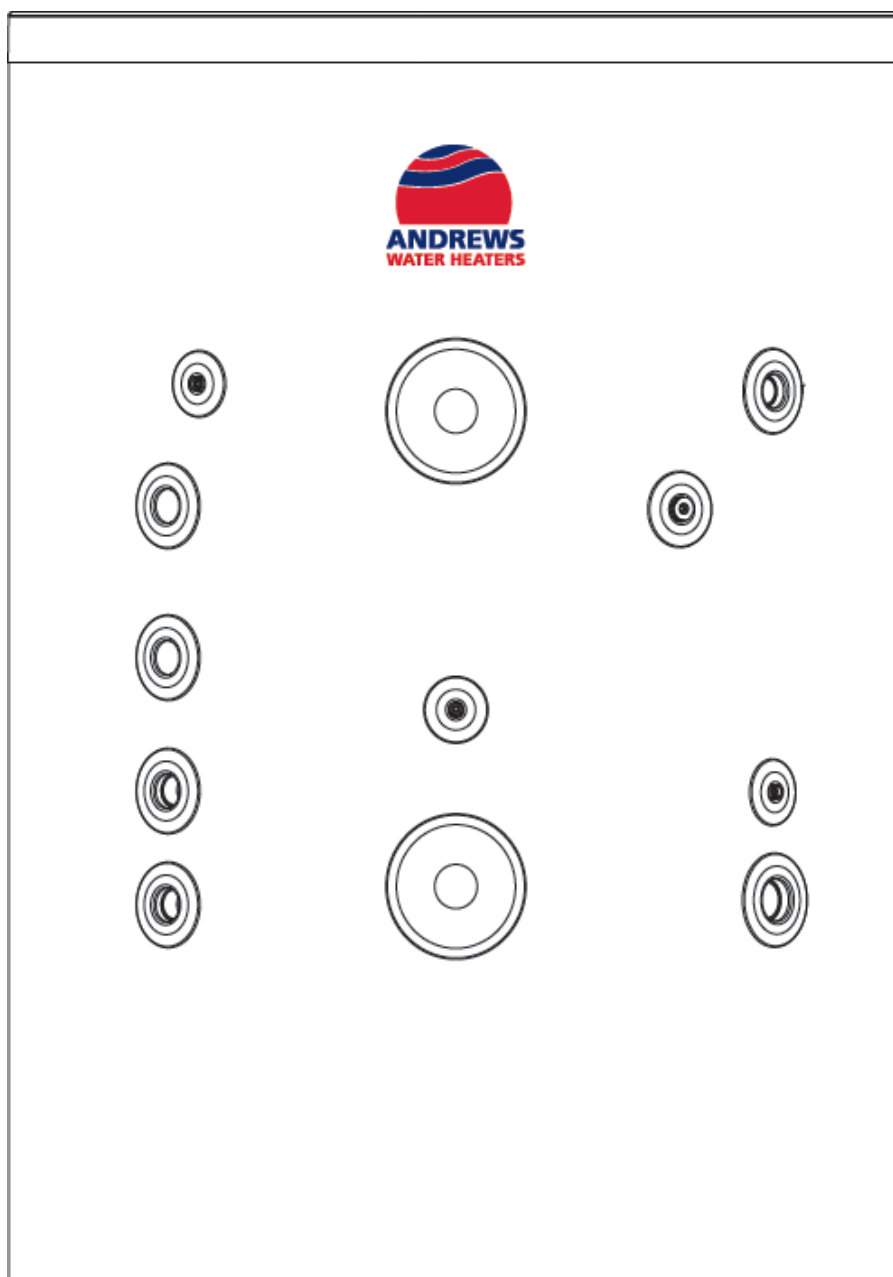


ST XL Cylinder

Cylinder range storage tank

Solar 400ltr 500ltr 800ltr 1000ltr 1250ltr 1450ltr 2000ltr 2500ltr



Please read and understand these instructions before commencing installation and leave this manual with the customer for future reference.

Andrews. Built to perform.



Contents

Product Specification.....	3
Introduction.....	3
General requirements	3
Checklist.....	4
Storage and handling.....	5
Solar dimensions.....	6
Technical dimensions.....	7
ErP data.....	7
Technical data.....	8
Immersion data.....	9
Wiring schematics.....	10
Limitations	11
Water supply.....	11
Installation & commissioning.....	12
Secondary circulation.....	13
De-stratification kits	14
Discharge pipework.....	17
Solar heating.....	19
Auxillary heating.....	20
Auxillary Electrical heating.....	22
Commissioning	23
Maintenance & servicing.....	24
Fault finding.....	26
Servicing.....	27
Spares and accessories.....	27
Commisioning checklist.....	32
Service record.....	33
Guarantee terms and conditions.....	34



Product Specification

Introduction

Congratulations on your purchase of an Andrews solar water heater. The Andrews Solar Water Heater products are manufactured in the UK from top quality materials and meets all the latest relevant safety and constructional standards. The high grade Duplex stainless steel cylinder offers exceptional strength and corrosion resistance which is backed by a Lifetime guarantee*. Its performance and insulation levels exceed the latest requirements of Building Regulation Part L. The Andrews solar water heater can be fed directly from the cold water mains supply to the property without the need for separate feed cisterns or vent pipes. It is supplied complete with all its necessary inlet and safety controls. The Andrews Solar Water Heaters range all require a separate expansion vessel to accommodate any expanded water.

General Requirements

IMPORTANT: Please read and understand this product guide before installing the Andrews Solar Water Heater. Incorrect installation may invalidate the guarantee*.

The Andrews solar water heater must be installed, commissioned and maintained by a competent 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).

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 SUPERVISION 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

WARNING: Do not switch on if there is a possibility that the water in the heater is frozen.

Note: This Andrews solar water heater needs a minimum 100L/min water supply at open outlet.

Checklist

Before commencing installation check that all the components for your Andrews Solar Water Heater are contained in the package. The following components are supplied as standard:

Table 1: Cold Water Inlet Control Kit (as below, depending on model)

Commercial cylinder volume (ltr)	Pressure reducing valve	Pressure relief valve	S i n g l e check valve
400 - 500	1" Integrated inlet control valve		
800	1.25" (1.5 - 6 bar) or (5 -10 bar)	1" x 1.25" (8 bar) or (13 bar)	1.25"
1000	1.25" (1.5 - 6 bar) or (5 -10 bar)	1" x 1.25" (8 bar) or (13 bar)	1.25"
1250 - 1450	1.5" (1.5 - 6 bar) or (5 -10 bar)	1" x 1.25" (8 bar) or (13 bar)	1.5"
2000 - 2500	2" (1.5 - 6 bar) or (5 -10 bar)	1.25" x 1.5" (8 bar) or (13 bar)	2"

Table 2: Expansion vessel (as below)

Commercial cylinder volume (ltr)	Expansion vessel size (ltr)	Mounting kit	Weights
400 - 500	60	Floor mounted	12kg
800	100	Floor mounted	17kg
1000 - 1250	150	Floor mounted	24kg
1450	200	Floor mounted	38.5kg
2000 - 2500	300	Floor mounted	41kg

- ▶ Factory fitted temperature & pressure relief valve, set at 90°C / 1 MPa (10bar) or factory fitted temperature & pressure relief valve set at 90°C / 1.5MPa (15bar) depending on model
- ▶ Connection size 1 1/4" BSP to cylinder, 28mm compression fitting out.
- ▶ Tundish 1 1/4" inlet/ 1 1/2" outlet
- ▶ Thermostat and thermal cut-out combined and thermal cut-out
- ▶ Isolating valve (1", 1.25", 1.5" or 2") depending on model
- ▶ 1" drain valve
- ▶ 2-port motorised valve (1.25" or 1.5") depending on model

Notes:

1" Integrated inlet control valve is not assembled. For assembly guidance please see fig 7.

Storage and Handling

Please take care when handling a packaged Andrews solar water heater. The unit is heavy and must only be moved manually within safe working practices. If you are craning the cylinder into position please see fig 1 for guidance on accessing the lifting points. If the unit is to be stored before installation, it must be placed on a secure, level surface and in a dry, frost free environment.

Precautions to be carried out prior to commencement of work:

- ▶ Tidy area ensuring there is safe access and egress to installation place, free from trip hazards.
- ▶ Be aware of other people who may be in the area
- ▶ Operate any machinery in accordance with training and operating instructions
- ▶ Visually inspect the equipment prior to use, do not use damaged equipment.
- ▶ Safe working practices are adopted for manual handling of appliances/parts
- ▶ Correct PPE to be worn.

The Andrews solar water heater must be vertically floor mounted. It can be placed anywhere convenient provided the discharge pipe(s) from its safety valves can be correctly installed. Areas that are subject to freezing must be avoided. Ensure that the floor is level and of sufficient strength to support the “full” weight of the unit when filled with water (refer to table 4 on page 7 for unit weights). Pipe runs should be kept as short as possible for maximum economy. Access to associated controls, immersion heaters, indirect controls and solar controls should be possible for servicing and maintenance of the system.

To aid installation, the Andrews solar water heater is provided with lifting points located at the top of the unit. To access the lifting eyes please remove the top cover. The weights of the units are noted on the table 3.

