

AON SPRINKLER CERTIFICATION



Aon New Zealand

Aon Sprinkler Certification
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Telephone: 0800-AONFIRE

Aon Sprinkler Certification Technical Note

Note Number: TN-21-52	Issue: 1	Date: 3 March 2021
Subject	Pump Test Orifice Plates – Safety Warning	
Notice: Aon Sprinkler Certification Technical Notes provide guidance notes which may be used in certification of sprinkler installations by Aon New Zealand. If sprinkler installations are being certified by any other Sprinkler System Certifier, these Technical Notes may not apply.		

Aon has been alerted to an incident where it appears that a pump test return orifice plate has failed, dislodged and jammed a pump impeller, resulting in the casing splitting while the pump was being tested.

We understand that the resulting water discharge from the split casing drove the tester against the pumphouse wall, resulting in bruising and the need for a hospital visit to ascertain whether more serious injuries occurred.



The orifice plate was fabricated out of stainless steel, and was tack welded against a roll groove.

Our observations include:

1. The stainless-steel plate appears to be approximately 3mm thick. This does not comply with the minimum thickness specified in NZS4541.
2. Welding stainless steel to mild steel is not a straight-forward exercise. The surfaces need to be adequately prepared, the correct filler materials need to be selected, and the finished weld needs to be adequately protected against corrosion.
3. In this installation, the finished orifice plate has been installed with the plate downstream of the water flow. While this installation was installed in compliance with NZS4541:2013, intuitively, we would have expected that the orifice assembly be installed with the plate upstream, as required by NZS4541:2020.
4. We are uncertain whether best practice has been followed and the orifice plate is marked with an arrow indicated direction of flow as is now required by NZS4541:2020.



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Aon recommends that contractors who have installed orifice plates of this design, or those testing sprinkler systems using such orifice plates in the test return, ascertain if they are at risk of injuring or harming people or property, so that appropriate remedial action can be undertaken.

A handwritten signature in black ink, appearing to read 'Chris Mak'.

Chris Mak

MANAGER – AON FIRE PROTECTION