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ALBION WATER HEATERS LTD

Industrial Products Division

# Unvented Calorifier Installation Guide

INDUSTRIAL PRODUCTS DIVISION

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# INTRODUCTION

Albion's range of Unvented Calorifiers has been engineered to meet a growing demand for pressurized hot water storage. These systems can be fed either direct from the cold mains supply or via a cold storage tank with a booster pump fitted.

The Calorifiers are supplied as either indirect or direct. The indirect is fitted with an internal heat exchanger. This heat exchanger is either a fixed coil or a removable U-Tube bundle type. The direct is heated via electric immersion heater(s) or used as a buffer store unit.

This leaflet contains full details of installation and commissioning instructions. Albion will also be happy to advise on any technical matters. Information regarding these or other Albion products is available direct from the company.

## NOTE TO THE INSTALLER

The Calorifier(s) must be maintained and serviced annually to maintain guarantees. Attached to every Unvented Calorifier is a Benchmark™ logbook to be filled in by the installer and retain by the owner of the system.

# INSTALLATION & COMMISSIONING INSTRUCTIONS

This product was water tested prior to dispatch. Mechanical joints can loosen in transit, please check on installation.

A competent person, in line with current best practice and IEE regulations, must carry out all electrical work. Check wiring links in electrical immersion heaters, loose links may cause thermal cutout.

The mains supply must be sized to suit the demands of the system and be a minimum of 25mm diameter MDPE otherwise performance will be compromised.

NOTE: If a water meter is fitted it must be sized appropriately to prevent flow and pressure restriction.

The schematic drawings (appendix 1 & 2) are for standard installations and connection positions may change (see drawing supplied with acknowledgement of order).

It is essential that the pressure reducing valve/line strainer (supplied loose) is fitted close to the Calorifier, for protection and that it is in free pipe work of approximately 120mm either side and removable for servicing.

The pressure reducing valve has not been factory set and therefore it is essential that the maximum cold fill pressure is not exceeded. Full instructions are supplied with the valve along with the adjusting key and pressure gauge, to enable setting on site.

It is recommended that a full way gate valve is fitted on the inlet side of the pressure reducing valve to facilitate servicing.

# INSTALLATION & COMMISSIONING INSTRUCTIONS

A clean water supply is essential, impurities will affect the operation of the pressure reducing valve, causing fluctuating pressures. It is recommended that a further line filter/strainer is fitted before the pressure reducing valve, especially on new building sites.

The Calorifier is supplied with three mechanical safety devices. An expansion relief valve, a pressure & temperature relief valve, both should discharge into tundishes and an anti-vacuum valve.

Each tundish has to be attached to the Calorifier so that any discharge from the relief valves is clearly visible. The common outlet from the tundish is 28mm* female, intended to receive the discharge tube. The two pipes can be connected into one after the initial 300mm drop.

The responsibility for supplying and fitting the discharge pipe from the tundish is that of the certified installer. In general, installation practice should be in accordance with the approved document G3 of schedule 1 of the building regulations 1991.

*Tundish size is based on ¾" relief valves. If one or both relief valves are larger, then a larger tundish will be required.

# INSTALLATION & COMMISSIONING INSTRUCTIONS

1. To avoid damage to the property and to make the owner of the system aware of the fault, the discharge pipe must discharge water in a visible and safe low-level position.
2. The tundish forming part of the unit is intended to discharge fully in 28mm* o.d. tube.
3. The full size 28mm* o.d. tube from the tundish permits a nominal discharge for all configurations of use. Account should be taken of the actual hydraulic resistance of the discharge pipe and should conform to good design practice.
4. In particular:
   a) A vertical section of discharge pipe at least 300mm long should be included below the tundish before any bends in the pipe work.
   b) The pipes should be laid to a continuous fall and be longer than the equivalent in hydraulic resistance of a straight pipe 9 metres long unless the bore is increased. Bends must be taken into account in the normal manner in calculating the flow resistance.
   c) The ideal discharge point at low level would be above a fixed grating with external gully.
   d) Where a single pipe serves a number of discharges, such as in a block of flats, the number served would be limited to not more than 6 systems, so that any installation discharging can be traced reasonably easily. The common discharge pipe must be sized accordingly.
   e) If in doubt consult the local Building Control Inspectorate.

*Tundish size is based on ¾" relief valves. If one or both relief valves are larger, then a larger tundish will be required.

NOTE: It is NOT acceptable to:

1. Discharge straight into a soil pipe.
2. Discharge into a hopper in locations where visibility of inspection is imposed.
3. Discharge in a location where the water could discharge over persons in or about the building.

***IMPORTANT: Discharge arrangements are the responsibility of the installer and reference to current building regulations should always be made. Albion offers the foregoing as guidelines only.***

*Tundish size is based on ¾" relief valves. If one or both relief valves are larger, then a larger tundish will be required.

The expansion vessel has been factory set to suit the cold supply pressure requirements, but this should be checked and re-set if necessary upon installation.

## SPECIAL REQUIREMENTS FOR ALL INDIRECT INSTALLATIONS

A two-port valve must be fitted in such a way as to isolate the Calorifier in case of runaway temperature of the primary water (e.g. in case of boiler thermostat failure). Typically this would be in the primary flow pipe into the cylinder.

This valve should be wired up in accordance with the manufacturer's instructions via the cylinder thermostat.

All indirect Calorifiers should be fitted with a probe thermostat to form part of this protection.

## SPECIAL REQUIREMENTS FOR ALL DIRECT INSTALLATIONS

All immersion heaters must be controlled by a control and manual re-set thermostat.

# ANNUAL SERVICE MAINTENANCE

## EXCESS PRESSURE INTO THE UNIT

Occasionally contaminants in the water supply can cause fluctuating pressures. The pressure reducing valve is fitted with a strainer and this should be checked. If the pressure on the valve outlet is higher than the required pressure, the valve should be recalibrated (see metal label on Calorifier for pressure rating) to the required pressure.

## EXCESS TEMPERATURE

Check that the temperature is set correctly on immersion heaters or control thermostats. A thermostat setting of 55°c is usually adequate to delivery of hot water at 60°c - 65°c.

## BACK PRESSURE

Certain mixing taps can cause backpressure in the hot water secondary system. Always take the cold feed for terminal fittings down line of the pressure reducing valve or install a separate pressure reducing valve in the cold feed system to balance the pressures. Ensure that the hot and cold water pipes are independent up to the point of connection to the mixer valve.

# INSTALLATION REQUIREMENTS

## INSTALLATION

Regulation G3 requires an unvented hot water storage system that has a capacity to store water in excess of 15 litres up to a capacity of 500 litres, to be installed by a person competent to do so.

## COMPETENT PERSON

It will be for you to demonstrate to the local authority building control officer or approved inspector, that you are competent to install unvented hot water systems. A way of demonstrating this is to hold a current Registered Operative Identity Card for the installation of unvented domestic hot water storage systems issued by:

a) The Construction Industry Training Board (CITB) or
b) The Institute of Plumbing; or
c) The Association of Installers of Unvented Hot Water Systems (Scotland and Northern Ireland); or
d) Individuals who are designated Registered Operatives and employed by companies included on the list of Approved Installers published by the British Board of Agrement up to 31 December 1991; or
e) An equivalent body e.g. a similar body within another member state of the European Economic Community.

NOTE: Please refer to manufacturer's instructions when fitting supplied components.