REMTANK

SINGLE AND TWIN COIL HOT WATER CYLINDERS

INSTALLATION AND OPERATION MANUAL

remeha

Remeha Water Heaters have been designed and manufactured to comply with current international standards of safety. In the interests of the health and safety of personnel and the continued safe, reliable operation of the equipment, safe working practices must be employed at all times. The attention of UK users is drawn to their responsibilities under the Health and Safety Regulations 1993.

All installation and service on Remeha Water Heaters must be carried out by properly qualified personnel and, therefore, no liability can be accepted for any damage or malfunction caused as a result of intervention by unauthorised personnel.

Remeha Water Heaters' policy is one of continuous product improvement and, therefore, the information in this manual, whilst completely up to date at the time of publication, may be subject to revision without prior notice.

Further information and assistance can be obtained from:

Customer support
Monday - Thursday: 8am - 5pm
Friday: 8am - 4.30pm

Sales: 0345 070 1055
Technical: (01189) 743067
Email: technical@remeha.co.uk
Website: www.remeha.co.uk
Twitter: @remeha

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1 Introduction

1.1 General Information

The following instructions are offered as a guide to the user and installer.

The installation must be carried out by a competent plumbing and electrical installer in accordance with Building Regulation G3 (England and Wales), Technical Standard P3 (Scotland) or Building Regulation P5 (Northern Ireland) and the Water Fitting Regulations (England and Wales) or Water Byelaws (Scotland).

1.2 Symbols Used

In these instructions, various risk levels are employed to draw the user's attention to particular information. In doing so we wish to safeguard the user, avoid hazards and guarantee the correct operation of the appliance.

Danger
Risk of a dangerous situation causing serious physical injury.

Warning
Risk of dangerous situation causing slight physical injury.

Caution
Risk of material damage.

Note
Signals important information.

1.3 Liabilities

1.3.1 Manufacturers liability

Our products are manufactured in compliance with the requirements of the various applicable European regulations and Directives.

This appliance complies with the requirements of the CE marking directive.

In the interest of UK customers, we are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

Our liability as the manufacturer may not be invoked in the following cases:
- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.
- Failure to abide by the instructions on installing the product.

1.3.2 Installer’s liability

The installer is responsible for the installation and the commissioning of the appliance. The installer must respect the following instructions:
- Read and follow the instructions given in the manuals provided with the appliance.
- Carry out installation in compliance with the prevailing legislation and standards.
- Perform the initial start up and carry out any checks necessary.
- Complete the commissioning checklist.
- Explain the installation to the user.
- If maintenance is necessary, warn the user of the obligation to check the appliance and maintain it in good working order.
- Give all the instruction manuals to the user.

1.3.3 Users liability

To guarantee optimum operation of the appliance, the user must respect the following instructions:
- Read and follow the instructions given in the manuals provided with the appliance.
- Call on qualified professionals to carry out installation and initial start up.
- Get your fitter to explain your installation to you.
- Have your required checks and services done.
- Keep the instruction manuals in good condition and close to the appliance.

Note
This appliance can be used by children aged from 8 years and above and persons with reduced physical sensory or mental capabilities or lack of experience and knowledge if they have been given supervison or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision. Children must be supervised to ensure they do not play with the appliance.

2 Safety

2.1 General Safety Warnings

Danger
This cylinder is intended to be used as unvented and as such becomes pressurised when in operation. The combination of pressurisation and hot water could lead to serious physical injury if the safety instructions in this manual are not adhered to.

Warning
- Only competent persons received adequate training having are permitted to work on the appliance and the installation.
- Do Not tamper with any of the safety valves or controls supplied with the cylinder.
- Before any work, switch off the mains supply to the appliance.
- Do Not switch on if there is a possibility that the water in the cylinder is frozen.

2.2 Recommendations

Warning
When handling the unit, take appropriate precautions for the weight of the unit.

See
Weights can be found in section 3.1 page 8.

Caution
Annual maintenance is recommended by a competent person.

2.3 Specific Safety Instructions

Warning
- If water discharges from the temperature/pressure relief valve on the cylinder shut down the heat source. Do not turn off any water supply. Contact a competent installer for unvented water heaters to check the system.
- Do Not tamper with any of the safety valves fitted to the system. If a fault is suspected contact a competent installer.
- Do Not bypass the thermal cut-out(s) in any circumstances.

3 Technical Specifications

3.1 Technical data

		300 Single	500 Single	800 Single	1000 Single	300 Twin	500 Twin	800 Twin	1000 Twin
Coil surface area (bottom)	m2	1.4	1.8	2.7	3.3	1.4	1.8	2.7	3.3
Coil surface area (top)	m2	N/A	N/A	N/A	N/A	1.1	1.3	1.3	1.3
Coil rating (bottom)	kW	49	61	83	115	49	61	83	115
Coil rating (top)	kW	N/A	N/A	N/A	N/A	40	45	45	45
Flow rate (bottom)	m3/h	6	6	8	8	6	6	8	8
Flow rate (top)	m3/h	N/A	N/A	N/A	N/A	6	6	6	6
Indirect heat time (mins)	L/Mins	46	64	69	84	46	64	69	84
Pressure drop through bottom coil	kPa	20	20	60	60	20	20	60	60
Pressure drop through top coil	kPa	N/A	N/A	N/A	N/A	20	20	20	20
Heat loss (kWh in 24h)	kWh	1.78	2.42	2.60	3.38	1.78	2.42	2.60	3.38
Storage capacity	L	291	484	769	955	291	484	758	945
Weight full (kg)	Kg	376	601	933	1144	384	610	933	1145
Weight empty (kg)	Kg	85	117	164	189	93	126	175	200
Max design pressure	Bar	8	8	8	8	8	8	8	8
Nominal operating pressure	Bar	6	6	6	6	6	6	6	6
Expansion relief valve setting	Bar	8	8	8	8	8	8	8	8
Temperature and pressure relief valve setting	Bar/°C	10/95	10/95	10/95	10/95	10/95	10/95	10/95	10/95
Maximum primary pressure (coil)	Bar	25	25	25	25	25	25	25	25
Maximum working temperature	°C	70	70	70	70	70	70	70	70

Note
1. Indirect cylinders tested in conformance with BS EN 12897: 2016. Heat up time from cold through 50°C, based on a flow temperature of 80°C +/- 2°C & normal volume.

3.2 ErP data

Standing heat-loss

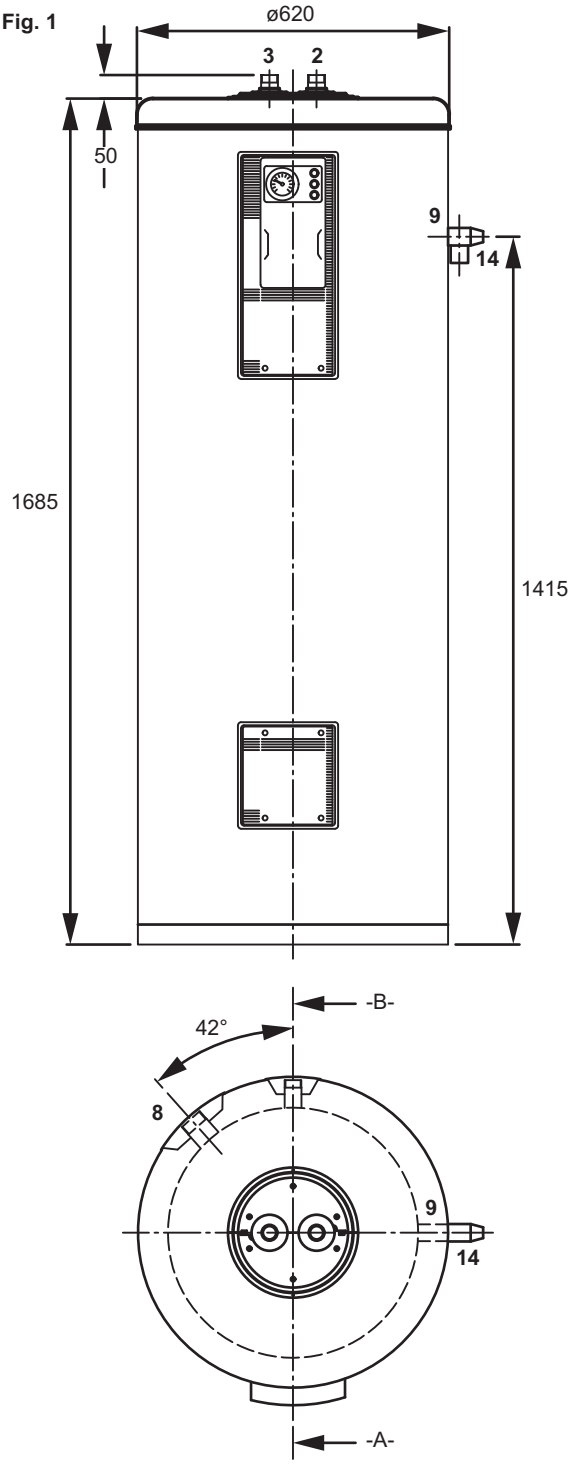
Coil Models(s)	300 Single	500 Single	800 Single	1000 Single	300 Twin	500 Twin	800 Twin	1000 Twin
Energy efficiency class	C	C	-	-	C	C	-	-
Standing loss (kWh/24h)	1.78	2.42	2.60	3.38	1.78	2.42	2.60	3.38
Storage volume	291	484	769	955	291	484	758	945

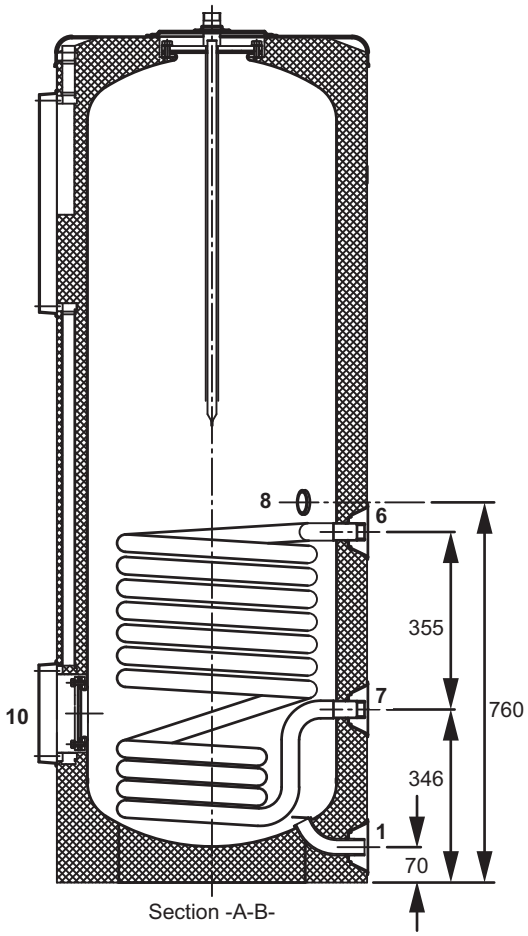
Note
Testing is carried out to BS EN 12897: 2016

