

DAVEY TORRIUM²

Model Numbers: TT45, TT70 - 110/240V 60/50Hz

DEPEND ON
DAVEY

WATER PRODUCTS



TORRIUM² CONTROLLER

PRODUCT DESCRIPTION

Torium² is an intelligent controller designed to control a pressure boosting pump to ensure the water is supplied with constant flow resulting in even water pressure to domestic households. It incorporates several levels of pump protection.

APPLICATIONS

Ideal for pumps supplying clean, non-volatile liquids without fibres or solids in such applications as :-

- Household water supply
- Irrigation
- Water transfer
- Washing systems
- Pressure boosting

FEATURES & BENEFITS

Constant Flow and Even Water Pressure

To prevent annoying fluctuations in water temperature during showers, Torrium² uses its intelligence to provide users with constant flow to give even water pressure. It does this with its innovative pressure and flow sensors to start the pump on a pressure drop and to stop it on low flow (~1 lpm), which avoids pump cycling when there is continuing user demand for water.

Quick Cut-in for Even Pressure

To avoid large pressure changes when the pump is switched on, Torrium² is designed to cut in quickly when it senses demand for water. It cuts in when the pressure has dropped to 80% of the previous top (shut-off) pressure. It uses its intelligence to automatically set this cut-in pressure each time the pump stops. In doing so, it allows the system to automatically accommodate for variations in pump performance or site conditions.

Strong "Mains Like" Pressure

When coupled to the right pump, Torrium² can work at "mains-like" pressures to supply strong, as well as constant flow, to the household for customer satisfaction.

Greater Hydraulic Performance

For better hydraulic performance to supply more pressure with less wasted energy, Torrium² has been designed with larger water pathways and no moving parts in the pathways. This performance versus loss equation is especially evident at higher flow rates.

Greater Reliability

To diminish the likelihood of blockages, Torrium² is designed with no moving control parts within the water pathways giving greater reliability and performance with varying water quality.

Adaptive Start Control

Torium² is smart enough to detect the difference between normal water demand and a small leak in the system, such as a dripping tap or a leaking cistern. For very low flows, Torrium² automatically adapts to reduce the cut-in pressure, which can be as low as 50% of its last shut off pressure. This significantly reduces pump cycling to improve consumer satisfaction with the system. If normal flow (>0.5 lpm) is required in the house, Torrium² will sense this and initiate an immediate pump start.

TECHNICAL SPECIFICATIONS

FEATURES & BENEFITS continued

Easy Status Check

For an easy system status check, Torrium®2 has three simple LED indicators.

- Red LED - the system is in standby
- Green LED - the pump is running
- Yellow LED – fault condition

Pressure Indicator Window

To give a quick guide to the system pressure, Torrium®2 has a pressure indicator window on the side of the inbuilt pressure vessel. If the colour band (green-amber-red) is mainly green it indicates maximum pressure, whereas mainly red indicates low pressure. This indicator can help to analyse the occurrence of unwanted system leaks. If the colour band indicator is moving slowly towards red this signifies a slow drop in pressure and may indicate a small leak.

Dry Run Protection and Auto Retry

To protect the pump from damage due to dry running, Torrium®2 stops the pump when it detects a loss of prime (no water supply) situation. To reduce system downtime, the Torrium®2 waits 5 minutes then goes into auto retry mode, whereby it will restart the pump to see if prime can be re-established automatically. An auto retry occurs at 5 minutes, 30 minutes, 1 hour, 2, 4, 8, 16 and 32 hours. Torrium®2 will also restart if it detects flow through the system (e.g. from mains water pressure returning with pressure boosting applications).

Pump Protection – High Water Temperature Cut-out

For added security and longer life, a water over-temperature cut-out provides a second level of protection against closed head operation and repetitive cycling. For water temperatures above 70°C Torrium®2 will shut the pump down and the amber LED will be lit. When the water temperature drops to below 60°C, the Torrium®2 will allow the pump to restart.

