



# AquaTech Pressmain

**WORLD CLASS  
HEATING & CHILLED SYSTEM PRESSURISATION UNITS**



**“SA10-E” SERIES**



## SA10-E

### Single or Twin Pump Spill Back Pressurisation Unit with 2020+ Microprocessor Controller

#### GENERAL

The "SA10-E" Series of pressurisation units are designed to maintain a minimum set pressure in a heating or chilled water system. Once the system has been initially filled via a quick filling loop, should the pressure fall below the cold fill pressure the unit operates automatically to restore that pressure. If high or low-pressure conditions should occur the boiler/chiller operation can be interrupted via the volt-free contacts provided. The unit uses a suitably sized spill/fill tank to store the expanded water from the system and refill the system during the contraction phase. All packaged equipment is manufactured in accordance with ISO9001 quality assurance procedures.

#### STANDARD SPECIFICATION

AquaTech-Pressmain 'SA10-E' series, heating or chilled water pressurisation unit. Suitable for cold fill pressures up to 3.0 bar/45psi or 7.0 bar/98psi. Controlled by AquaTech-Pressmain 2020Plus micro-processor controller with pressure transducer for long-term reliability and accuracy, non-volatile EPROM memory and data logging function. Fully packaged unit incorporating; single or twin pressurisation pumps, (auto change-over to even wear with twin pump models); Solid state pump drives with thermal overload protection; Automatic periodic pump pulsing to prevent pump seizure; Combined high/low system pressure cut-out relay volt-free contact; RS232 or 422/485 serial communications port; suitably sized spill/fill tank with 15mm float valve having a type 'AB' air gap to Water Supply Regulations 1999; Fascia controls to provide indicating lights for each pump condition or status, run, hand, off, auto; "User friendly" Fascia keypad to enter & set operational parameters, reset alarm & mute; "Plain English" 2 Line LCD illuminated display.

8 BMS Volt free relay connections, Fascia lights for pump tripped condition and automatic cut-out and reset on tank low water level to prevent pump from dry running.

All controls contained within a powder coated sheet steel dust and damp proof enclosure to IP54, with interlocking door isolator.

Standard Electrical supply: Single Phase, 230 Volt AC, 50Hz, 6 Amp; Max power: 0.74kW

#### STANDARD FEATURES OF SA10-E:

- Boiler ratings up to 1300kW at 82°C or 2,400kW at 60°C.
- Heating System contents up to 13,000 litres at 82°C or 24,000 litres at 60°C.
- Chilled System contents up to 90,000 litres at 30°C ambient.
- Temperature range up to 90°C or 120°C with a cooling vessel.
- Cold fill pressure 1.2 bar to 3.0 bar or 3.0 bar to 7.0 bar (dependent upon pump used)
- Reliable 2020Plus Microprocessor/transducer control
- Boiler / Chiller safety interlock relay
- Low water level pump protection switch mounted in spill/fill tank.
- Audible alarm with mute & reset operates on high & low pressure
- Control vessels - tested to BS6144 - max working pressure 10 bar
- Twin pump models with duty/standby pumps & automatic alternation of duty pump to even wear
- All models are fully compatible with Building Management Systems
- Fluid category 5 (water supply regulations 1999)
- Built to latest CE requirements and in accordance with ISO9001

#### OPTIONAL FEATURES:

- Optional High water level alarm switch mounted in spill/fill tank.

