

“Boost-A-Break®” - Break Tank & Booster Sets

Model BTAB® – Variable Speed Overview – Datasheet Page 1 of 5

Overview

Break Tank assembly with Fluid Category 5 protection by virtue of the integral Type AB air gap. The unit is supplied as a complete package on a stainless base ready for installation.

The primary purpose is to provide backflow protection in accordance with the latest Water Regulations. The BTAB unit also boosts the water pressure for elevated areas or where a high flow rate is required – e.g. wash-down.

The cistern has a screened overflow and weir, making it suitable for unorthodox applications, which require a “Hygienic Type AB air gap” – e.g. butchery and vegetable preparation.

The unit is quiet by virtue of a centrifugal pump, anti-vibration rubber feet and flexible stainless braided connection hoses. The variable speed range has the compactness of the fixed speed range plus additional benefits.

For higher flow rates see Dual Pump Datasheet.

For domestic boosting use “Pent-A-Boost” model BTAF.

Applications

The following are Fluid Category 5 examples see Water Regulations (Table 6.1e) -

- Waste bin washing
- Hose union taps – non-domestic
- Wash-down – animals or any Fluid Category 5
- Underground or surface irrigation – *see HUBG*
- Laboratories
- Baths in health care premises
- Showers health care – *see Care Shower*
- Sinks with hoses
- Bidets
- Bedpan washing
- Vegetable washing
- Butchery & meat equipment / Slaughterhouse
- Clothes washing machines – healthcare premises
- Dish washing machines – healthcare premises
- Applications deemed to be Category 5 by water company

Water Regulations

The assembly is fully Water Regulations approved & complies with the requirements of the Water Regulations when installed and used correctly. A Break Tank with a Type AB air gap provides protection against Fluid Category 5 risks - these risks are the highest level. “Boost-A-Break®” can therefore be used for all applications requiring backflow protection – use “Pent-A-Boost” for drinking water.

The Regulations require point of use protection. For example, it is not permissible to use the same Break Tank to serve a bedpan washer (Fluid Category 5) and a dishwasher. However several appliances of the same type can be served from the same Break Tank unit – e.g. irrigation network.

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
Temperature	30° max. ambient
Water Regulations Approval	2003373



*Model 3-7 – Variable speed.
Surge free, quiet and economical. Height 775 mm.
Flow output up to 1.2 Lt/s*



Registered UK Design 4036010

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

Tel: 01442 823123 Fax: 01442 823234
www.arrowvalves.co.uk

Arrow Valves Ltd reserve the right to change specifications, design and materials at any time without notice.
All unit-less dimensions in mm.
© Copyright Arrow Valves Ltd 2001-2020



**Arrow
Valves**

“Boost-A-Break®” – Break Tank & Booster Set

Model BTAB® – Variable Speed 1.0 Lt/s - Datasheet Page 2 of 5

Description – Variable Speed (1.0 Lt/s)

Variable speed pumps provide only the pressure required to meet demand making the unit economical and extending the life of the pump.

There is a choice of 9 variable speed pumps with a 1.0 Lt/s output – see chart below.

The variable speed range has all the benefits of the fixed speed pumps plus -

- Higher flow rate – up to 2.0 Lt/s output
- Variable speed – speed changes to meet demand
- Quiet – especially at low demand
- Surge free – inverter pump avoids high current demand
- Constant supply pressure
- Electronically controlled automatic pump venting system

Inlet Control

Fast and accurate level control is achieved with solenoid valve(s). Level electrodes provide on/off full flow control with 60 mm delayed action.

Model	Inlet Size	Minimum Dynamic Pressure	Pipe Velocity m/s
3-5, 3-7	DN20 female union	1.0 bar	3.7
3-10, 1-5, 1-6, 1-7, 1-8, 1-9, 1-10	DN25 female union	1.0 bar	2.8

