



AquaTech Pressmain

HEATING & CHILLED SYSTEM PRESSURISATION UNITS



SPILLPRESS 'SP2ET' SERIES

GENERAL

A Modular system offering low pressure (upto 3 bar) or high pressure (upto 7 bar) basic pressurisation units and flexible combinations of spill vessels with or without a cooling vessel.

The Spillpress system pressurisation unit automatically maintains pressure in sealed systems which have total water contents of up to 90,000 litres and boiler flow temperatures up to 120 degrees centigrade.

Once the system has been initially filled via a quick filling loop (part No. MAF-200001) the "Spillpress" will take over and maintain optimum system conditions.

On rising system temperature expanding water is spilled automatically into sealed expansion vessels, and as the system cools the spilled water is automatically pumped back into the system. Any loss of water from the system will be automatically made up.

During the above operations the pressure variation does not normally exceed 0.5 bar.

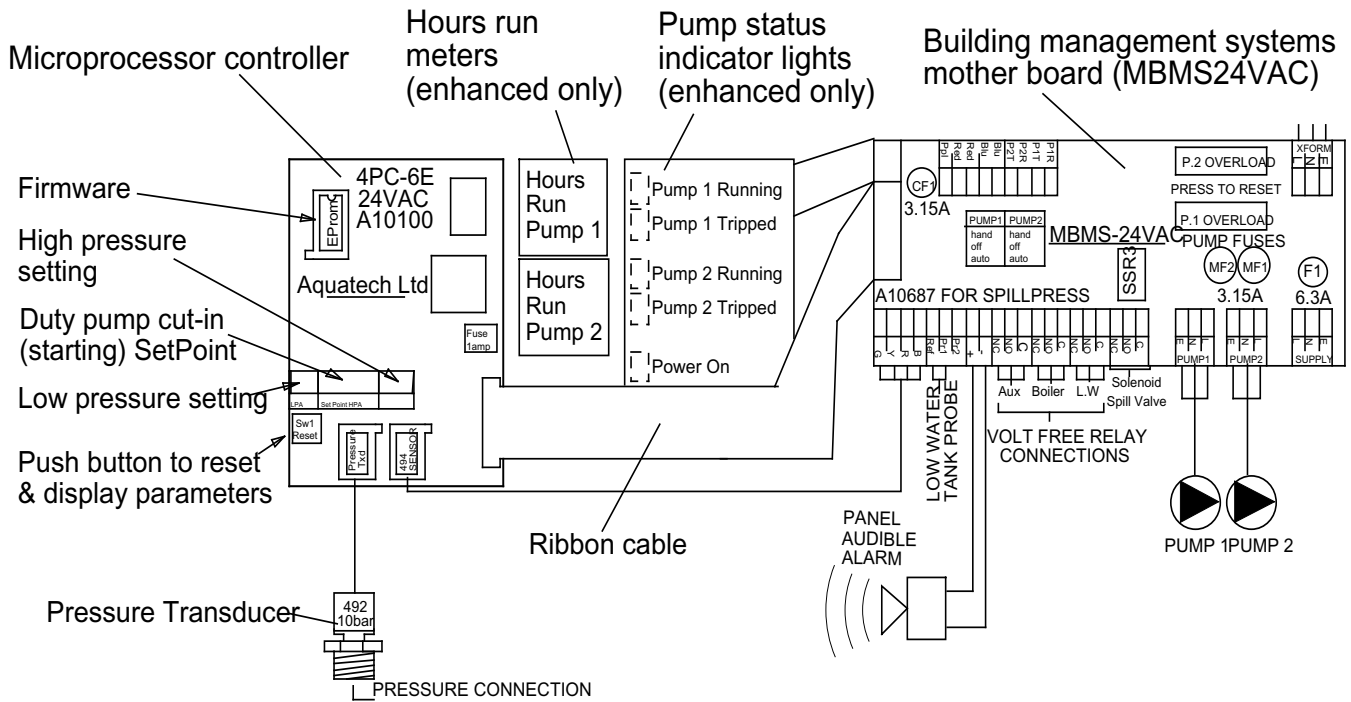
FEATURES

- Maximum expanded volume (acceptance): 2000 litres; maximum system cold fill pressure: 7.0 bar.
- An intermediate cooling vessel is used if boiler flow temperature exceeds 90 degrees centigrade.
- Highly competitive price coupled with quality and reliability.
- The most innovative and reliable design in the history of sealed heating system pressurisation.
- Automatic air purge from the spill vessel giving reduced corrosion, & prolonged system life.
- Standard automatic alternation of duty pump.
- Standard anti pump seizure pulsing.
- Automatic delay on high & low pressure alarms up to 4 minutes to allow circulator pump pressures to stabilise.
- Ideal for system refurbishment where pressure rise must be minimised, and floor space is at a premium.
- Integral automatic water make-up system.
- Designed, manufactured & tested to ISO9001 Standards.
- Full commissioning and after sales service available nationwide.
- M & E 3 specification

