

Tristor™ MF

Installation Guide



The Benchmark Scheme

Telford Copper and Stainless Cylinders is a licensed member of the Benchmark Scheme which aims to improve the standard of installation and commissioning of domestic heating and hot water systems in the UK and to encourage regular servicing to optimise safety, efficiency and performance.

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturers instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out the installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme. Visit www.centralheating.co.uk for more information.

The HWA Charter Statement requires that all members adhere to the following:

- To supply fit for purpose products clearly and honestly described
- To supply products that meet, or exceed appropriate standards and building and water regulations
- To provide pre and post sales technical support
- To provide clear and concise warranty details to customers

Visit: www.hotwater.org.uk

For term and condition please refer to our website: www.telford-group.com

	Date	Parts Replaced	Installer Registration Number
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Installed and Commissioned			
First Annual Service			
Second Annual Service			
Third Annual Service			
Fourth Annual Service			
Fifth Annual Service			
Sixth Annual Service			
Seventh Annual Service			
Eighth Annual Service			
Ninth Annual Service			
Tenth Annual Service			

THE INSTALLER MUST SIGN THE BENCHMARK CHECKLISTS AND FILL IN THE APPROPRIATE INSTALLATION INFORMATION. COMPLETING THE COMMISSIONING AND USER INSTRUCTIONS IS A REQUIREMENT OF ADL1 OF THE BUILDING REGULATIONS. FAILURE TO DO SO MAY INVALIDATE THE WARRANTY ON THIS PRODUCT.

All Electrical Installation Must be to IEE Standards

Warranty

Failure to carry out an annual service will invalidate the Tristor Manual Fill warranty.

The Tristor Manual Fill will have a 5-year guarantee providing the cylinder is serviced every 12 months and documented correctly using **page 18**.

All third-party component parts have a 2-year guarantee e.g. Shock Arrestor, Immersion Heater, Blend Valve, Float Switch, Over-Fill Control Box and Two Port Valve.

The warranty of this cylinder commences on the date of manufacture, this date can be found on the data badge applied to the cylinder.

The Benchmark section of this booklet (**page 18**) must be filled in on commissioning of the first install. The service record must then be completed every 12 months afterwards.

Telford Copper & Stainless Cylinders LTD hold no responsibility for:

Errors or Omissions caused by the Installer on the cylinder.

Non-existent or incorrect service history

Incorrect installation

Corrosion – Borehole or well water supplies

Information contained in this installation guide relevant from: 01/08/19

Step by Step Install

1. Site the Tristor on a flat surface
 2. Check drain valve is closed and 3kw immersion heaters are tightened firmly with O-ring seal making contact to threaded boss! Do not over tighten.
 3. The Tristor needs at least 300mm minimum access to remove the white plastic lid from the top of Tristor to service F&E Tank.
 4. Connect 3 bar cold mains 22mm to cold inlet motorised valve marked (number 1) 3 bar pressure reducing valve must be installed (Not supplied)
 5. Connect domestic 22mm hot outlet to blend valve (number 2)
 6. Push shock arrester into 22mm Tec Tite push fit tee (number 3)
 7. Wire over fill box 3 core 0.75mm cable (Supplied) to a none switched 5amp fuse spur >Fuse spur not supplied.
 8. Turn power on by the consumer unit to power fused spur that's connected to over fill box, valve will open and supply water to Tristor ready for manual fill to F&E tank
! Do not power immersion heater at this point !
 9. Remove 7" round copper F&E tank lid (Number 5) then add inhibitor 1 litre (Not Supplied), open service valve (number 4) and slowly start filling F&E tank to water indent fill line (number 6) close service valve once filled to line. **Do not over fill F&E tank past the half way fill indent line, this will activate float switch when heated and isolate water supplied to Tristor.**
 10. Open hot taps around the property to release air.
 11. To test float switch (Number 7) leave hot tap open and gently raise float by hand, red LED should flash aggressively on over fill box and water should stop running from tap.
 12. Replace 7" copper lid firmly (Number 5)
 13. 3kw immersion heaters must be wired by a qualified electrician to a 20amp fused spur. Once wired then switch on fuse spur to immersion heater.
 14. Water softener is required on cold inlet if water exceeds 150 PPM
- *
Number references can be found on pages 9, 10 & 11.

