



**DAVEY**

# Installation and Operating Instructions

## SUPERCELL 60F, 80F, 100F, 130F, 200F, & 250F PRESSURE TANKS



**WARNING:** MAXIMUM WORKING PRESSURE RATING FOR :-  
SUPERCELL 60F, 80F, 100F, 130F, 200F & 250F is 860kPa (125 psi)



**WARNING:** Wherever it is possible that the pump system pressure may reach or exceed the tank pressure rating under any circumstance (e.g. pressure switch incorrectly set), it is strongly recommended that the system is protected by a suitable pressure relief valve set at or below the maximum tank pressure rating. Failure to install a pressure relief valve may result in tank failure causing property damage or serious personal injury.



**CAUTION:** To prevent personal injury, ensure all water pressure is released from the pressure system prior to work being performed. Ensure pumps are disconnected and/or electrically isolated.

**Please pass these instructions on to the operator of this equipment.**

## **READ ALL INSTRUCTIONS BEFORE INSTALLING YOUR NEW SUPERCCELL TANK**

These instructions have been prepared to acquaint you with the correct method of installing and operating your Supercell Tank. We urge you to study this publication carefully and follow its recommendations. In the event of installation difficulties or the need for further advice, you should contact the Dealer from whom you purchased the system or your nearest Davey Water Products Sales Office.



**NOTE:**

- \* Supercell 60F, 80F, 100F, 130F, 200F and 250F will accept water up to 50°C maximum.
- \* Be sure to protect the Supercell tank and all associated pumps and piping from freezing temperatures.

**INSTALLATION MUST BE IN ACCORDANCE WITH LOCAL  
PLUMBING CODES WHERE APPLICABLE.**

## Tank Pre-Charge

For correct operation pressure tanks should be pre-charged as follows:

- For pressure switch controlled pumps with cut-in pressure set at 140 kPa (20 psi), pre-charge the tank to 15kPa (2 psi) below the cut in pressure.
- For tanks installed with a pressure switch controlled pump with a differential pressure set up to 200 kPa (30 psi), the pre-charge should be set to 15 kPa (2 psi) below the cut-in pressure.
- For tanks installed with a pump controlled by a pressure switch with a pressure differential greater than 200 kPa (30 psi), electronic controls or variable speed controls, the pre-charge should be set to 65% of the cut-out or maximum system pressure.
- For tanks installed on mains' pressure, the tank pre-charge should be set equal to the mains' pressure. For mains' pressure exceeding 500kPa (88 psi), a suitable pressure regulator should be installed.
- For water expansion, pre-charge should be set as per the mains pressure details above.

For your convenience, this pressure tank has been factory set at 140 kPa (20 psi).



**CAUTION: Never over-charge the tank and use air at ambient temperature only!**

## Installation



**NOTE: To avoid possible water damage to property from ruptured pipes, leaking connections, worn/leaking pump seals, etc., pumps and associated equipment (including this Supercell Pressure Tank) must be installed on a well drained site or in a properly constructed water proof enclosure with drain tray.**



**Do not overtighten!**

These units have the inlet positioned on the bottom of the tank. Ensure that any fittings used firmly retain the pipe or hose connected. Thread tape should be used on all threads.

The tank should be placed on a firm base. If vibration is likely to occur in the vicinity the tank should be mounted on a resilient mount.

In order to ensure your tank provides its maximum service life it should always be installed in a covered, dry position. The tank should not be allowed to rub against any surrounding hard surfaces, such as walls, etc.



**Installation Inside Buildings: To cater for possible plumbing or tank failure, the installation must include an enclosure that will capture any water spraying from the tank and direct it into a properly constructed drain tray.**



**Note: When installing a Supercell Tank and/or associated pump system inside a building, allowance for possible high pressure leakage MUST be made.**



**Note: In order to carry out routine maintenance the Supercell Pressure Tank MUST be easily accessible to the end user or home owner.**

## Checking and Replenishing Tank Air Charge

Supercell "F" Pressure Tanks do not require regular air checks under normal operating conditions. If air charge adjustment is required then follow the following procedures:

1. Remove the pressure tank completely from pump installation, ensuring to isolate the pressure tank and release the water pressure from the tank beforehand. OR

Release all water pressure from the pressure tank by switching off the pump at the power point, and opening the closet tap. For above ground supply tanks it is necessary to close the gate valve between the supply tank and the pump.



**CAUTION: To prevent personal injury, ensure all water pressure is released from the pressure system prior to work being performed.**

Leave tap open during air replenishment.

2. When all water pressure has been released from the system, check air pressure at air valve on top of pressure tank. The pre-charge pressure reading should be as detailed on page 3 of this document.
3. If necessary, replenish air charge to the correct pressure indicated. Ensure that a tap in outlet piping of pump is open during replenishment of air pre-charge.



