

GTX manual





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1. Presentation

The GTX range of tanks are high performance hot water production systems used to provide fast recovery hot water, the concept is to store less hot water than traditional tanks and recover the tank rapidly using the high output coiled heat exchanger to absorb the boiler power and allowing condensing boilers to operate at peak efficiency during hot water production.

The tanks are made of 316L stainless steel with an insulation of injection moulded polyurethane rigid foam encapsulated in a tough white PVC outer casing.

Each tank is fitted with a control panel with an on/off switch, a changeover switch from boiler to immersion heater, an overheat thermostat and a control thermostat for the immersion. The control panel is pre-wired with a mains cable for the L, N and E and the cable to power the energy shut off valve which exits the insulation near the primary flow connection.

The top of the tank is pre-fitted with a 7 bar P&T valve and has a spare connection that can be fitted with an anti-vacuum valve or our cathodic protection system if the installation requires. The very base of the tank has a connection allowing for the installer to fit our full-bore drain valve for fast flushing and draining of the entire tank volume of water.

2. Range

Model
GTX 150
GTX 200
GTX 300
GTX 500

Capacity Litres
150
200
300
500

3. Technical Specifications

GEMTEX									
Capacity (L)	Exchange Surface (m ²)	Coil Volume (L)	Power (Kw)	Primary Flow ((L/h)	Loss of Load (mWC)	Continuous Production ((L/h)	Heat Loss (w)	Energy Efficiency	Heater (Kw, V)
150 L	0,98	4,33	34	1.460	0,70	835	52	B	3, 230
200 L	1,80	8,02	57	2.400	3,25	1,376	57	B	3, 230
300 L	1,97	8,72	61	2.600	4,00	1,500	88	C	3, 230
500 L	4,47	19,92	100	4.300	7,25	2,460	96	C	6, 400

Temperature of primary circuit: 80°C/60°C

Temperature of secondary circuit 10°C/45°C

Maximum Domestic hot water storage temperature	80°C
Overheat thermostat	90°C
P&T valve	7Bar 90°C
Max service pressure	8Bar

4. Dimensions

STORAGE TANK DIMENSIONS

MODEL	CAPACITY LITRES	EMPTY WEIGHT KG	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
			DIAMETER	HEIGHT	COIL FLOW	DHW SENSOR	COIL RETURN	COLD FEED	DHW CIRCULATION	DRAIN CLEARANCE
GTX 150	150	33	520	1210	700	500	300	300	470	80
GTX 200	200	44	520	1510	930	610	290	290	470	80
GTX 300	300	61	560	1860	930	610	290	290	470	80
GTX 500	500	84	670	1908	1274	794	314	314	494	80