STANDARD MODEL SPECIFICATION

Spillpress type SP2ET-XX-YY-Z suitable for an estimated system volume of AAAAA litres having a cold fill pressure of BB bar, incorporating 2020+ microprocessor and pressure transducer control, with twin regenerative turbine 0.37kW 1 phase (or 1.1kW 3 phase) bronze pumps having automatic alternation of duty pump & anti seizure pulsing, delayed initiation of high and low system pressure cut outs both linked to single pole volt free relay, alarm buzzer, alarm mute and reset buttons/indicators, digital pressure, fault and parameter indicator, fused solid state pump drive, hand-Off-Auto switches for each pump, Power on, pump Run & Tripped L.E.D.s, hours run meters, interlocked door isolator, low water level sensing in breaktank coupled to volt free relay, 18 litre mains water break tank, float valve with type A air gap, overflow connection, and low water level protection, 8514 electromagnetic spillvalve with strainer & isolating valves, all contained inside IP54 powder coated cabinet with interconnecting piping to spill vessel, all mounted on steel base frame. Set assembled, tested and commissioned In accordance with ISO9001 Standards.

DIAGRAMMATIC CONTROL ARRANGEMENTS FOR SPILLPRESS



DISPLAY PARAMETERS

(as shown on 3 digit display.)

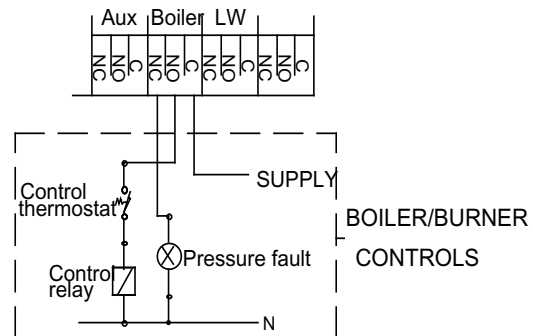
Display Parameters	Display
Solenoid Spill valve open	Sli
Solenoid Spill valve closed	Slo
Duty pump cut-in	DP.I
Duty pump cut-out	DP.o
Support pump cut-in	SP.I
Support pump cut-out	SP.o
High pressure cut-in	HP.I
High pressure cut-out	HP.o
Low pressure cut-in	LP.I
Low pressure cut-out	LP.o

OPERATING FUNCTIONS

(as shown on 3 digit display.)

Operating functions	Display
High pressure	Hi.P
Low pressure	Lo.P
Low water level	Lo.L

TYPICAL BOILER INTERRUPT CIRCUIT



CONNECTION NOTES

- 'Aux' Used internally for special specifications only.
- 'LW' Volt free terminals which change state when low water level is sensed in the feed water break tank
- 'Boiler' Volt-free terminals which change state when either high or low pressure is sensed on the system. Note: the relay will de-energise in a fault condition.

ON SITE INSTALLATION

- Bolt base/s to plinth
- Connect 22mm mains water supply to float valve ($\frac{3}{4}$ "BSP. connection - minimum pressure 1.0 bar, maximum 3.0 bar)
- Connect $\frac{3}{4}$ "BSP system connection lockshield isolating valve to heating system making sure that it is made to the underside of the main Return header
- Provide and fit 28mm overflow pipe from breaktank to a suitable drain
- Wire a fused single or three phase supply (as appropriate) onto terminals provided. Connect boiler/chiller thermostat control circuits onto volt free relay connections provided within the control panel
- Ensure all work is carried out in accordance with Spillpress installation instructions provided with the unit

