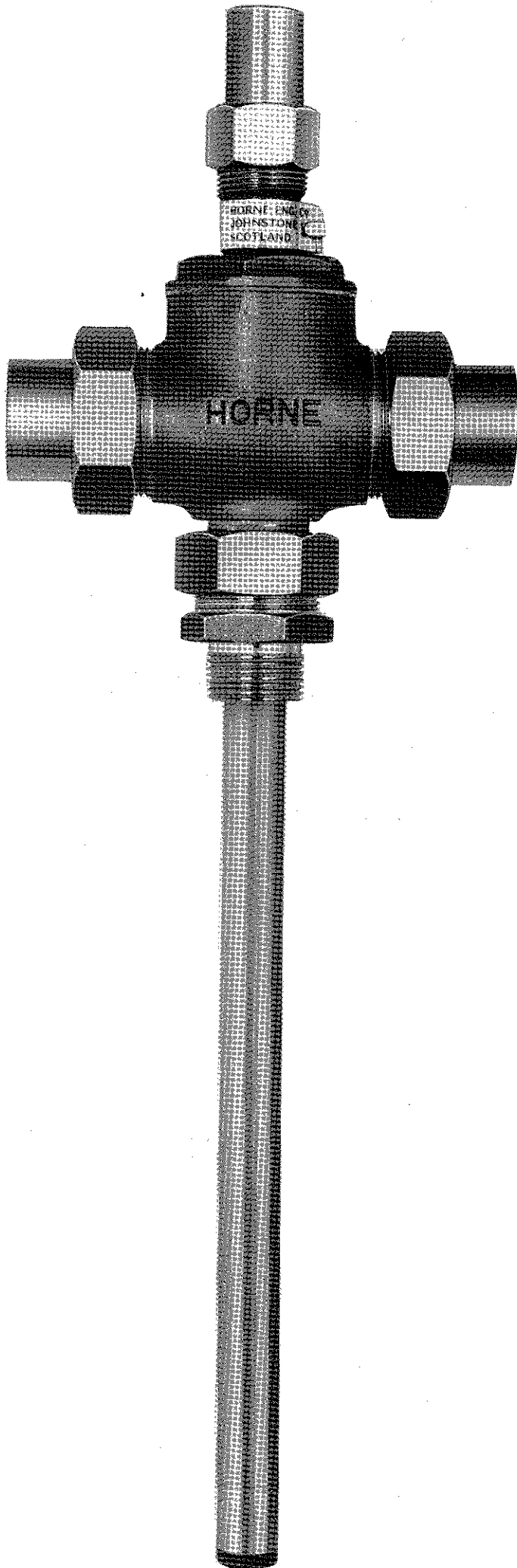


Installation and adjusting instructions



HORNE EAM THERMOSTATIC VALVE

Applications:

Temperature control in heat exchangers for process and space heating.

Heating Medium:

Steam or primary hot water.

Features:

Simplicity, reliability, ease of maintenance, robust construction.

Single seat incorporating P.T.F.E. valve disk of patented design giving pressure tight shut off.

Direct acting requiring no outside power supply. Pipe couplings and patented coupling to the heat exchanger to facilitate installation. Low pressure drop across the valve.

Sizes:

15 mm	20 mm	25 mm	32 mm	40 mm	50 mm
$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"

Pipe Connections:

Screwed or flanged to your requirements.

Horne Thermostatic Valves, Type EA1

Installing the Valve

1. Fit the pipe couplings (17) together with the pipe coupling nuts (18) to the steam or primary hot water pipes.
2. Remove the screwed adaptor (12) from the valve and screw it firmly into the female boss on the tank or heater.
3. Insert the thermostat pocket (9) through the screwed adaptor into the heater. Line up the inlet and outlet with the pipe couplings making sure that the arrow on the valve body is in the correct direction for flow. Screw the heater coupling nut (10) onto the screwed adaptor (12) until hand tight.
4. Screw pipe coupling nuts (18) onto valve body (1) until hand tight.
5. Tighten heater coupling nut (10) onto screwed adaptor (12) until secure.
6. Tighten pipe coupling nuts (18) onto valve body (1) until secure.

NOTE: Always tighten heater coupling nut onto screwed adaptor BEFORE tightening pipe coupling nuts onto valve body.

- (a) For a storage heating system run off sufficient hot liquid from the heater to admit sufficient cold liquid to open the valve.
- (b) For a non-storage heating system shut off the steam or primary hot water to the heater and leave the circulating pump running till cooler liquid enters the heater and opens the valve.

Once the valve is open, the adjusting screw should be turned in a clockwise direction $\frac{1}{4}$ turn and time allowed for the temperature to settle at the new setting. Repeat the process if necessary.

NOTE: Force must not be used when making adjustments to reduce the temperature setting. If force is used at any time on the adjusting screw on a Horne Thermostatic Valve, it is possible to damage the thermostat element.

