



# Certificate of Conformity

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## Product designation

**Tyco Fire Products, AquaMist®, Model AM4, 15NS x 3.5K(metric), deluge system open pendent nozzle**

(Refer to the Schedule/enclosures for further specified details)

## Agent/distributor

Tyco Fire Protection Products  
Level 3, 95 Coventry Street, SOUTHBANK, VIC, AUSTRALIA, 3006

## Registrant

Tyco Fire Protection Products  
Level 3, 95 Coventry Street, SOUTHBANK, VIC, AUSTRALIA, 3006

### Producer

Tyco Fire Products Manufacturing Ltd  
Stockport Trading Estate, Yew Street, UNITED KINGDOM, SK4 2JW

## Conformance criteria and evaluation

The Tyco Fire Products, AquaMist®, Model AM4, 15NS x 3.5K(metric), deluge system open pendent nozzle has been evaluated and verified as conforming with the relevant requirements of the following criteria.

- Underwriters Laboratories Standard UL 2167, 'Water Mist Nozzles for Fire Protection Service'.

## Limitations/conditions of conformance

Limitations/conditions of conformance, where identified on this certificate, are derived from qualifications from evaluation(s) for conformity and/or other related technical documentation. All details with respect to design, assembly and installation instructions and restrictions should be checked against the producer's current technical manual/data sheets and the requirements of the Authority having Jurisdiction.

Specified limitations/conditions, determined from the evaluation for conformity, include the following.

- The Tyco Fire Products, AquaMist®, Model AM4, 15NS x 3.5K(metric), deluge system open pendent nozzle shall be used only in pre-engineered or engineered hydraulically calculated systems designed and installed in accordance with the National Fire Protection Association Standard for Installation of Water Mist Fire Suppression Systems, NFPA 750 or, when published, its equivalent Australian Standard for design, installation, and commissioning of water mist systems.

(Limitations/conditions of conformance continue)

This certification is issued within the scope of CSIRO Verification Services – Rules governing ActivFire Scheme and is valid only for the product(s) as submitted for evaluation and verification of conformity, subject to the following conditions.

- Reference to details, limitations and requirements, where documented as a schedule/enclosure with this certificate.
- The Registrant is responsible for their attestation of conformity and ensuring that on-going production complies with the conformance criteria defined in this certificate.
- This certificate will not be valid if any changes or modifications are made to the product which have not been notified and validated by CSIRO Verification Services.
- This certificate is subject to periodical re-validation upon verification that all requirements, as determined by the conformity assessment body, continue to be satisfactorily met by the Registrant.
- This certificate may only be reproduced in its published form, without modification and inclusive of all schedules/enclosures.
- Any changes, errors or omissions, must be submitted in writing and if necessary or requested, substantiated with relevant evidence.
- Any representations, such as advertising or other marketing related activities or articles shall reflect the correct contents of this certificate and conform with all relevant trade practices and consumer protection legislation and regulations.
- Any terms or conditions of use as applicable to content and documentation as published or accessed through web sites administered by the CSIRO Verification Services.

