



BRANZ Appraised
Appraisal No. 1033 [2018]

MAYER STAINLESS STEEL PRESS-FIT PIPING SYSTEM

Appraisal No. 1033 [2018]
Amended 24 April 2019



BRANZ Appraisals

Technical Assessments of
products for building and
construction.

Product

- 1.1 The Mayer Stainless Steel Press-Fit Piping System consists of stainless steel pipes and fittings.
- 1.2 The Mayer Stainless Steel Press-Fit Piping System is for use in hot and cold potable water supply services and hot water circulation heating systems.

Scope

- 2.1 The Mayer Stainless Steel Press-Fit Piping System has been appraised for use as the piping components for water supply and as pipe for proprietary heating systems subject to specific design.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, the Mayer Stainless Steel Press-Fit Piping System, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [a] not less than 50 years, B2.3.1 [b] 15 years, and B2.3.1 [c] 5 years. The Mayer Stainless Steel Press-Fit Piping System meets these requirements. See Paragraphs 8.1 - 8.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Mayer Stainless Steel Press-Fit Piping System meets this requirement and will not present a health hazard to people.

Clause G10 PIPED SERVICES: Performance G10.3.1 [a]. The Mayer Stainless Steel Press-Fit Piping System meets this requirement when used in heating systems. See Paragraph 9.1.

Clause G12 WATER SUPPLIES: Performance G12.3.2 [c] and G12.3.7 [a] and [b]. The Mayer Stainless Steel Press-Fit Piping System meets these requirements. See Paragraphs 10.1 - 10.2.

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Technical Specification

Description

- 4.1 The Mayer stainless steel pipes and fittings are manufactured from 316L stainless steel. The Mayer stainless steel pipes are supplied as straight tubes in 5.8 m lengths. They are available in dimensions and wall thicknesses as follows:
- 15 x 1.0 mm
 - 22 x 1.2 mm
 - 28 x 1.2 mm
 - 35 x 1.5 mm
 - 42 x 1.5 mm
 - 54 x 1.5 mm
 - 76.1 x 2.0 mm
 - 88.9 x 2.0 mm
 - 108 x 2.0 mm
- 4.2 The pipes are continuously marked along their length with Mayer Stainless, the pipe diameter and wall thickness, 316L, the item number, EN 10312, WRAS 1704328, AS 5200-053, and a date code that doubles as the batch number.
- 4.3 The Mayer stainless steel fittings are press fittings that incorporate black EPDM O-rings. They are available in different sizes to suit the pipes. The following types of fitting are covered by this Appraisal:
- 90° bend
 - 90° bend, with plain end
 - Male 90° bend
 - Female 90° bend
 - 45° bend
 - 45° bend, with plain end
 - Equal Tees
 - Reducing Tees
 - Female Tees
 - Reducing couplings
 - Slip couplings
 - Male transition couplings
 - Female transition couplings
 - Couplings
 - Reducer, plain end
 - Flange Connectors, DIN
 - Caps
- 4.4 The fittings are marked with Mayer, the fitting size, 316L and a code for the batch number.

Tools

- 4.5 The tools specified for installation are outside the scope of this Appraisal, however only Mayer and brand matched tools are to be used.

Handling and Storage

- 5.1 Mayer Stainless Steel Press-Fit pipe system components must be handled and stored with care to prevent damage. They must be stored in a dry, clean environment free of corrosive gas or other materials, where they cannot be struck by sharp objects, collide with other materials, or be dropped or thrown. Should pipes become coated or stained by oil, clean immediately with attention to pipe ends and the rubber O-rings of the press fittings.



Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for information on the Technical Literature for the Mayer Stainless Steel Press-Fit Piping System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 Mayer Stainless Steel Press-Fit Piping System must be designed and installed in accordance with the requirements of NZBC Acceptable Solution G12/AS1. Specific design installations may be designed in accordance with AS/NZS 3500.1 and AS/NZS 3500.4, as specified by NZBC Verification Method G12/VM1.
- 7.2 Mayer Stainless Steel Press-Fit Piping Systems are suitable for use as circulation pipes for radiator type heating systems, subject to the limitations of Paragraph 11.1 below. These systems are to a specific design by the heating system proprietor and components other than the Mayer stainless steel pipe and fittings are outside the scope of this Appraisal.
- 7.3 Where water supply pipes must pass through concrete slabs they must do so at right angles to the surface of the slab and be lagged with an impermeable flexible plastic material of not less than 6 mm thickness for the full depth of the slab penetration. Cold water supply pipes must be thermally insulated where they pass through heated concrete slabs.
- 7.4 Where the Mayer Stainless Steel Press-Fit Piping System is used in hot water ring mains, suitable temperature and pressure control mechanisms must be in place to ensure that maximum permissible working temperatures and pressures are not exceeded.
- 7.5 The Mayer Stainless Steel Press-Fit Piping System is metallic and therefore NZBC Acceptable Solution G12/AS1 Paragraph 9.0 must be complied with for Equipotential Bonding.
- 7.6 The compatibility of materials, components and water supplies must be considered at the design stage. Where necessary aquatherm NZ Ltd should be consulted for advice.

Durability

- 8.1 The NZBC durability performance requirements for pipe systems vary depending on the difficulty or ease to access.

Service Life

- 8.2 The service life of the Mayer Stainless Steel Press-Fit Piping System is expected to be 50 years when used at up to 80°C and up to 1.0 MPa, when installed in accordance with the Technical Literature.

Maintenance

- 9.1 The Mayer Stainless Steel Press-Fit Piping System do not require any special maintenance. Items such as valves and control equipment must be maintained to ensure the maximum working pressures and temperatures are not exceeded.

