

Accolade

Including Accolade Plus

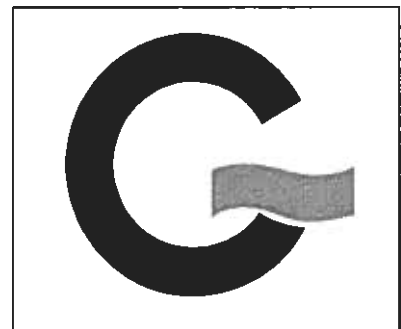
**An Unvented Mains Pressure
Cylinder**

Design, Installation and Servicing Instructions

TESTED BY THE WRC EVALUATION AND
TESTING CENTRE, A NAMAS TESTING
LABORATORY No. 0626, AND FOUND TO
COMPLY WITH THE BUILDING REGULATIONS.

PLEASE LEAVE THESE INSTRUCTIONS
ADJACENT TO THE APPLIANCE.

In the interest of continuously improving the Accolade range, Gledhill Water Storage Ltd reserve the right to modify the product without notice, and in these circumstances this booklet, which is accurate at the time of printing, should be disregarded.



Gledhill Water Storage Ltd

GLEDHILL ACCOLADE SPECIFICATION

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These instructions are a guide to the Design, Installation and Servicing and should be read in conjunction with the Installation / Servicing Instructions issued by the manufacturer of the heat source being used, and should be carried out by qualified Plumbing and Electrical Installers in accordance with recognised practice. A copy of these instructions should be left with the unit.

**PLEASE READ ALL THESE INSTRUCTIONS
BEFORE COMMENCING INSTALLATION**

GENERAL DATA

MANUFACTURER: GLEDHILL WATER STORAGE LTD.

Maximum inlet pressure to Pressure Reducing Valve 6 bar
 Operating pressure (PRV setting): 1.5 bar
 Expansion Relief Valve setting 3 bar
 Maximum primary working pressure: 7 bar
 Opening pressure of T&P Relief Valve: 4 bar
 Opening temp. of T&P Relief Valve: 90°C
 Energy cut-out thermostat setting 95°C
 Immersion heater: Redring Type GU 11 TC
 Rating: 3kW, 240V AC

Drain tap will empty 100% of contents.

All cylinders are manufactured in accordance with the requirements of BS7206 : 1990

The tundish must be positioned so that it is visible to the occupant and is away from electrical devices.

COMPONENTS SUPPLIED WITH ACCOLADE:-

Expansion relief / PRV combination valve.
 Temperature & Pressure Relief Valve.
 Control thermostat.
 Energy cut-out thermostat.
 Energy cut-out motorised valve.
 Tundish
 Immersion heater.
 (Note: Two immersion heaters are supplied with the direct ACCOLADE).

In any situation where the volume of heated pipework (e.g. secondary circulation pipes or manifold pipework for multiple units) exceeds 10 litres, then an expansion vessel must be fitted to accommodate the extra expansion volume.

TECHNICAL DATA

For Plus SP models add 120mm to height

HANDLING BEFORE INSTALLATION

ACCOLADE must be handled with care and stored the correct way up in a dry place.

MAINTENANCE

Modifications should not be made to this product. Replacement parts, including immersion heaters, should be purchased from Gledhill Water Storage, or agents approved by them.

Unvented hot water storage vessels need regular routine checks, and these are detailed below. It is for this reason that this manual must always be left attached to the ACCOLADE.

It is recommended that these checks be carried out at the time of boiler maintenance by a qualified installer:

1. Manually open the relief valves in turn, and check that water is discharged from the valves and runs freely through the tundish and out at the discharge point. Ensure that the valves re-seat satisfactorily.
2. Turn the mains water off and hold open the P&T relief valve until water stops discharging through the tundish, this will depressurise the system. Leave the mains water turned OFF and remove and clean the strainer element in the Pressure Reducing Valve.
3. Check the charge pressure in the expansion vessel (if one is fitted).
4. Re-fill the system and ensure that all relief valves have re-seated.

						INDIRECT		DIRECT (D)	
MODEL	CAPACITY (Litres)	WEIGHT (kg)	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)	TIME 1 (mins)	TIME 2 (mins)	TIME 3 (mins)	TIME 4 (mins)
A 100	100	135	1070	680	420	21	17	73	52
A 120 or A 120D	120	165	1240	680	420	22	18	89	63
A 144 or A 144D	144	190	1424	680	420	22	18	105	75
A 175	175	240	1707	680	420	22	18	112	92
A 210 or A 210D	210	290	1990	680	420	24	20	135	110

TIMES 1 and 3 are 15 to 65°C measured at the top of the cylinder.
 TIME 2 and 4 is recovery time after 70% of the contents have been drawn off

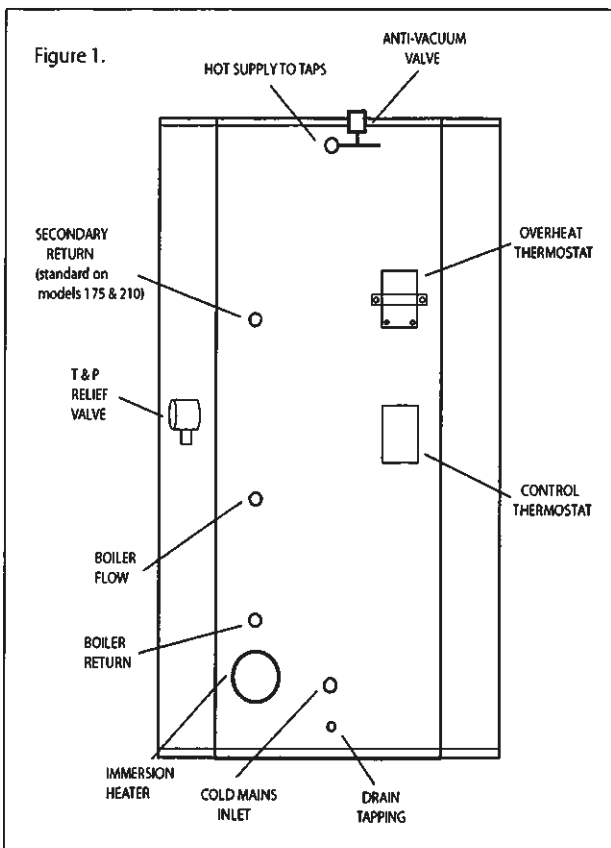
SECTION 1

The Building Regulations 1992 cover the installation of unvented storage water heating equipment in England and Wales. They decree that installation of an unvented unit shall only be carried out by a person competent to do so as defined in the APPROVED DOCUMENT.

The Local Authority must be notified of the intention to carry out the work by submitting a Building Notice or by depositing plans.

The system must also be installed in accordance with the Local Water Bye-laws.

ACCOLADE is sold subject to our Conditions of Sale which are set out at the rear of this Specification. Responsibility for selection and specification of our equipment must remain that of our customer and any experts or consultants concerned with the installation and we do not therefore accept any responsibility for matters of design selection or specification, or for the effectiveness of an installation containing one of our products.



INTRODUCTION

The ACCOLADE system comprises of a unique twin cylinder designed to give extra strength in a slimline package and is complete with all the necessary safety and control devices needed to allow connection to the cold water mains. All components are correct for purpose and are either factory assembled or are supplied with the unit.

1.2 COLD WATER SERVICE

We supply a combination valve incorporating a Pressure Reducing Valve, Strainer and Expansion Valve separately for installation on site, which will ensure that the cold supply to the system does not exceed 1.5 bar irrespective of normal supply pressure. The supply to the cylinder is via a check valve and the incoming cold water traps a self replenishing pocket of air inside the unit so that expansion on heating is accommodated within the ACCOLADE.

1.3 HOT WATER SERVICE

DIRECT ACCOLADE units are fitted with 3kW immersion heaters which incorporate a manually re-settable thermal cut-out as well as the usual adjustable thermostat. INDIRECT units have a high efficiency coil in one tube of the twin tube unit to ensure an extremely fast recovery. An energy cut-out motorised valve is supplied separately for fitting to the ACCOLADE body and this will stop circulation to the heat exchanger in the event of a boiler control failure. When ACCOLADE is used with a sealed heating system, the boiler must incorporate its own energy cut-out. A factory fitted thermostat will maintain stored water temperature as required.

1.4 TEMPERATURE/PRESSURE RELIEF

A Temperature and Pressure Relief Valve is fitted in the cylinder body and will operate at either 90°C 4 Bar pressure should fault conditions occur. The outlet from the valve must be connected to a tundish to give the householder visible warning.

