

“Pent-A-Boost®” – Compact Domestic Booster Sets

Model BTAF – Fixed Speed Overview – Datasheet Page 1 of 4

Overview

Compact Booster Pump Set designed to boost pressure for tall buildings where the mains supply is inadequate – e.g. penthouse suites.

The unit is supplied as a complete package on a stainless steel base plate ready for installation. The set is suitable for drinking (wholesome) water applications since it has a screened overflow and vent.

The primary purpose is to boost the water pressure for elevated areas or where a high flow rate is required – e.g. for shower or baths. The performance / compactness ratio often enables the unit to be installed in a ground floor cupboard, rather than a full size plant room. Frequently one unit per luxury apartment is used.

The unit is quiet by virtue of a centrifugal pump, anti-vibration rubber feet and flexible stainless braided connection hoses.

Fast filling is achieved by a servo-controlled solenoid valve with solid-state level probe control. This system has proved to be more reliable and accurate than conventional float valves. The small cistern and high throughput minimise the risk of legionella.

The Arrow Valves automatic Bypass Valve is recommended to enable mains water to be supplied (at mains pressure) during power failure or maintenance.

For Fluid Category 5 risks use “Boost-A-Break” model BTAB.

Applications

- Penthouse (3 storey and taller)
- Boosting low water pressure
- “Combi” boilers & showers



Water Regulations

The assembly is pending Water Regulations approval & will comply with the requirements of the Water Regulations when installed and used correctly. Water supply companies are only obliged to supply a minimum pressure of 1 bar @ 9 Lt/min. This means mains water will only reach 10 m. Since many boilers and showers require 1 bar (or even 1.5 bar) this means boosting is often essential to the third storey and higher. The “Pent-A-Boost” has a Type AF air gap providing protection against Fluid Category 4 risks.

Specification

Pressure Supply min.	1.0 bar min. maintained (dynamic)
Pressure Supply max.	10 bar
Pressure Outlet	See flow graph – page 2
Pressure Gauge	63 dia. glycerine filled (except dual)
Vessel Capacity	24 Lt
Cistern Capacity	24 Lt
Inlet Size	See “Inlet Control” table
Outlet Size	See “Outlet Pressure Control” table
Noise	65.8 dBspl @ 0.5 metres
Temperature	50° max. ambient



Model BTAF1200 - Fixed speed.
1.0 Lt/s output, only 705 mm high.



Materials

Base / drip tray / fasteners	Stainless steel 304
Pump (wetted parts)	Stainless steel 304
Pipes / fittings	Copper / Brass / Stainless
Cistern 24 Lt	MDPE



Optional Wall Brackets.
Code – BTBRA.
Second set can be located underneath on floor.

Arrow Valves Ltd

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www.arrowvalves.co.uk

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All unit-less dimensions in mm.

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“Pent-A-Boost®” – Compact Domestic Booster Set

Model BTAF – Fixed Speed 700, 900, 1200 - Datasheet Page 2 of 4

Description – Fixed Speed

There is a choice of three pump duties – see chart. The units are compact and the pump operation is automatically controlled. The initial cost of fixed speed pumps is less than the equivalent variable speed but fixed speed pumps generally consume more energy over a lifetime. For low use applications or where the demand is high and near constant, a fixed speed pump is adequate. The pumps are self priming.

The relatively large 24 litre pressure vessel allows approximately 5 litres of water to be supplied before the pump switches on.

Inlet Control

Fast and accurate level control is achieved with a solenoid valve. Electrodes provide on/off full flow control with 60 mm delayed action. The DN20 inlet is equivalent to ten ½” BS1212 HP float valves. DN25 is fitted as standard to high flow models - see table below – and optional on others – e.g. for low pressure supplies. Providing the following minimum dynamic supply pressure is maintained at the inlet, the cistern will not run dry even with an open outlet.

Model	Inlet Size	Minimum Dynamic Pressure	Pipe Velocity m/s
700, 900	DN20 female union	1.0 bar	3.7
1200	DN25 female union	1.0 bar	2.8