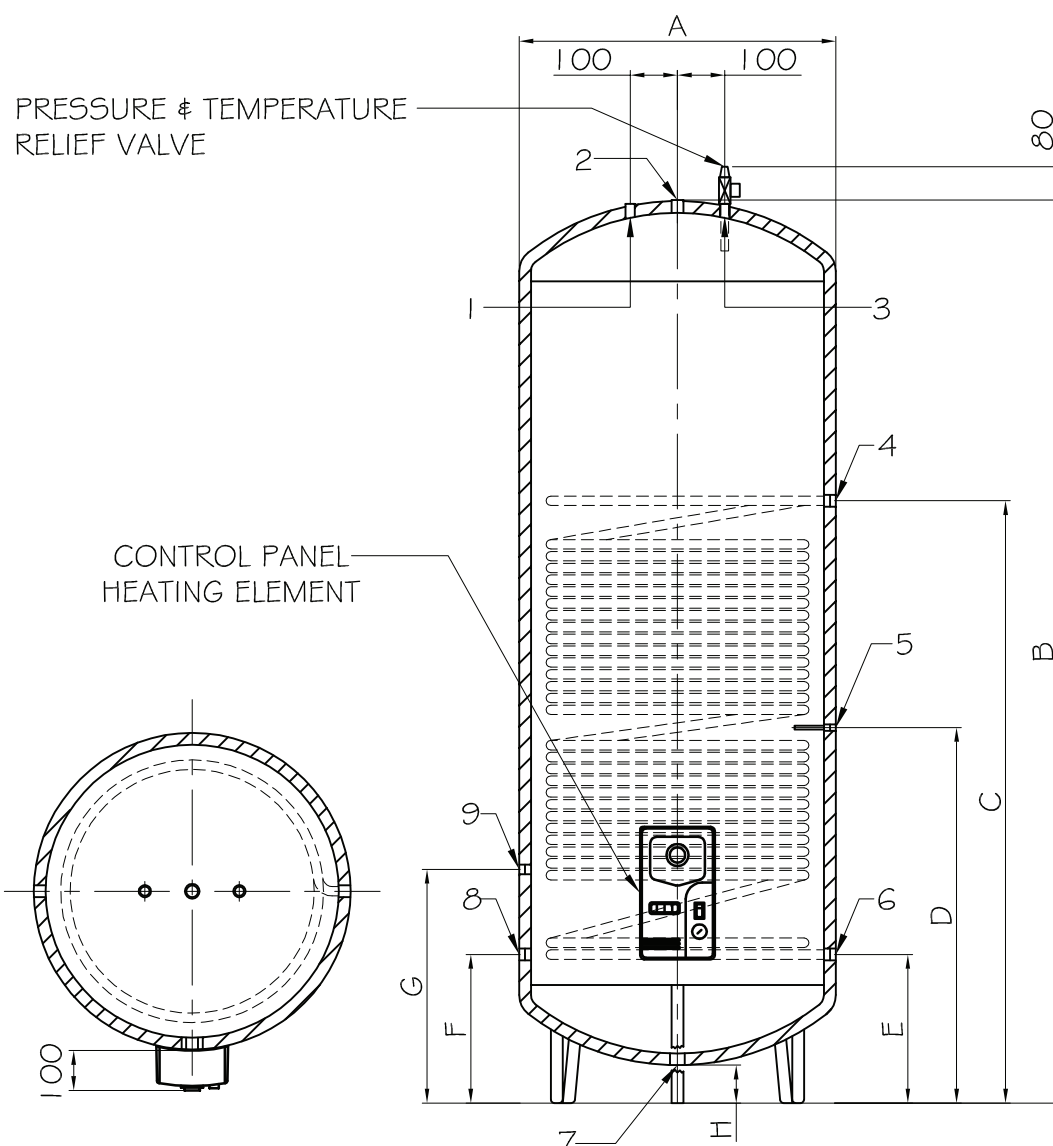
PERFORMANCE

MODEL	EXCHANGER SURFACE m ²	EXCHANGER POWER	COIL VOLUME LITRES	LOSS OF COIL LOAD MCDA	PRIMARY FLOW (L/H)	CONTINUOUS PRODUCTION (L/H)	ENERGY STATIC HEAT LOSS (W)	ENERGY EFFICIENCY RATING	IMMERSION HEATER
GTX 150	0.98	30	4.3	0.5	1290	614	52	B	3kW 230V
GTX 200	1.8	46	7.97	1.6	1978	983	57	B	3kW 230V
GTX 300	1.97	52	8.72	2.3	2236	1106	88	C	3kW 230V
GTX 500	4.47	100	19.8	5.3	4300	2457	96	C	6kW 415V

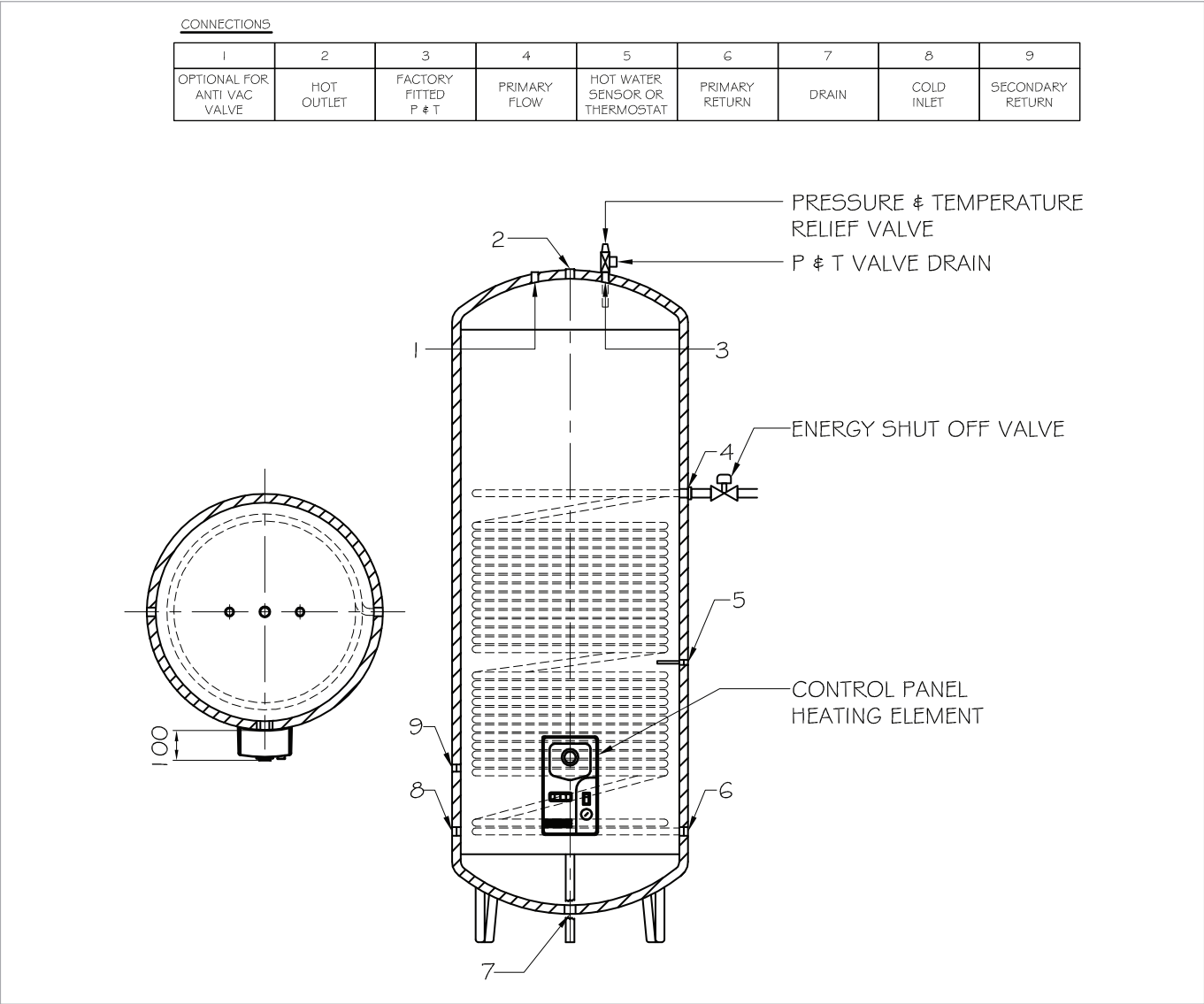
OPERATING CONDITIONS: 65/50°C PRIMARY, 10/45°C SECONDARY