Figure 1: Lifting

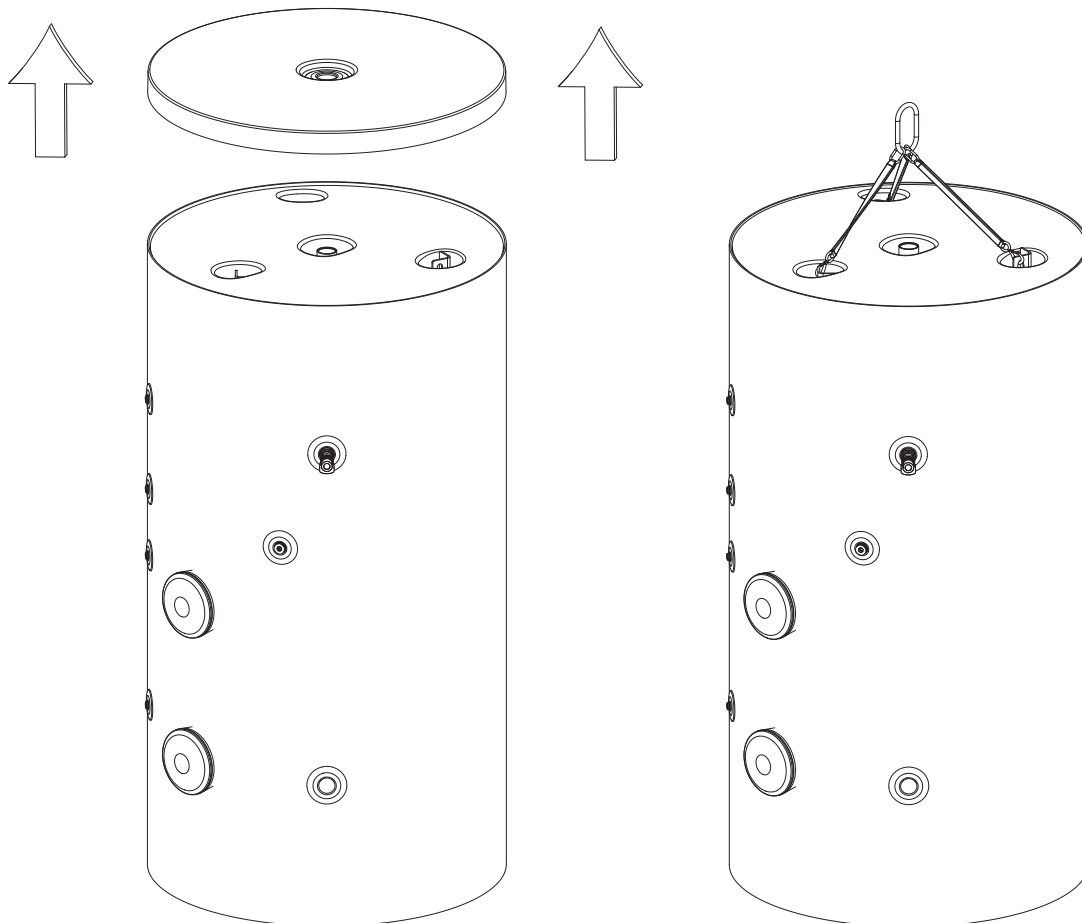


FIGURE 2: Solar dimensions

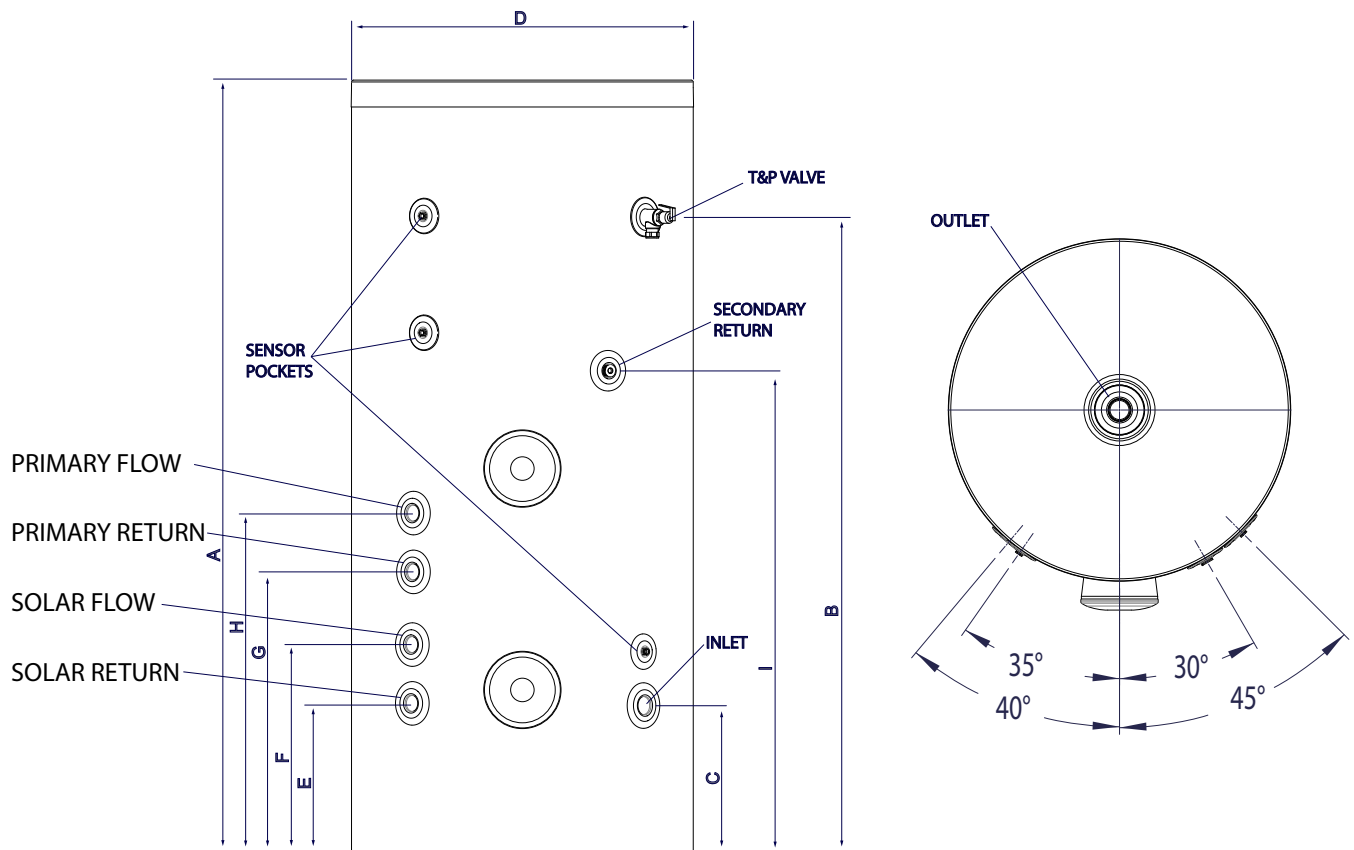


Table 3: Solar measurements

	Connection	450L	500L	Connection	800L	1000L	Connection	1250L	1500L	Connection	2000L	2500L
A	N/A	1651	1804	N/A	1906	2301	N/A	1936	2253	N/A	2014	2419
B	N/A	1261	1413	N/A	1487	1882	N/A	1408	1731	N/A	1410	1815
C	1 1/4"	396	396	1 1/2"	437	437	1 1/2"	523	527	2"	606	606
D	N/A	872	872	N/A	1024	1024	N/A	1224	1224	N/A	1476	1476
E	1 1/4"	415	415	1 1/2"	443	443	1 1/2"	527	527	1 1/2"	599	599
F	1 1/4"	590	590	1 1/2"	618	618	1 1/2"	707	707	1 1/2"	779	779
G	1 1/4"	765	794	1 1/2"	793	793	1 1/2"	887	887	1 1/2"	989	989
H	1 1/4"	965	994	1 1/2"	993	993	1 1/2"	1117	1117	1 1/2"	1229	1229
I	1"	1005	1105	1"	1183	1433	1"	1408	1731	1"	1410	1815

NOTE: All connections BSP female threads

Table 4: Solar weights

Size (litres)	Unit weight (kg)	
	Empty	Full
450	110	560
500	112	612
800	171	971
1000	195	1195
1250	333	1583
1500	339	1789
2000	465	2465
2500	471	2971

Technical data (in conformance with BS EN 12897:2006)

Maximum mains water supply pressure	2.5MPa (25 bar)
Operating pressure/PRV (low pressure system)	0.60MPa (6. bar)
Operating pressure/PRV (high pressure system)	1.00MPa (10 bar)
Expansion vessel pressure (low pressure system)	1.0MPa (10 bar max)
Expansion vessel pressure (high pressure system)	1.6MPa (16 bar max)
Expansion relief valve setting (low pressure system)	0.8MPa (8 bar)
Expansion relief valve setting (high pressure system)	1.3MPa (13 bar)
Rated pressure (low pressure system)	0.80MPa (8 bar)
Rated pressure (high pressure system)	1.3MPa (13 bar)
T&P relief valve setting	1.0MPa/90 ° C (10 bar)
T&P relief valve setting	1.5MPa/90 ° C (15 bar)
Immersion heater rating (a.c. supply only) single phase	6kW & 9kW 50/60Hz ~
Immersion heater rating (a.c. supply only) 3 phase (See accessories on page 31 for full range)	12kW – 54kW 50/60Hz ~
Solar coil ratings	See Table 7
Solar coil operating pressure (max)	1.0MPa (10 bar)
Solar pressure drop across coils	See table 8
Solar coil surface area	See table 7
Auxiliary coil ratings	See Table 7
Auxiliary coil operating pressure	1.0MPa (10 bar)
Auxiliary pressure drop across coils	See Table 8
Auxiliary coil surface area	See Table 7
Storage weights (empty and full)	See table 3

Notes:

The Auxiliary and Solar coil should not be exposed to more than 0.3MPa (3 bar) without the cylinder being full of water and under minimum working pressure.

ErP data

Table 5: ErP data information

Technical parameters in accordance with European Commission regulations 814/2013 and 812/2013

Direct							
Supplier's name or trade mark	Andrews Commercial 6 / 10 bar						
Supplier's model identifier	400	500	800	1000	1250	1450	2000
Storage volume V in litres	400.0	500.0	800.0	1000.0	1250.0	1450.0	2000.0
Standing loss in W	72.0	89.0	114.0	139.0	150.0	163.0	179.0
	B	C	C	C	C	C	C

Technical Data

Table 6: Technical data

Nominal capacity (litres)	Heatloss Figures		Water delivered to 40°C and above	Coil Surface Area	
	Per day (kWh/24hr)	Per year (kWh/year)		Auxillary coil	Solar coil
450	1.72	627	434	1m ²	2m ²
500	2.14	781	482		
800	2.74	1000	776	1.5m ²	3m ²
1000	3.33	1215	961		
1250	3.60	1314	1206	2.5m ²	5m ²
1500	4.17	1522	1449		
2000	4.30	1569	1930	5m ²	7.5m ²
2500	4.50	1642	2482		

Table 7: Coil kW ratings

Nominal capacity (litres)	Auxillary coil			Solar coil
	Primary flow rate (L/min)			Primary flow rate (L/min)
	15	30	60	30
450	23.7kW	29.8kW	37.6kW	43.6kW
500	22.7kW	31.0kW	38.2kW	41.8kW
800	25.1kW	37.2kW	47.5kW	52.7kW
1000	26.6kW	38.3kW	45.8kW	51.4kW
1250	TBA	TBA	TBA	63.6kW
1500	TBA	TBA	TBA	61.2kW
2000	TBA	TBA	TBA	98.4kW
2500	TBA	TBA	TBA	86.4kW

Table 8: Pressure drop through coils (bar)

Nominal capacity (litres)	Primary flow rate (L/min)					
	Auxillary coil			Solar coil		
	15	30	60	15	30	60
450	0.02	0.04	0.32	0.01	0.02	0.20
500						
800	0.01	0.08	0.44	0.01	0.02	0.17
1000						
1250	0.01	0.06	0.25	TBA	TBA	TBA
1500						
2000	0.01	0.07	0.30	TBA	TBA	TBA
2500						

Table 9: Coil heat-up times (mins) based on a 45° C temperature increase

Nominal capacity (litres)	Primary flow rate (L/min)			
	Auxillary coil			Solar coil
	15	30	60	30
450	29.5	24.5	15.5	26.8
500	46.5	34.1	27.9	31.5
800	64.2	44.6	34.2	47.3
1000	74.5	54.1	42.8	50.8
1250	TBA	TBA	TBA	TBA
1500	TBA	TBA	TBA	TBA
2000	TBA	TBA	TBA	TBA
2500	TBA	TBA	TBA	TBA

Testing is carried out to BS EN12897:2006

Primary flow rates are based on a flow temperature of 80° C +/- 2° C

Table 10: Immersion allocation

	6kW	9kW	12kW	18kW	24kW	30kW	36kW	45kW	54kW
	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
450L	✓	✓	✓	✓	✓				
500	✓	✓	✓	✓	✓				
800	✓	✓	✓	✓	✓	✓	✓	✓	
1000	✓	✓	✓	✓	✓	✓	✓	✓	
1250	✓	✓	✓	✓	✓	✓	✓	✓	
1500	✓	✓	✓	✓	✓	✓	✓	✓	
2000	✓	✓	✓	✓	✓	✓	✓	✓	✓
2500	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note:

The Immersions are not factory fitted.

The lower flange is only to be used for inspection purposes.

Immersion installation and control

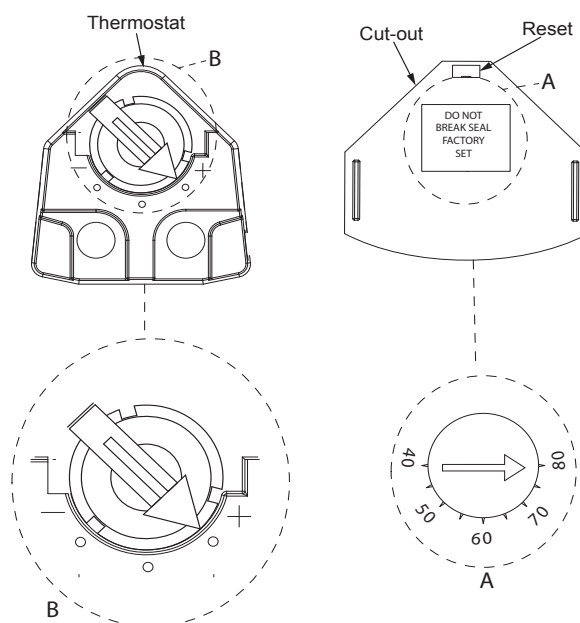
All immersion heaters are fitted with a thermostat which is fitted in the centre of the heater plate and a cut-out which is fitted to the side of the thermostat. These **MUST** be wired as per figures 3, 4 & 5. Maximum working temperature is 70° C/176° F. In very hard water areas limit to 60/65° C (140/150° F).

For optimal working conditions the thermal cut-out is factory set to 80° C and the thermostat should be set to 65° C.

To set the thermostat to 65° C turn the dial to the far right then turn back a little, this will roughly set to 65° C.

If the thermostat is set above 70° C there could be instances of nuisance tripping of the thermal cut-out.

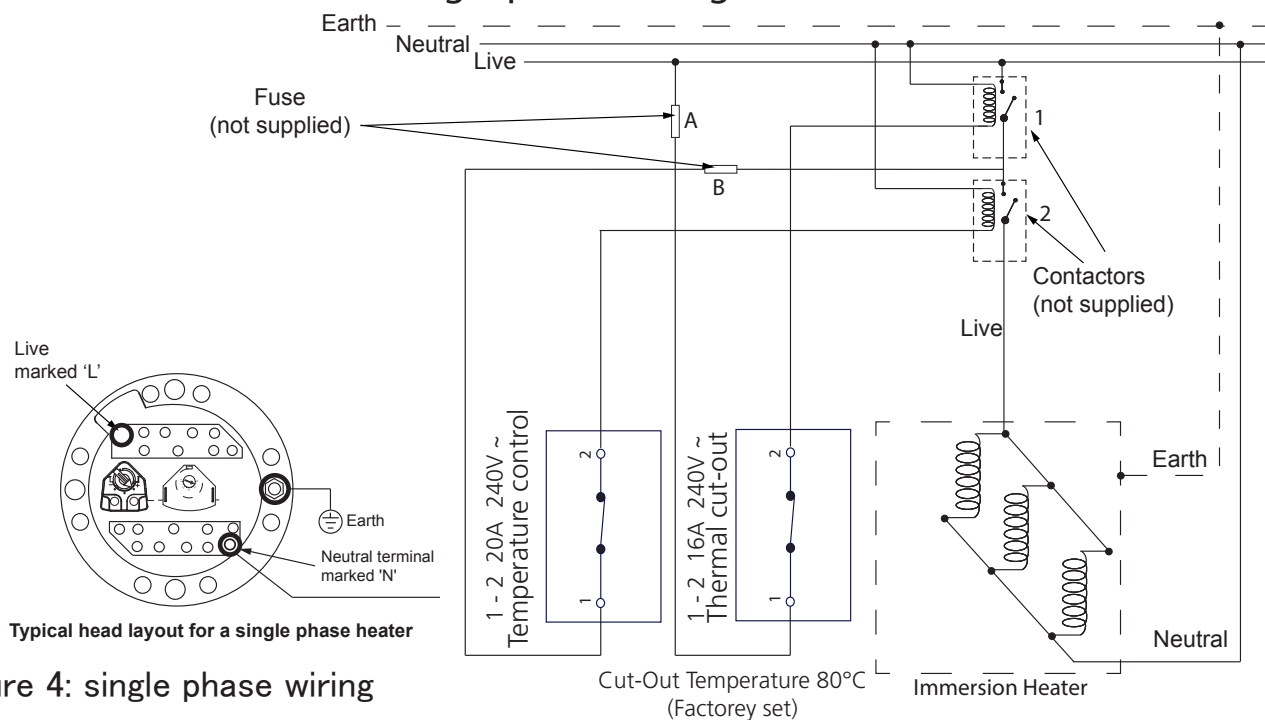
FIGURE 3: Thermostat and thermal cut-out settings



Notes:

The 2 external contactors must be approved components certified for 10,000 cycles of operation for the contactor controlled by the thermostat and at least 30 for the contactor controlled by the non-self-resetting thermal cut-out.