3.3 Dimensions and Connections

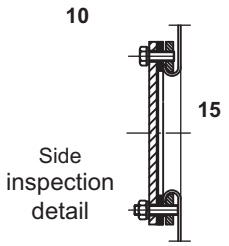
3.3.1 REMTANK SINGLE COIL 300L

Fig. 1





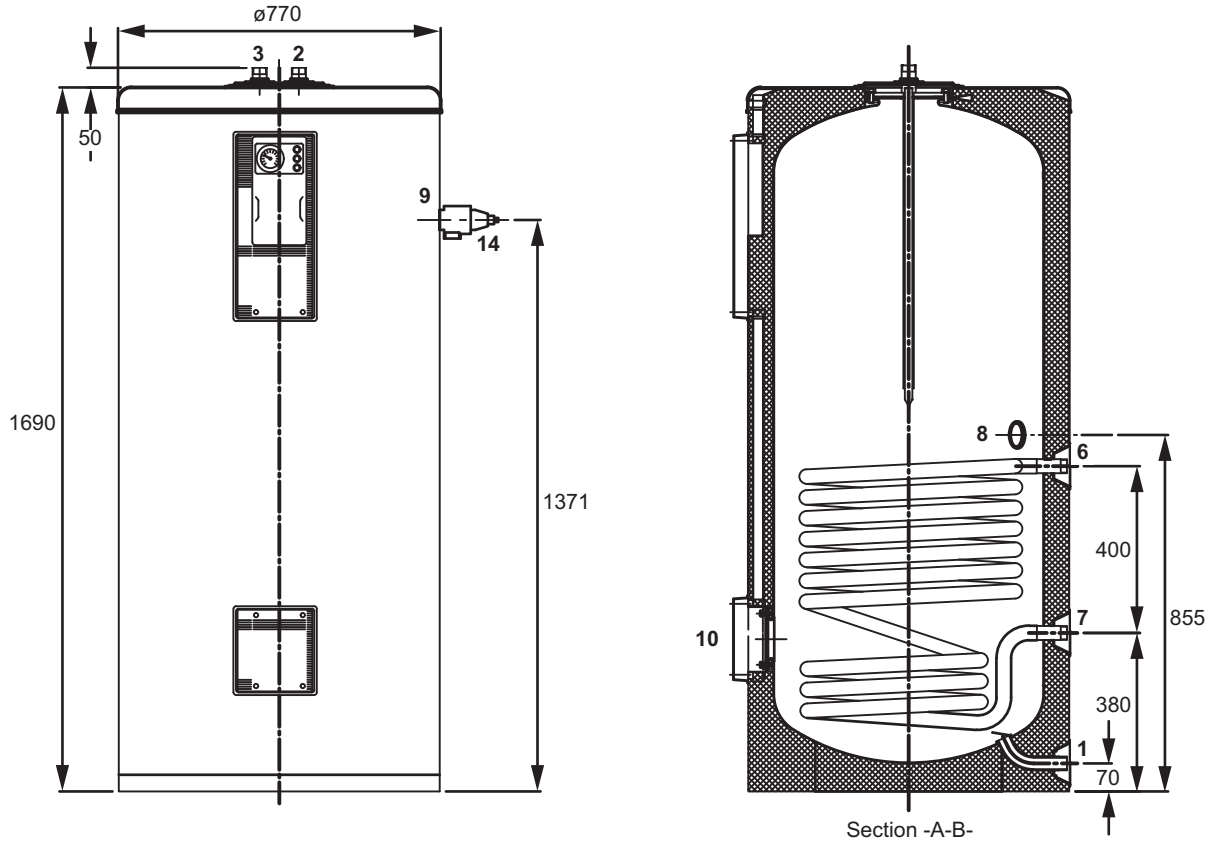
Connections				
1	Cold water inlet/draining	1”	Male	AISI 316
2	D.H.W. outlet	1”	Male	AISI 316
3	Recirculation	1”	Male	AISI 316
6	Primary circuit inlet	1”	Male	AISI 316
7	Primary circuit outlet	1”	Male	AISI 316
8	Side connection	1-1/2”	Male	AISI 316
9	Valve P&T connection	3/4”	Female	AISI 316
10	Side gasket			EPDM
11	Top gasket			EPDM
12	Probe tube for sensor			AISI 316
13	Recirculation pipe			AISI 316
14	Valve P&T 3/4” 10 bar			
15	Side stainless steel disk			AISI 316

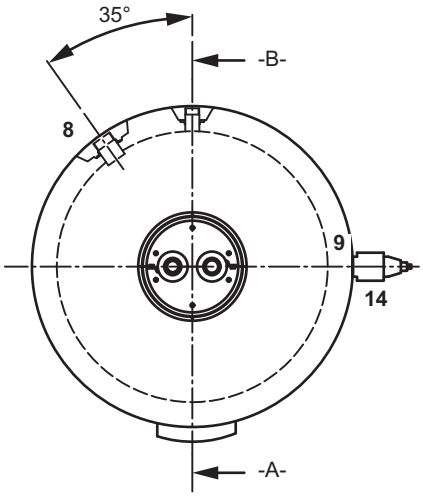


Technical Characteristics		
D.H.W. Tank • Material: AISI 316 chemically descaled and passivated • Max. working pressure: 8 bar • Max. working temperature: 70°C • Volume: 291L	**Heating coils** • Material: AISI 316 • Max. working pressure: 25 bar • Max. working temperature: 90°C • Heat exchange area: 1.4m^2 • Volume: 10.4L	**Thermally Insulated** • Polyurethane foam (C.F.C. free) • Density 45 Kg/m^3 **Equipments** • White outer lining • Top cover • Control panel with thermometer and regulating thermostat

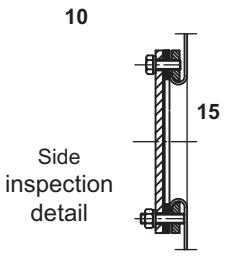
3.3.2 REMTANK SINGLE COIL 500L

Fig. 2





Connections				
1	Cold water inlet/draining	1”	Male	AISI 316
2	D.H.W. outlet	1”	Male	AISI 316
3	Recirculation	1”	Male	AISI 316
6	Primary circuit inlet	1”	Male	AISI 316
7	Primary circuit outlet	1”	Male	AISI 316
8	Side connection	1-1/2”	Male	AISI 316
9	Valve P&T connection	1-1/4”	Female	AISI 316
10	Side gasket			EPDM
11	Top gasket			EPDM
12	Probe tube for sensor			AISI 316
13	Recirculation pipe			AISI 316
14	Valve P&T 1-1/4” 10 bar			
15	Side stainless steel disk			AISI 316

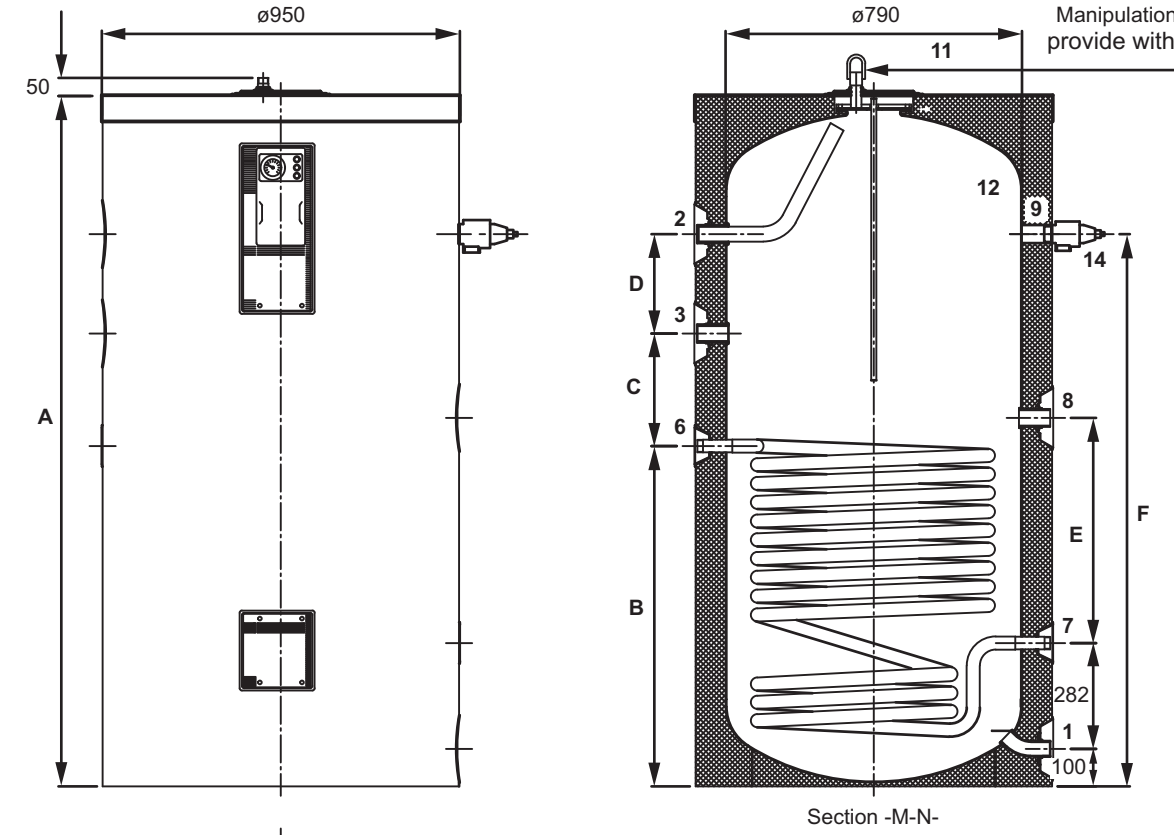


Technical Characteristics		
D.H.W. Tank • Material: AISI 316 chemically descaled and passivated • Max. working pressure: 8 bar • Max. working temperature: 70°C • Volume: 484L	**Heating coils** • Material: AISI 316 • Max. working pressure: 25 bar • Max. working temperature: 90°C • Heat exchange area: 1.8m^2 • Volume: 13.8L	**Thermally Insulated** • Polyurethane foam (C.F.C. free) • Density 45 Kg/m^3 **Equipments** • White outer lining • Top cover • Control panel with thermometer and regulating thermostat