**SELECTION CHART FOR HEATING SYSTEM:**

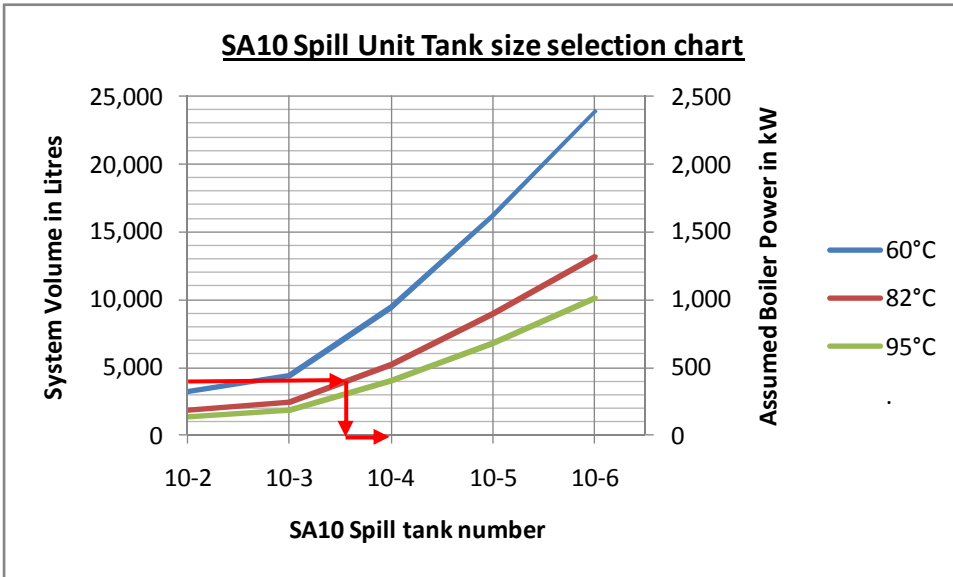


Chart 1: SA10 standard performance range for heating systems.

Assuming a system content of 10 litres per kilowatt of boiler power, use the above chart to select the appropriate pressurisation unit for your system.

e.g. A boiler running at 82°C flow temperature and having a total system content of 4000 litres (or assuming 10l/kW would approximate to a boiler power of 400kW) select pressurisation unit model “SA10-E-4” for single pump or “SA10-E-42” for twin pump unit.

**SELECTION CHART FOR CHILLED SYSTEM:**

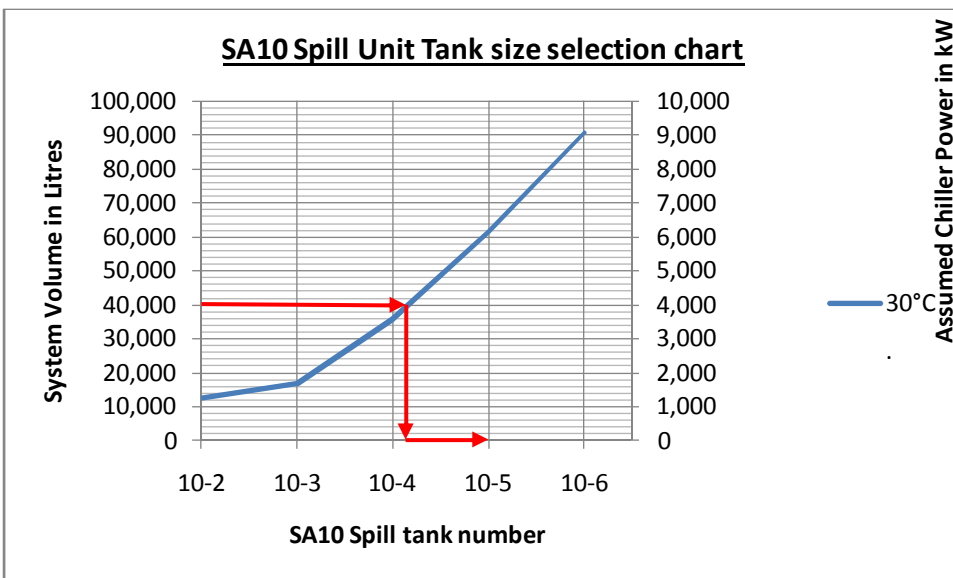


Chart 2: SA10 standard performance range for chilled systems.

Assuming there is no Glycol in the system; use the above chart to select the appropriate pressurisation unit for your system.

e.g. An ambient temperature of 30°C and a total system content of 40,000 litres select pressurisation unit model “SA10-E-5” for single pump or “SA10-E-52” for twin pump unit.

For systems that contain Glycol please contact AquaTech-Pressmain for advice on selecting the correct unit.

## GENERAL ARRANGEMENT DRAWING:

The standard arrangement for SA10-E pressurisation units is shown although special units can be manufactured to suit site conditions/requirements. Please contact your local AquaTech-Pressmain office for details.