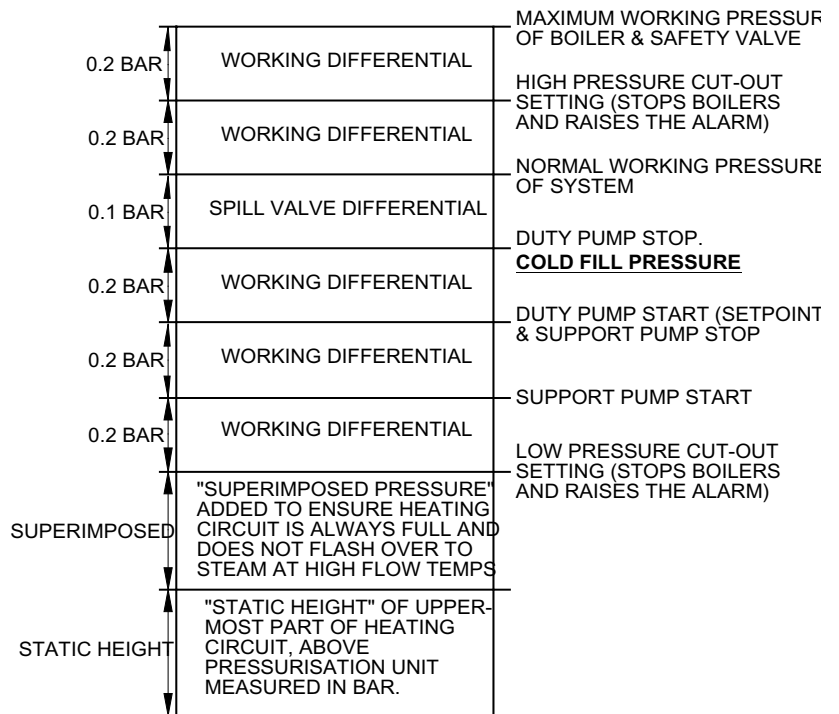
SPILLPRESS QUICK SELECTION PROCEDURES

EXPANSION & SAFETY PARAMETERS CHART 1.

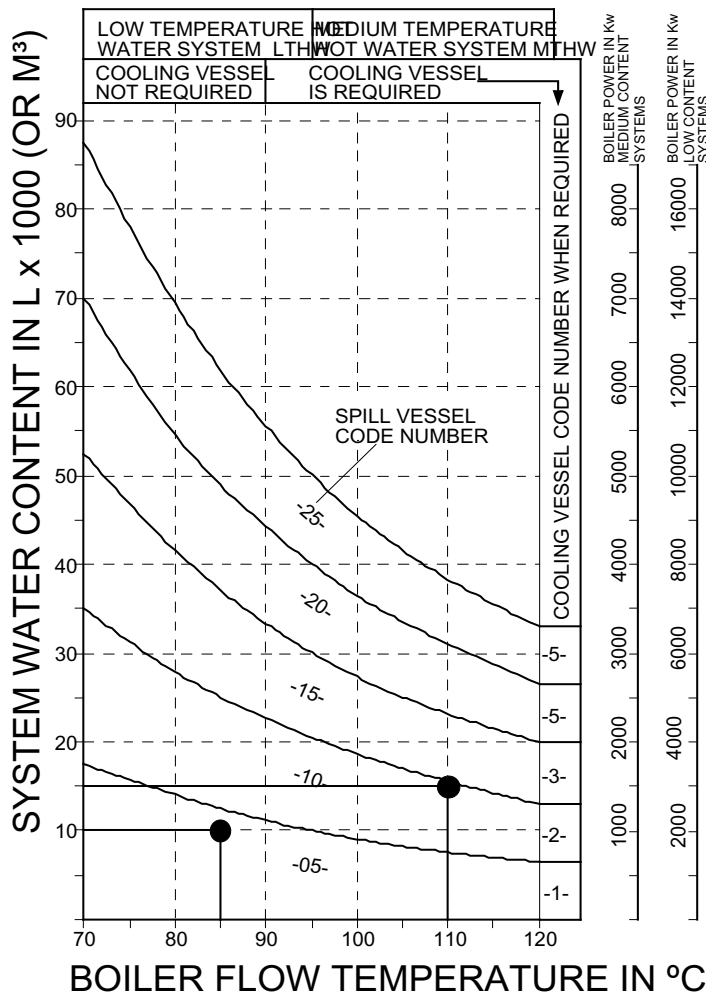
FLOW TEMPERATURE °C	EXPANSION PERCENTAGE %	SUPERIMPOSED PRESSURE BAR
40	0.78	0.2
50	1.21	0.2
60	1.71	0.2
70	2.28	0.2
80	2.91	0.2
90	3.60	0.2
100	4.35	0.3
105	4.77	0.6
110	5.15	0.9
115	5.62	1.3
120	6.01	1.7

Note: For boiler flow temperatures in excess of 120°C (HTHW) please refer to our "Nitropack" range of heating pressurisation units, Datasheet DS216.