Tristor Technical Data



Tristor Pricing Code			
Litre	Direct (Electric only)	Indirect Boiler	Twin Coil Boiler & Solar
150	TSC150MF/OF2/DIR	TSC150MF/OF2/IND	TSC150MF/OF2/IND/S
200	TSC200MF/OF2/DIR	TSC200MF/OF2/IND	TSC200MF/OF2/IND/S
280	TSC280MF/OF2/DIR	TSC280MF/OF2/IND	TSC280MF/OF2/IND/S

Volume	Domestic Coil	Immersion Heater	Heat Input Coil	Standing Heat Loss(single coil)
150 Litre	2.5m ²	3kw	1.8m ² >20kw	1.75kwh/24hrs
200 Litre	2.5m ²	3kw	1.8m ² >20kw	2.01kwh/24hrs
280 Litre	2.5m ²	3kw	1.8m ² >20kw	2.21kwh/24hrs

Domestic hot flow rate	18lpm at 73°C store temperature
Max Domestic hot out	47C to 48C max >2.5mtr distance to hot tap
Max Domestic working pressure	3bar max working pressure
Shock Arrestor	Set to 3bar
Immersion Heater	240v - 50hz - 3kw each
Overfill Box	240v - 50hz - 3amp
Motorised Two Port Valve	VC4613 (Domestic)
Single Probe Stat	Honeywell (Boiler Type only)

Indirect Heat up Time

Store Heat up Time	
150 litre	37min
200 litre	33min
280 litre	40min

Direct Heat up Time with Immersion Heater

Store Heat up Time with two immersion heater from cold	
150 litre	110min
200 litre	130min
280 litre	185min

Store Heat up Time with one immersion heater	
150 litre	220min
200 litre	260min
280 litre	370min

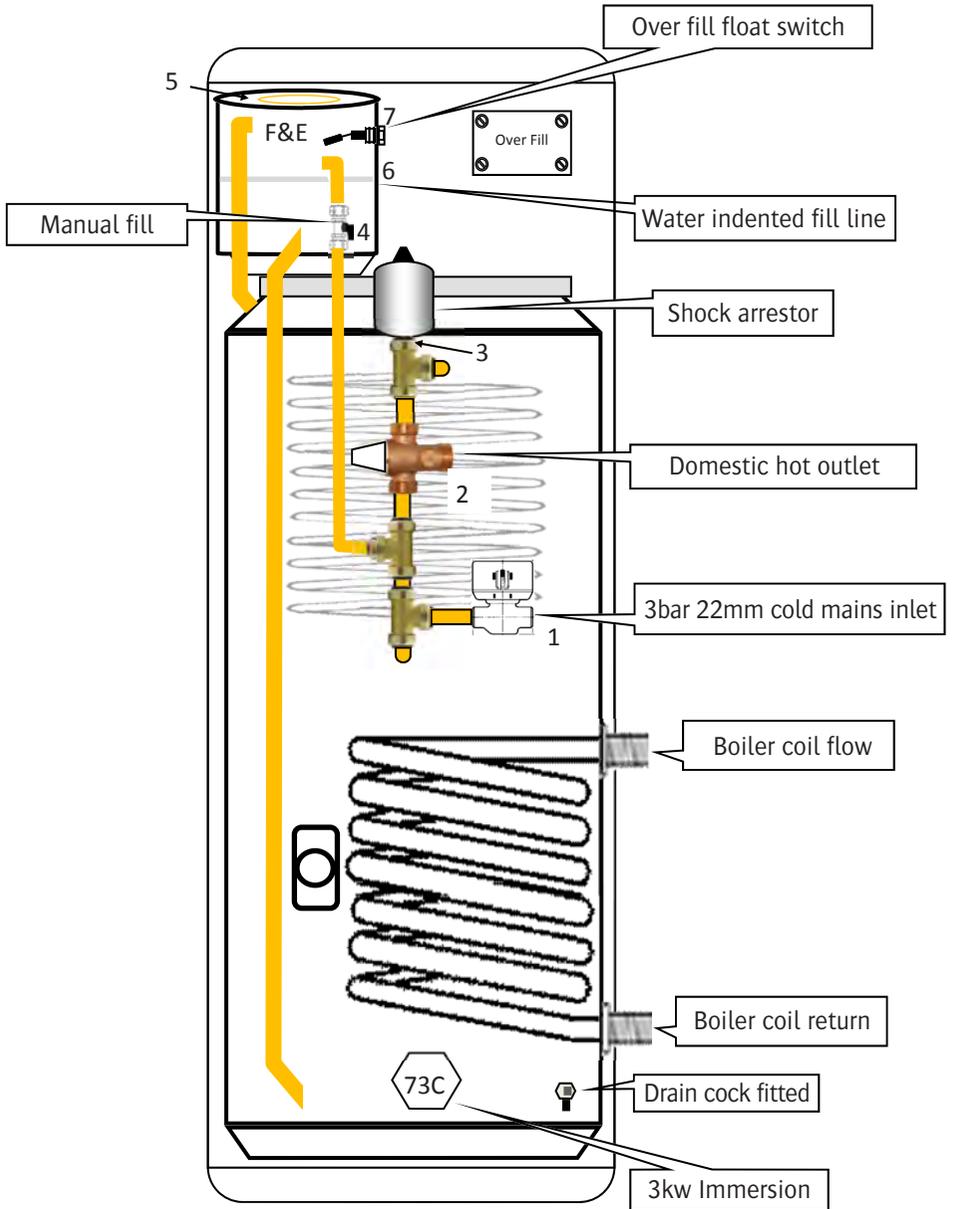
Weights	
150 litre	50kg
200 litre	60kg
280 litre	75kg

