

# ARMSTRONG



## Make-Up Units

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# Pressurisation units for sealed heating & chilled water systems



The 3750 Pulpress Series of microprocessor controlled pressurisation units are designed to make up any losses due to system leakage and to maintain the initial system design fill-pressure in sealed LTHW, MTHW or Chilled Water systems, and all types of systems as set out in BS7074 Parts 1, 2, and 3. They are ideal for domestic or industrial premises. 3750 Pulpress units are designed for applications where there is a need to pressurise and provide make-up for sealed systems within a building.

## ► Sealed System Advantages

1. Units comply with BS7074
2. Compliant with EMC regulations, Machinery and Low Voltage Directives
3. Fully packaged units
4. Comprehensive electrical/electronic control systems
5. Full on-board service facilities

Conventional heating systems are provided with a feed and expansion tank, normally positioned above the highest point in the system. This feeds the system with water, accommodates expansion and replaces losses due to evaporation.

With this type of arrangement air is absorbed into the water with resultant corrosion of heat exchangers, pipework and boilers.

A sealed system limits air intake and corrosion to a minimum and only needs fresh water make-up to replace any losses caused by leakage.

The conventional header tank, with its housing, associated pipework and lagging, is dispensed with and atmospheric contamination is excluded.

Higher flow temperatures may be used in sealed systems which, with larger temperature drops, permit lower water circulation rates, smaller pumps and reductions in pipework sizes, all with obvious cost-savings.

## ► Easy to Install and Service

The attractive enclosure has front access to the pumps and control panel. Service and maintenance points are available for commissioning and maintenance.

Piping configuration is such that it will allow the standby pump (twin-pump units) to continue operating even if one pump is completely removed for servicing.

# Advanced concept pressurisation units

## Pressure Switch Control

### ▶ SPU 502 / 503

Open plan baseplate type single pump make-up units for systems not requiring comprehensive control features. Available in single system (SPU 502) and two system (SPU 503) formats. High/low pressure alarm option available.

### ▶ Features & Benefits

- Well-proven design
- Ex stock availability
- Costed for tight budgets
- Simple operation and maintenance



## Glycol Auto-Fill

### ▶ GLA 606 / 626

The glycol make-up unit has been rarely seen as a standard plant item. It has usually been provided as a custom-built product. GLA houses all the water/glycol make-up components in an enclosed unit with large storage capacity yet small footprint. Available with single or duty/standby pumps and an extensive options list for low and medium pressure systems containing glycol.

### ▶ Features & Benefits

- All features of standard make up units but with glycol make-up facility
- Powered agitation of glycol/water mixture ensuring uniform density
- Comprehensive BMS interface
- 200 litre mixing tank capacity



### ▶ MPU 502 / 506 / 526

Briefcase-sized autofill set, specified for wall mounting, providing ultra compactness, yet containing duty or duty/standby pumps, break tank and optional high/low pressure alarm for BMS Interlock. Suitable for systems needing up to a 500 litre vessel

### ▶ Features & Benefits

- Ultra-Compact for wall mounting
- Tops up small systems
- Ex stock availability



### ▶ 3750 Pulpress

Cabinet enclosed unit, specified for wall or floor mounting, providing control for low and medium pressure systems. Available in a wide range of specification levels with duty or duty/standby pumps. Microprocessor controlled with optional VFC interface and connection to BMS systems. Rotomould lightweight construction providing an environmentally friendly recyclable pressurisation solution.