3.3.3 REMTANK SINGLE COIL 800L/1000L

	A	B	C	D	E	F
REMTANK 800L	1840	907	300	265	600	1472
REMTANK 1000L	2250	1057	375	450	775	1882

Fig. 3



Connections				
1	Cold water inlet/draining	1-1/4”	Male	AISI 316
2	D.H.W. outlet	1-1/2”	Male	AISI 316
3	Recirculation	1-1/2”	Male	AISI 316
6	Primary circuit inlet	1”	Male	AISI 316
7	Primary circuit outlet	1”	Male	AISI 316
8	Side connection	1-1/2”	Male	AISI 316
9	Valve P&T connection	1-1/4”	Female	AISI 316
10	Side gasket			EPDM
11	Top gasket			EPDM
12	Probe tube for sensor			AISI 316
14	Valve P&T 1-1/4” 10 bar			
15	Side stainless steel disk			AISI 316

Technical Characteristics

D.H.W. Tank
- Material: AISI 316 chemically descaled and passivated
- Max. working pressure: 8 bar
- Max. working temperature: 70°C
- Volume mod 800: 769L
- Volume mod 1000: 955L

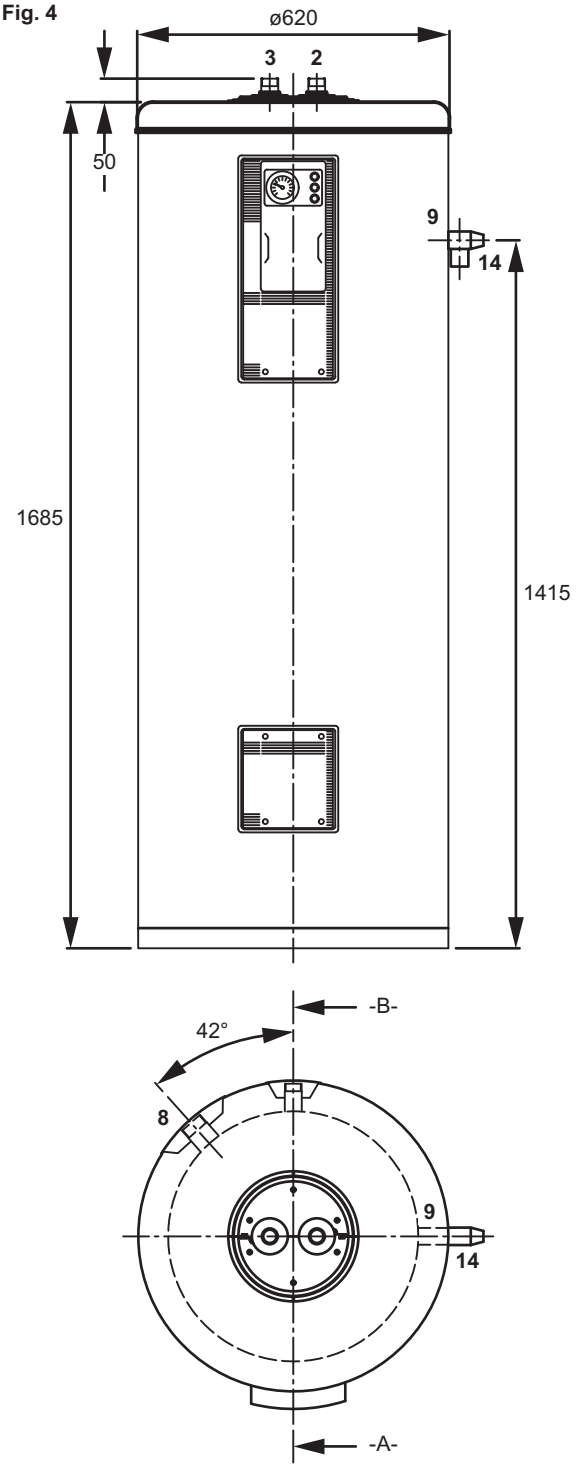
Heating coils
- Material: AISI 316
- Max. working pressure: 25 bar
- Max. working temperature: 90°C
- Heat exchange area
  Mod. 800: 2.7m^2
  Mod. 1000: 3.3m^2
- Volume mod 800: 20.8L
- Volume mod 1000: 24.7L

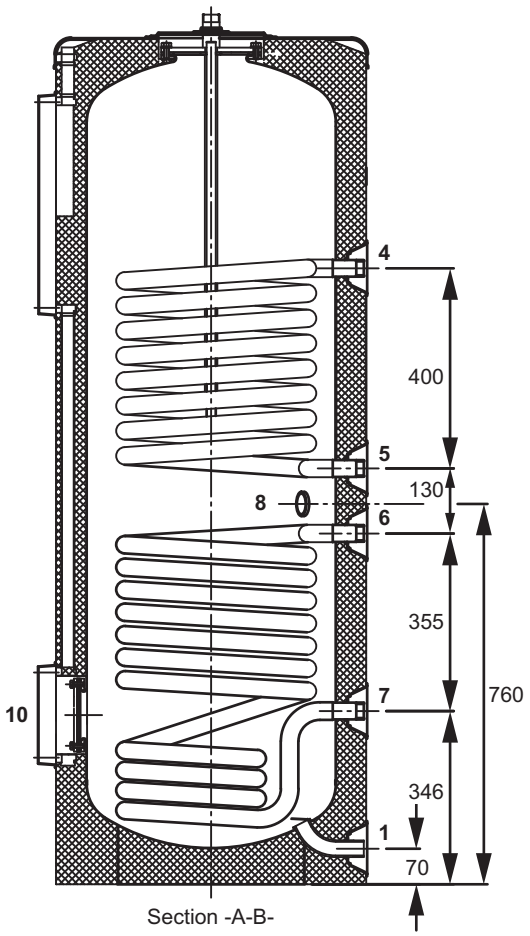
Thermally Insulated
- Polyurethane foam (C.F.C. free)
- Density 45 Kg/m^3

Equipments
- White outer lining
- Top cover
- Control panel with thermometer and regulating thermostat

3.3.4 REMTANK TWIN COIL 300L

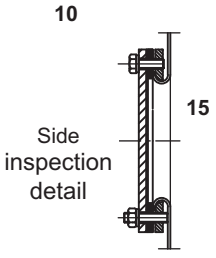
Fig. 4





Section -A-B-

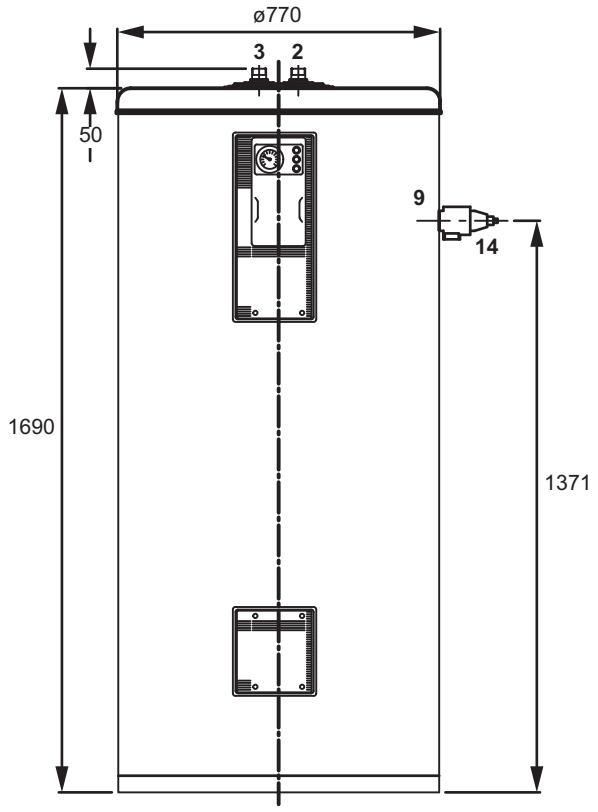
Connections				
1	Cold water inlet/draining	1”	Male	AISI 316
2	D.H.W. outlet	1”	Male	AISI 316
3	Recirculation	1”	Male	AISI 316
4	Upper primary circuit inlet	1”	Male	AISI 316
5	Upper primary circuit outlet	1”	Male	AISI 316
6	Lower primary circuit inlet	1”	Male	AISI 316
7	Lower primary circuit outlet	1”	Male	AISI 316
8	Side connection	1-1/2”	Male	AISI 316
9	Valve P&T connection	3/4”	Female	AISI 316
10	Side gasket			EPDM
11	Top gasket			EPDM
12	Probe tube for sensor			AISI 316
13	Recirculation pipe			AISI 316
14	Valve P&T 3/4” 10 bar			
15	Side stainless steel disk			AISI 316

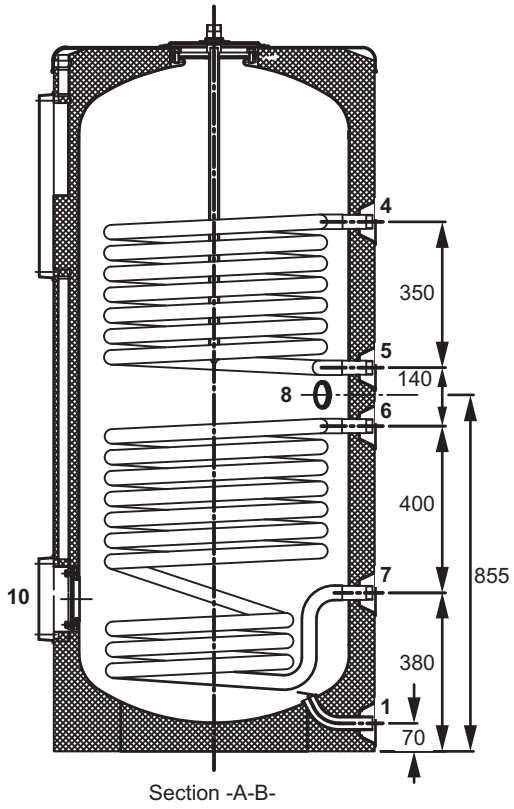


Technical Characteristics		
D.H.W. Tank • Material: AISI 316 chemically descaled and passivated • Max. working pressure: 8 bar • Max. working temperature: 70°C • Volume: 291L	**Heating coils** • Material: AISI 316 • Max. working pressure: 25 bar • Max. working temperature: 90°C • Heat exchange area: 1.4m^2 + 1.1m^2 • Volume: 10.4L + 7.8L	**Thermally Insulated** • Polyurethane foam (C.F.C. free) • Density 45 Kg/m^3 **Equipments** • White outer lining • Top cover • Control panel with thermometer and regulating thermostat

