

triumph

WATER HEATING



Mains Pressure Duplex Stainless Steel Multi-purpose Water Heaters

Installation
Commissioning
Technical Data



PROUDLY 100%
NZ OWNED & OPERATED



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Technical data subject to change!

Due to constant further development, illustrations and technical data can differ.

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1 General Information

To ensure the correct installation, operation and maximised service life of the water heater, please read and follow these instructions carefully. Damage resulting from failure to comply with these instructions will void all liability and warranty claims. Improper installation can cause injury and/or damage to property. Water heaters must be installed and commissioned by suitably qualified personnel who therefore assume responsibility for the correct and compliant fitting of components, installation and commissioning of the water heater.

Triumph water heaters are designed and manufactured to meet all relevant NZ Standards and Minimum Energy Performance Standards (MEPS) as specified by AS/NZS 4692.2. See section 7 for list of standards.

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2 Warranty

This cylinder is guaranteed for five years from date of purchase against failure due to defective materials or workmanship. Repair or replacement of any defective cylinder is at our discretion. Labour to remove and install is not covered. Failure induced by the chemical action of aggressive water or any other substances introduced through the water supply or otherwise, misuse, faulty installation or alteration to the cylinder will not be covered by the guarantee. The electrical elements and thermostats are guaranteed for one year from date of purchase.

3 Product Description

Triumph Mains Pressure Duplex Stainless Steel Water Heaters are floor standing water heaters available in standard sizes ranging from 140l to 500l. The water heaters are available as standard electric water heaters or water heaters with optional solar HX (heat exchange) coil, wetback HX coil, radiator or underfloor HX coil or a combination of the above. Custom sized and configured water heaters can be specified and built to order. Water heaters come complete with sensor pockets to accommodate temperature sensors required for solar or heating circuit control.

Triumph water heaters have a maximum permitted operating temperature and pressure of 95°C and 850 kPa respectively. The water heaters feature excellent thermal insulation properties by way of high density polyurethane encased in a protective Zinalume shell.

Each water heater is supplied complete with:

- 1 x 850 kPa TPR valve
- 1 x 3 kW High Grade Incoloy Electric Element and Thermostat

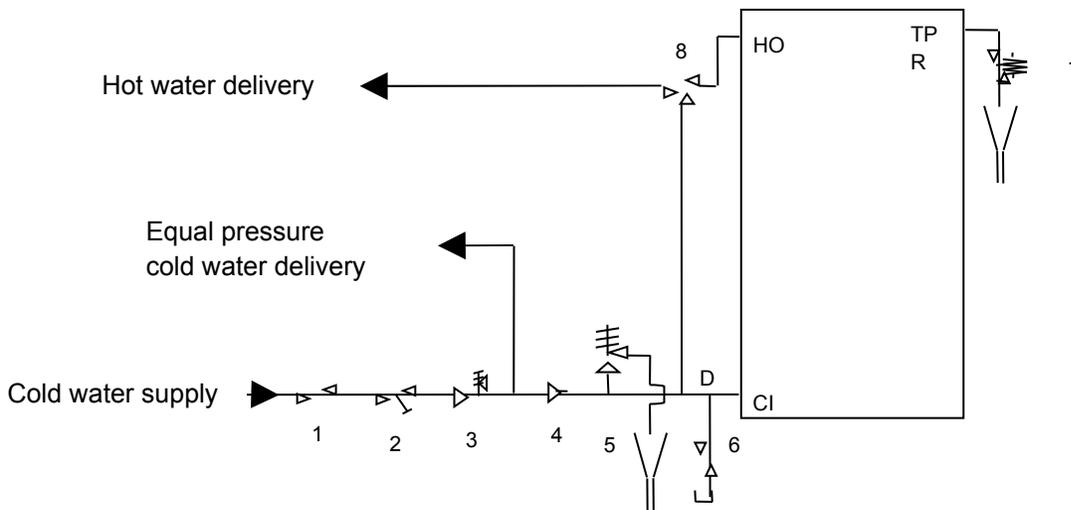
Additional extras include:

- Extra Electric element and thermostat
- Solar HX coil
- Wetback HX coil
- Radiator or underfloor (heating circuit) HX coil
- Additional Fittings
- Sensor pockets

4 Installation Instructions

Water heaters shall be installed according to the hydraulic connection diagrams below, or alternatively, in accordance with NZS 4607. See section 4.3 for detail on valves and components.

