

Pressurisation Unit – Fluid Category 5

“Boost-A-Fill Digital” Model BFD – Datasheet Page 1 of 3

Description

Fluid Category 5 Pressurisation Unit for filling and maintaining the pressure of commercial sealed heating and chilled systems.

The unit uses energy saving inverter controlled variable speed pumps, offering Cold Fill pump pressures up to 8.0 bar. The “Boost-A-Fill Digital” can rapidly fill and top-up large commercial systems at a flow rate up to 2.0 Lt/s, negating the need for a filling loop.

The primary features consist of –

- Fluid Category 5 backflow prevention – initial fill & top-up
- Variable Speed Pump – with anti-pump-seizure pulsing
- High & low pressure cut-outs with boiler control output
- Comprehensive BMS controls
- Digital display, setting buttons and button lock
- Volumetric Water Meter with adjustable monthly excessive filling warning trigger
- Pressure Transducer- accurate filling and small differential
- Designed, manufactured, and tested to ISO 9001 Standards

The unit is supplied fully assembled and tested. Inlet and outlet stainless steel braided hoses are provided to facilitate installation.

Expansion Vessels

Arrow Valves can supply a range of Expansion Vessel combinations to suit the requirements of your system.

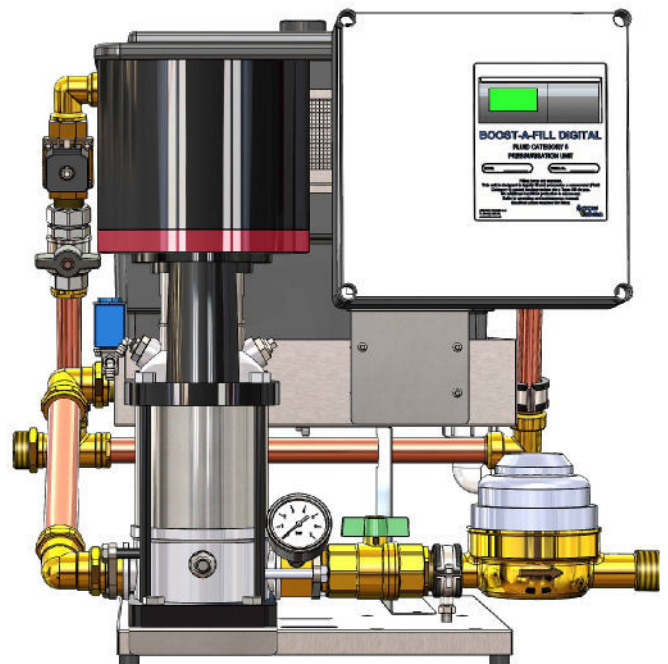
Once the “Boost-A-Fill Digital” has completed the initial cold fill of the system, the unit will maintain optimum system conditions. As the system temperature increases, expanding water is spilled automatically into the Expansion Vessels. As the system cools, the spilled water is automatically pushed back into the system. Any loss of water from the system will be automatically made up.



Models shown – EVUP500, EVUP800, EVUP1000
Rated at 10.0 bar pressure

Vessel Dimensions

Code	Lt	Ø (mm)	Height (mm)	Connection
EVUP500	500	740	1475	1 ¼"
EVUP800	800	740	2325	1 ¼"
EVUP1000	1000	740	2804	1 ¼"



Water Regulations

Clause G24.2 allows a temporary connecting pipe (quick fill loop) to be used for a **house heating system only** – since the Fluid Category is 3. For commercial (other than a house) applications, the risk is Fluid Category 4 and a quick fill loop must not be used. The non-house system can be filled through an RPZ Valve or AB air gap and pump, the latter arrangement is incorporated into the “Boost-A-Fill Digital”.

“Boost-A-Fill Digital” does not require annual servicing and does not need to be notified to the local water company.

A correctly sized and pre-charged Expansion Vessel is required (G17.1). Contact Arrow Valves to calculate the required Vessel size for your system.

Applications

Initial fill and topping up (make-up) of –

- Primary Heating Systems
- Under Floor Heating
- Refrigerating Equipment
- Chilled Water Circuits
- Cooling Circuits
- Industrial Processes

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All unit-less dimensions in mm.
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Model Selection

“Boost-A-Fill Digital” is available in four different models, with varying filling rates and pressure capabilities.

