

SMEDEGARD

Pumping Technology

OPENPRESS PRESSURISATION UNITS MONO/DUO

INSTALLATION AND OPERATION MANUAL



IMPORTANT INFORMATION

These instructions must be read and understood before installing, commissioning, operating or maintaining the equipment.

This installation guide gives basic instructions which are to be observed during installation, operation and maintenance of the pressurisation unit. It is therefore imperative that this manual be read by the responsible person/operator prior to the installation and should always be kept available at the site. It is not only the general safety instructions under this main heading “Safety” that are to be observed but also the specific information provided under the other main headings.

APPLICATION

The Smedegaard OpenPress range of floor standing pressurisation units are used for automatic replacement of water loss in both heating and chilled water systems. The OpenPress models are designed to be used as ‘top up’ units, but are suitable, if fitted with the safe fill kit, for use as ‘fill units’. The use of an ‘RPZ’ valve is not necessary.

GENERAL



This unit, used in conjunction with a correctly sized expansion vessel, is only suitable for providing automatic water make up and control of a sealed heating or chilled water system.

EXPANSION VESSELS

System expansion vessels must be constructed to BS4814 or BS6144. These units can be provided by Smedegaard upon request.

INSTALLATION

The expansion vessel is usually connected to the inlet side of the system circulators, on the system return. With this arrangement pump pressure is additive and the entire system is above atmospheric pressure. For detailed sizing of expansion vessels refer to page 9, Appendix 2.

SAFETY RELIEF VALVE

A safety relief valve, in compliance with BS6759 Part 1 must be sized and installed in the system in accordance with BS6644 and BS7074.

OPERATION OF THE PRESSURISATION UNIT

PRESSURE SETTINGS

Unless otherwise specified the pressurisation unit is factory set to operate at 1.5 bar. The system expansion vessel charge pressure (cushion pressure) is set to approximately 0.1 bar, below the cold fill pressure.

The high level alarm is set at 2.7 bar and the low level alarm to 0.4 bar. The high pressure alarm resets at 0.2 bar below the setting, the low pressure alarm at 0.2 bar above the setting.

UNIT OPERATION

As the temperature of the water in the system changes, the system expansion vessel absorbs the expanded volume of water. A small pressure rise will take place, which the expansion vessel is designed to accept.

When the system cools down, if there has been some loss of system fluid, the pump pressure transducer will sense this and will energise the pump causing it to re-charge the system, maintaining the set minimum cold fill pressure.

SYSTEM SAFETY FUNCTION

The pressurisation unit comes fitted with an electronic control module and incorporated volt free contacts for common fault and boiler/chiller shut-down. In the event that system losses are so great the pump is unable to replace the losses, the low-pressure alarm will be activated. In the case of the system pressure rising to a dangerous level, the high-pressure alarm will activate.

AIRBORNE SOUND PRESSURE LEVEL

The continuous A-weighted sound pressure level of the product covered by these instructions does not exceed 70 dB(A).

INSTALLATION REQUIREMENTS

SET LOCATION

The unit must be sited in a dry, ventilated, frost free position.

SECURING THE PRESSURISATION UNIT

The unit is designed for floor mounting but, may be wall mounted on a wall of a suitable construction and using brackets capable of supporting the weight of the set. *Please note, there should be sufficient space available to facilitate servicing and commissioning. see page 7.*

PIPE WORK CONNECTION

Ensure that the pipe connection between the pressurisation set and the system can withstand the full working pressure of the system and does not impose any strain on the joints to the unit. For a typical system layout, refer to (Appendix 1), page 8, figure 2.

BOILER/CHILLER CONNECTION

It is recommended that the high/low-pressure volt-free contact be utilised and connected to ensure that the boiler/chiller is shut down in the event of over/under pressure or low water conditions. Always refer to boiler/chiller manufacturers instructions for correct integration.

TABLE A

Vapour Pressure Allowance Table									
Flow Temp °C	Allowance Bar	Flow Temp °C	Allowance Bar	Flow Temp °C	Allowance Bar	Flow Temp °C	Allowance Bar	Flow Temp °C	Allowance Bar
90	0.2	105	0.8	115	1.6	125	2.5	135	3.7
100	0.5	110	1.2	120	2.0	130	3.1	140	4.4

SYSTEM SAFETY VALVE

A correctly sized safety valve conforming to BS7074 (where applicable) must always be fitted to the system.

ANTI-GRAVITY LOOP

An anti-gravity loop or intermediate vessel must be installed if the system flow temperature exceeds 95°C. Refer to, (Appendix 1) page 8, figure 3.

Check that the air pressure in the main expansion vessel, which should be 0.1 BAR BELOW the system CFP, is correct – see below.

For system flow temperatures <95 °C the CFP (bar) = (Height of system in metres/10) + 0.3 metres *
(*This is to facilitate venting at the top system)

For system flow temperatures >95 °C the CFP (bar) = (Height of system in metres/10) + vapour allowance.
As detailed in the table above (TABLE A).

ELECTRICAL CONNECTION**GENERAL REQUIREMENTS**

The pressurisation unit should be wired by a qualified electrician, in line with existing regulations and in accordance with the wiring diagram supplied. This diagram can be found on the inside of the pressurisation unit. However if this diagram is unavailable, please contact Smedegaard before proceeding.

SUPPLY VOLTAGE

Ensure that the mains supply voltage corresponds to the voltage shown on the unit.

SUPPLY ISOLATION

The unit should be isolated from the mains electrical supply before carrying out work within the unit. If an earth bonding cable is fitted to the unit – DO NOT REMOVE THIS.

SAFETY

DANGER Warns of the risk of electric shock, if the precautions are not observed.



DANGER Warns of the risk of damage to persons, property or the unit, if the precautions are not observed.

WIRING TO UNIT

The cover of the control module is fixed by a screw at each of the front corners. Loosen the screws (if the screws become loose from the cover, put them in a safe place). Ease the cover off with care as it is attached to the main PCB by a ribbon cable. This cable can be removed by pressing the clips on each side of the connector on the main PCB.

