



Akiki Engineering Est.

*Water & Steam Experts*



## 1.7. Pressurization Catalogue

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## Pressurization Unit, For Closed Circuits



The high specification twin pump pressurization unit is ideal for controlling and maintaining pressure in sealed heating and chilled water systems. The water in sealed systems expands on heating (increasing pressure) and contracts (reducing pressure) on cooling.

The continuously and automatically monitors system pressure and maintains it within set limits. On heating, if pressure reaches the upper limit, the pressure control valve (spill valve) discharges water to a covered atmospheric tank, the spill tank. Water enters the covered spill tank below surface level. This, and the generally high temperature of the water in the spill tank, tend to minimize oxygen uptake. On cooling as pressure falls the units pumps draw water from the spill tank into the system to maintain pressure. The unit also makes up water losses due to the small leaks, maintenance operations, vapour loss from glands etc. Low and high pressure volt free switches allow boiler or chiller safeguarding. A built-in accumulator vessel prevents excessive pumps starting. High and low level switches in the spill tank warn of fault situations and protect against pumps running dry.

### Operating Specifications:

- Steel spill Tank with lid, internal ladder, level gauge, low level switch, make-up water float valve, drain connection, pump connection, spill valve connection and overflow BS 6281 A-type air gap with mesh, tundish & drain connection. Tank protected internally with high duty epoxy finish. Sized for full system expansion
- Twin pumps, each rated at 100 % system duty, cascade and auto-change-over operation
- Strainers to protect pumps, spill valve and pressure switches from dirt ingress
- Non-return valves on each pump outlet
- Pressure switches for pumps and spill valve control, high and low pressure warning and cut-outs (adjustable for pressure setting and differential)
- Accumulator vessel, sized to suit system power
- System pressure regulating valve, pressure gauge, and isolation ball valve
- IP 55 Control panel enclosure (see panel specification)
- Wiring between pumps, pressure switches, level switches, spill valve and control panel
- Carbon steel pipework
- Mild steel base
- All steel parts finished externally in blue gloss paint
- Pre-delivery testing of all units for soundness, function and electrical safety
- For applications outside the scope of standard range, for whatever reason, special units can be offered

## Standard Performance Data

- Full load current: Dependant on unit selection
- Pump output pressure (Max): 3 BarG
- Permissible system temperatures: 0 to 99C
- Max system working pressure (after thermal expansion): 8 BarG

## Standard Control Panel Specification

- IP 55 enclosure with lockable, hinged door
- Control circuit fuse for each pump 2 amp
- Door interlocked isolator
- DOL contactor complete with thermal overload protection for each pump
- Auto / Hand / Off pump control switch
- Pump 1 / Pump 2 / Auto-change lead pump select switch
- System reset button, Alarm circuit mute button (alarm extra)
- Indicating lights for: - Power On, high and low system pressure, pump run and trip
- Volt free contacts for high and low system pressure
- Pump Auto-change-over with each pump start or pump trip (when auto-change selected)
- Connections and control circuitry for low water pump cut-out switch (self-resetting) (switch extra)

## Heating System & Installation Notes

- Venting: Provision must be made for venting all air from the heating system. Automatic air vents are suitable for LTHW systems operating at or below 95 deg.C. For MTHW systems any automatic air vents should be thermostatic to prevent flash steam emission.
- Connection Point: Connect the unit to the return pipe-work on the suction side of and near to the circulating pump. This minimizes unit size.
- Insulation: Do not insulate the unit or pipe-work to it.
- Water Make-Up: If a demineralised make-up water supply is being used, please consider also providing a stand-by raw water make-up supply.
- Alarms and Cut-Outs: The unit has Volt-Free-Contacts (OPEN circuit in fault condition). These must be linked to the boiler controls to cut out heat supply in the event of low or high pressure faults. The Volt-Free-Contacts should never be linked to the system circulating pumps.

## Information we need about the heating system to make a selection

- Total System Water Content, including boilers (liters)
- Flow and Return Temperatures ( 0 C)
- Maximum and Minimum System Pressures (at point of connection) (bar.g.)
- Maximum Boiler Power at any one time (kW)
- Electrical Supply Details (Voltage/Phases/Frequency)
- Our quotation will provide price availability, overall dimensions, weights and connection sizes. Further details are available on request.