Model	Filling Rate	Max. Cold Fill
BFD 1-4	3,600 Lt/hr	4.0 bar
BFD 1-8	3,600 Lt/hr	8.0 bar
BFD 2-4	7,200 Lt/hr	4.0 bar
BFD 2-8	7,200 Lt/hr	8.0 bar

In order to select the correct model, firstly calculate the correct Cold Fill pressure (the minimum pressure that is required to ensure the entire system is filled with water).

The Cold Fill pressure is normally equal to the static head above the pressurisation unit plus 0.2 bar to assist venting. However, there may be a minimum pressure requirement specified by the boiler – e.g. 1.5 bar.

Once you have calculated your Cold Fill, you can then select a model that matches your pressure requirements, and fills at a suitable rate for the size of your system.

Digital Controller

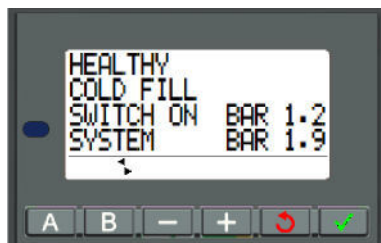
The “Boost-A-Fill Digital” utilises our bespoke programmed digital controller to maintain optimum system conditions. The sight adjustable controller features an easy to operate keypad with LCD display. The following adjustments are permitted –

- Cold Fill
- High cut-out pressure
- Excessive monthly water consumption trigger

The controller ensures a workable program, since settings must be in range. E.g. the low cut-out pressure is automatically adjusted to 0.3 below the Cold Fill. The high cut-out pressure must be more than 0.5 bar above the Cold Fill switch on value.

Panel display messages include –

- System healthy
- Last filled date
- Water consumption
- Low level / High level / Pump fault
- Low system pressure
- High system pressure
- Excessive monthly water usage warning



System Healthy – Cold Fill & System Pressures



Water Consumption (since Installation)

Boiler & BMS Controls

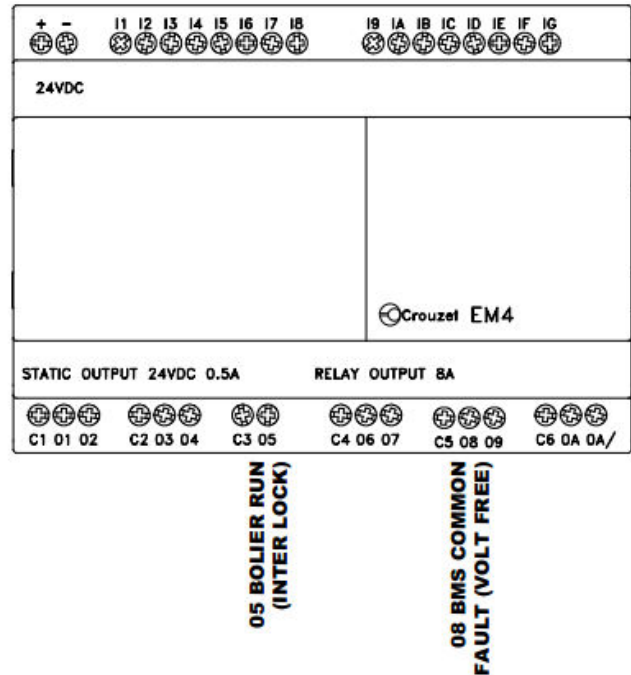
The digital controller is supplied with volt free relays for BMS monitoring and boiler inter lock.

O5 Relay – Boiler Inter Lock

Opens with low or high system pressure fault. Power required to run.

O8 Relay – BMS Common Fault

Low or high system pressure faults, low or high water level in cistern, pump fault, excessive filling.



Specification – Electrical

Motor 2-Pole 50 Hz 230 V 1 phase (1-4)
400 V 3 phase (1-8, 2-4, 2-8)

	1 phase	3 phase	Input max
Model	A (Run)	A (Run)	kW
1-4	7.5		0.55
1-8		5.0	3.00
2-4		3.7	2.20
2-8		5.0	3.00

Class

Class 1 (requires earth wire)

Protection

IP65 (Enclosure) / IP55 (Pump)

Connection

1 phase

M20 1 phase + neutral + earth

3 phase¹

M20 3 phases + neutral + earth

Note – 1. The control circuit is 230 V so a neutral supply is required

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Specification – Mechanical

Connection hoses	1" or 1 ¼" stainless braided with female swivel nut (union)
Waste connection	40 mm plastic with compression nut
Pressure Supply min.	1.0 bar dynamic
Pressure supply max.	10.0 bar
Cistern	Capacity 24 Lt

