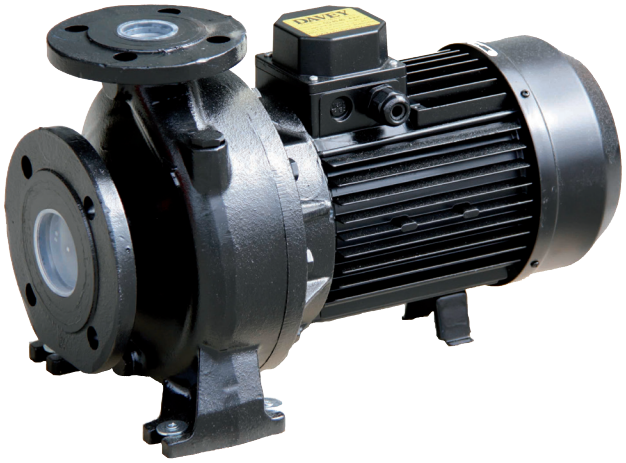
DAVEY

Electric Centrifugal Pumps

Models:

CD40-40, CD40-55, CD40-75 & CD50-110

Installation and Operating Instructions



PLEASE READ IMPORTANT CAREFULLY

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

WARNING : The pump and associated pipework operate under pressure. Under no circumstances should the pump or associated pipework be disassembled unless the internal pressure of the unit has been relieved. Failure to observe this warning will expose persons to the possibility of personal injury and may also result in damage to the pump, pipework or other property.

WARNING: Failure to follow these instructions and comply with all applicable codes may cause serious bodily injury and/or property damage.

READ ALL INSTRUCTIONS BEFORE INSTALLING YOUR NEW DAVEY PUMP

1. Introduction

These instructions have been prepared to acquaint you with the correct method of installing and operating your Davey pump. 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 Davey Dealer from whom you purchased the unit.

2. Housing Your Davey Pump

As the pump is an electrical apparatus it must be protected from the weather, at the same time adequate ventilation must be provided for the motor. Do not enclose the pump in such a manner that a “hotbox” condition is created. Ventilation should be provided near the top of any enclosure to prevent a “buildup” of condensation. The maximum ambient air temperature must not exceed 40oC.

Your pump should be mounted on a firm base enough to prevent any surface water from flooding the unit. Positioning of the unit should allow the nameplate to be easily read and provide adequate access for service purpose.

Failure to adequately house your pump, as outlined above, will render your guarantee void.

3. Suction Lift

For best performance and easiest priming, site the pump as close to the water source as possible.

Optimum performance will be achieved on suction heads (including friction) up to 4.5m (15 feet). The maximum practical suction head (including friction) for this type of pump is 7.5m (25 feet).

4. Delivery Head

Care should be taken to ensure that the combined suction and delivery head (including pipe friction) of the installed pump does not exceed the total head shown in the pump performance tables against the required capacity.

Never run this pump without discharge flow for more than a few minutes, as the water will heat and cause damage to the pump or pipe lines not covered by guarantee.

5. Foot Valve – Check Valve

All installations involving a suction lift should have a good quality foot valve at the end of the suction pipe to retain water in the suction pipe and pump body.

Installations having a positive suction pressure (flooded suction) require a gate valve to be installed in the suction piping. This is to allow for future servicing needs.

IMPORTANT: For installations which may allow water to run back through the pump after switching off (e.g. overhead tank filling), a check valve (non-return valve) must be installed at the pump outlet to prevent water cascading back though pump.

6. Suction Piping

Suction lift is made up of the actual vertical height from the water level below the pump to the pump inlet port, plus the friction in the suction piping and fittings. For best performance easiest priming, situate the pump as close to the water source as possible.

Suction piping should be laid so there is a constant rise from the water source to the pump. Any high spots will cause air pockets to form and reduce the efficiency of the system.

Do not allow the suction pipe to lay in exposed sunlight if possible as the water inside will heat up during periods when the pump is not operating. This will reduce the suction capacity of the pump during initial starting.

To reduce pipe friction and maximize flow we recommend the use of pipe with equal or larger diameter than the inlet on your pump. For detailed recommendations regarding long suctions, please contact your Davey Dealer.

NOTE: Suction leaks are THE biggest cause of operating difficulties and are hard to detect because the problem is air leaking INTO the pipe and there may be no external sign of the leak. It is essential that all suction connections are completely sealed, using thread sealing tape.

Do NOT screw connections too far into the pump’s suction and delivery companion flanges. Do not exceed tightening force of 60ft lb (8.2kgm). i.e. 60lb force at the end of 1 foot wrench (25Kg at 30 cm).