CONNECTIONS

	1	2	3	4	5	6	7	8	9
MODEL	OPTIONAL FOR ANTI VAC VALVE	HOT OUTLET	FACTORY FITTED P & T	PRIMARY FLOW	HOT WATER SENSOR OR THERMOSTAT	PRIMARY RETURN	DRAIN	COLD INLET	SECONDARY RETURN
GTX 150	3/4"	3/4"	3/4"	3/4"	1/2"	3/4"	3/4"	3/4"	3/4"
GTX 200	3/4"	3/4"	3/4"	3/4"	1/2"	3/4"	3/4"	3/4"	3/4"
GTX 300	3/4"	1"	3/4"	1"	1/2"	1"	3/4"	1"	3/4"
GTX 500	3/4"	1"	3/4"	1"	1/2"	1"	3/4"	1"	3/4"



5. Connection Details and Components



6. Installation Instructions

The appliance must be installed and maintained by a qualified certified professional who is approved to install unvented hot water tanks, according to current statutory and industry standards in accordance with G3 Building Regulations.

The tank itself comes ready for electrical and mechanical connections to the installation. However, the unvented kit which is supplied in a separate package must be assembled and connected by the installer.

When required by Building control or local bylaws, a thermostatic mixer must be placed on the domestic hot water supply system to limit the temperature at the drawing point (50°C).

Check that the primary circuit pressure (exchanger) does not exceed 8 bars or the maximum acceptable boiler pressure if this is less than 8 bars.

When the domestic hot water production system has been selected to provide its maximum performance, check that the boiler's flow rate, primary temperature and power are respected according to those of the tank exchanger.

NOTE TO INSTALLER:

Please read this manual fully prior to commencing installation. Leave the manual with the householder after installation of the Gemtex hot water tank.

6. Installation Instructions

Models	GTX 150	GTX 200	GTX 300	GTX 500
Operating Pressure	3.5 bar	3.5 bar	3.5 bar	3.5 bar
Max Water Supply Pressure to unvented kit			12 Bar	
Expansion relief Setting			6 Bar	
Nominal Capacity	150	200	300	500
Pressure and Temperature relief valve			7 Bar/90°C	
Expansion vessel charge pressure			3.5 Bar	
Empty weight	33	44	61	84

Connections				
Cold water inlet	3/4"	3/4"	1"	1"
Hot water outlet	3/4"	3/4"	1"	1"
Secondary return	3/4"	3/4"	3/4"	3/4"
Primary flow from boiler	3/4"	3/4"	1"	1"
Primary return to boiler	3/4"	3/4"	1"	1"
Drain	3/4"	3/4"	3/4"	3/4"
Anti-Vac	3/4"	3/4"	3/4"	3/4"

To avoid damage the unit should be carried into position within its packaging and on its pallet. Once in position or near the final position, the pallet should be removed.

The tank should be installed on a floor designed to take the weight of the tank when full of water. Each litre of water weighs 1 Kg. The actual water content of each tank should be added to the tank weight to obtain the total weight of the tank when full to ascertain if the floor is of suitable construction.

The incoming cold-water supply pipe must be fitted with a stopcock or isolation valve before the cold water unvented kit.

A full bore drain cock/valve must be fitted to the drain connection of the tank.

Water hardness. The water hardness should not exceed the acceptable level, which is 100 mg/l, and 150 mg/l of chlorides (Cl-) If it does then a water softening device should be fitted and our permanent cathodic protection system.

Kit installation

The positioning of the tundish shall be visible to the occupants and shall be positioned away from any electrical devices.

See page 11 drawing number GT-ST-02 for the details of the tundish and discharge position pipe connection details. The relief valve connection should not be altered or used for any other type of connection.

Before connecting the primary pipework, fit the Honeywell safety shut off zone valve to the primary flow inlet of the tank. 150 mm clearance should be left on the top of the tank for access to the connections and P&T valve.

No valve shall be fitted between the tank and the expansion vessel.

No other immersion, other than the GTX immersion supplied by Gemtex should be fitted to the tank.

The GTX range of cylinders is ideally suited for connection to our Gemtex boilers to match the coil ratings. However, connection to non – Gemtex boilers can be carried out if required, if you are not using a hot water sensor you can fit our mechanical thermostat part no S55700-P111 and see Section 14 on page 13 for details.

To flush through the tank after installation, simply open the drain, and flush through the tank to the drain by using the cold feed supply. If the tank has been left for any length of time filled with water, then normal chlorination procedures should be followed in accordance with current regulations.

This tank should only be used with gas or oil boilers or with bio-mass boilers with thermostatic control. It should not be used with solid fuel appliances without regulation.

Please note that if a secondary hot water circuit is used then an additional expansion vessel may be required to consider the additional water volume of this circuit.

In hard water areas you should not exceed 60°C as a store temperature.

6. Installation Instructions

Important Notice

The safety shut off zone valve is an important safety device of the unvented GTX tank and must be installed. Fit the valve to the flow pipework from the boiler adjacent to the tank. The valve is to be controlled via the small core L, N and E wire leaving the control panel of the tank. Drawing number GS-ST-02 page 5 showing how to connect the “Safety shut off zone valve” to the tank installation.

Safety Discharge Pipe from Tundish

See Table below for sizing details of safety discharge pipe from our tundish.

Worked example:

The example below is for a G 1/2 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

Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G 1/2 temperature relief valve is 9.0m.