1.5 GENERAL FEATURES

The twin tank configuration is important in ensuring more usable water because the pipework is arranged so that gravity circulation takes place constantly around two tubes. In a single tube cylinder some 15 % of the contents, which are below the heat exchanger, remain unheated, and therefore at an unusable temperature. The twin tube design ACCOLADE overcomes this problem and

therefore significantly reduces the risk of legionella. Drain down is effected from the very bottom of both tubes.

SYSTEM DESIGN

SECTION 2

2.1 GENERAL DESIGN CONSIDERATIONS

The minimum cupboard width to accommodate the ACCOLADE is 720mm with a minimum gap of 30mm on the left side to facilitate the removal of Pressure/Temperature Relief Valves.

The base chosen for the cylinder should be level and capable of supporting the weight of the unit when full of water as shown in GENERAL DATA. The discharge pipework for the safety valves must have a minimum fall of 1 : 200 from the unit to a safe discharge point as outlined in Section 7. All exposed pipework should be insulated and the unit should NOT be fixed in a location where the contents could freeze.

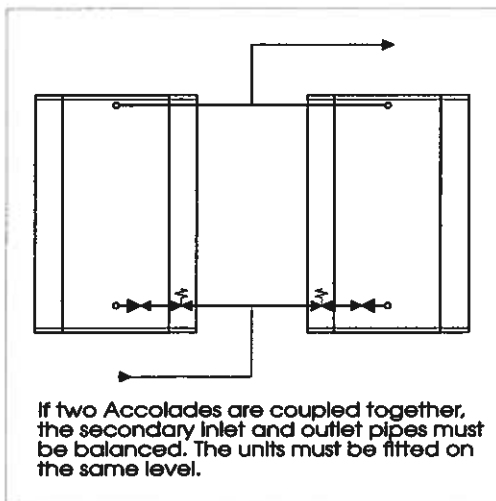
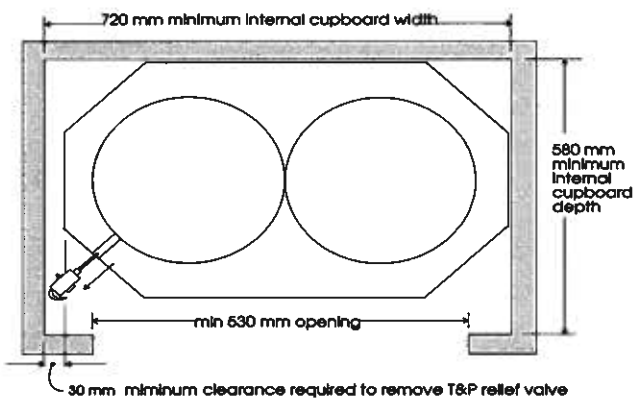
WHEN USING AN ACCOLADE PLUS (SP) COMPLY WITH THE FOLLOWING:

The pipe connecting the boiler flow to the appliance must not be less than 22mm copper or equivalent.

There should be no valves or other equipment in the pipe connecting the boiler flow to the appliance.

If the length of pipe connecting the boiler flow to the appliance exceeds 6m, then you should consult our technical department.

CUPBOARD SIZE



Model	SELECTION GUIDE (Indirect Patterns)
A100	2/3 bedroom house with 1 bathroom or shower
A120	2/3 bedroom house with 1 bathroom and 1 shower en suite.
A144	2/3/4 bedroom house with 1 bathroom and 1/2 showers en suite.
A175	3/4 bedroom house with 1 bathroom and up to 3 showers en suite or 2 bathrooms and 2 showers en suite.
A210	3/5 bedroom house with 2 bathrooms and up to 3 showers en suite.
OFF PEAK ELECTRIC MODELS	
A120D A144D A210D	Consult electricity plc's

2.2 MAINS WATER SUPPLY

Existing properties with a ½ inch supply will be satisfactory provided the local mains pressure is good, but should be confined to single bathroom properties.

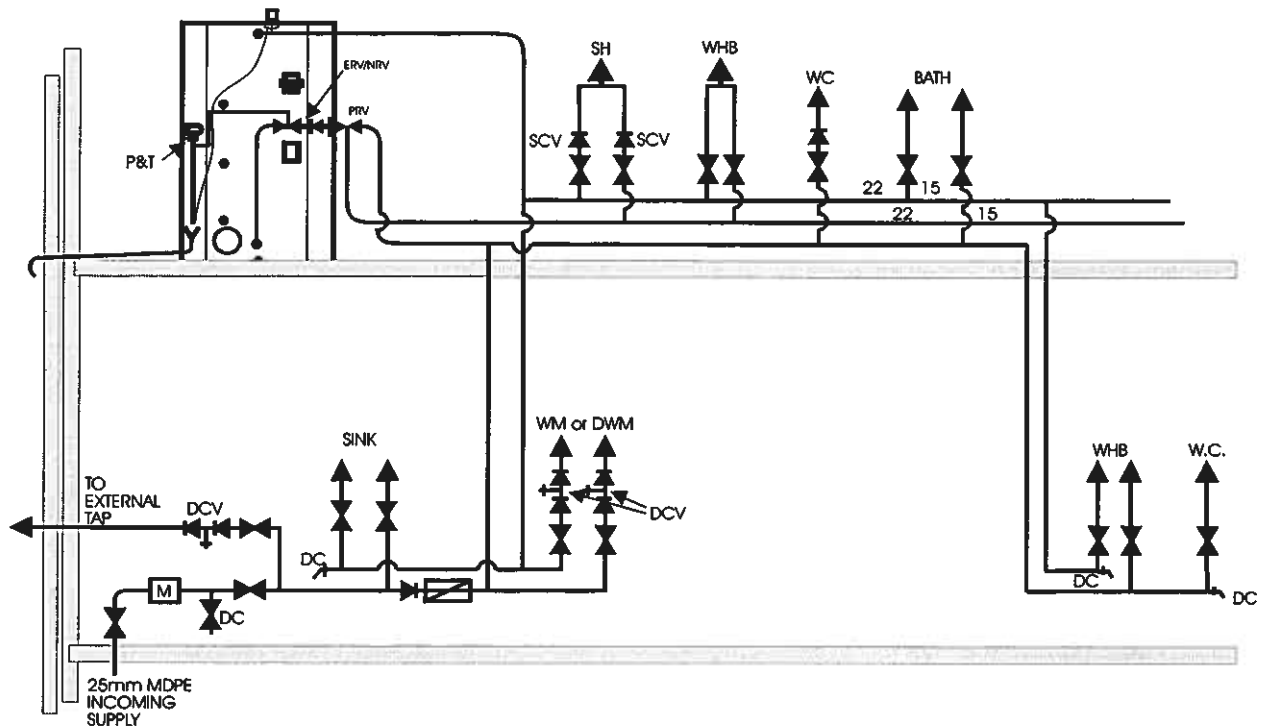
For new properties where simultaneous demand is required to more than one bathroom or a bathroom and one or more en-suites, the communication and service pipe into the dwelling should be a minimum of ¾ inch, (19mm usually in the form of a 25mm MDPE supply). The minimum recommended static pressure to operate an ACCOLADE domestic system is 2 BAR. There should be a flow of at least 25 litres per minute or above available into the property.

Normally Accolade provides well in excess of 30 litres /min in most conditions. Flow rates for ALL mains pressure systems are subject to district pressures and system dynamic loss.

2.3 GENERAL RESTRICTIONS

- The highest hot or cold water draw off point should not exceed 4 metres above the Pressure Reducing Valve.
- An ascending spray type bidet or any other appliance with a Class 1 back-syphonage risk requiring a Type A air gap should not be used.
- ACCOLADE should not be used where steam is the primary heating medium, or in a situation where maintenance is likely to be neglected.
- Unvented cylinders are not suitable for use with solid fuel boilers.
- Unless a double (dual) outlet mixer fitting is used all cold water connections to mixer fittings must be taken from the balanced cold outlet provided on the combination PRV supplied with the appliance. (or a separate PRV set to 1.5 bar.)
- In larger properties with a number of bathrooms/ en-suites and long pipe runs we would recommend that the balance cold supply is provided with its own pressure reducing valve and is not taken from the balanced cold connection on the combination valve. In this case it will also be necessary to fit a small expansion vessel on the balanced cold water system to accommodate the pressure rise caused by the increase in temperature of the balanced cold water.

TYPICAL PLUMBING LAYOUT



Note:

- Cold supplies to single taps taken from the mains cold water system.
- Cold supplies to mixer taps to be taken from the balanced cold water connection on the combination valve.