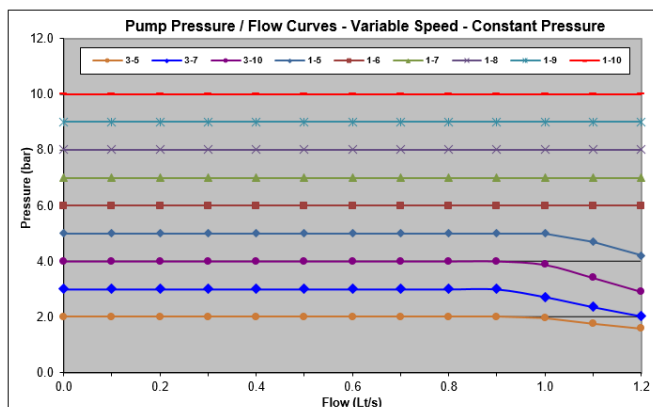
Outlet Pressure Control

The outlet pressure is controlled by a transducer, which is factory set to the “default set point” in the table below and controlled to within a 10% band. The outlet pressure is therefore constant up to the maximum duty of the pump.

Model	Outlet Size	Default Set point	Pressure Switch on (min.) ¹	Pressure Switch off (Max) ¹	Pressure Max ²	Vessel Air Pressure ³
3-5	DN20	2.0 bar	1.8 bar	2.2 bar	2.8 bar	1.4 bar
3-7	DN20	3.0 bar	2.7 bar	3.3 bar	4.6 bar	2.1 bar
3-10	DN25	4.0 bar	3.6 bar	4.4 bar	5.5 bar	2.8 bar
1-5	DN25	5.0 bar	4.5 bar	5.5 bar	7.0 bar	3.5 bar
1-6	DN25	6.0 bar	5.4 bar	6.6 bar	7.0 bar	4.2 bar
1-7	DN25	7.0 bar	6.3 bar	7.7 bar	11.7 bar	4.9 bar
1-8	DN25	8.0 bar	7.2 bar	8.8 bar	11.7 bar	5.6 bar
1-9	DN25	9.0 bar	8.1 bar	9.9 bar	11.7 bar	6.3 bar
1-10	DN25	10.0 bar	9.0 bar	11.0 bar	11.7 bar	7.0 bar

Notes -
1. Differential +/- 10% of set point. 2. If set to full speed.
3. Vessel air pressure with zero water pressure, 0.7 X set point.

The graph below illustrates the benefit of variable speed pumps. The outlet pressure is constant despite varying flow demand. Illustrated using “default set point”. The set point can be altered at the factory. On-site alterations require a commissioning service.



Electrical Specification

Motor 2-Pole 50 Hz 230 V 1 ph (3-5, 3-7, 3-10, 1-5)
400 V 3 ph (1-6, 1-7, 1-8, 1-9, 1-10)

Model	1 phase A (Run)	3 phase A (Run)	Input max kW
3-5	4.2		0.55
3-7	5.5		0.75
3-10	7.5		1.10
1-5	5.0		1.10
1-6		3.7	2.20
1-7, 1-8, 1-9, 1-10		5.0	3.00

Class
BMS

Low level cut out

Protection

Connection

1 phase

3 phase¹

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

Class 1 (requires earth wire)

Volt free SPDT relay general fault - pump / inverter / low level alarm

Stops pump via electrodes in tank

(Warning lamp on control box) – auto reset once tank refilled

IP65 (Enclosure) / IP55 (Pump)

M20 1 phase + neutral + earth

M20 3 phases + neutral + earth

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 (G16.4) - is fitted upstream of the solenoid filling valve. The Overflow is 40 mm plastic with compression nut.

Codes and Descriptions – Variable Speed (1.0 Lt/s)

Inlet Size	Code	Description
DN20	BTAB3-5	Boost-A-Break® AB Gap 3-5 Variable 230 V 2.0 bar
DN20	BTAB3-7	Boost-A-Break® AB Gap 3-7 Variable 230 V 3.0 bar
DN25	BTAB3-10	Boost-A-Break® AB Gap 3-10 Variable 230 V 4.0 bar
DN25	BTAB1-5	Boost-A-Break® AB Gap 1-5 Variable 230 V 5.0 bar
DN25	BTAB1-6	Boost-A-Break® AB Gap 1-6 Variable 400 V 6.0 bar
DN25	BTAB1-7	Boost-A-Break® AB Gap 1-7 Variable 400 V 7.0 bar
DN25	BTAB1-8	Boost-A-Break® AB Gap 1-8 Variable 400 V 8.0 bar
DN25	BTAB1-9	Boost-A-Break® AB Gap 1-9 Variable 400 V 9.0 bar
DN25	BTAB1-10	Boost-A-Break® AB Gap 1-10 Variable 400 V 10.0 bar

Optional extras – see pages 4 and 5

Arrow Valves Ltd

Tel: 01442 823123

Fax: 01442 823234

www.arrowvalves.co.uk

Arrow Valves Ltd reserve the right to change specifications, design and materials at any time without notice.