Pump Protection – Excessive Electrical Current

To protect the pump, Torrium®2 will shut the pump down and indicate a fault if it detects excessive electrical current being drawn by the pump. This usually occurs if the pump motor is subjected to locked rotor or if someone tries to manually override the Torrium®2 by continually holding in the prime button.

Corrosion and Scale Resistance

To allow Torrium®2 to be used with water of varying quality, its flow sensors are mounted on a high grade stainless steel plate with special anti-scaling electronic action, which only turns the flow sensors on during pump operation.

Extra Draw off Capacity

To accommodate small leaks and to reduce cycling, Torrium®2 has an in-built spring loaded accumulator for extra draw off capacity. A spring loaded accumulator means low maintenance as there is no need for a pressure vessel with its regular air charging and checking. However, for increased draw off, an optional pressure tank, up to 20 litres, can be mounted on the vertical outlet.

Power Surge Protection for Torrium®2

To protect the Torrium®2 controller from electrical surges and spikes, thus extending its life, it has an in-built metal oxide varistor (MOV). The status of the MOV can be checked in the viewing window on the back of the Torrium®2. The MOV is a sacrificial component and should it be destroyed due to repeated power surges or spikes, it will almost always blacken the viewing port. This will indicate a non-warrantable Torrium®2 failure.

Ease of Installation

For ease of installation, the plumbing can be connected to either the right angle or the vertical discharge outlet, which can rotate a full 360°. A spanner, sized to fit the coupling, is included in the box.

Power Cable

For easy installation Torrium®2 comes complete with a 2 metre long power lead, fitted with an Australian three pin plug.

OPERATING LIMITS

Maximum system pressure	700kPa
Capacities to	200 lpm
Recommended pump shut-off head range	
TT45	150 to 450kPa
TT70	450 to 700kPa

Torrium®2 cut-in pressure is normally 80% of the pump's last shut-off head.

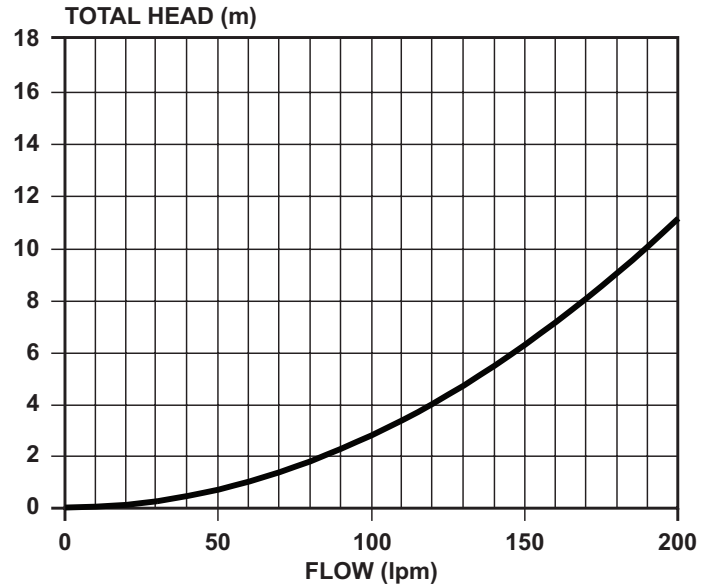
Maximum ambient temperature	50°C
Maximum water temperature	70°C
Minimum water temperature	1°C

TECHNICAL SPECIFICATIONS

MATERIALS OF CONSTRUCTION

PART	MATERIAL
Housing	Glass fibre reinforced nylon
Pressure tank diaphragm	Santoprene 87
Pressure tank springs	Molybond coated tempered steel
Sensor plate	316 stainless steel
Inlet union	Glass fibre reinforced nylon
Orings	Nitrile
Check valve poppet	Acetal
Check valve spring	304 stainless steel