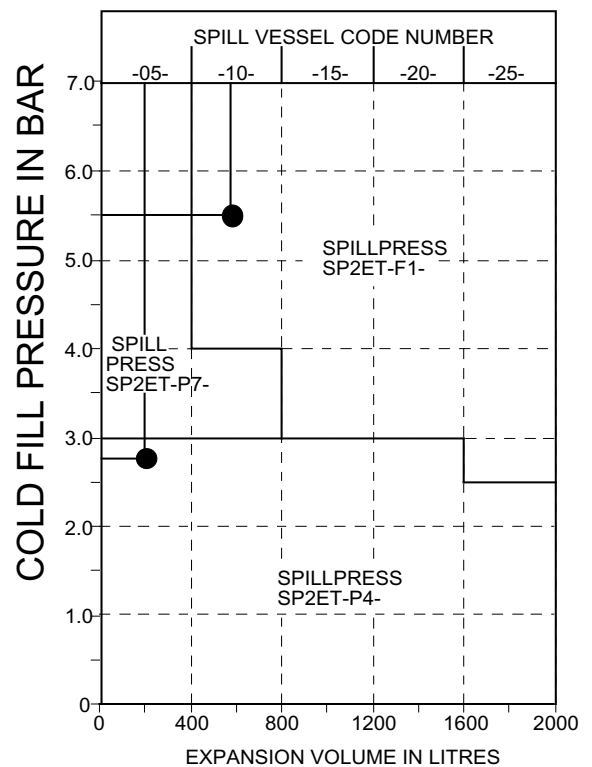
PRESSURE SETTINGS CHART 2.



SPILL VESSEL SELECTION CHART 3.



SPILLPRESS SELECTION CHART 4.



EXAMPLES OF SPILLPRESS SELECTION

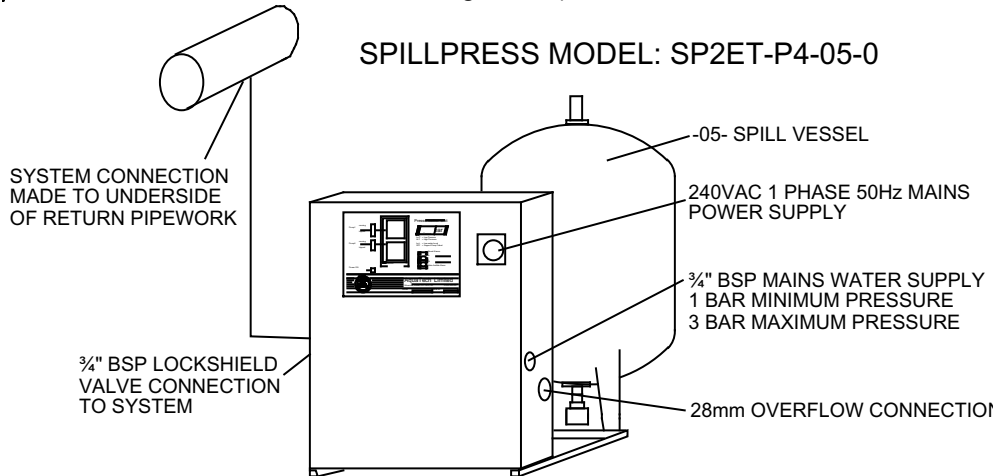
Note: AquaTech Pressmain spill vessel(s) must be used at all times. Cooling vessel(s) when required must be sized at least 20% of spill vessel total capacity (refer to AquaTech Pressmain for help with pressurisation unit selection when required).

Example No. 1 site conditions

Total Boiler rating with Medium water content system 1,000kW; Estimated system water content 10,000 litres; System flow temperature 85°C; Static height of uppermost part of heating system above Spillpress = 10m (1.0 bar)

Answers from charts 1 to 4

- Superimposed pressure from chart 1, = **0.2 bar**
- Cold fill pressure from chart 2, = static height + superimposed + working differentials (3 off)
= 1.0 + 0.2 + 0.2 + 0.2 + 0.2 = **1.8 bar**
- Spill vessel selection from chart 3, = cross reference of 10,000L & 85°C = Spill vessel code "**-05-**": Cooling vessel not required **-0**
- Spillpress selection from chart 4, = cross reference 1.8 bar & spill vessel code 05 = Spillpress model **SP2ET-P4-**
Spillpress package selected = **SP2ET-P4-05-0** (twin pump Spillpress with P4 pumps, size 05 spill vessel and no cooling vessel).

