

ARMSTRONG



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Installation, Commissioning and Maintenance

Pulpress Pro Enhanced Transducer Control

2.7: 5.5: 8.0 bar Pressurisation Packaged Sets

Introduction

This leaflet contains specific information regarding the safe installation and operation of the packaged sets mentioned.

These instructions must be read and understood by anyone responsible for the installation, operation and maintenance of this equipment.

Noise Emissions

This equipment runs at a level lower than 70dBA.

Warning Symbols



Safety instruction where noncompliance would affect safety.



Safety instruction where an electrical hazard is involved.



Safety instruction relating to safe operation of the equipment. (ATTENTION)

Instructions for Safe Use

General This equipment has been designed for the pressurisation of sealed heating, chilled water and closed-condenser water systems to the operating conditions shown. No installation of this equipment should take place until this leaflet has been studied and understood. Handling, transportation and installation of this equipment should only be undertaken with the proper use of lifting gear.



This equipment must always be stored and installed in a dry frost-free environment.

3. Extend the 3/4" plastic overflow connection pipe from the Pulpress to a position where an overflow will cause a nuisance and be remedied.
4. Connect the Pulpress ball valve 1/2" BSP to a suitable water supply, incorporating a stop cock.
Note: If the pressure available at the ball valve is below 0.3 bar, fit the low pressure orifice provided (located on the ball-valve arm).
5. Make electrical connections to the Pulpress using a suitably fused supply. Check accompanying data sheet/wiring diagram for electrical details.

Installation

1. The Pulpress unit should be sited with good access to the front, top (min. 400mm) and both side panels for ease of maintenance.
2. Connect the expansion pipeline which links vessels to the system on the suction side of the circulating pumps. Quick-fill and isolating valves must also be fitted in this line to ease servicing. See installation schemes (page 3).

Ensure unit is earthed correctly.

Commissioning

1. Fill the system with water via the quick-fill connection, up to the system fill pressure.

ATTN

The running time of pumps fitted to this unit should be limited to 4 hours in any one 24 hour period.

Do not use the Pulpress to fill the system.

It is essential that all air in the system is allowed to escape freely via the automatic air vents and radiator cocks etc. Failure to remove all air could result in a system malfunction.

(See leaflet on Air Eliminators).

2. Turn on water supply feeding the Pulpress Unit, and fill break tank.



Under no circumstances should water treatment crystals/chemicals be introduced into the system via the Pulpress break tank.

3. Check pumps have self-primed by loosening bleed screw on each pump housing. Continue to let water escape until no air is present.

Re-tighten nuts. **Never let pumps run dry.**

4. With all unit switches in the 'Off' position switch on the power supply to unit.

Operation

Turn the disconnect switch to the 'On' position and 'Auto/Manual' switch to the 'Auto' position. The unit will now automatically maintain the pressure in the system, as set out in the design criteria, and will only operate when the pressure falls below the system fill-pressure to the pump cut-in pressure.

Two-pump units will automatically alternate the duty pump. Changeover from duty to standby will also take place in the event of Pump Tripped or Duty pump Failed. In the event of an Miniature Circuit Breaker tripping the main isolator should be switched off to allow the changeover module to reset.

ATTN The cause of the fault should be investigated and rectified before resetting.

Pressure control and delay settings.

All pressure settings are factory set to customer specific data and should not need altering.

The following set points can be adjusted.

Duty pump cut-in	Pot R26
Duty pump failed cut-in	Pot R27
Low pressure alarm	Pot R28
High pressure alarm	Pot R29
Delay start	Pot R30

Potentiometers located on main PB, turn clockwise to increase.

Pressure differentials are fixed at approximately 3 PSI. To aid pressure setting test pins have been mounted adjacent to each potentiometer. Connect a volt meter to the appropriate pins and adjust the potentiometer until the correct DC voltage is registered. 1 Volt = 0 PSI each 20 mv above 1 volt will increase the set point by 1 PSI Example Duty pump cut-in pressure required 20 PSI Voltage reading will be approximately 1.4 Volts.