HYDRAULIC PERFORMANCE

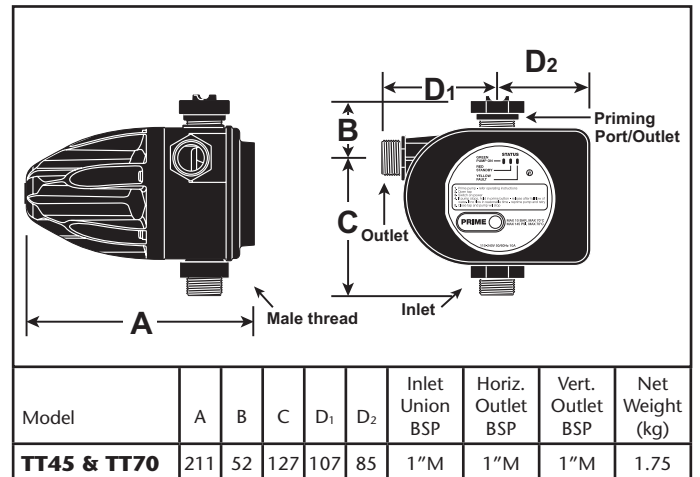


Note: Head loss through controller is for horizontal (90°) outlet and with integral check valve in place.

ELECTRICAL DATA

	TT45 & TT70
Voltage	110-240V ± 10%
Phase	Single
Hz	50 / 60
IP rating	56
Maximum load current	10A
Maximum motor size – 110V	0.9kW
Maximum motor size – 220V	1.8kW
Surge protection	Varistor

DIMENSIONS



All dimensions in mm unless otherwise stated.

Incoming power lead is fitted with an Australian 3 pin plug except for special specific models, eg. USA 110-120V models (P/No. TT70Y/USA) are fitted with NEMA 5-15P plug, USA 220-230V models (P/No. TT70P/USA) are fitted with NEMA 6-15P plug.

TECHNICAL SPECIFICATIONS

PUMP and Torrium®2 MODELS

Model	kW (P2)	Flow Range Up to	Nominal Operating Pressure	Torrium®2 Model	Pump Inlet	Torrium®2 Outlet
Standard						
HP45-05T	0.55	4 taps	300kPa	TT45	1¼" F BSP	1" M BSP
HP65-06T	0.6	5 taps	300kPa	TT45	1¼" F BSP	1" M BSP
HP85-08T	0.8	6 taps	300kPa	TT45	1¼" F BSP	1" M BSP
Standard with Higher Pressure						
HS50-06T	0.6	4 taps	500kPa	TT70	1¼" F BSP	1" M BSP
HS60-08T	0.76	5 taps	500kPa	TT70	1¼" F BSP	1" M BSP
Premium						
HM60-06T	0.58	4 taps	500kPa	TT45	1¼" F BSP	1" M BSP
HM60-08T	0.72	4 taps	600kPa	TT70	1¼" F BSP	1" M BSP
HM60-10T	0.94	4 taps	700kPa	TT70	1¼" F BSP	1" M BSP
HM90-08T	0.78	5 taps	500kPa	TT45	1¼" F BSP	1" M BSP
HM90-11T	1.05	5 taps	600kPa	TT70	1¼" F BSP	1" M BSP
HM90-13T	1.4	5-6 taps	700kPa	TT70	1¼" F BSP	1" M BSP
HM160-15T	1.5	6-8 taps	500kPa	TT45	1½" F BSP	1" M BSP
HM160-19T	1.8	6-8 taps	600kPa	TT70	1½" F BSP	1" M BSP
Jet Pumps						
XP450T	0.45	3 taps	300kPa	TT45	1" F BSP	1" M BSP
XJ50T	0.58	4 taps	500kPa	TT45	1" F BSP	1" M BSP
XJ70	0.8	5 taps	500kPa	TT70	1" F BSP	1" M BSP
XJ90	1.1	6 taps	500kPa	TT45	1¼" F BSP	1" M BSP

DEPEND ON
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WATER PRODUCTS

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This literature is not a complete guide to product usage. Further information is available from your Davey dealer, Davey Customer Service Centre and from the relevant product Installation and Operating Instructions. This data sheet must be read in conjunction with the relevant product Installation and Operating Instructions and all applicable statutory requirements. Product specifications may change without notice.

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