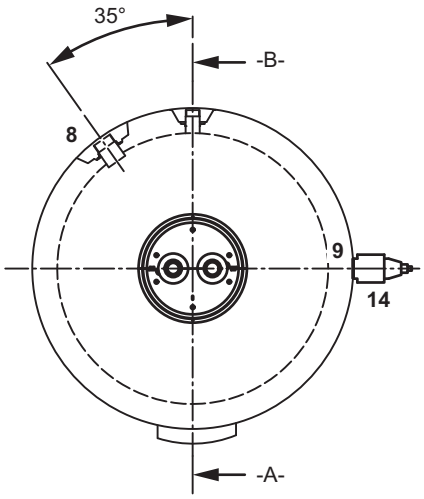
3.3.5 REMTANK TWIN COIL 500L

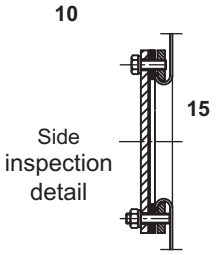
Fig. 5





Section -A-B-





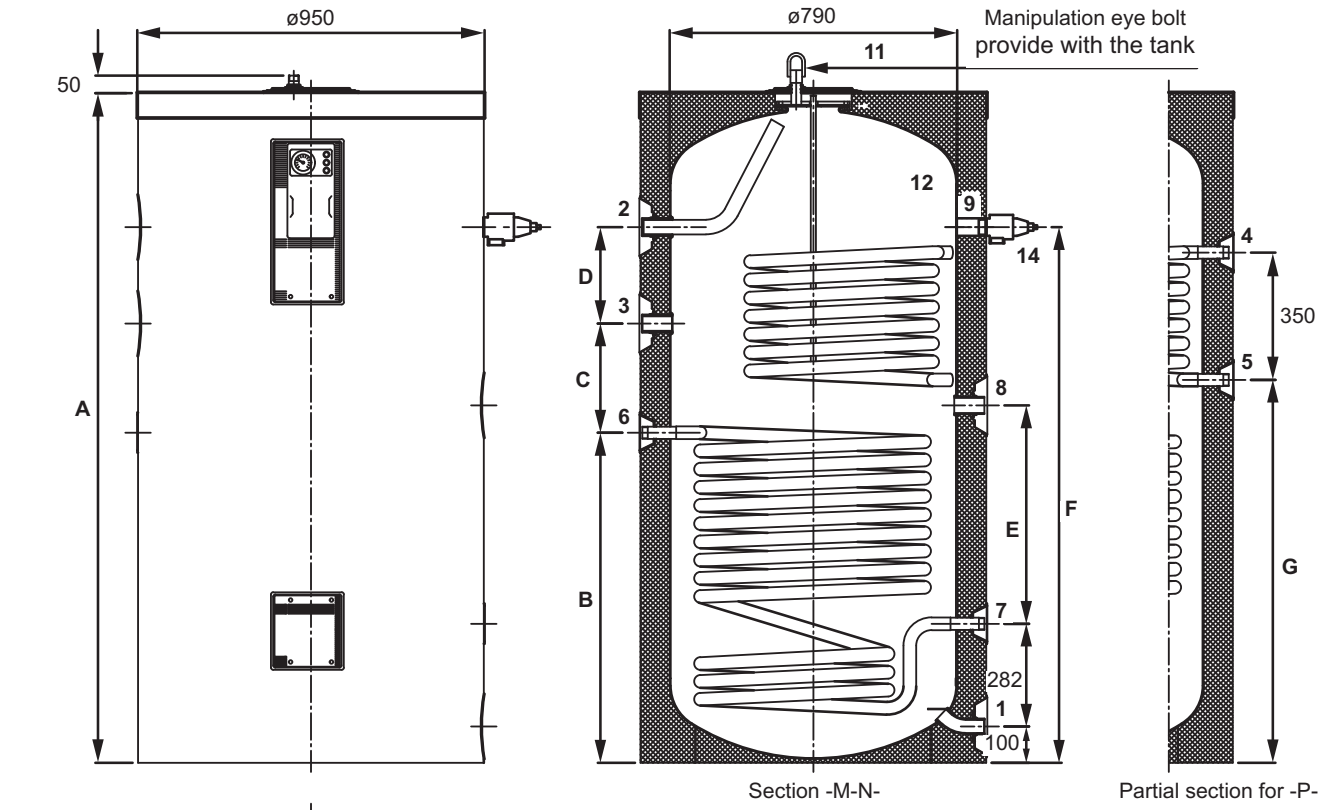
Connections				
1	Cold water inlet/draining	1”	Male	AISI 316
2	D.H.W. outlet	1”	Male	AISI 316
3	Recirculation	1”	Male	AISI 316
4	Upper primary circuit inlet	1”	Male	AISI 316
5	Upper primary circuit outlet	1”	Male	AISI 316
6	Lower primary circuit inlet	1”	Male	AISI 316
7	Lower primary circuit outlet	1”	Male	AISI 316
8	Side connection	1-1/2”	Male	AISI 316
9	Valve P&T connection	1-1/4”	Female	AISI 316
10	Side gasket			EPDM
11	Top gasket			EPDM
12	Probe tube for sensor			AISI 316
13	Recirculation pipe			AISI 316
14	Valve P&T 1-1/4” 10 bar			
15	Side stainless steel disk			AISI 316

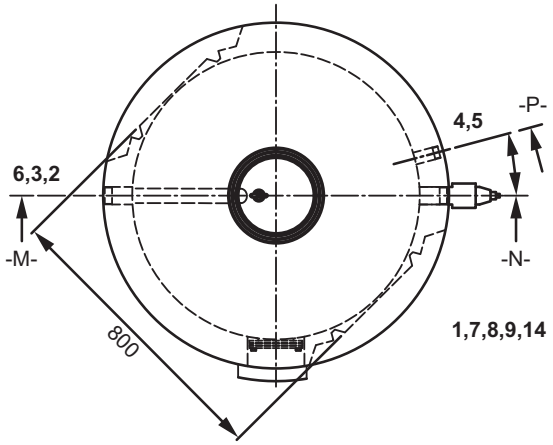
Technical Characteristics		
D.H.W. Tank • Material: AISI 316 chemically descaled and passivated • Max. working pressure: 8 bar • Max. working temperature: 70°C • Volume: 484L	**Heating coils** • Material: AISI 316 • Max. working pressure: 25 bar • Max. working temperature: 90°C • Heat exchange area: 1.8m^2 + 1.3m^2 • Volume: 13.8L + 9.5L	**Thermally Insulated** • Polyurethane foam (C.F.C. free) • Density 45 Kg/m^3 **Equipments** • White outer lining • Top cover • Control panel with thermometer and regulating thermostat

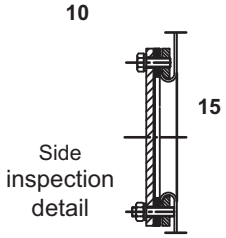
3.3.6 REMTANK TWIN COIL 800L/1000L

	A	B	C	D	E	F	G
REMTANK 800L	1840	907	300	265	600	1472	1052
REMTANK 1000L	2250	1057	375	450	775	1882	1237

Fig. 6







Connections				
1	Cold water inlet/draining	1-1/4”	Male	AISI 316
2	D.H.W. outlet	1-1/2”	Male	AISI 316
3	Recirculation	1-1/2”	Male	AISI 316
4	Upper primary circuit inlet	1”	Male	AISI 316
5	Upper primary circuit outlet	1”	Male	AISI 316
6	Lower primary circuit inlet	1”	Male	AISI 316
7	Lower primary circuit outlet	1”	Male	AISI 316
8	Side connection	1-1/2”	Male	AISI 316
9	Valve P&T connection	1-1/4”	Female	AISI 316
10	Side gasket			EPDM
11	Top gasket			EPDM
12	Probe tube for sensor			AISI 316
13	Recirculation pipe			AISI 316
14	Valve P&T 1-1/4” 10 bar			
15	Side stainless steel disk			AISI 316

Technical Characteristics

D.H.W. Tank
- Material: AISI 316 chemically descaled and passivated
- Max. working pressure: 8 bar
- Max. working temperature: 70°C
- Volume mod 800: 758L
- Volume mod 1000: 945L

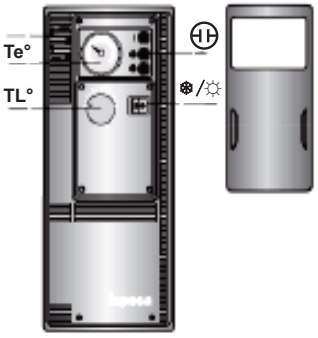
Heating coils
- Material: AISI 316
- Max. working pressure: 25 bar
- Max. working temperature: 90°C
- Heat exchange area
  mod 800: 2.7m^2 + 1.3m^2
  mod 1000: 3.3m^2 + 1.3m^2
- Volume mod 800: 20.8L + 9.5L
  Volume mod 1000: 24.7L + 9.5L

Thermally Insulated
- Polyurethane foam (C.F.C. free)
- Density 45 Kg/m^3

Equipments
- White outer lining
- Top cover
- Control panel with thermometer and regulating thermostat

3.4 Electrical Diagram

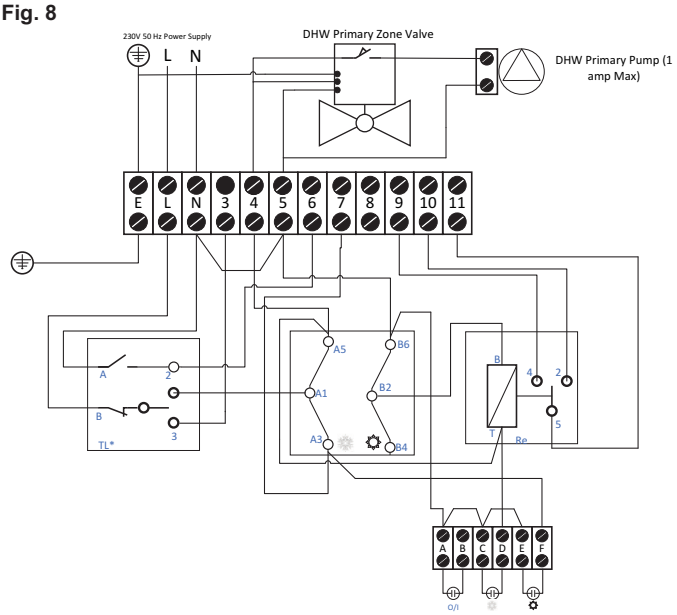
Fig. 7



⊕ - Pilot lights
Te° - Thermometer
TL° - Regulating thermostat and safety thermostat
❄/☼ - Summer / Winter switch
K - External contactor
(Leave in winter position as the summer position will disable the heating)

The control panel K/TD has a thermometer and a regulating and safety thermostat.