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

Therefore, the maximum 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 for 4 no. 28mm elbows at 1.0m each = 4m

Therefore, the maximum permitted length equates to: 14m
As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory

Table

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 resistant allowed expressed as a length of straight pipe (i.e. no elbows or bends)	Resistance created by each bend
		22mm	Up to 9m	0.8m
		28mm	Up to 18m	1.0m
		35mm	Up to 27m	1.4m
		28mm	Up to 9m	1.0m
		35mm	Up to 18m	1.4m
		42mm	Up to 27m	1.7m

As an unvented tank it is necessary to fit the “unvented kit” on the cold-water supply. The “Unvented kit” contains a pressure reducing valve, non-return valve, pressure relief valve and optional use balanced cold water connector. Please see section 7 for details of the 22mm kit for the 150 litre. Section 8 for details of the 28mm kit for the 200 and 300 litre tanks and the section 9 for details of the 1 1/4” kit for the 500 litre tanks.

6. Installation Instructions

Function

Pressure reducing valves (PRV) are installed in domestic water systems to reduce and stabilise the inlet pressure from the mains supply, which is generally too high and variable for domestic appliances to function properly.

Description

The unit comprises of two parts, a pressure reducing valve and a manifold containing a check valve, a cold water balancing port and a preset pressure relief valve.

They can be fitted together or as separate units, either horizontally with the spring chamber of the PRV upper most or vertically with the PRV always first in line.

Installation

Carefully follow these instructions and ensure that the installation conforms to the Water Regulations.

Ensure that sufficient water pressure and flow rate are available.

Open fully all taps before installing the unit to flush the system and expel any air remaining in the pipes.

It is recommended that isolating valves are installed upstream and downstream to facilitate any future maintenance.

Install the PRV and manifold with the embossed arrow pointing in the direction of flow.

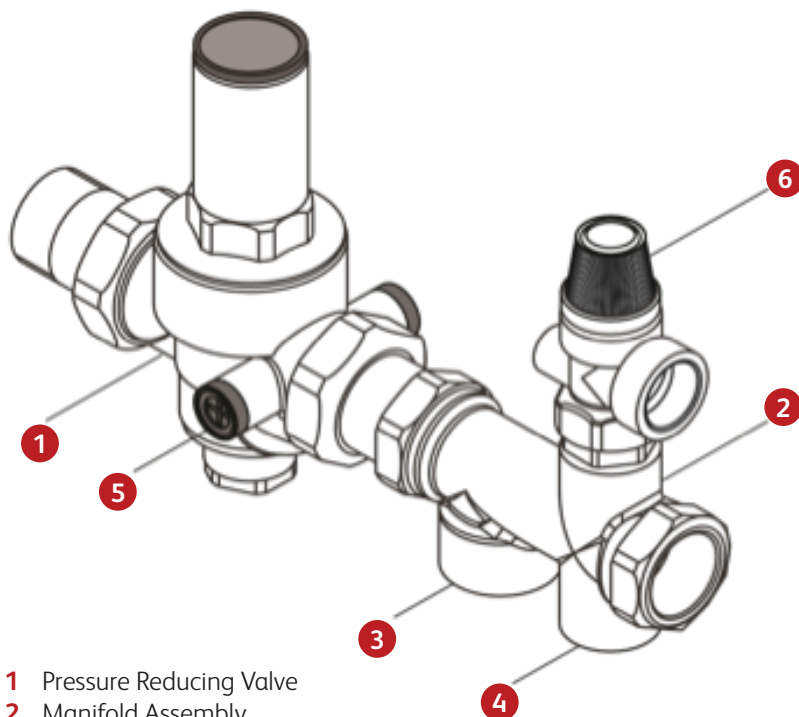
The black plugs are a connection for a pressure gauge, which is available when specified.

Rotate the pressure relief valve to the required position.

Ensure that the pressure relief valve discharge pipework has a continuous fall and terminates in such a position as not to cause injury.

The manifold contains a check valve and may be used as a balanced cold water supply. If not used fit a blanking piece. (Not supplied)

The connection on the manifold is used when an expansion vessel is required or may be used for a drain off. If not used fit a blanking piece. (Not supplied)



- 1 Pressure Reducing Valve
- 2 Manifold Assembly
- 3 22mm Balanced Take Off
- 4 Connection for Vessel
- 5 Gauge – PT Point
- 6 Safety Relief Valve

6. Installation Instructions

Calibration

Close the downstream isolating valve.

Unscrew the cap and using an Allen key adjust the outlet pressure by turning the calibration screw in the centre of the cover.

Rotate it clockwise to increase the outlet pressure and anticlockwise to reduce it.

Maintenance and Servicing

Under normal circumstances the unit should not require any maintenance, but regular inspection and cleaning is recommended.

Isolate the water supply to the pressure reducing valve. Remove the cap and using an Allen key rotate the central calibration screw anticlockwise to decompress the spring.

Note: Caution should be exercised when disassembling the unit.

Remove the cover using a spanner on the hexagon faces.

Extract the cartridge with the aid of long nosed pliers to grip the head of the set screw.

Remove the strainer element.