### ▶ Features & Benefits

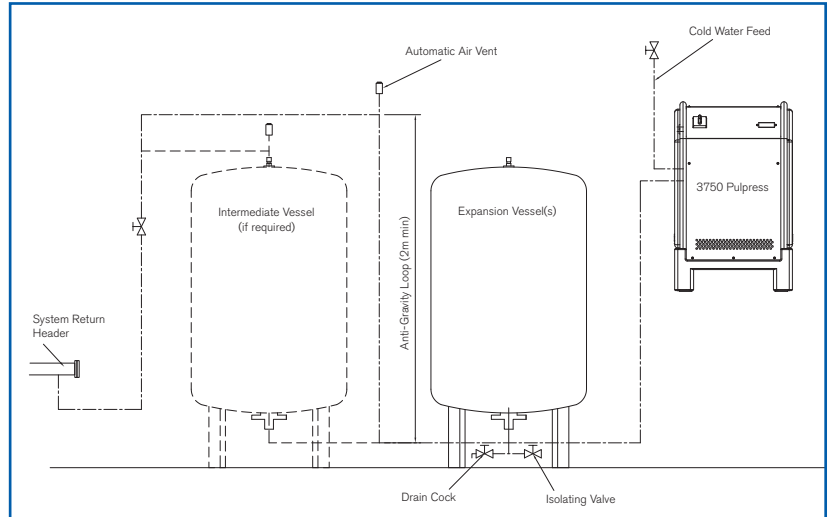
- Floor or wall mounting
- Controls versatility
- Ex stock availability
- Enhanced option with VFC's
- Microprocessor as Standard