**NOTE: During air replenishment the tank should be externally inspected. Any signs of leakage from the tank may indicate a need for immediate replacement.**

## Periodic Checks

Flushing: Depending on the quality of the pumped water, from time to time your tank may require flushing to remove settled fines such as mud or sand. If sand or mud is allowed to stay in the tank it will accelerate wear on the internal lining and shorten your tanks life.

Safely disconnect the tank from the water supply, discharge all air from the tank and flush the tank several times with clean water. Once the flushing water is clean, reconnect the tank and recharge the air as per above.

External Inspection: A tank in good order will not leak, but over time due to damage through rough handling, impacts or grit and/or impurities in the water the tank shell may fail and/or leak. Should the tank leak or show signs of possible failure the tank should be immediately disconnected and replaced.



**WARNING: Do not use tank if it leaks or shows signs of corrosion or damage.**

## Operational Difficulties & Trouble Shooting

**NOTE:** Loss of air charge is the most overwhelming cause of difficulties with Supercell Pressure Tanks. Partial or complete loss of air charge will cause any of the following problems:-

- a) Rapid pump cycling (ie. pump stops and starts frequently during operation).
- b. Decreased draw-off capacity.

Alternatively, the same problems could be caused by a punctured or leaking diaphragm as indicated by water leaking from the air valve when the valve core is depressed (typically when checking tank pre-charge).

Supercell 60F, 80F, 100F, 130F, 200F and 250F have a diaphragm which is captive (non-serviceable). In the event of diaphragm failure the whole tank must be replaced.

Symptom	Causes	Remedies
Pump Cycling (Pump stops and starts frequently while operating)	<ol style="list-style-type: none"> <li>i) Punctured diaphragm (check that water escapes from air valve when depressed)</li> <li>ii) Incorrectly set pressure switch</li> <li>iii) Incorrect pressure tank pre-charge</li> </ol>	<ol style="list-style-type: none"> <li>i) Replace Tank.</li> <li>ii) Reset pressure switch to manufacturers recommendations</li> <li>iii) Adjust tank pre-charge to 15kPa (2psi) below cut-in</li> </ol>
Pump stops and starts when all taps are closed	<ol style="list-style-type: none"> <li>i) Leaking tap or pipework on suction and/or discharge side</li> </ol>	<ol style="list-style-type: none"> <li>i) Isolate suction pipework, if pump continues to stop and start, check for leaks on discharge. If pump stops and does not restart, problem is likely to be leaking checkvalve on suction side of pump system.</li> </ol>
Water flow from open tap stops then starts when first opened	<ol style="list-style-type: none"> <li>i) Tank pre-charge set too high or too low</li> <li>ii) Pressure switch cut-in set too low</li> </ol>	<ol style="list-style-type: none"> <li>i) Adjust tank pre-charge to 15kPa (2psi) below cut-in</li> <li>ii) Adjust pressure switch cut-in</li> </ol>
Tank will not hold air pre-charge	<ol style="list-style-type: none"> <li>i) Faulty air valve</li> <li>ii) Punctured diaphragm</li> </ol>	<ol style="list-style-type: none"> <li>i) Replace air valve core</li> <li>ii) Replace tank</li> </ol>

## Nominal Draw Off Capacity in Litres

Tank Model	Tank Capacity (litres)	Max Pressure Rating (kPa)	Pressure Switch Range kPa (psi)								Dimensions			
											Diameter (mm)	Height (mm)	Inlet	
			150-250 (22-36)	150-300 (22-44)	200-400 (29-58)	250-400 (36-58)	250-450 (36-65)	300-550 (44-80)	500-800 (73-116)	Size (BSP male)			Position	
Supercell 60F	60	860	16.1	21.2	22.8	17.2	20.9	22.2	26.6	421	649	1"	Bottom	
Supercell 80F	80	860	21.5	28.2	30.4	23.0	27.8	29.6	35.5	421	865	1"	Bottom	
Supercell 100F	100	860	26.3	34.5	37.3	28.3	34.8	37.0	44.3	421	980	1"	Bottom	
Supercell 130F	170	860	34.9	45.8	49.4	37.3	45.2	48.1	42.3	421	1211	1"	Bottom	
Supercell 200F	200	860	53.7	70.5	76.0	57.4	69.6	74.0	65.0	546	1098	1 1/4"	Bottom	
Supercell 250F	250	860	67.1	88.1	95.0	71.8	87.0	93.5	81.3	546	1303	1 1/4"	Bottom	

