
Ruby-orifice 316 Stainless Steel Fog Nozzle produces Fog from 1 to 15 microns

<table>
<thead>
<tr>
<th>NOZZLES</th>
<th>ORIFICE (INCH)</th>
<th>FLOW RATE @1000PSI (GPM)</th>
<th>ORIFICE (MM)</th>
<th>FLOW RATE @70BAR(LPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI-10</td>
<td>0.0040</td>
<td>0.014</td>
<td>0.10</td>
<td>0.051</td>
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<tr>
<td>RI-15 *</td>
<td>0.0060</td>
<td>0.026</td>
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<td>0.097</td>
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<tr>
<td>RI-20 **</td>
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<td>0.174</td>
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<tr>
<td>RI-30</td>
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<tr>
<td>RI-40</td>
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<tr>
<td>RI-50</td>
<td>0.0196</td>
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<td>0.50</td>
<td>0.560</td>
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</tbody>
</table>

All nozzles pressure rating 3000 psi with thread of 1/8" NPT.
*RI-15 will be standard size for most applications.
**RI-20 will be standard for Turbine Cooling applications.

The nozzle consists of a 316 stainless steel body with ruby-orifice, 316SS impingement pin and extended polypropylene filter to avoid trapping particles in the base of the nozzle. High-pressure water (400-3200 psi) reaches the nozzle, shooting a fine liquid jet against an impingement pin of equal diameter resulting in the finest atomization possible, atomizing water into billions of 1 to 15 micron droplets like those occurring in natural fog.