All unit-less dimensions in mm.

© Copyright Arrow Valves Ltd 2001-2020

“Boost-A-Break®” – Break Tank & Booster Set

Model BTAB® – Variable Speed 2.0 Lt/s - Datasheet Page 3 of 5

Description – Variable Speed (2.0 Lt/s)

There is a choice of 7 variable speed pumps with a 2.0 Lt/s output – see chart below.

The higher flow units are suitable for supplying multiple outlets or applications where a greater flow rate is required.

Inlet Control

Fast and accurate level control is achieved with two 1” filling solenoid valves (except model 5-4 which has a single solenoid). Level electrodes provide on/off full flow control with 60 mm delayed action.

Model	Inlet Size	Minimum Dynamic Pressure	Pipe Velocity m/s
5-4	DN25 female union	1.0 bar	2.8
5-8, 5-10, 2-5, 5-16, 2-7, 2-8	DN32 female union	1.0 bar	2.4

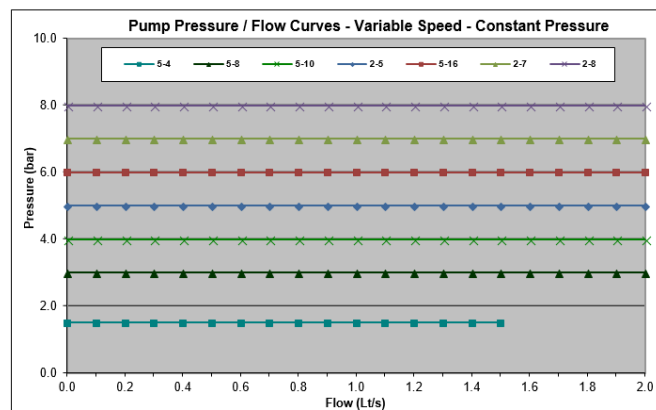
Outlet Pressure Control

The outlet pressure is controlled by a transducer, which is factory set to the “default set point” in the table below and controlled to within a 10% band. The outlet pressure is therefore constant up to the maximum duty of the pump.

Model	Outlet Size	Default Set point	Pressure Switch on (min.) ¹	Pressure Switch off (Max) ¹	Pressure Max ²	Vessel Air Pressure ³
5-4	DN25	1.5 bar	1.4 bar	1.7 bar	2.8 bar	1.1 bar
5-8	DN32	3.0 bar	2.7 bar	3.3 bar	5.0 bar	2.1 bar
5-10	DN32	4.0 bar	3.6 bar	4.4 bar	7.0 bar	2.8 bar
2-5	DN32	5.0 bar	4.5 bar	5.5 bar	7.0 bar	3.5 bar
5-16	DN32	6.0 bar	5.4 bar	6.6 bar	11.7 bar	4.2 bar
2-7	DN32	7.0 bar	6.3 bar	7.7 bar	11.7 bar	4.9 bar
2-8	DN32	8.0 bar	7.2 bar	8.8 bar	11.7 bar	5.6 bar

Notes - 1. Differential +/- 10% of set point. 2. If set to full speed. 3. Vessel air pressure with zero water pressure, 0.7 X set point.

The graph below illustrates the benefit of variable speed pumps. The outlet pressure is constant despite varying flow demand. Illustrated using “default set point”. The set point can be altered at the factory. On-site alterations require a commissioning service.



