DAVEY

DAVEY Dynaflo®

Electric Pumps

Models: 60061R, 6200, 6210, 6220, 6230

Installation and Operating Instructions



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

Prior to using this pump you must ensure that:

- The pump is installed in a safe and dry environment
- The pump enclosure has adequate drainage in the event of leakage
- Any transport plugs are removed
- The pipe-work is correctly sealed and supported
- The pump is primed correctly
- The power supply is correctly connected
- All steps have been taken for safe operation

PLEASE READ IMPORTANT CAREFULLY

Appropriate details for all of these items are contained in the following Installation and Operating Instructions. Read these in their entirety before switching on this pump. If you are uncertain as to any of these Installation and Operating Instructions please contact your Davey Dealer or the appropriate Davey office as listed on the back of this document.

WARNING: Some insects, such as small ants, find electrical devices attractive for various reasons. If your pump enclosure is susceptible to insect infestation you should implement a suitable pest control plan.

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

Read all instructions before Installing your new Dynaflo Pump

1. INTRODUCTION

These instructions have been prepared to acquaint you with the correct method of installing and operating your Dynaflo 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.

Should you be unable to obtain the required advice or resolve any problems through your local Davey Dealer, please contact the Davey Customer Service Centre. Contact details for these Offices are shown at the back of these instructions.

For suitability of Dynaflo for pumping liquids other than water, consult the Davey Customer Service Centre.

2. HOUSING YOUR Dynaflo

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.

Your Dynaflo should be mounted on a firm base high enough to prevent any surface water that may accumulate from coming into contact with the unit. Positioning of the unit should allow the nameplate to be easily read and provide adequate access for service purposes.

Failure to adequately house your Dynaflo, 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

IMPORTANT: For installations which may allow water to run back through the pump after switching off (eg overhead tank filling), a check valve (non-return valve) must be installed at the pump outlet to prevent water cascading back through 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 and 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 maximise 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 or the Davey Customer Service Centre on 1300 367 866.

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 only.

Do NOT screw connections too far into the pump's suction and delivery ports. 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).

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 delivery heads and delivery piping, please consult your local Davey Dealer or the Davey Customer Service Centre on 1300 367 866.

8. POWER CONNECTION

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.

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 Davey Dynaflo 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.**

Single Phase

The single phase Models 6200, 6210 & 6220, are supplied with a 10 amp plug or a special 15 amp power plug which may only be used with the appropriate 10 or 15 amp 220/250V power outlet (15 amp power outlets are usually specially provided by an electrician).

Always ensure that the earth conductor in the lead is connected to a good earth.

The Dynaflo single phase pump motor is designed and manufactured by Davey specially for this particular pump. It has no switch gear as this motor is the P.S.C. type. The capacitor is located inside the capacitor cover.

The Davey single phase pump motor is fitted with an inbuilt automatic reset thermal overload. This overload is designed to protect the motor from an overloading condition. Constant stopping and starting of the motor by this overload would indicate a problem to be rectified before use: e.g. low voltage at pump (below 216 volts), excessive ambient temperatures (above 45°C).

WARNING: Automatic reset thermal overloads will allow the pump to restart without warning. Always disconnect the pump motor from the electrical supply before maintenance or repairs. The single phase Dynaflo 6220 may also be wired to a nominal 480V power supply, but must be reconnected at the terminals under the motor end cap/terminal cover, and wire in with a contactor. In addition, the overload fitted to the pump is only suitable for 220/250V, and must be exchanged for the 480V overload supplied.

480V OVERLOAD (where applicable) This 240/480V single phase motor is factory connected for use on nominal 240V AC power supply. When the units are to be reconnected to suit a nominal 480V supply, overload P/No. 48154 must be fitted into the motor endshield in place of standard overload. Reconnection for 480V must be carried out by an authorised electrician as per wiring diagram.

Three Phase

Three phase models are designed for connection to a nominal 415V power supply, but must be wired with a contactor with 'quicktrip' overloads set at 5.2 amps for Model 6220, and 7 amps for Model 6230. Davey recommend the use of overloads which also have the ability to detect "single phasing" or "dropped phase" conditions in the power supply. Three phase Dynaflo models have been designed to allow for connection either side of the Capacitor Cover (marked "A" in figure one) on the motor. (NOTE: Three phase motors do not have capacitors fitted in the Capacitor Cover).