On the bottom left of the PCB can be found three 3 way terminal blocks, two labelled Pump-A and Pump-B, these will already be connected to the pump(s). The remaining terminal block is labelled Supply, a loose connector is supplied for ease of wiring. Cut the supply cable as is shown in Fig. C, page 6 and pass it through the cable gland then secure into the loose connector, care being taken to ensure the correct order of connection. The loose connector can then be pressed onto the terminal block. There are two black 3 way terminal blocks labeled Stop and Remote. These are assignable but are typically used for boiler/chiller shut down and remote alarm in the event of a fault. These can each be wired, in a similar fashion to the power terminals. These terminals can be wired for Normally Open(NO) or Normally Closed (NC) operation, the maximum rating is 230-1-50 5 amp (inductive).

Once the electrical connections are made, the ribbon cable should be reconnected and the cover put back in place. It should be noted that the vertical plate on the inside of the control box cover operates two switches on the main PCB, these cut the power to the control box only, NOT TO THE PRESSURISATION SET.

Two types of relay boards are available as an option (standard fitment on 'plus' models). If obtained as an add-on then the fitting instructions are as follows. On the right side of the main PCB can be seen a 'posidrive' screw, see Fig. B, carefully remove this screw and keep in safe place. The relay board can now be carefully pushed into place so as to connect with the pins Aux-A and Aux-B, replace the screw that was removed. The 7 output Plus BMS board is labelled for pump run, system fault, pump fault, water leak, water low, high pressure, low pressure. The maximum rating of the contacts is 100mA/100VDC (non inductive) and are labelled pump run, system fault, pump fault, water leak, low water, high pressure, low pressure. The 3 VF Relay board may be used for plant operation, the relays being rated 6 amp/ 230 VAC (non inductive). The 3 relays are, as those on the main board, assignable.

COMMISSIONING

GENERAL INFORMATION

To ensure accurate set-up of the pressurisation unit, it is advisable to carry out the commissioning procedure in the order shown.

SYSTEM FLUSHING

Ensure that the system has been flushed and that all foreign matter has been removed.

NOTE: Should foreign material come into contact with the expansion vessel diaphragm, premature failure of the expansion vessel assembly could result.

FILLING THE SYSTEM

The normally-open lockshield valve, fitted between system and expansion vessel, must be closed during system filling.

These units are designed to be used as either 'top up' or fill sets. Therefore before operating the unit, the system can be filled using appropriate equipment, or the set can be utilised to fill the system. During filling, air should be allowed to vent freely at the top of the system. After filling, automatic air vents can be left to operate normally.

MECHANICAL INSTALLATION

Check that the pressurisation unit and expansion vessel have been installed correctly. Check also that the system isolating valve is opened up and that all lock-shield valves on the system are correctly set.

ELECTRICAL INSTALLATION

Ensure that the electrical connection is correct in accordance with the wiring diagram and that the supply voltage is correct.

Check that the electrical supply to the set is wired through a local isolator. This isolator should always be switched off and the boiler/chiller control circuit isolated before removing the fused switch (if fitted), or the motor terminal box electrical connection covers.

REMINDER: Isolate the unit and any external power sources such as boiler/chiller control circuits before carrying out any work on the unit.

EXPANSION VESSEL SET-UP

To set or check the system expansion vessel charge pressure, the lock-shield valve between the system and the vessel must be closed. The drain cock, which if good practice has been followed, will be fitted to the base of the expansion vessel, must be opened to allow any water contained within the vessel to escape.

A suitable gauge should be used to check the vessel charge pressure. Generally a 'Schrader' type valve is

fitted near to the top of the expansion vessel under a protective cap. This cap must be replaced once the pressure check is complete and any adjustment is made.

If the air charge pressure is too high, the excess air can be relieved by depressing the centre of the 'Schrader' valve. In the event of the air charge pressure being too low, the vessel can be re-charged through the use of an air compressor, a nitrogen bottle or similar means. If the pressure rise is minimal, a car foot pump can be used, this method may however, be very time consuming.

Once the expansion vessel pressure is set, the vessel drain cock must be closed and the lockshield valve between the vessel and the system must be opened.

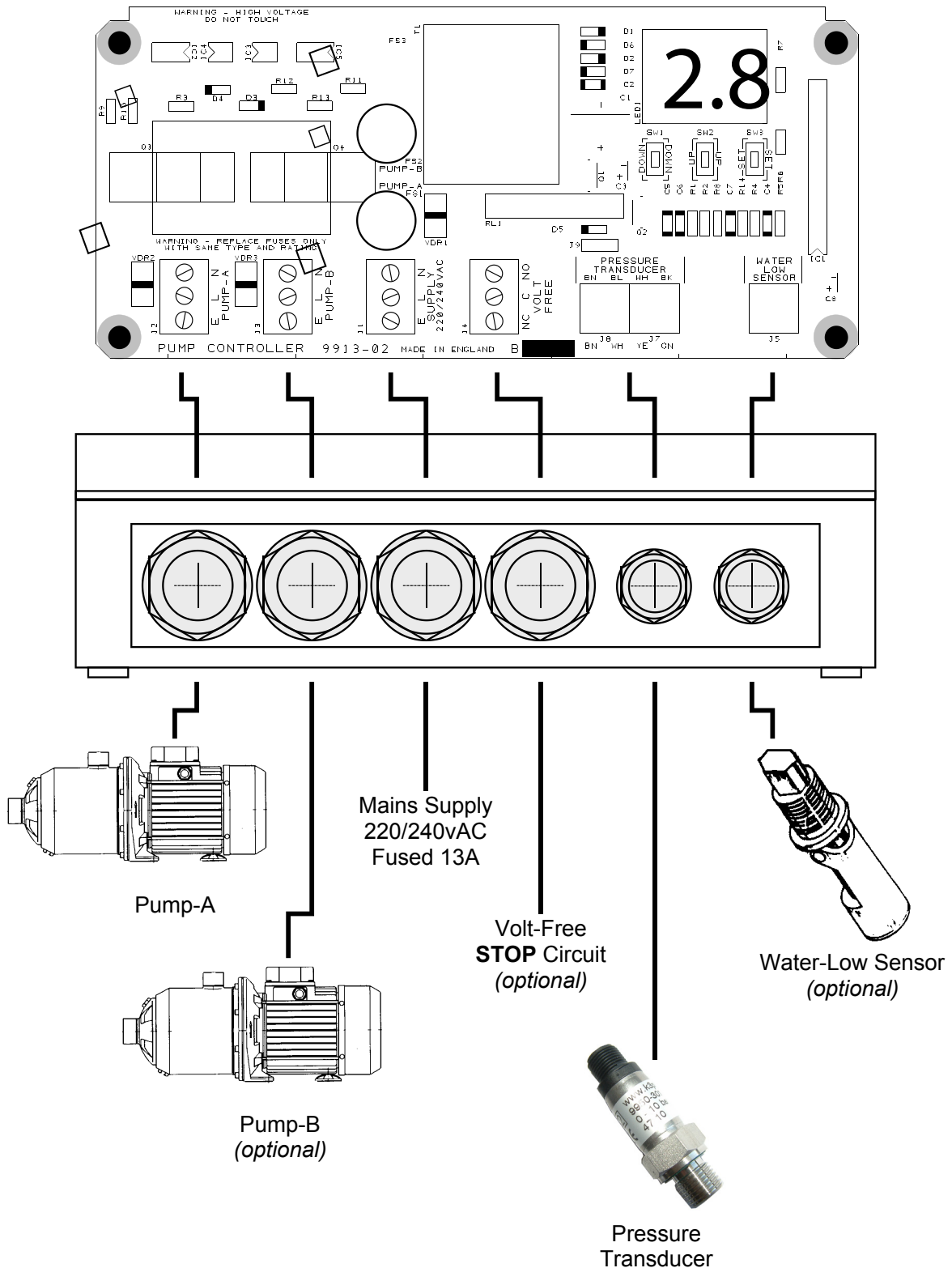
Further information relating to the operation of the expansion vessel can be found in (Appendix 1) refer to page 8 figure 4.