Electrical Specification

Motor 2-Pole 50 Hz 230 V 1 ph (5-4, 5-8)
400 V 3 ph (5-10, 2-5, 5-16, 2-7, 2-8)

	1 phase	3 phase	Input max
Model	A (Run)	A (Run)	kW
5-4	7.5		1.10
5-8	7.5		1.50
5-10, 2-5		3.7	2.20
5-16, 2-7, 2-8		5.0	3.00

Class BMS

Low level cut out

Protection Connection

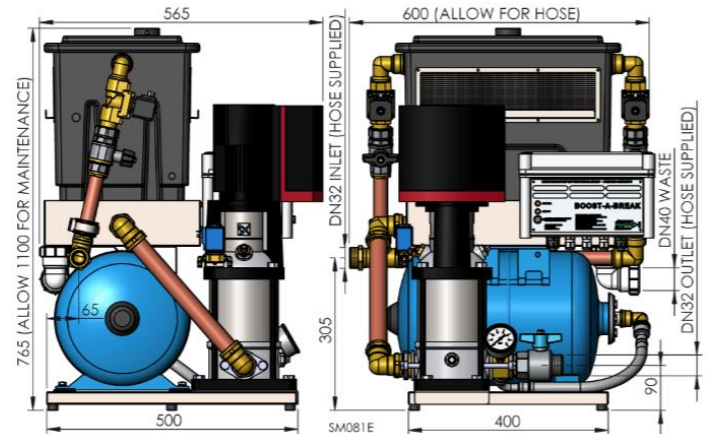
1 phase
3 phase¹

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

Class 1 (requires earth wire)
Volt free SPDT relay general fault - pump / inverter / low level alarm
Stops pump via electrodes in tank (Warning lamp on control box) – auto reset once tank refilled
IP65 (Enclosure) / IP55 (Pump)

M20 1 phase + neutral + earth
M20 3 phases + neutral + earth

Dimensions



Registered UK Design 4036010

Model BTAB5-8 Shown (Dimensions apply to all Variable Speed units)

Kg Dry	Kg Gross	Base Width	Base Depth
46 - 85	86 - 125	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 (G16.4) - is fitted upstream of the solenoid filling valve. The Overflow is 40 mm plastic with compression nut.

Codes and Descriptions – Variable Speed (2.0 Lt/s)

Inlet Size	Code	Description
DN25	BTAB5-4	Boost-A-Break® AB Gap 5-4 Variable 230 V 1.5 bar
DN32	BTAB5-8	Boost-A-Break® AB Gap 5-8 Variable 230 V 3.0 bar
DN32	BTAB5-10	Boost-A-Break® AB Gap 5-10 Variable 400 V 4.0 bar
DN32	BTAB2-5	Boost-A-Break® AB Gap 2-5 Variable 400 V 5.0 bar
DN32	BTAB5-16	Boost-A-Break® AB Gap 5-16 Variable 400 V 6.0 bar
DN32	BTAB2-7	Boost-A-Break® AB Gap 2-7 Variable 400 V 7.0 bar
DN32	BTAB2-8	Boost-A-Break® AB Gap 2-8 Variable 400 V 8.0 bar

Optional extras – see pages 4 and 5

Arrow Valves Ltd

Tel: 01442 823123

Fax: 01442 823234

www.arrowvalves.co.uk

Arrow Valves Ltd reserve the right to change specifications, design and materials at any time without notice.

All unit-less dimensions in mm.

© Copyright Arrow Valves Ltd 2001-2020



Arrow Valves

“Boost-A-Break®” - Break Tank & Booster Set

Model BTAB® – Options – Datasheet Page 4 of 5

Options

- High level alarm relay (volt free) - recommended to minimise the risk of water damage.
- Wall Brackets – *suitable for units up to 5-10*
- GRP Drip Trays
- GRP Wall Covers – *use wall brackets* – e.g. bin store
- GRP Enclosures – for exterior use
- Pulse timer – prevents pump sticking if infrequently used
- Duty Standby Controls – for use with two single pump BTAB units where a loss of the water supply would be critical – e.g. hospitals