How it works

The thermostat element contains a material with a high co-efficient of expansion. When the temperature at the element rises expansion takes place and a force is exerted on the thermostat pin. This pin passes through the valve disk and is held in contact with the temperature adjusting screw by the valve opening spring. The force on the pin makes the element and disk move towards the valve seat and the valve begins to throttle the flow of steam or hot water to the heating battery. If the temperature rise round the element is high enough the valve will close giving a tight shut off to the heater.

When the temperature round the element falls contraction takes place and the thermostat pin tends to retract into the element allowing the valve to open.

The temperature adjusting screw governs the distance to be travelled by the element before the valve closes. The greater the distance, the higher will be the temperature at which the valve will control.

Temperature Adjustment

The temperature at which the thermostatic valve will control can be altered by means of the adjusting screw (6).

1. To increase the temperature setting turn the adjusting screw (6) in an anticlockwise direction $\frac{1}{4}$ turn and allow time for the temperature to rise to the new setting. Repeat the process if necessary.
2. To reduce the temperature setting turn the adjusting screw (6) in a clockwise direction if the valve is open. If the valve is closed a reduction in temperature setting cannot be carried out until the valve has been opened by carrying out the following procedure.

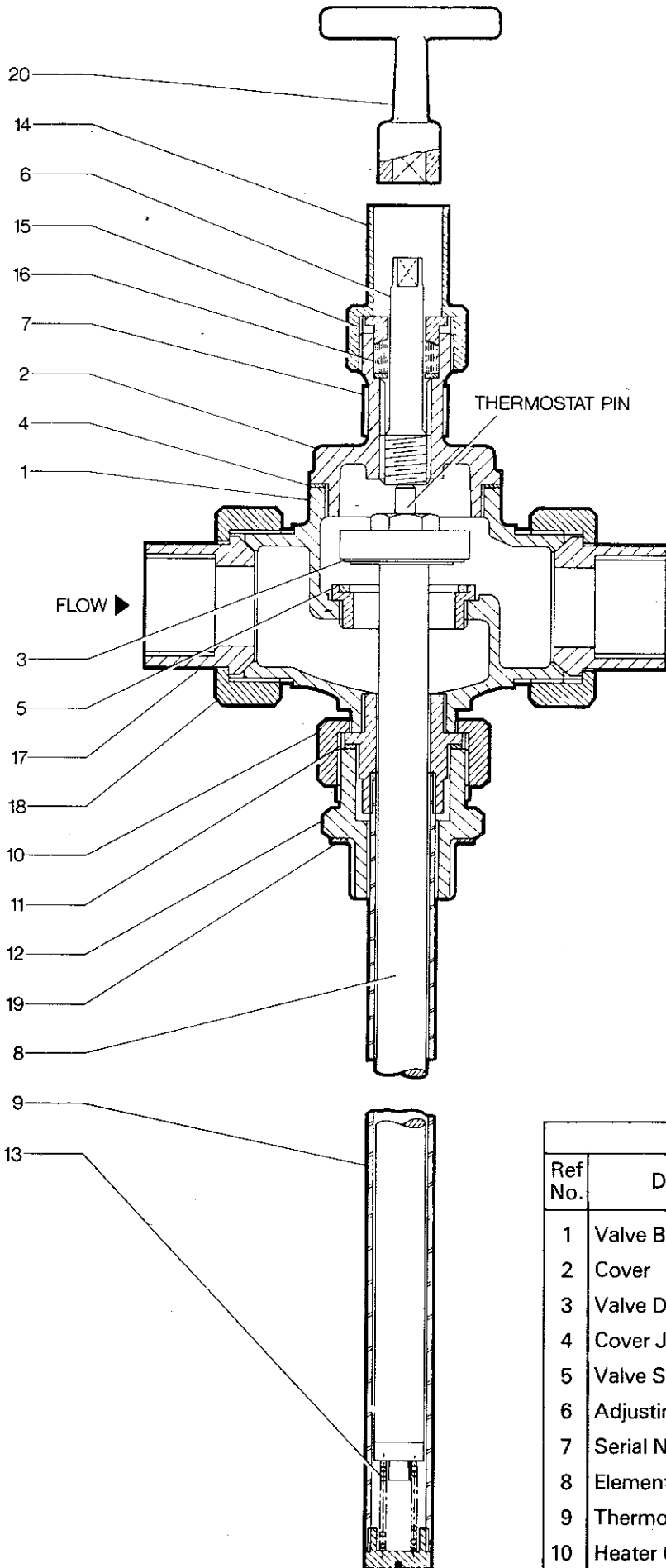
Ordering of spare parts

Each valve has a serial number stamped on a plate (7). The plate is fitted to the cover and can be rotated for ease of reading. If the reference number is quoted in full when ordering spares we can trace all details of the parts required through our records. Normally the only spare part required is the element which includes the valve disk. Occasionally the valve seat may require to be renewed if the valve has been used for some considerable time.