2.4 SHOWER FITTINGS

Any type of shower mixing valve can be used as long as both the hot and cold supplies are mains fed. However **PRESSURE COMPENSATING** shower mixing valves are proven to give better control when more than one fitting are open simultaneously and are therefore **STRONGLY RECOMMENDED**.

Thermostatic versions are preferable.

2.5 PIPE LAYOUT

In all mains pressure installations it is important to remember that the incoming cold supply must be shared between all terminal fittings. It is important that a 22mm supply is brought to the appliance and a 22mm take-off is continued at least to the bath. If there are two baths, 28mm pipework should be considered. Smaller pipework, or the use of flow restrictors, should be considered for other outlets so as to balance the water available. In any event the distribution pipework should be generally in accordance with BS6700.

2.6 PLASTIC PIPEWORK

This appliance is suitable for use with plastic pipework as long as the material is recommended for the purpose by the manufacturer and is installed fully in accordance with their recommendations.

We recommend the use of barrier pipe, which will also ensure the system can have BritishGas service cover if required.

2.7 SECONDARY HOT WATER CIRCULATION

Models A175 and A210 are fitted with a secondary return tapping as standard. This tapping may also be fitted on other models on request. If fitted, an extra expansion vessel may be necessary. A non-return valve **MUST BE FITTED** near the return connection. No valve or terminal fitting should be installed between the non return valve and the cylinder.

2.8 PRESSURE & TEMPERATURE RELIEF PIPEWORK

The safety relief valves should be installed to discharge in accordance with G3 of the Approved Document of the Building Regulations and should be piped to where it is visible, but will not cause danger to persons or damage to materials.

The discharge pipework should be of metal and from the tundish should fall vertically for at least 300mm, and then continue by continuous fall to a visible safe termination. The discharge termination point should be below a fixed grating and above the water seal of a trapped gully or other permissible terminations as in the Approved Document.

Discharges should be visible at the tundish and the termination.

FITTINGS / DESCRIPTION / USE

SECTION 3

3.1 SAFETY

The safety devices supplied or fitted on an ACCOLADE are selected for their suitability for the temperatures and pressures involved. They must not be changed or removed and it is essential that replacements must be supplied or approved by Gledhill Water Storage Limited. This includes the immersion heaters, which must incorporate energy cut-out, and are available to approved installers from: Gledhill Water Storage Limited, Sycamore Trading Estate, Squires Gate Lane, Blackpool (Telephone 01253 474444).

A) COMBINATION VALVE--- COMBINES ELEMENTS

1), 2) and 3) below:-

1) Pressure Reducing Valve

This must be fixed near the cylinder. The cold water supply terminal fittings in the property should be taken from the cold water tapping of this valve to ensure balanced hot and cold pressures. This valve is factory set to ensure the correct operating pressure for the ACCOLADE.

2) Non Return Valve

This is integral with the pressure reducing valve to prevent backflow of hot water towards cold water draw off points.

3) Cold water Expansion Relief Valve

This safety device is preset at the factory and is to relieve excess cold water pressure resulting from a fault condition.

B) TEMPERATURE/PRESSURE RELIEF VALVE

This safety device is also pre-set at the factory and relieves before the temperature reaches 100°C and admits cold water to the cylinder. It is also a Pressure Relief Valve, and is pre-set to 4 bar.

C) IMMERSION HEATERS

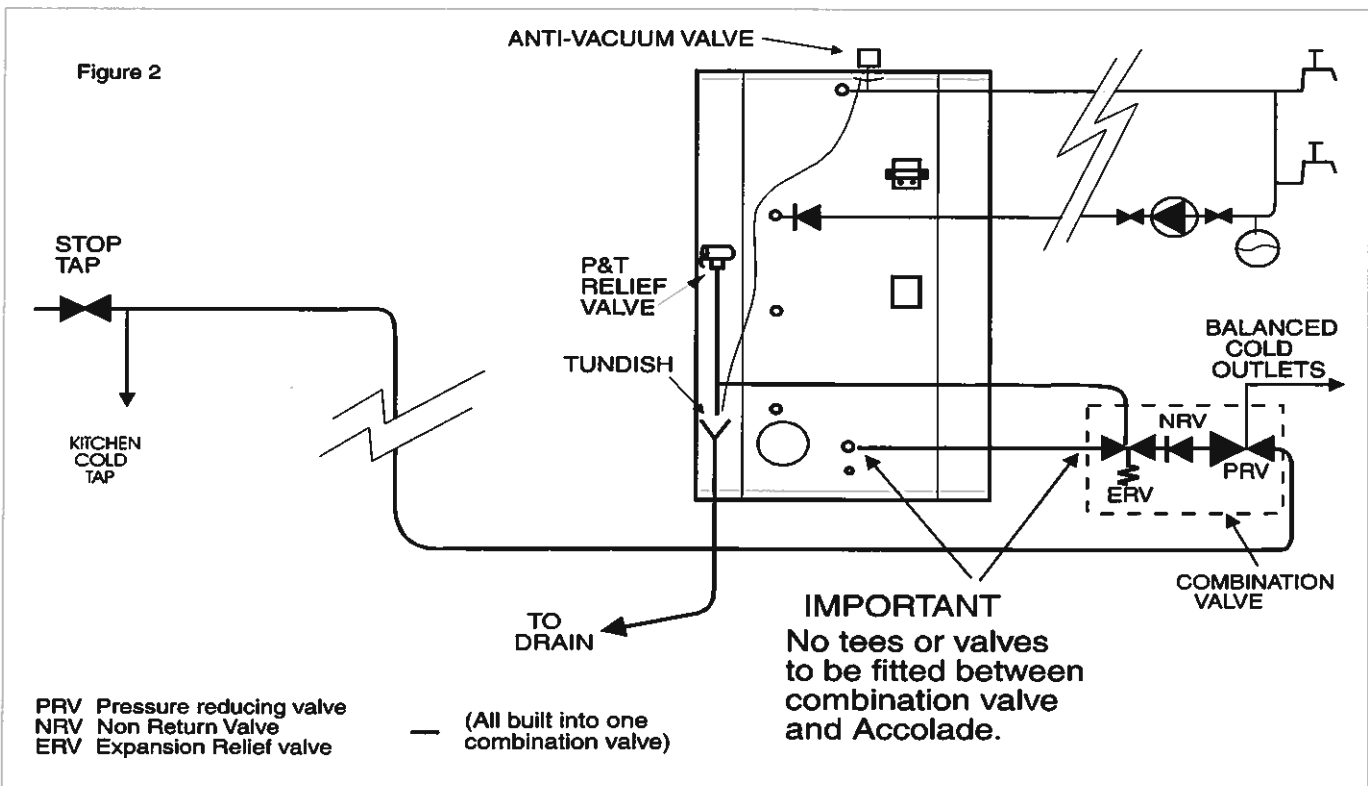
These are 3kW 240V AC heaters and incorporates thermostat and a manually reset cut-out which operates at 80°C. They have Incoloy elements to prolong their life expectancy in aggressive water conditions.

D) LINE STRAINER

This is integral with the Pressure Reducing Valve to reduce the likelihood of contaminants fouling the valve seat.