Dimensions	
150 litre	1400 x 510
200 litre	1750 x 510
280 litre	2000 x 554

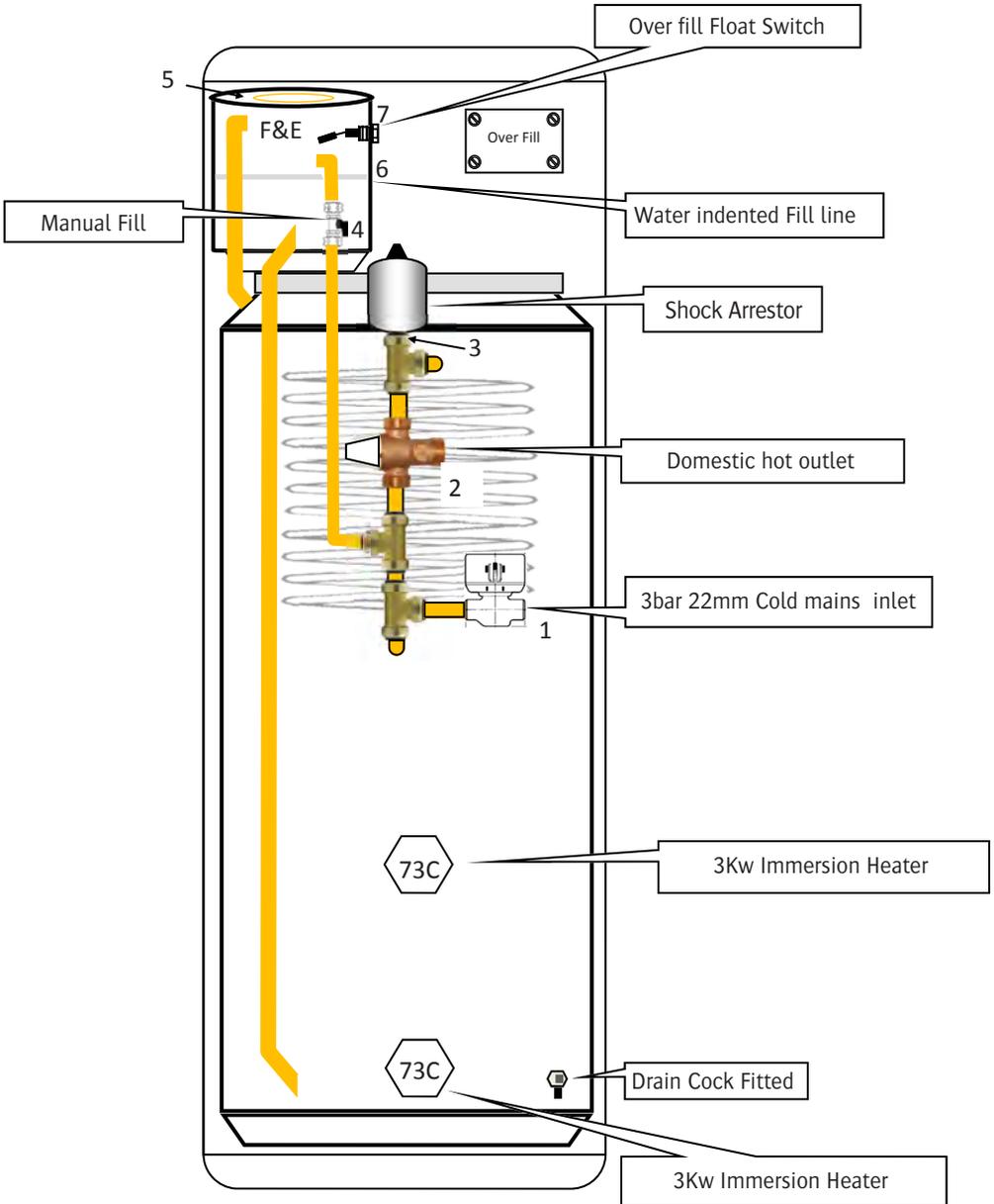
Tristor Annual Service Maintenance

1	Check F&E tank Water Level does not exceed fill line (see schematic drawing number 6)
2	Raise Float switch inside F&E tank carefully - hot water should stop running through hot outlets and red LED should flash aggressively
3	Check temperature at hot outlets does not reach more than 47°C to 50°C
4	Check shock arrestor holds air pressure at 3Bar with mains water isolated and hot tap open, re-fill with air if low in pressure
5	Check Immersion Heater stats are set to 73°C
6	Check 3Bar pressure reducing valve is installed (Not supplied)
7	Check braided 1/2" filling loop hose is disconnected from F&E tank and 1/2" service valve. Fit blank caps as supplied
8	Fill in the service page once finished (see page 3)