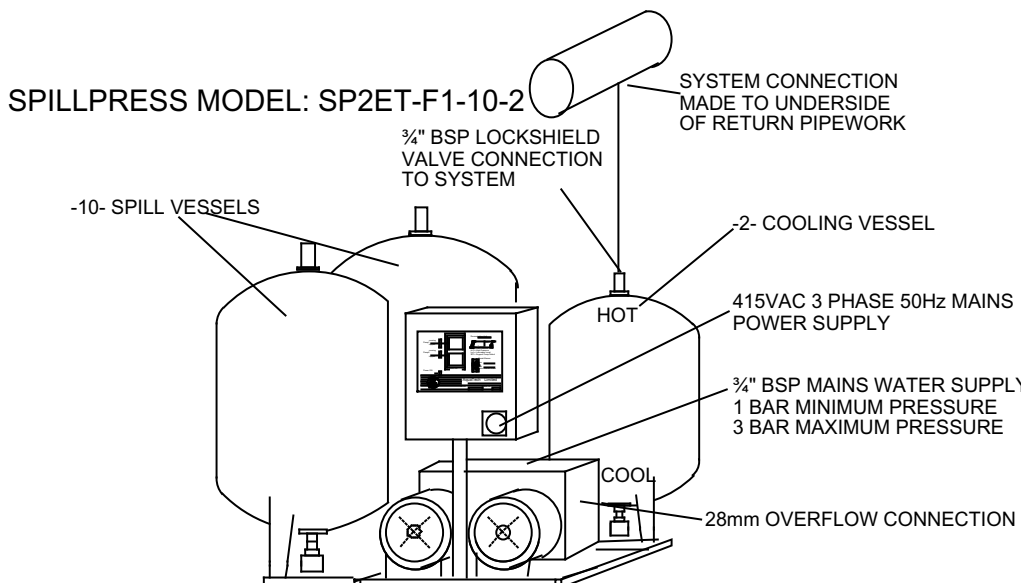


Example No. 2 site conditions

Total Boiler rating with low water content system 3000kW; Estimated system water content 15000 litres; System flow temperature 110°C; Static height of uppermost part of heating system above Spillpress = 40m (4.0 bar)

Answers from charts 1 to 4

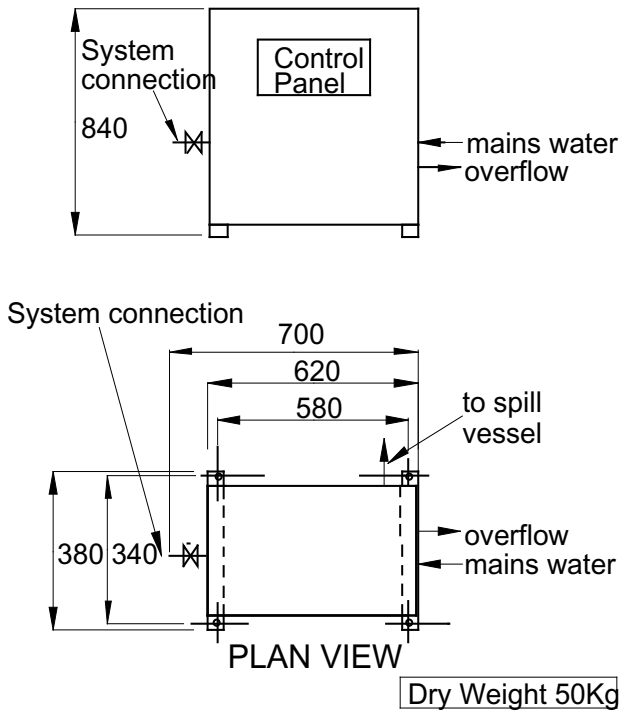
- Superimposed pressure from chart 1, = **0.9 bar**
- Cold fill pressure from chart 2, = static height + superimposed + working differentials (3 off)
= 4.0 + 0.9 + 0.2 + 0.2 + 0.2 = **5.5 bar**
- Spill vessel selection from chart 3, = cross reference of 15,000L & 110°C = Spill vessel code "**-10-**": Cooling vessel is required **-2**
- Spillpress selection from chart 4, = cross reference 5.5 bar & spill vessel code 10 = Spillpress model **SP2ET-F1-**
Spillpress package selected = **SP2ET-F1-10-2** (twin pump Spillpress with F1 pumps, size 10 spill vessels and size 2 cooling vessel).



