



HOME PRESSURE SYSTEMS

DAVEY®

DAVEY
TORRIUM[®]2



Torrium[®]2 Controller

Model Numbers:

TT45Y/USA, TT70Y/USA – 110V/60Hz

TT45P/USA, TT70P/USA – 230V/60Hz

Torrium[®]2 is an intelligent controller designed to supply pressure boosted water with constant flow and 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

WHY CHOOSE THE TORRIUM[®]2 CONTROLLER?

Pressure Boosting

Torrium[®]2 boosts low or fluctuating mains water pressure to give you strong, even water pressure for your comfort and convenience. Torrium[®]2 can also pressure boost water from rainwater tanks.

Constant Flow and Even Water Pressure

To prevent annoying fluctuations in water temperature during showers, Torrium[®]2 uses its intelligence to provide households 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 (~0.26 gpm). This avoids pump cycling when there is continuing household demand for water.

Quick Cut-in for Even Pressure

To give you strong pressure right from the start, Torrium[®]2 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.

DEPEND ON
DAVEY

WATER PRODUCTS

cont. overleaf

OPERATING LIMITS	
Maximum system pressure	100 psi
Capacities to	52 gpm
Recommended pump shut-off head range	
TT45	22 to 65 psi
TT70	65 to 100 psi
Torrium®2 cut-in pressure is normally 80% of the pump's last shut-off head.	
Maximum ambient temperature	122° F
Maximum water temperature	158° F
Minimum water temperature	34° F

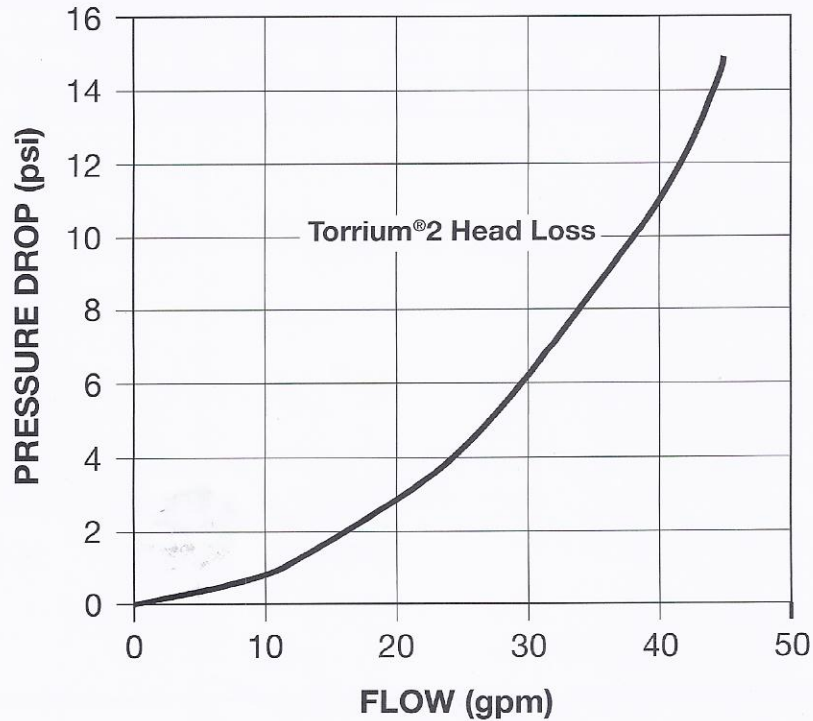
ELECTRICAL DATA	
TT45 & TT70	
Voltage	110-240V ± 10%
Phase	Single
Hz	50 / 60
IP rating	56
Maximum load current	10A
Maximum motor size – 110V	0.9kW (1.2 hp)
Maximum motor size – 220V	1.6kW (2.4 hp)
Surge protection	Metal oxide varistor

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



POWER LEADS		
Model	Description	Power Lead Plug
TT45Y/USA	Torrium®2 65psi, 110V, USA Plug	NEMA 5-15P
TT70Y/USA	Torrium®2 100psi, 110V, USA Plug	NEMA 5-15P
TT45P/USA	Torrium®2 65psi, 230V, USA Plug	NEMA 6-15P
TT70P/USA	Torrium®2 100psi, 230V, USA Plug	NEMA 6-15P

HYDRAULIC PERFORMANCE

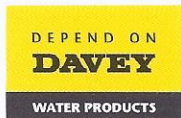


Note: Head loss through controller is for horizontal (90°) outlet and with integral check valve in place.

DIMENSIONS (inches)									
Model	A	B	C	D ₁	D ₂	Inlet Union NPT (NPSM)	Horiz. Outlet NPT (NPSM)	Vert. Outlet NPT (NPSM)	Net Weight (lbs)
TT45 & TT70	8.3	2	5	4.2	3.3	1" M	1" M	1" M	3.9

* Suction & delivery accept 1 1/2" PVC pipe on the I.D. and 2" fitting on the O.D.

PUMP WITH Torrium [®] 2 MODELS								
Model	Voltage	Frequency	kW (P ₂)	Flow Range	Nominal Pressure Range	Torium [®] 2 Model	Pump Inlet	Torium [®] 2 Outlet
BT14-30	110V	60	0.73	4 taps	30 psi	TT70	1 1/4" F	1" M
BT14-45	110V	60	0.68	4 taps	40 psi	TT70	1 1/4" F	1" M
BT20-30	110V	60	0.78	5 taps	30 psi	TT70	1" F	1" M
BT20-40	230V	60	0.92	5 taps	40 psi	TT70	1" F	1" M



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Adaptive Starting

Torrium®2 is clever enough to detect the difference between normal water demand and a small leak in the system, such as a dripping faucet or a leaking cistern. For very low flows, Torrium®2 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 is required in the house (>0.13 gpm), Torrium®2 will sense this and revert to normal mode and initiate an immediate pump start.

Easy Status Check

To easily check the system status, 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.

Greater Hydraulic Performance

For better hydraulic performance to supply more pressure with less wasted energy, Torrium®2 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, Torrium®2 is designed with no moving control parts within the water pathways giving greater reliability and performance with varying water quality.

Dry Run Protection & Auto Restart

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 restart 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 158°F Torrium®2 will shut the pump down and the amber LED will be lit. When the water temperature drops to below 140°F, the Torrium®2 will allow the pump to restart.

Pump Protection – Excessive Electrical Current

To protect the pump motor, Torrium®2 will shut the pump down and indicate a fault if it detects excessive electrical current being drawn. This 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 & 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 5 gallons, 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 consumed 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 vertical or the right angle 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 with a 2 metre long power lead. USA 110V models are fitted with a NEMA 5-15P power plug. USA 230V models are fitted with a NEMA 6-15P power plug.

