



**Installation Instructions/  
 Operating & Maintenance Manual  
 “Boost-A-Break” & “Pent-A-Boost” Break Tank & Booster Set  
 Variable Speed 3 Series & 5 Series**



Model shown BTAB5-8

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## FOREWORD

The BTAB variable speed series Break Tank assemblies provide Fluid Category 5 protection by virtue of the integral type AB air gap. The primary purpose is to provide backflow protection in accordance with the water regulations. The BTAB variable speed unit also boosts the water pressure on demand 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 drinking water applications, which require a Hygienic type AB air gap” – e.g. dental spittoons & food preparation.

The variable speed Pent-A-Boost assembly with Fluid Category 4 protection by virtue of the integral Type AF air gap. The primary purpose is to provide backflow protection in accordance with the water regulations. The BTAF unit also boosts the water pressure for elevated areas. The AF air gap screened overflow and vent is approved for wholesome drinking water

## 1. LITERATURE PROVIDED

Data Sheet BTAB/ BTAF

Wiring Diagram AM077\* (3 Series & 5-4)

Wiring Diagram AM108& (5 Series)

Grundfos Handbook

## 2. APPLICATIONS

The unit should be installed to provide point of use protection. See Water Regulations Guide. The Break Tank has a hygienic type AB air gap making it suitable for all applications.

## 3. INSTALLATION

- 3.1 The variable speed Boost-A-Break Pent-A-Boost sets & should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, building regulations, IEE Regulations, Water Supply (water fitting). Water Bye-Laws (Scotland) and other local Bye-laws
- 3.2 Unpack the unit, taking care not to lift on the black grey tank (lift by the base plate or by using the copper elbow). **Warning!** The units weigh between 46- 85 kg dry and 86 – 125 kg wet, safe lifting practices should be implemented.
- 3.3 Install in an area not liable to flooding or freezing (outdoor heated GRP enclosures are available)
- 3.4 Normally the unit is floor mounted but suitable wall brackets can be used with suitable fasteners (Option BRA up to model 5-8 single pump).
- 3.5 Thoroughly flush the supply pipe before connecting – debris can damage the solenoid valves. An integral strainer is part of the inlet arm before the solenoid.
- 3.6 Connect the supply pipe to the solenoid valve. Normally the supply is DN20 for models 3-5 & 3-7 and DN25 for models 3-10 & 5-4, DN 32 models 5-8 – 5-16. A stainless braided hose is supplied. Ensure this is not kinked or stressed. The supply pressure should be in excess of 1 bar dynamic. It is advisable to connect a servicing valve before the inlet pipe and fit with a fibre washer in the joint
- 3.7 Connect the pump outlet flexible hose. Ensure the union nut is tight and use fibre washers.
- 3.8 Use 40 mm plastic or 42 mm copper waste pipe and connect to the overflow provided, ensure there is free flow from this pipe to a suitable gully. Ensure the pipe slopes downwards and the discharge is conspicuous Ensure Water Regulations G16.8, G16.10 & G16.11 are met. Check that overflow can cope and no water damage will occur if it can't, by lifting lid on tank until it overflows. Replace lid to stop water flow
- 3.9 Electrical Connection 230-240 v single phase.(3 Series & 5 Series to model 5-8) The electrical supply must be via a circuit breaker (see datasheet). Screw terminals are supplied and colour coded according to standards. Connect a minimum 1.5 mm<sup>2</sup> three core cable to the control box. Feed through gland and tighten. Strip 10 mm of insulation off each wire and insert into screw terminals fully tighten.
- 3.10 *Electrical Connection 415 V 3 phase ( 5 Series model 5-10 & 5-16 ) The electrical supply must be via a circuit breaker (see datasheet). The wiring requires 3 phases and neutral. Strip 10 mm of insulation off each wire and insert into screw terminals fully tighten. After connection it is advised that the motor direction is checked*

3.11 Ensure the cistern lid is fitted correctly. **WARNING!** If the lid is not fitted the unit will continually fill and flood and the pump will not run.

**4. PRIMING & TESTING**

The unit is designed to self-prime and the pump will not run if there is insufficient water in the cistern – or the lid is removed.

- 4.1 Shut the outlet valve and open the inlet Servicing Valve(s).
- 4.2 Switch electrical and water supplies on, the unit will not fill until the electrical power is on. The cistern should commence filling (5 series from both solenoid inlets) and the pump start once the cistern is half full, the pump vents via a solenoid that opens when the unit fills, if air is still present in the system, isolate the incoming water supply and raise the cistern lid slightly to ‘kid’ the unit into filling, this will open the vent solenoid(s) and expel any remaining air, once all the remaining air is expelled replace the lid and turn on the water supply.
- 4.3 The pump will run on a set program, gradually slow down and then stop. If the pump fails to switch off it is possible that there is still air in the system.
- 4.4 Open the outlet valve and check the pump starts.
- 4.5 Ensure the Solenoid Valve(s) shuts before overflowing.