Replacing the Thermostat Element

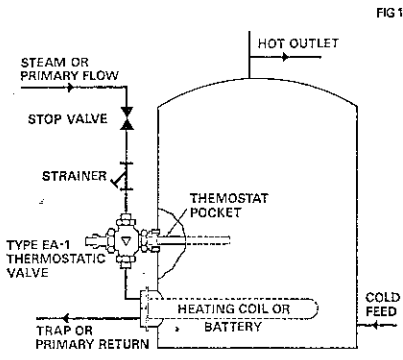
1. The temperature in the heater must be reduced below the temperature at which the Horne Thermostatic Valve will close by drawing off hot liquid from the heater and admitting cold liquid to the heater.
2. Isolate the Horne Thermostatic Valve by means of the stop valve upstream from the thermostat in the case of a steam heating system and by means of the isolating stop valves on either side of the Thermostatic Valve on a hot water system.
3. Unscrew the cover (2).
4. Remove the existing thermostat element (8) and insert the new thermostat element. **Do not grind the valve disk into the valve seat with this type of valve.**
5. Replace the cover (2).
6. Re-open the isolating stop valves and allow steam or hot water to pass through the thermostat to the heater.
7. Adjust for temperature control as described on this leaflet.

EA1 Thermostatic Valve Parts List



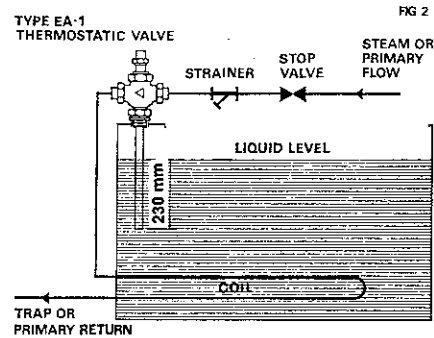
Valve Components			
Ref No.	Description	Ref No.	Description
1	Valve Body	11	Coupling Joint
2	Cover	12	Screwed Adaptor
3	Valve Disk	13	Valve Opening Spring
4	Cover Joint	14	Gland Nut
5	Valve Seat	15	Gland
6	Adjusting Screw	16	Gland Packing
7	Serial No. Plate	17	Pipe Coupling
8	Element Sub. Assembly	18	Pipe Coupling Nut
9	Thermostat Pocket	19	Heater Joint
10	Heater Coupling Nut	20	Temp. Adjusting Key

Typical applications



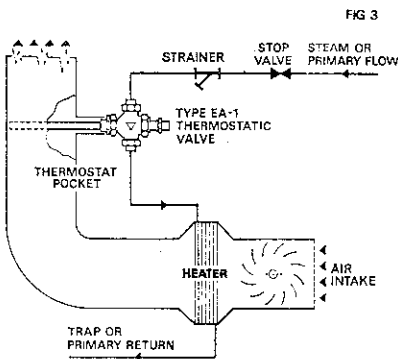
Storage Calorifier or Heater (Fig. 1)

The thermostat pocket must be above the heating coil or battery. It should be kept as low in the heater as possible to obtain maximum storage capacity.



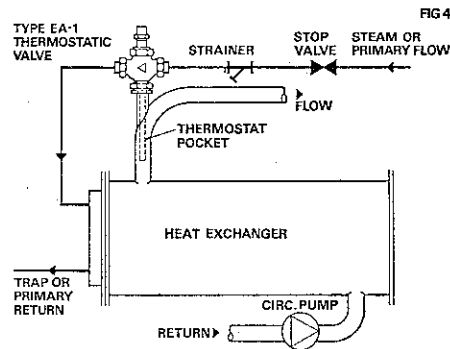
Open Topped Tank or Vat (Fig. 2)

The valve can be fitted vertically into an open topped tank or vat. If the liquid level can vary, the thermostat pocket must be long enough to ensure that, at the lowest liquid level, at least 230 mm of the pocket is immersed in the liquid.



Air Duct (Fig. 3)

The thermostat pocket should be at least 1 metre long. This is to prevent heat from the steam or primary hot water travelling down the thermostat pocket and affecting the element. It is best to fit the valve 2 - 3 metres from the heater battery to ensure that the heated air is thoroughly mixed before reaching the thermostat element.



Non-Storage Calorifier or Heater (Fig. 4)

The thermostat pocket must be fitted as close to the heater shell as possible. The EA1 valve is only suitable in the 15 mm - 1/2" and 20 mm - 3/4" sizes for use on non-storage heaters and pumped circulation through the heater must be maintained at all times.

Standard Specifications

Horne EA1 Thermostatic Valves can be supplied to the following standard specifications:

Specification	Thermostat Pocket	Connection to Heater Adaptor/Flange	Thermostat Element		
			Max. Pressure Differential	Range of Temperature Adjustment	Element Mark Nr.
A All Sizes	Copper	Gunmetal	16 bar 230 p.s.i.g.	45-105°C 110-220°F	STD
B All Sizes	Stainless Steel BS970 Type 316 S16	Iron/Mild Steel			
C 15-25 mm only	Copper	Gunmetal	15 mm } 10 bar 20 mm } 145 p.s.i.g.	25- 75°C 80-167°F 50-100°C 122-212°F	F5 F2
D 15-25 mm only	Stainless Steel BS970 Type 316 S16	Iron/Mild Steel	25 mm } 7 bar 100 p.s.i.g.	75-125°C 167-257°F 100-150°C 212-302°F	F6 F7

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