FILLING THE PRESSURISATION UNIT

The system should be filled to a minimum cold fill pressure of 0.8 Bar. Check that the heating/chilled system is isolated using the lockshield valves. Open the pressurisation unit supply valve and monitor the float valve on the break tank. Once the tank is full, the pump set can be switched on.

ECO Controller

All cables are routed through 5 x M16 Cable Glands in Case Base



SET PRESSURE

All the units are tested prior to despatch therefore, unless otherwise specified, the unit will reset to 1.5 bar. When adjusting the settings on the site it is advisable to do so with the unit isolated from the system.

TO CHANGE PRESSURE SETTINGS

When the unit is switched on the display should show the set pressure, 1.5 bar.

If the system pressure is too low then the pump will attempt to run, if the system pressure is too high it may be necessary to release water from the system.

Access & Controls

Three pushbuttons are located underneath the LED display. Access to the controls is only by removing the Four mounting screws securing the smoked transparent cover. There is NO interlock, the controller has to remain operational with the cover removed in order to alter any settings. The electronics area around the LED Display and Pushbuttons (in fact everything to the right of the central transformer) is all Low Voltage, double-insulated from the Supply Mains for safety, and under normal circumstances safe to touch (but let's be sensible - no wet hands!). Once set-up, the User will not need to make any further adjustments, hence the requirement for externally accessible controls has been dispensed with.

Volt-Free Contacts

The STOP Relay (Volt-Free Contacts used to STOP an external process such as a Boiler or Chiller because the System Pressure is out of range), only operates on either Pressure High, Pressure Low or Sensor Error Alarms. If there's a Pump Failure, or if there is a Water- Low, that does not necessarily mean you need to shut down external plant immediately. Both those conditions will eventually result in a Pressure Low Alarm eventually anyway. The Volt-Free contact is a change-over type and rated at 240vAC 6A (Resistive).

Entry into SET-UP

There is no Password or PIN (since the internal Controls are User inaccessible). To enter SET-UP mode, press and hold the SET Button for at least FIVE SECONDS. The Display will go BLANK, the Button can then be released. The first Menu Option will then automatically display, followed by it's setting. Use the UP and DOWN Buttons to change the value or setting and then press the SET Button to SAVE the new value. The next option will then be displayed. Pressing SET without changing any existing value/setting will retain that value/setting. Once the last option has been saved, or if there is no activity for 30 seconds, the controller will revert back to normal operation.

For a more detailed explanation of the display, see Appendix 4.

INITIAL OPERATION OF THE PRESSURE UNIT

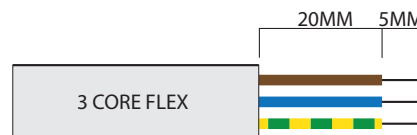
Once the pressure settings have been adjusted, the lockshield valve between the pressurisation unit and the system should be opened.

ROUTINE MAINTENANCE

6 MONTHLY

1. Check the expansion vessel charge pressure. A significant drop in charge pressure could be due to a faulty vessel diaphragm. Fitting a replacement diaphragm or replacing the vessel should be considered.
2. Briefly run the pump to check for rotor seizure. This could occur if the pump has not run for extended periods. This can be accomplished by depressing the red pump primer button.

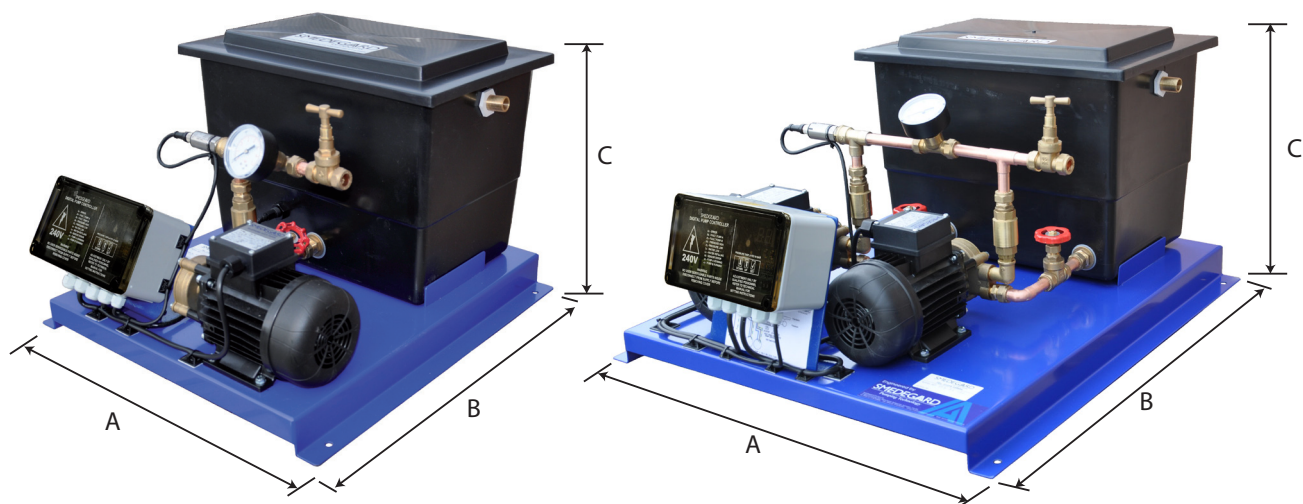
Figure C: 3 Core Flex



12 MONTHLY

1. Check the ball float valve for soundness and replace if necessary.
2. Check the plastic float for soundness.
3. Check the expansion vessel for external signs of corrosion. If any deterioration is observed, it is recommended that the frequency of inspection be increased or the vessel is replaced.
4. Check the operation of the safety circuits.