Fig. 8



Warning
The high limit stat must always operate the zone valve in case of over temperature.

Dual safety and temperature control thermostat, manual reset.

The control panel is equipped with a dual safety and temperature control thermostat.

If the thermostat safety device is triggered it has to be manually reset.

To do this the thermostat must be dismantled as indicated below.

1. Disconnect the power supply to the tank to ensure there is no power supply to the control panel and prevent any risk of electric shocks.
2. Dismantle the control panel by unscrewing the four corner screws that fix it to the tank.
3. Remove the protective front control panel.
4. Remove the temperature setting dial by pressing outwards.
5. Unscrew the two screws on the part left uncovered by the dial. When mounting it again make sure that the position of the screws is correct.
6. Turn the thermostat round from the back part of the control panel without the need to disconnect any wires. On the back part of the thermostat there is a compartment marked with an ‘S’. Press the tab inside the compartment with a fine object to reset the thermostat.
7. Reverse the above steps to reassemble the thermostat.

4 Description of Product

4.1 General Description

This product is a purpose designed unvented water heater. The unit has a stainless steel inner vessel, which ensures an excellent standard of corrosion resistance. The outer casing is a combination of resilient thermoplastic mouldings and soft jacket. All products are insulated with CFC free polyurethane foam to give good heat loss protection.

This unit is certified and intended to be used in an unvented system. The unvented system kit offered by Baxi Heating must be purchased at the same time. If this kit isn't purchased, it could invalidate the warranty of the cylinder.

4.2 Operation Principle

The unvented cylinder is used to heat and store hot water for use in commercial applications.

To provide pressure to the tap or shower an unvented unit uses the incoming mains water pressure. To do this the cylinder is sealed and not vented. However, when the volume of water is heated it expands and without any room for expansion could cause the cylinder to rupture and fail. To allow expansion of this heated water it is important that an expansion vessel is used. This vessel is pressurised and gives the heated water room to expand.

5 Before Installation

5.1 Installation Regulations

Warning
Installation of the appliance must be carried out by a qualified engineer in accordance with prevailing and national regulations as listed below.

- Building Regulations
- The Building Standards (Scotland)
- The Building Regulations (Northern Ireland)
- I.E.E Electrical Regs
- UK Water Regulations

5.2 Installation Requirements

5.2.1 Water supply

In an unvented system the pressure and flowrate is directly related to the incoming water supply. For this reason it is recommended that the maximum water demand is assessed and the water supply checked to ensure this demand can be satisfactorily met.

- We suggest the minimum supply requirements should be 0.15MPa (1.5 bar) pressure and 100 litres per minute flow rate to ensure adequate discharge of hot water through the T&P valve in the event of overheating.
- A 28mm cold water supply is recommended, however, if a smaller supply exists, which provides sufficient flow, this may be used (although more flow noise may be experienced).
- The higher the available pressure and flow rate the better the system performance.
- See Technical Data Table for cylinder operating pressures.

5.2.2 Outlet/terminal fittings (taps, etc.)

- The cylinder can be used with most types of terminal fittings.
- Outlets situated higher than the cylinder will give outlet pressures lower than that at the heater, a 10m height difference will result in a 1 bar pressure reduction at the outlet.
- All fittings, pipework and connections must have a rated pressure of at least 8 bar at 80°C.

5.2.3 Limitations

The cylinder should not be used in association with any of the following:

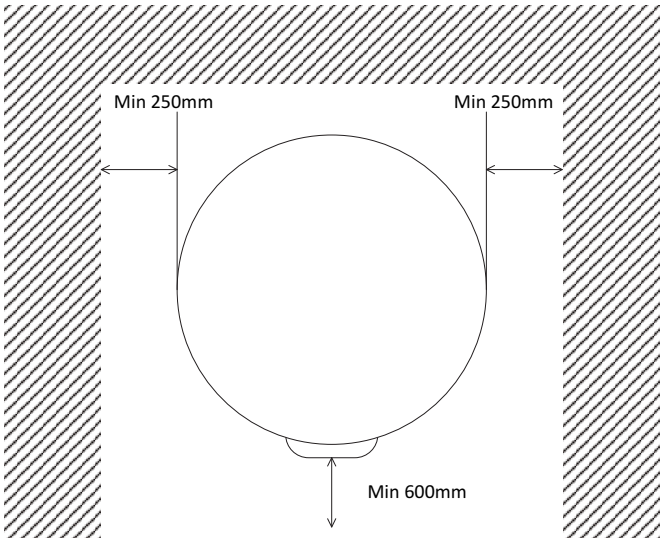
- Solid fuel heat sources or any other heat source in which the energy input is not under effective thermostatic control, unless additional and appropriate safety measures are installed.
- Ascending spray type bidets or any other class 1 back syphonage risk requiring that a type A air gap be employed.

- Steam heating plants unless additional and appropriate safety devices are installed.
- Situations where maintenance is likely to be neglected or safety devices tampered with.
- Water supplies that have either inadequate pressure or where the supply may be intermittent.
- Situations where it is not possible to safely pipe away any discharge from the safety valves.
- In areas where the water consistently contains a high proportion of solids, e.g. suspended matter that could block the strainer, unless adequate filtration can be ensured.
- In areas where the water supply contains chloride levels that exceed 250mg/l.

5.3 Choice of Location

The cylinder must be vertically floor mounted. Although location is not critical, the following points should be considered:

Fig. 9



- The cylinder should be sited to ensure minimum dead leg distances, particularly to the point of most frequent use.
- Avoid siting where extreme cold temperatures will be experienced. All exposed pipe work should be insulated.
- The discharge pipework from the safety valves must have minimum fall of 1:200 from the unit and terminate in a safe and visible position.
- Access to associated controls must be available for the servicing and maintenance of the system. Where these controls are installed against a wall a minimum distance of 250mm must be left.
- Ensure that the floor area for the cylinder is level and capable of permanently supporting the weight when full of water.

See
Weights can be found in section 3.1 page 8.

6 Installation

6.1 General

After reading the previous sections in this booklet and choosing a good location for the unit please install, paying attention to the following hydraulic, electrical and commissioning sections.

6.1.1 Heat Source selection

- The Heat Source should have a control thermostat and non self-resetting thermal cut-out and be compatible with unvented storage water heaters.
- The Primary Circuit from the Heat Source can be a sealed system or open vented type - maximum primary pressure 25 bar.
- The Heat Source cannot be vented through the cylinder.

6.2 Water Connections

Warning

- Under no circumstances should the factory fitted temperature/pressure relief valve be removed other than by a competent person. To do so will invalidate any guarantee or claim.
- The cold water combination valve is part of the unvented kit and MUST be installed in accordance with G3 Building regulations.
- No control or safety valves should be tampered with or used for any other purpose.
- The discharge pipe should not be blocked or used for any other purpose.
- The tundish should not be located adjacent to any electrical components.

See

Refer to the installation schematic Fig. 10, page 20 for details on the pipework layout.

Specific details for the discharge pipework layout is also provided in Fig. 13 on page 25.

- All pipe fittings are made via BSP pipe connections directly to the unit.
- A stopcock or servicing valve should be incorporated into the cold water supply to enable the cylinder and its associated controls to be isolated and serviced (not supplied).
- The expansion vessel must be connected between the cold water combination valve and the cylinder.
- The location of the expansion vessel should allow access to recharge the pressure as and when necessary.
- A suitable draining tap should be installed in the cold water supply to the cylinder between the expansion valve and the heater at as low a level as possible.
- It is recommended that the outlet point of the drain pipework be at least 1 metre below the level of the heater (this can be achieved by attaching a hose to the drain tap outlet spigot).

Typical installation schematic (not to scale)

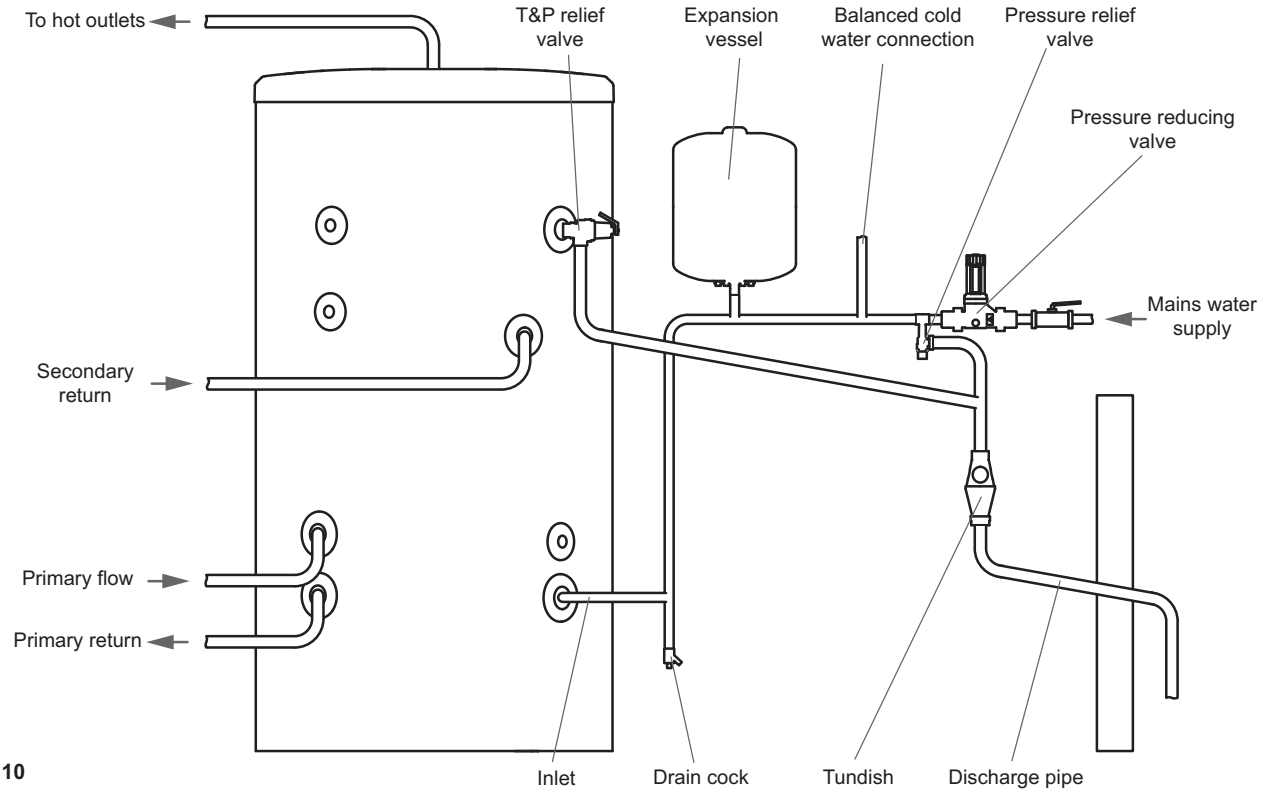


Fig. 10

6.2.1 Unvented system kit

Caution

- The expansion vessel pressure must be set in accordance with the inlet pressure set on the pressure reducing valve.
- Flush supply pipework before connection to remove all flux and debris prior to fitting the inlet controls. Failure to do this may result in irreparable damage to the controls and will invalidate any warranty.