SPILLPRESS DIMENSIONS (in mm unless otherwise stated)

SP2ET-P4- & SP2ET-P7-

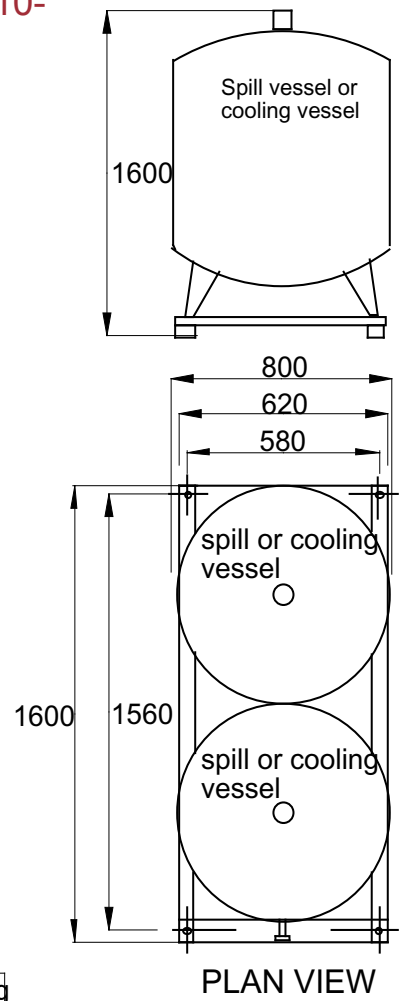
PRESSURISATION UNIT ONLY



TWIN VESSELS

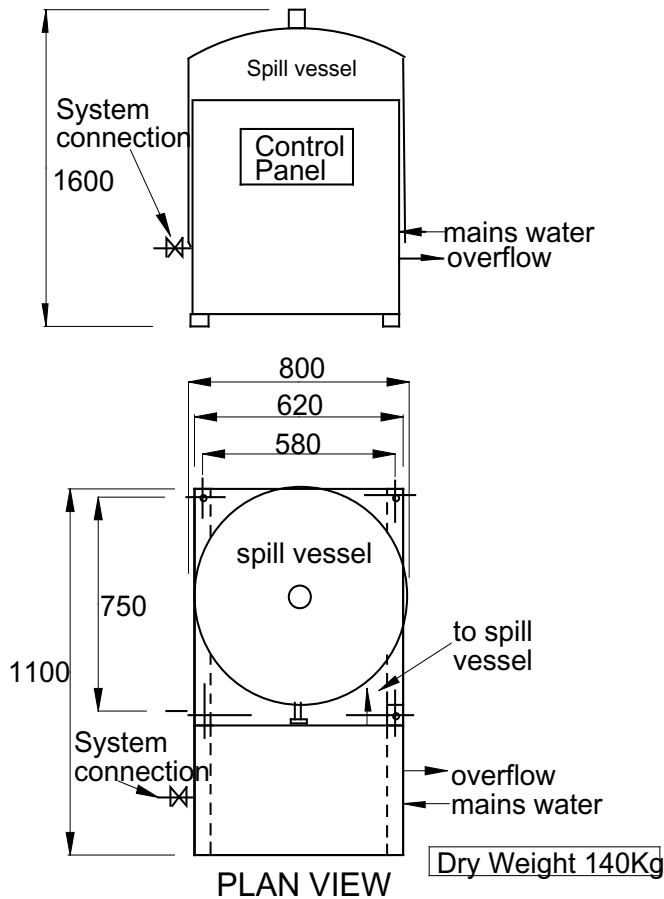
eg. '-10-'