APPENDIX I: FIGURES AND DIAGRAMS



Model	A	B	C	Approx Net Weight kg.		Full Load Current - Amps	
				Single Pump	Twin Pump	Motor kW	230-1-50
							Full Load Current
OpenPress Mono 3	520	550	365	18	N/A	0.5	2.47
OpenPress Mono 6	520	550	365	18	N/A	0.6	3.05
OpenPress Duo 3	620	695	380	N/A	25	0.5	2.47
OpenPress Duo 6	620	695	380	N/A	25	0.6	3.05

FIGURE 2: TYPICAL SYSTEM LAYOUT

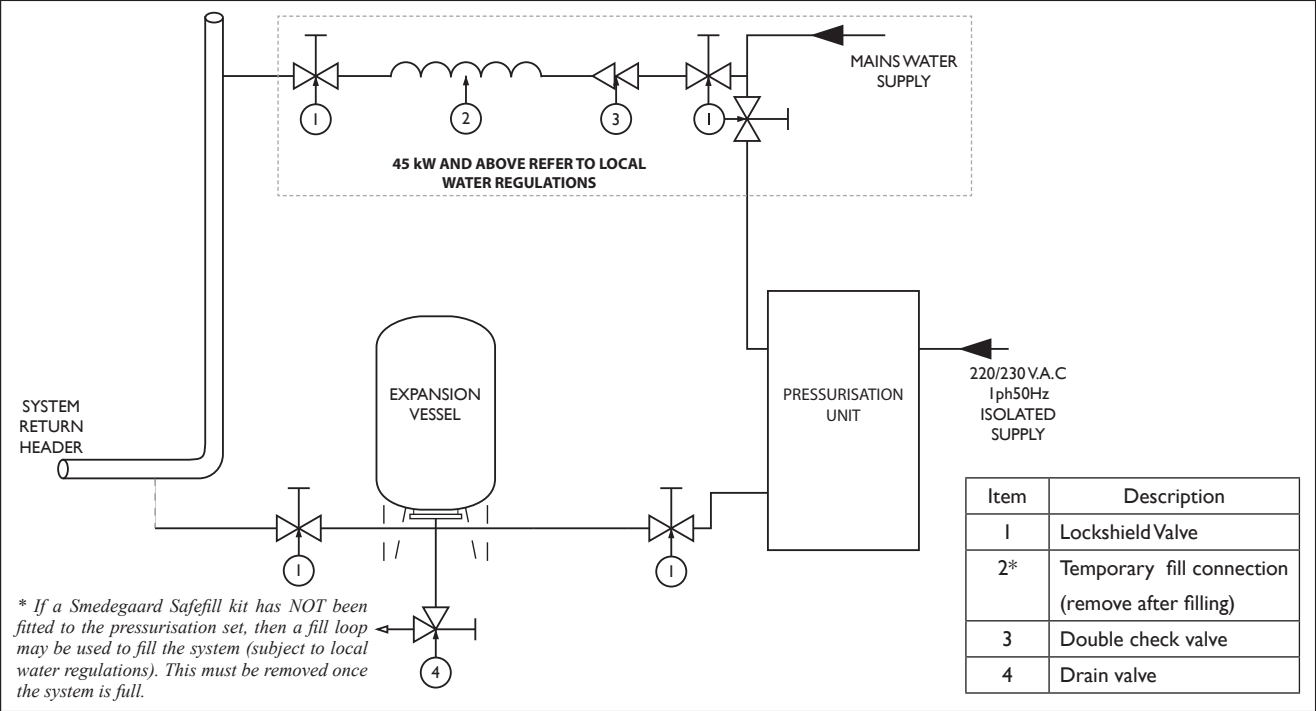


FIGURE 3: HIGH TEMPERATURE SYSTEM LAYOUT

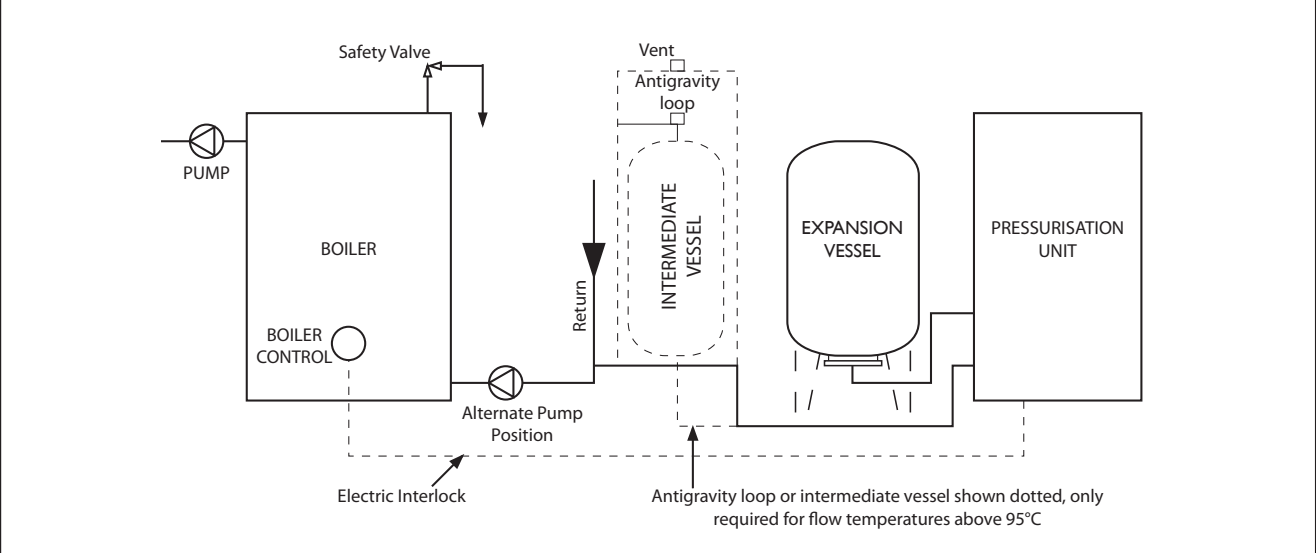


FIGURE 4: EXPANSION VESSEL OPERATION

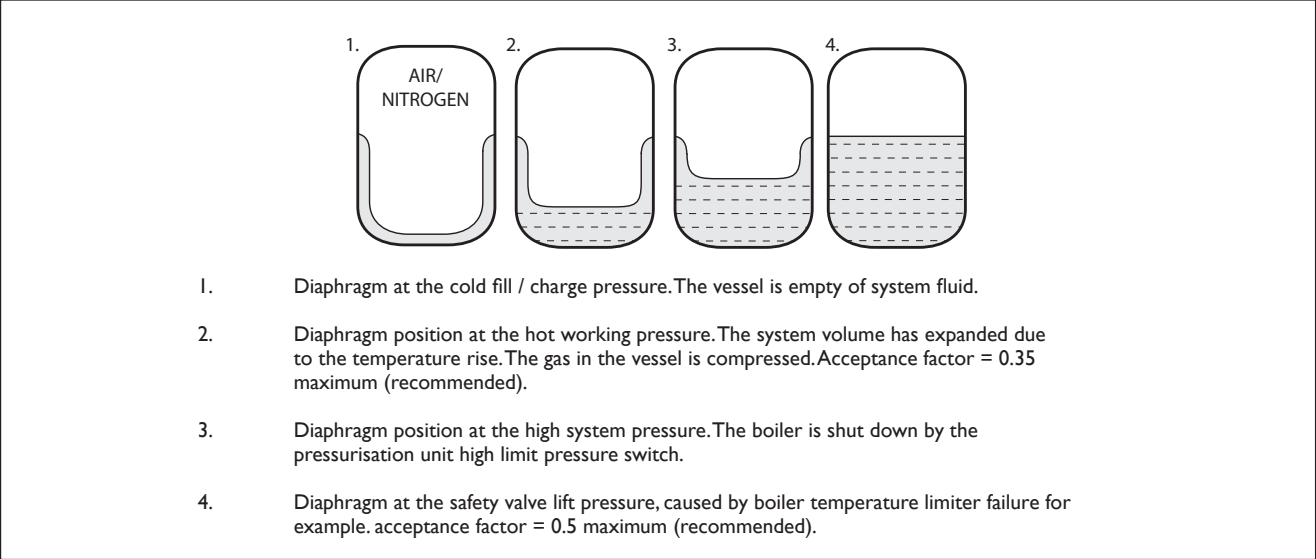


FIGURE 1: TYPICAL DIMENSIONS FOR UNITS

APPENDIX 2: PRESSURISATION SETS SIZING OF EXPANSION SETS

HEATING AND CHILLED WATER SYSTEMS

EXPANSION VESSELS

The Smedegaard extensive range of vessels vary in size between 5 and 3000 litres and are fitted with EPDM renewable rubber diaphragms which make them suitable for use in LPHW heating systems, chilled water systems, HWS systems and as a pump control vessel on a cold water booster set (potable water).