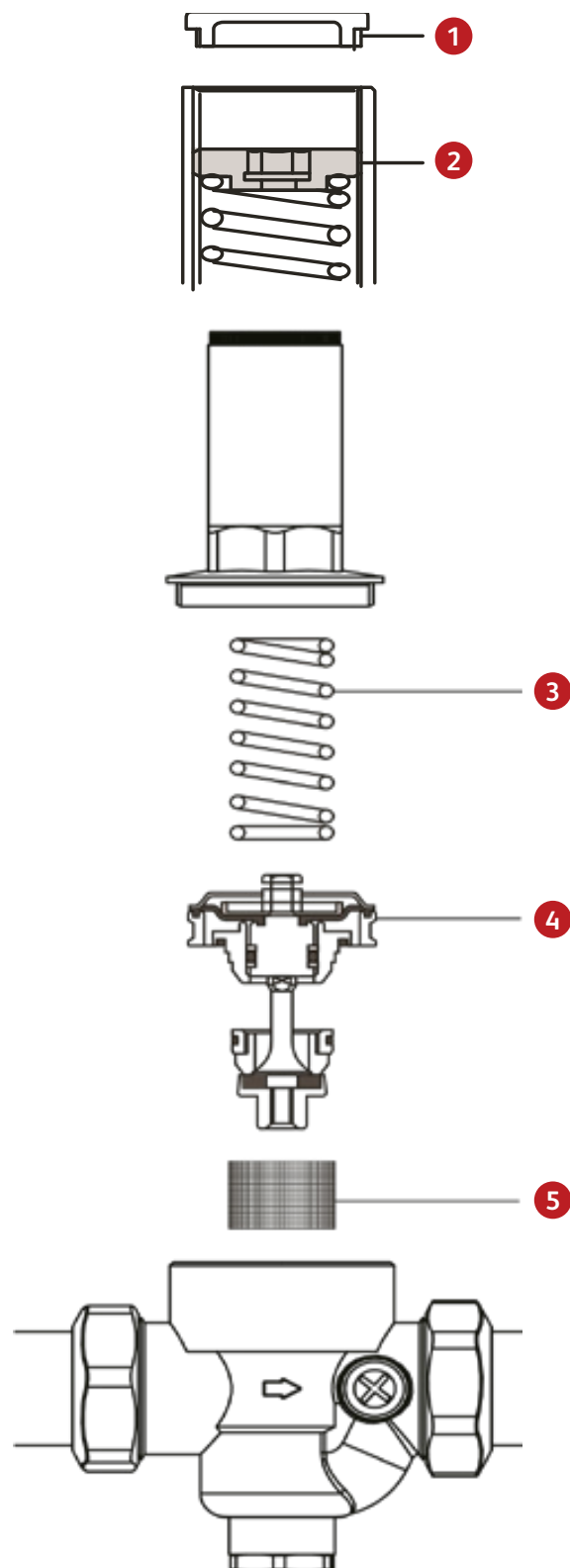
Clean the strainer element and cartridge under clean running water.

If the strainer or cartridge are damaged replace.

Refit the strainer, cartridge and cover.

Turn on the water supply and check for leakage.

Re-calibrate the pressure reducing valve.



