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

## Model BTAF – Dual Pump Overview – Datasheet 

### 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 approved 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 showers 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 centrifugal pumps, anti-vibration rubber feet and flexible stainless braided connection hoses.

Fast filling is achieved by a servo-controlled solenoid valves 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 minimises the risk of legionella.

The “Pent-A-Boost®” unit features an integral Bypass Valve that enables mains water to be supplied (at mains pressure) during power failure for maintenance.

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


*Model BTAF3-10S*
*Dual Pump - Duty Standby.*

### Applications

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

### Water Regulations

The assembly is fully Water Regulations approved & complies with the requirements of the latest 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.

### Specification

| | |
|---|---|
| Pressure Supply min. | 1.0 bar min. maintained (dynamic) |
| Pressure Supply max. | 10 bar |
| Pressure Outlet | See flow graph |
| Pressure Gauge | 63 dia. glycerine filled (except dual) |
| Vessel Capacity | 12 Lt |
| Cistern Capacity | 24 Lt |
| Inlet Size | *See “Inlet Control” table* |
| Outlet Size | *See “Outlet Pressure Control” table* |
| Noise | <58 dBa @ 1 m |
| Temperature | 50º max. ambient |
| Water Regulations Approval | 2510707 |

### Materials

| | |
|---|---|
| Base / fasteners | Stainless steel 304 |
| Pump (wetted parts) | Stainless steel 304 |
| Pipes / fittings | Copper / Brass / Stainless |
| Cistern 24 Lt | MDPE |
| Cistern 100 Lt | GRP |


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# "Pent-A-Boost®" – Compact Domestic Booster Set

## Model BTAF – Dual Pump - Duty Standby – Datasheet 

### Description – Dual Pump

Dual pump sets are available as Duty Standby or Duty Assist. Both pumps are variable speed and set to provide constant pressure. Remarkably, the foot print is the same as the single pump set yet the duty is up to 2.4 Lt/s. The parallel mounted pumps draw water from the integral ultra-fast filling tank.

### 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 Codes and Descriptions 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.

### Electrical Specification

| | |
|---|---|
| Class | Class 1 (requires earth wire) |
| BMS | Volt free SPDT relay general fault- pump / inverter / low level alarm<br>Volt free SPDT for low level alarm |
| Low level cut out | Stops pump via electrodes in tank (Warning lamp on control box) – auto reset once tank refilled |
| Protection | IP65 (Enclosure) / IP55 (Pump) |
| **Connection** | |
| 1 phase | M20 1 phase + neutral + earth |

### Duty Standby

Only one pump runs at any one time. The pumps alternate on a daily basis to avoid stagnation and ensure even use. A manual override switch "hand" allows either pump to be isolated and run only the healthy pump.

### Motor

| | |
|---|---|
| Voltage | 230 V 1 phase |
| Protection | MCB in control box for each pump motors thermal protection (IEC 34-11: TP 211) |

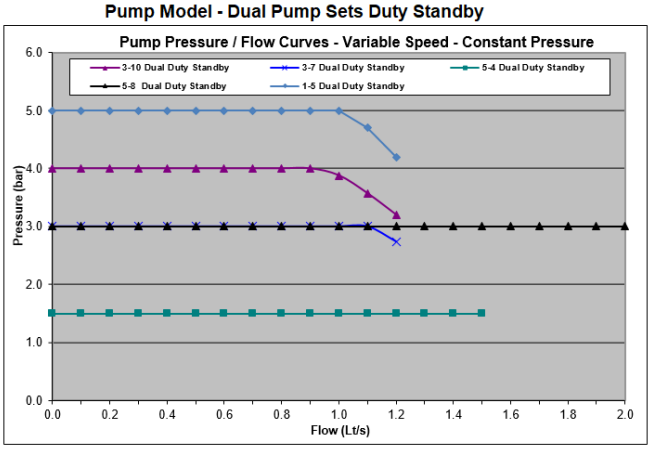
| | 1 phase | | Input max |
|---|---|---|---|
| Model | A (Run) | | kW |
| 3-7S | 4.7 | | 0.75 |
| 3-10S | 5.6 | | 1.10 |
| 1-5S | 5.6 | | 1.10 |
| 5-4S | 7.5 | | 1.10 |
| 5-8S | 7.5 | | 1.50 |