Vessels up to 24 litres are suitable for mounting directly in the pipe work. Vertical free standing vessels are available between 60 and 3000 litres. Horizontal free standing vessels are available between 24 and 300 litres. The vessels are suitable for water temperatures between -10°C and +100°C and working pressures up to 10 bar. (15 BAR AVAILABLE UPON REQUEST)

These vessels are factory charged with air at approx. 1.5 bar, unless specifically requested otherwise. This pressure will need to be corrected to suit the design condition of the system. This can be done via the Schrader valve located near the top of the vessel.

EXPANSION VESSEL DIMENSIONS

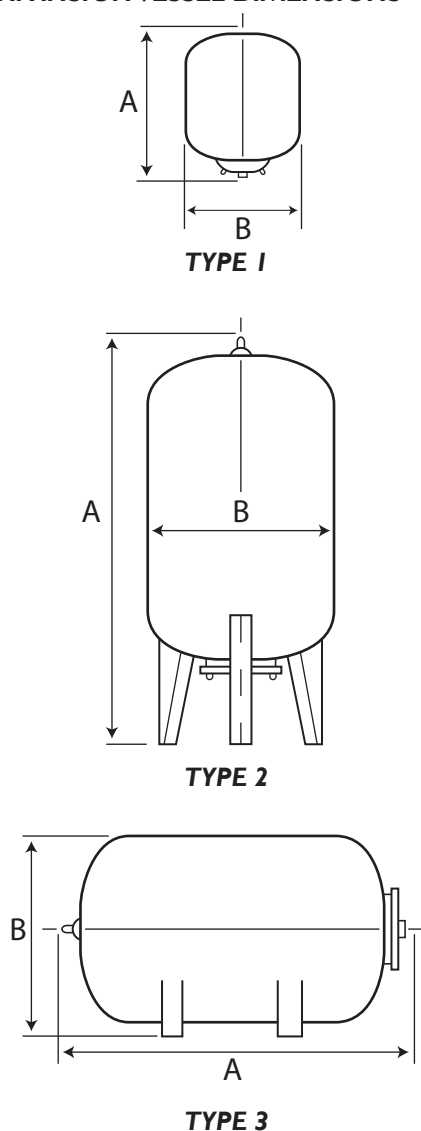


TABLE I

Capacity Litres	Max. Pressure bar	Connection Size BSP	A mm	B mm
Type 1 (Pipeline mounting)				
5	8	3/4"M	230	200
8	8	3/4"M	320	200
18	8	3/4"	405	270
24	8	3/4"M	495	260
Type 2 (Vertical standing)				
60	10	1"M	855	400
80	10	1"M	900	460
100	10	1"M	880	500
150	10	1"M	1030	510
200	10	1 1/4"M	1253	590
300	10	1 1/4"M	1371	650
500	10	1 1/4"M	1600	766
750	10	2"F	1970	800
1000	10	2 1/2"F	2430	800
1500	10	2 1/2"F	2130	1000
2000	10	2 1/2"F	2250	1100
2500	10	2 1/2"F	2400	1100
3000	10	2 1/2"F	2890	1100
Type 3 (Horizontal standing)				
24	8	1"M	495	260
50	10	1"M	700	405
60	10	1"M	810	405
80	10	1"M	970	495
100	10	1"M	990	495
200	10	1 1/4M	1220	625
300	10	1 1/4M	1220	680