Control of Internal Fire and Smoke Spread

- 10.1 In all applications where Meyer stainless steel pipes pass through a fire rated element of a structure, the opening must be fire-stopped in a way that will permit thermal movement of the pipe.

Piped Services

- 11.1 When the Mayer Stainless Steel Press-Fit Piping System is used for piped services that are not for the supply of potable water or water for personal hygiene, the permissible working pressure for a 50 year serviceable life is 1.6 MPa at 95°C.



Water Supplies

- 12.1 The Mayer Stainless Steel Press-Fit Piping System has been tested and shown to be suitable for potable water supply use in accordance with NZBC Acceptable Solution G12/AS1.
- 12.2 When the Mayer Stainless Steel Press-Fit Piping System is used for the supply of potable water or water for personal hygiene, the permissible working pressure for a 50 year serviceable life is 1.0 MPa at 80°C.

Energy Efficiency

- 13.1 All domestic type hot water distribution pipes must be insulated in accordance with the requirements of NZS 4305, Sections 3.7 and 3.8.

Installation Information

Installation Skill Level Requirements

- 14.1 Installation of the Mayer Stainless Steel Press-Fit Piping System must always be carried out by, or under the supervision of a Licensed Building Practitioner with the relevant License Class.

General

- 14.2 Installation of the Mayer Stainless Steel Press-Fit Piping System must be in accordance with NZBC Clause G12/AS1, in particular Section 7, or AS/NZS 3500.1 or AS/NZS 3500.4.
- 14.3 The Mayer stainless steel pipe and the associated fittings must be designed and installed in accordance with the requirements of this Appraisal and installation information in the Technical Literature.
- 14.4 When installing Mayer stainless steel pipe in framed walls, the holes must be accurately sized to allow pipework to expand and contract.
- 14.5 Changes in pipe direction are made with pipe fitting joints.

Connecting Pipes and Fittings

- 14.6 Mayer stainless steel pipes and fittings are joined through the use of specifically designed press tools. Instructions on the correct methods for preparing the pipes and fittings and using the tools are provided in the Technical Literature. Mayer Stainless Steel Press-Fit Piping Systems must only be installed by Licensed Plumbers who have undergone and passed training by aquatherm NZ Ltd.
- 14.7 Joints in or under concrete must be avoided.

Charging and Pressure Testing

- 15.1 Prior to enclosing the pipe system, whether it is for piping in wall or floor cavities, or heating systems, a visual check of every fitting is required to ensure all connections have been properly formed. The tool used to make the joints will not release from around the pipe unless it has gone through a complete cycle, but each joint should be checked to ensure that it has been pressed.
- 15.2 Mayer Stainless Steel Press-Fit Piping Systems must be tested and commissioned in accordance with the requirements of NZBC Acceptable Solution G12/AS1, AS/NZS 3500.1 or AS/NZS 3500.4, as appropriate.
- 15.3 In addition to the requirements of paragraph 15.2, above, testing of Mayer Stainless Steel Press-Fit Piping System installations must also be carried out in accordance with the Technical Literature.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 16.1 Tests have been carried out on the Mayer Stainless Steel Press-Fit Piping System by WRAS. The tests have been reviewed by BRANZ experts and found to be satisfactory.



16.2 Tests have been carried out on the Mayer Stainless Steel Press Fit Piping System in accordance with the requirements of AS 3688. The tests carried out include:

- Leaktightness under internal pressure test
- Strength of fabricated joint (Torque Test)
- Strength of joint assembly (Pressure Cycling Test)
- Resistance to pull-out of assembled joints
- Strength of nut and assembly (Torque Test)
- Leaktightness under internal pressure whilst subjected to bending
- Method for determining compatibility of water fittings with pipe
- Vacuum test for leaktightness of joints with tube under vacuum
- Resistance of press fittings joints and tubes to vibration

The test results have been reviewed by BRANZ experts and found to be satisfactory.

Other Investigations

- 17.1 An assessment was made of the durability of the Mayer Stainless Steel Press-Fit Piping System by BRANZ technical experts.
- 17.2 Site inspections were carried out by BRANZ to examine completed installations and installation methods.
- 17.3 The Technical Literature has been reviewed by BRANZ and found to be satisfactory.

Quality

- 18.1 The Mayer Stainless Steel Press-Fit Piping System is certified by WRAS.
- 18.2 aquatherm NZ Limited is responsible for the quality of the product supplied.
- 18.3 Quality of installation on site is the responsibility of the installer.

Sources of Information

AS 3688:2016 Water Supply and Gas Systems - Metallic fittings and connectors.

AS/NZS 3500.1:2015 Plumbing and drainage - Water services.

AS/NZS 3500.4:2015 Plumbing and drainage - Heated water services.

NZS 4305:1996 Energy efficiency - Domestic type hot water systems.

Ministry of Business, Innovation and Employment Record of Amendments - Acceptable Solutions, Verification Methods and Handbooks.

The Building Regulations 1992.

Amendments

Amendment No. 1, dated 24 April 2019

This Appraisal has been amended to incorporate reference to testing of the Mayer Stainless Steel Press-Fit Piping System in accordance with AS 3688



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14 September 2018

MAYER STAINLESS STEEL
PRESS-FIT PIPING SYSTEM



In the opinion of BRANZ, **Mayer Stainless Steel Press-Fit Piping System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **aquatherm NZ Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **aquatherm NZ Ltd**:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **aquatherm NZ Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **aquatherm NZ Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

14 September 2018