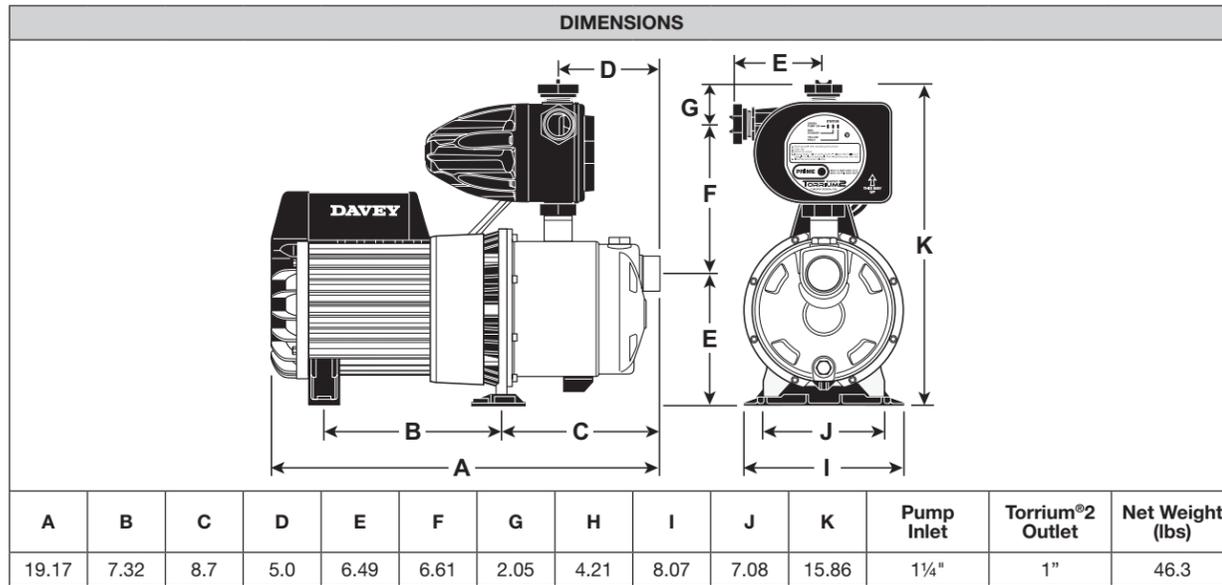


DISCHARGE PRESSURE (psi)	CAPACITY (US gpm)					
	SUCTION LIFT (feet)					
	0	5	10	15	20	25
40	26.8	26.2	25.7	25.1	24.5	24.0
60	21.3	20.6	19.8	19.0	18.2	17.3
80	13.2	12.1	11.0	9.8	8.6	7.1



Mounting holes:- 3/8" I.D. at 7.1 centres.  
 All dimensions in inches unless otherwise stated.  
 HS models have SS braided hoses with 1" nuts. Use the rubber gaskets supplied.



**DAVEY**® [www.daveyUSA.com](http://www.daveyUSA.com)

This literature is not a complete guide to product usage. Further information is available from your Davey Dealer, Davey Customer Service Center 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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Experts in water.

**DAVEY**

**APPLICATIONS**

- Ideal for boosting water pressure in large homes where the incoming municipal water supply pressure is inadequate
- Boosting pressure from tank to house water supplies
- Domestic & light industrial irrigation
- Automatic water transfer
- Applications where pressure "cycling" must be avoided or where the pump may have interrupted water supply

**WHY CHOOSE THE DAVEY HS with Torrium®2?**

**WATER PRESSURE SYSTEM**

The HS Pressure System consists of a HS pump fitted with a Torrium®2 controller. The Torrium®2 is supplied connected electrically to the HS pump motor for:

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

The combination of the high pressures supplied by the multistage HS pump and constant flow control provided by the Torrium®2 enables users to enjoy the benefits of a strong comfortable shower from a pump that does not cycle plus the reliability of adaptive technology.

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

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

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

- User confidence that their water supply will be as good coming out as it was going into the system.
- Ability to use the HS 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.



**HS with Torrium®2 Home Pressure System**

Model Number: HS20-65Y2T

Robust & compact, four stage, 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.



## 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.

### 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.



## FIXED SPEED CASCADING CONTROL OPTION

### Pump

High efficiency, quiet “half blind” impeller in 4 stage design in two flow rate ranges for:

- More pressure in home outlets.
- Choice of performance options to suit most homes.
- Quieter household environment.
- Improved waterway clearances to reduce impeller blockages.

Impellers have dual shaft flats for positive drive and long life, especially important for household pressure systems where pumps are required to stop and start many times during their life.

Patented floating impeller neck rings help improve efficiency and reduce hydraulic noise providing better performance with less noise.

304 stainless steel casing, pump shaft and diffuser baffle returns provide long life and ability to withstand pressure variations.

In-built & removable inlet check valve provides:

- Convenience on installation and easier servicing.
- Low pressure loss with fast effective valve closing.

Special in-built air purging valve helps remove air from the pump and suction during original priming and also during normal operation, thus:

- Makes original installation quicker and easier.
- Reduces the chance of pump operating in a partial prime condition.

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

### Motor

The Davey manufactured TEFC motor has an IP56 enclosure providing:

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

All HS pump motors are class F insulation rating and have higher than normal ambient temperature ratings of 122°F, providing for longer life, improved tolerance to voltage variations and peace of mind, even on the hottest days.

All HS 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.

INSTALLATION AND PRIMING	
• 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.	

OPERATING LIMITS	
Maximum pump casing pressure	145psi
Maximum system pressure	120psi
Maximum inlet pressure	20psi
Capacities to	33gpm
Maximum total head	98psi
Maximum suction head	25'
Maximum ambient temperature	120°F
Maximum water temperature	150°F
Minimum water temperature	34°F
Torrium®2 cut-in pressure is normally 80% of the pumps last shut-off head.	

MATERIALS OF CONSTRUCTION	
Part	Material
<b>Pump</b>	
Impellers	Glass filled polycarbonate
Lock nut	304 stainless steel
Pump casing	304 stainless steel
Pump backplate	304 stainless steel
Pump shaft	304 stainless steel
Neck rings	Polypropylene + teflon
Seal ring (stationary)	Silicon Carbide
Seal ring (rotating)	Carbon (synthetic)
Seal spring	304 stainless steel
O-rings	Nitrile rubber
Stage body	Glass filled noryl
Suction check valve	
Body	Polypropylene
Spring	304 stainless steel
Seal	Nitrile
Priming plug	Chrome plated brass
Motor shell	Marine grade aluminium
Lantern/DE endshield	Marine grade aluminium
Shell and lantern finish	Baked polyester
<b>Torrium®2</b>	
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
O-rings	Nitrile
Check valve poppet	Acetal
Check valve spring	304 stainless steel

ELECTRICAL DATA	
Supply Voltage	220/230V
Supply frequency	60Hz
Phase	Single
Speed	3420rpm
Full load current	9.6A
Locked rotor current	40A
Input power (P <sub>1</sub> )	1.94kW
Output power (P <sub>2</sub> )	1.55kW
Enclosure class	IP56
Insulation class	Class F
Starting	P.S.C.
AS/NZS 3350.2.41-1997 Approval No. A/10059EA	
<b>Torrium®2</b>	
Voltage	110V-240V ±10%
Phase	Single
Hz	50 / 60
IP rating	56
Maximum load current	10A
Surge protection	Varistor