- The cold water control pack can be connected anywhere on the cold water cylinder supply prior to the expansion vessel.
- The control pack incorporates the strainer, check valve, core unit and expansion relief valve.
- The pressure settings are adjustable and should be set between 1 & 8 bar.
- The valve can be fitted in any orientation to suit the installation as long as the valve is installed with the direction of flow arrows pointing in the correct direction.
- The expansion relief valve should be installed with the discharge pipework in either the horizontal position or facing downwards.
- No other valves should be placed between the cold water combination valve and the cylinder.
- The blank plastic plugs in the body of the pressure relief valve are pressure gauge connections to enable pressure monitoring to be carried out, should the system develop a fault. It is recommended that these be accessible (the pressure reducing valve has two – only one need be accessible).

6.2.2 Primary circuit control

- The 2 port motorised valve supplied with the unvented system kit MUST be fitted on the primary flow to the cylinder heat exchanger and wired such that in the event of the cylinder overheating it will close the primary circuit.
- Primary circulation to the cylinder heat exchanger must be pumped; gravity circulation WILL NOT WORK.
- It is recommended that an air bleed or automatic air vent is incorporated in the primary flow pipe work close to the unit.

Fig. 11

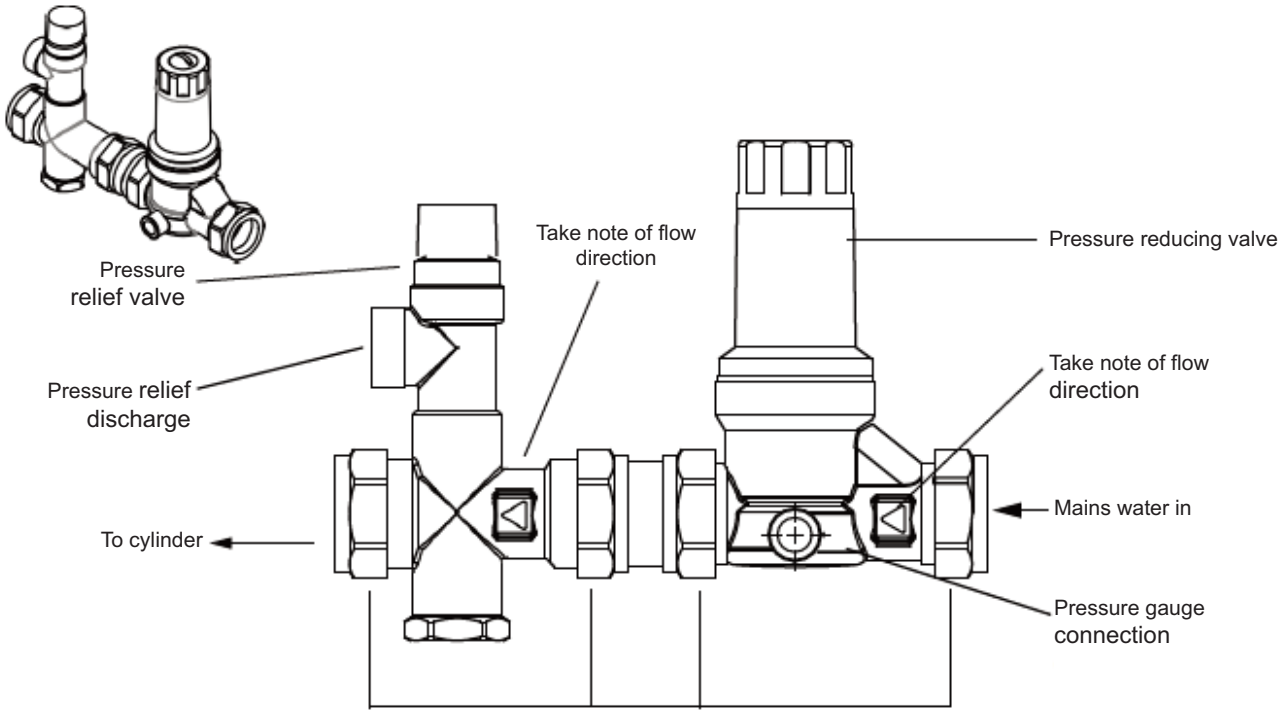
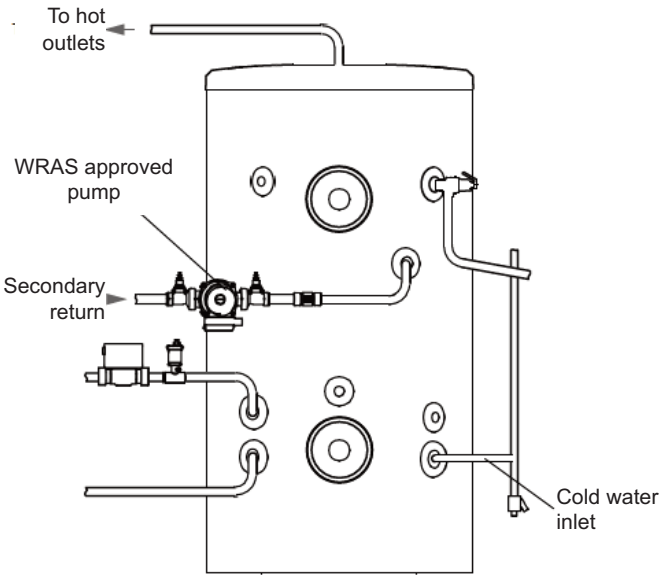


Fig. 12



6.2.3 Secondary circulation

If secondary circulation is required it is recommended that it be connected to the cylinder as shown.

See
See fig. 12

- The secondary return pipe should be in 28mm pipe and incorporate a check valve to prevent backflow.
- A suitable WRAS approved bronze circulation pump will be required.
- On large systems, due to the increase in system water content, it may be necessary to fit an additional expansion vessel to the secondary circuit. This should be done if the capacity of the secondary circuit exceeds 10 litres.

Pipe capacity (copper):
15mm O.D. = 0.13 l/m (10 litres = 77m)
22mm O.D. = 0.38 l/m (10 litres = 26m)
28mm O.D. = 0.55 l/m (10 litres = 18m)

Note
Plastic pipe capacities may be reduced due to thicker wall sections.

6.2.4 Discharge

It is a requirement of Building Regulation G3 that any discharge from an unvented system is conveyed to where it is visible, but will not cause danger to persons in or about the building. The tundish and discharge pipes should be fitted in accordance with the requirements and guidance notes of Building Regulation G3. The G3 Requirements and Guidance section 3.50 - 3.63 are reproduced in the following sections of this manual. For discharge pipe arrangements not covered by G3 Guidance advice should be sought from your local Building Control Officer. Any discharge pipe connected to the pressure relief devices (expansion valve and temperature/pressure relief valve) must be installed in a continuously downward direction and in a frost free environment.

Water may drip from the discharge pipe of the pressure relief device. This pipe must be left open to the atmosphere. The pressure relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.

G3 REQUIREMENT

"...there shall be precautions...to ensure that the hot water discharged from safety devices is safely conveyed to where it is visible but will not cause danger to persons in or about the building."

The following extract is taken from the latest G3 Regulations Discharge pipes from safety devices

Discharge pipe D1

3.50 Each of the temperature relief valves or combined temperature and pressure relief valves specified in 3.13 or 3.17 should discharge either directly or by way of a manifold via a short length of metal pipe (D1) to a tundish.

3.51 The diameter of discharge pipe (D1) should be not less than the nominal outlet size of the temperature relief valve.

3.52 Where a manifold is used it should be sized to accept and discharge the total discharge from the discharge pipes connected to it.

3.53 Where valves other than the temperature and pressure relief valve from a single unvented hot water system discharge by way of the same manifold that is used by the safety devices, the manifold should be factory fitted as part of the hot water storage system unit or package.

Tundish

3.54 The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible to, and lower than, the valve, with no more than 600mm of pipe between the valve outlet and the tundish.

See
See fig. 13

Note
To comply with the Water Supply (Water Fittings) Regulations, the tundish should incorporate a suitable air gap.

3.55 Any discharge should be visible at the tundish. In addition, where discharges from safety devices may not be apparent, e.g. in dwellings occupied by people with impaired vision or mobility, consideration should be given to the installation of a suitable safety device to warn when discharge takes place, e.g. electronically operated.

Discharge pipe D2

3.56 The discharge pipe (D2) from the tundish should:

(a) have a vertical section of pipe at least 300mm long below the tundish before any elbows or bends in the pipework and

See
See fig. 13

(b) be installed with a continuous fall thereafter of at least 1 in 200.

3.57 The discharge pipe (D2) should be made of:

(a) metal; or

(b) other material that has been demonstrated to be capable of safely withstanding temperatures of the water discharged and is clearly and permanently marked to identify the product and performance standard (e.g. as specified in the relevant part of BS 7291).

3.58 The discharge pipe (D2) should be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9m long, i.e. for discharge pipes between 9m and 18m the equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device; between 18 and 27m at least 3 sizes larger, and so on; bends must be taken into account in calculating the flow resistance.