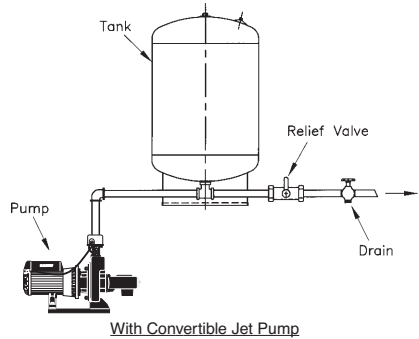
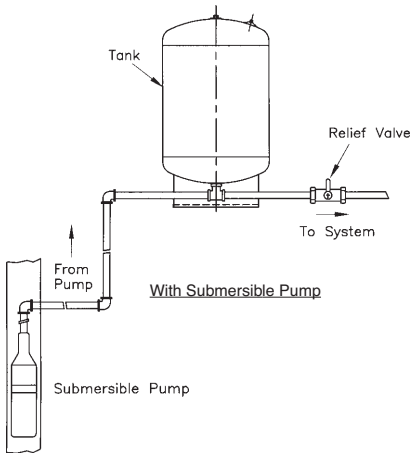
Note: Where a pressure switch differential range exceeds the above, the Acceptance Factor must be calculated and must be less than 0.4. If the AF value exceeds 0.5 then the differential must be reduced by either increasing the cut-in and pre-charge pressures or by reducing the cut-out pressure.

$$AF = \frac{(\text{cut-out kPa} - \text{pre-charge kPa})}{(\text{cut-out kPa} + 100)}$$

## TYPICAL INSTALLATIONS



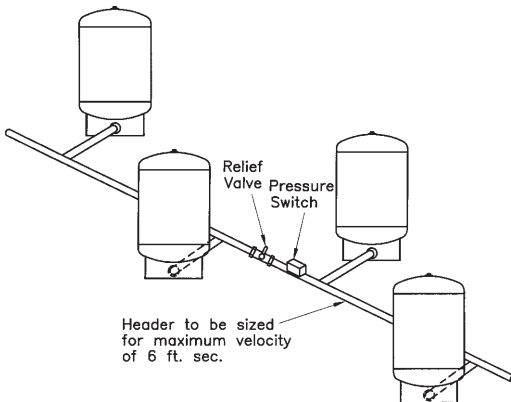
**NOTE:**  
Isolation valves, globe valves and gauges will improve serviceability.



## TYPICAL MULTIPLE TANK INSTALLATIONS

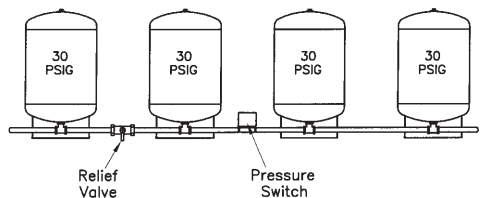


**NOTE:**  
Isolation valves, globe valves and gauges will improve serviceability.



NOTE: All tanks must have equal pre-charge.

Either / or



# Davey Repair or Replacement Guarantee

In the unlikely event in Australia or New Zealand that this Davey product develops any malfunction within five years of the date of original purchase due to faulty materials or manufacture, Davey will at our option repair or replace it for you free of charge, subject to the conditions below.

Should you experience any difficulties with your Davey product, we suggest in the first instance that you contact the Davey Dealer from which you purchased the Davey product. Alternatively you can phone our Customer Service line on 1300 367 866 in Australia, or 0800 654 333 in New Zealand, or send a written letter to Davey at the address listed below. On receipt of your claim, Davey will seek to resolve your difficulties or, if the product is faulty or defective, advise you on how to have your Davey product repaired, obtain a replacement or a refund.

Your Davey Five Year Guarantee naturally does not cover normal wear or tear, replacement of product consumables (i.e. mechanical seals, bearings or capacitors), loss or damage resulting from misuse or negligent handling, improper use for which the product was not designed or advertised, failure to properly follow the provided installation and operating instructions, failure to carry out maintenance, corrosive or abrasive water or other liquid, lightning or high voltage spikes, or unauthorized persons attempting repairs. Where applicable, your Davey product must only be connected to the voltage shown on the nameplate.

Your Davey Five Year Guarantee does not cover freight or any other costs incurred in making a claim. Please retain your receipt as proof of purchase; you **MUST** provide evidence of the date of original purchase when claiming under the Davey Five Year Guarantee.

Davey shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from Davey products. This limitation does not apply to any liability of Davey for failure to comply with a consumer guarantee applicable to your Davey product under the Australian or New Zealand legislation and does not affect any rights or remedies that may be available to you under the Australian or New Zealand Consumer Legislation.

In Australia, you are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Should your Davey product require repair or service after the guarantee period; contact your nearest Davey Dealer or phone the Davey Customer Service Centre on the number listed below.

For a complete list of Davey Dealers visit our website ([davey.com.au](http://davey.com.au)) or call:



Davey Water Products Pty Ltd  
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## AUSTRALIA

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\* Installation and operating instructions are included with the product when purchased new. They may also be found on our website.