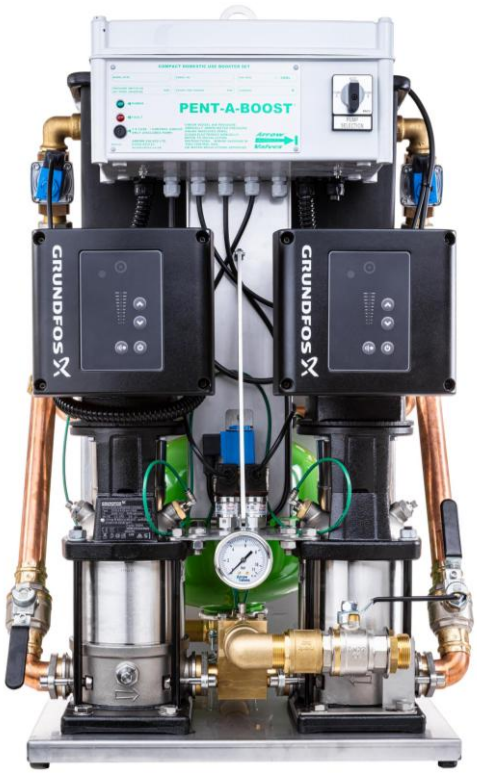
### Outlet Pressure Control

| Model | Outlet Size | Default Set point | Pressure Switch on (min.)[1] | Pressure Switch off (Max)[1] | Pressure Max[2] | Vessel Air Pressure[3] |
|---|---|---|---|---|---|---|
| 3-7S | DN20 | 3.0 bar | 2.7 bar | 3.3 bar | 4.6 bar | 2.1 bar |
| 3-10S | DN25 | 4.0 bar | 3.6 bar | 4.4 bar | 5.5 bar | 2.8 bar |
| 1-5S | DN25 | 5.0 bar | 4.5 bar | 5.5 bar | 7.0 bar | 3.5 bar |
| 5-4S | DN25 | 1.5 bar | 1.4 bar | 1.7 bar | 2.8 bar | 1.1 bar |
| 5-8S | DN32 | 3.0 bar | 2.7 bar | 3.3 bar | 5.0 bar | 2.1 bar |

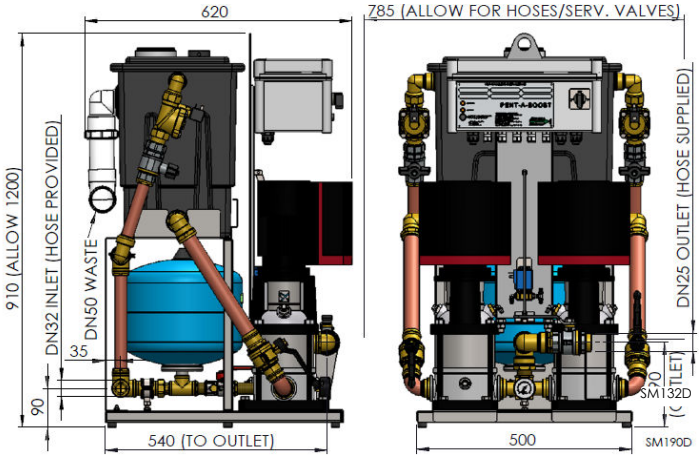
**Notes -** 1. Differential +/- 10% of set point. 2. If set to full speed.
3. Vessel air pressure with zero water pressure, 0.7 X set point.