- 1 Cap
- 2 Calibration Screw
- 3 Spring
- 4 Cartridge
- 5 Strainer

7. Unvented kit 22mm

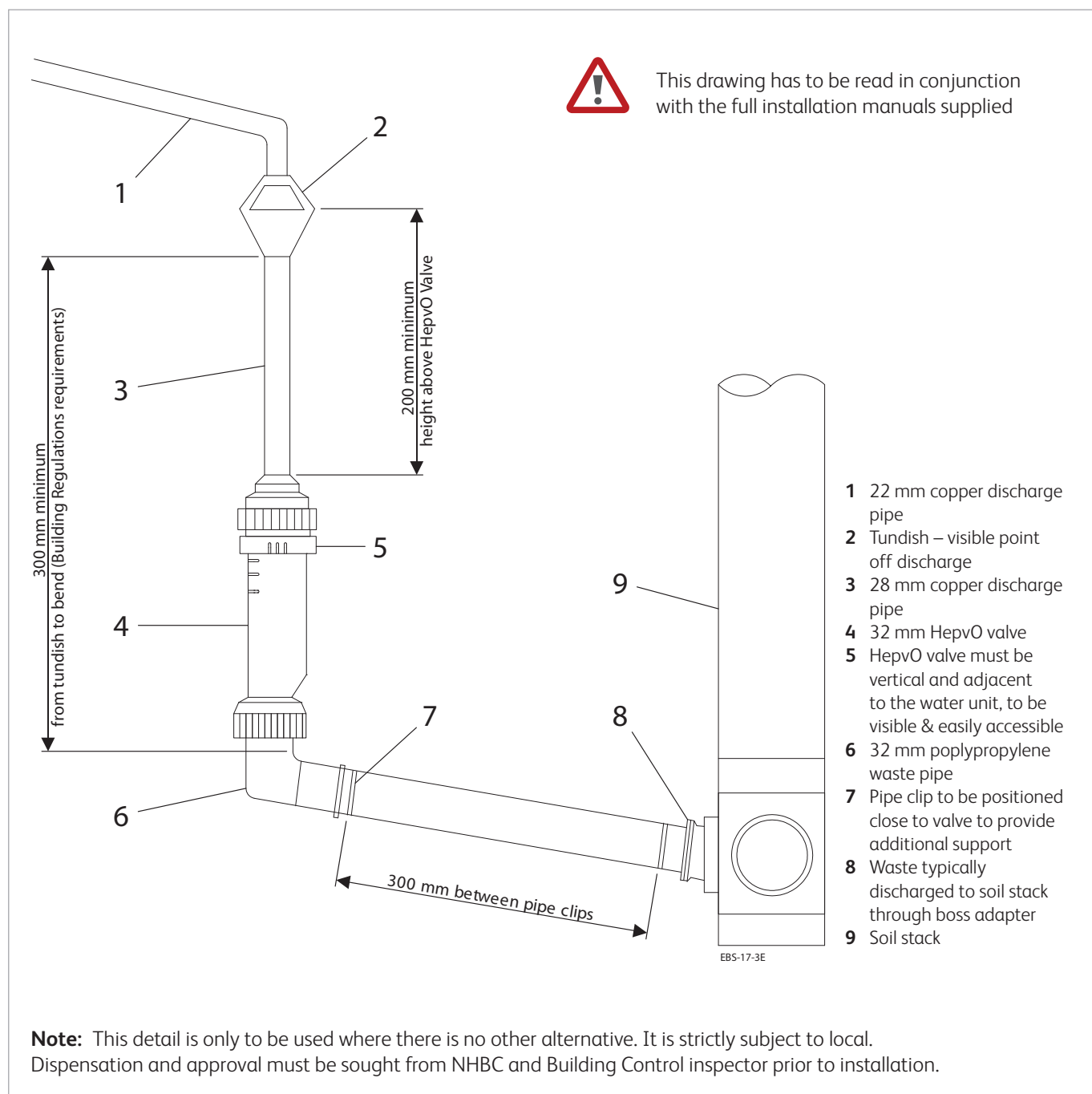


8. Unvented kit 28mm



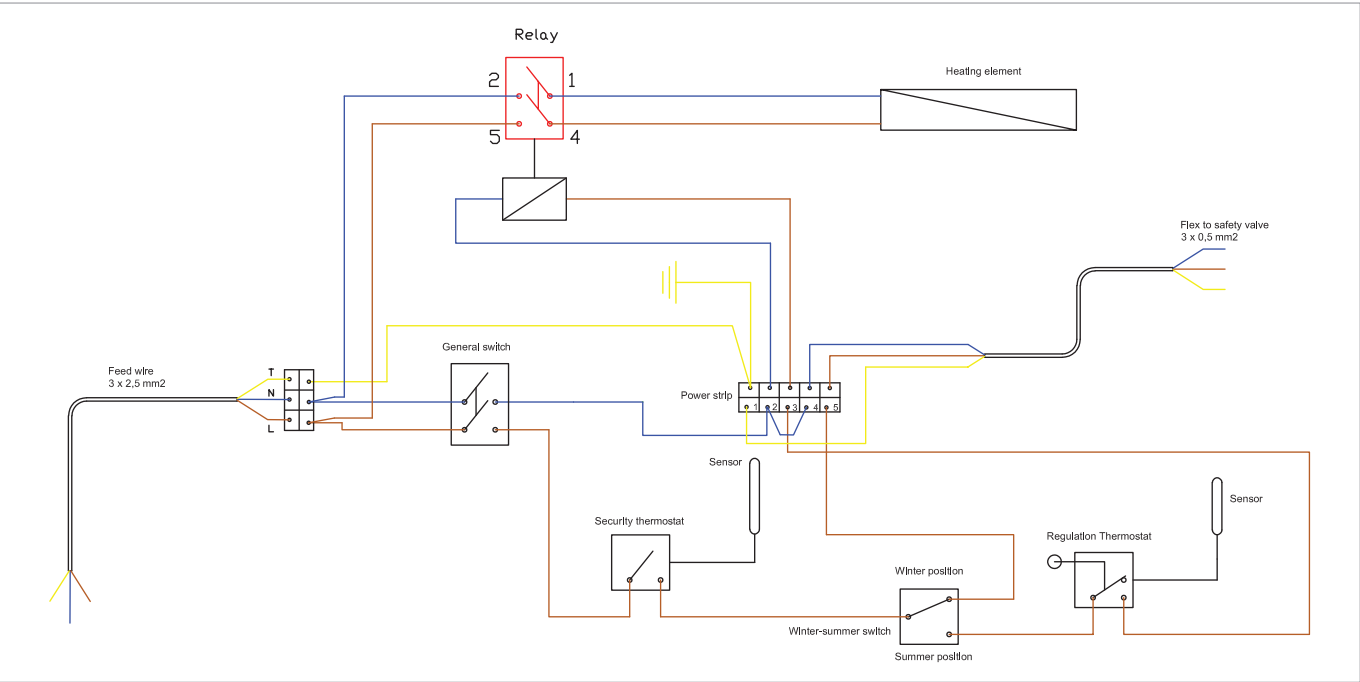
9. Tundish requirements

Please see drawing number GT-ST-02 from section 5 and the alternative drawing below when there is no other option but to use a HepvO trap.



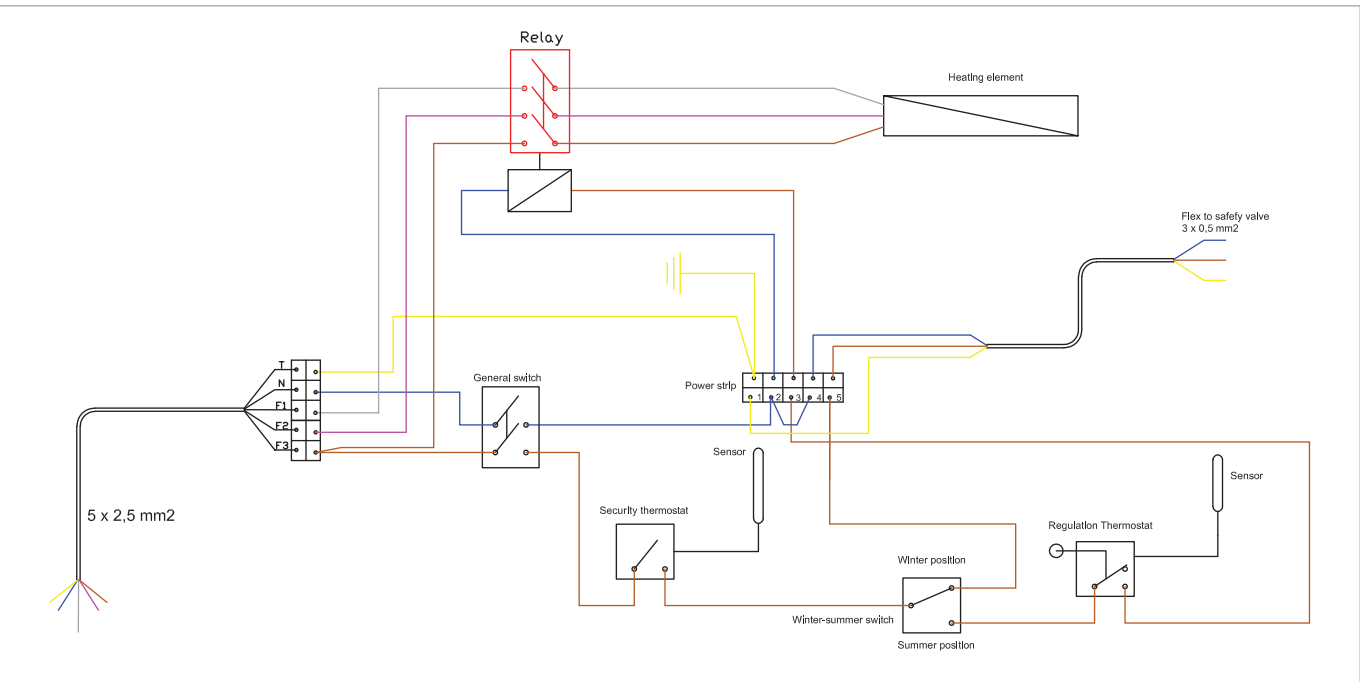
10. Electrical diagram for the GTX 150, 200 and 300