4.1 Standard electric water heater



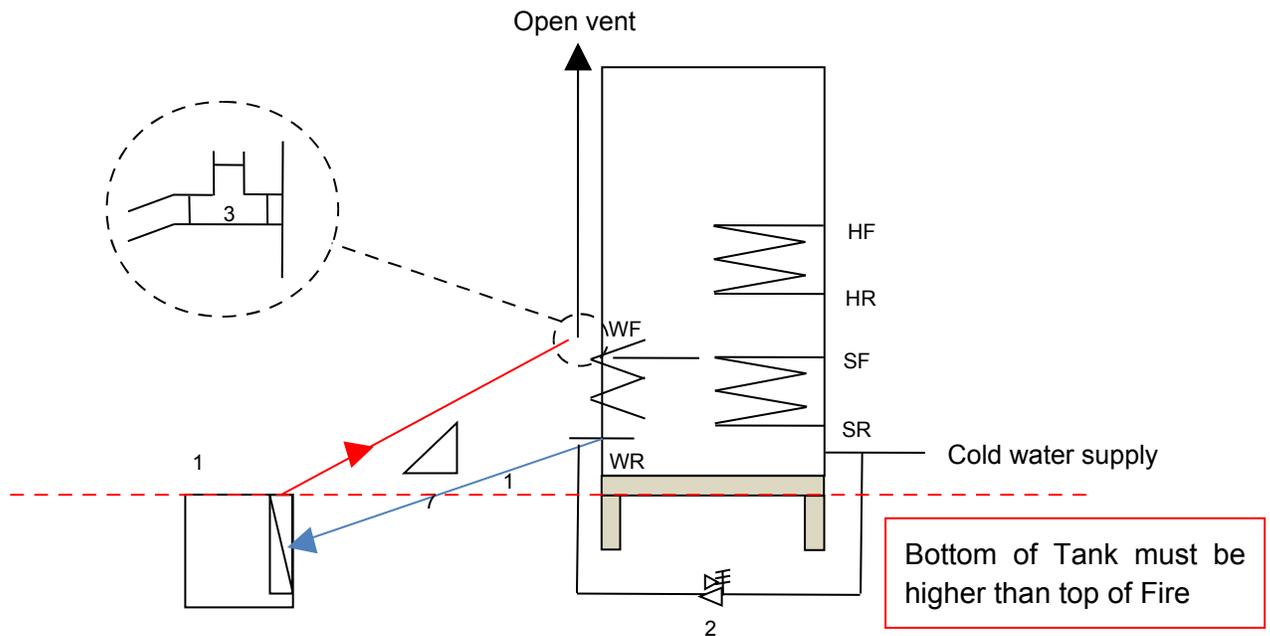
- 1. Isolation valve
- 2. Strainer
- 3. Pressure reducing/limiting Valve
(optional depending on mains pressure)
- 4. Non-return valve

- 5. Expansion control valve and relief drain
- 6. Drain valve (inside installation only) with cap/plug
- 7. Temperature and pressure relief valve and drain
- 8. Tempering valve (suggested but not compulsory temperature limiting device)

CI: Cold water inlet connection
 HO: Hot water outlet connection
 D: Drain connection
 TPR: Temperature Pressure Relief connection

4.2 Multi-purpose water heater

Same installation as described in section 4.1 but with the additional heat source/heat load connections as described below.



1. Wetback

2. Pressure reducing valve

3. 25NB Tee fitting

WF: Wetback Flow connection

WR: Wetback Return connection

SF: Solar Flow connection

SR: Solar Return connection

HF: Heating circuit Flow connection

HR: Heating circuit Return connection

Notes: The wetback hot flow pipe must have a minimum gradient of 1:20 at any point and an average gradient not less than 1:7 : Use long radius bends

Wet back flow and return pipes must be minimum 25NB

Tee connection must be installed as per exploded view to ensure natural convection induced flow

