

## Description

The TUNPROTEC Model 3MS-V1R and -V1L are small dimensioned, stainless steel nozzle pipes supplied with low pressure water mist nozzles to be fitted directly into the prefabricated nozzle pipe. The nozzle pipes have been designed to be installed in combination with the MS3 nozzles pipes or in pairs.

The simple and prefabricated design of the Model 3MS-V1R and -V1L reduces installation time and cost, reduces the risk of impurities in the pipes and nozzles and ensures that the nozzles can be quickly installed with the correct orientation and spacing. The modular approach to the Model 3MS-V1R and -V1L means that the pipes can be installed in parallel and in series and connected by press fit connections which further lowers installation times and ease of installation.

The Model 3MS-V1R and -V1L nozzle pipes are supplied in 6-meter-long segments and feature 12 threaded holes in two different orientations, which allows for quick installation of the Model BM-1-20 and Model BM-1-32 low pressure water mist nozzles immediately prior to installation. The threaded hole pattern repeats for every meter of the nozzle pipe to ensure the correct spacing. The nozzle pipes can either be installed as a single pipe covering up to 6 m wide areas or as a pair of -V1R and -V1L nozzle pipes covering up to 12 m wide areas.

## Application

The Model 3MS-V1R and -V1L has been designed specifically for the protection of infrastructure tunnels, and similar applications, with forced ventilation speeds of up to 3.5 m/s.

The nozzle pipe and water mist nozzle combination allow for protection of up to 6 m wide areas independent of the tunnel width.

## Approvals

The Model 3MS-V1R and -V1L nozzle pipes and water mist nozzles have been successfully tested in full scale tunnel test fires in accordance with prEN 14972 guidelines for



General Description	
Min. water pressure	10 Bar
Max. working pressure	16 Bar
Coverage	36 m <sup>2</sup> (6 m x 6 m)
Installation height	2.5 m – 8 m
Nozzle pipe dimensions	Ø35x1.5 mm Ø42x1.5 mm Ø54x1.5 mm Other sizes by request
Specific Description	
K-factor (metric)	31.2 (l/min/√(bar))
Nominal flow (10 bar)	98.7 l/min
Nominal discharge density (max. spacing)	2.7 mm/min
Drop size	DV90 < 300 µm
Material	AISI 316L, EN.1.4404
Related components	
Model Tunprotec C-M - Zone Control Valve assembly	Simple monitored fire zone control valve assembly with test/service trim. Includes control valve, test/service trim, high-capacity filters and monitored manual test/service valves.
Model Tunprotec C-A - Zone Control Valve assembly	Self-testing fire zone control valve assembly. Includes control valve, high capacity filters, motorized self-test/service valves and simple control unit.
Model Tunprotec C-D - Zone Control Valve assembly	Self-testing fire zone control valve assembly. Includes control valve, self-test/servicing trim, high-capacity filter and TUNPROTEC Distributed I/O Safety Control system handling fire zone hydraulic activation.

fires with a potential heat release rate of 250 MW and the water mist nozzles have been approved in accordance with the IMO MSC.1/Circ. 1165 component test program.

### Installation

Once received the Model 3MS-V1R and/or -V1L nozzle pipes, Model BM-1-20 and Model BM-1-32 low pressure water mist nozzles shall be stored under safe conditions, protected from harmful materials and physical damages.

Once the site has been prepared for installation of the Model 3MS-V1R and -V1L components, the two plastic endcaps shall be removed from the nozzle pipe ends after which the nozzle pipe shall be flushed and rinsed.

The Model 3MS-V1R and -V1L nozzle pipe shall be installed using pipe hangers, as specified by the authority having jurisdiction and local norms, and oriented with the one hole oriented directly downwards and the other hole pointing towards the tunnel centerline and connected by appropriately sized AISI 316L press fittings. VID Fire-Kill recommends 2-3 m spacing between pipe hangers.

Once the nozzle pipe has been installed, the plastic caps protecting the threaded holes can be removed and Model BM-1-20 and Model BM-1-32 water mist nozzles can be installed in the threaded holes. The supplied 6x Model BM-1-20 nozzles shall be installed in the downward orientated threaded hole and the 6x Model BM-1-32 nozzles shall be installed in the sideward facing threaded holes.

To ensure that the nozzles are securely fastened during installation, the below torque values shall be achieved when tightening the micronozzles into the threaded inserts of the N-pipe.

Once the Model 3MS-V1R and -V1L nozzle pipes and nozzles have been installed, the area in the vicinity of the water mist nozzles shall be held clean as not to obstruct the nozzle orifices.

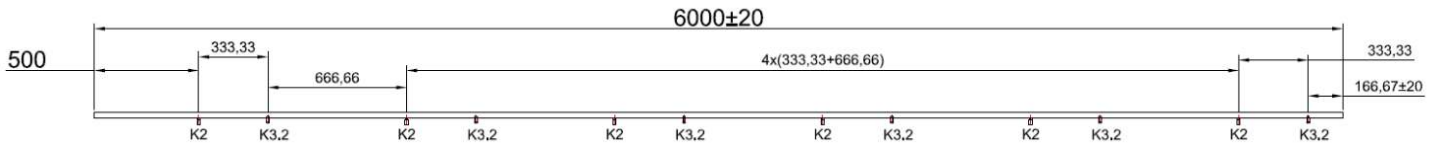
### Contact

For more information on the Model 3MS-2 nozzle pipes and water mist nozzles, and the TUNPROTEC system and its components, kindly contact the TUNPROTEC sales team at [tunprotec@vidfirekill.com](mailto:tunprotec@vidfirekill.com)

