

# 7123AS AQUATHERM<sup>®</sup>-SHT HOT & COLD WATER SYSTEM

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## 1. GENERAL

This section relates to **aquatherm<sup>®</sup>-SHT** potable water systems from the network utility supply authority water main to designated points and appliances, distributing piped hot water to appliances, and the installation of tapware.

### 1.1 RELATED WORK

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for tapware selections.

#### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC G12/AS1</a>	Water supplies
<a href="#">AS/NZS 2845.1</a>	Water supply - Backflow prevention devices - Materials, design, and performance requirements
<a href="#">AS/NZS 3500.1</a>	Plumbing and drainage - Water services
<a href="#">AS/NZS 3500.4</a>	Plumbing and drainage - Heated water services
<a href="#">AS/NZS 3500.5</a>	Plumbing and drainage - Domestic installations
<a href="#">NZS 4602</a>	Low pressure copper thermal storage electric water heaters
<a href="#">NZS 4606</a>	Storage water heaters
<a href="#">NZS 4607</a>	Installation of thermal storage electric water heaters: valve vented Systems
<a href="#">NZS 4617</a>	Tempering (3-port mixing) valves
<a href="#">NZS 5261</a>	Gas Installation
<a href="#">DIN 16968</a>	Polybutylene (PB) pipes - General quality requirements and test
<a href="#">DIN 16969</a>	Polybutylene (PB) pipes - PB 125 dimensions
Plumbers, Gasfitters and Drainlayers Act 2006	

Documents listed above and cited in the clauses that follow are part of this specification. However this specification takes precedence in the event of it being at variance with the cited document.

### 1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

**aquatherm<sup>®</sup>-SHT** technical manual

[BRANZ Appraisal 538](#) - **aquatherm<sup>®</sup>** SHT Piping System

Copies of the above literature are available from **aquatherm**

Web: [www.aquatherm.co.nz](http://www.aquatherm.co.nz)

Email: [sales@aquatherm.co.nz](mailto:sales@aquatherm.co.nz)

Telephone: 0-9-570 7204

Facsimile: 0-9-570 7206

#### Warranties

- 1.4 **WARRANTY**  
Warrant this work under normal environmental and use conditions against failure of materials and execution.  
Warranty period: 10 years

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

- 1.5 **MANUFACTURER'S MATERIAL WARRANTY**  
Provide an **aquatherm**<sup>®</sup> GmbH materials and installation warranty in the supplier's standard form including €4,500,000 cover for third party legal liability.  
Warranty period: 10 years  
From: Date of completion of system testing

### **Requirements**

- 1.6 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any specified **aquatherm**<sup>®</sup>-SHT or associated products, components or accessories.

- 1.7 **QUALIFICATIONS**  
Plumbers to be certified **aquatherm**<sup>®</sup> **Fusiotherm**<sup>®</sup>/SHT installers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

### **Performance**

- 1.8 **TESTING**  
Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed. Ensure that any connected tapware is isolated before commencing testing. Test to **aquatherm**<sup>®</sup>-SHT testing procedures as applicable. Provide completed test records in the **aquatherm**<sup>®</sup> New Zealand Products Catalogue standard form.

## **2. PRODUCTS**

### **Materials**

- 2.1 **AQUATHERM<sup>®</sup>-SHT POLYBUTYLENE WATER PIPE**  
**aquatherm**<sup>®</sup>-SHT pipes to DIN 16968 and DIN 16969 complete with sliding sleeves to DIN 16928 and accessories brand-matched.
- 2.2 **WATER METER**  
To the requirements of the network utility operator.
- 2.3 **VALVES**  
Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief valve, pressure relief valve and isolating valves to [NZBC G12/AS1: Water supplies](#).
- 2.4 **TEMPERING VALVE**  
Tempering valve to NZS 4617 to [NZBC G12/AS1: Water supplies](#).
- 2.5 **BACKFLOW PREVENTION DEVICES**  
Provide backflow prevention devices to AS/NZS 2845 where it is possible for water or contaminants to backflow into potable water supply. Refer to [NZBC G12/AS1 3.4 Backflow protection](#), and table 2, Selection of Backflow Prevention.
- 2.6 **PIPE CLAMPS**  
**aquatherm**<sup>®</sup>-SHT proprietary pipe clamps and clips.
- 2.7 **INSULATION**  
Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements.

Materials available are fibreglass, polyurethane, rock fibre and flexible foam. Finishes - plain, calico and aluminium foil.

### 3. EXECUTION

#### Conditions

#### 3.1 HANDLE AND STORE

Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover, out of direct sunlight, on a clean level area, stacked to eliminate movement and away from work in progress in accordance with the **aquatherm**<sup>®</sup>-SHT technical manual.