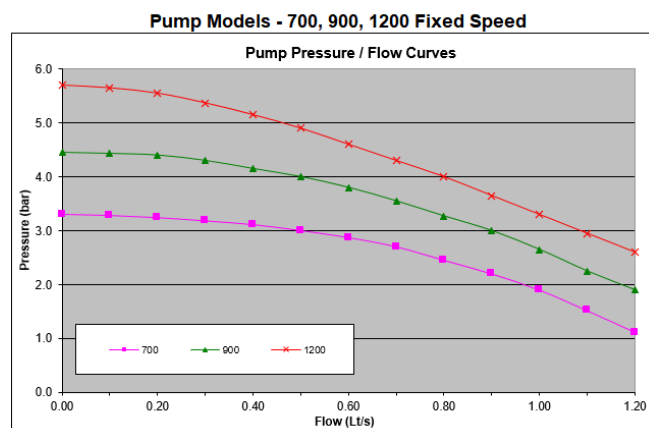
Outlet Pressure Control

The pressure switch is factory set according to the table below. To stabilise the outlet pressure, a factory fitted Pressure Regulating Valve (PRV) is optional – code BTPRV. Or use a variable speed pump – see Variable Speed Datasheet.

The outlet flow is automatically limited to 1.0 Lt/s.

Model	Outlet Size	Pressure Switch on (min.)	Outlet with Optional PRV ¹	Pressure Max ² .	Vessel Pressure ³
700	DN20	2.0 bar	2.0 bar	3.3 bar	1.8 bar
900	DN20	3.0 bar	3.0 bar	4.5 bar	2.8 bar
1200	DN20	4.0 bar	3.0 bar	5.7 bar	3.8 bar

Notes - 1. Adjustable. 2. Without PRV 3. Vessel air pressure with zero water pressure.



Electrical Specification

Motor 2 – Pole 50 Hz IP54, 230 V (1ph) or 400 V (3ph) star

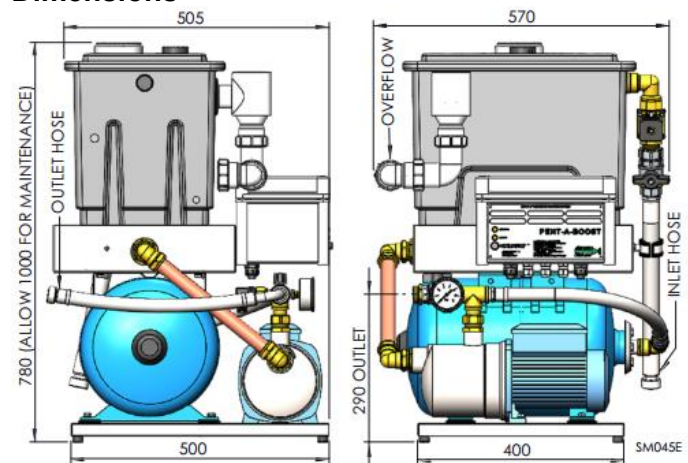
	1 phase			3 phase		Input max
Model	A (Run)	A (Start)		A (Run)		kW
700	3.0	9.8		1.4		0.65
900	4.2	13.8		1.6		0.90
1200	5.4	18.0		2.0		1.20

Class
Run-on Timer
BMS
Low level cut out

Class 1 (requires earth wire)
180 sec
Volt free SPDT for low level alarm
Stops pump via electrodes in tank
(Warning lamp on control box) –
auto reset once tank refilled
M20 hole in control box
IP65 (Enclosure) / IP54 (Pump)

Connection
Protection

Dimensions



Model BTAF 700, 900 & 1200			
Kg Dry	Kg Gross	Base Width	Base Depth
28 - 36	68 - 74	400	500

Connection Pipes

Flexible stainless braided hoses are supplied for the inlet and outlet. These have a female swivel nut (union) and a fibre washer. See Inlet Control and Outlet Pressure Control tables for size. A full bore inlet servicing valve – as required by the Regulations - is fitted upstream of the solenoid filling valve. The Overflow is 40 mm plastic with compression nut.

Codes and Descriptions – Fixed Speed

Inlet Size	Code	Description
DN20	BTAF700	Pent-A-Boost Compact 700 Fixed 230 V 2.0 bar
DN20	BTAF900	Pent-A-Boost Compact 900 Fixed 230 V 3.0 bar
DN25	BTAF1200	Pent-A-Boost Compact 1200 Fixed 230 V 4.0 bar
Optional extras – see pages 3 and 4		

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Model BTAF – Options for Fixed Speed Units – Datasheet Page 3 of 4

Options

- High level alarm relay (volt free) - recommended to minimise the risk of water damage.
- Pressure Regulating Valve (PRV) – constant outlet pressure – factory fitted – *fixed speed only*
- Wall Brackets
- GRP Drip Tray
- GRP Wall Covers – *use wall brackets*
- GRP Enclosures – for exterior use