**Pump Model - Dual Pump Sets Duty Standby**




### Dimensions




**Model BTAF3-10 Duty Standby Shown**

### Codes and Descriptions – Duty Standby

| Inlet Size | Code | Description |
|---|---|---|
| DN20 | BTAF3-7S | Pent-A-Boost 3-7 Duty Standby Vari 230 V 3.0 bar |
| DN25 | BTAF3-10S | Pent-A-Boost 3-10 Duty Standby Vari 230 V 4.0 bar |
| DN25 | BTAF1-5S | Pent-A-Boost 1-5 Duty Standby Vari 230 V 5.0 bar |
| DN25 | BTAF5-4S | Pent-A-Boost 5-4 Duty Standby Vari 230 V 1.5 bar |
| DN32 | BTAF5-8S | Pent-A-Boost 5-8 Duty Standby Vari 230 V 3.0 bar |
| Optional extras – see page 6 | | |

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# "Pent-A-Boost®" – Compact Domestic Booster Set

## Model BTAF – Dual Pump - Duty Assist – Datasheet 

### Duty Assist

Allows the second pump to automatically switch on when required, thus doubling the output. Alternate starting avoids stagnation and ensures even use. If one pump develops a fault, the controller isolates and continues with the healthy pump (the BMS fault relay activates together with panel lamps). Normal demand is often met with only one small pump running at optimum efficiency, offering substantial energy saving compared to one larger pump. Furthermore smaller pumps are quieter.

| Model | Outlet Size | Default Set point | Pressure Switch on (min.)[1] | Pressure Switch off (Max)[1] | Pressure Max[2] | Vessel Air Pressure[3] |
|---|---|---|---|---|---|---|
| 3-5A | DN32 | 2.0 bar | 1.8 bar | 2.2 bar | 2.8 bar | 1.4 bar |
| 3-7A | DN32 | 3.0 bar | 2.7 bar | 3.3 bar | 4.6 bar | 2.1 bar |
| 3-10A | DN32 | 4.0 bar | 3.6 bar | 4.4 bar | 5.5 bar | 2.8 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.

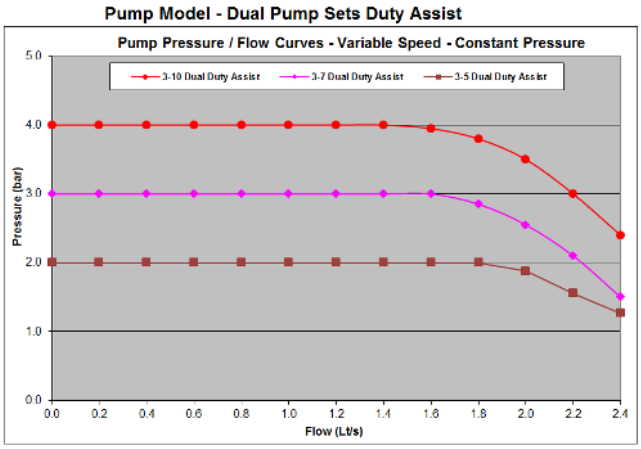
### Specification & Materials

See page 1

### Motor

Voltage 230 V 1 phase
Protection MCB in control box for each pump
motors thermal protection (IEC 34-11: TP 211)

| Model | 1 phase A (Run) | | Input max kW |
|---|---|---|---|
| 3-5A | 7.0 | | 1.10 |
| 3-7A | 9.4 | | 1.50 |
| 3-10A | 11.2 | | 2.20 |




### Digital Controller

The controller includes a digital display with setting buttons and button lock to prevent tampering. Both pumps can be tested and disabled if necessary via the display. Controller features include pump changeover every 24 hours if continuous draw off causes one pump to run and pump pulse every 24 hours to avoid seizure. The user can also view the set pressure and when the pump was last started and stopped via the display.

### Vessel Purge

The digital controller also features an automatic vessel purge facility for Legionella control. Every 24 hours the switch-on pressure is dropped below the vessel pre charge pressure, ensuring the entire contents of the vessel is emptied.