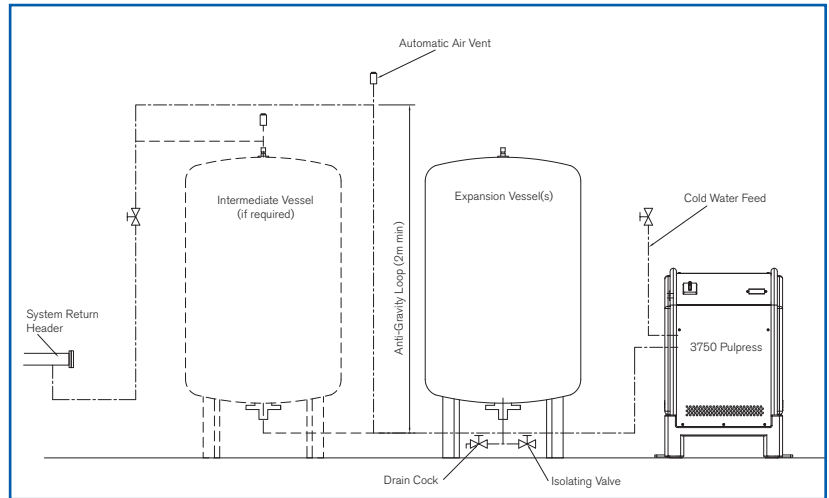
## Typical Installations

### ► Recommended installation of Armstrong Pressurisation make-up units and expansion vessels

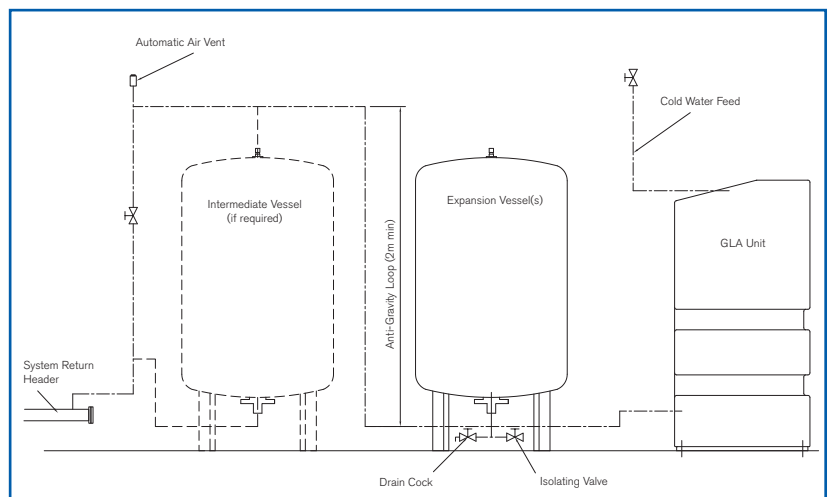
#### ► Wall mounted option\*



#### ► Floor mounted option\*

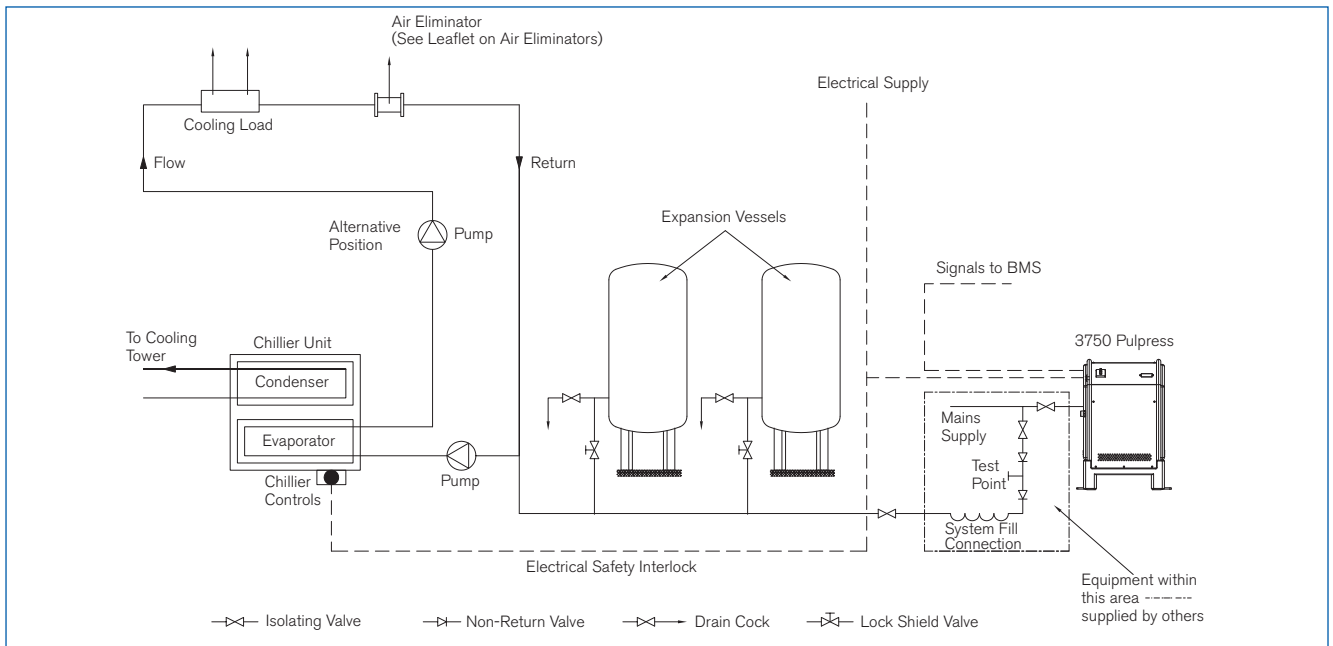


#### ► GLA Floor mounted (only)

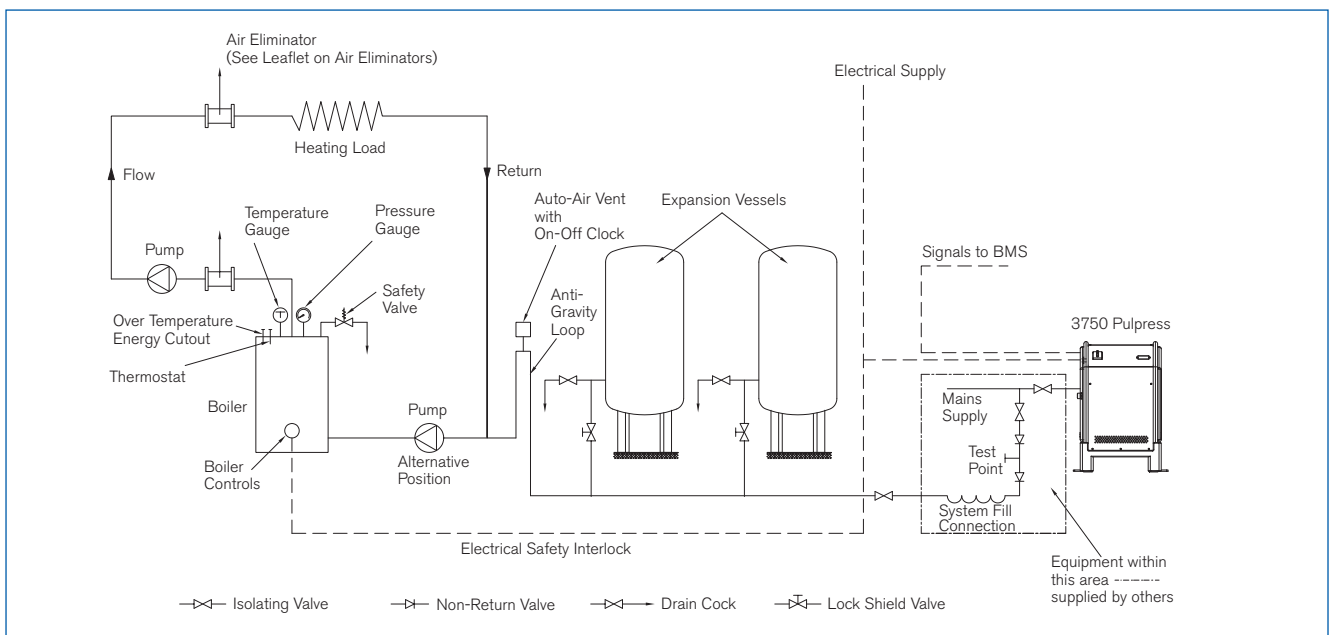


\* For two system variants, duplicate installation.

## ► Typical Chilled-water Sealed System



## ► Typical LTHW Sealed System max. 100°C



## ► Typical MTHW Sealed System - max. 120°C

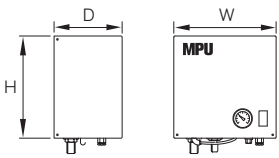
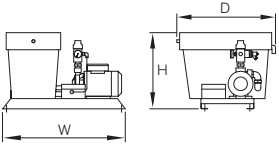
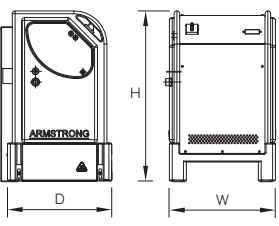
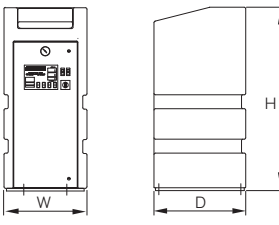
The arrangement of the MTHW scheme is similar to the LTHW system above but has, in addition, an intermediate vessel installed between the expansion vessels and the system connection.

The volume of water contained in this vessel ensures that the return temperatures at the boiler are not transferred to the expansion vessel, where damage to the diaphragm would otherwise occur.

## ► Warning Notes:

1. Packed-gland circulating pumps must NOT be used in sealed systems.
2. Water treatment must NOT be added to the system via the 3750 Pulpress break tank.
3. No part of the set, expansion vessel, intermediate vessel or connecting pipe is to be lagged.
4. Precautions should be taken to ensure that Lock Shield Valves are protected against unauthorised closure.