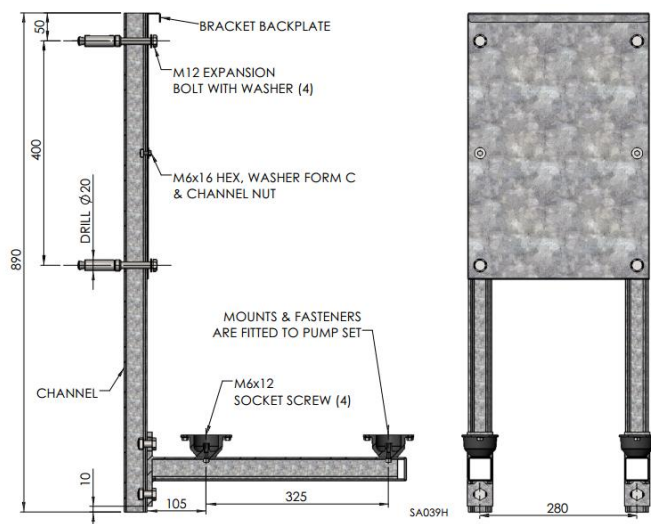
Suitability	Code	Description
All	BTBRA	Wall Bracket for Break Tanks AV Mounts
All	BTDT-SMALL F	GRP Drip Tray c/w Float Switch Small Fixed Speed BT
All	BTPRV	PRV for Fixed Speed Break Tank
All	BTCAB1	BT Kiosk Door 1050h Heated Green
All	BTCAB2	BT Enc. Lift-off 780h Frost Prot Sys Green
All	BTCAB3	BT Wall Cover 1035h Insulated Grey
All except BTCAB1	BTFPS	BT Frost Protection System
All	BTBMS1	BT High Alarm BMS - Fixed Speed

Wall Brackets

BTBRA - Galvanised Steel Wall Mounting Brackets with Anti Vibration mounts.



Dimensions

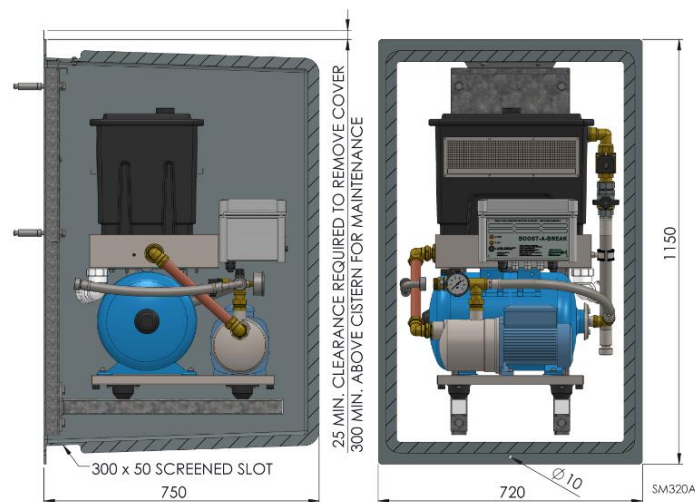


GRP Wall Cover

BTCAB3 – Insulated GRP Wall Cover, for use with the BTBRA Wall Mounting Brackets. The GRP colour is BS 00-A-05 (RAL equivalent is 7038). Integrated Frost Protection System (BTFPS – see BTCAB2 section below) can be added to the Wall Cover.



Dimensions



GRP Enclosures

BTCAB2 – Lift Off GRP Enclosure for exterior use, supplied with a Padlock and Integrated Frost Protection System. A thermostat attached to the control box will cause the pump to run against a closed head to generate heat. The colour of the enclosure is RAL 6005.



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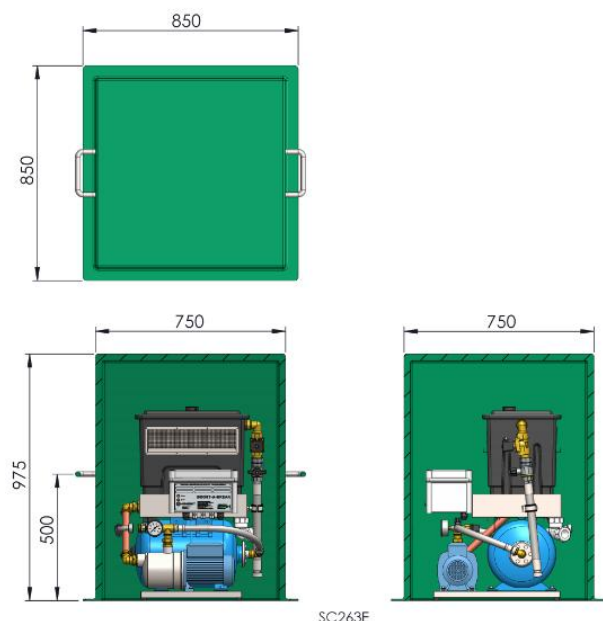