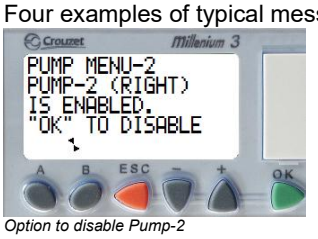
**Information display messages include**

- Healthy
- Pump-1 running
- Pump-2 running
- Last started
- Last stopped
- Pressure
- Set point pressure

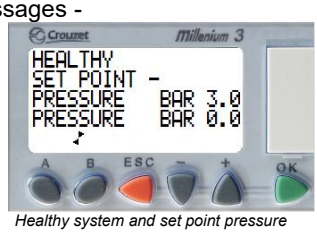
**Fault display messages include**

- Pump-1 fault
- Pump-2 fault
- Pump-1 disabled
- Pump-2 disabled
- Low-level fault
- High-level fault

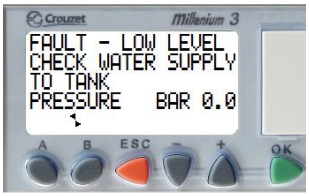
Four examples of typical messages -



*Option to disable Pump-2*



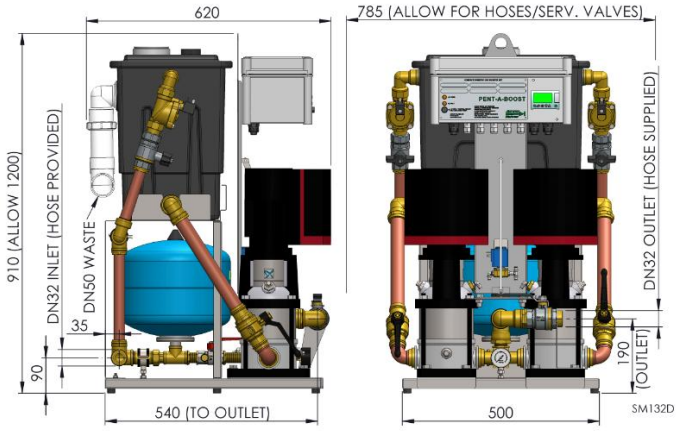
*Healthy system and set point pressure*



*Low level fault*

*Date when the pump last started*

### Dimensions




**Model BTAF3-10 Duty Assist Shown (Dimensions apply to all Duty Assist Units)**

### Codes and Descriptions – Duty Assist

| Inlet Size | Code | Description |
|---|---|---|
| DN32 | BTAF3-5A | Pent-A-Boost 3-5 Duty Assist Vari 230 V 2.0 bar |
| DN32 | BTAF3-7A | Pent-A-Boost 3-7 Duty Assist Vari 230 V 3.0 bar |
| DN32 | BTAF3-10A | Pent-A-Boost 3-10 Duty Assist Vari 230 V 4.0 bar |
| Optional extras – see page 6 | | |

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# "Pent-A-Boost®" – Compact Domestic Booster Set

## Model BTAF – Dual Pump – 5-8 Duty Assist – Datasheet 

### 5-8 Duty Assist

Remarkably high duty (up to 3.7 Lt/s) for the foot print of the unit, ideal for installing in locations where floor space is at a premium – often the case in domestic premises. The skid mounted base occupies less than 0.5m² of floor space and allows the unit to be easily and securely transported. The integral 100 litre GRP break tank is rapidly filled by a triple solenoid valve arrangement. Model 5-8A includes all of the benefits of other Variable Speed Duty Assist units – see pages 2 and 3.

### Connection Pipes

DN40 flexible stainless braided hoses are supplied for the inlet and outlet. These have a female swivel nut (union) and a fibre washer. The DN40 inlet connection is reversible, allowing for left or right hand side configurations. A full bore inlet servicing valve – as required by the Regulations (G16.4) - is fitted upstream of each of the three solenoid filling valves. The Overflow is 50 mm plastic with compression nut.