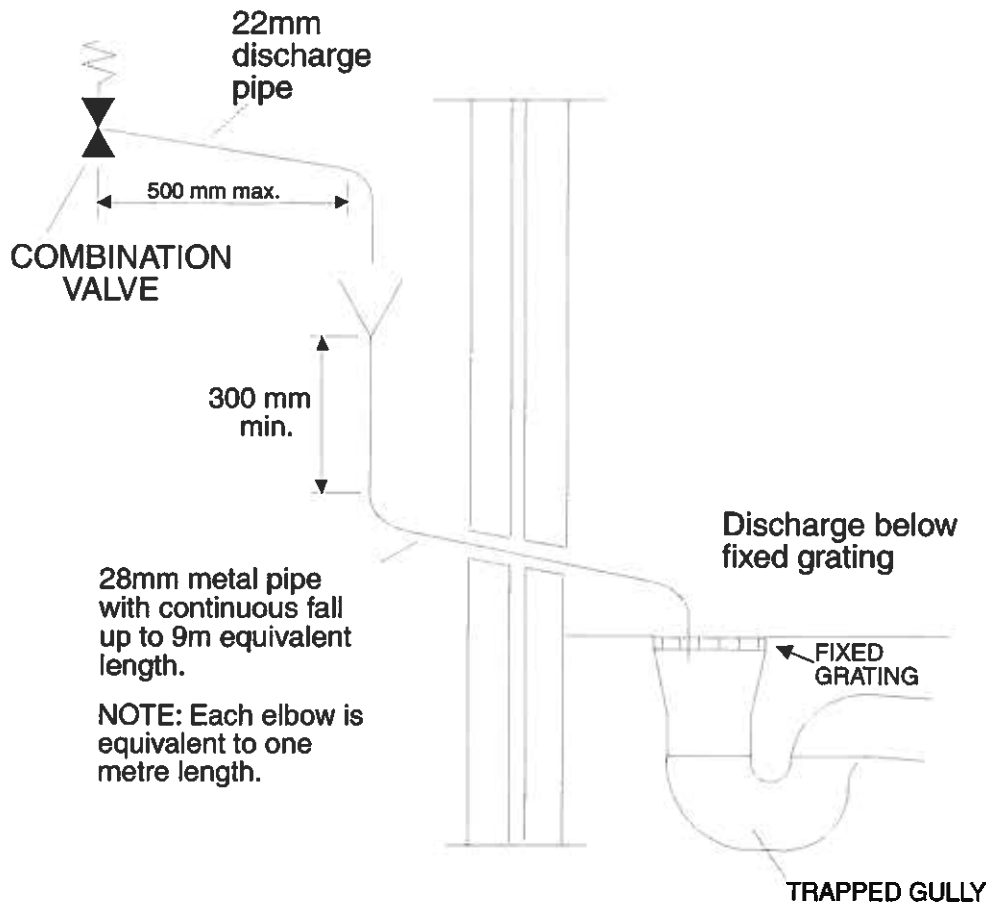
E) TUNDISH

This is to allow the discharge from any Relief Valve to be seen. It must be fitted away from any electrical devices. See page 5 for discharge pipework details.



DISCHARGE ARRANGEMENTS

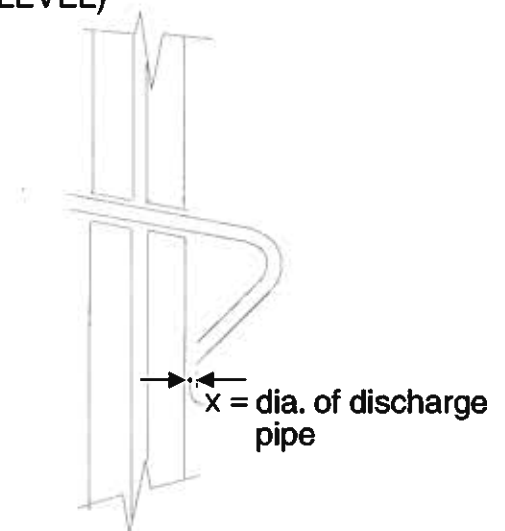
TYPICAL DISCHARGE PIPE ARRANGEMENT.



ALTERNATIVE DISCHARGE ARRANGEMENT (HIGH LEVEL)

Locations to be avoided when siting a discharge pipe at high level:

- 1 The discharge pipe should not be located above a pedestrian area, or above a window, door, ventilator etc.
- 2 Subsequent freezing of the discharge should not create a hazard to persons about the building.
- 3 The adjacent structure should be impervious to water at 80oC.



DIRECT SYSTEMS

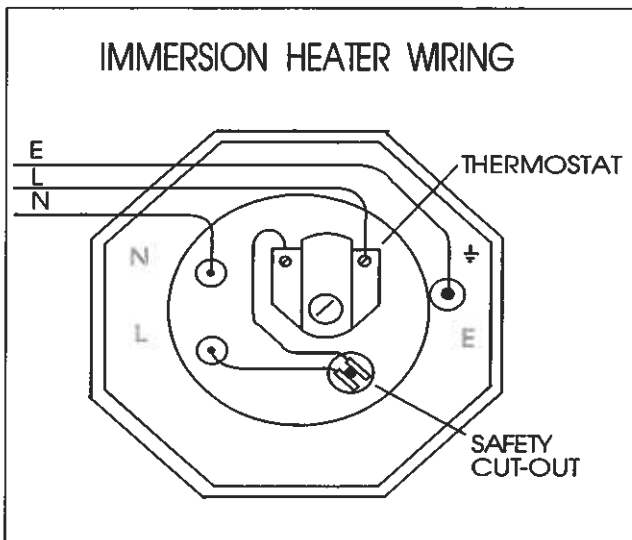
SECTION 4

Two immersion heaters are fitted to all direct models.

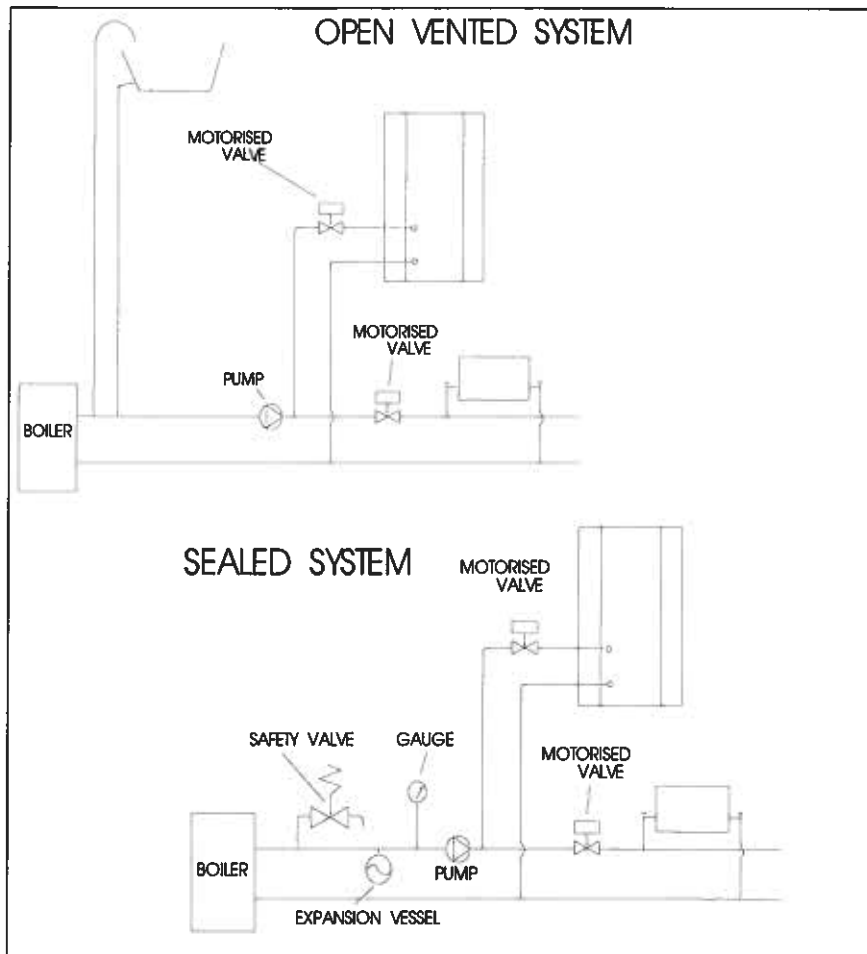
Where it is intended that units are fitted to off-peak circuits, then suitable controllers must be supplied. External wiring to the immersion heaters must be in accordance with the relevant IEE Wiring Regulations and the circuit must be protected by a suitable fuse and a double pole isolating switch.

4.1 SAFETY

The immersion heaters must be earthed, and they should be isolated from the mains before the cover is removed on every occasion. Replacement immersion heaters should be obtained from Gledhill Water Storage Limited.



SECTION 5



INDIRECT SYSTEMS

5.1 SAFETY

ACCOLADE is fitted with a Pressure Relief Valve to cope with any increase in system pressure above the design limitations, and a Temperature Relief Valve to provide an adequate safety factor when used with boilers up to 45kW output.

The primary water temperatures should be controlled as outlined below.

5.2 PRIMARY CIRCUIT

It is essential that the circuit between the boiler and the ACCOLADE is pumped. The motorised zone valve supplied should be fitted adjacent to the unit and controlled by the cylinder thermostat supplied. The thermostat and motorised valve must be wired so that they both switch off should an overheat situation develop. It is important to follow the wiring diagram in the Wiring Section of these instructions.