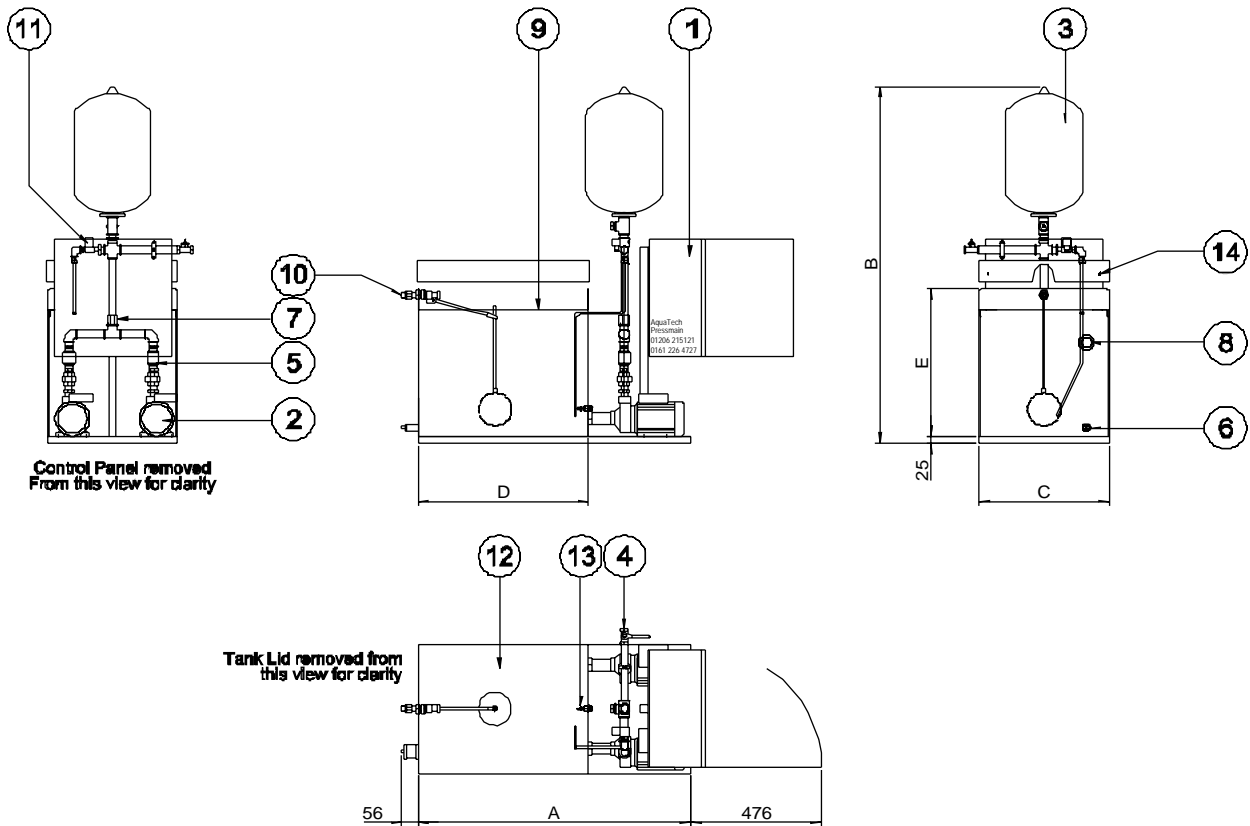


Fig 1: Typical arrangement for SA10 units.

Parts List for standard SA10-E	
1	Control Panel (2020+)
2	Pump 230/1/50
3	Control Vessel 24 litre
4	System Connection ¾"
5	Non-return Valve
6	Drain ½"
7	Control Valve
8	Overflow Warning 1¼"
9	Flow Over Weir
10	Float Valve ½" Part 1.
11	Solenoid Spill Valve
12	Spill/Fill tank
13	Low Water switch
14	Screws for Lid

Table 1:

Model reference	A	B	C	D	E	Weight Dry kg
SA10-E-2 SA10-E-22	830	1320	470	460	535	70
SA10-E-3 SA10-E-32	990	1320	470	620	535	80
SA10-E-4 SA10-E-42	990	1320	620	620	695	100
SA10-E-5 SA10-E-52	990	1620	620	620	990	120
SA10-E-6 SA10-E-62	1290	1620	620	920	990	140

Table 2: Dimensions for Standard Units:

Note: Special units can be manufactured to suit site conditions.