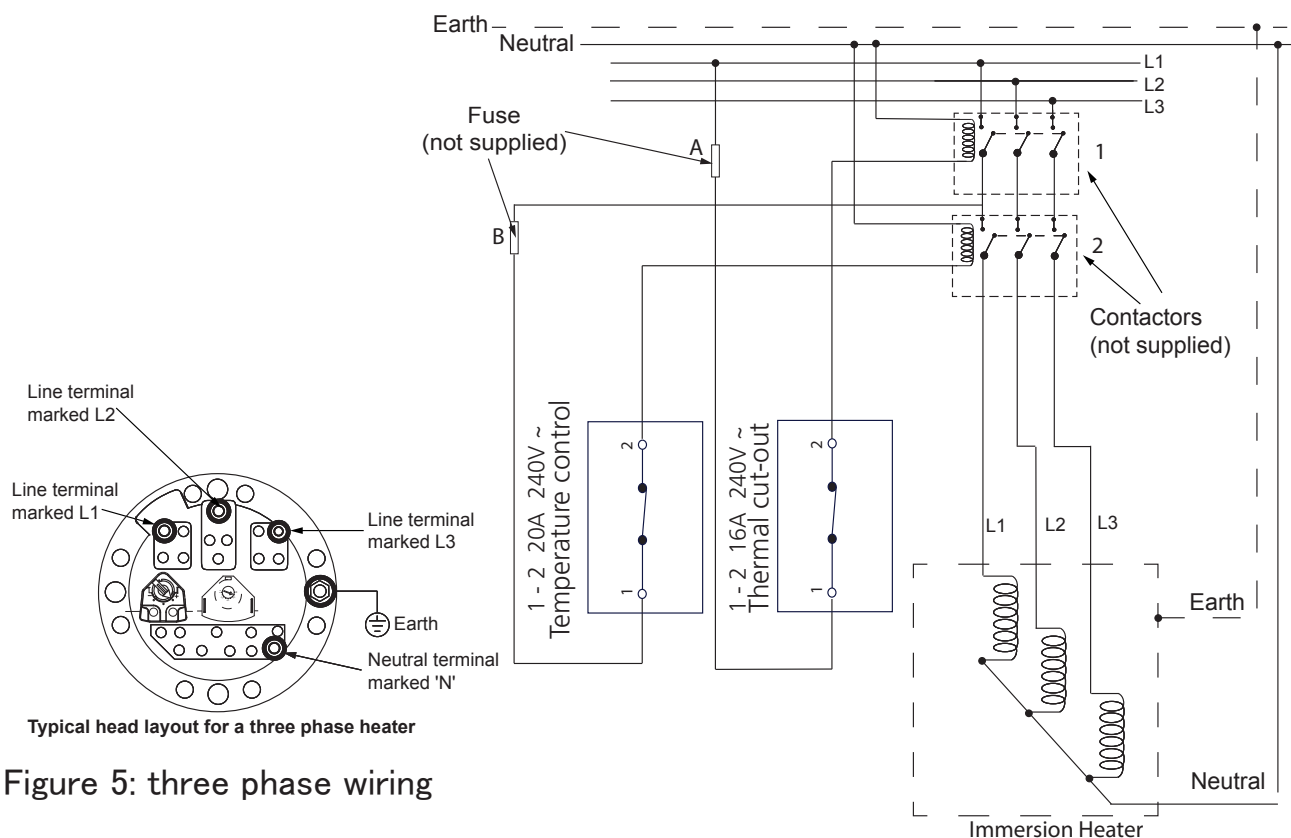
Single phase wiring schematic



Note:

The 2 external contactors must be approved components certified for 10,000 cycles of operation for the contactor controlled by the thermostat and at least 30 for the contactor controlled by the non-self-resetting thermal cut-out.

3 phase wiring schematic



Limitations

The Andrews solar water heater should not be used in any of the following instances:

Solid fuel boilers or any other boiler in which the energy input is not under effective thermostatic control unless additional and appropriate safety measures are installed.

Gravity circulation primaries.

Steam heating plant unless additional and appropriate safety devices are installed.

Ascending spray type bidets or any other Class 5 back syphonage risk requiring that a Type AA, AB, AD or AG air gap be employed.

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.

Areas where the water consistently contains a high proportion of solids, eg. suspended matter that could block the strainer, unless adequate filtration can be ensured.

The installation must be carried out in accordance with the relevant requirements of:

The appropriate Building Regulations: either The building regulations (England), The building regulations (Scotland) or building regulations (Northern Ireland). The water fittings regulations (England and Wales) or water byelaws (Scotland).

Water supply

The mains water supply to the property will be supplying both the hot and cold water requirements simultaneously. It is recommended that the maximum water demand be assessed and the water supply checked to ensure this demand can be met.

NOTE: A high mains water pressure will not always guarantee high flow rates.

The main supply pipe should be in 28mm minimum. This sizing will need to increase accordingly to the size of the cylinder inlet. The minimum mains water supply requirements should be 0.15 MPa (1.5 bar) working pressure and 60 litres per minute flowrate. At these values outlet flowrates may be poor, the higher the available pressure and flowrate the better the system performance will be.

The water supply must be of wholesome water quality (Fluid Category 1 as defined by the water supply regulations 1999). The Andrews water heater is to be used for the storage of wholesome water (max. 250mg/l chloride).

IMPORTANT INSTALLATION NOTE:

WHERE THE INLET SUPPLY TO THE PRESSURE REDUCING VALVE (PRV) IS ROUTED THROUGH A HEATED SPACE AND IS FITTED WITH A CHECK VALVE OR OTHER FITTING THAT WOULD PREVENT BACK FLOW, HIGH PRESSURES CAN BE EXPERIENCED IN THE INLET PIPE DUE TO WARMING THAT CAN CAUSE DAMAGE TO THE PRV OR OTHER FITTINGS ON THE INLET SUPPLY.

IN THESE CIRCUMSTANCES, THE INSTALLATION OF A MEANS TO ACCOMMODATE EXPANSION AND THUS LIMIT THE PRESSURE RISE IN THE INLET PIPE IS RECOMMENDED. REFER TO THE INSTALLATION SECTION FOR FURTHER DETAILS.

Water container:

Duplex stainless steel. 100% pressure tested to 2.25 MPa (22.5 bar).

Installation & Commissioning

General Installation

Pipe Fittings

All pipe connections to the Andrews solar water heater are made via BSP female connection directly to the unit.

Cold Water Supply

The inlet pipe size is best match to the cylinder inlet connection where possible. A 28mm pipe would be the minimum recommendation but a small pipe may cause more fluid flow noise from the smaller bore due to the increased water velocity through them.

1" High Flow Cold Water Control Pack

The control pack consists of a pressure reducing valve with integral strainer, check valve, core unit and expansion valve. Please note for assembly guidance please see fig 7.

The pressure reducing valve (see fig 8) operates between 1.5 – 6 bar and 5 – 10 bar (depending on which cylinder you have chosen), this is range is clearly indicated on the side of the handle, in order to adjust the predetermined setting loosen the large plastic screw in the top of the handle and set to the appropriate pressure by rotating the red adjuster at the top of the gauge as shown on fig 7/8. The maximum setting of the valve cannot exceed the cylinder operating range. For optimum performance the following installation instructions should be complied with.

Installation:

Cold water supply to be sized according to the cylinder.

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 the warranty

The pressure reducing valve can be fitted in any orientation to suit the installation as long as it is fitted in the correct flow direction. Check the flow arrows on the side of the body

The expansion valve should be installed with the discharge from the expansion valve either horizontal or upright – if fitted inverted debris may be deposited on the seat when the valve operates. Check direction of flow arrows.

The blank plastic plugs in the body 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).

Expansion relief drain pipework must be connected to a safe visible discharge point via a tundish and the pipework must have a continuous fall. If site conditions allow, the expansion relief drain pipe work can be connected to the T&P valve drain pipework before the tundish.

Pressure Reducing Valve:

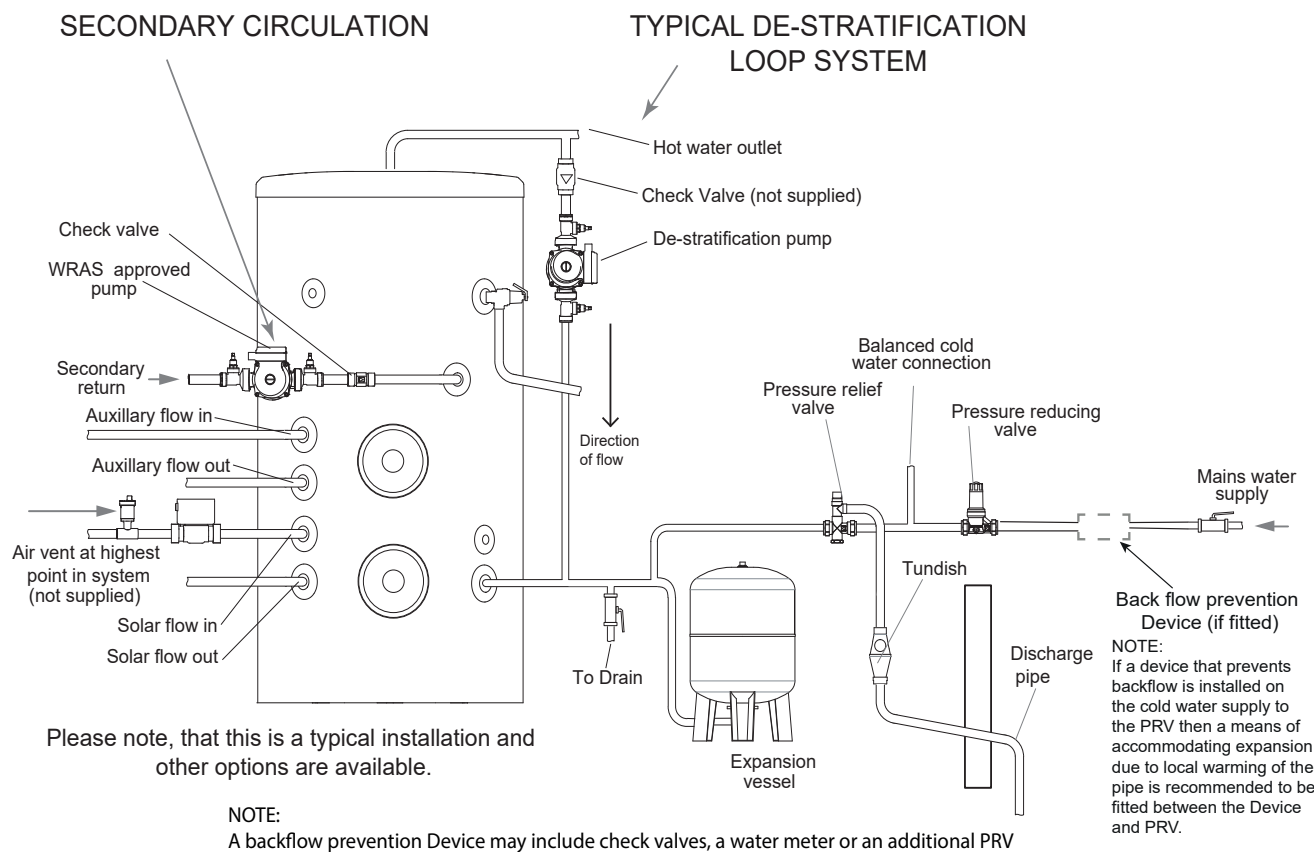
The Pressure Reducing Valve can be connected anywhere on the cold water mains supply prior to the Andrews solar water heater. There is no requirement to site it close to the unit, it can be located at a point where the mains supply enters the premises if this is more convenient but you must install a non-return valve just after the reducing valve for ease of maintenance.

The Pressure Reducing Valve can be installed as a complete one-piece unit or incorporating the stopcock. The valve incorporates a factory set, non-adjustable pressure reducer / strainer. The valve can be fitted in any orientation to suit the installation, however, ensure that the valve is installed with the direction of flow arrows (stamped on the side of the brass body) pointing towards the Andrews solar water heater.

PRV WARNING:

IF THERE IS AN UPSTREAM CHECK VALVE OR FITTING WHICH MAY PREVENT BACKFLOW THEN HIGH PRESSURES CAN BE EXPERIENCED DUE TO AMBIENT TEMPERATURES WHICH CAN CAUSE DAMAGE TO THE VALVES AND FITTINGS

Figure 6: Schematic installation



Pressure relief valve

This should be installed between the pressure reducing valve and the Andrews solar water heater. Should a balanced pressure cold water draw off supply be required for the cold water outlets, this should be taken off between the pressure reducing valve and pressure relief valve.

Branches to drinking water outlets should be taken before the pressure relief valve to avoid the possibility of warm expanded water being drawn from the tap.

Drain valve

It is recommended that the drain valve (supplied) be incorporated into the cold water inlet system, Fig 06. It is recommended that the outlet point of the drain pipe work be at least 1 metre below the level of the heater (this can be achieved by attaching a hose pipe to the drain valve outlet spigot).

Outlet pipework

Ideally the pipework from the Andrews solar water heater to the outlet fittings should be in 2" BSP pipe with short runs of 15mm pipe to showers and basin taps. Small bore pipe can also be used to suit some taps, but runs should be of minimum length. Pipe sizes may vary due to system design.

Secondary circulation

If a secondary circulation system is required it is recommended that it be connected to the Andrews solar water heater as shown in Figure 6. The secondary return pipe should be in 28mm pipe and incorporate a check valve to prevent backflow. A suitable WRAS approved circulation pump will be required. On large systems, due to the increase in system water content, it may be necessary to fit additional expansion volume to the secondary system by fitting an external expansion vessel to the circuit. This should be done if the capacity of the secondary circuit exceeds 10 litres.