5.3 SEALED PRIMARY CIRCUIT

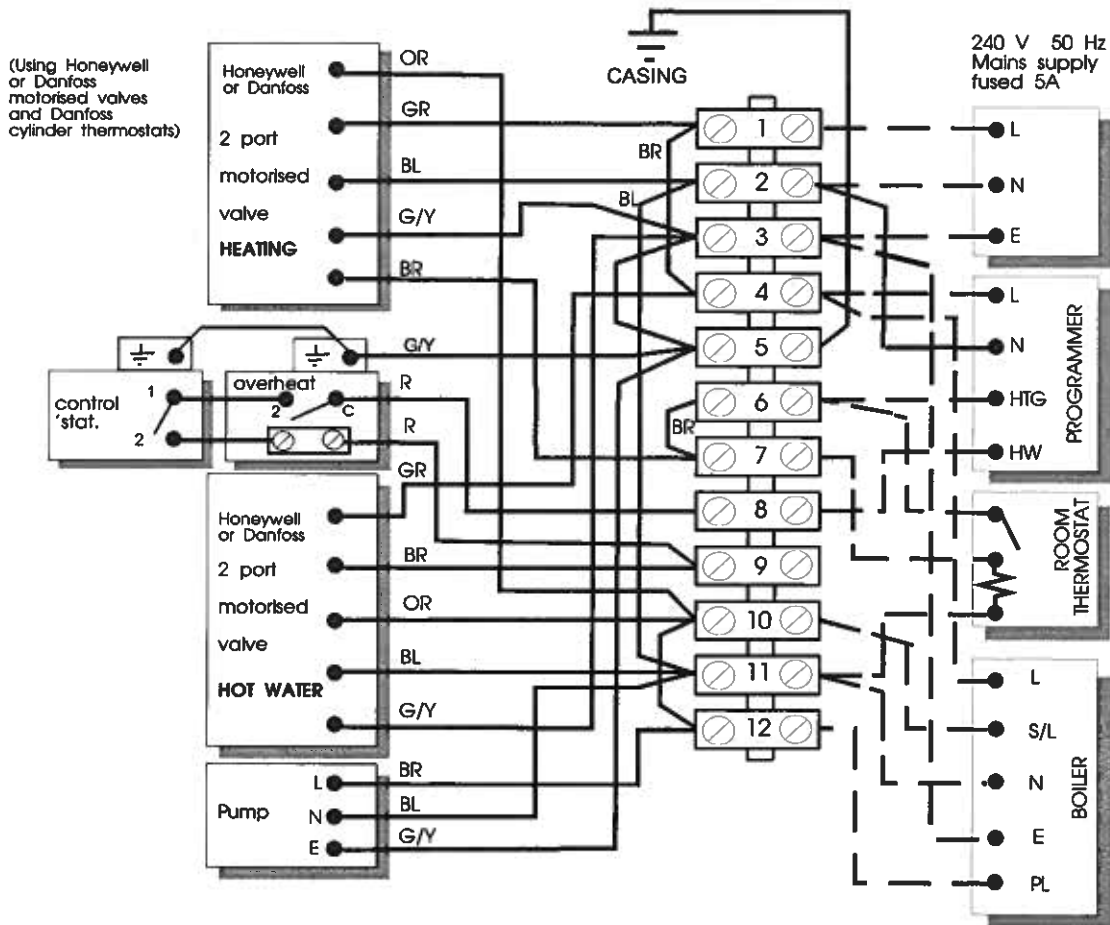
Any boiler used must be of a rated output of less than 45kW and must be fitted with an over temperature cut-out.

Unvented primary circuits may be filled or replenished by means of a temporary connection between the circuit and a supply pipe provided a 'Listed' double check valve or some other no less effective backflow prevention device is permanently connected at the inlet to the circuit and the temporary connection is removed after use.

WIRING DIAGRAMS

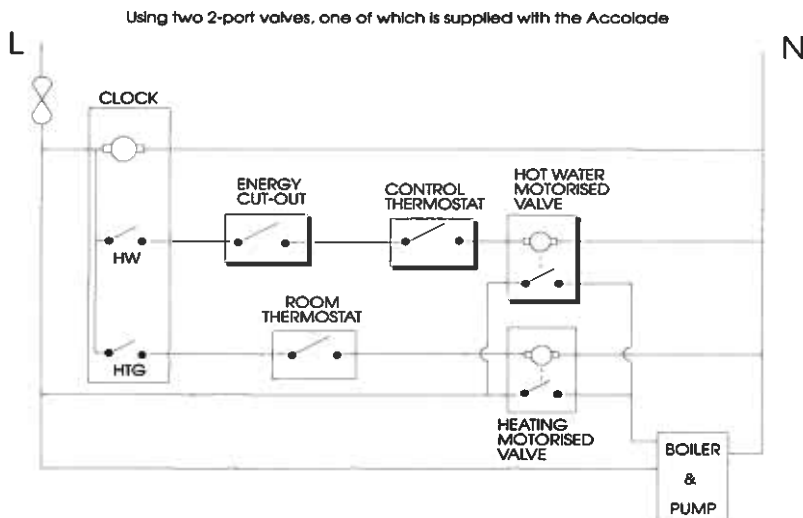
SECTION 6

ACCOLADE WIRING DIAGRAM



NOTE: The G/Y earth wires are not required on Danfoss motorised valves.

ACCOLADE FUNCTIONAL FLOW DIAGRAM



SECTION 7

COMMISSIONING

7.1 Connections can come loose in transit, and all should be checked before installation.

7.2 Ensure that the immersion heater setting is between 55 and 60°C and that the wiring is in accordance with the diagram on page 9.

7.3 Check that the drain cock is closed, and open all the cold and hot water taps and other terminal fittings. Allow the system to fill with water, and to run until there is no air left in the system. Close the taps and inspect the system closely for leaks.

7.4 Manually open the Relief Valves one by one and check that water is discharged and runs freely through the tundish and out at the discharge point. The pipework should accept full bore discharge without overflowing at the tundish, and the valve should seat satisfactorily.

7.5 Set the control thermostat at 55°C. Allow the cylinder to heat to normal working temperature, then thoroughly flush the secondary pipework through each tap.

7.6 If it is necessary to drain the cylinder switch off the boiler/immersion heater, open the nearest hot tap and run all hot water until cold. Then close the stop tap and open all hot taps in the system. **AT THE SAME TIME HOLD OPEN THE PRESSURE AND TEMPERATURE RELIEF VALVE UNTIL WATER STOPS DISCHARGING INTO THE TUNDISH. OPEN THE DRAIN COCK AND IMMEDIATELY HOLD OPEN THE P & T RELIEF VALVE AGAIN. THIS MUST BE HELD OPEN UNTIL THE CYLINDER IS COMPLETELY DRAINED.**

7.7 Remove and clean the strainer element in the Pressure Reducing Valve, then replace it and re-fill the system.

7.8 Allow the cylinder to heat to normal working temperature with whatever heat source is to be used, and check again for leaks. The Pressure Relief Valve should not operate during the heating cycle.

MAINTENANCE

The Registered Installer is responsible for the safe installation and operation of the system. He must also make his customer aware that periodic checks of the equipment are essential for safety.

Maintenance and inspection periods will vary for many reasons. Gledhill Water Storage Ltd recommend a maximum of 12 months between inspections to coincide with boiler maintenance. Experience of local water conditions may indicate that more frequent inspection is desirable, eg. when water is particularly hard, scale-forming or where the water supply contains a high proportion of solids, eg. sand. Maintenance will include the following:

1. Check and clean filter.
2. Manually check the operation of the temperature relief valve.
3. Manually check the operation of the expansion relief valve
4. Check discharge pipes from temperature and expansion relief valves are free from obstruction and blockage and are not passing any water.
5. Descale heat exchangers in hard water areas (if required).
6. Check that water pressure downstream of pressure reducing valve is within the manufacturers limits.
7. Check operation of motorised valve.
8. Drain the appliance down to the level of the temperature relief valve (following the instructions in item 2 under Maintenance on page 4) and refill to ensure the expansion 'bubble' is fully charged.

PROBLEMS & REMEDIAL ACTION

SECTION 8

PROBLEMS & REMEDIAL ACTION

8.1 SCALE

In hard water areas it is recommended that an in-line scale inhibitor is fitted. Reducing the temperature of the stored water will reduce the rate at which scale forms. If the recovery rate is badly affected, this is an indication that scaling may have occurred. In this event, follow the procedures as recommended by a reputable Water Treatment Company.

8.2 GENERAL

- a) No water at the tap. Check that the mains water supply is turned ON. Check the line strainer is not blocked. Check that the combination valve has been fitted so that water is flowing in the correct direction.
- b) If the water at the tap is cold, ensure that the boiler has been switched ON and is working correctly. Check that there are no air locks in the primary system. ISOLATE THE UNIT AT THE MAINS ELECTRIC SUPPLY AND THEN CHECK THE FOLLOWING:-
 - i) The cylinder thermostat.
 - ii) The thermal cut-out, which can be re-set by pushing the red button.
 - iii) The motorised valve.
 - iv) The boiler thermostat.
 - v) The boiler thermostat cut-out (if fitted).