## ► Dimensions and weights

Range	Model	Motor kW	rpm	Phase	Starting Current (A)	Full Load Current (A)	MWSP (Bar)	Dimensions			Weight (KG)	Water Inlet Conn. (BSPM)	System Conn. (BSPF)
								W	H	D			
	MPU 502/25	0.12	2900	1	–	0.5	6	300	300	200	8	1/2"	1/4"
	MPU 502/50	0.12	2900	1	–	0.5	6	300	300	200	8	1/2"	1/4"
	MPU 506/L	0.12	2900	1	–	0.5	6	300	300	200	8	1/2"	1/4"
	MPU 526/L	0.12	2900	1	–	0.5	6	300	300	200	8	1/2"	1/4"
	SPU 502/30	0.5	2900	1	5.6	2.1	6	647	420	520	25	1/2"	1/2"
	SPU 502/60	0.6	2900	1	16.2	2.7	8	647	420	520	25	1/2"	1/2"
	SPU 503/20	0.5	2900	1	5.6	2.1	6	647	420	580	26	1/2"	1/2"
	SPU 503/45	0.6	2900	1	16.2	2.7	8	647	420	580	26	1/2"	1/2"
	SPU 503/45	0.6	2900	3	5.6	1.06	8	647	420	580	26	1/2"	1/2"
	3750-1SL	0.37	2900	1	7.5	2.5	2.7	560	902	557	42	1/2"	1/2"
	3750-2SL	0.37	2900	1	7.5	2.5	2.7	560	902	557	55	1/2"	1/2"
	3750-1SM	0.5	2900	1	8.7	2.9	5.5	560	902	557	42	1/2"	1/2"
	3750-2SM	0.5	2900	1	8.7	2.9	5.5	560	902	557	55	1/2"	1/2"
	3750-1EL	0.37	2900	1	7.5	2.5	2.7	560	902	557	42	1/2"	1/2"
	3750-2EL	0.37	2900	1	7.5	2.5	2.7	560	902	557	55	1/2"	1/2"
	3750-1EM	0.5	2900	1	8.7	2.9	5.5	560	902	557	42	1/2"	1/2"
	3750-2EM	0.5	2900	1	8.7	2.9	5.5	560	902	557	55	1/2"	1/2"
	GLA 606/L	0.5	2900	1	5.6	2.1	8	600	1300	600	65	1/2"	1/2"
	GLA 626/L	0.5	2900	1	5.6	2.1	8	600	1300	600	70	1/2"	1/2"
	GLA 606/M	0.6	2900	1	16.2	2.7	10	600	1300	600	65	1/2"	1/2"
	GLA 626/M	0.6	2900	1	16.2	2.7	10	600	1300	600	70	1/2"	1/2"
	GLA 606/M	0.6	2900	3	6.36	1.06	10	600	1300	600	65	1/2"	1/2"
	GLA 626/M	0.6	2900	3	6.36	1.06	10	600	1300	600	70	1/2"	1/2"

All dimensions are in mm unless stated  
 Dimensions for fully packaged units can be supplied upon request