De-stratification kits

The correct size of de-stratification kit must be used with your cylinder to ensure the volume can be circulated in 1 hour. The pump instructions will need to be reviewed for information on the correct setting. Please follow the installation schematic below for guidance. When the system circulates needs to be specified by the installer to ensure water is not drawn off during the de-stratification process. If a hot water demand is required during this period cold water may be discharged from the hot outlet. It is recommended that a check valve be installed before the pump to stop any risk of cold water draw off through the pump when it is not in use. For guidance on installation please refer to figure 6.

Pipe capacities (copper)

15mm o/d = 0.13 litres per metre run (10 litres = 77m)
22mm o/d = 0.38 litres per metre run (10 litres = 26m)
28mm o/d = 0.55 litres per metre run (10 litres = 18m)
35mm o/d = 0.83 litres per metre run (10 litres = 12m)
42mm o/d = 1.23 litres per meter run (10 litres = 8m)

Warnings

- ▶ Under no circumstances should the factory fitted temperature / pressure relief valve be removed other than by authorised Andrews water heaters personnel. To do so will invalidate any guarantee or claim.
- ▶ The cold water combination valve must be fitted to the mains water supply to the Andrews solar water heater.
- ▶ No control or safety valves should be tampered with or used for any other purposes.
- ▶ Water may drip from the discharge pipe of the pressure relief device (expansion valve) and this pipe must be left open to atmosphere. The discharge pipe should not be blocked or used for any other purpose.
- ▶ The tundish must be installed so that it is visible to the end user.
- ▶ The tundish, drain valve and motorised valves must be installed away from any electrical components.
- ▶ No valve should be fitted between the pressure relief valve and the Andrews solar water heater.

Figure 7: Cold water combination valve (for 400 & 500ltr)

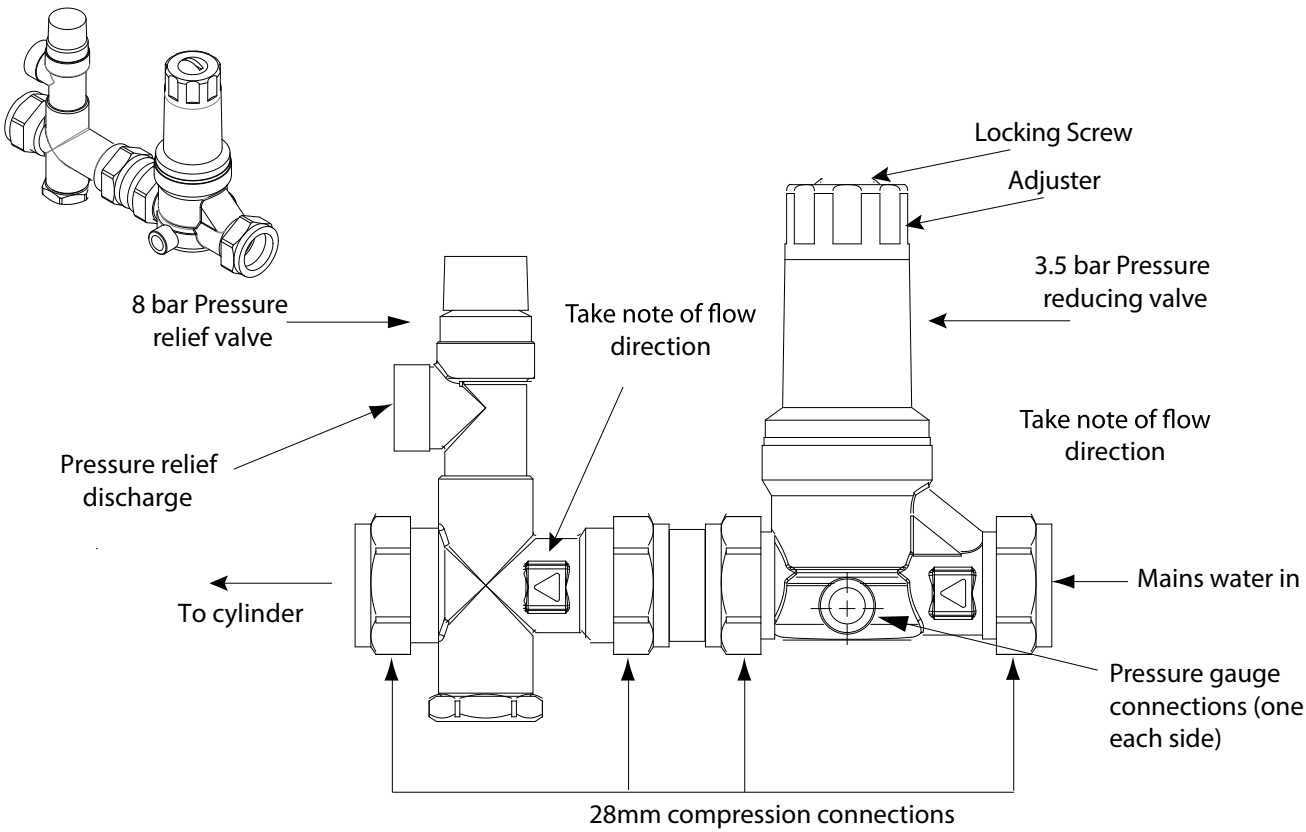
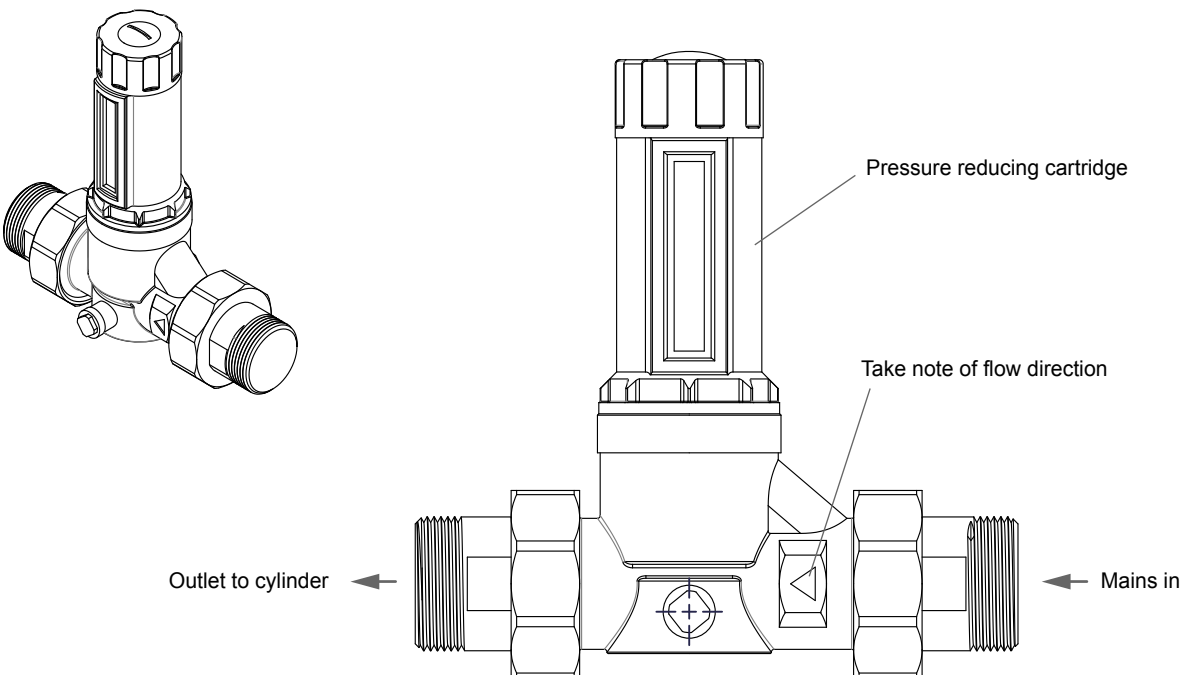


Figure 08: Pressure reducing valve – 800L – 2500L



The following extract is taken from the latest G3 Regulations

Discharge pipes from safety devices

Discharge pipe D1

- 3.50 Safety devices such as **temperature relief valves** or **combined temperature and pressure** and **pressure relief valves** (see paragraphs 3.13 or 3.18) 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 Diagram 1).

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 (see Diagram 1); and
 - (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. See Diagram 1, Table 1 and the worked example.
- 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 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:
- b) to a trapped gully with the end of the pipe below a fixed grating and above the water seal;
 - (c) 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
 - (d) 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.

Discharge Pipework

It is a requirement of building regulations 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 regulations. Building regulation G3 requirements and guidance section 2 (page 17) are reproduced in the following sections.

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.

The water may drip from the discharge pipe of the pressure relief device and that 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”.

Worked example of discharge pipe sizing (Taken from Building Regulations 2000, G3, 2010 edition)

The example on page 18 is for 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 11:

Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G1/2 temperature relief valve is 9m.

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 valve equates to 18m.

Subtract the resistance of 4 No. 28mm elbows at 1m each = 4m

Therefore the maximum permitted length equates to: 14m

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

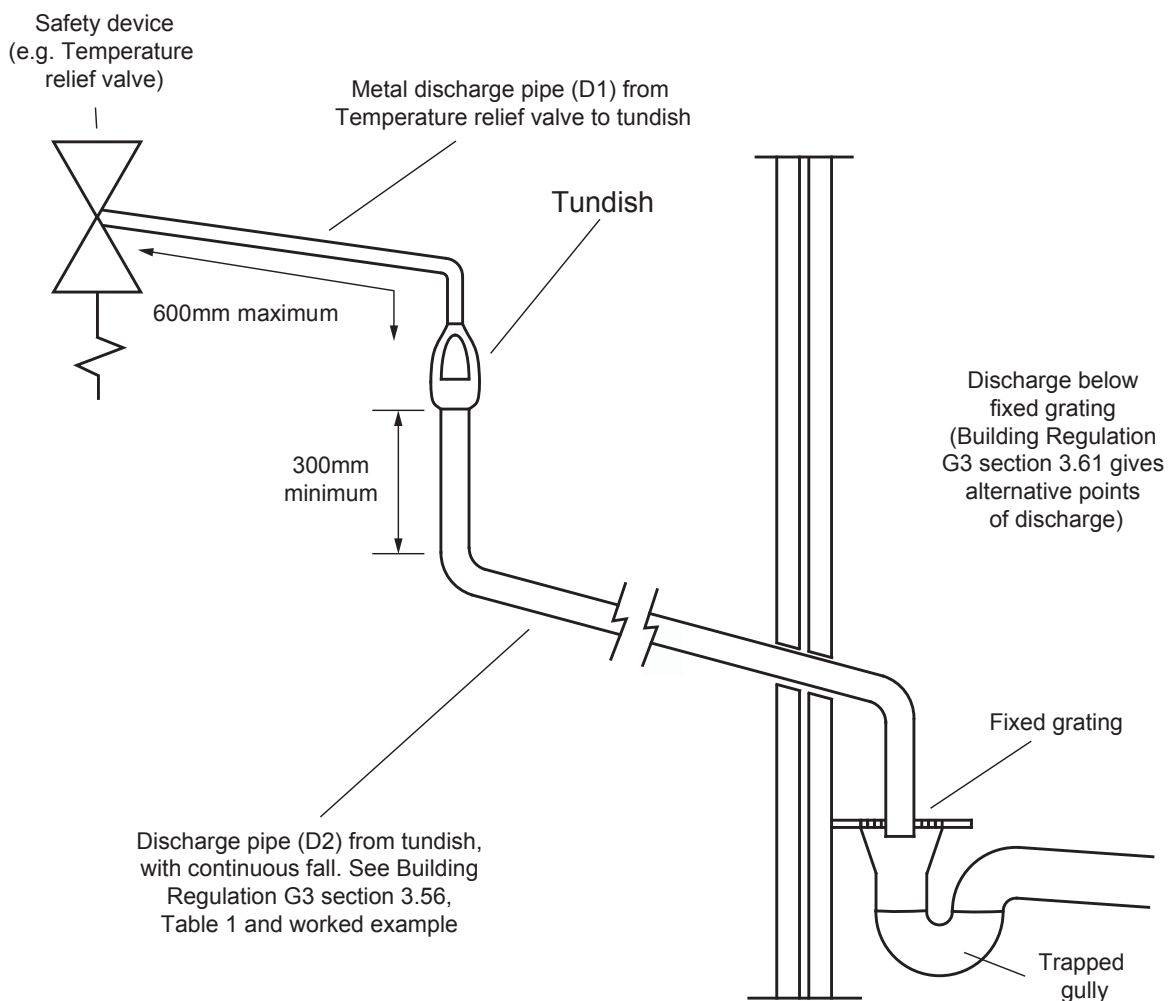
Notes:

- ▶ Discharge pipe—work D2 can now be a plastic pipe but only pipes that have been tested to a minimum 110° C must be used.
- ▶ Discharge pipe D2 can now be plumbed in the soil stack but only soil stacks that can handle temperatures of 99° C or greater should be used.

Table 11 Sizing of copper discharge pipe “D2” for common T&P relief valve 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
G 1/2	15mm	22mm 28mm 35mm	UP TO 9m UP TO 18m UP TO 27m	0.8m 1.0m 1.4m
G 3/4	22mm	28mm 35mm 42mm	UP TO 9m UP TO 18m UP TO 27m	1.0m 1.4m 1.7m
G 1	28mm	35mm 42mm 54mm	UP TO 9m UP TO 18m UP TO 27m	1.4m 1.7m 2.3m

Figure 9: Typical discharge arrangement (extract taken from building regulation G3, guidance section 3.50)



Solar Heating

Connection to the solar primary circuit

The lower (Solar) coil of the cylinder must be connected to a fully pumped solar primary circuit. The connections are suitable for a copper pipe direct to compression fittings. The connections are threaded BSP female parallel.

The solar primary circuit must have its own dedicated circulating pump, thermal and safety controls which must be installed as per the manufacturer's instructions.