Miniature ball valves are located at base of unit to assist with pressure setting.

Delay start

The delay start circuit is off when the voltage measured across Pot R30 reads 0V.

2.5 V = 5 Seconds 5V = 10 seconds (maximum).

Boiler/Chiller Interlock

An independent, normally-closed circuit is provided as a boiler/chiller interlock. It comprises a high system pressure contact and a low system pressure contact, either of which, when operating, will open the boiler/chiller circuit. If the high pressure contact is not required with the chiller application, it can be omitted. See wiring diagram for details.

Volt free contacts

Volt free contacts are available for:

Pump 1,2 run.

Pump 1,2 tripped.

Duty pump failed.

Break tank low water level.

Low pressure.

High pressure

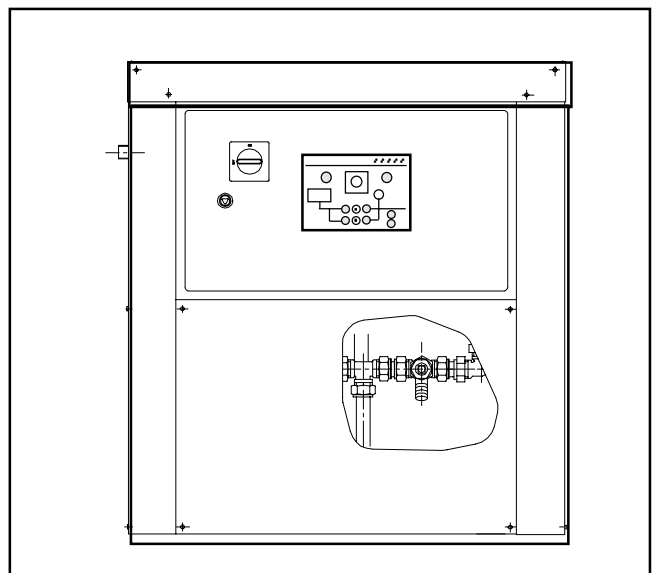
Maintenance

Regular Checks (every 3 months).

1. Check that the pump is developing the correct pressure and is not noisy or vibrating.
2. Check that the mechanical seal is not leaking.
3. Check that the motor is not over-heating.

At 6-monthly Intervals:

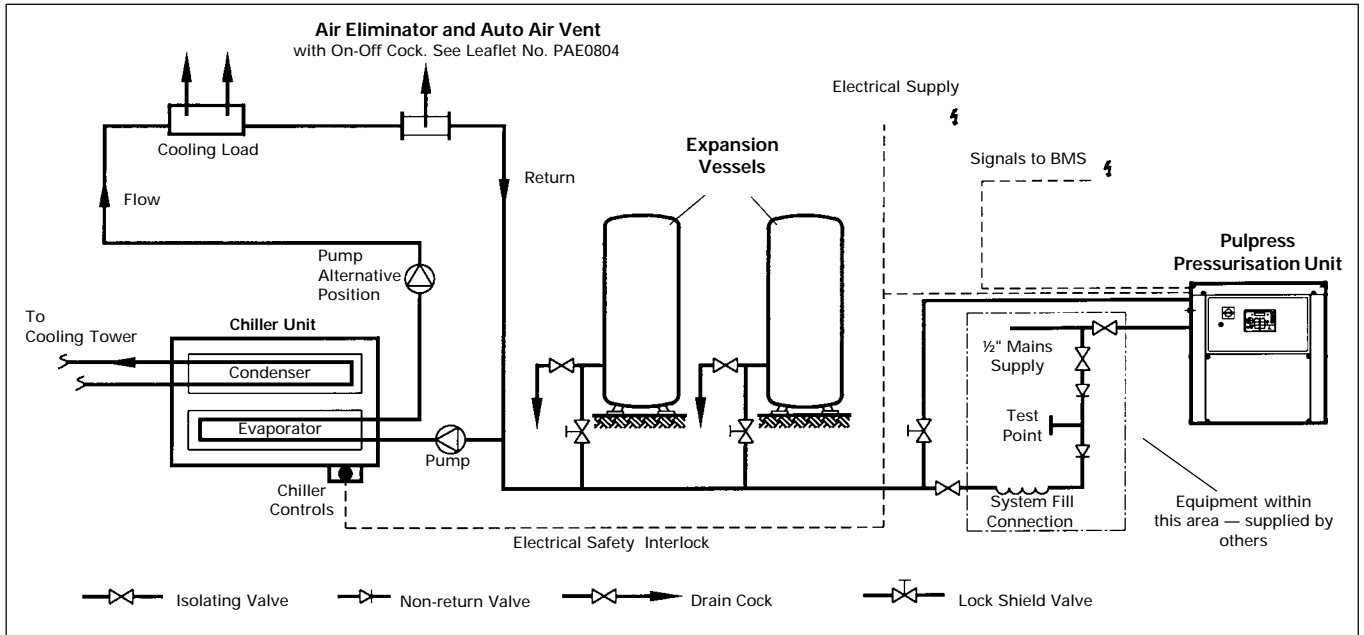
1. Check the gas fill pressure in the small membrane vessel. This can be effected by isolating the Pulpress Unit from the system and draining water from the vessel via the drain valve (see sketch below for position). Check vessel gas charge with a tyre gauge and re-charge as necessary with Nitrogen or dry air. The main expansion vessel/s should be checked in a similar manner.
2. Check the electrical installation thoroughly for defects. Ensure that the earth connections are making good contact.
3. Check that the break tank is clean.
4. Check the operation of high/low set points.