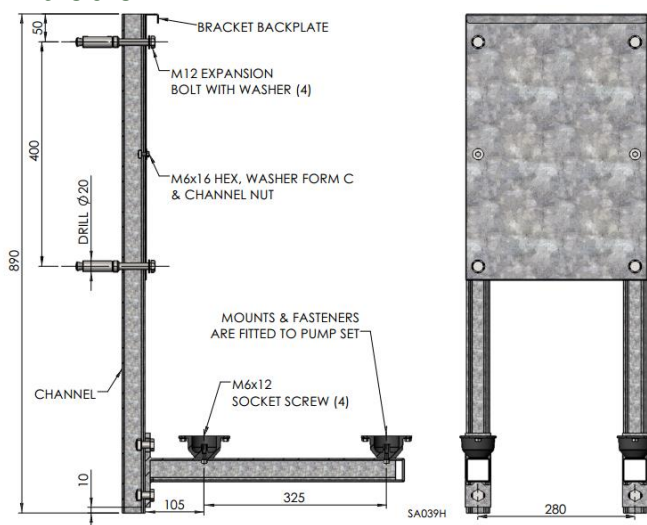
Suitability	Code	Description
Up to 5-10	BTBRA	Wall Bracket for Break Tanks AV Mounts
All	BTPT	Pulse Timer - Infrequent Use/Anti Seize
All DN20	BT20-25	Upgrade from DN20 to DN25 Solenoid
All	BTDT1	GRP Drip Tray c/w Float Switch (up to 3-7S)
All	BTDT2	Controller & Additional Sol for Drip Tray
All	BTCAB1	Enc. 1150x1150x1050 GRP c/w Heating
Up to 5-4	BTCAB2	Enc. 750x750x975 GRP c/w Frost Protection
Up to 5-10	BTCAB3	BT Wall Cover 1150hx720Wx750D
All except BTCAB1	BTFPS	BT Frost Protection System
Variable Speed	BTBMS2	BT High alarm BMS – Variable speed pumps
2 x Single pump variable speed	ELCBTPCO	Duty Standby Controls – Electrical control box twin pump changeover

Wall Brackets

BTBRA - Galvanised Steel Wall Mounting Brackets with Anti Vibration mounts. For use with single pump Boost-A-Break® units, up to model BTAB5-10.



Dimensions

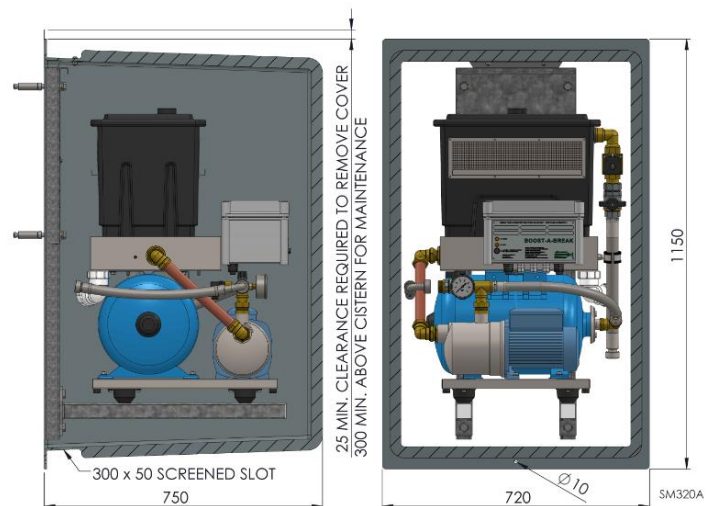


GRP Wall Cover

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. Not suitable for single pump units larger than 5-10.



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, it is not suitable for single pumps larger than the BTAB5-4.



Arrow Valves Ltd

Tel: 01442 823123

Fax: 01442 823234

www.arrowvalves.co.uk

Arrow Valves Ltd reserve the right to change specifications, design and materials at any time without notice.
All unit-less dimensions in mm.
© Copyright Arrow Valves Ltd 2001-2020

