BARNES®

INSTALLATION MANUAL
Portable Utility Pump

Series: BT50
115 Volts, 1 Phase, 60 Hz

Specifications	
Model No.	BT50
Part No.	134678
Output	0.50 HP
	375 W
Discharge	.75 inch
Rated Head	64.3’
Rated Flow	10 GPM
Max. Head	111.5’
Max. Flow	74 GPM
Dimension (L x W x H)	9.5” x 5.25” x 7.25”
Weight	10lbs.

IMPORTANT! ***Read all instructions in this manual before operating pump. As a result of Crane Pumps & Systems, Inc., constant product improvement program, product changes may occur. As such Crane Pumps & Systems reserves the right to change product without prior written notification.***

CRANE®
A Crane Co. Company

PUMPS & SYSTEMS

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Form No. 134678A-Rev. B

LIMITATIONS: This series pumps are suitable to pump water with particles less than .75". The fluid's temperature limit is 40 centigrade (104°F) be careful not to pump hot water, otherwise it will damage the pump. The pump cannot be used for sea water and inflammable, corrosive, explosive or dangerous liquids.

Keep the pump equipment out of reach of children! Warns that the failure to follow the directions given could cause serious risk to individuals or objects.

This sign warns the operator that the failure to follow any instruction may damage the pump and/or the system.

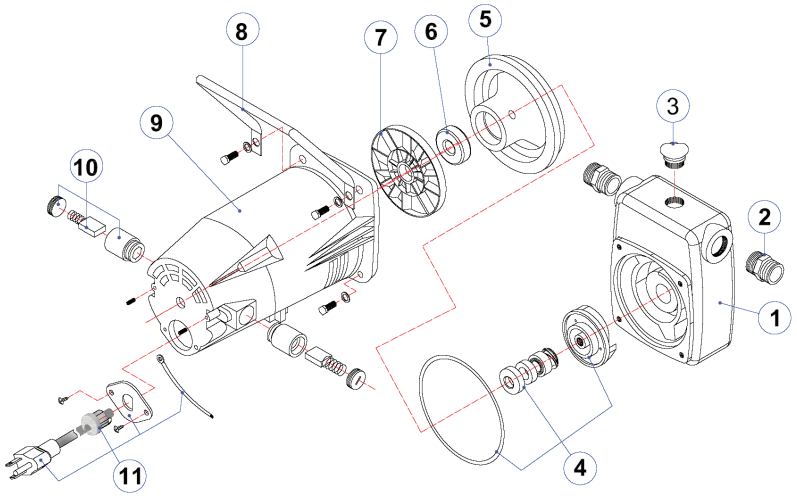
This pump is designed for residential clean water jobs and can be used for gasoline but cannot be used as a continuous duty fountain pump.

ELECTRICAL WIRE CONNECTION: Verify that the voltage and frequency of the electrode pump shown on the nameplate correspond to those available on the mains. The installer must make sure that the electric system is grounded in accordance with the law in force. The plug and connections should be protected from water splashes. Before using the pump, always inspect it visually (especially power cable and plug). Do not use the pump if it is damaged. If the pump is damaged, have it inspected.

Make sure that electric connections are protected from inundation. Protect the plug and the power cable from heats oil or the power cable must be replaced by qualified personnel only. The plug of the power cable has a double grounding contact, so that grounding can be performed by simply inserting the plug.

OVERLOAD PROTECTION: This series pumps have built in thermal protection switch. The pump stops if an overload condition occurs. The motor restarts automatically after it has cooled down when the built in thermal protector resets.

ELECTRICAL PRECAUTIONS: Before servicing a pump, always shut off the main power breaker and then unplug the pump. Make sure you are not standing in water and are wearing insulated protective sole shoes, under flooded conditions. Contact your local electric company or qualified license electrician for removal.