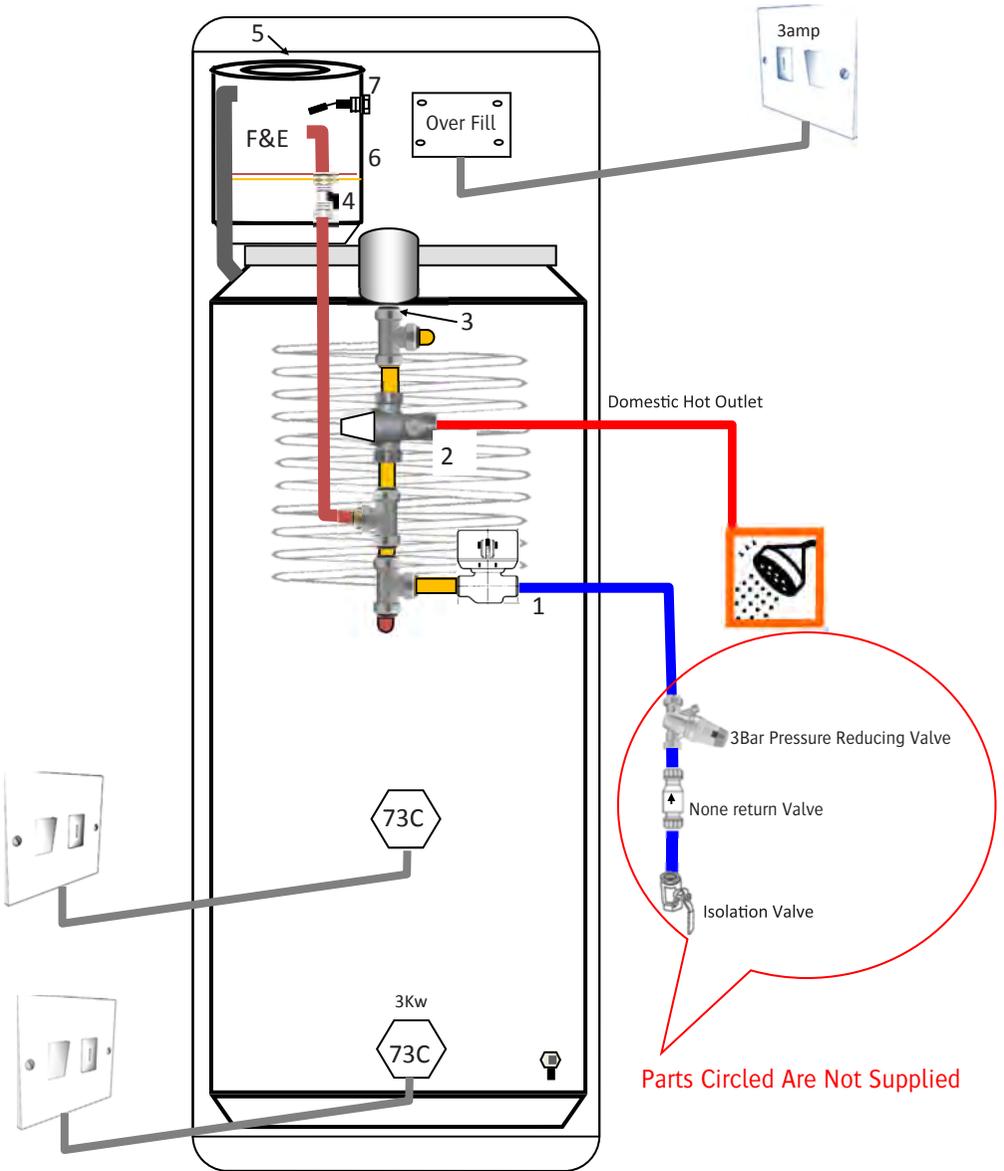
Tristor Manual Fill Indirect



TSC Tristor Combi Direct



Tristor Direct Layout



E7 Programmer wiring

Programmer Not Supplied With Standard Tristor



Programmer is only fitted on request when purchasing

Terminals

5	4	3	2	1
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Wiring Connection

Use 1.5mm three core heat resistant

Clamp all wires coming from programmer

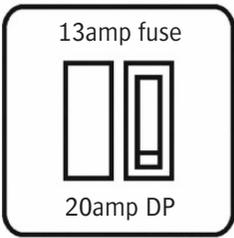
Terminal 1 = live In

Terminal 2 = Neutral In

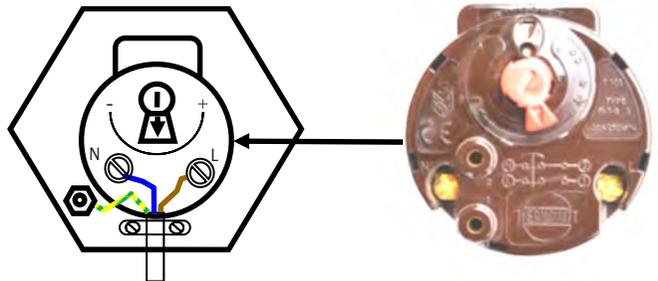