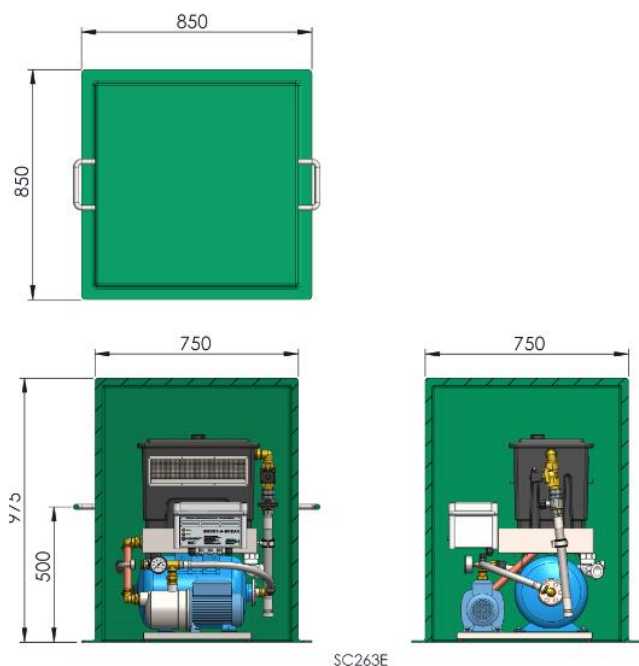


**Arrow
Valves**

“Boost-A-Break®” - Break Tank & Booster Set

Model BTAB® – Options (Continued) – Datasheet Page 5 of 5

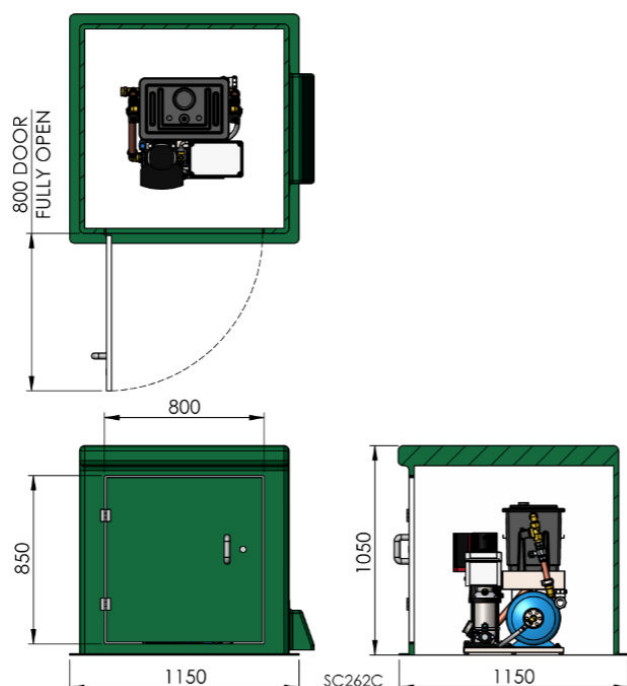
BTCAB2 Dimensions



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



Dimensions



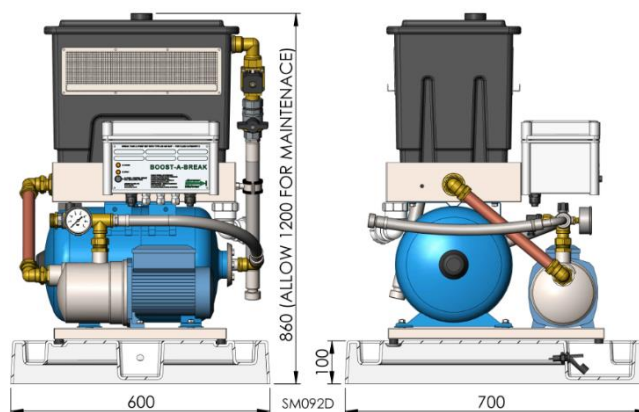
GRP Drip Tray

BTDT1 – GRP Drip Tray for use with Boost-A-Break® units (up to the BTAB3-7S), where it is impractical to fit an overflow.
BTDT2 – Additional isolating solenoid.



The whole pump set sits on top so any water leaking from the tank or pump is captured in the “moat” and runs into the well, activating the float switch and isolating the water supply, which stops the pump. The pump restarts pump once water is drained from the well.

Dimensions



Arrow Valves Ltd

Tel: 01442 823123 Fax: 01442 823234

www.arrowvalves.co.uk

Arrow Valves Ltd reserve the right to change specifications, design and materials at any time without notice.

All unit-less dimensions in mm.

© Copyright Arrow Valves Ltd 2001-2019



Arrow Valves