#### 3.2 CORE HOLES AND SLEEVES

Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

#### 3.3 FASTENING TECHNIQUE

Fix pipework using **aquatherm**<sup>®</sup> proprietary pipe brackets, spacing in accordance with the **aquatherm**<sup>®</sup>-SHT technical manual. Ensure brackets are set out as fixed or sliding points in accordance with the **aquatherm**<sup>®</sup>-SHT technical manual.

#### 3.4 CONCEAL

Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.

#### 3.5 IN CONCRETE INSTALLATION

Install directly in concrete in accordance with **aquatherm**<sup>®</sup>-SHT installation procedures.

#### 3.6 IN GROUND INSTALLATION

Install to [AS/NZS 3500.5](#), clause 2.13.3 Under concrete slabs.

#### 3.7 THERMAL MOVEMENT

Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations. Install pipework in accordance with the **aquatherm**<sup>®</sup>-SHT technical manual.

#### 3.8 PIPE SIZE

Flow rates to each outlet to be no less than those given in [NZBC G12/AS1: Water supplies](#), table 3, Acceptable flow rates to sanitary fixtures, with pipe size as determined in table 4, Tempering valve and nominal pipe diameters and in accordance with the **aquatherm**<sup>®</sup>-SHT technical manual.

#### Application - jointing

#### 3.9 AQUATHERM<sup>®</sup>-SHT POLYBUTYLENE WATER SUPPLY

Size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Run pipes complete with all fittings, support and fixing, sliding sleeve joins and install to manufacturers specifications, all to [NZBC G12/AS1: Water supplies](#). Conceal pipework and pressure test before the wall linings are fixed.

#### Application - distribution systems

#### 3.10 WATER SUPPLY CONNECTION

Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to [NZBC G12/AS1: Water supplies](#).

#### 3.11 COLD WATER INSTALLATION

From connection point, size the runs and branches to deliver the acceptable flow rate to [NZBC G12/AS1: Water supplies](#), table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures. Lay out pipes in straight runs with support spacing to [NZBC G12/AS1: Water supplies](#), table 7, Water

supply pipework support spacing firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with bends to **aquatherm**<sup>®</sup>-SHT requirements, complete with necessary valves and fittings.

- 3.12 MAIN ISOLATING VALVE  
Install a proprietary isolating ball cock in an accessible position at the point of entry to the building.
- 3.13 IN LINE FILTER  
Install an in line filter immediately adjacent to the isolating valve in an accessible position to allow for easy cleaning.

#### **Installation - tapware**

- 3.14 INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED  
Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.
- 3.15 INSTALLING TAPWARE  
Install to manufacturer's requirements.

#### **Completion**

- 3.16 FLUSH OUT PIPEWORK  
Flush out pipework. Remove all filters, clean and reassemble.
- 3.17 REPLACE  
Replace damaged or marked elements.
- 3.18 LEAVE  
Leave work to the standard required by following procedures.
- 3.19 REMOVE  
Remove debris, unused materials and elements from the site.

#### **4. SELECTIONS**

Substitutions are not permitted to the following, unless stated otherwise.

##### **Water main**

- 4.1 AQUATHERM<sup>®</sup>-SHT POLYBUTYLENE WATER MAIN  
Size: ~mm outside diameter **aquatherm**<sup>®</sup>-SHT

##### **Pipework**

- 4.2 AQUATHERM<sup>®</sup>-SHT PIPE WORK  
Branch off take: 16mm outside diameter **aquatherm**<sup>®</sup>-SHT  
Branch main: 20mm outside diameter **aquatherm**<sup>®</sup>-SHT  
Main: 25mm outside diameter **aquatherm**<sup>®</sup>-SHT
- 4.3 HOT WATER RING MAIN AQUATHERM<sup>®</sup>-SHT  
Pipework: ~mm outside diameter **aquatherm**<sup>®</sup>-SHT pipework  
Insulation: ~  
Pump: ~
- 4.4 INSULATION  
Brand: ~  
Material: ~  
Wall thickness: ~  
Finish: ~

##### **Valves and accessories**

- 4.5 MAIN ISOLATING VALVE  
Location: ~  
Brand/type: ~ ball valve
- 4.6 IN LINE FILTER  
Location: ~  
Brand/type: ~
- 4.7 FLOOR/ZONE ISOLATING VALVES  
Location: ~  
Brand/type: ~ ball valve
- 4.8 APPLIANCE ISOLATING VALVES - CONCEALED  
Appliance: ~  
Brand/type: ~ ball valve or concealed valves to suit application
- 4.9 APPLIANCE ISOLATING VALVES - EXPOSED  
Appliance: Washing machine  
Brand/type: Refer to tapware selections
- 4.10 TEMPERING VALVE  
Location: ~  
Brand/type: ~