Issued by

David Whittaker  
Executive Officer – ActivFire Scheme



# Schedule to Certificate of Conformity

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- ii. Valid only where the dimensions of compartments protected by water mist systems using Type Am4 nozzles do not exceed 8.0 m high and 1,600 m<sup>3</sup> in volume. Except for doorway protection (where the nozzle axis may be inclined not more than 25° from vertical), the nozzles shall only be pendent oriented, and the ceiling to nozzle distance shall be not less than 0.2 m or more than 1.2 m. The nozzles to wall spacing shall be not more than 2.0 m, and spacing otherwise shall not exceed 4.0 m x 4.0 m. There is no minimum nozzle spacing requirement. The designed operating pressure range shall be 12.8 to 17.2 bar, and the nominal flow constant (K, metric) used for system design shall be 3.5. The vertical clearance between the nozzle diffusers and the maximum-height plane of protection shall be not less than 1.0 m.
- iii. Type Am4 nozzles are not listed for use in the protection of rack or palletised storage of flammable or combustible liquids. The Am4 nozzles shall not be used in environments which will corrode stainless steels of Types 316 or 304, or those complying with ASTM A-743, or which will unacceptably degrade Buna-N rubber (only where dust-cap is fitted).
- iv. Pipe (tube) and fittings located downstream of the main pipeline strainer shall be brass, copper, or stainless steel, as specified in NFPA 750 and in Grinnell Data Sheet TD1173 of June 1998. Non-stainless ferrous fittings and pipe shall not be used, even if galvanized or other coating is applied. The requirements of Grinnell Data Sheet TD1173 of June 1998 regarding operation of the protected enclosure's natural ventilation openings and forced ventilation systems shall be observed.

## Producer's description

The Tyco Fire Products, AquaMist®, Model AM4, 15NS x 3.5K(metric), deluge system open pendent nozzle is a stainless steel non-automatic nozzle for use in total-compartment pre-engineered or engineered hydraulically calculated water-mist deluge systems intended to protect machinery spaces and other compartments housing flammable liquids type risks. This listing of the Am4 nozzle covers its use only in engineered hydraulically calculated systems designed and installed in accordance with the National Fire Protection Association Standard for Installation of Water Mist Fire Suppression Systems, NFPA 750 or, when published, its equivalent Australian Standard for design, installation, and commissioning of water mist systems. The Am4 nozzle utilises an intermediate-pressure single jet of aqueous fluid impinging on a diffuser which produces a spray having a range of water droplet sizes suitable for the extinguishment of Class B fires not more severe than with heptane.

Fire tests have demonstrated that these nozzles are effective for the extinguishment of a wide variety of exposed and shielded Class B hydrocarbon pool, spray, and cascading-pool fires, as well as for combinations of Class B and incidental Class A fires. They are also FM-Approved for the fire-protection of gas turbines in enclosures of up to 1,280 m<sup>3</sup> nett volume. The passageways of the inlet strainer and orifice insert have been designed to allow the nozzles to be used with unfiltered water supplies. However, a corrosion-resistant cleanable strainer with maximum basket square mesh aperture of 0.87 x 0.87 mm is required to be installed upstream of the first branching to a water mist nozzle.

An optional synthetic-rubber dust-cap is available for applications where dusts, insects, or airborne debris could accumulate within the nozzle and prevent proper operation. A retainer-wire prevents loss of the dust-cap following testing and fire discharges. Systems fitted with AM4 nozzles may operate with natural sea water, provided that all pipe and fittings used in the system have acceptable corrosion-resistance to sea water exposure.

## Technical specification

The following details are a representative extract of the technical specification for the Tyco Fire Products, AquaMist®, Model AM4, 15NS x 3.5K(metric), deluge system open pendent nozzle and may be subject to change. Complete and current details should be determined from the designated producer's technical manual/data sheets.

<b>Nominal orifice insert size:</b>	2.31 mm
<b>Inlet strainer perforation size:</b>	1.52 mm diameter
<b>Nominal K factor (metric):</b>	35 (l/m/kPa)
<b>Thread size:</b>	15NS (available with NPT or ISO 7/1 thread)
<b>Dimensions:</b>	Overall Length (including inlet strainer) 80 mm approx.
<b>Nominal weight:</b>	68 grams, including Dust Cap

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## Supplementary information

<b>Standard finish:</b>	Unpainted stainless steel (investment-cast finish).
<b>Deluge valve:</b>	Use Grinnell Model F446 Automatic Resetting Deluge Valve with electric actuation. This valve has a rated maximum working pressure of 17.2 bar.
<b>Tightening torque:</b>	10 to 20 Nm should be adequate to give a leak-tight joint. However, 28 Nm must not be exceeded. A 200-250 mm long adjustable wrench should be used.