## ► Technical Summary

Design	SPU		MPU			3750								GLA			
	502	503	502	506	526	1SL	2SL	1SM	2SM	1EL	2EL	1EM	2EM	606	626	606E	626E
Baseplate	✓	✓															
Cabinet			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wall Mounted			✓	✓	✓	○	○	○	○	○	○	○	○				
Floor Mounted	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Single System	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Two System		✓															
Pump Dis. Iso Valves	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pump Suct. Iso						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pump Suction Strainer	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BS6281 Type "A" Air Gap	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BS1212 pt 3 Ball Valve	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	N/A
Single Pump	✓	✓	✓	✓		✓		✓		✓		✓		✓		✓	
Duty/Standby Pumps					✓		✓		✓		✓		✓		✓		✓
Single Phase 220/240V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Three Phase 380/415V	✓	✓												✓	✓	✓	✓
Cold Fill 0-3 bar	✓	✓	✓	✓	✓									✓	✓	✓	✓
Cold Fill 3-6 bar	✓	✓	✓●	✓●	✓●									✓	✓	✓	✓
Cold Fill 0-2.7 bar						✓	✓			✓	✓						
Cold Fill 2.7-5.5 bar								✓	✓			✓	✓				
<b>Features</b>																	
Packaged Controls			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pressure Switches	○	○	○	✓	✓									✓	✓	✓	✓
Microprocessor						✓	✓	✓	✓	✓	✓	✓	✓				
Under Voltage Protection										✓	✓	✓	✓				
Door Interlocked Isolator						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Power On Lamp						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pump Test Button						✓	✓	✓	✓	✓	✓	✓	✓				
Pump Run Lamp						✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Pump Trip Lamp & Alarm						✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Low Water Cut Out						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
High Water Alarm										✓	✓	✓	✓	✓	✓	✓	✓
Low Pressure Alarm						✓	✓	✓	✓	✓	✓	✓	✓				
High Pressure Alarm						✓	✓	✓	✓	✓	✓	✓	✓				
Excessive Demand Alarm										✓	✓	✓	✓				
Transducer Failure Alarm										✓	✓	✓	✓				
Audible Alarm						✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Manual Reset of Alarm										✓	✓	✓	✓			✓	✓
Automatic Reset Option						✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
H/O/Auto Switches																✓	✓
Alternate Pump Start							✓		✓		✓		✓			✓	✓
Hours Run Meter(s)										✓	✓	✓	✓				
Pump Frequency Alarm										✓	✓	✓	✓				
Delay Pump Start						✓	✓	✓	✓	✓	✓	✓	✓				
Service Due Indicator										✓	✓	✓	✓				
Modbus Connectivity to BMS										✓	✓	✓	✓				
BACnet Gateway										○*	○*	○*	○*				
LonWorks Gateway										○*	○*	○*	○*				
Glycol Auto Mix														✓	✓	✓	✓
<b>Volt Free Contacts</b>																	
Common High/Low Press.	○	○												✓	✓	✓	✓
High Pressure										○	○	○	○			✓	✓
Low Pressure										○	○	○	○			✓	✓
Low Water										○	○	○	○	✓	✓	✓	✓
Common High/Low Water										○	○	○	○			✓	✓
Pump Run										○	○	○	○			✓	✓
Pump Trip										○	○	○	○			✓	✓
Pump Freq./Exces.Demand										○	○	○	○			○	○
Power/Fuse Failure										○	○	○	○				
Common Alarm						✓	✓	✓	✓	✓	✓	✓	✓				

✓ – Standard feature   ○ – Optional extra   ✓● – 4 bar max   ○\* – Cannot be used in conjunction with Volt Free Contact Package

## 3750 Pulpress Specification

### ► Pumps

3750 Pulpress Pressurisation units available as single and twin pump versions. All pumps are horizontal peripheral type with composite body and impeller and are fitted with self-adjusting mechanical seals.

### ► Enclosures

All 3750 Pulpress units are attractively encased in a unique rotomoulded plastic enclosure. This enclosure is made of recyclable material giving it a lightweight environmentally-friendly design.

### ► Break Tank

21 litre active capacity and manufactured from polyethylene complete with ball valve to BS1212 part 2 with type 'AB' air gap to comply with BS EN 13076:2003, WRAS and model water byelaws.

### ► Valves

All pumps can be isolated for servicing. A non-return valve is fitted to each pump discharge, with an additional valve being fitted prior to the system connection.

### ► Expansion Vessels

Fabricated steel construction, complying with BS4814 and listed by the WRAS, either with a fixed or removable diaphragm. All vessels are suitable for maximum working pressures of up to 10 bar and are rated at 6 bar when BS4814 applies. Max water working temperature 100°C (short period exposure). Max continuous water temperature 70°C. Further information available upon request.

### ► Minimum information required for sizing expansion vessels to BS7074

1. Static head of system above pressurisation unit.
2. Flow, return and ambient temperatures.
3. Total water content of system.
4. Percentage of antifreeze to system volume.
5. Maximum allowable pressure.

Specifications for MPU and GLA units can be supplied upon request

Our policy is one of continuous improvement and we reserve the right to alter our dimensions and specifications without notice

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