EXPANSION VESSEL SELECTION FOR SYSTEMS

<95°C

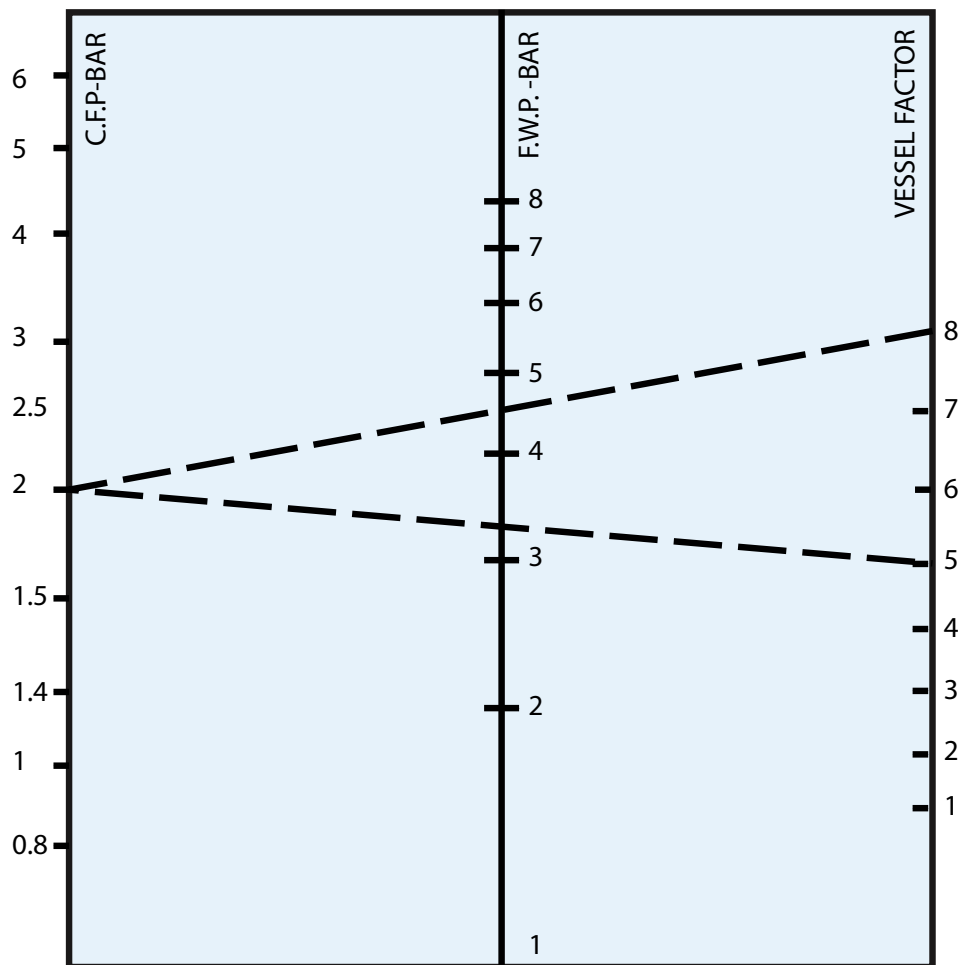
Cold fill pressure (in bar) = C.F.P. = $\frac{\text{Height of system (in metres)} + 3^*}{10}$

Note: Minimum C.F.P. = 0.8 bar

Example: Height of system = 17 metres therefore CFP = $\frac{17 + 3}{10} = 2$ bar

*Margin to ensure venting at top of system.

TABLE 2



As can be seen from the above (Table 2) the lower the vessel factor the lower the final working pressure (but the larger the vessel will be).

SYSTEM FACTORS TABLE 3

MAXIMUM SYSTEM TEMPERATURE °C														
VESSEL FACTOR		30	35	40	45	50	55	60	65	70	75	82	85	90
	8	0.01	0.014	0.018	0.023	0.028	0.033	0.038	0.044	0.052	0.058	0.067	0.072	0.08
	7	0.012	0.016	0.02	0.026	0.031	0.037	0.042	0.05	0.057	0.064	0.073	0.082	0.09
	6	0.014	0.018	0.023	0.029	0.036	0.042	0.05	0.057	0.066	0.074	0.084	0.091	0.103
	5	0.015	0.02	0.027	0.034	0.041	0.05	0.057	0.066	0.077	0.085	0.10	0.108	0.117
	4	0.019	0.025	0.032	0.04	0.05	0.06	0.068	0.079	0.092	0.105	0.12	0.13	0.143
	3	0.023	0.03	0.04	0.05	0.062	0.074	0.085	0.10	0.114	0.13	0.15	0.16	0.18
	2	0.03	0.04	0.054	0.069	0.082	0.10	0.115	0.133	0.155	0.17	0.20	0.22	0.24
	1	0.045	0.06	0.08	0.1	0.125	0.15	0.175	0.20	0.23	0.26	0.30	0.325	0.3675

Select system factor (from Table 3) using vessel factor (from Table 2) and maximum system temperature.

Example: System content = 4,400 litres and CFP = 2 bar. (If system content water unknown then use 12 litre/kW of boiler or chiller.)

Maximum system temperature = 82°C with vessel factor of 8 then the system factor from the above table 2 = **0.067**.

Minimum vessel size = 4400 x 0.067 = 295 litres.

(Nearest standard vessel = 300L) FWP = 4.5 bar

With vessel factor of 5 then the system factor from the above table = **0.10**.

Minimum vessel size = 4400 x 0.1 = 440 litre
(nearest standard vessel = 500L) FWP = 3.3 bar.