### Motor

Voltage 230 V 1 phase
Protection MCB in control box for each pump motors thermal protection (IEC 34-11: TP 211)

| | 1 phase | | Input max |
|---|---|---|---|
| Model | A (Run) | | kW |
| 5-8A | 15.0 | | 3.00 |

### Inlet Control

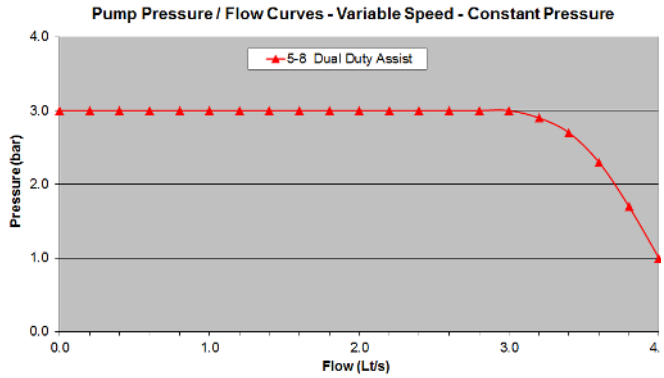
Fast and accurate level control is achieved with three solenoid valves. Level electrodes provide on/off full flow control with 60 mm delayed action.

### Outlet Pressure Control

The outlet pressure is controlled by a transducer, which is factory set to 3 bar (the "default set point") and controlled to within a 10% band – see table below. The outlet pressure is therefore constant up to the maximum duty of the pumps. The set point can be altered at the factory, on-site alterations require a commissioning service.

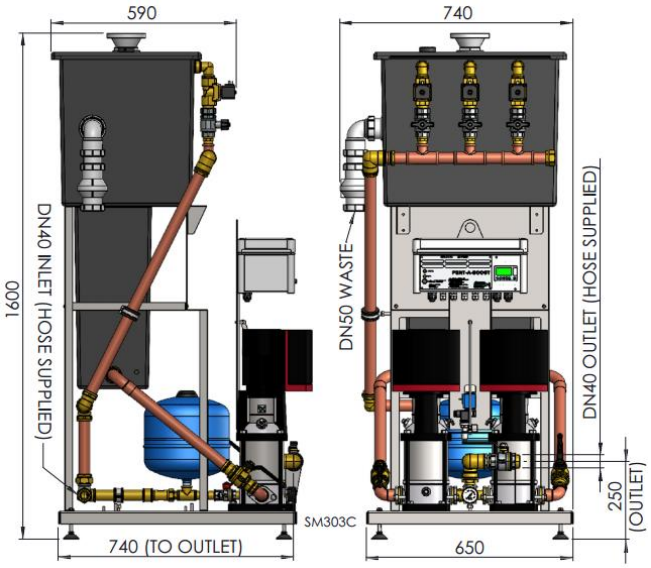
| Model | Outlet Size | Default Set point | Pressure Switch on (min.)[1] | Pressure Switch off (Max)[1] | Pressure Max[2] | Vessel Air Pressure[3] |
|---|---|---|---|---|---|---|
| 5-8A | DN40 | 3.0 bar | 2.7 bar | 3.3 bar | 5.0 bar | 2.1 bar |

**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.





### Dimensions




### Codes and Descriptions

| Inlet Size | Code | Description |
|---|---|---|
| DN40 | BTAF5-8A | Pent-A-Boost 5-8 Duty Assist Vari 230 V 3.0 bar |
| Optional extras – see page 6 | | |

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# "Pent-A-Boost®" – Compact Domestic Booster Set

## Model BTAF – 3 Phase Dual Pump – Duty Assist – Datasheet 

### Description

A Duty Assist configuration allows the pumps to alternate on a daily basis to avoid stagnation and ensure even use, the second pump will assist the first if there is a high demand. The Duty Assist range can achieve high flow rates of up to 4.0 litres per second. In the event of a pump failure, the working pump will take over.

