

BARNES®

BARNES®  
PRESSURE SYSTEMS

CROWN

burks®

WEINMAN®

DEMING®

PROSSER®

## Limited 24 Month Warranty

Crane Pumps & Systems warrants that products of our manufacture will be free of defects in material and workmanship under normal use and service for twenty-four (24) months after manufacture date, when installed and maintained in accordance with our instructions. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by us, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage (c) lightning (d) excessive sand or other abrasive material (e) scale or corrosion build-up due to excessive chemical content. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR FEES, UNAUTHORIZED REPAIR SHOP EXPENSES, LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.

### IMPORTANT! WARRANTY REGISTRATION

Your product is covered by the enclosed Warranty.  
To complete the Warranty Registration Form go to:

<http://www.cranepumps.com/ProductRegistration/>

If you have a claim under the provision 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.**

# 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

420 Third Street  
Piqua, Ohio 45356  
Phone: (937) 778-8947  
Fax: (937) 773-7157  
[www.cranepumps.com](http://www.cranepumps.com)

83 West Drive, Brampton  
Ontario, Canada L6T 2J6  
Phone: (905) 457-6223  
Fax: (905) 457-2650

Form No. 134678A-Rev. A

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

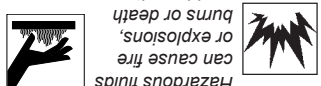


**CAUTION!** Do not block or restrict discharge hose, as discharge hose may whip under pressure.

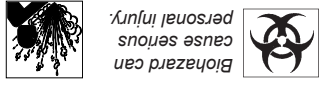
Make sure lifting handles are securely fastened each time before lifting. **DO NOT** operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair. Secure the pump in its operating position so it can not tip over, fall or slide.



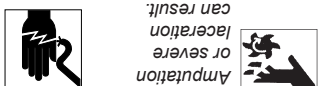
**DO NOT** exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.



**Hazardous fluids** can cause fire or explosions, - Severe burns can occur on contact.



**Biohazard can cause serious personal injury.** Explosions or eruptions or cause personal injury or property damage.



**Amputation machinery** or severe voltage burn or 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.



**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 steam 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.



Other brand and product names are trademarks or registered trademarks of their respective holders. @ Barnes is a registered trademark of Crane Pumps & Systems, Inc. 2002, 2003, 6/2004, 5/06, 9/06 Alteration Rights Reserved

**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 separate 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 power source is disconnected.

1. Before installing or servicing this pump, be certain pump electrical power.

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).

7. The simple way to connect this Utility Pump: operate this product while unattended.

- Do not submerge the pump or motor in water. Do not restart.
- 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.

8. Do not submerge the pump or motor in water. Do not operate this product while unattended.

- 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.

9. Do not submerge the pump or motor in water. Do not operate this product while unattended.

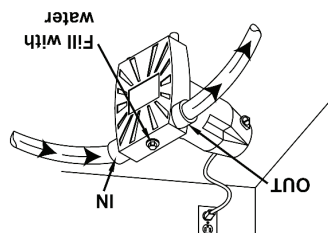
- When the pump reaches thermal overload, it will shut-off automatically. Once it cools down- either naturally or by being cool down by air near 20 minutes, it will restart.

10. Do not submerge the pump or motor in water. Do not operate this product while unattended.

- 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.

11. Do not submerge the pump or motor in water. Do not operate this product while unattended.

- 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.



15 Ft. Inlet Line Length Max.

**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.

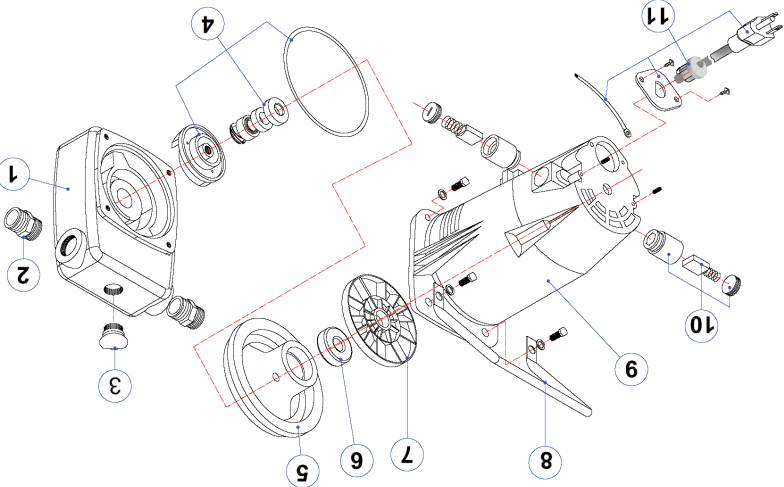
This pump is designed for residential clean water jobs and can be used for gasoline but cannot be used as a continuous duty fountain pump.

**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: Retainer Caps - Retainer Springs       |
| 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, 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, GFCI outlets. 2. Reposition pump or clean pump/basin 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 valve for proper installation and freedom of operation. 7. Open valve. 8. Check impeller when fixtures are not in use | 1. Check electrical connection, blown fuse, tripped breaker or other interruption of power, security. Check for blown fuses, tripped circuit breakers or tripped GFCI outlets. 2. Reposition pump or clean pump/basin 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 valve for proper installation and freedom of operation. 7. Open valve. 8. Check impeller when fixtures are not in use |
| Pump delivers insufficient capacity  | 1. Incorrect voltage. 4. Excessive inflow or damaged, inlet plugged. 6. Check valve stuck backwards. 7. Shut-off valve closed. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.  | 1. Check voltage. 4. Excessive inflow or damaged, inlet plugged. 6. Check valve stuck backwards. 7. Shut-off valve closed. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.   |
| Pump hums but does not run           | 1. Incorrect voltage. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.   | 1. Check voltage. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.  |
| Pump will not turn off               | 2. Switch will not activate pump or is defective. 4. Excessive inflow or damaged, inlet plugged.  | 2. Switch will not activate pump or is defective. 4. Excessive inflow or damaged, inlet plugged.   |
| Pump shuts off                       | 1. Incorrect voltage. 4. Excessive inflow or damaged, inlet plugged. 6. Check valve stuck backwards. 7. Shut-off valve closed. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged. 10. Excessive water temperature. 11. Replace portion of discharge pipe with flexible connector. 12. Check for leaks around basin inlet and outlets.  | 1. Check voltage. 4. Excessive inflow or damaged, inlet plugged. 6. Check valve stuck backwards. 7. Shut-off valve closed. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged. 10. Excessive water temperature. 11. Replace portion of discharge pipe with flexible connector. 12. Check for leaks around basin inlet and outlets.   |
| Pump operates noisily or excessively | 5. Discharge restricted. 8. Impeller broken. 11. Piping attachments to building structure too rigid or too loose.   | 5. Discharge restricted. 8. Impeller broken. 11. Piping attachments to building structure too rigid or too loose.  |