Terminal 3 = Neutral out to immersion heater's

Terminal 4 = Live to boost immersion heater

Link Terminal 4 & 5 when only using one immersion heater



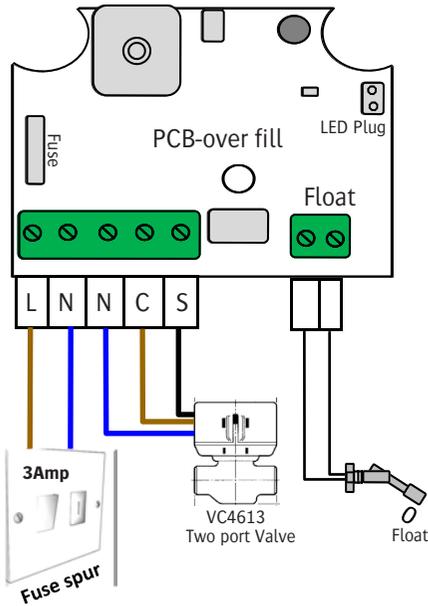
Thermowatt Immersion Heater 3kw



3kw cable sizing

2.5 three core heat resistant cable

20amp fuse spur Double Pole for each immersion heater



PCB for over fill box

Electrical component data



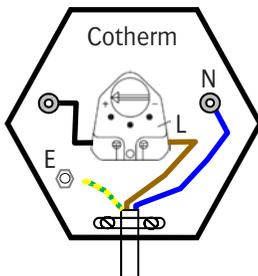
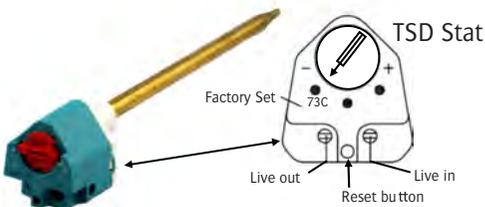
Please Note - all electrical work must be carried out by a qualified electrician.