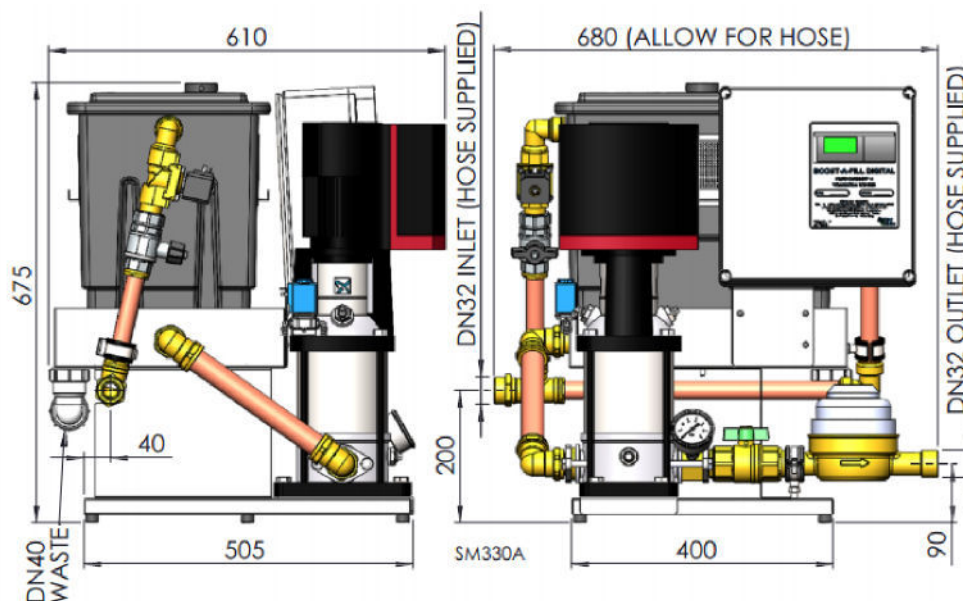
Materials

Base Plate / Drip Tray	Stainless steel 304
Pump (wetted parts)	Stainless steel 304
Pipes / Fittings	Copper / Brass / Stainless
Cistern	MDPE

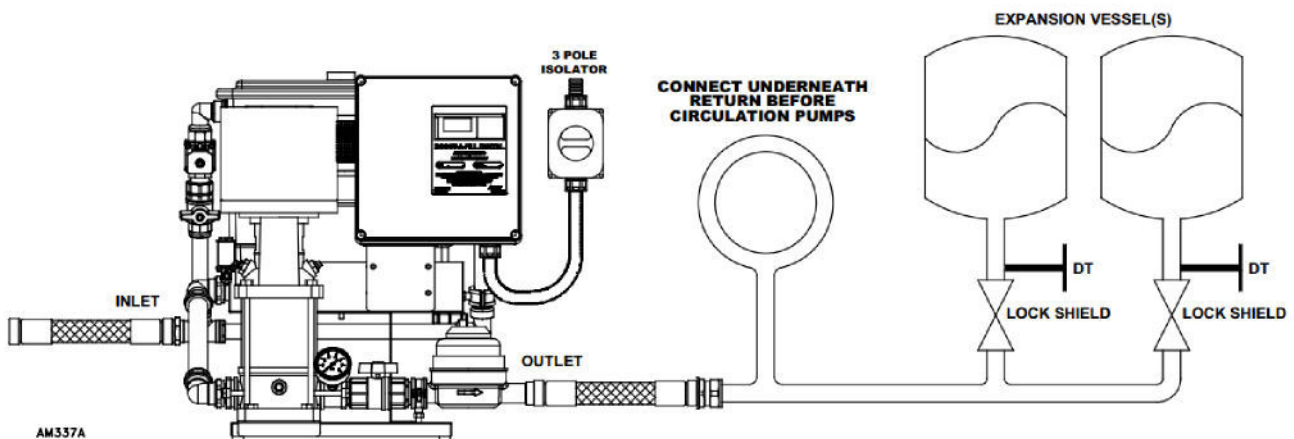
Codes and Descriptions

Inlet Size	Code	Description
DN25	BFD 1-4	Boost-A-Fill Digital Pressurisation Unit
DN25	BFD 1-8	Boost-A-Fill Digital Pressurisation Unit
DN32	BFD 2-4	Boost-A-Fill Digital Pressurisation Unit
DN32	BFD 2-8	Boost-A-Fill Digital Pressurisation Unit

Dimensions



Installation Schematic



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