4.3 Valves and components

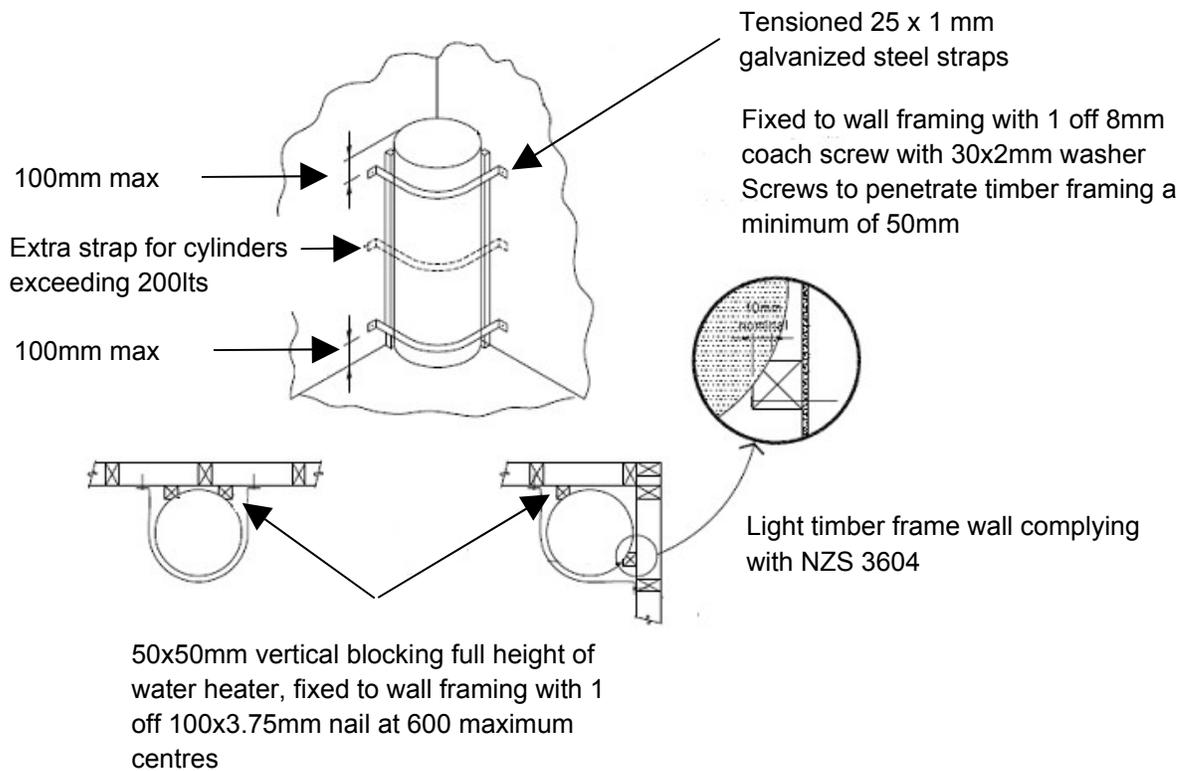
Valves and safety devices must be in accordance with clause G12 of the New Zealand Building Code. Tempering valves must comply with NZS 4617 or AS 1357.2. All components, once installed, must be accessible for inspection, maintenance and removal. Safe trays must be installed under the water heater where water could penetrate another household unit within the same building. Drain pipes must have a conveniently located isolation valve and terminate with a cap or plug, or, if terminating outside the building, with a cap only.

Important note:

Temperature and Pressure Relief (TPR) valves are designed to relieve excess pressure to ensure non-vented water heaters do not explode. TPR valves are designed to keep the maximum water temperature below 99°C. Drain lines from the TPR valve must be copper and discharge to an appropriate place that does not cause damage to the building. If draining into a tundish, the tundish must be constructed of a material capable of withstanding 99°C water.

4.4 Anchorage and seismic restraint

Water heaters must be adequately supported and restrained to resist earthquake forces. Water heaters up to 360l capacity may be restrained according to Acceptable Solution G12/AS1 below, or alternatively, in accordance with Section 203 of NZS 4603.



4.5 Electrical installation

Electrical installation must comply with AS/NZS 3000 and be performed by a suitably qualified technician. Water heaters are provided with standard 240V, 50Hz, 3kW Incoloy electric elements unless otherwise stated. Connect the power supply directly to the terminal block and earth the tab connector. For details refer to the wiring diagram supplied inside the element cover.

NZBC G9 requires any electrical installation within a building be constructed to provide protection to users against electrocution should parts of the building become live due to electrical faults. Equipotential bonding is required in situations where this may occur.