Control of the solar primary circuit

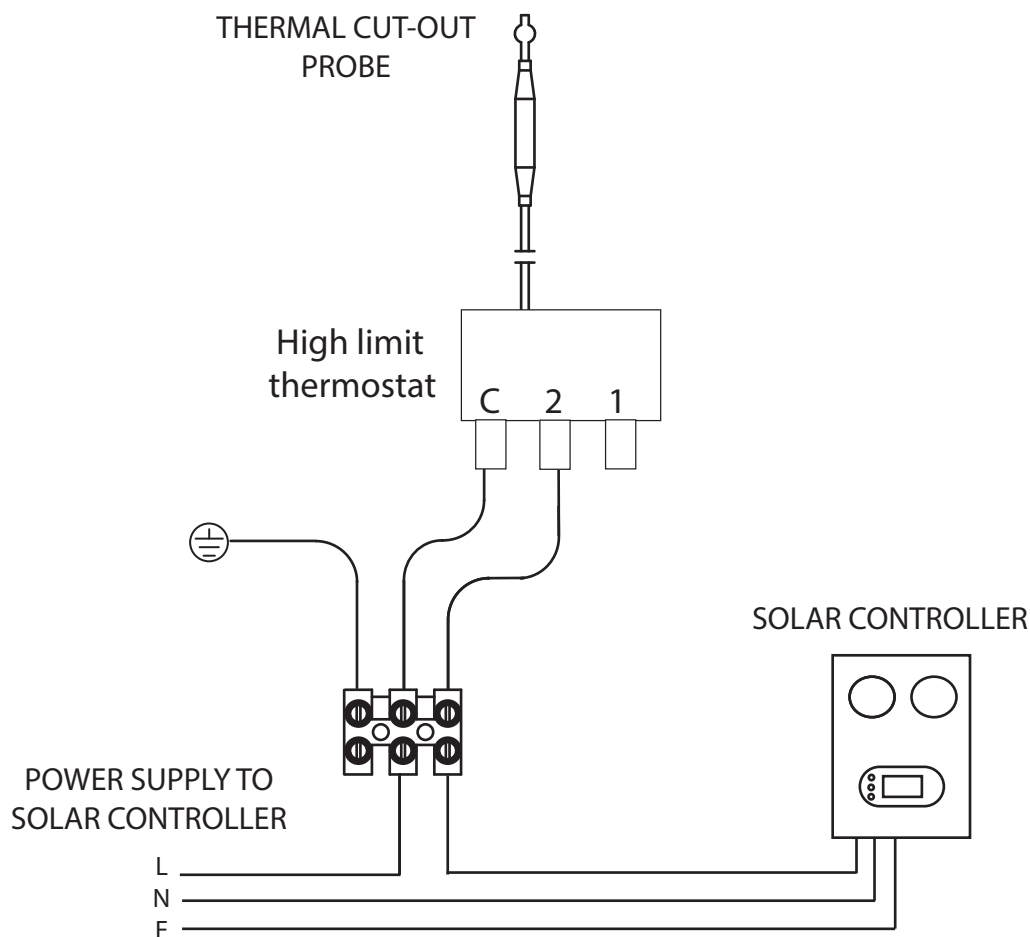
Temperature control of the Solar cylinder must be carried out using a suitable proprietary solar differential temperature controller. The cylinder temperature sensing probe (usually supplied with the solar differential temperature controller) should be inserted into the pocket provided on the Solar cylinder and its cable secured using the cable clamp supplied.

The solar controller and solar primary circulation pump must be wired via the over-temperature cut-out mounted in the lower solar controls housing (see figure 10, below). This will ensure that the heat input to the solar coil is interrupted in the event of the cylinder over-heating. There must also be suitable Check (non-return) valves installed in the solar primary flow and return to prevent the possibility of any thermo-syphoning if the solar circulation is stopped.

Connection to the solar differential temperature controller should be in accordance with the manufacturer's instructions. The controller should be set to give a recommended cylinder temperature of approx. 60° C otherwise nuisance operation of the thermal cut-outs may occur.

The Solar cylinders are fitted with sensor pockets for use with solar controllers.

Figure 10: Solar thermal cut-out



Auxillary heating

Boiler Selection

The Andrews solar water heater models are suitable for use with most gas or oil fired boilers compatible with unvented systems i.e. fitted with a temperature control thermostat and thermal cut-out. If in doubt consult the boiler manufacturer. Solid fuel boilers or any other boiler in which the energy input is not under effective thermostatic control, unless additional and appropriate safety measures are installed, **SHOULD NOT** be used. The boiler used can either be a sealed system or open vented type, maximum primary circuit pressure 10 bar. The primary flow from the boiler **MUST** be pumped. Gravity circulation will not work due to the special design of the primary heat exchanger. It is recommended that an air bleed point or automatic air vent is incorporated in the primary return pipework close to the Andrews solar water heater. The boiler flow temperature should usually be set to 82°C (maximum flow temperature to primary heat exchanger 89°C). The boiler cannot be vented through the Andrews solar water heater.

Indirect thermal cut out and 2-port motorised valve

To comply with building regulations, and to prevent the Andrews solar water heater from overheating the 2-port motorised valve supplied **MUST** be fitted to the primary flow to the indirect coil. It must be wired such that in the event of the cylinder over heating it will close the primary circuit.

Wiring

All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E. Wiring Regulations BS 7671 , current edition.

IT IS RECOMMENDED THAT ALL WIRING TO THE IMMERSION HEATERS IS OF A FIXED TYPE.

DO NOT OPERATE THE IMMERSION HEATER(S) UNTIL THE ANDREWS SOLAR WATER HEATER – STXL CYLINDER HAS BEEN FILLED WITH WATER.

Safety

DO NOT BYPASS THE THERMAL CUT-OUT(S) IN ANY CIRCUMSTANCES

DISCONNECT FROM THE MAINS SUPPLY BEFORE REMOVING ANY COVERS

NEVER ATTEMPT TO REPLACE AN IMMERSION HEATER OTHER THAN WITH THE RECOMMENDED SPARE PART

Figure 11: Auxillary controls

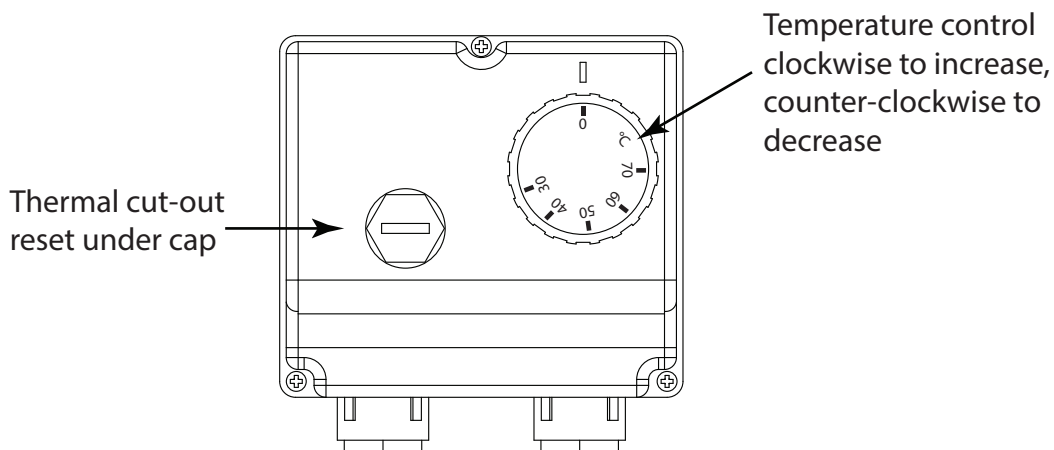
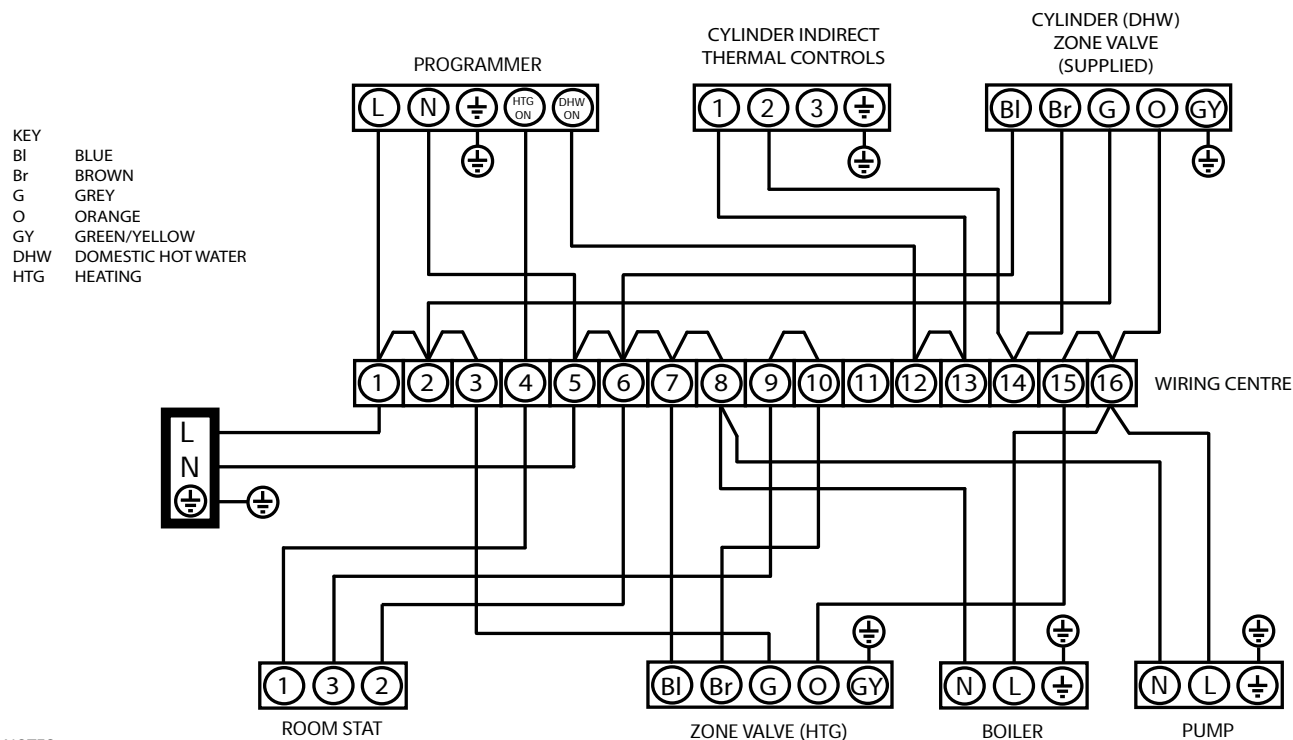
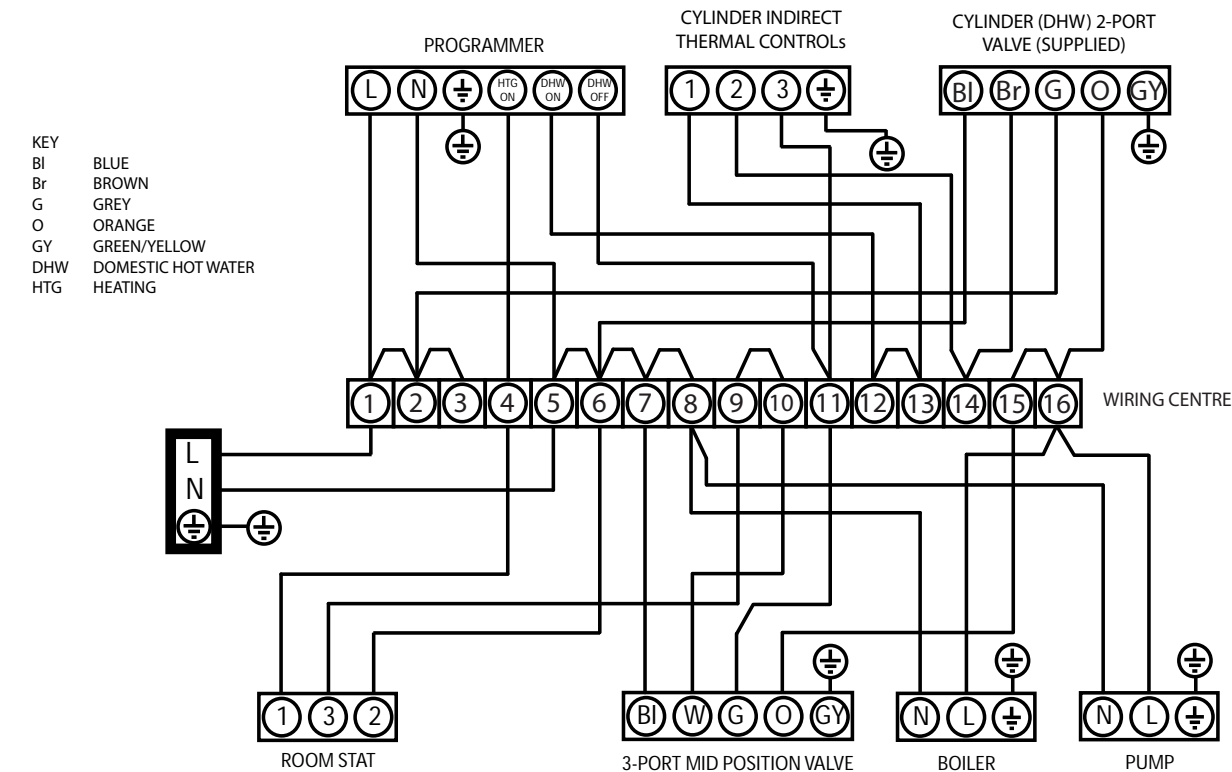


Figure 12: 2 port valve in conjunction with a 3 port mid-position valve system (“Y” Plan)



- NOTES:
1. A DOUBLE POLE ISOLATING SWITCH MUST BE INSTALLED IN THE MAINS SUPPLY.
 2. ALL EARTH CONNECTIONS MUST BE LINKED BACK TO THE MAINS EARTH SUPPLY.
 3. DO NOT MOUNT WIRING CENTRE ON CYLINDER.
 4. THE ABOVE DIAGRAM IS FOR GUIDANCE ONLY, BAXI COMMERCIAL ACCEPT NO LIABILITY FOR ANY LOSS OR DAMAGE ARISING FROM ANY ERRORS OR OMISSIONS. THAT MAY BE INADVERTENTLY CONTAINED WITHIN THIS DIAGRAM. THE VARIOUS EQUIPMENT MANUFACTURERS SHOULD BE CONSULTED TO CONFIRM THE CORRECT OPERATION OF THEIR PRODUCTS WITHIN THE SYSTEM.

