



Experts in water.

DAVEY

APPLICATIONS

Ideal for pumping 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 Davey XJ Home Pressure System?

SYSTEM

The XJ Pressure System consists of an XJ pump fitted with a Torrium2® controller. The Torrium2® is supplied connected electrically to the XJ pump motor for:

- Easy non-tradesmen installation and assembly
- Positive safety under varied weather conditions

The combination of the high pressures supplied by the jet assisted XJ pump and constant flow control provided by the Torrium2® enables consumers to enjoy the benefits of a strong comfortable shower from a pump that does not cycle plus the reliability of adaptive technology.

The complete XJ Pressure System is compact and quiet providing for:

- Easy installation, especially where space is at a premium
- Non-intrusive operation, for consumer enjoyment

All parts of the entire system that are in contact with the water are manufactured from safe, corrosion resistant materials for:

- Consumer confidence that their water supply will be as good coming out as it was going into the system
- Ability to use the XJ pressure system on a variety of water qualities

Compliance with the strict requirements of ISO 9001.2000 quality standards ensures consistency of quality of the system.

PUMP

Single stages centrifugal pump with closed vane impeller and jet assist, providing:-

- Compact design
 - High pressure performance
- Made from corrosion resistant engineering plastic materials ensuring:-
- Long service life
 - Low maintenance
 - Reliable water quality

High quality, low-drag mechanical shaft seal for long life and reliable starting.



Davey® XJ with Torrium®2 Home Pressure System

Model Number: XJ50T, XJ70T, XJ90T

Robust and compact, single stage, jet assisted centrifugal pump with Torrium®2 constant flow control and loss of prime device for automatic water pressure.

Designed for medium to large size, single and multi-storey homes.



MOTOR

The Davey manufactured TEFC motor has an IP55 enclosure providing:-

- Excellent corrosion resistance
- High levels of resistance to dust and rain

All XJ pump motors are class F insulation rating and have higher than normal ambient temperature ratings of 50°C, providing for longer life, improved tolerance to voltage variations and peace of mind, even on the hottest days.

All XJ pump motors are single phase permanently split capacitor design for:-

- Reliable starting even in low voltage circumstances
- Superior frequent starting performance

Single phase motors are protected against both high operating temperatures and high current by a built in, automatically resetting thermal overload.

Double contact C3-HTG sealed bearings for quieter running and longer life.

Corrosion resistant feet on motor shell, include three point bolt-down facility.

Standard models are 220/240 volt, 50Hz, single phase. XP models in 60Hz 110/115 volt and 220/230 volt single phase available on request.

TORRIUM®2 CONTROLLER

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 (~1 lpm). 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.

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 (>0.5 lpm), 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 mode
- 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-yellow-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 and 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 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 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 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 18 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 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. Also, for increased draw off, an optional pressure tank, up to 18 litres, can be mounted on the vertical outlet.

Electrical Connection

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

OPERATING LIMITS	
Maximum system pressure*	480kPa
Capacities to	90 lpm
Maximum total head	48m
Maximum suction head	7m
Maximum ambient temperature	50°C
Maximum water temperature	50°C
Minimum water temperature	1°C

Torium®2 cut-in pressure is normally 80% of the pumps last shut-off head.

*Note: See high pressure operation note on page 4.

MATERIALS OF CONSTRUCTION	
PART	MATERIAL
Pump	
Impellers	Glass filled polycarbonate
Pump casing	Glass filled noryl
Pump shaft	303 stainless steel
Seal ring (stationary)	Ceramic
Seal ring (rotating)	Carbon (synthetic)
Seal spring	304 stainless steel
Orings	Nitrile rubber
Jet and venturi	Acetal
Priming plug	Glass filled polypropylene
Motor shell	Marine grade aluminium
Motor shell finish	Baked polyester
Torium®2	
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