Ensure sealing gasket is correctly fitted between pump and companion flange connections.

7. Delivery Piping

Friction in the delivery increases the head on the pump and so reduces capacity and pressure available at the delivery point. To minimise performance losses we recommend the use of larger diameter pipe. For more detailed advice concerning deliver heads and delivery piping, please consult your local Davey Dealer.

8. Power Connection



The electrical connections and checks must be made by a qualified electrician and comply with applicable local standards.

Note:

1. Ensure motor is connected to power supply specified on nameplate.
2. Avoid long extension leads as they can cause substantial voltage drop and operating problems.
3. Although the electric motor is specifically engineered to perform on a range of power supply voltages, malfunctions or failure caused by adverse voltage supply conditions are not covered under guarantee.



Always ensure that the earth conductor on the motor is connected to a good earth.

Three Phase

Three phase models are designed for connection to a nominal 415V (±5%) power supply, but must be wired with a contactor with ‘quicktrip” overloads set to suit the motor.

Davey recommend the use of overloads which also have the ability to detect “single phasing” or “dropped phase” conditions in the power supply.

Important Note: - Three Phase Models Only



BEFORE FINALISING WIRING CONNECTIONS, CHECK THAT MOTOR ROTATES IN DIRECTION OF ARROW (CLOCKWISE WHEN SHAFT IS VIEWED FROM WIRING CONNECTION END). TO ALTER ROTATION, CHANGE ANY TWO POWER LEADS AT MOTOR TERMINALS.

When the unit is connected and operating the phase balance should be checked. This should be within 5% variation. “Rolling” the leads may help to improve a small unbalance, but major phase unbalance will usually be attributable to an input power unbalance. This must be addressed before the pump is used.



POWER CONNECTIONS AND WIRING MUST BE CARRIED OUT BY AN AUTHORISED ELECTRICIAN.



In accordance with AS 3350.2.41 we are obliged to inform you that this pump is not to be used by children or infirm persons and must not be used as a toy by children.

9. Priming and Operation

The pump body and suction line should be filled by pouring water into the priming plug hole adjacent to the outlet. Screw on the priming plug, close the discharge valve two thirds and switch pump on. Gradually open the discharge valve as the pipeline fills.

In high suction lift conditions, the pump may make a noise similar to it pumping sand or gravel; this will usually be cavitation occurring. Reduce flow until the cavitation noise stops. Once the discharge pipeline fills you can open the valve. If the cavitation noise returns, close the discharge valve slightly until it stops.

In the case of installation where there is a positive suction pressure (flooded suction) remove the pump’s priming plug and slowly open the gate valve in the suction piping to allow water to enter the pump from the suction line until all air is expelled. Replace the priming plug and fully open the gate valve in the suction line and switch the pump on.

Prime should be established almost immediately, however, it may be necessary to re-prime several times on some installations before fully established optimum pump performance.



- **Do not run pump dry or allow to run continuously in a loss of prime condition.**
- **If this pump is allowed to pump water containing sand or other abrasive material, the effective life of the pump will be shortened.**

If pump runs but will not pump water, check for the following:

1. Suction line and pump body not filled with water.
2. Leaking foot valve.
3. Air leaks in suction lines.
4. Air trapped in suction line (even on flooded suction) possibly when there is an uneven rise in the piping from water to pump (eliminate “humps and hollows”).

10. Trouble Shooting



WARNING: When servicing or attending pump, always ensure power is switched off and lead unplugged. Electrical connections should be serviced only by qualified persons.



Care should also be taken when servicing or disassembling pump to avoid possible injury from hot pressurised water. Unplug pump, relieve pressure by opening a tap on the discharge side of the pump and allow any hot water in the pump to cool before attempting to dismantle.

A. IF MOTOR RUNS, BUT PUMP DOES NOT DELIVER WATER, OR FLOW RATE IS REDUCED, ONE OR MORE OF THE FOLLOWING MAY BE THE CAUSE:

1. **Pump not primed:**
   Refer instructions on Priming and Operation.
2. **Leaks in Piping or from seal:**
   Check suction piping and repair any leaks.
   A leaking seal may also prevent pump operating.
3. **Low water level:**
   Foot valve (entry) out of water or suction lift too great because of reduced water level. Extend piping and/or re-site pump closer to the water.
4. **Total pump delivery head too great:**
   Calculate total pump head and check against pump's published performance. Reduce head, use larger pipe or use higher head pump.
5. **Piping or pump blocked:**
   Check both piping and pump internals and unblock as required. Special attention should be paid to inspecting the internals of the impeller for blockages.
6. **Defective valves:**
   Check that foot valve can open and valves in piping will allow water to pass (are they installed in the correct direction?) Repair or replace any defective valves.
7. **Incorrect direction of rotation – 3 phase models:**
   Check that impeller rotates in an anti-clockwise direction when viewed from suction end.