### Connection Pipes

DN40 flexible stainless braided hoses are supplied for the inlet and outlet. These have a female swivel nut (union) and a fibre washer. The DN40 inlet connection is reversible, allowing for left or right hand side configurations. A full bore inlet servicing valve – as required by the Regulations (G16.4) – is fitted upstream of each of the three solenoid filling valves. The Overflow is 50 mm plastic with compression nut.

### Specification

| | |
|---|---|
| Pressure Supply min. | 1.0 bar min. maintained (dynamic) |
| Pressure Supply max. | 10 bar |
| Vessel Capacity | 24 Lt |
| Cistern Capacity | 100 Lt |
| Inlet Size | DN40 |
| Outlet Size | DN40 |
| Temperature | 30° max. ambient |

### Inlet Control

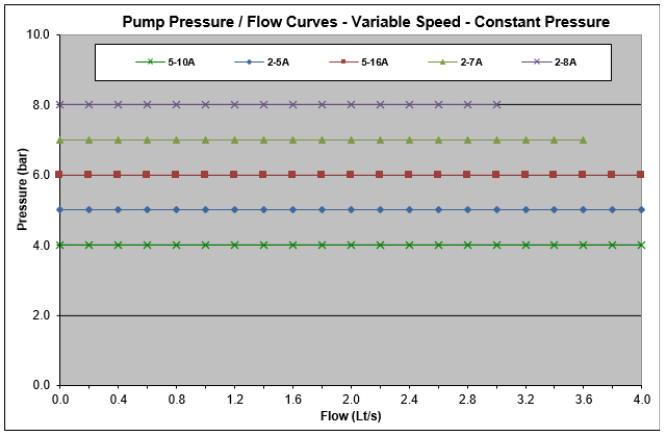
Fast and accurate level control is achieved with three 1" filling solenoid valves. Level electrodes provide on/off full flow control with 60 mm delayed action.

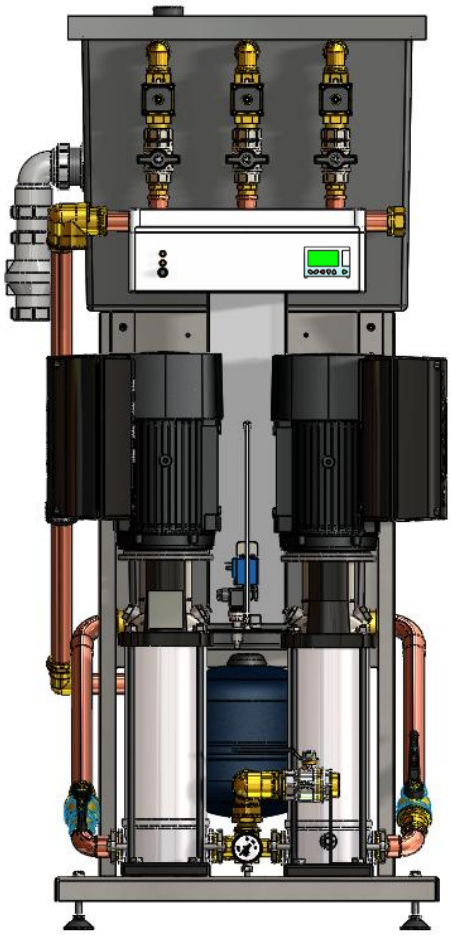
### Outlet Pressure Control

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] |
|---|---|---|---|---|---|---|
| 5-10A | DN40 | 4.0 bar | 3.6 bar | 4.4 bar | 7.0 bar | 2.8 bar |
| 2-5A | DN40 | 5.0 bar | 4.5 bar | 5.5 bar | 7.0 bar | 3.5 bar |
| 5-16A | DN40 | 6.0 bar | 5.4 bar | 6.6 bar | 11.7 bar | 4.2 bar |
| 2-7A | DN40 | 7.0 bar | 6.3 bar | 7.7 bar | 11.7 bar | 4.9 bar |
| 2-8A | DN40 | 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.