ANY ENERGY CUT-OUT MUST NEVER BE BY-PASSED UNDER ANY CIRCUMSTANCES.

If the units are not getting hot and the heat source is electrical, ensure that the immersion heaters are isolated from the mains before re-setting the energy cut-out. If the immersion heater(s) need replacing this should be done with the units supplied from Gledhill Water Storage Ltd. Same day despatch to approved installers can be arranged by telephoning 01253 474444.

8.3 DISCHARGE FROM RELIEF VALVES

If cold water is discharging from the expansion relief valve into the tundish carry out item 2 under Maintenance on page 4.

If the fault continues and the problem cannot be stopped by operating the easing control a few times then either the Pressure Reducing Valve or the Relief Valve may be at fault. If the cold water pressure is too high, this would suggest that the Pressure Reducing Valve is at fault and the Gledhill approved replacement should be fitted. If the pressure is correct then the Relief Valve will require replacing with a Gledhill approved component.

See Commissioning 7.6 for drain down procedure.

If there is an overheat fault and very hot water is being discharged, turn off the heat source, but not the water supply.

When the system is cool, check thermostats and energy cut-outs in the boiler and immersion heaters and replace the faulty component with a unit supplied by Gledhill and check that it works correctly before returning the system to full operation.

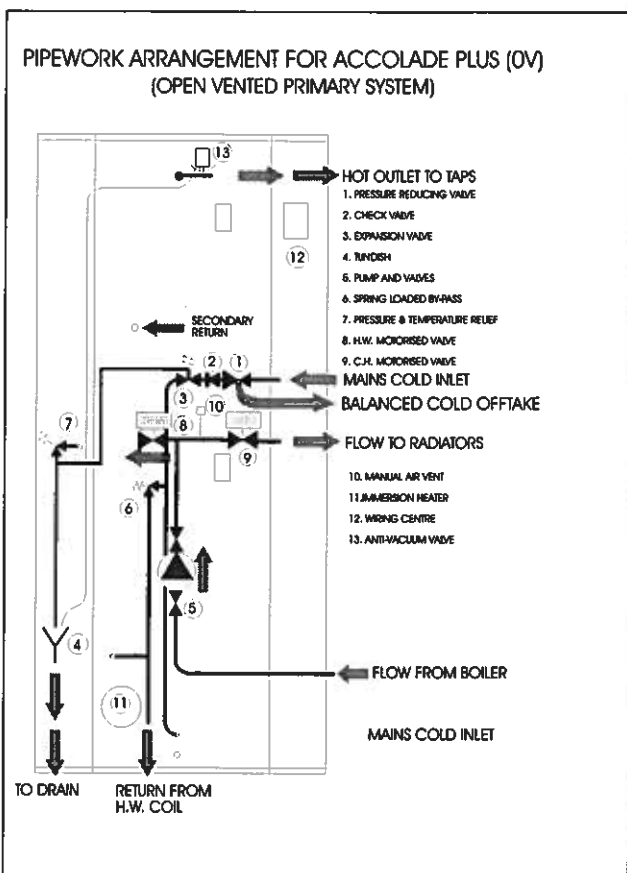
SECTION 9

ACCOLADE PLUS (OV)

This Accolade Plus (OV) is a pre-plumbed, pre-wired system cylinder suitable for use with an open vented primary system which, in addition to the standard controls for unvented hot water storage, incorporates a Honeywell 'S' Plan (See figure 4).

This comprises of two 2-port motorised valves, one for heating and one for hot water, a Grundfos 15-50 pump, and a spring loaded by-pass valve.

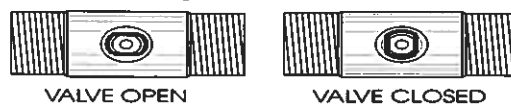
FIGURE 4



The standard common flow/heating connections and 2 port valve are 22mm diameter on all models up to and including the A175 and 28mm diameter on the A210. 28mm diameter connections are available on the smaller models on request.

ACCOLADE PLUS (SP)

The SP version is suitable for use with a sealed primary system, and in addition to the components fitted to the OV version, there is also a 10 litre expansion vessel, a pressure gauge, an expansion relief valve (pre-set to 3 bar) and a filling loop. (See figure 5).



When filling the primary system via the filling loop, the valves should be closed off when the pressure reaches the chosen initial pressure. (This is normally equal to the pressure to which the expansion vessel is pre-charged (in this case 1 bar).

The filling loop should be removed and left adjacent to the appliances for future servicing.

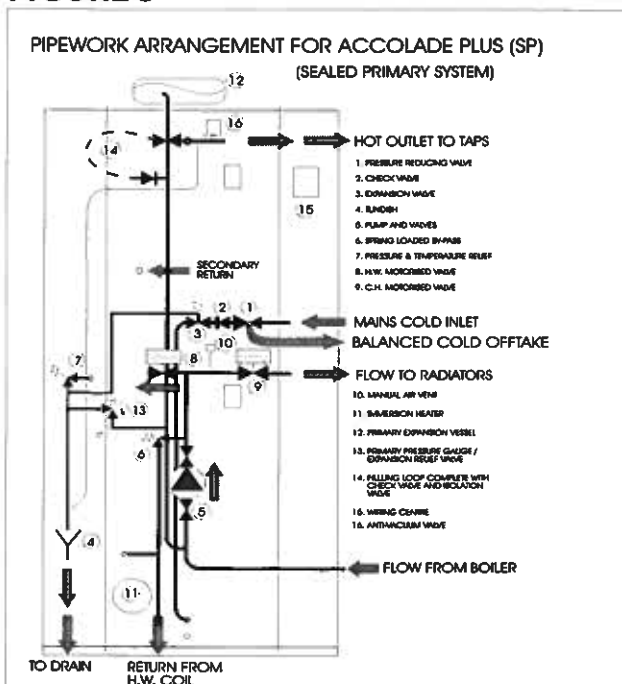
The pipe connecting the boiler flow to the appliance must be a minimum of 22mm copper or equivalent.

There should be no valves or other equipment in the pipe connecting the boiler flow to the appliance.

If the length of pipe connecting the boiler flow to the appliance exceeds 6m, then you should consult our technical department.

Refer to BS 5449 for maximum allowable system volume eg. under the above conditions the max volume would be 91 litres. If the system volume is greater, then an additional vessel will be required.

FIGURE 5



NOTE: Add 120mm to the height of the basic appliance to allow for the expansion vessel.

SHORT PARTS LIST

POSITION OF DATA BADGE : UPPER LEFT ON FRONT FACE

DESCRIPTION	G.W.S. PART NO.	
Temperature & pressure relief valve	XG152	
Control thermostat	XG139	
Energy cut out thermostat	XG140	
Immersion heater with control and overheat thermostat	XG086	
Combination valve (comprises expansion relief valve, non-return valve, pressure reducing valve c/w balanced cold take off and filter)	XG137	
Honeywell energy cut-out motorised valve	XG083	
Danfoss energy cut-out motorised valve (Indirect models only)	XG141	
Tundish	XG090	

ACCOLADE PLUS 'OV' (OPEN VENTED PRIMARY MODEL)

Has all the above components plus the following

Heating pump	XB001	
Honeywell heating motorised valve	XG083	
Danfoss heating motorised valve	XG141	
Automatic by-pass valve	XG156	
Wiring Centre	XG129	

ACCOLADE PLUS 'SP' (SEALED PRIMARY MODEL)

Has all the above components plus the following

Expansion relief valve/Pressure gauge	XG154	
Filling loop c/w isolation valve and double check valve	XG118	
Expansion vessel 10 litres	XG121	

Gledhill (Water Storage) Ltd

AMD. MAY 2007

CONDITIONS OF SALE & WARRANTY TERMS

1. We only do business upon the Conditions which appear below and no other. Unless we so agree in writing these Conditions shall apply in full to any supply of goods by us to the exclusion of any Conditions or terms sought to be imposed by any purchaser. These Conditions of Sale and Warranty Terms override those which are contained on the Invoice Forms and all Sales are now subject to these Conditions of Sale and Warranty terms only.

2. PRICE

Once an order or call off has been accepted the price will be held for three months but if delivery is extended beyond that period at the customer's request, then we reserve the right to amend the price when necessary. The company reviews its pricing annually to adjust for changes in our cost base. We reserve the right to alter prices at any time for severe movements in raw materials (mainly copper and steel). If there is to be a change we will give customers at least four weeks notice but anything delivered after that date will be at the revised price. An order may not be cancelled or varied after acceptance without the written consent of the company. Such cancellation or variation shall be subject to such reasonable charges as may be appropriate.