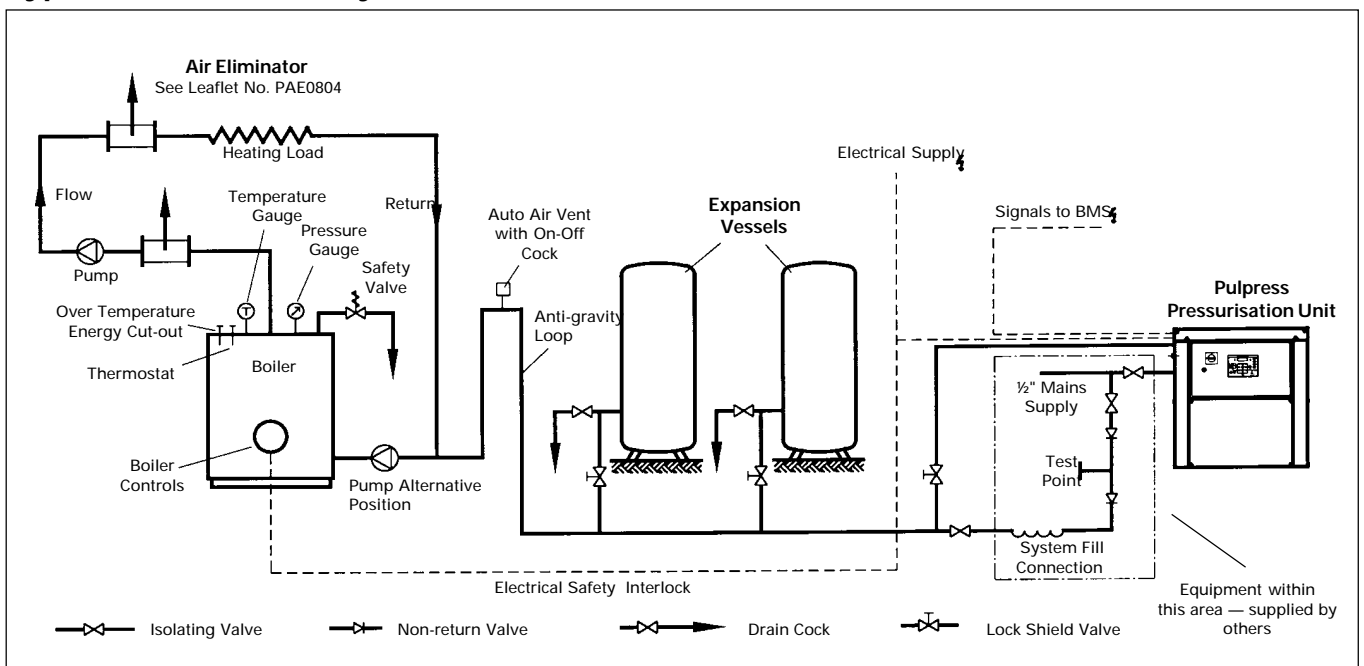
Sketch showing Drain valve

Installation Schemes

Typical Chilled Water System



Typical LTHW Sealed System max. 100°C



Typical Sealed System (MTHW) max. 120°C

This arrangement is similar to the LTHW system, shown in the schematic above, with the following addition:-

An intermediate vessel, which accommodates expanded hot water from the system, is installed between the System and the Pullen expansion vessel. Expanded water entering the Pullen expansion vessel from the intermediate vessel will be cooler.

WARNING NOTES:

Packed-gland circulating pumps **MUST NOT** be used on sealed systems.

No part of the set, expansion vessel, intermediate vessel or connecting pipe is to be lagged.

ATTN

Precautions should be taken to ensure that Lock Shield Valves are protected against unauthorised closure.

Water treatment chemicals **MUST NOT** be added to the system via the Pulpress break tank.

Fault Finding Guide

Ensure that unit is isolated from all electrical supplies, and pressure is released from the unit before any maintenance work is carried out.

Fault	Possible Cause	Possible Remedy
The unit will not operate.	<ol style="list-style-type: none"> 1. No power supply 2. Fuse blown 2.1 Check fuse values are adequate 2.2 Check external electrical connections to the unit have been made correctly 	<ol style="list-style-type: none"> 1. Restore supply 2.1 Replace fuse with correct type as stated in system documentation 2.2 Check wire connections have been made to the correct terminals in accordance with the appropriate wiring diagram
Power light on but pumps will not run	<ol style="list-style-type: none"> 1. Selector switch in the OFF position 2. Incorrect pressure settings on pump control 3. Pump circuit breaker tripped 3.1 Check pump for shaft seizure 3.2 Check pump motor for insulation failure 	<ol style="list-style-type: none"> 1. Switch selector switch to the AUTO position. 2. Check pressure settings against system data supplied 3. Reset circuit breaker after identifying fault. 3.1 Strip pump and clean internals. 3.2 Investigate cause and replace motor.
Pumps run but will not develop adequate pressure	<ol style="list-style-type: none"> 1. Impeller blocked 2. Air in the pump housing 3. System pressure setting valve left in the OPEN position 4. Break in system pipe work 	<ol style="list-style-type: none"> 1. Clean impeller 2. Vent pump and remove air 3. Return valve to the CLOSED position 4. Repair break in pipe work
Pumps switch on and off rapidly (bounce)	<ol style="list-style-type: none"> 1. System vessel has incorrect pre-charge 2. Non-return valve not seating correctly 3. Air in control lines to pressure gauge and transducer 	<ol style="list-style-type: none"> 1. Check pre-charge of vessel is in accordance with data sheet supplied 2. Clean/replace non-return valve 3. Evacuate all air from control lines
Break tank overflowing	<ol style="list-style-type: none"> 1. Leaking ball valve 2. Non-return valve not seating correctly 3. Pressure setting valve left in the OPEN position 	<ol style="list-style-type: none"> 1. Replace ball valve-washer/seal 2. Clean/replace non-return valve 3. Close pressure setting valve

Spares Supplies

The Spares Department offers quick service and delivery of spare parts.

When ordering spares please give as much information as possible. In particular, quote the serial number and part code or description. The serial number is stamped on the Duty Plate attached to the top left hand side of the Pulpress.

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