This is achieved by way of either of the two 19mm access holes (marked "B" in figure one). The access holes are designed to accept most standard cable grommets. The unused hole can be sealed by inserting the plug enclosed with the pump. To connect a three phase Dynaflo pump start by removing the Terminal Cover ("C").

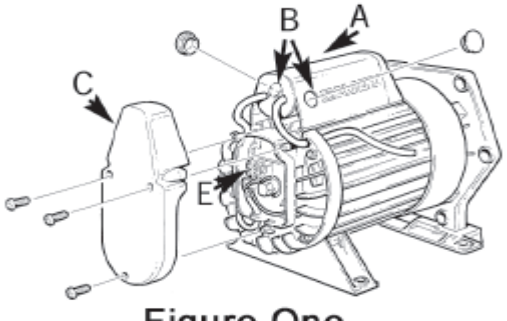


Figure One

A short four core flex (“D”) is fitted from the motor terminals (“E”). This lead is inserted through the Blanking Grommet (“F”). Pressure switch or other control leads (“G”) can be fitted as well. Incoming power (“H”) can be fitted through the preferred access hole, and terminated as shown in Figure Three. A termination kit is available if required.

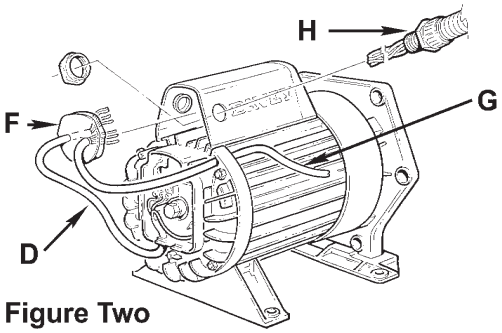


Figure Two

Insert the Blanking Grommet (“F”) into the Capacitor Cover (“A”).

Fix the short lead (“D”) into the path provided in the non-drive endshield and replace the Terminal Cover (“C”).

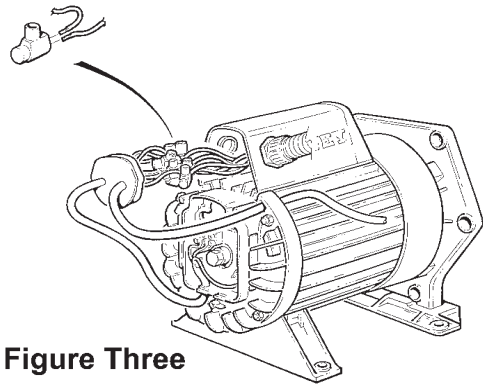


Figure Three

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. Means of disconnection must be incorporated in the fixed wiring, in accordance with local wiring rules.

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 and 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 installations 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 is obtained.

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”).

NOTE: Prior to commencing ANY maintenance on your Dynaflo pump ensure that the pump motor is disconnected from the electrical supply.

10. TROUBLE SHOOTING

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 with portable appliance to ensure power is available. Check fuses and main power supply switch.
2. Voltage too low:
   Remove any long extension leads and try pump again. Eliminate long leads or replace with heavier, higher capacity leads.
3. Overload tripped:
   Allow motor to cool and overload will re-set. Determine the cause of overload tripping and rectify.
4. Motor not free to turn:
   Remove end cap/terminal cover, and using a correctly sized (16mm) socket spanner on 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.

***NOTE: For protection, the Davey pump motor is fitted with an automatic reset thermal overload, constant tripping of this overload indicates a problem e.g. low voltage at pump, excessive temperature (above 50°C) in pump enclosure.**

Warning: Automatic reset thermal overloads will allow the pump to restart without warning. Always disconnect the pump motor from the electrical supply before maintenance or repairs.

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.

IMPORTANT: DO NOT USE petroleum based fluids or solvents (e.g. Oils, Kerosene, Turpentine, Thinners, etc) on the plastic pump components or seal components.

WARNING: Do not use hydrocarbon based or hydrocarbon propelled sprays around the electrical components of this pump.

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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* A Quick Reference Guide is included with the product when purchased new, for detailed instructions please visit daveywater.com, scan the QR code on the Quick Reference Guide / Davey product label (if applicable) or contact your local Davey Office.