3. SPECIFICATION

The goods are supplied in accordance with the Specifications (if any) submitted to the Purchaser and any additions and alterations shall be the subject of an extra charge. Any goods not so specified shall be in accordance with our printed literature or the literature of any of our component suppliers (subject to any modifications made since publication). If we adopt any changes in construction or design of the goods, or in the specification printed in our literature, the Purchaser shall accept the goods so changed in fulfilment of the order.

4. PAYMENT

The invoice price of goods shall be payable within 30 days of despatch by us of our invoice for the goods or such longer time as may be stated by our quotation or invoice. If we receive payment in full on or before the due date we will allow an appropriate settlement discount except where we have quoted a special net price. If payment is not received in full on or before the due date we shall be entitled in addition to the invoice price to:

- (i) payment of a sum equal to any increase in the copper price supplement applicable to the particular goods sold between the date of receipt of order and the date of receipt of payment in full; and
- (ii) interest on any part of the invoice price unpaid after the due date at the rate of 3% per annum over the base rate for the time being of HSBC Bank plc.

5. TIME

We give estimates of delivery dates in good faith and time of delivery is not nor shall be made of the essence of any contract nor shall we be liable for any loss or damage occasioned by delay in delivery.

6. DELIVERY

We deliver free normally by our own vehicles within 25 miles of any of our manufacturing depots. Delivery to any place more than 25 miles from one of our manufacturing depots may be subject to our quoted delivery charges. We reserve the right to make delivery of goods contained in one order by more than one consignment and at different times. Where a period is agreed for delivery and such period is not extended by our Agreement, the Purchaser shall take delivery within that period. If the Purchaser fails to take delivery, we shall be entitled at the Purchaser's risk and expense to store the goods at the Purchaser's premises or elsewhere and to demand payment as if they had been despatched. Off loading at point of delivery shall be the responsibility of and be undertaken by the Purchaser.

7. SHORTAGES OR DAMAGE

Goods must be inspected before signature of delivery note and any damage, shortage or discrepancy noted on the delivery note and the goods returned on the same vehicle. The buyer must also give us immediate written notice of the damage, shortage or discrepancy so that we may prompt investigation.

8. RETURN OF GOODS

Goods may not be returned to the Company except by prior written permission of an authorised officer of the Company and such return shall be subject to payment by the Purchaser of handling and re-stocking charges, transport and all other costs incurred by the Company.

9. COMPANY LIABILITY

All our goods are made of the best materials from reputable manufacturers and where stated are manufactured to the appropriate British or European Standard. Complaints must be given to us immediately, before any action is taken, as responsibility cannot be accepted if repairs or renewals are attempted on site without our written authority.

Defects caused by corrosion or scale deposits are not covered by this guarantee save as expressly provided in paragraph (f) of this Condition 9.

Where we agree to rectify any defect, we reserve the right to undertake the work on our own premises.

The following guarantee covers faulty materials and manufacture for the stated period, provided that:-

- The unit has been installed in accordance with our installation and service instructions and all relevant codes of practice and regulations in force at the time of installation.
- That all necessary inlet controls and safety valves have been fitted correctly.
- It has only been used for the storage of potable water supplied from the public mains.
- Where appropriate the unit has been regularly maintained as detailed in the installation and service instructions.

(a) Domestic and Commercial Open Vented Cylinders and Tanks.

The copper storage vessel is guaranteed for ten years and if it proves to be defective either in materials or workmanship, we will either repair or supply replacement at our option with the closest substitute in the case of any obsolete product to any address in Great Britain.

- (i) free of all charge during the first year after delivery by us.
- (ii) thereafter at a charge of one-tenth of the then current list price and any copper price supplement and delivery charge during the second year after delivery by us and increasing by a further one-tenth on the second and subsequent anniversary of delivery by us.

(b) Domestic Mains Fed Products (Primary Stores)

The copper storage vessel is guaranteed for five years and if it or any integral pipework as part of the storage vessel assembly proves to be defective either in materials or workmanship, we reserve the right to either repair or supply replacements or the closest possible substitute in the case of any obsolete product and will collect and deliver to any address in England, Wales and Scotland (excluding all Scottish Islands).

- (i) free of all charge during the first year after delivery by us.
- (ii) thereafter at a charge of one-fifth of the then current list price or any copper price supplement and delivery charge during the second year after delivery by us increasing by a further one-fifth on the second and subsequent anniversary of delivery by us.

(c) Integrated Boiler and Storage Vessel Products and Stand Alone Boilers

In the case of the GulfStream range of products and the Gledhill boiler range of products, Gledhill guarantees the heat exchanger (boiler) for material and construction faults for two years and FURTHER we will meet the installer/contractors reasonable costs in removing and replacing any DEFECTIVE heat exchanger up to a MAXIMUM of one third of the extent of our liability in regard to the replacement product.

THE RESPONSIBILITY FOR THE EXECUTION OF THIS GUARANTEE LIES WITH THE INSTALLER.

The guarantee becomes null and void if the appliance is used incorrectly, or in the event of proven negligence or incorrectly implemented repairs OR FAILURE TO CARRY OUT THE RECOMMENDED INSPECTION/MAINTENANCE. The guarantee also becomes null and void if changes are made to the appliance without our knowledge, or if the serial number on the appliance is removed or made illegible.

The annual service must be carried out by a competent installer in accordance with the advice given by Gledhill and using Gledhill approved parts.

(d) Stainless Steel Unvented Cylinders

Gledhill guarantee the components including controls, valves and electrical parts for two years from the date of purchase. IT SHOULD BE NOTED THAT THE FACTORY FITTED TEMPERATURE AND PRESSURE RELIEF VALVE MUST NOT BE REMOVED OR ALTERED IN ANY WAY OR THE GUARANTEE WILL NOT BE VALID. GLEDHILL WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL LOSS OR DAMAGE HOWEVER IT IS CAUSED.

The guarantee for the stainless steel vessel is for twenty five years if the original unit is returned to us AND PROVIDED THAT:

- (i) It has been installed as per the Design, Installation & Servicing Instructions, relevant standards, regulations and codes of practice.
- (ii) It has not been modified, other than by Gledhill.
- (iii) It has not been subjected to wrong or improper use or left uncared for.
- (iv) It has only been used for the storage of potable water.
- (v) It has not been subjected to frost damage.
- (vi) The benchmark log book is completed after each annual service.
- (vii) The unit has been serviced annually.

It should be noted that the guarantee does not cover:

- the effects of scale build up
 - any labour charges associated with replacing the unit or parts.
- If the stainless steel vessel proves to be defective either in materials or workmanship we reserve the right to either repair or supply replacements or the closest possible substitute in the case of any obsolete product and will collect and deliver to any address in England, Scotland and Wales (excluding all islands):

- (i) free of charge during the first year after delivery by us.
- (ii) thereafter at a charge of one twenty fifth of the then current list price during the second year after delivery by us and increasing by a further one twenty fifth on the second and subsequent anniversary of delivery by us.

ACTION IN THE EVENT OF FAILURE

If the Stainless Lite develops a leak we will ask for a deposit against the supply of a new one. This will be refunded if the failure is within the terms of the warranty when it has been examined by us.

(e) Solar Panels and ancillary equipment

Gledhill provides a five year warranty for defects in the collectors (except broken glass and collector accessories eg metal edgings). If the collector demonstrably fails to meet one of the requirements of the standard DIN 4757 part 3 we will replace it free of charge based on the date of invoice. We can not be responsible for damage caused by mechanical stress and/or changes caused by weather related influences. The warranty excludes minor surface damage that does not affect performance or malfunction due to improper assembly or installation.

Please note:

- Installation must have been carried out by a licensed specialised company (heating contractor or plumber) following the version of installation instructions in force.
- Gledhill or its representative was given the opportunity to check complaints on site immediately after any defect occurred
- Confirmation exists that the system was commissioned properly and that the system was checked and maintenance was performed annually by a specialised company licensed for this purpose.

(f) Components of our products other than Storage Vessels and Integral Pipework.

We will either extend to the purchaser the same terms of warranty as we are given by the manufacturer of the component or if the manufacturer does not give any warranty, replace free of charge any component which becomes defective within two years after the date of the delivery by us and is returned to us at the purchaser's expense but we shall not meet the cost of removal or shipping or return of the component or any other cost charges or damages incurred by the purchaser.