**5 ADJUSTMENTS**

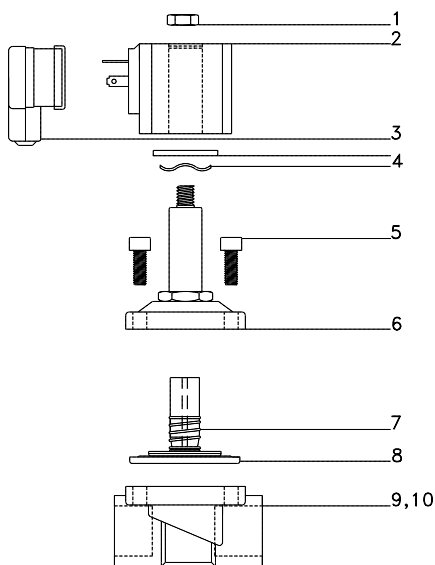
The unit is factory commissioned and there are no user adjustments. Contact Arrow Valves to arrange for an on site commissioning if required. (Please note this would be chargeable)

**6. MAINTENANCE**

It is recommended the electrodes are annually cleaned with Scotch-Brite, and the vessel pressure checked. The must be done with zero water pressure indicated on the pressure gauge.

**7. SOLENOID SERVICE INFORMATION**

Model SOL\*\*FACD



Two-way, normally closed, anti-water hammer solenoid valves with hung diaphragm.

Valve bodies and bonnets are of brass construction.

Standard valves have a General Purpose Solenoid Enclosure.

**1.1.1.1 DESCRIPTION**

- 1. Retaining Nut
- 2. Coil & nameplate
- 3. Connector assy.
- 4. Spring washer
- 5. Screw (4x)
- 6. Bonnet assy.
- 7. Spring
- 8. Diaphragm/core assy.
- 9. O-ring, valve body
- 10. Valve body

## 8. PUMP DETAILS



Disconnect electrical power before any servicing operation and make sure the pump cannot be accidentally switched on.

**ATTENTION -See Grundfos Operation Manual for additional information**

### A MAINTENANCE

If the pump remains inactive for long periods, it must be emptied completely and, preferably, dried.

For good measure, as in the case of temporary operation with dirty liquids, run the pump briefly with clean water to remove deposits. In any case, when the pump remains inactive it must be emptied completely if there is a risk of freezing. Before restarting the unit, check that the shaft is not jammed.

A wiring diagram is provided on the inside of the cover to the electrical box.

## 9. BROYCE LEVEL CONTROLLER

### Installation

#### a) Principle of Operation

Relies on the conductivity properties of liquids to complete an electrical circuit between electrodes. A low voltage A.C. signal is used on the electrodes to avoid electrolysis.

#### b) Technical:

RELAY OUTPUT – Double pole changeover voltage free contacts rated 8A @ 250VAC resistive.



## 10. OPTIONS

Code	Description	Suitability
BTBRA	Wall Bracket for Break Tanks AV Mounts	Up to 5-8 single
BTPT	Pulse Timer - Infrequent Use/Anti Seize	All except dual
BT20-25	Upgrade from DN20 to DN25 Solenoid	All DN20
BTDT1	GRP Drip Tray c/w Float Switch (up to 3-7)	Up to 3-7 single
BTDT2	Controller & Additional Sol for Drip Tray (up to 3-7)	Up to 3-7 single
BTCAB1	Enc. 1100x1100x1050 GRP c/w Heating	All
BTCAB2	Enc. 660x600x780 GRP c/w Frost Protection	All Single
BTCAB3	BT Wall Cover 1035hx735Wx610D	Up to 5-8 Single

**BTPT: Pulse Timer** – Turns the motor over once a day to stop the pump seizing if not regularly moved

**BT20-25: Upgrade from DN20 –DN25 solenoid** – Is a larger diameter solenoid on the inlet.

**BTDT1: GRP Drip tray with float switch** – A drip tray to capture any leak if an overflow pipe is not feasible, the water inlet solenoid is isolated if the float switch is activated, when the drip tray is full and requires emptying.

**BTDT2: Controller and additional solenoid for drip tray** – Is in addition to the drip tray option an additional solenoid can be fitted on the inlet in case of device failure.

**BTRA: Wall bracket for Break Tanks** – Brackets for mounting the Break Tanks on the wall

**BTCAB1: GRP Enclosure Heating** – A heater to go in the GRP enclosure to stop the pump and tanks freezing.

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**BTCAB2: GRP Enclosure with frost protection** – The pumps work against a closed head to generate heat. Max 5 °C

**BT CAB3: Wall cover** – To fit over wall bracket mounted units

### 11. Spares

The table below shows part numbers, codes and descriptions for spares, which may be required for the Break Tank, contact Arrow Valves on 01442 823123 or online at [www.arrowvalves.co.uk](http://www.arrowvalves.co.uk).

Arrow Valves Ltd reserves the right to change specifications at any time without notice.

Description	Code	Size	Description
<i>Level Controller</i>	BT		Level Controller 2 Pole Output 230VAC
<i>Solenoid Spares Kit</i>	SOLIP4962A/2	DN15-25	Solenoid Spares Kit for model ACD DN15-25
<i>Outlet Hose</i>	A232A	DN20	BT Outlet Hose DN20
<i>Inlet Hose</i>	A230A	DN20	BT Inlet Hose DN20
<i>Inlet Hose</i>	A231A	DN25	BT Inlet Hose DN25
<i>Inlet Hose</i>	A238B	DN32	BT Inlet Hose DN32
<i>Outlet Hose</i>	A249B	DN32	BT Outlet Hose DN32
<i>Seal Kit Grundfos Pump</i>	96455086		Seal Kit 5-10 (HQQE)