2 VESSELS ONLY



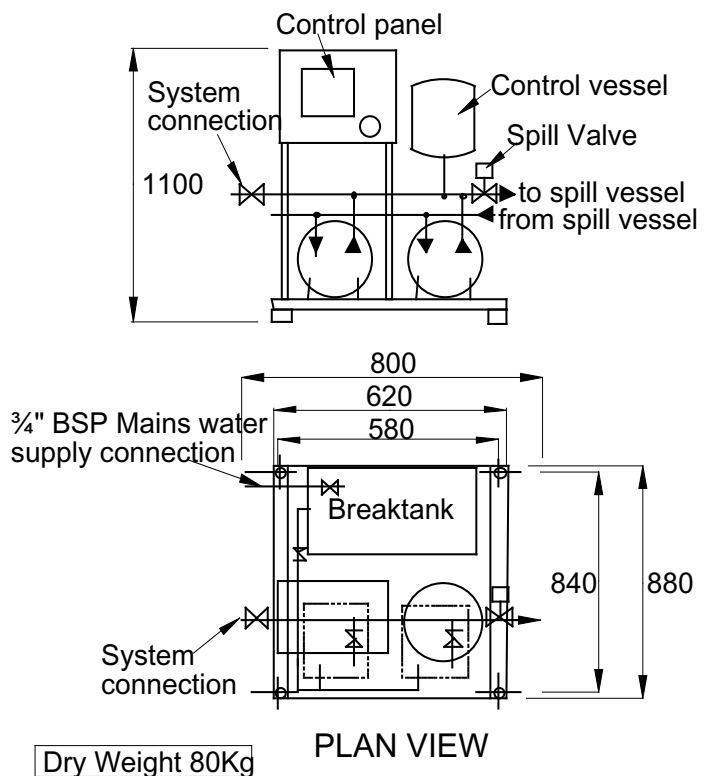
SP2ET-P4-05- & SP2ET-P7-05-

PRESSURISATION UNIT & SPILL VESSEL



SP2ET-F1

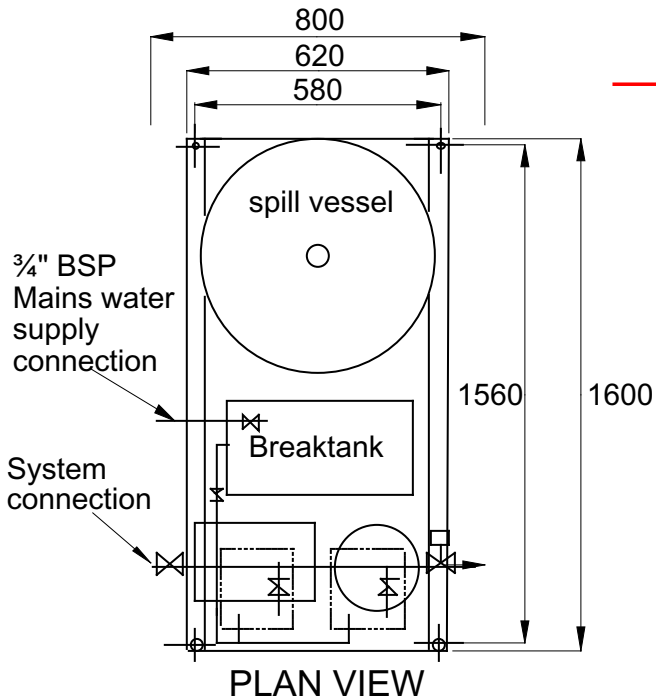
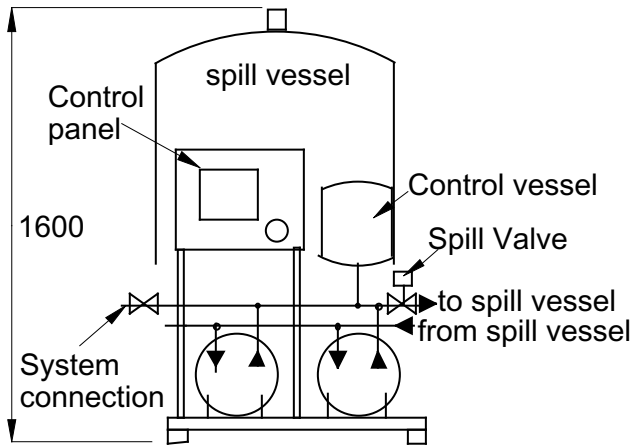
PRESSURISATION UNIT ONLY



SPILLPRESS DIMENSIONS

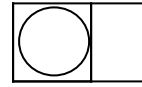
SP2ET-F1-05-

PRESSURISATION UNIT
& SPILL VESSEL

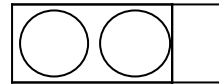


Dry Weight 160Kg

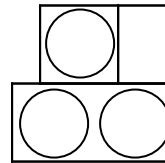
Typical configurations (plan view)