The control panel is pre-wired for the mains power supply for the immersion which is the large core cable and a smaller core cable for the safety shut off zone valve.



11. Electrical diagram for the GTX 500

The control panel is pre-wired for the mains power supply for the immersion which is the large core cable and a smaller core cable for the safety shut off zone valve.



12. Hot water temperature control via boiler with electronic regulation

The sensor pocket item 5 on drawing number GT-ST-01 shown in section 4 on page 4. The sensor pocket is used in conjunction with heat sink compound to get a good heat transfer to the sensor. The screw clamp is used to retain the sensor. Do not overtighten to prevent damage to the sensor.



13. Hot water temperature control with mechanical thermostat

When used with a system that does not have electronic control please use the optional control thermostat specifically designed for mounting on a pocket, Gemtex part no IM-TLSC/542794 and IM-555012, please see photo. This thermostat can then be used to control non Gemtex control systems like a Y plan or S plan system or similar.



14. Commissioning

- Check all pipe connections for tightness. Close drain cock.
- Check pressure(s) in expansion vessel(s) 3.5 bar. Recharge if necessary.
- Fill primary circuits, vent and check for leaks.
- Chock open P&T valve on top of tank (by fitting manual lever).
- Open stopcock and fill tank with water until it freely discharges through the outlet from the P&T valve.
- Remove chock and close P&T valve.
- Test delivery of water from tank by opening and running all taps, both hot and cold water and any other water discharge points (showers etc).
- Check operation of expansion relief valve on Cold Water Supply kit by twisting the manual release lever and discharging water.
- Check all pipework and connections for leaks.

Heating of the tank by the boiler

Move the switch on the tank control panel to boiler. Check that the safety shut off zone valve is opened when power is applied to the control panel and closes when the power is turned off.

Heating of tank from electric immersion heater

Move the switch on the tank control panel from boiler to immersion, the thermostat control knob is used to set the temperature and the actual temperature is shown on the thermometer.

User Information

The installer must train the user on how the appliance works and how to isolate it. In particular, the user must be informed of the role and operation of the safety mechanisms and the need to have the appliance maintained regularly by a qualified professional.

WARNING TO THE USER

Do not remove or adjust any component part of the unvented hot water tank: contact the installer.

If this unvented water heater develops a fault, such as flow of hot water from the discharge pipe, switch the heater off and contact the installer.

15. Maintenance

BEFORE COMMENCING ANY MAINTENANCE WORK, ISOLATE ALL MAINS ELECTRICITY SUPPLIES TO THE SYSTEM

The tank and unvented Kit should be inspected annually.

- Close the cold-water inlet supply isolation valve.
- Open the hot water outlets.
- Drain down hot water system including the tank Use drain cock.
- Check pressure in expansion vessel(s) and recharge to 3.5 Bar, if necessary.
- Remove filter in line strainer. Clean or replace.
- Reassemble. Refill system.
- Check all pipework for leaks.
- Open P&T valve and check that it discharges water and then shuts off.
- Open expansion relief valve and check that it discharges water and then shuts off.
- Check operation of all controls.

16. Parts List

1. 00094 – Safety Thermostat.
2. 00070 – 230v Control Thermostat.
3. 01246 – 415v Control Thermostat.
4. 01119 – Thermometer.
5. 04114 – 230v Control panel assembly complete with wiring and thermostats and control switches.
6. 07007 – 415v Control panel assembly complete with wiring and thermostats and control switches.
7. 03802 – 3kW immersion heater element
8. 06357 – 6kW immersion heater element
9. 309570 – P&T valve
10. V4043H1056/U – 22mm Energy shut off valve
11. V4043H1106/U – 28mm Energy shut off valve
12. PV18W – litre expansion vessel for GTX 150
13. PV25W – litre expansion vessel for GTX 200
14. PV33W – litre expansion vessel for GTX 300
15. PV50W – litre expansion vessel for GTX 500
16. G-133-3008 – 150 litre unvented kit
17. G-133-3009 – 200 litre unvented kit
18. G-133-3010 – 300 litre unvented kit
19. G-133-3011 – 500 litre unvented kit
20. A3115051 – 6 Bar Pressure relief valve for 100 litre tank
21. F0000668 – 6 Bar Pressure relief valve for 200, 300 & 500 litre tank
22. AP-400011 – Tundish 22mm x 28mm
23. IM-TLSC/542794 – Optional mechanical thermostat
24. 02710 – Permanent cathodic corrosion protection system

17. Warranty Terms

- a) The installation of the GTX Tank should be carried out strictly in accordance with this instruction manual and all local Water and Building Regulations, failure to do so will invalidate any warranty.
- b) In accordance with good installation practise, the water hardness should be controlled by either a water softener or water descaling device to ensure the water hardness. The acceptable level of water hardness is 100 mg/l, and 150 mg/l of chlorides (Cl⁻). For higher levels of chlorides, between 150 and 250 mg/l, you must install our anode protection. If you install a water softener you must ensure the PH level does not go lower than 6.5. Any claims for scale related water damage will be rejected.
- c) The tank has a warranty of 10-years and the electrical components are warrantied for 2-years.
- d) For the full details of our terms and conditions please see our website <https://www.gemtex.co.uk/terms-and-conditions/>

Every two years, the following additional maintenance should also be carried out after draining down.