Figure 13: 2 x 2 port valve system (“S” Plan)



- NOTES:
1. A DOUBLE POLE ISOLATING SWITCH MUST BE INSTALLED IN THE MAINS SUPPLY.
 2. ALL EARTH CONNECTIONS MUST BE LINKED BACK TO THE MAINS EARTH SUPPLY.
 3. ASSUMES BASIC BOILER WITH EXTERNAL PUMP.
 4. DO NOT MOUNT WIRING CENTRE ON CYLINDER.
 5. THE ABOVE DIAGRAM IS FOR GUIDANCE ONLY, THE MANUFACTURER ACCEPTS NO LIABILITY FOR ANY LOSS OR DAMAGE ARISING FROM ANY ERRORS OR OMISSIONS. THAT MAY BE INADVERTENTLY CONTAINED WITHIN THIS DIAGRAM. THE VARIOUS EQUIPMENT MANUFACTURERS SHOULD BE CONSULTED TO CONFIRM THE CORRECT OPERATION OF THEIR PRODUCTS WITHIN THE SYSTEM.

Auxillary Electrical Heating

Immersion Heater(s)

The Andrews water heater can be fitted with a selection of single phase and three phase immersion heaters (see Table 10 element allocation table for details). The immersion heaters must be installed in accordance with the installation instructions supplied with the immersion heater (supplied separately).

Warning: Before starting any work on the Commercial Immersion heaters switch off all electrical supplies to such immersion heaters including thermostatic controls, these may be on a separate circuit.

To remove the immersion heater:

Drain down the cylinder before any work is carried out on the immersion heaters. Remove the immersion heater cover and disconnect all wiring from the Immersion and thermostatic controls. Remove the 8 nuts (or bolts) and withdraw the immersion heater from the cylinder. Take care when lifting the immersion out of the cylinder and work within safe working practices.

Replacement:

Make sure the Immersion heater gasket face is clean and if necessary replace the gasket (spare part number 95607396). Replace the Immersion heater and make sure the 8 nuts (or bolts) are correctly torqued (20Nm or 14.75 ft/lbf) as per the Commercial Immersion heater fitting instructions (36006161). Wire up the immersion heater as per Fig 4 or Fig 5 or Commercial Immersion heater fitting instructions. Refill the cylinder and check for leaks. Turn on the supply and set the thermostat temperature to the desired water temperature (60° C – 65° C is recommended).

Wiring (See Figures 3, 4 & 5)

All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E. Wiring Regulations BS 7671, current edition.

DO NOT OPERATE THE IMMERSION HEATER(S) UNTIL THE ANDREWS WATER HEATER HAS BEEN FILLED WITH WATER.

Operation

See fig 4 for details on how to adjust the temperature setting of the heater.

DO NOT BYPASS THE THERMAL CUT-OUT IN ANY CIRCUMSTANCES

Commissioning

Filling and flushing the Andrews solar water heater

Ensure that all fittings and immersion heaters are correctly fitted and tightened.

- ▶ Open a hot tap furthest from the Andrews solar water heater.
- ▶ Open the isolating valve (if fitted in this position). Open the mains stop cock to fill the unit. When water issues from the tap, allow to run for a few minutes to thoroughly flush through any residue, dirt or swarf, then close tap.
- ▶ Open successive hot taps to purge any air from the system.
- ▶ Check all connections for leaks and rectify as necessary

Check the operation of the Safety Valves

- ▶ Slowly, manually open for a few seconds, the temperature and pressure relief valve (T&P Valve) situated on the Andrews solar water heater. Check water discharged runs freely away through the tundish and discharge pipework. Close valve, ensure water flow stops and valve reseats correctly.
- ▶ Repeat for the pressure relief valve.

NOTE: The water discharged may be very hot.

Immersion heater

Switch on electrical supply to the immersion heater and allow the cylinder to heat up to normal working temperature (60 – 65° C recommended). If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment spindle on front of the immersion heater thermostat and rotating. The adjustment represents a temperature range of 15° C to 70° C. Check the operation of thermostat and that no water has issued from the expansion relief valve or temperature/pressure relief valve during the heating cycle.

Indirect Control

Fill the indirect (auxiliary) circuit following the boiler manufacturer's commissioning instructions. To ensure the cylinder auxiliary heat exchanger is filled, the 2 port motorised valve (supplied) should be manually opened by moving the lever on the motor housing to the MANUAL setting. When the auxiliary circuit is full return the lever to the AUTOMATIC position. Switch on the boiler, ensure the programmer is set to Hot Water and allow the cylinder to heat up to a normal working temperature (60 – 65°C recommended).

Solar Control

Fill the solar primary circuit following the instructions provided with the solar hydraulic controls.

The cylinder temperature control sensor probe supplied with the solar differential temperature controller must be inserted into the pocket in the lower controls housing and its cable securely clamped.

Heating by the solar primary circuit is controlled by the solar differential temperature controller, refer to the manufacturer's installation instructions for details of how to set up and commission the solar primary circuit.

The solar controller should be programmed to give a maximum storage temperature in the cylinder of 70°C although 65°C is recommended to minimise scaling.

Benchmark™ Log Book

On completion of the installation and commissioning procedures detailed in this Product Guide the Benchmark™ "installation, commissioning and service record log" should be completed and signed off by the competent installer or commissioning engineer in the relevant sections. The various system features, location of system controls, user instructions and what to do in the event of a system failure should be explained to the customer. The customer should then countersign the Benchmark™ commissioning checklist to accept completion. The service record should be filled in when any subsequent service or maintenance operation is carried out on the Andrews solar water heater.

Maintenance & Servicing

Maintenance requirements

To ensure the continued optimum performance of the Andrews water heater it should be regularly maintained. This is of particular importance in hard water areas or where the water supply contains particulate matter. Maintenance should be carried out by a competent person and any replacement parts used should be authorised spare parts. It is recommended that maintenance is carried out every 12 months and includes the checks detailed below.

In hard water areas consideration should be given to periodically descaling the immersion heater elements. To do this the Andrews solar water heater will need to be drained.

Check operation of safety valves

Slowly open the temperature and pressure relief valve by twisting its cap 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.

NOTE: The water discharged may be very hot.

NOTE: Repeat the procedure for the pressure relief valve.

Clean the strainer

The strainer is incorporated within the pressure reducing valve housing of the valve. To inspect and clean the strainer:

- ▶ Turn off the isolating valve on the pressure reducing valve by turning the blue handle (if fitted in this position) so it lies 90° to the direction of flow or the main stop cock to the house.
- ▶ 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 by turning handle so it lies parallel to the direction of flow. Check for leaks.

Draining the Andrews solar water heater

Switch off the electrical supply to the immersion heater(s) and shut down the boiler on indirect units. Turn off the mains water supply to the Andrews water heater. Attach a hosepipe to the drain cock having sufficient length to take water to a suitable discharge point below the level of the unit, at least one metre below the unit is recommended. Open hot water tap nearest to the Andrews water heater to relieve the system pressure. Open drain cock. If water fails to drain from the Andrews water heater vent the unit by manually opening the temperature / pressure relief valve.

Refilling system

DO NOT switch on the immersion heater(s) or boiler until the system has been completely refilled.

Close the drain tap. With the hot tap open, turn on mains water supply. When water flows from the hot tap allow to flow for a short while to purge air and to flush through any disturbed particles. Close hot tap and then open successive hot taps in system to purge any air. The electrical supply can now be switched on.

Benchmark™

On completion of any maintenance or service of the Andrews water heater, the Benchmark™ “installation, commissioning and service record”, Pages 32 & 33, should be filled in to record the actions taken and the date the work was undertaken.

Maintenance

Under normal circumstances the control valves should not require any maintenance. However, annual inspection and/or cleaning of the integral strainer, pressure reducing valve cartridge, expansion relief valve cartridge and seating may be necessary depending on local water conditions.

Pressure reducing valve

- ▶ Isolate cold water supply and drain system if necessary.
- ▶ Unscrew the retaining nut of the valve. The complete operating mechanism, including the strainer can be removed.
- ▶ Clean the filter mesh and cartridge ensuring that the strainer is correctly located and reassemble the unit.

Expansion Valve

- ▶ Isolate cold water supply.
- ▶ Unscrew expansion relief head work from valve body.
- ▶ Clean valve seat face and seating – do not scratch damage either seal face or seating.
- ▶ Refit in reverse order. Do not over tighten.

Warnings

IF WATER DISCHARGES FROM THE TEMPERATURE / PRESSURE RELIEF VALVE ON THE ANDREWS WATER HEATER UNIT REFER TO FAULT FINDING TABLE FIRST FOR GUIDANCE. IF THIS DOES NOT RECTIFY THE FAULT SWITCH OFF ELECTRICAL SUPPLY TO THE IMMERSION HEATER(S) [DIRECT UNITS] OR SHUT DOWN THE BOILER [INDIRECT UNITS]. DO NOT TURN OFF THE 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 ANDREWS WATER HEATER SYSTEM, IF A FAULT IS SUSPECTED CONTACT A COMPETENT INSTALLER.

Fault finding

The Fault Finding chart will enable operational faults to be identified and their possible causes rectified. Any work carried out on the Andrews solar water heater and its associated controls **MUST** be carried out by a competent installer for unvented water heating systems. In case of doubt contact the Andrews solar water heater service department.

Table 12: Fault Finding guide

Fault	Possible Cause	Remedy
No hot water flow	Mains water supply off	Check and open stop cock/isolating valve
	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	Direct immersion heater not switched on	Check and switch on
	Direct immersion heater thermal cut-out has operated	Check, reset by pushing button on thermal cut-out
	Indirect programmer set to central heating only	Check, set to domestic hot water programme
	Indirect boiler not working	Check boiler operation. If fault is suspected consult boiler manufacturer's instructions
	Indirect thermal cut-out has operated	Check, reset by pushing button on thermal cut-out Check operation of indirect thermostat
	Indirect motorised valve not connected correctly	Check wiring and/or plumbing connections to motorised valve
Water discharges from overflow visual indicator	INTERMITTENTLY	Incorrect pre-charge pressure for expansion vessel
	CONTINUALLY	Check pressure from pressure reducing valve
		Remove expansion relief cartridge from pressure relief valve and check seating. If necessary fit new cartridge
Water discharges from the T&P relief valve intermittently	Expansion relief valve faulty	Check valve and replace if necessary
Water discharges from the T&P relief valve continually	Thermal control failure NOTE: Water will be very hot	Switch off power to immersion heater(s) and shut down boiler. DO NOT turn off water supply. When discharge stops check all thermal controls, replace if faulty
Performance has deteriorated	GRADUALLY	Check for scale build up in the DHW heat exchanger
	SUDDENLY	Check the operation of the blending valve.

Servicing

Important

- ▶ Servicing should only be carried by authorised engineers, agents or by installers competent in the installation and maintenance of unvented water heating systems.
- ▶ Any spare parts used **MUST** be authorised 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 Andrews solar water heater unit may be very hot, especially following a thermal control failure. Caution must be taken when drawing water from the unit.

Spares

Spare parts

A full range of spare parts are available for the Andrews solar water heater range. Refer to the technical data label on the unit to identify the model installed and ensure the correct part is ordered.