Note An alternative approach for sizing discharge pipes would be to follow Annex D, section D.2 of BS 6700:2006 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.

3.59 Where a single common discharge pipe serves more than one system, it should be at least one pipe size larger than the largest individual discharge pipe (D2) to be connected.

3.60 The discharge pipe should not be connected to a soil discharge stack unless it can be demonstrated that the soil discharge stack is capable of safely withstanding temperatures of the water discharged, in which case, it should:

(a) contain a mechanical seal, not incorporating a water trap, which allows water into the branch pipe without allowing foul air from the drain to be ventilated through the tundish;

(b) be a separate branch pipe with no sanitary appliances connected to it;

(c) if plastic pipes are used as branch pipes carrying discharge from a safety device they should be either polybutylene (PB) to Class S of BS 7291-2:2006 or cross linked polyethylene (PE-X) to Class S of BS 7291-3:2006; and

(d) be continuously marked with a warning that no sanitary appliances should be connected to the pipe.

Note
1. Plastic pipes should be joined and assembled with fittings appropriate to the circumstances in which they are used as set out in BS EN ISO 1043-1.
2. Where pipes cannot be connected to the stack it may be possible to route a dedicated pipe alongside or in close proximity to the discharge stack.

Termination of discharge pipe

3.61 The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge.

3.62 Examples of acceptable discharge arrangements are:

(a) to a trapped gully with the end of the pipe below a fixed grating and above the water seal;

(b) downward discharges at low level; i.e. up to 100mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility; and

(c) discharges at high level: e.g. into a metal hopper and metal downpipe with the end of the discharge pipe clearly visible or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastic guttering system that would collect such discharges.

3.63 The discharge would consist of high temperature water and steam. Asphalt, roofing felt and non- metallic rainwater goods may be damaged by such discharges.

6.2.5 Worked example of discharge pipe sizing

Fig. 12: shows a G1/2 temperature relief valve with a discharge pipe (D2) having 4 No. elbows and length of 7m from the tundish to the point of discharge.

From Table 6:
Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G1/2 temperature relief valve is 9.0m.

Subtract the resistance for 4 No. 22mm elbows at 0.8m each = 3.2m.

Therefore the permitted length equates to: 5.8m

5.8m is less than the actual length of 7m therefore calculate the next largest size.

Maximum resistance allowed for a straight length of 28mm pipe (D2) from a G1/2 temperature relief valves equates to 18m.

Subtract the resistance of 4 No. 28mm elbows at 1.0m each = 4.0m

Therefore the maximum permitted length equates to: 14m

As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

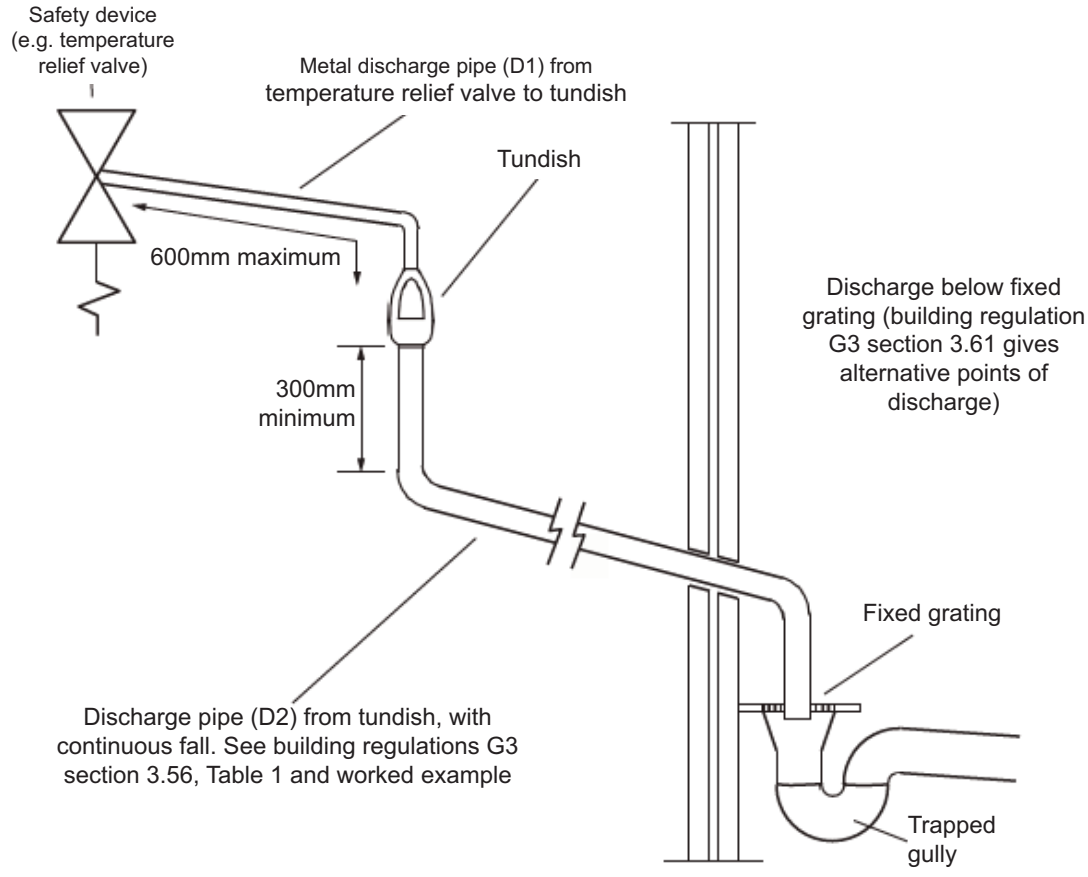
Table 6

Sizing of copper discharge pipe (D2) for common temperature relief valve outlet sizes

Valve Outlet Size	Minimum Size Of Discharge Pipe D1	Minimum Size Of Discharge Pipe D2 From Tundish	Maximum Resistance Allowed, Expressed As A Length Of Straight Pipe (I.E. No Elbows Or Bends)	Resistance Created By Each Elbow Or Bend
G1/2	15mm	22mm	up to 9m	0.8m
		28mm	up to 18m	1.0m
		35mm	up to 27m	1.4m
G3/4	22mm	28mm	up to 9m	1.0m
		35mm	up to 18m	1.4m
		42mm	up to 27m	1.7m
G1	28mm	35mm	up to 9m	1.4m
		42mm	up to 18m	1.7m
		54mm	up to 27m	2.3m

Typical discharge pipe arrangement (extract from Building Regulation G3 Guidance Section 3.50)

Fig. 13



6.3 Electrical Connections

See
In case of difficulty contact service support; contact details are available on page 2 of this booklet.

Warning

- Disconnect from the mains electrical supply before removing any covers.
- Do Not bypass the thermal cut-out(s) in any circumstances. All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E Wiring Regulations.
- Each circuit must be protected by a suitable fuse and double pole isolating switch with a contact separation of at least 3mm in both poles.

6.4 Filling the Installation

- Check expansion vessel pre-charge pressure. The expansion vessel pressure must be set in accordance with the inlet pressure set on the pressure reducing valve.
- Ensure the drain cock is CLOSED.
- Open a hot tap furthest from the cylinder.
- Open the mains stop cock to fill the unit. When water flows from the tap, allow to run for a few minutes to thoroughly flush through any residue, dirt or swarf, then close the tap.
- Open successive hot taps to purge the system of air.

7 Commissioning

7.1 General

After filling the installation with water in the previous section please follow the following steps to complete the installation of the unit.

Warning
Do Not operate the primary circuit until the cylinder has been filled with water.

7.2 Checklist Before Commissioning

- Check all water connections for leaks and rectify as necessary.
- Turn off mains water supply.
- Remove the pressure reducing valve head work to access the strainer mesh, clean and re-fit.
- Turn the water supply back on.
- Manually open, for a few seconds, each relief valve in turn, checking that water is discharged and runs freely through the tundish and out at the discharge point.
- Ensure that the valve(s) reseat satisfactorily.
- The installation must comply with G3 of the Building Regulations.

7.3 Commissioning Procedure

7.3.1 Indirect units

- Fill the indirect (primary) circuit following the heat source manufacturer’s commissioning instructions.
- To ensure the cylinder primary heat exchanger is filled, the 2 port motorised valve (supplied with the unvented kit) should be manually opened by moving the lever on the motor housing to the MANUAL setting. When the primary circuit is full return the lever to the AUTOMATIC position.
- Switch on the heat source, ensure the programmer is set to Hot Water and allow the cylinder to heat up to a normal working temperature 65°C (recommended).

7.3.2 Flow performance

When initially opening hot outlets a small surge in flow may be noticed as pressures stabilise. This is quite normal with unvented systems. In some areas cloudiness may be noticed in the hot water. This is due to aeration of the water, is quite normal and will quickly clear.

7.3.3 Temperature controls

The cylinder units are fitted with a thermostat and thermal cut-out. These controls must be wired in series with the 2 port motorised zone valve supplied to interrupt the flow of primary water around the heat exchanger coil when the control temperature has been reached.

Do Not bypass the thermal cut-out(s) in any circumstances.

7.3.4 Operational faults

Operational faults and their possible causes are detailed in the Fault Finding section of this book. It is recommended that faults should be checked by a competent installer.

See
See Section 10 Page 32 for fault finding

The air volume within the expansion vessel supplied in the unvented system kit will periodically require recharging to ensure expanded water is accommodated within the system. A discharge of water INTERMITTENTLY from the expansion valve will indicate the air volume has reduced to a point where it can no longer accommodate the expansion.

8 Maintenance

8.1 General

8.1.1 Maintenance requirements

Unvented hot water systems have a continuing maintenance requirement in order to ensure safe working and optimum performance. It is essential that the relief valve(s) are periodically inspected and manually opened to ensure no blockage has occurred in the valves or discharge pipework.

Similarly cleaning of the strainer element and replacement of the air in the expansion vessel will help to prevent possible operational faults.

The maintenance checks described below should be performed by a competent person on a regular basis,
e.g. annually to coincide with heat source maintenance.

After any maintenance, please complete the relevant Service Interval Record section of the Benchmark

See
See Checklist on page 38 and 39 of this document.

8.2 Standard Inspection & Maintenance Operations

8.2.1 Inspection

There is an inspection plate can be used as an access for inspecting the cylinder internally.

8.2.2 Safety valve operation

Caution
Water discharged may be very hot!