Item No.	Qty.	Description
1	1	Pump Body
2	2	Hose Fittings
3	1	Fill Plug
4	1	Overhaul Kit: - Impeller - Shaft Seal - O-Ring
5	1	Seal Plate
6	1	Bearing
7	1	Fan

Item No.	Qty.	Description
8	1	Handle
9	1	Motor Assemble
10	1	Brush Kit: - Brushed with springs - Retainer Caps
11	1	Power Cord Set: - Cable - Cable Plate - Ground Wire

TROUBLE SHOOTING

CAUTION! Always disconnect the pump from the electrical power source before handling. If the system fails to operate properly, carefully read instructions and perform maintenance recommendations.
If operating problems persist, the following chart may be of assistance in identifying and correcting them:
MATCH "CAUSE" NUMBER WITH CORRELATING "CORRECTION" NUMBER.

NOTE: Not all problems and corrections will apply to each pump model.

PROBLEM	CAUSE	CORRECTION
Pump will not run	1. Poor electrical connection, blown fuse, tripped breaker or other interruption of power, improper power supply. 2. Switch will not activate pump or is defective. 3. Insufficient liquid level.	1. Check all electrical connections for security. Check for blown fuses, tripped circuit breakers or tripped GFCI outlets. 2. Reposition pump or clean pump/basin as required to provide adequate clearance for float. 3. Make sure liquid level is at least equal to suggested turn-on point. 4. Recheck all sizing calculations to determine proper pump size. 5. Check discharge line for restrictions, including ice if line passes through or into cold areas. 6. Remove and examine check valve for proper installation and freedom of operation. 7. Open valve. 8. Check impeller for freedom of operation, security and condition. Clean impeller and inlet of any obstruction. 9. Repair fixtures as required to eliminate leakage. 10. Check pump temperature limits & fluid temperature. 11. Replace portion of discharge pipe with flexible connector. 12. Check for leaks around basin inlet and outlets.
Pump will not turn off	2. Switch will not activate pump or is defective. 4. Excessive inflow or pump not properly sized for application.	
Pump hums but does not run	1. Incorrect voltage 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.	
Pump delivers insufficient capacity	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 5. Discharge restricted. 6. Check valve stuck closed or installed backwards. 7. Shut-off valve closed. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.	
Pump cycles too frequently or runs periodically when fixtures are not in use	6. Check valve stuck closed or installed backwards. 9. Fixtures are leaking. 12. Ground water entering basin.	
Pump shuts off and turns on independent of switch, (trips thermal overload protector). **CAUTION!** Pump may start unexpectedly. Disconnect power supply.	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 8. Impeller jammed, loose on shaft, worn or damaged, inlet plugged. 10. Excessive water temperature.	
Pump operates noisily or vibrates excessively	5. Discharge restricted. 8. Impeller broken. 11. Piping attachments to building structure too rigid or too loose.	

SAFETY FIRST!

Please Read This Before Installing Or Operating Pump. This information is provided for **SAFETY** and to **PREVENT EQUIPMENT PROBLEMS.** To help recognize this information, observe the following symbols:

IMPORTANT! Warns about hazards that can result in personal injury or Indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION! Warns about hazards that **can or will cause minor** personal injury or property damage if ignored. Used with symbols below.

WARNING! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.


Hazardous fluids can cause fire or explosions, burns or death could result.


Extremely hot - Severe burns can occur on contact.


Biohazard can cause serious personal injury.


Hazardous fluids can Hazardous pressure, eruptions or explosions could cause personal injury or property damage.


Rotating machinery Amputation or severe laceration can result.


Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.

WARNING ! To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances. Improper grounding voids warranty.

WARNING! To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.


WARNING! Operation against a closed discharge valve will cause premature bearing and seal failure on any pump, and on end suction and self priming pump the heat build may cause the generation of steim with resulting dangerous pressures. It is recommended that a high case temperature switch or pressure relief valve be installed on the pump body.

CAUTION ! Never operate a pump with a plug-in type power cord without a ground fault circuit interrupter.


CAUTION ! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.

WARNING ! Do not pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.

CAUTION ! Do not block or restrict discharge hose, as discharge hose may whip under pressure.

WARNING ! Do not wear loose clothing that may become entangled in moving parts.

WARNING ! Keep clear of suction and discharge openings. **DO NOT** insert fingers in pump with power connected.

Always wear eye protection when working on pumps.

Make sure lifting handles are securely fastened each time before lifting. **DO NOT** operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair. Secure the pump in its operating position so it can not tip over, fall or slide.