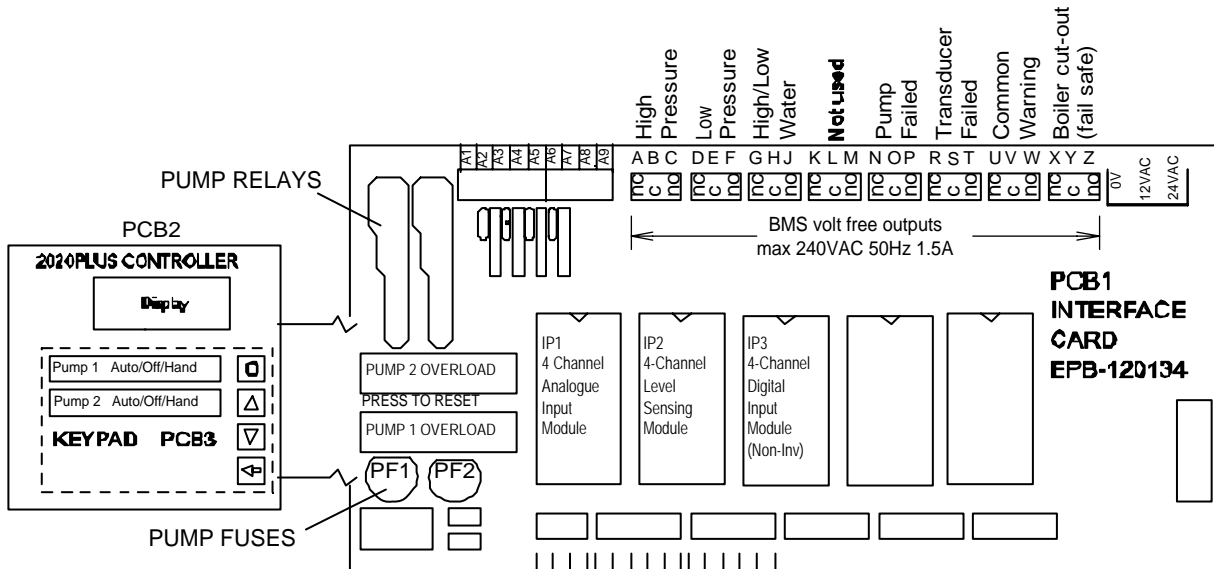
"SA10" denotes spill type pressurisation unit

"-E-" denotes Electronic version with 2020+ Micro-processor control panel

"-2,3,4,5,6" denotes spill/fill tank size

"2" as 7<sup>th</sup> character denotes twin pump unit, otherwise single pump.

**ELECTRICAL CONNECTIONS:**



Typical Boiler Interrupt Circuit  
(Wiring by controls contractor)

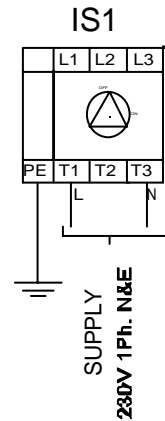
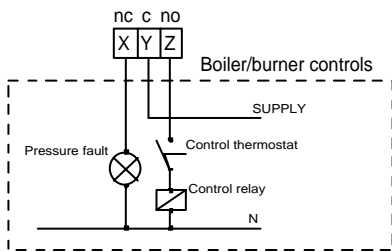


Fig 2: Typical electrical connections for SA10-E

Standard Electrical supply: Single Phase, 230 Volt AC, 50Hz, 6 Amp; Max power: 0.74kW

Larger single phase motors may be required for higher pressure versions with cold fill pressure greater than 3.0Bar. 400/3/50 3 phase motors available for special applications.

**CONTROL PANEL FASCIA:**

Typical control panel fascia layout is shown below, using the AquaTech-Pressmain 2020+ Micro-controller.

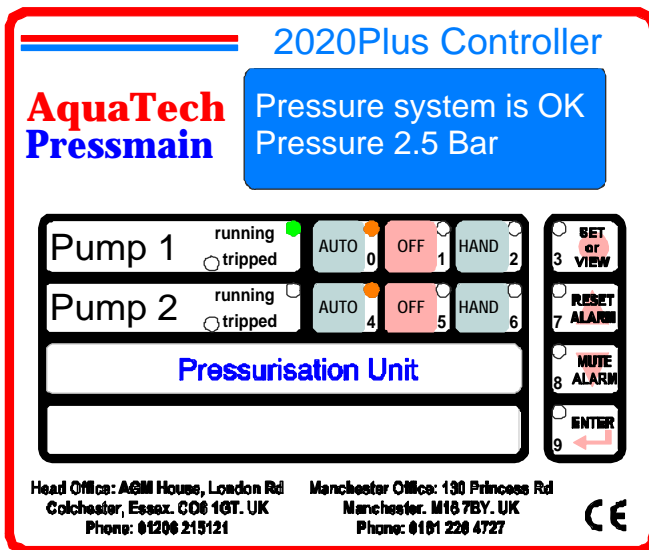


Fig 3:

## TYPICAL SCHEMATIC PIPEWORK ARRANGEMENT:

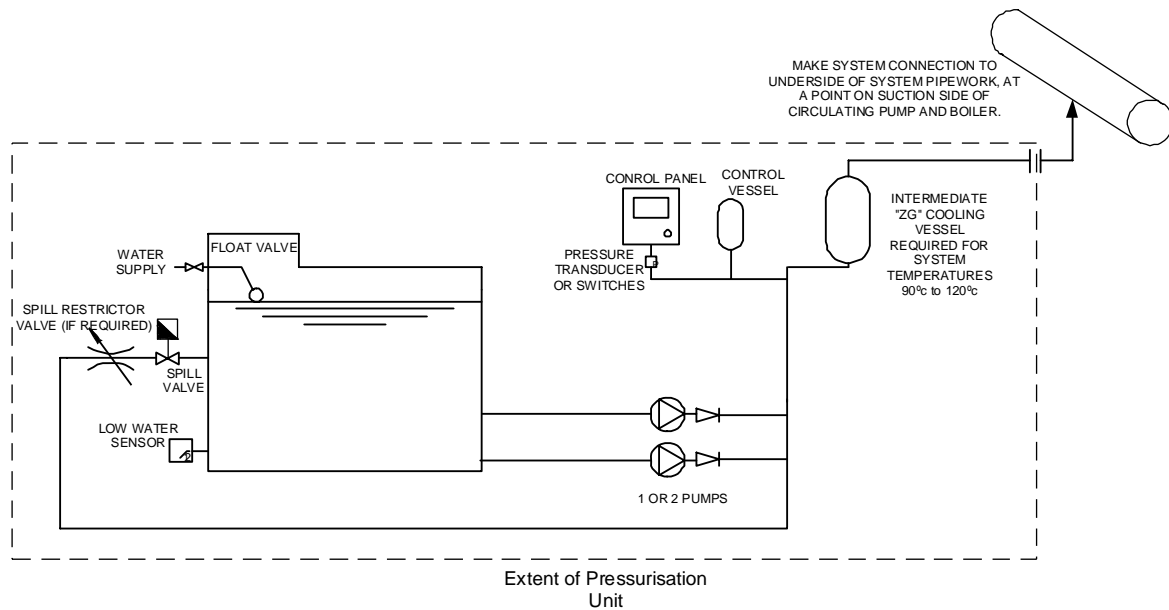


Fig 4:

### WORK REQUIRED ON SITE:

1. Position pressurisation unit on raised plinth
2. Attach control vessel where supplied loose
3. Connect ½" Mains water supply to float valve, minimum pressure of 1 Bar required.
4. Connect overflow warning pipe to drain.
5. Connect to system pipework on underside of return pipe as shown above.
6. Connect Mains electricity supply, boiler/chiller interlock wiring and BMS volt frees as required.
7. Contact AquaTech-Pressmain to have unit commissioned when ready.

### CONSTRUCTION STANDARDS FOR SA10-E PRESSURISATION UNITS

ITEM	MODEL/SERIES	STANDARD/CLASS	REMARKS
Quality System	Manufacturing	ISO 9001:1994	Cert No. FM33090
Electrical Safety Standard		BS EN 60204-1:2006	EC Declaration of Conformity
Low Voltage Directive		73/23/EEC & 93/68/EEC	EC Declaration of Conformity
EMC Directive 89/336/EEC		EN61000-6-3 & EN61000-6-1	EC Declaration of Conformity
Spill/Fill tank	SA10 Galvanised	Water Supply Regs 1999	Fluid Category 5
Mains water float valve	Drop Arm	BS1212 Part 1	½" BSP
Pipework		BMS	Painted
Pumps	3or 6 Bar max pressure	ISO2548 Class C annex B	230/1/50 0.37kW
Pump motors		TEFC IP44, Class F Insulation	Thermal overload protected
Control cabinet	2020+	IP54	425x425x200mm
Isolator Door Interlocked	GHA-030250	CE, UL, CSA, BS, IEC, VDE	
Microprocessor Controller	2020+	89/336/EEC compliant	
Pressure Transducer	392 – 10Bar	SS/Ceramic/Wras	
Control Vessel	8/20/24 litre – 10Bar	BS6144	CE marked

Table 3:



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Leaders in the design, manufacture and assembly of fluid pumping equipment and control systems.  
Applications: Cold Water Supply; Fire Fighting; Heating & Chilled System Pressurisation; Tank Monitoring.