### Motor

Voltage 400 V 3 phase

| Model | 3 phase A (Run) | | Input max kW |
|---|---|---|---|
| 5-10A, 2-5A | 7.4 | | 4.40 |
| 5-16A, 2-7A, 2-8A | 10.0 | | 6.00 |

| | |
|---|---|
| Class | Class 1 (requires earth wire) |
| BMS | Volt free SPDT relay general fault-pump / inverter / low level alarm |
| Low level cut out | Stops pump running via electrodes in tank (warning lamp on control Box) – auto reset once tank filled |
| Protection | IP65 (Enclosure) / IP55 (Pump) |

### Codes and Descriptions

| Inlet Size | Code | Description |
|---|---|---|
| DN40 | BTAF5-10A | Pent-A-Boost 5-10 Duty Assist Vari 400 V 4.0 bar |
| DN40 | BTAF2-5A | Pen-A-Boost 2-5 Duty Assist Vari 400 V 5.0 bar |
| DN40 | BTAF5-16A | Pent-A-Boost 5-16 Duty Assist Vari 400 V 6.0 bar |
| DN40 | BTAF2-7A | Pent-A-Boost 2-7 Duty Assist Vari 400 V 7.0 bar |
| DN40 | BTAF2-8A | Pent-A-Boost 2-8 Duty Assist Vari 400 V 8.0 bar |
| Optional extras – see page 6 | | |

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# "Pent-A-Boost®" – Compact Domestic Booster Set

## Model BTAF – Options – Datasheet 

### Options

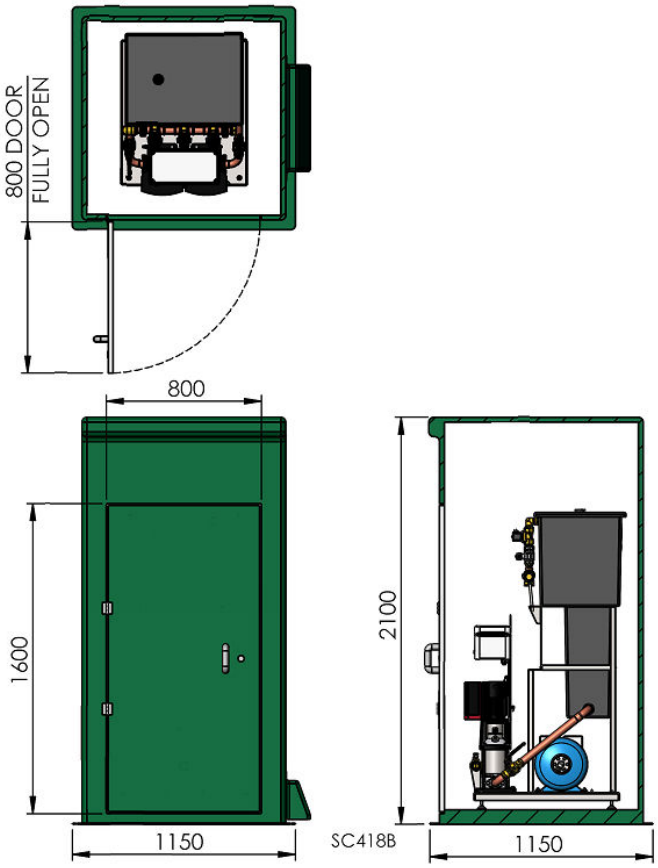
- High level alarm relay (volt free) - recommended to minimise the risk of water damage
- GRP Enclosures – for exterior use
- GRP Drip Tray

| Suitability | Code | Description |
|---|---|---|
| Up to 3-10A | BTCAB6 | Enc. 1150x1150x1500 GRP c/w Heating |
| 5-8A | BTDUALCAB | Enc. 1150x1150x2100 GRP c/w Heating |
| Variable Speed | BTBMS2 | BT High alarm BMS – Variable speed pumps |
| Dual Pump 1 Phase | BTDT-MEDIUM | Grp Drip Tray c/w Float Switch BTAF 1PH |
| Dual Pump 3 Phase | BTDT-LARGE | GRP Drip Tray c/w Float Switch Large 3PH |