If the appliance manufactured by Gledhill incorporates a factory fitted scale inhibitor then during the period of three years from the date of delivery Gledhill will replace, free of charge, any plate heat exchanger fitted in the appliance as original equipment in which scale formation occurs that materially reduces the effectiveness of the plate heat exchanger. This guarantee does not extend to any other component installed within the Gledhill appliance or elsewhere in the Purchaser's domestic water system.

(g) General

In the case of goods manufactured solely in accordance with our specification and designs and in respect of any installation work carried out by or on our behalf, our entire liability and the purchaser's sole remedies (subject to (a) - (f) above) and shall be as follows:

- (a) we accept liability for death or personal injury to the extent that it results from our negligence that of our employees agents or subcontractors.
- (b) subject to paragraph (d) below, we accept liability for direct physical damage to tangible property to the extent that such damage is caused by our negligence that of our employees agents or subcontractors.
- (c) our total liability to the purchaser over and above any liability to replace under (1 - 4) above (whether in contract or in tort including negligence) in respect of any one cause of loss or damage claimed to result from any breach of our obligations hereunder, shall be limited to actual money damages which shall not exceed £20,000 provided that such monetary limit shall not apply to any liability on the part of ourselves referred to in paragraph (a) above.
- (d) except as provided in paragraph (a) above but otherwise notwithstanding any provision herein contained in no event shall we be liable for the following loss or damage howsoever caused and even if foreseeable by us or in our contemplation :-
 - (i) economic loss which shall include loss of profits, business revenue, goodwill or anticipated savings.
 - (ii) damages in respect of special indirect or consequential loss or damage (other than death, personal injury and damage to tangible property).
 - (iii) any claim made against the purchaser by any other party (save as expressly provided in paragraph (b) above).
- (e) except in respect of our liability referred to in paragraph (a) above no claim may be made or action brought (whether in contract or in tort including negligence) by the purchaser in respect of any goods supplied by us more than one year after the date of the invoice for the relevant goods.
- (f) nothing in these Conditions shall confer on the purchaser any rights or remedies to which the purchaser would not otherwise be legally entitled.

10. LOSS OR INJURY

Notwithstanding any other provision contained herein the Purchaser's hereby agree to fully indemnify us against any damages losses costs claims or expenses incurred by us in respect of any claim brought against us by any third party for :-

- (a) any loss injury or damage wholly or partly caused by any goods supplied by us or their use.
 - (b) any loss injury or damage wholly or partly caused by the defective installation or sub-standard workmanship or materials used in the installation of any goods supplied by us.
 - (c) any loss injury or damage in any way connected with the performance of this contract.
- PROVIDED that this paragraph (6) will not require the Purchaser to indemnify us against any liability for our own acts of negligence or those of our employees agents or sub-contractors.

FURTHER in the case of goods supplied by us which are re-sold to and installed by a third party by the Purchaser it will be the sole responsibility of the Purchaser to test the goods immediately after their installation to ensure that inter alia they are correctly installed and are in proper working order, and are not likely to cause any loss injury or damage to any person or property.

11. VARIATION OF WARRANTY AND EXCLUSION

Should our warranty and exclusion be unacceptable we are prepared to negotiate for variation in their terms but only on the basis of an increase in the price to allow for any additional liability or risk which may result from the variation.

Purchasers are advised to insure against any risk or liability which they may incur and which is not covered by our warranty.

12. RISK AND RETENTION OF TITLE

(a) goods supplied by us shall be at the Purchaser's risk immediately upon delivery to the Purchaser or into custody on the Purchaser's behalf or to the Purchaser's Order. The Purchaser shall effect adequate insurance of the goods against all risks to the full invoice value of the goods, such insurance to be effective from the time of delivery until property in the goods shall pass to the Purchaser as hereinafter provided.

(b) property in the goods supplied hereunder will pass to the Purchaser when full payment has been made by the Purchaser to us for :-

- (i) the goods of the subject of this contract.
- (ii) all other goods the subject of to any other contract between the Purchaser and us which, at the time of payment of the full price of the goods sold under this contract, have been delivered to the Purchaser but not paid for in full.
- (c) until property in the goods supplied hereunder passes to the Purchaser in accordance with paragraph (2) above.

(i) the Purchaser shall hold the goods in a fiduciary capacity for us and shall store the same separately from any other goods in the Purchaser's possession and in a manner which enables them to be identified as our goods.

(ii) the Purchaser shall immediately return the goods to us should our authorised representative so request. All the necessary incidents associated with a fiduciary relationship shall apply.

(d) the Purchaser's right to possess the goods shall cease forthwith upon the happening of any of the following events, namely :-

- (i) if the Purchaser fails to make payment in full for the goods within the time stipulated in clause 4 hereof.
- (ii) if the Purchaser, not being a company, commits any act of bankruptcy, makes a proposal to his or her creditors for a compromise or does anything which would entitle a petition for a Bankruptcy Order to be presented.
- (iii) if the Purchaser, being a company, does anything or fails to do anything which would entitle an administrator or an administrative receiver or a receiver to take possession of any assets or which would entitle any person to present a petition for winding up or to apply for an administration order.

(e) the Purchaser hereby grants to us an irrevocable licence to enter at any time any vehicle or premises owned or occupied by the Purchaser or in the possession of the Purchaser for the purposes of repossessing and recovering any such goods the property in which has remained in us under paragraph (2) above. We shall not be responsible for and the Purchaser will indemnify us against liability in respect of damage caused to any vehicle or premises in such repossession and removal being damaged which it was not reasonably practicable to avoid.

(f) notwithstanding paragraph (3) hereof and subject to paragraph (7) hereof, the Purchaser shall be permitted to sell the goods to third parties in the normal course of business. In this respect the Purchaser shall act in the capacity of our commission agent and the proceeds of such sale :-

- (i) shall be held in trust for us in a manner which enables such proceeds to be identified as such, and ;
- (ii) shall not be mixed with other monies nor paid into an overdrawn bank account.

We, as principal, shall remunerate the Purchaser as commission agent a commission depending upon the surplus which the Purchaser can obtain over and above the sum, stipulated in this contract of supply which will satisfy us.

(g) in the event that the Purchaser shall sell any of the goods pursuant to clause (6) hereof, the Purchaser shall forthwith inform us in writing of such sale and of the identity and address of the third party to whom the goods have been sold.

(h) if, before property in the goods passes to the Purchaser under paragraph (2) above the goods are or become affixed to any land or building owned by the Purchaser it is hereby agreed and declared that such affixation shall not have the effect of passing property in the goods to the Purchaser. Furthermore if, before property in the goods shall pass to the Purchaser under paragraph (2) hereof, the goods are or become affixed to any land or building (whether or not owned by the Purchaser), the Purchaser shall:-

- (i) ensure that the goods are capable of being removed without material injury to such land or building.
- (ii) take all necessary steps to prevent title to the goods from passing to the landlord of such land or building.
- (iii) forthwith inform us in writing of such affixation and of the address of the land or building concerned.

The Purchaser warrants to repair and make good any damage caused by the affixation of the goods to or their removal from any land or building and to indemnify us against all loss damage or liability we may incur or sustain as a result of affixation or removal.

(i) in the event that, before property in the goods has passed to the Purchaser under paragraph (2) hereof, the goods or any of them are lost, stolen, damaged or destroyed :-

(i) the Purchaser shall forthwith inform us in writing of the fact and circumstances of such loss, theft, damage or destruction.

(ii) the Purchaser shall assign to us the benefit of any insurance claim in respect of the goods so lost, stolen, damaged or destroyed.

13. NON-PAYMENT

If the Purchaser shall fail to make full payment for the goods supplied hereunder within the time stipulated in clause 4 hereof or be in default of payment for any other reason then, without prejudice to any of our other rights hereunder, we shall be entitled to stop all deliveries of goods and materials to the Purchaser, including deliveries or further deliveries of goods under this contract. In addition we shall be entitled to terminate all outstanding orders.

14. RISK

All goods sold by us shall be at the sole risk of the Purchaser from the date of despatch by us of the invoice for their price.

15. VALUE ADDED TAX

All prices quoted are exclusive of Value Added Tax which will be charged at the rate ruling at the date of despatch of invoice.

16. TRADE SALES ONLY

We are only prepared to deal with those who are not consumers within the terms of the Unfair Contract Terms Act 1977, the Sale of Goods Act 1979 and the Supply of Goods and Services Act 1982. Accordingly any person who purchases from us shall be deemed to have represented that he is not a consumer by so purchasing.

17. JURISDICTION

The agreement is subject to English/Scottish law and any dispute arising hereunder shall be settled in accordance therewith dependent upon the location.