- Manually operate the temperature/pressure relief valve for a few seconds.
- Check water is discharged and that it flows freely through the tundish and discharge pipework.
- Check valve reseats correctly when released.
- Repeat the above procedure for the expansion relief valve.

8.2.3 Strainer

- Turn off the isolating valve prior to the Pressure Reducing Valve or the main stop cock to the system.
- Open the lowest hot tap in the system to relieve the system pressure.
- Using a spanner unscrew the pressure reducing cartridge and remove the moulded housing. The strainer will be removed with the cartridge.

- Wash any particulate matter from the strainer under clean running water.
- Replace the strainer and screw the Pressure Reducing Valve cartridge into the moulded housing.
- Close hot tap, turn on isolating valve or main stop cock to the system. Check for leaks.

8.2.4 Expansion vessel charge pressure

- Remove the dust cap on top of the vessel.
- De-pressurise the system by turning the mains supply off and then opening a hot tap.
- Check the charge pressure using a tyre pressure gauge. The pressure must be set in accordance with the inlet pressure set on the pressure reducing valve.
- If it is lower than the required setting it should be re-charged using a tyre pump (Schrader valve type).

Caution
DO NOT OVER-PRESSURISE

- Re-check the pressure and when correct replace the dust cap.

8.2.5 Re-commissioning

- Check all electrical and plumbing connections are secure. Close the drain cock.
- With a hot tap open, turn on the cold water supply and allow unit to refill.
- Do Not switch on the heat source until the unit is full.
- When water flows from the hot tap allow to flow for a short while to purge air and flush through any disturbed particles.
- Close hot tap and then open successive hot taps in system to purge any air.
- When completely full and purged check system for leaks.
- The heat source can then be switched on.

9 Troubleshooting

9.1 Fault Finding

Warning
Do not tamper with any of the safety valves or controls supplied with the cylinder as this will invalidate any guarantee.

9.1.1 Important

- Servicing should only be carried out by competent persons in the installation and maintenance of unvented water heating systems.
- Any spare parts used MUST be authorised Baxi Genuine Parts.
- Disconnect the electrical supply before removing any electrical equipment covers.
- NEVER bypass any thermal controls or operate system without the necessary safety valves.
- Water contained in the cylinder may be very hot, especially following a thermal control failure. Caution must be taken when drawing water from the unit.

The fault finding chart (table 4, below) will enable operational faults to be identified and their possible causes rectified. Any work carried out on the unvented water heater and its associated controls MUST be carried out by a competent installer for unvented water heating systems. In case of doubt contact service support.

Fault	Possible Cause	Remedy
No hot water flow	Mains supply off	Check and open stop cock
	Strainer blocked	Turn off water supply. Remove strainer and clean
	Cold water combination valve incorrectly fitted	Check and refit as required
Water from hot tap is cold	Indirect motorised valve fault	Check, operation of valve
	Pump failure	Check, pump operation
	Indirect programmer set to central heating only	Check, set to domestic hot water programme
	Indirect heat source not working	Check heat source operation. If fault is suspected consult heat source manufacturer's instructions
	Indirect thermal cut-out has operated	Check, reset by pushing button on thermostat. Check operation of indirect thermostat
	Indirect motorised valve not connected correctly	Check wiring and/or plumbing connections to motorised valve
Water discharges from expansion valve	Intermittently Expansion vessel charge pressure has reduced, or set too high	See Maintenance section (p.29) for re-charging of expansion vessel procedure
	Continually Cold water combination valve pressure reducer not working correctly. Expansion valve seat damaged	Check pressure from cold water combination valve. If greater than 6 bar replace pressure reducing valve. Remove expansion valve, check condition of seat. If necessary fit new expansion valve
Water discharges from T&P relief valve	Thermal control failure **CAUTION: Water will be very hot!**	Switch off power to heater(s) and shut down heat source. **DO NOT** turn off water supply. When discharge stops check all thermal controls, replace if faulty
Milky water	Oxygenated water	Water from a pressurised system releases oxygen bubbles when flowing. The milkiness will disappear after a short while

10 Decommissioning

10.1 Decommissioning Procedure

- Isolate electrical supplies and make safe
- Isolate the water supply
- Drain the cylinder
- Drain the primary circuit
- Remove cylinder
- Cap pipework.

10.2 Environmental Information

Products are manufactured from many recyclable materials. At the end of their useful life they should be disposed of at a Local Authority Recycling Centre in order to realise the full environmental benefits.

Thermal insulation: Rigid, mould injected PU (CFC/HCFC-free, 0.025 W/m°K).

10.3 WEEE Declaration

Disposal of Waste Equipment by Users in Private Households in the European Union.

This symbol on the product indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical equipment.

The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the company where this product was purchased.

10.4 RoHs Declaration

Directive 2011/65/UE

Certificate of conformity

11 Spare Parts

11.1 Baxi Genuine Parts List

A full range of spare parts are available for the cylinder range. Refer to the Technical Data label on the unit to identify the model installed and ensure the correct part is ordered.

Description	Spares Number
Control Panel	7722898
White Lining – Dia 620mm (1950 X 1700 X 5mm) 300L	7722839
White Lining – Dia 770mm (2425 X 1700 X 5mm) 500L	7722880
White Lining – Dia 950mm (2970 X 1840 X 5mm) 800L	7722891
White Lining – Dia 950mm (2970 X 2250 X 5mm) 1000L	7722895
Lid – Dia 620mm (300L)	7722881
Lid – Dia 770mm (500L)	7722905
Lid – Dia 960mm (800 & 1000L)	7722906
Cover Plate (300 & 500L)	7722961
Cover Plate (800 & 1000L)	7722962
Cover Plate (800 & 1000L)	7722963
Gasket – Side Flange	7722883
Gasket – Upper Flange (4mm)	7722884
Gasket – Upper Flange (8mm)	7722964
Side Flange Plate (Incl Screws)	7722892
Upper Connection Plate (300 & 500L)	7722893
Upper Flange Plate (Incl Screws) 800 & 1000L	7722894
Embellisher 1” Black (Incl Lid) 300, 500, 800L	7722965
Embellisher 1-1/2” Black (Incl Lid)	7722957
Embellisher 2” Black (Incl Lid)	7722956
Lid (Included With Key 10)	N/A
Screw - Upper Flange (Incl With Key 6 & 7)	N/A
Screw – Side Flange (Incl With Key 6 & 7)	N/A
Wall Anchors (Not a Spare)	N/A
Side Plastic Cap	7722836
T&P Valve	
Control Panel	
Control Panel	7722898
Switch – Summer/Winter	7722885
Led - Green	7722882
Led – Amber	7722889
Led - Red	7722888
Thermometer	7722886
Relay	7722887
Controls Cover	7722837
Thermostat – Control & Security	7722890
Temperature & Pressure Relief Valves	
T&P Valve – ¾” (10 Bar) 300L	7728191
T&P Valve – 1 ¼” (10 Bar) 500L, 800L & 1000L	7728192

Description	Spares Number
Un-Vented Kits – 8 Bar	
Unvented Kit - 300L	**7726936**
Kit Components	
Inlet Control Valve – 3.5/8.0 Bar (28mm)	7728193
Lever Ball Valve – 1” (Blue)	7728194
Expansion Vessel – 50L / 3 Bar (Blue)	7728195
Tundish – 1”	7728196
Two Port Valve – 28mm	7728197
Equal Tee – 1”	7728198
Unvented Kit - 500L	**7726937**
Kit Components	
Inlet Control Valve – 3.5/8.0 Bar (28mm)	7728193
Lever Ball Valve – 1” (Blue)	7728194
Expansion Vessel – 60L / 3 Bar (Blue)	7728199
Tundish – 1” X 1 ¼”	7728196
Two Port Valve – 28mm	7728197
Equal Tee – 1” (Brass)	7728198
Unvented Kit - 800L	**7726938**
Kit Components	
Pressure Reducing Valve – 1 ¼” / 3.5 Bar	7728225
Strainer – 1 ¼”	7728226
Single Check Valve – 1 ¼” (Brass)	7728227
Pressure Relief Valve – 1 ¼” / 8 Bar	7728229
Lever Ball Valve – 1 ¼” (Blue)	7728230
Expansion Vessel – 100L / 3 Bar (Blue)	7728221
Tundish – 2” X 2 ½” (Brass)	7728223
Two Port Valve – 28mm	7728197
Equal Tee – 1 ½” (Brass)	7728231
Unvented Kit - 1000L	**7726939**
Kit Components	
Pressure Reducing Valve – 1 ¼” / 3.5 Bar	7728225
Strainer – 1 ¼”	7728226
Single Check Valve – 1 ¼” (Brass)	7728227
Pressure Relief Valve – 1 ¼” / 8 Bar	7728229
Lever Ball Valve – 1 ¼” (Blue)	7728230
Expansion Vessel – 150L / 3 Bar (Blue)	7728222
Tundish – 2” X 2 ½”	7728223
Two Port Valve – 28mm	7728197
Equal Tee – 1 ½” (Brass)	7728231

Warranty

Warranty Terms

Refer to Remeha standard Terms & Conditions

This warranty is valid provided that:

- The water heater has been installed by a competent engineer and as per the instructions contained in the installation manual and all relevant Codes of Practice and Regulations in force at the time of installation.
- Any disinfection has been carried out in accordance with BS EN 806
- Should the factory fitted temperature and pressure relief valve be tampered with or removed your guarantee will be invalidated.
- The water heater has not been modified in anyway other than by manufacturers approved engineers.
- The water heater has only been used for the storage of wholesome sanitary water (max 250mg/l chloride).
- Only stainless steel dummy plugs are to be used.
- The water heater has not been subjected to excessive pressure beyond the guidelines detailed in the installation instructions.
- The water heater has not been subjected to frost, nor has it been tampered with or been subject to misuse or neglect.
- No factory fitted parts have been removed for unauthorised repair or replacement
- Regular maintenance has been carried out by a competent person in accordance with the requirements set in the maintenance section of the installation manual and any replacement parts used should be approved spare parts.
- The warranty is not valid outside of the United Kingdom.

The warranty does NOT cover:

Consequential damages or profit loss which may arise from a defect.

Warranty claims have no delaying effect on the payment dates and other demands

Your warranty covers you for an equivalent replacement in the event that the unit fails prematurely as a result of a proved manufacturing defect.

In order that this can be achieved, full access for removal and the replacement of the unit is essential. If it is found that access cannot be achieved the warranty will be limited to the replacement of the unit only and subsequent labour charges would not be met under the warranty.

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Installation and Operation Manual February 2020

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