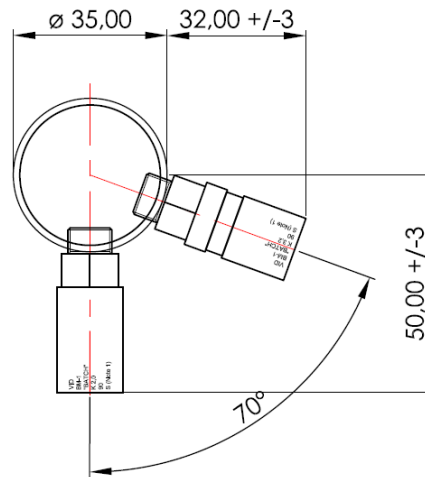
### Fastening of Model BM-1 type nozzles

Nozzle models			BM-1-20, BM-1-32
Packing material:	No packing material	Thread sealant or glue	Thread seal tape
Req. torque for tightening:	10-20 Nm	10-20 Nm	10-20 Nm
Axial angle:	Any angle		

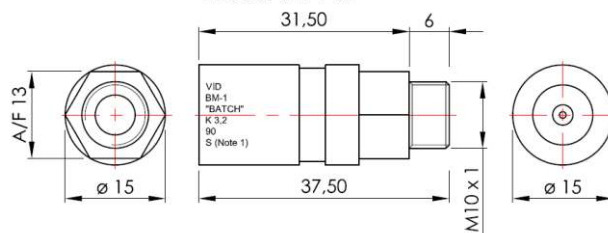
### Dimensions



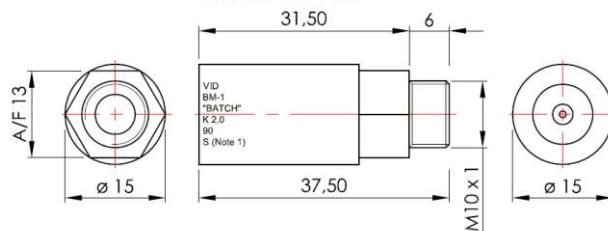
### Model 3MS-2S nozzle orientation



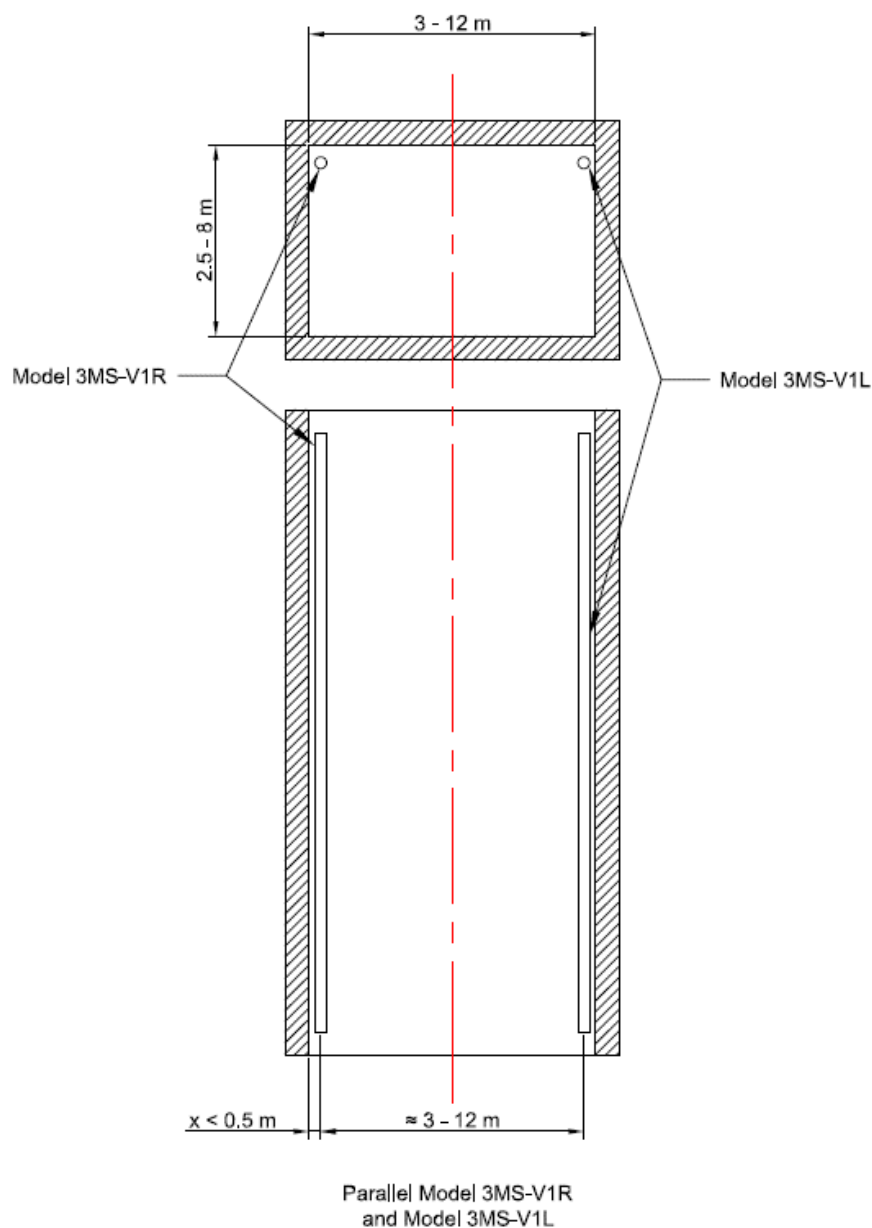
### Model BM-1-32



### Model BM-1-20



Model 3MS-V1R and -V1L nozzle pipe spacings



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