

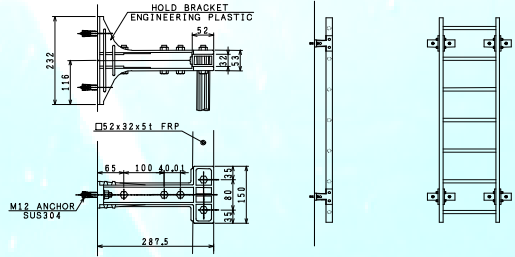
Product Name – Nextep FRP Rung Ladders

1. Model Numbers

- ≈ WSAA standard width – 375mm. Lengths as per project requirements.

2. Reference Standards

- ≈ AS1657:2018
- ≈ Rung torque resistance (**AS/NZS 1892.3:1996**)
- ≈ Rung strength (**AS/NZS 1892.3: 1996**)
- ≈ Rung shear resistance (**AS/NZS 1892.3:1996**)
- ≈ Rung impact resistance (**BS 1247.2:1990**)
- ≈ Ladder side sway resistance (**AS/NZS 1892.3:1996**)
- ≈ Surety of ladder fastening to wall bracket (**AS 4198:1994**)
- ≈ Ladder chemical resistance (**AS 3571:1989 and AS 3572.2:**)
- ≈ Ladder corrosion barrier delamination resistance (**AS/NZS 3572.20**)
- ≈ The method of test for impact resistance was adopted from **BS 1247 Part 2:1990 Manhole Steps Part 2**. Specification for plastics encapsulated manhole steps.
- ≈ Requirements for materials and design were taken from the **WSAA Sewerage Code** in the first instance then water agencies specifications/drawings, **AS 4198:1994, AS 1892.3, AS 2634:1983, BS 5480:1990 and AS 3572.22**.
- ≈ Laboratory testing was undertaken by the Faculty of Built Environment and Engineering, **Queensland University of Technology**.
- ≈ Contact with Potable Water (**AS/NZS4020:2018**)



3. Product Description

- ≈ FRP ladder sections are to be manufactured by a continuous open-ended moulding process such as pultrusion where continuous strands of resin impregnated glass fibres are pulled through a heated die and then if necessary through a heating chamber for post-curing.
- ≈ Ladder sections are to comprise an outer corrosion barrier and an inner structural core.
- ≈ The corrosion barrier is to have a resin rich layer 0.25-0.5 mm thick.
- ≈ Manufactured in accordance with **AS1657:2018** and **WSA 108 Fibre Reinforced Plastic Ladders**.

4. Purpose of use

- ≈ To be used as a means of access in manholes and other underground man entry chambers, reservoirs, pump stations and other chemically corrosive environments to facilitate entry and exit.

5. Materials

- ≈ **FRP Rungs, Stiles & Dowels:** Vinyl Ester resin to BS 3532 - Continuously drawn filaments of E-glass with a silane coupling agent. Not less than 25% by mass of the structural core.
- ≈ **Outer corrosion barrier:** Includes surface tissue of C-glass and woven/non-woven textiles based on polyester or acrylic fibres
- ≈ **End caps:** Thermoplastic complying with material standard.
- ≈ **Reflectors:** Polycarbonate material.
- ≈ **Fastening Brackets:** Stainless steel to ASTM A276 grade 316 brackets: Polypropylene or FRP composite as approved.
- ≈ **Fasteners:** Bolts, nuts, washers: Stainless steel to ASTM A276 grade 316 Polyamide as approved (only for fastening brackets to ladder) FRP as approved (only for fastening mounting brackets to ladder).

6. Manufacturers Details

- ≈ Nextep Miyama Pty Ltd