4.6 Tips on reducing heat loss

Significant heat loss and therefore energy consumption will occur as a result of insufficient insulation of pipe work and cylinder connections, incorrect pipe routing and also as a result of gravity circulation and micro circulation in pipe work and connections. To reduce heat loss, the following best practice installation recommendations are given:

Insulation:

Ensure all hot water pipe work and exposed connections are insulated with good quality insulation material.

Pipe routing;

Route hot pipes so they fall on exit of the water heater. Keep pipes low where possible.

Gravity circulation:

With gravity circulation, hot water flows out of a water heater connection and cold water flows back in via another connection. A classic example of this occurrence is with solar loops that do not have a non-return valve fitted. The most effective counter measure for gravity circulation is to install appropriately specified spring check valves. Care must be taken in specifying the correct spring force.

Micro circulation:

With micro circulation, hot water flows out of a water heater connection and cold water flows back in the same connection due to natural convection. Micro circulation is strongest in large diameter pipes. The most cost effective counter-measure to combat micro circulation is to fit anti-thermosiphon downward U loops at all hot water connection points.

5 Commissioning Instructions

5.1 Flushing, filling, bleeding

Following installation of the water heater it is recommended that both the water heater and any HX coils be flushed out to remove any debris that may have entered the system prior to or during installation.

To fill the water heater, open a hot water tap until water flows out. Fill any auxiliary circuits (wetback, heating, solar) according to the manufacturer's instructions. If the HX supply pipes are routed downwards, the water heater HX coils must be bled.

5.2 Pressure/leak test

After successful filling and bleeding of the water heater, perform a pressure/leak test. An acceptable method is to pressurise the cylinder to mains pressure, wait 15 minutes and then inspect the connections to ensure there are no leaks. Leak test any auxiliary circuits (wetback, heating, solar) according to the manufacturer's instructions.

6 Technical Data

Technical data for standard water heaters									
Volume (l)	140	180	200	225	250	280	330	425	500
Height (mm)	1150	1080 1525	1695	1350	1500	1465 1660	1725	2160	2500
Diameter (mm)	510	560 510	510	560	560	610 580	610	630	610
Weight (kg)									
Maximum Working Pressure (kPa)	850	850	850	850	850	850	850	850	850
Maximum Working Temperature (°C)	95	95	95	95	95	95	95	95	95
Insulation thickness (mm)									
Volume above electric element (l)									

Technical data for standard HX coils	
Maximum Working Pressure	850 kPa
Maximum Working Temperature	95 °C
Diameter	20NB

Standard connections		
Description	Abbrev.	Socket
Cold water inlet	CI	20mm / 3/4" BSP
Hot water outlet	HO	20mm / 3/4" BSP
TPR valve connection	TPR	20mm / 3/4" BSP
Drain	D	20mm / 3/4" BSP
Wetback flow	WF	25mm / 1" BSP
Wetback return	WR	25mm / 1" BSP
Solar flow	SF	20mm / 3/4" BSP
Solar return	SR	20mm / 3/4" BSP
Heating circuit flow	HF	20mm / 3/4" BSP
Heating circuit return	HR	20mm / 3/4" BSP
Electric element	E	1¼" BSP
Sensor pocket	SP	7x250mm

7 Producer Statement

Sigma Sheetmetal Products Limited
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Date:
Product Description:
Type of System:
Capacity:
Size:
Construction Material:

These products have been manufactured in compliance with the following standards:

Energy Efficiency Standard:	AS/NZS 4692.2 NZ MEPS
Manufacturing Standard:	AS/NZS 4692.1
Specific Requirements:	AS/NZS 2712 Cause 2.7 Cause 2.8 Cause 3.3 Cause 5.4.4
Temperature and Overtemp Control Device:	AS/NZS 60335.2.21

All tanks are hydrostatically pressure tested
Maximum Working Pressure: 850kPa
Production Date:
Job No.:
Product Warranty: 5 years on cylinder, 1 year on all other components

Signature:

Name:

Suppliers of:
SIGMA Building Products, TRIUMPH Hot Water Cylinders, EDEN Tool Chests, SIGMA Flue Systems, SIGMA & RUBBEDIN Stove Accessories, SIGMA Tool Storage Systems