3kw cable sizing

1.5-three core heat resistant cable max length

1.5 metre

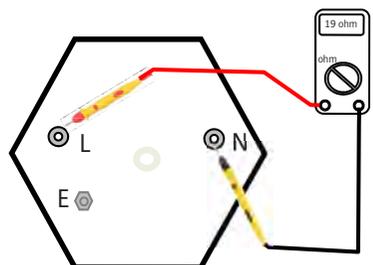
20amp fuse spur for each immersion heater



Test Meter (Element Test only)

!Warning Test with power off!

1. Turn off power and remove fuse at fude spar
 2. Remove wires from stat
 3. Set test metre to ohms
 4. Contact black test probe to neutral point
 5. Contact red test probe to live point
 6. Reading on test meter should be 19 ohms (Good)
- 16 ohms (average, consider replacing)
- 15 or below ohms (faulty)



Diagnostics for Tristor Manual Fill

Water not filling Tristor
Check main cold isolation valve is not closed
Check Over Fill Box fuse spur is switched on
Check consumer unit has not tripped
Check service valve is open on filling loop, close valve once filled to F&E indent line and cap off with 1/2" caps supplied
Check continuity across Float Switch wires when raising Float Switch
Check two port valve is open when Float Switch is in down position. Raise the float to close valve. White lifter on the side of the actuator should move back and forward when opening and closing valve with float
No water flow through hot tap
Check main cold isolation valve is not closed
Check Over Fill box fuse spur switch is switched on
Check domestic two port valve is open when Float Switch float is in down position. Raise the float to close valve. White lifter on the side of the valve should move back and forward when opening and closing valve with float.
Check water level in F&E Tank has not activated float switch, if over filled then drain to F&E Tank level indent line
Check blend valve is not blocked at ports
No hot water temperature through hot taps
Check cylinder stat is set to 70C to 80C
Check flow to coil is at temperature
Check bottom immersion heater fused spur are switched on (if used)
Check high limit stat has not tripped inside immersion heater (if used)
Check immersion heater regulating stat is set to 73C (if used)
Check water level inside F&E tank. The water level must always be at indent line to submerge coil heat exchanger with water
Change Blend valve if all above have been checked

Part Codes	
Part	Order Code
3kw Immersion Heater	SHELINK14TRI
Blend Valve	INTABLEND
22mm Honeywell valve	VC4613
1 litre shock arrester	1EXP
Over fill box & PCB	3MOVERFILL
Float Switch	FLOATSWITCH
1/2" Flexy Hose	FLEX15

Tristor Annual Service Maintenance	
1	Check F&E tank Water Level does not exceed fill line
2	Raise Float switch inside F&E tank-hot water should stop running through hot outlets and red led should flash aggressively
3	Check Temperature at hot outlets does not exceed 47c to 51°C
4	Check Shock arrester holds pressure at 3Bar with mains water isolated and hot tap open, refill with air if low in pressure
5	Check Immersion Heater stats are set to 73°C
6	Check 3Bar pressure reducing valve is installed (Not Supplied)
7	Check braided 1/2" filling loop hose is disconnected from F&E tank and 1/2" service valve. Fit blank caps as supplied
8	Fill in the service page once finished (see page 3)

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.

Please ensure that the installer has fully completed the Benchmark Checklist on the inside back pages of the installation instructions supplied with the product and that you have signed it to say that you have received a full and clear explanation of its operation. The installer is legally required to complete a commissioning checklist as a means of complying with the appropriate Building Regulations (England and Wales).

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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 _____

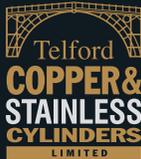
Signature _____

SERVICE 9 Date _____
Engineer Name _____
Company Name _____
Telephone Number _____
Comments _____

Signature _____

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

Signature _____



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