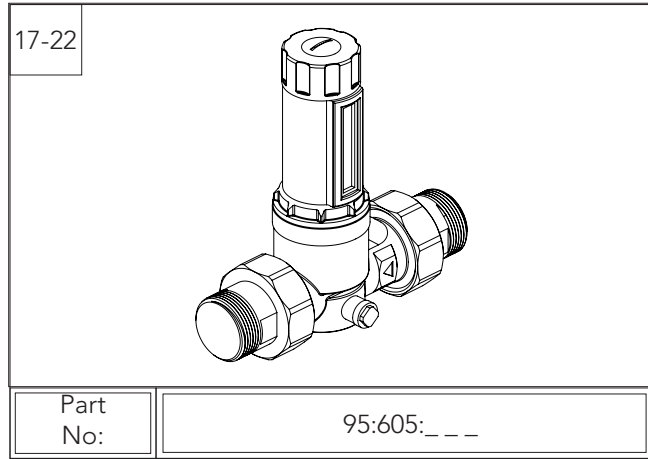
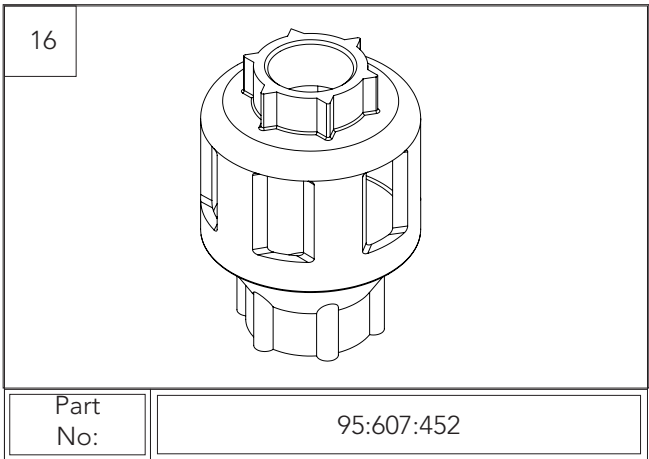
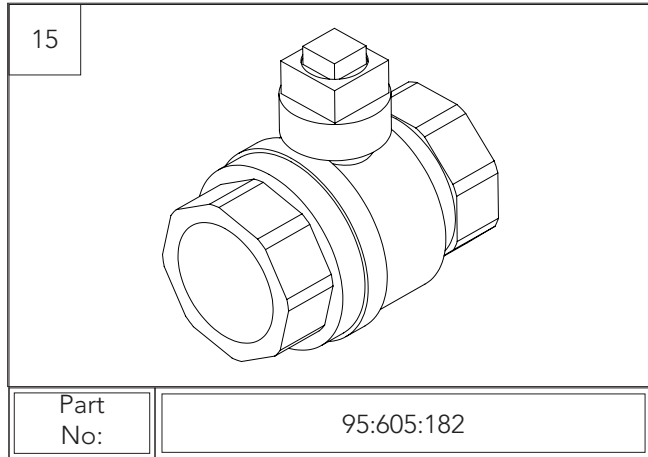
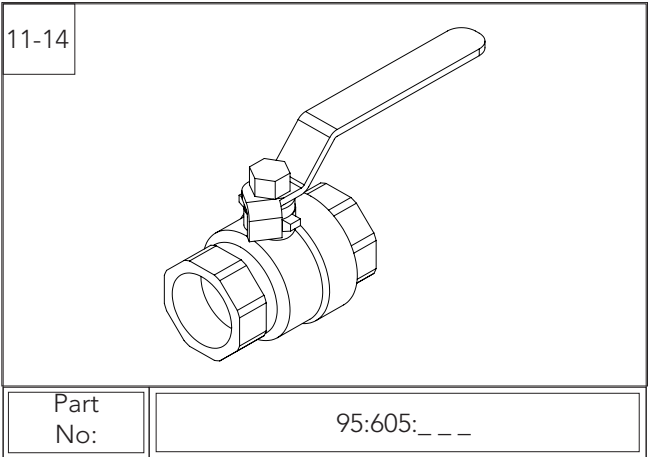
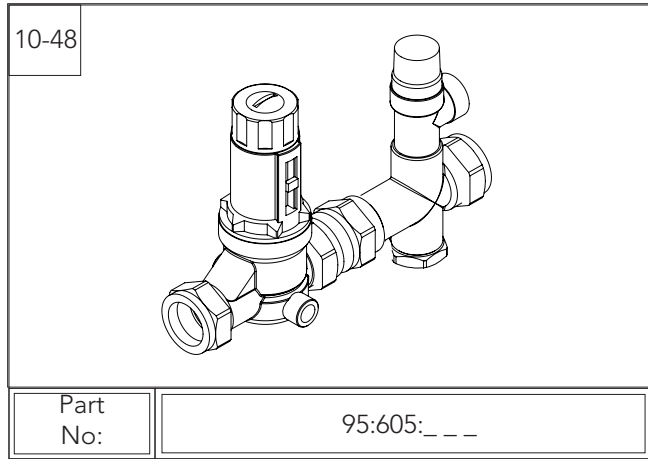
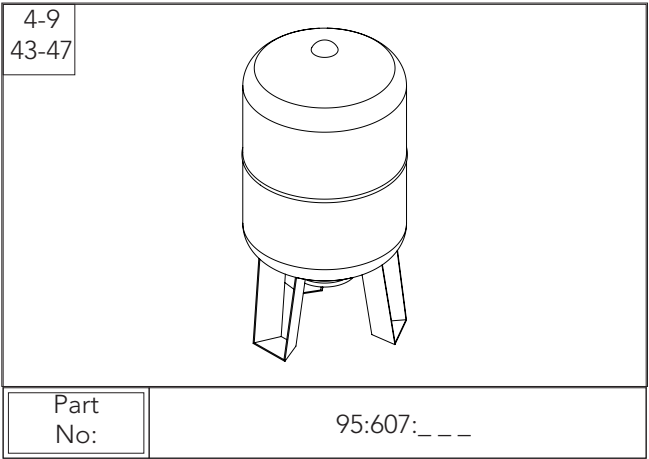
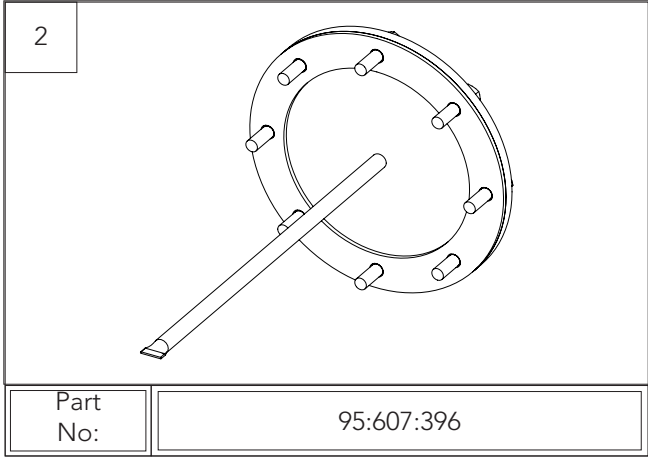
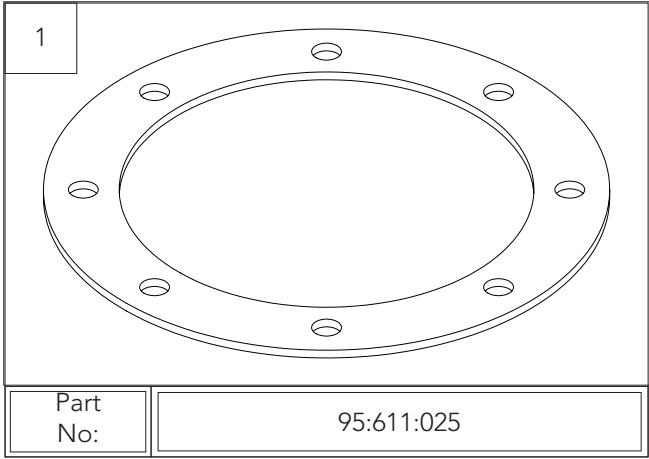
KEY	DESCRIPTION	SPARES NUMBER
1	IMMERSION HEATER GASKET	95611025
2	BLANKING PLATE KIT	95607396
4	EXPANSION VESSEL 60L 6 BAR	95607445
6	EXPANSION VESSEL 100L 6 BAR	95607458
7	EXPANSION VESSEL 150L 6 BAR	95607461
8	EXPANSION VESSEL 200L 6 BAR	95612723
9	EXPANSION VESSEL 300L 6 BAR	95612724
10	1" INTEGRATED INLET CONTROL VALVE 5-10BAR	95605176
11	ISOLATING BALL VALVE 1"	95605178
12	ISOLATING BALL VALVE 1 1/4"	95605179
13	ISOLATING BALL VALVE 1 1/2"	95605180
14	ISOLATING BALL VALVE 2"	95605181
15	ISOLATING DRAIN VALVE 1"	95605182
16	TUNDISH 1 1/4" x 1 1/2"	95607452
17	PRV 1 1/4" SET PRESSURE 1.5 TO 6 BAR MAX IP 16 BAR	95605183
18	PRV 1 1/4" SET PRESSURE 5 TO 10 BAR MAX IP 16 BAR	95605184
19	PRV 1 1/2" SET PRESSURE 1.5 TO 6 BAR MAX IP 16 BAR	95605185
20	PRV 1 1/2" SET PRESSURE 5 TO 10 BAR MAX IP 16 BAR	95605186
21	PRV 2" SET PRESSURE 1.5 TO 6 BAR MAX IP 16 BAR	95605187
22	PRV 2" SET PRESSURE 5 TO 10 BAR MAX IP 16 BAR	95605188
23	SINGLE CHECK VALVE 1 1/4"	95605189
24	SINGLE CHECK VALVE 1 1/2"	95605190
25	SINGLE CHECK VALVE 2"	95605191
26	EXPANSION RELIEF VALVE 1" x 1 1/4" SET 8 BAR	95605192
27	EXPANSION RELIEF VALVE 1" x 1 1/4" SET 13 BAR	95605193
28	EXPANSION RELIEF VALVE 1 1/4" x 1 1/2" SET 8 BAR	95605194
29	EXPANSION RELIEF VALVE 1 1/4" x 1 1/2" SET 13 BAR	95605195
30	TEMPERATURE AND PRESSURE RELIEF VALVE – 10 BAR	95605196
31	TEMPERATURE AND PRESSURE RELIEF VALVE – 15 BAR	95605197
32	DUAL CONTROL THERMOSTAT	95612650

Spares

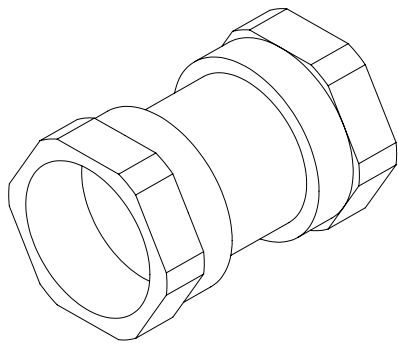
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33	CUT-OUT THERMOSTAT	95612652
34	ROD THERMOSTAT	95980025
35	2 PORT MOTORISED VALVE (DN 32)	95605198
36	2 PORT MOTORISED VALVE (DN 40)	95605199
37	PUMP 3 SPEED CIRCULATION UP 20–30N	95607366
38	PUMP 3 SPEED CIRCULATION UPS 15–50N 130	95607404
39	28mm PUMP ISOLATING VALVE	95605177
40	1/2" BLANKING STAT POCKET	95607690
41	1" BLANKING STAT POCKET	95607691
43	EXPANSION VESSEL 60L 10 BAR	95607446
44	EXPANSION VESSEL 100L 10 BAR	95607459
45	EXPANSION VESSEL 150L 10 BAR	95607462
46	EXPANSION VESSEL 200L 10 BAR	95612725
47	EXPANSION VESSEL 300L 10 BAR	95612726
48	1" INTEGRATED INLET CONTROL VALVE 1–6BAR	95605109
49	OVER TEMPERATURE ROD THERMOSTAT	95980009
50	PUMP ISOLATION VALVE 28mm COMPRESSION TO 1 1/2"	95605110
51	2 PORT MOTORISED VALVE BODY DN 32	7031586
52	2 PORT MOTORISED VALVE BODY DN 40	7031587
53	ACTUATOR	7031588
54	32 CONNECTION	7031595
55	40 CONNECTION	7031596

ACCESSORIES

6kW Commercial Immersion – Single phase	94110301
9kW Commercial Immersion – Single phase	94110302
12kW Commercial Immersion – Three phase	94110303
18kW Commercial Immersion – Three phase	94110304
24kW Commercial Immersion – Three phase	94110305
30kW Commercial Immersion – Three phase	94110306
36kW Commercial Immersion – Three phase	94110307
45kW Commercial Immersion – Three phase	94110308
54kW Commercial Immersion – Three phase	94110309
Busbar Conversion Kit	94970110
De-Stratification loop kit – 400–500 litre	95970140
De-Stratification loop kit – 800–1450 litre	95970157
De-Stratification loop kit – 2000–2500 litre	95970158
Temperature gauge	95970141
Pressure gauge	95970142
Temperature gauge (calibrated)	95970017
Pressure gauge (calibrated)	95970016

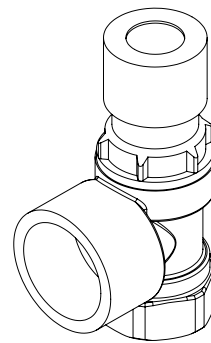


23-25

Part
No:

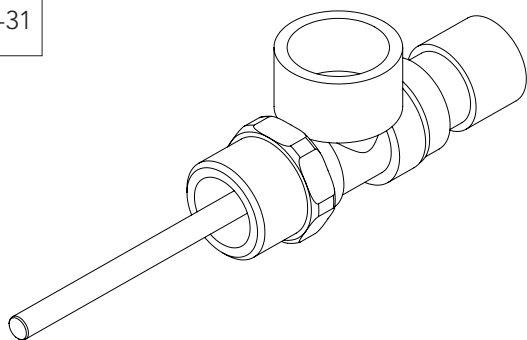
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26-29

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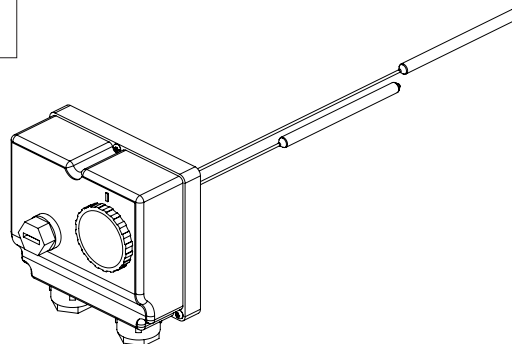
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30-31

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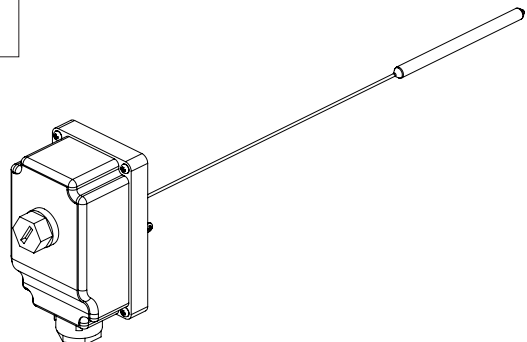
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32

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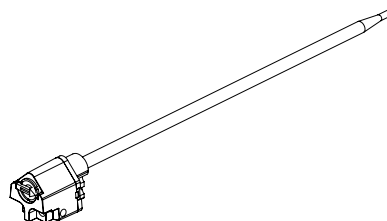
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33