Standard vessels sizes are 5, 8, 18, 24, 50, 60, 80, 100, 150, 200, 300, 500, 750 and 1000 litres.

TABLE 4

VAPOUR PRESSURE ALLOWANCE -Add to CFP-	
Flow - °C	Allowance - bar
95	0.2
100	0.5
105	0.8
110	1.2
115	1.6
120	2.0
125	2.5
130	3.1
135	3.7
140	4.4

Notes: For chilled water systems use 30°C Ambient.

For temperature >95°C add vapour pressure allowance (see Table 4) to Cold Fill Pressure. An intermediate vessel (or antigravity loop) will also be required (for sizing see Table 5).

INTERMEDIATE VESSEL SELECTION**TABLE 5**

Flow - °C	Selection Factor F
95	0.0025
100	0.004
105	0.006
110	0.008
115	0.011
120	0.013
125	0.016
130	0.0195
135	0.023
140	0.0265

Intermediate vessel size (litres) =
system size (litres) x F.

APPENDIX 3: FAULT FINDING GUIDE

Fault

Cause

Motor does not run

- Pump is up to cut-out pressure
- Cut in pressure/differential too low
- Pressure transducer is faulty
- Interrupted power supply
- Pump controller faulty
- Low water protection activated
- Pump faulty

Pump runs continuously

- Pressure transducer faulty
- System leak
- Pump controller faulty
- Cut-out pressure set too high
- Faulty check valve
- Pump airlocked

Rapid cycling

- To be expected when first commissioning
- Differential between cut in and cut out too small
- Pressure transducer faulty
- Faulty check valve
- Pump controller fault

Pump does not reach pressure

- Cut out pressure too high
- System leak
- Blockage at inlet or outlet of pump
- Faulty check valve
- Pump airlocked
- Pressure transducer faulty

System FWP too high

- Expansion vessel air pressure too high
- Expansion vessel air pressure too low
- Loss of air cushion – possible rupture to vessel diaphragm
- Expansion vessel too small
- Cut-out pressure set too high
- Pressure transducer faulty
- Pump controller faulty

NOTE: DO NOT TAMPER WITH THE UNIT IF UNSURE - CALL SMEDEGAARD FOR ASSISTANCE

Under normal circumstances, the LED Display will show a steady numerical value (between 0.0 and 9.9) representing the current PRESSURE in BAR.

There are a number of messages which can be displayed depending on the current status of the controller.

rA This message is rotated with the Pressure Display value.

rb PUMP-B is Running. This message is rotated with the Pressure Display value.

OF Remotely Switched OFF. This controller has the ability (optional feature) to be remotely shut-down (eg by a BMS). This is accomplished by making (shorting) the two volt-free terminals on connector J6 (REMOTE AUX).

Should an ERROR occur, the error condition will be flashed onto the LED Display. Errors are prefixed Er. If there are several simultaneous errors, they will be displayed in rotation, finally, the Pressure value will be displayed, and the whole sequence will begin again. Errors that are cleared (eg a Pressure High that then falls within range) will disappear from displaying automatically. If there are no errors or pumps running, then the LED display will revert to just displaying the current pressure.

Er

This tells you there is an ErROR. Wait and see what the next message(s) display - there may be more than one. The current Pressure Display ends the sequence before it repeats again.

FA

PUMP-A FAULT. Check Fuse FS1.

Fb

PUMP-B FAULT. Check Fuse FS2.

PL

PRESSURE LOW The current Pressure is BELOW the preset Alarm threshold (also activates STOP Relay).

PH

PRESSURE HIGH The current system Pressure is ABOVE the preset Alarm threshold (activates STOP Relay).

Lo

WATER LOW. Check the tank Water Level, or the water level switch. A 'make' condition (ie short) gives a Water Low signal. There is a pre-set timeout to allow the tank to refill (which could be set up to 99 seconds), during the 'refilling' time, the display will show Lr = Low refilling.

Lr

SE

SENSOR ERROR Check that the Pressure Sensor is connected and that all the connections and cables are good. This is the only other error (apart from PL or PH above) that will also activate the STOP Relay.

St

The Stop (Volt-Free) Relay has tripped. Check the display for the reason why (eg PL, PH, or SE).

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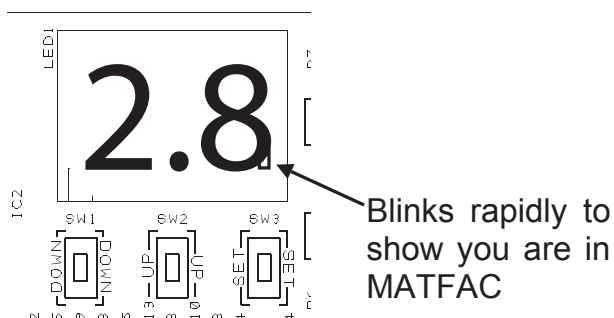
Segment Confidence Check - 8.8. When first powered-ON, the controller will display 8.8. (all segments lit) whilst it performs its internal diagnostics. This verifies that all the Display is working.