DO NOT exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.

DO NOT remove cord and strain relief.
DO NOT connect conduit to pump.

WARNING ! Cable should be protected at all times to avoid punctures, cut, bruises and abrasions. Inspect frequently. Never handle connected power cords with wet hands.

W**ARNING !** To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.

WARNING! Submersible Pumps are not approved for use in swimming pools, recreational water installations decorative fountains or any installation where human contact with the pumped fluid is common.

WARNING! Products returned must be cleaned, sanitized, or decontaminated as necessary prior to shipment, to insure that employees will not be exposed to health hazards in handling said material. All Applicable Laws And Regulations Shall Apply.

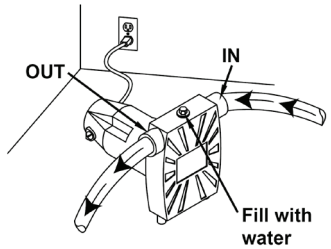
Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.

Crane Pumps & Systems, Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

INSTALLATION: ***Do not work on pump until power is unplugged. Do not cut off ground pin or use an adapter fitting. Do not use an extension cord. Do not position the pump into a unidentified site which you don't know the Max. Diameter particles mixed with water.*** The pump cord should be connected to a separately fused, grounded line with a minimum capacity of 15 amps (or GFCI Plug). It can be connected to a non-fuse breaker as the recommended amps. Never touch the pump when it is connected to electrical power.

1. Before installing or servicing this pump, be certain pump power source is disconnected.
2. Installation and electrical wiring must be completed before priming pump. Check appropriate community agencies, or contact local electrical and pump professionals.
3. Call an electrician when in doubt. Pump should be connected to a separate GFCI plug or 15 amps circuit breaker or 15 amps fuse block. Note that, plugging into existing outlets may cause low voltage at motor, causing blown fuses, tripping of motor overload, or burned out motor.
4. A permanent ground connection from pump to the grounding bar at the service panel is mandatory. Pumps come with a grounding conductor and a grounding-type attachment plug. Do not connect pump to a power supply until permanently grounded. For maximum safety, ground pump to a circuit equipped with a fault interrupter device.
5. Before installing pump, clear sump basin of any water, debris, or sediment, you had better add strainer in the inlet hole to protect inners. Warning: Sump basin must be vented in accordance with local plumbing codes. Pumps are not designed for and CANNOT be installed in locations classified as hazardous.
6. The following may cause severe damage to pump and will void warranty:
   - Using an extension cord.
   - Cutting off the ground pin or using an adapter fitting.
   - Removing motor housing, unscrewing impeller, or otherwise removing impeller seal.
   - Pumping chemicals or corrosive liquids.
   - Pumping other flammable liquids.
   - Pumping hot liquids (exceed 40 centigrade)(over 104°F).
   - When the pump reaches thermal overload, it will shut-off automatically. Once it cools down-either naturally or by being cool down by air near 20 minutes, it will restart.
   - Do not submerge the pump or motor in water. Do not operate this product while unattended.
7. The simple way to connect this Utility Pump:
   - Step 1: Connect a standard discharge dia. pvc, steel, or stainless steel pipe fitting to this pump inlet and discharge.
   - Step 2: Place the inlet into the tank or bucket where the fluid needs to be pumped (add strainer before the inlet).
   - Step 3: Be sure to fill the casing with water prior to running the pump.
   - Step 4: Move away from the area to be pumped, and stand on dry ground.

15 Ft. Inlet Line Length Max.



IMPORTANT!
WARRANTY REGISTRATION

Your product is covered by a warranty:
www.cranepumps.com/downloadables/CATALOGS_OIPMs/Warranty/24MonthWarranty.pdf

If you have a claim under the provisions of the warranty, contact your local Crane Pumps & Systems, Inc. Distributor.

RETURNED GOODS
RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION". CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.

Products Returned Must Be Cleaned, Sanitized, Or Decontaminated As Necessary Prior To Shipment, To Insure That Employees Will Not Be Exposed To Health Hazards In Handling Said Material. All Applicable Laws And Regulations Shall Apply.