TO CHANGE DIRECTION OF ROTATION FOR 3 PHASE MODELS, SWAP ANY TWO POWER LEADS AT MOTOR – REFER "POWER CONNECTION INSTRUCTIONS".

B. IF MOTOR FAILS TO RUN, ONE OR MORE OF THE FOLLOWING MAY BE THE CAUSE:

1. **Pump not connected:**
   Check power point to ensure power is available.
   Check fuses and main power supply switch.



The electrical connections and checks must be made by a qualified electrician and comply with applicable local standards.

2. **Voltage too low:**
   Eliminate long leads or replace with heavier, higher capacity leads.
3. **Overload tripped:**
   Determine the cause of overload tripping and rectify.
4. **Motor not free to turn:**
   Remove end cap, and using a screwdriver in slot at end of shaft, check that motor shaft is free to turn. If not free, remove pump body and rectify cause of binding.
5. **Internal motor fault:**
   Have unit checked by your local Davey Dealer.

11. Spare Parts

When ordering spare parts, it is essential to give both pump model and motor type numbers from nameplate as well as the full description on part required.

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Davey Warranty

Davey Water Products Pty Ltd (Davey) warrants all products sold will be (under normal use and service) free of defects in material and workmanship for a minimum period of one (1) year from the date of original purchase by the customer as marked on the invoice, for specific warranty periods for all Davey products visit daveywater.com.

This warranty does not cover normal wear and tear or apply to a product that has:

- been subject to misuse, neglect, negligence, damage or accident
- been used, operated or maintained other than in accordance with Davey's instructions
- not been installed in accordance with the Installation Instructions or by suitably qualified personnel
- been modified or altered from original specifications or in any way not approved by Davey
- had repairs attempted or made by other than Davey or its authorised dealers
- been subject to abnormal conditions such as incorrect voltage supply, lightning or high voltage spikes, or damages from electrolytic action, cavitation, sand, corrosive, saline or abrasive liquids,

The Davey warranty does not cover replacement of any product consumables or defects in products and components that have been supplied to Davey by third parties (however Davey will provide reasonable assistance to obtain the benefit of any third-party warranty).

To make a warranty claim:

- If the product is suspected of being defective, stop using it and contact the original place of purchase. Alternatively, phone Davey Customer Service or send a letter to Davey as per the contact details below
- Provide evidence or proof of date of original purchase
- If requested, return the product and/or provide further information with respect to the claim. Returning the product to the place of purchase is at your cost and is your responsibility.
- The warranty claim will be assessed by Davey on the basis of their product knowledge and reasonable judgement and will be accepted if:
  - o a relevant defect is found
  - o the warranty claim is made during the relevant warranty period; and
  - o none of the excluded conditions listed above apply
- The customer will be notified of the warranty decision in writing and if found to be invalid the customer must organise collection of the product at their expense or authorise its disposal.

If the claim is found to be valid Davey will, at its option, repair or replace the product free of charge.

The Davey warranty is in addition to rights provided by local consumer law. You are entitled to a replacement or refund for a major failure and 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.

For any internet connected products the consumer is responsible for ensuring a stable internet connection. In the event of a network failure the consumer will need to address the concern with the service provider. Use of an App is not a substitute for the User's own vigilance in ensuring the product is working to expectation. Use of a Smart Product App is at the User's own risk. To the fullest extent permitted by law Davey disclaims any warranties regarding the accuracy, completeness or reliability of App data. Davey is not responsible for any direct or indirect loss, damage or costs to the User arising from its reliance on internet connectivity. The User indemnifies Davey against any claims or legal actions from them or others relying on internet connectivity or App data may bring in this regard.

Products presented for repair may be replaced by refurbished products of the same type rather than being repaired. Refurbished parts may be used to repair the products. The repair of your products may result in the loss of any user-generated data. Please ensure that you have made a copy of any data saved on your products.

To the fullest extent permitted by law or statute, 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 local laws and does not affect any rights or remedies that may be available to you under local laws.

For a complete list of Davey Dealers visit our website (daveywater.com) or call:

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