SP	SET POINT. This is the operational Pressure Set-Point. Enter the pressure that the system is required to maintain. Factory Default = 1.5 Bar.	Hn	PRESSURE HIGH ALARM ON. The value at which the Pressure HIGH Alarm activates. Range 0.0-9.9 Bar. Factory Default = 2.7 Bar.
dF	DIFFERENTIAL. This is the Pressure Differential at which any given pump is switched-on. eg with a Set Pressure of 1.5 Bar, and a Differential of 0.3 Bar, the system will switch in the first pump at 1.2 Bar (1.5-0.3) and switch it out at 1.5 Bar. Factory Default = 0.3 Bar.	HF	PRESSURE HIGH ALARM OFF. The value at which the Pressure HIGH Alarm deactivates. Range 0.0-9.9 Bar. Factory Default = 2.5 Bar.
PA	PUMP-A STATUS. If Pump-A is fitted then set to ON (options are On or Off - Factory Default = On). In a single-pump installation Pump-A or Pump-B can be set to ON, it doesn't have to always be Pump-A.	Lt	WATER LOW RESET TIMER. Starts a Timer to prevent pumps from immediately restarting following reset from a Water-Low Alarm. Allows tanks to start refilling and prevents pumps from continually switching whilst emptying small amounts of water from the bottom of a tank. Adjustment Range 1-99 Seconds. Factory Default = 99 Seconds.
Pb	PUMP-B STATUS. If Pump-B is fitted then set to ON (options are On or Off - Factory Default = On). In a single-pump installation Pump-A or Pump-B can be set to ON, it doesn't have to always be Pump-A.	LE	LEAK ALARM Will Trip an Alarm if a LEAK is detected (ie the Pumps have run more than a preset number of minutes (1-59) in any hour. Factory Default = 0 (Disabled).
Pt	PUMP TEST. If set (to a value other than zero), will momentarily pulse for 250mS, any pump that has not run in the preceeding time period. The Time Period is set in Hours and can be set in the range 0-99. Factory Default = 99 Hours.	Sb	STANDBY MODE Requires manual User Start (access to SET Button required - press for at least five Seconds) in order to Switch-On Following application of mains power (ie after a Power failure or to execute a manual lock-out for Health & Safety reasons etc).
PP	PUMPTEST PULSE Adjustable pulse between 10-990mS - Factory Default 25 (250mS)	FS	FAILSAFE MODE Reverses the operation of the VOLTFREE Relay Contacts (ie Normally On instead of Normally OFF).
Ln	PRESSURE LOW ALARM ON. The value at which the Pressure LOW Alarm activates. Range 0.0-9.9 Bar. Factory Default = 0.4 Bar.	tS	TRANSDUCER SPAN The Span (Bar) of the Transducer fitted to the system. Adjustment Range 1-20 Bar) Factory Default = 10 Bar (A0).
LF	PRESSURE LOW ALARM OFF. The value at which the Pressure LOW Alarm deactivates. Range 0.0-9.9 Bar. Factory Default = 0.4 Bar.	Co	CALIBRATION oFFSET A factory adjustment to ensure very high display accuracy. Do not adjust.

WP/FP ECO DS/DT CONTROLLER

MATFAC - Manufacturing Test Facility

To enter MATFAC mode, press and hold the left-hand DOWN Button whilst powering-On the controller. The Button need to be held for at least FIVE SECONDS .The Display will show "--", the Button can then be released.



The LED Display will show the current pressure, but to differentiate it from 'normal' mode, the rightmost decimal point will blink rapidly.

Any Errors (eg Water-Low, or Pump Fault) will rotate through the display as normal. Note that the Water-Low refilling timer (Lt) is disabled whilst in MATFAC, (Lr not displayed following an Lo message) so you do not have to wait the refilling time if testing the Water-Low feature.

The controls now function as follows:-

Left-hand DOWN Button: This activates PUMP-A when pressed. If the internal set-up has been set to disable PUMP-A (PA = OF), then you will be reminded with OF blinking rapidly in the display - however the pump will be energised. This is a reminder that you've fitted a pump (and it's working), but haven't told the software you've done it.

Centre UP Button: This activates PUMP-B when pressed. If the internal set-up has been set to disable PUMP-B (Pb = OF), then you will be reminded with OF blinking rapidly in the display - however the pump will be energised. This is a reminder that you've fitted a pump (and it's working), but haven't told the software you've done it.

Right-Hand SET Button: When pressed this will activate the Volt-Free STOP Relay (RLI). The Display will show St (Stop) and you will hear the Relay click. To test, a DVM set to continuity will confirm that the Volt-Free contacts at J4 have energised. Note that when in MATFAC the Volt-Free STOP Relay will operate normally irrespective if the FAILSAFE (FS) option is enabled in the SET-UP. Normal being the NC Contact closed when the SET Button is NOT pressed, and NO Contact Closed when the SET Button IS pressed.

To exit MATFAC, power-OFF the controller, wait a moment (to allow the internal circuitry to drain all power) and then power-ON in the normal way.

INITIAL OPERATION OF THE PRESSURE UNIT

Once the pressure settings have been adjusted, the lockshield valve between the pressurisation unit and the system should be opened.

CERTIFICATION

DECLARATION OF CONFORMITY

We, SMEDEGAARD Pumps Limited, 10 Beech Business Park, Bristol Road, Bridgwater, Somerset, TA6 4FF hereby declare that our products.

Are in conformity with the following Directives:

Councils Directive 2006/42/EC of the laws of member states relating to construction and making of machines.

Standards used: EN 809: 1998

Council Directive 2006/95/EC of the laws of the member states relating to Electrical equipment designed for use within certain voltage limits.

Standards used: EN 60204-1:2006

Council Directive 2004/108/EC of the laws of the member States relating to electromagnetic Compatibility.

Standards used:	EN 50082-1:1998	EN 50178:1998
	EN 61000-6-2	EN 61000-6-4
	EN 61000-6-3	EN 61800-3:2004

Built to SEP in accordance with PED 97/23/EC

Date: 12-02-10


E. Barrett
General Manager

GUARANTEE FOR PRESSURISED UNIT

1. For a period of 1 year after the date of supply, in the event of any defect in the equipment or its components, replacement of the defective parts will be supplied; however, this does not include any labour costs.
2. The working temperature must not be greater than 120°C

Please complete in capital letters

Serial No:

Purchaser:

Date of Installation: Installer:

Tel:

ANY CLAIMS SHOULD BE MADE THROUGH YOUR INSTALLER

NOTES

SMEDEGAARD

Pumping Technology

PRESSURISATION SETS

HEATING AND CHILLED WATER

SITE CHECK LIST - PRE COMMISSIONING

The following conditions must prevail before the Smedegaard engineer is called to the site. Failure to provide the following could result in an aborted visit and a full commissioning charge being invoiced.

1. Mains cold water supply must be connected and available at the Smedegaard Pressurisation Set break tank.
2. An appropriate electrical supply to the Pressurisation Set.
3. System must be filled to approximately the required Cold Fill Pressure.
4. Pressurisation unit and Expansion vessel, or vessels, must be isolated from the system; i.e. no water should be in the system expansion vessel, or vessels, prior to commissioning.
5. High and Low pressure alarm circuit (electrical) from the Smedegaard Pressurisation unit to the boiler controls must be connected.

Whilst every care has been taken to ensure that data is correct, no responsibility can be accepted for inaccuracies or misprints.

It is SMEDEGAARD' policy to continually improve and develop the product range. We reserve the right to change specifications without prior notice.

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