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“Pent-A-Boost®” – Compact Domestic Booster Set

Model **BTAF** – Options (Continued) – Datasheet Page 4 of 4

BTCAB2 Dimensions

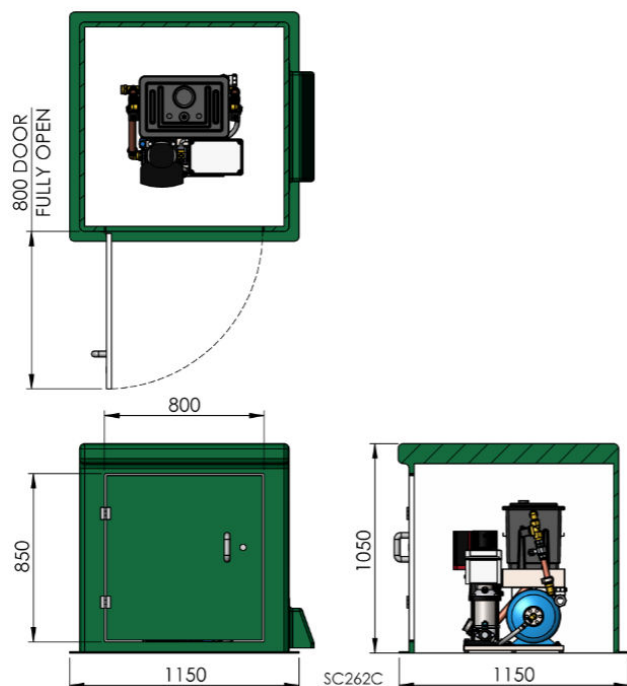


SC263E

BTCAB1 – GRP Heated Enclosure with Kiosk Door, for external use of the Pent-A-Boost. The housing has an integrated bar heater, complete with thermostat. The exterior colour of the enclosure is RAL6005.



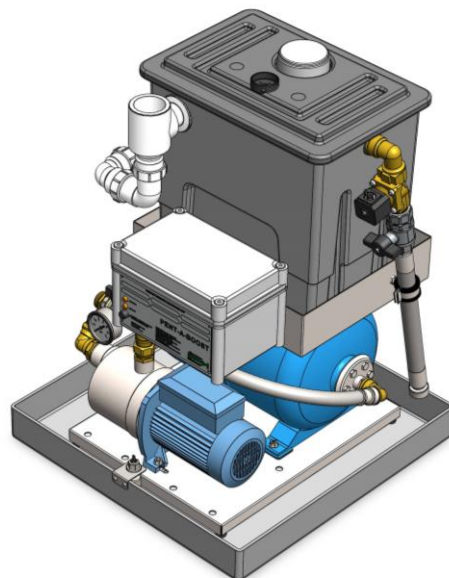
Dimensions



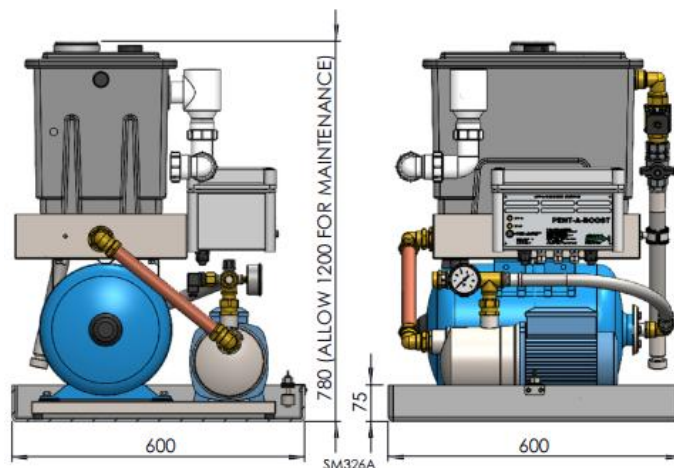
SC262C

GRP Drip Tray

BTDT-SMALL F – GRP Drip Tray for use with all fixed speed “Pent-A-Boost”® units, where it is impractical to fit an overflow. When the Drip Tray fills with water, the float switch is activated and isolates the water supply, stopping the pump.



Dimensions



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