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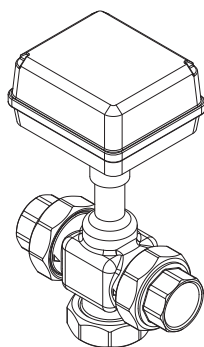
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34

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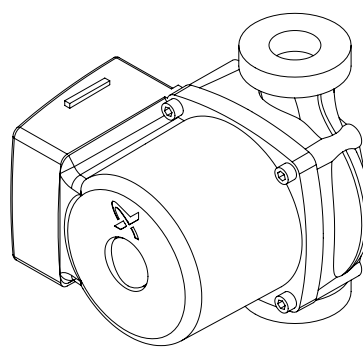
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35&36

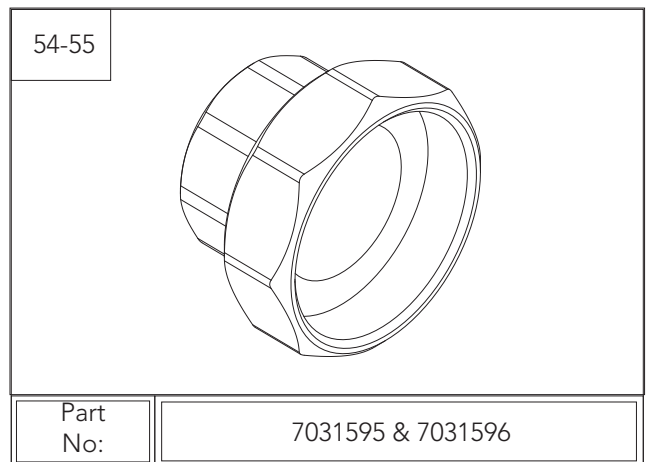
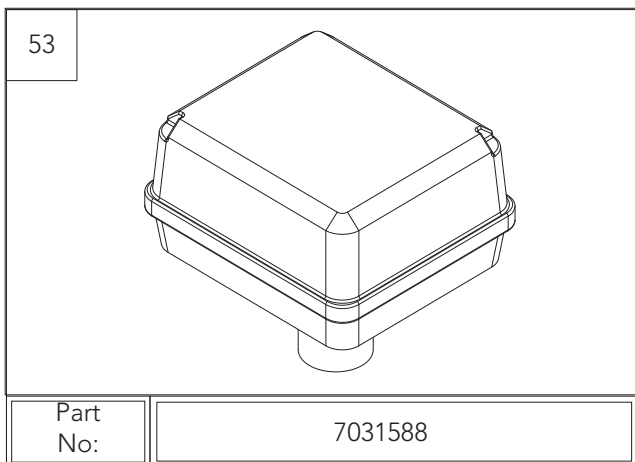
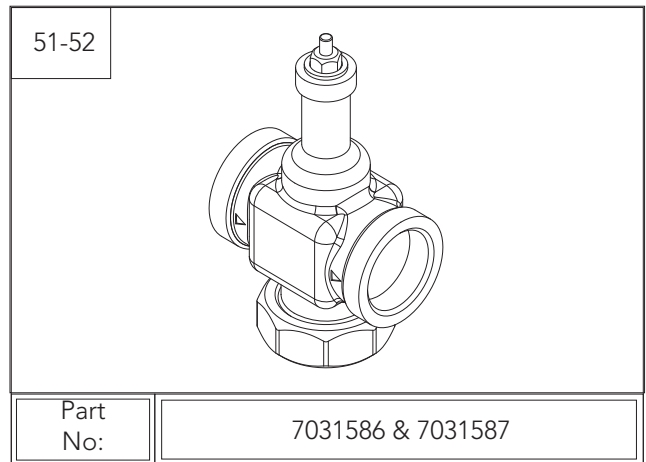
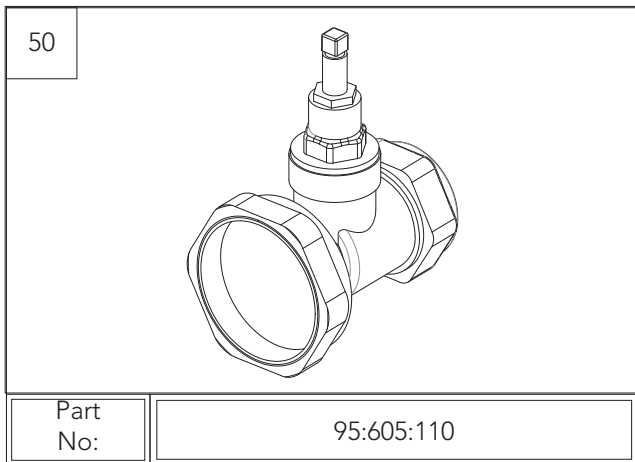
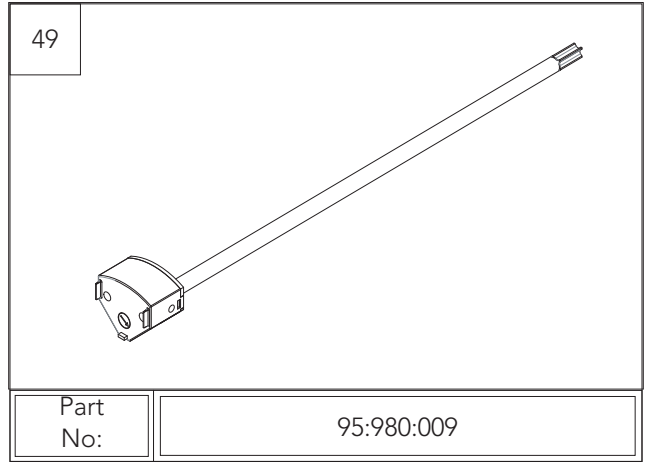
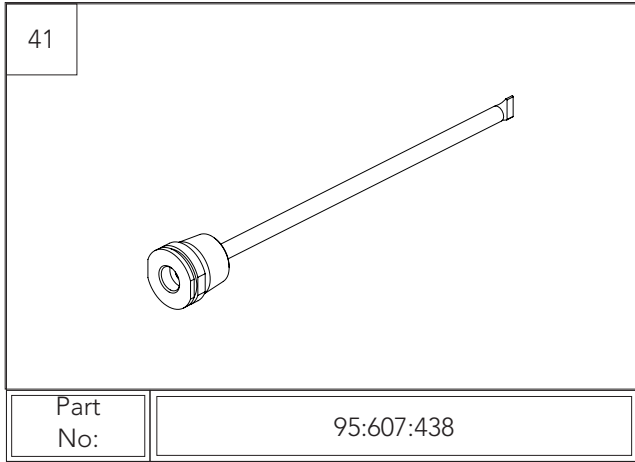
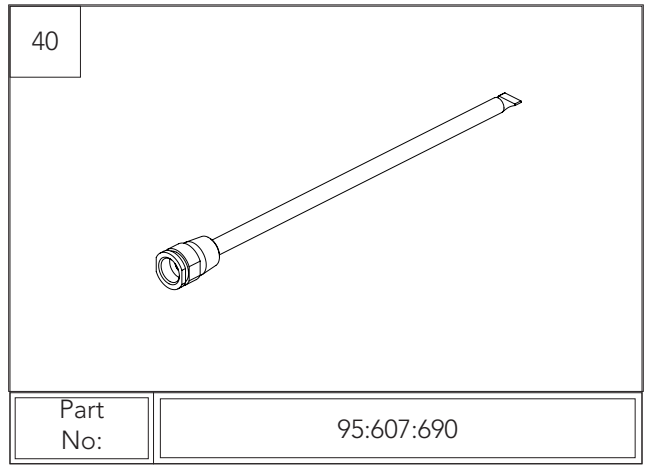
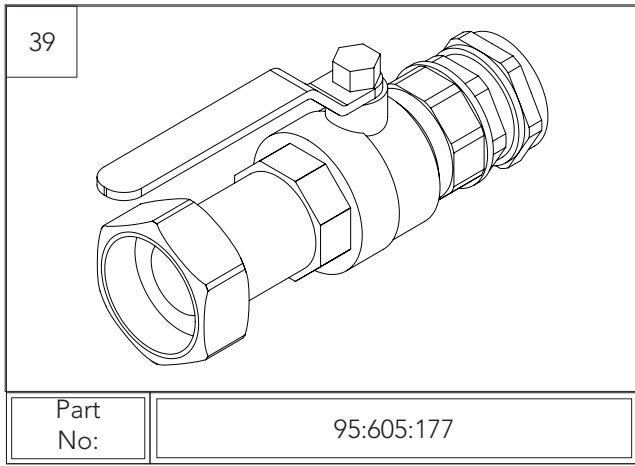
Part
No:

95:605: _ _ _

37&38

Part
No:

95:607: _ _ _



MAINS PRESSURE HOT WATER STORAGE SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

Customer Name _____ Telephone Number _____
 Address _____
 Cylinder Make and Model _____
 Cylinder Serial Number _____
 Commissioned by (print name) _____ Registered Operative ID Number _____
 Company Name _____ Telephone Number _____
 Company Address _____
 _____ Commissioning Date _____

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:

Building Regulations Notification Number (if applicable) _____

ALL SYSTEMS PRIMARY SETTINGS (indirect heating only)

Is the primary circuit a sealed or open vented system? Sealed ☐ Open ☐
 What is the maximum primary flow temperature? _____ °C

ALL SYSTEMS

What is the incoming static cold water pressure at the inlet to the system? _____ bar
 Has a strainer been cleaned of installation debris (if fitted)? Yes ☐ No ☐
 Is the installation in a hard water area (above 200ppm)? Yes ☐ No ☐
 If yes, has a water scale reducer been fitted? Yes ☐ No ☐
 What type of scale reducer has been fitted? _____
 What is the hot water thermostat set temperature? _____ °C
 What is the maximum hot water flow rate at set thermostat temperature (measured at high flow outlet)? _____ l/min
 Time and temperature controls have been fitted in compliance with Part L of the Building Regulations? Yes ☐
 Type of control system (if applicable) Y Plan ☐ S Plan ☐ Other ☐
 Is the cylinder solar (or other renewable) compatible? Yes ☐ No ☐
 What is the hot water temperature at the nearest outlet? _____ °C
 All appropriate pipes have been insulated up to 1 metre or the point where they become concealed Yes ☐

UNVENTED SYSTEMS ONLY

Where is the pressure reducing valve situated (if fitted)? _____
 What is the pressure reducing valve setting? _____ bar
 Has a combined temperature and pressure relief valve and expansion valve been fitted and discharge tested? Yes ☐ No ☐
 The tundish and discharge pipework have been connected and terminated to Part G of the Building Regulations Yes ☐
 Are all energy sources fitted with a cut out device? Yes ☐ No ☐
 Has the expansion vessel or internal air space been checked? Yes ☐ No ☐

THERMAL STORES ONLY

What store temperature is achievable? _____ °C
 What is the maximum hot water temperature? _____ °C

ALL INSTALLATIONS

The hot water system complies with the appropriate Building Regulations Yes ☐
 The system has been installed and commissioned in accordance with the manufacturer's instructions Yes ☐
 The system controls have been demonstrated to and understood by the customer Yes ☐
 The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer Yes ☐

Commissioning Engineer's Signature _____

Customer's Signature _____

(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.



SERVICE RECORD

It is recommended that your hot water system is serviced regularly and that the appropriate Service Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

SERVICE 1	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

SERVICE 2	Date
Engineer Name	
Company Name	
Telephone Number	
Comments	
Signature	

SERVICE 3	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

SERVICE 4	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

SERVICE 5	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

SERVICE 6	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

SERVICE 7	Date
Engineer Name	
Company Name	
Telephone Number	
Comments	
Signature	

SERVICE 8	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

SERVICE 9		Date
Engineer Name		
Company Name		
Telephone Number		
Comments		
Signature		

SERVICE 10	Date _____
Engineer Name _____	
Company Name _____	
Telephone Number _____	
Comments _____	

Signature _____	

User Guide

Lifetime Guarantee Terms and Conditions

WARNING: Should the factory fitted temperature and pressure relief valve be tampered with or removed your guarantee will be invalidated. Neither the distributor nor manufacturer shall be responsible for any consequential damage howsoever caused.

Guarantee Terms

Baxi commercial guarantees the Andrews solar water heater against faulty manufacture or materials for a period of two years from the date of purchase including parts and labour. This two year guarantee is extended to five years for the cold water control valve and to 25 years (from the date of installation) for the stainless steel inner vessel.

These guarantees are valid provided that:

- ▶ The unvented 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 6700
- ▶ Should the factory fitted temperature and pressure relief valve be tampered with or removed your guarantee will be invalidated.
- ▶ The cylinder unit has not been modified in anyway other than by heateam approved engineers.
- ▶ The cylinder unit 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 cylinder has not been subjected to excessive pressure beyond the guidelines detailed in the installation instructions.
- ▶ The cylinder 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 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 Baxi Commercial warranty covers you for a direct replacement and labour 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 to replace the unit is essential. If it is found that access can not 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.

Spares Stockists

Customer Service

Telephone

0345 070 1055

The Environment

This product is made from many recyclable materials, therefore at the end of its useful life it should be disposed of at a Local Authority Recycling Centre in order to realise the full environmental benefits. Insulation is by means of an approved HCFC/CFC free polyurethane foam.

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.



Register now to activate your warranty www.andrewswaterheaters.co.uk/register-a-warranty. Please make sure you attach proof of purchase for your warranty to be monitored.

All descriptions and illustrations provided in this document have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.

Customer support

8am-5pm, Monday-Friday

Tel 0345 070 1055

Web andrewswaterheaters.co.uk

 [linkedin.com/company/andrews-water-heaters](https://www.linkedin.com/company/andrews-water-heaters)

 @AndrewsWH



RS 33961



Andrews. Built to perform.

a Baxi Heating brand

Registered office address: Andrews Water Heaters 3 Innovation House, Oaklands Business Centre, Oaklands Park,
Wokingham RG41 2FD

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