CSIRO Verification Services
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Certificate of Conformity

Certificate num.	Registration date	Version Number	Version Issue date	Valid until
afp - 1640	13-Nov-2003	18	4-Apr-2023	30-Apr-2024

Product designation

Orrfire®, ALLGAL®, extra-light wall electro-galvanized sprinkler pipe

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

Agent/distributor

Orrcon Steel
121 Evans Road, SALISBURY, QLD, AUSTRALIA, 4107

Registrant

Orrcon Steel
121 Evans Road, SALISBURY, QLD, AUSTRALIA, 4107

Producer

Orrcon Steel
121 Evans Road, SALISBURY, QLD, AUSTRALIA, 4107

Conformance criteria and evaluation

The Orrfire®, ALLGAL®, extra-light wall electro-galvanized sprinkler pipe has been evaluated and verified as conforming with the relevant requirements of the following criteria.

1. Australian Standard AS 4118.2.1-1995, 'Fire sprinkler systems - Piping - General'.
2. Australian Standard DR 02094, 'Electric resistance welded steel pipe for pressure purposes'.
3. SSL Appraisal Specification FAS-119, Version 4.0, 'Light Wall ERW Steel Pipe, to AS 4118.2.1, & Draft Australian Standard DR02094CP-PDR (20/02/02), for Fire Protection Systems'.

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.

i. Fire sprinkler system designers, and authorities having jurisdiction, must confirm that the codes or standards used for the system design adequately address the hydraulic characteristics of this product. Full hydraulic analysis is an approved and recommended method of determining that system performance will meet design requirements.

ii. Pipes shall not be used below ground.

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

Kai Loh
Executive Officer – ActivFire Scheme

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Producer's description

The production and physical characteristics of Orrfire®, ALLGAL®, extra-light wall electro-galvanized sprinkler pipe are summarised as follows:

- The pipe is produced as ERW tube from Hot Rolled steel strip.
- Both side of the feed strip for tubemaking are coated with electro deposited zinc.
- The strip is chemically cleaned and descaled prior to electro coating with zinc.
- Steel is processed in accordance with AS1074.
- Steel properties conform to AS/NZS 1163 Steel Grade 350L0.
- Zinc coating conforms to AS 4750 – 2003 (Electro galvanized (zinc) coatings for ferrous hollow sections).
- The zinc coating mass is 50g/m^2 on each side.
- The loss of Zinc coating on the pipe's external surface, during ERW, is reinstated by plasma-spraying of zinc-aluminum alloy.
- A specially formulated clear polymer coating, "Clear-Tec", is applied to the outer surface of the tube to suppress "white rust".

Pipes are produced in wall thickness that meet or exceed those specified in AS 4118.2.1 – 1995 providing suitability for use in AS 2118 – conforming sprinkler systems.

All listed sizes are suitable for use with roll-grooved type couplings and fittings of suitable diameter and groove profile. Additionally they are suitable for joining by shouldered-end coupling, by appropriate screw-threading techniques, or by butt-welding.

Technical specification

The following details are a representative extract of the technical specification for the Orrfire®, ALLGAL®, extra-light wall electro-galvanized sprinkler pipe and may be subject to change. Complete and current details should be determined from the designated producer's technical manual/data sheets.

Pipe dimensional data:

Nominal Size mm	Nominal outside diameter mm	Nominal inside diameter mm	Nominal wall thickness mm	Mass per metre kg / m
25	33.7	29.7	2.0	1.56
32	42.4	38.4	2.0	1.99
40	48.3	43.7	2.3	2.61
50	60.3	55.7	2.3	3.29
65	76.1	71.5	2.3	4.19
80	88.9	83.7	2.6	5.53
100	114.3	107.9	3.2	8.77
150	165.1	158.3	3.4	13.56

Notes:

1. The above mass values have been calculated based on a steel density of 7850 kg / m^3 and assume a pipe of the exact dimensions listed above.
2. Wall thickness; the figures are "nominal" unless otherwise noted as minimum (min).

General

Orrfire®, ALLGAL®, extra-light wall electro-galvanized sprinkler pipe is manufactured by using an electric resistance welding method in accordance with the requirements of SSL Appraisal Specification FAS-119: Version 4.0, Light ERW Steel Pipe, to AS 4118 Part 2.1, & Draft Australian Standard DR02094CP-PDR (20/02/02), for Fire Protection Systems'.

Leak-Tightness

The weld zone is tested in-line using an Eddy Current Flaw Detection System. Testing is carried out in accordance with AS 1074 section 2.8 (b) and Appendix B.

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Galvanizing:

Electro- galvanized coating conforms to AS 4750 and has a minimum average coating mass of 50 g/m^2 of pipe surface. The loss of Zinc coating on the pipe's external surface, during ERW, is reinstated by plasma-spraying of zinc-aluminum alloy. A specially formulated clear polymer coating, "Clear-Tec", is applied to the outer surface of the tube to suppress "white rust".

Steel properties, as per AS/NZS 1163 Steel Grade C350L0

Yield strength (MPa) min	350
Ultimate Tensile Strength (MPa) min	430
Minimum elongation (%) where gauge length = $5.65*(S_o)^{0.5}$	20

Dimensional tolerance conform to AS 1074