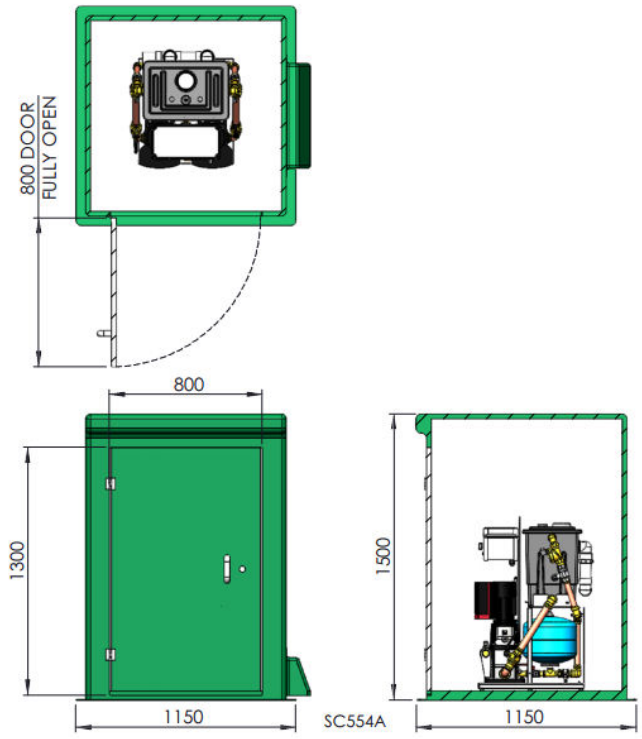
### GRP Enclosures

**BTCAB6** – GRP Heated Enclosure with Kiosk Door, for external use of all Pent-A-Boost® units with 24 litre break tank. The housing has an integrated bar heater, complete with thermostat. The exterior colour of the enclosure is RAL6005.

**BTDUALCAB** – GRP Heated Enclosure with Kiosk Door, for external use with the BTAF5-8A. Taller version of the BTCAB1 with integrated bar heater, complete with thermostat.

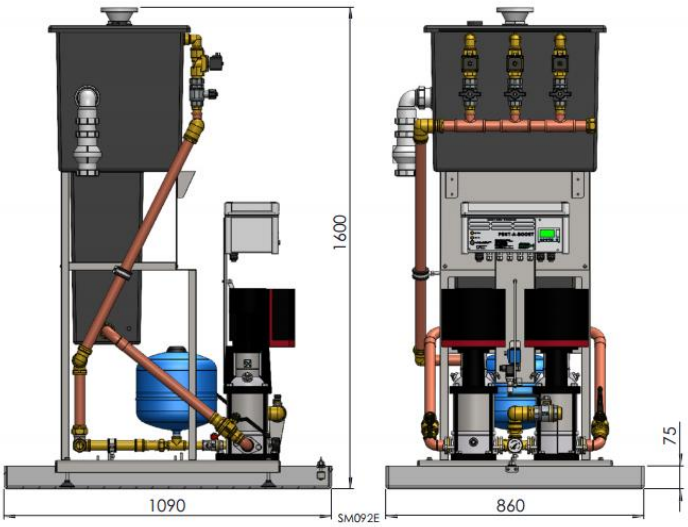



### Dimensions




### GRP Drip Tray

**BTDT-LARGE** – GRP Drip Tray for use with all Dual Pump 3 phase Pent-A-Boost® units. When the Drip Tray fills with water, the float switch is activated and isolates the water supply, stopping the pump. *For smaller Dual pump BTAF models – use Drip Tray BTDT-MEDIUM.*

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