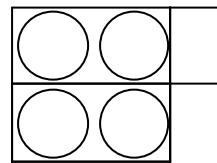
SP2ET-xx-05-



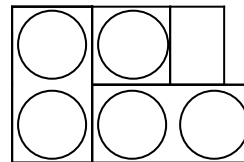
SP2ET-xx-10-



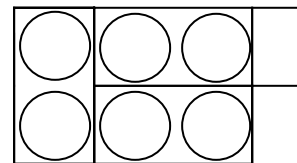
SP2ET-xx-15-



SP2ET-xx-20-



SP2ET-xx-25-



SP2ET-xx-25-5-

SPILLPRESS MODEL NUMBERS

SP2ET	-XX	-YY	-Z	-E
SPILLPRESS Sealed system pressurisation unit. Twin pump model with "ET" Micro-processor controller.	PUMP TYPE CODE: -P4 = 0.37kW 1Ph. 3 bar -P7 = 0.38kW 1Ph. 7 bar -F1 = 1.1kW 3Ph. 7 bar note: P4 & P7 are cabinetised units, F1 is base mounted unit.	SPILL VESSEL CODE: -05 -10 -15 -20 -25	COOLING VESSEL CODE: -0 = no cooling vessel -1 -2 -3 -5 -6	ENHANCED CONTROL PACKAGE: suffix "-E" added when Enhanced controls package is fitted to unit.
	See selection chart 4.	See selection chart 3.	See selection chart 3.	See specification on last page.

SPECIFICATIONS & STANDARDS, SPILLPRESS

BASIC DESIGN	REMARKS	SPECIFICATIONS
Power Supply	-P4- & -P7- Cabinet Type	220/240 volts, 1 phase, 50 Hz
Power Supply	-F1- Base Mounted Type	380/415 volts, 3 phase, 50 Hz
Control Cabinet	Sheet steel dust & damp proof	IP54
Non Return Valves	One per pump with strainer	
Mains Water Breaktank	18/36 litres ABS plastic	WRC Approved
Water Input floatvalve	¾" with ½" orifice, 1 to 3 bar supply	Type "A" Airgap to BS6281 : Part 1 & BS1212 : Part 1
Twin Pumps	Duty and Support	3.0 or 7.0 bar models
Pump litres/hr at 3.0 bar	900	Model -P4-, 0.37kW, 1 phase
Pump litres/hr at 7.0 bar	195	Model -P7-, 0.38kW, 1 phase
Pump litres/hr at 7.0 bar	900	Model -F1-, 1.1kW , 3 phase
STANDARDS CONTROLS		
Microprocessor	Model 4PC/6E	
Transducer	Model 492	0 to 10.0 bar
Visual Display	3 Digit Light Emitting Diode	See Display Parameter Table
Fault parameters displayed		See Display Parameter Table
Audible alarm (On Panel)	Included	
Manual mute of alarm	Pushbutton on fascia	
Manual reset of alarm	Pushbutton on fascia	
Alternate duty pump start	Included	
Auto anti-seize pump timer	Included	
Auto delay for high & low Press.	To ensure stable circulating pressure	
Common Fault Alarm	For high & low system pressure	Volt free relay (max.240VAC 5A AC1)
Control Circuit	24 Volts AC	
Low Water cut-out.	Probe mounted in breaktank	Auto pump restart on rising level
ENHANCED CONTROLS (FITTED IN ADDITION TO STANDARD CONTROLS)		
Interlocked Door Isolator	(Can be padlocked in off position)	
Pump: hand/off/auto switches	1 per pump inside control cabinet	
Pump hours run counter(s)	1 per pump on panel fascia	
Motor rated fuses	1 per pump inside control cabinet	
Low Water Level Alarm	Volt free relay	
Power On L.E.D	1 on panel fascia	
Pump Run & Tripped L.E.D's	1 Set per pump on panel fascia	
Motor Overloads	1 per pump inside panel.	
BRITISH STANDARDS & EUROPEAN COMMUNITY REGULATIONS		
Quality Systems	Design, Built & Tested	BS EN ISO 9001 : 1994
Type "A" Airgap	Prevention of contamination	BS 6281 Part 1 : 1992
Application of expansion vessels		BS7074 Parts 1, 2 & 3 : 1989
EMD	European Machinery Directive	89/392/EEC: & 91/368 EEC : 1994
Safety of Machinery		BS 5304 : 1988
Safety of Electrical Machines		BS EN 60204-1 :1993
EMCD	Electromagnetic Compatibility Directive	89/336/EEC : 1992
IEE Wiring Regulations	16th Edition 1991	BS7671: 1992
CE Marking	Fully Complies.	

AquaTech Pressmain design and development programmes are continuous; we reserve the right to make any changes to this specification without prior notice.



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