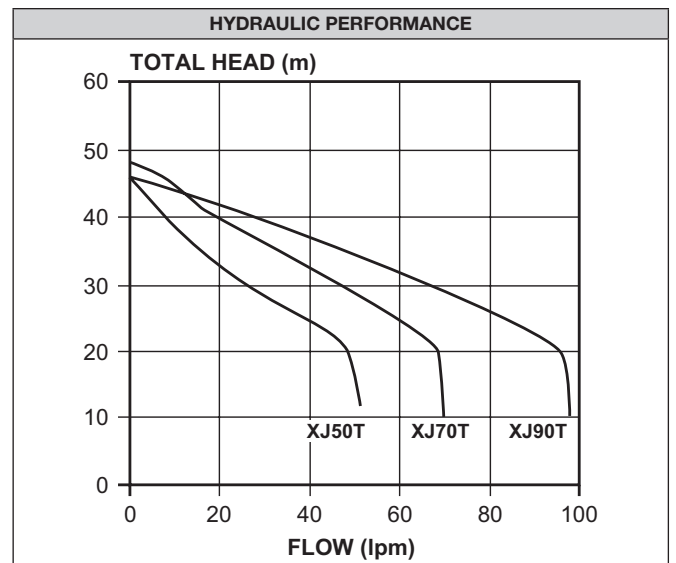
ELECTRICAL DATA			
Type	XJ50T	XJ70T	XJ90T
Supply Voltage	220-240V ±6%		
Supply frequency	50Hz		
Phase	Single		
Speed	2850rpm		
Full load current	3.6A	5.1A	6.6A
Locked rotor current	12A	18A	28A
Input power (P1)	0.84kW	1.15kW	1.4kW
Output power (P2)	0.56kW	0.8kW	1.1kW
Enclosure class	IP55		
Insulation class	Class F		
Starting	P.S.C.		

Note: All performance at 240V 50Hz

Torrium®2	
Voltage	110V-240V±10%
Phase	Single
Hz	50 / 60
IP rating	56
Maximum load current	10A
Maximum motor size*	1.8kW
Surge protection	Varistor

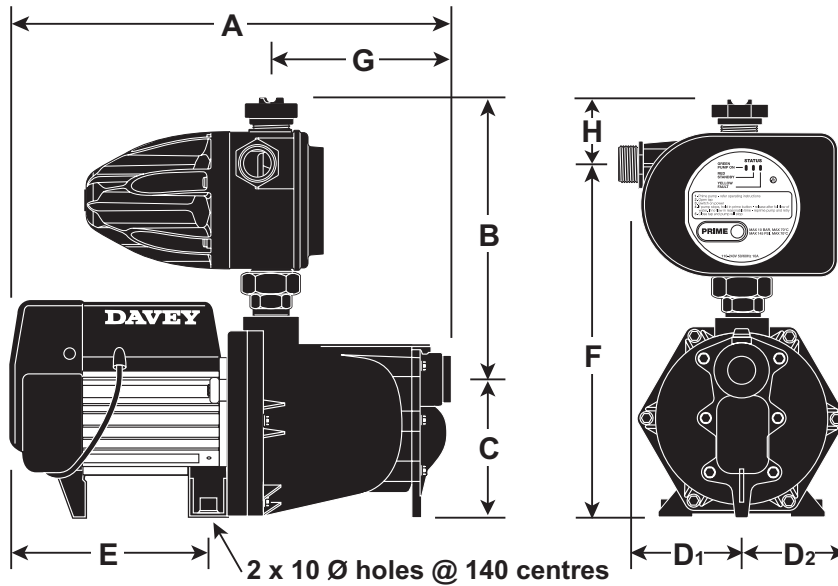
*At 240V input

INSTALLATION & PRIMING
<ul style="list-style-type: none"> Installations with suction lift require a good quality foot valve to avoid loss of prime - remove in-built check valve. To prime, fill pump body and suction line through priming plug hole located above suction inlet and replace plug.



DIMENSIONS (mm)

Type	A	B	C	D ₁	D ₂	E	F	G	H	Inlet	Outlet	Net Weight (kg)
XJ50T	430	265	146	115	102	185	335	185	75	1"F	1"M	10
XJ70T	455	265	146	115	102	210	335	185	75	1"F	1"M	12
XJ90T	505	265	146	115	102	260	335	185	75	1¼"F	1"M	15



HIGH PRESSURE INSTALLATION AND NOTES

XJ pressure systems are intended to source water from wells, tanks, creeks, rivers or other low pressure water supplies. In some cases, XJ pumps may be required to be installed taking water directly from mains or municipal water sources.

In such circumstances all applicable local plumbing code requirements must be followed.

In addition the following limits apply to the XJ system:-

- For TOTAL system pressures of 600 kPa, the standard XJ system with or without Supercell 8C or 18C may be used provided the mains or municipal pressure does not exceed 100 kPa.
- For mains or municipal pressures exceeding 100 kPa, a break tank system is required or use a Davey HS system.

For further details consult the XJ Installation & Operating Instructions.