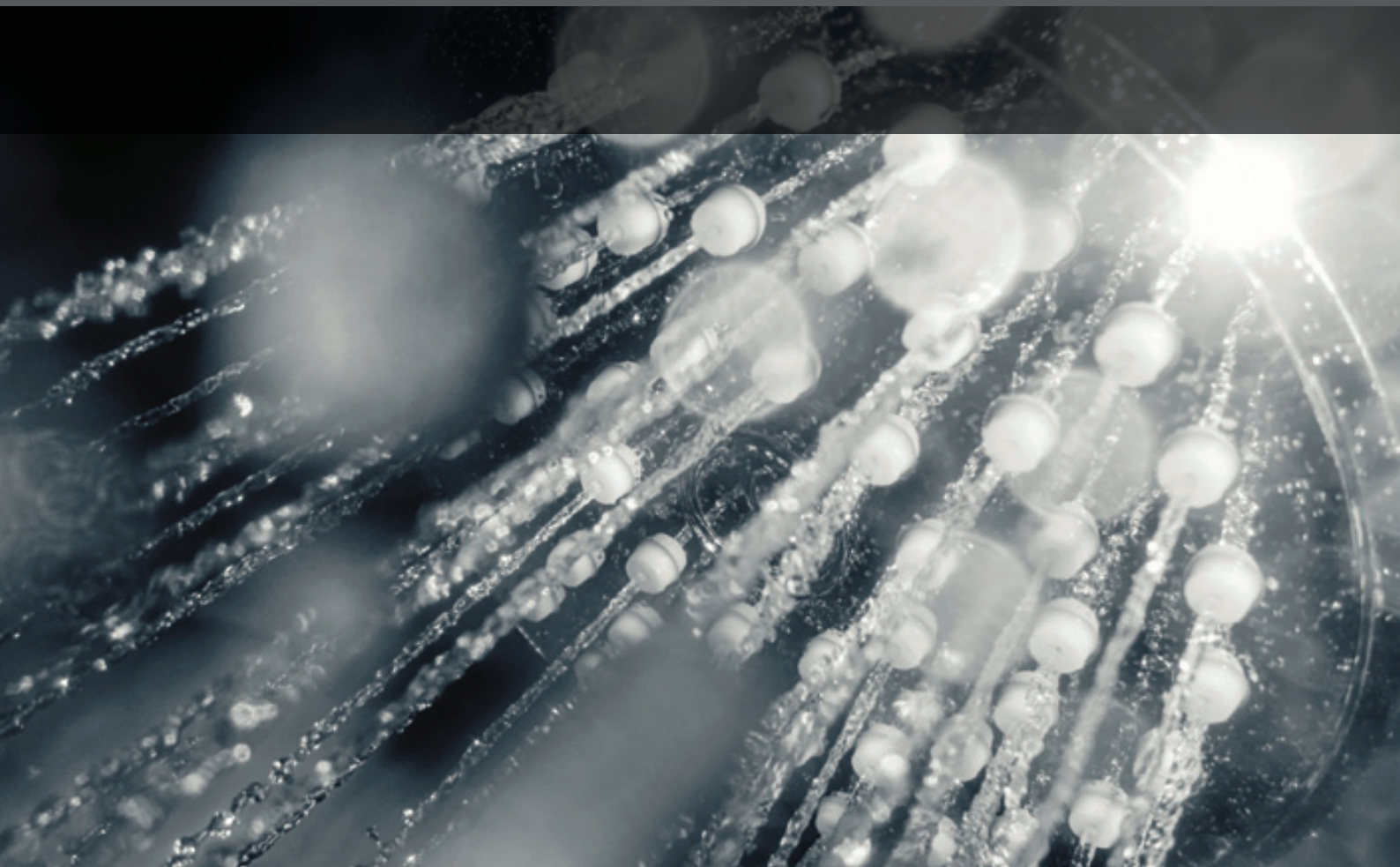
- Remove Electric Immersion Heater cover.
- Disconnect wiring to Immersion Heater.
- Undo immersion heater with a box spanner or the correct size immersion heater spanner.
- Inspect heater elements and de-scale if necessary.
- Inspect interior of tank.
- Re-assemble using a new gasket on the flange.
- Re-connect Immersion Heater wiring.
- Refill system and check for leaks around flange.
- Replace Electric Immersion Heater cover.
- Check operation.



Buffer Tanks & Commercial DHW Tanks

We also provide large commercial hot water tanks in stainless steel and buffers in steel or stainless steel. Please see our website www.gemtex.co.uk and our Gemtex tanks or contact us for details.





info@gemtex.co.uk
www.gemtex.co.uk

Gemtex Heating Solution Ltd

65 Basepoint Business Centre
Aviation Business Park
Enterprise Close
Christchurch
BH23 6NX

Gemtex reserves the right to make changes and improvements which may necessitate alteration to the specification without prior notice. This is not a contractual document.

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