

LIMITED WARRANTY AND LIMITATION OF LIABILITY

Manufacturer warrants this product free from material and/or manufacturing defects for one year from date of purchase (**90 DAY WARRANTY ON THE IMPELLER**). As the sole and exclusive remedy for a breach of this limited warranty, if the product is found by Manufacturer to be defective, Manufacturer, at its option, will refund the purchase price or replace the product with an equivalent product if it is returned to the place of purchase with proof of purchase. Contact customer service (800-495-9278 or superiorpump.com). Any disassembly, modification, or abuse of this product voids this limited warranty. This warranty does not cover product failure resulting from running the pump dry, pumping non-approved chemicals or highly abrasive solutions, normal wear or user abuse.

**MANUFACTURER DISCLAIMS ALL OTHER
EXPRESS OR IMPLIED WARRANTIES,
INCLUDING WARRANTIES OF
MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

IMPORTANT NOTICE: Some commercial and residential insurance policies extend coverage for damages incurred by product failure. In most cases, you will need to have possession of the product to support your claim. In the case where you need to retain possession of the product to support a damage claim you submit to your insurance company, Manufacturer will exchange the unit or refund the original price once the claim is settled with the insurer.

**SUPERIOR
PUMP®**

**1-800-495-9278
www.superiorpump.com**

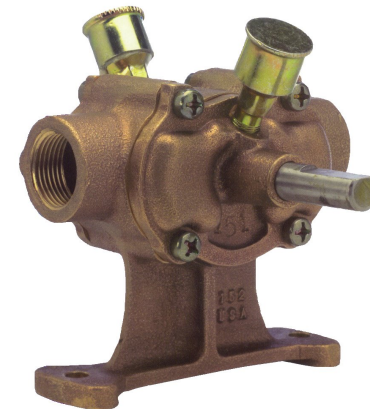
**SUPERIOR
PUMP®**

OWNER'S MANUAL

INSTALLATION & OPERATION INSTRUCTIONS FOR:

LOREN SIMER'S ORIGINAL BRONZE PADDLE PUMP

Models: BP20X, BP21X, BP20, BP21



If for any reason you have questions concerning your new Bronze Paddle Pump, call us toll free at 1-800-495-9278, or contact us on the web at www.superiorpump.com

Carefully read and understand all of the Warnings and installation instructions in this manual. Failure to follow these instructions could lead to serious bodily injury and/or property damage. Retain these instructions for future reference.

This pump has been manufactured with the highest quality materials. Properly installed and maintained in the right application, your new Pump will give you years of carefree performance.

WARNING ⚠ Use this pump to pump only water and compatible chemicals listed in the chemical resistance chart on page 7. If you have any questions on what type of materials that can be pumped, call us at 1-800-495-9278 or contact us on the web at www.superiorpump.com

WARNING ⚠

DO NOT RUN THE PUMP DRY. The pump depends on liquids for cooling and lubrication. Operating the pump without liquid running through it may cause severe damage to the impeller and/or pump housing. Several minutes of dry operation can permanently damage the impeller and pump.

INSTALLATION

MOUNTING THE PUMP (TYPICAL APPLICATION)

For direct drive, mount the pump and motor on a steel or wood base. Manufacturer manufactures bases and handles to make mounting your pump easy. When connecting the pump to the motor, make sure the pump shaft lines up properly with the motor shaft. Use washers as shims if necessary to line up the shafts. Use a flexible motor coupling to connect the two shafts together.

MOTOR REQUIREMENTS

This pump requires a high starting torque, continuous duty motor. For direct drive operation the minimum motor size required is:

BP20X – Minimum 1/3 HP, TEFC, Capacitor Start, 1725 RPM

BP21X – Minimum 1/2 HP, TEFC, Capacitor Start, 1725 RPM

NOTE: When pumping flammable liquids, an explosion proof motor is required.

NOTE: When using an engine, do not exceed 2000 rpm.

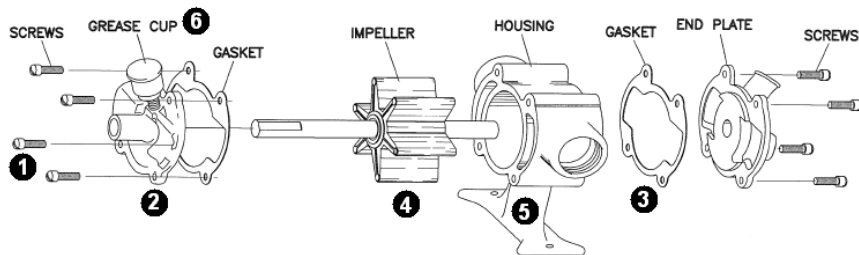
SAFETY

It is highly recommended to purchase or fabricate a motor coupling guard, (Part # 21210). Unguarded motor transmissions are unsafe and may cause personal injury. Keep hands and clothing clear of the motor coupling to avoid personal injury.

CHEMICAL RESISTANCE OF BRONZE PADDLE PUMPS AND IMPELLERS									
COMPATIBILITY RATINGS			1 = SATISFACTORY 2 = FAIR			3 = DOUBTFUL 4 = UNSATISFACTORY			X=Insufficient
LIQUID	IMPELLER		LIQUID			IMPELLER		LIQUID	IMPELLER
	53	53X				53	53X		
	63	63X							
A			F			O			
Acetaldehyde	3	X	Ferric Chloride	2	1	Octyl Alcohol		2	X
Acetone	4	4	Ferric Nitrate	1	1	Oleic Acid		4	X
Acetyl Acetone	4	X	Formaldehyde	3	2	Olive Oil		2	2
Acetyl Chloride	4	X	Freon, 11	4	X	Ozone		3	1
Aluminum Acetate	2	2	Freon, 22	1	1	P			
Aluminum Bromide	1	X	Fuel Oil	2	1	Paint Thinner, Duco		4	X
Aluminum Chloride	1	1	Furfural	4	4	Palmitic Acid		2	2
Aluminum Nitrate	1	1	G			Peanut Oil		3	1
Ammonia, Gas, Cold	1	X	Gasoline	4	1	Petroleum Oil, Crude		2	
Gas, Hot	2	X	Gelatin	1	1	Phenol		4	X
Liquid (Anhydrous)	1	X	Glycerine-Glycerol	1	1	Phosphoric Acid, 3 Molar		3	X
Ammonium Chloride, 2N	1	X	Glycols	1	1	Concentrated		4	X
Ammonium Nitrate, 2N	1	1	H			Potassium Chloride		1	1
Ammonium Sulfate	1	1	N-Heptane	2	X	Potassium Cyanide		1	1
Amyl Alcohol	2	1	N-Hexane	2	1	Potassium Hydroxide, 50%		2	1
Amyl Naphthalene	4	X	Hexyl Alcohol	2	X	Potassium Nitrate		1	1
Aniline Hydrochloride	4	4	Hydraulic Oil (petroleum base)	2	1	Potassium Sulphate		1	1
Automatic Transmission Fluid	2	X	Hydrochloric Acid, 3 Molar	3	4	Propane		2	1
Automotive Brake Fluid	2	X	concentrated	4	4	Propyl Alcohol		1	1
B			Hydrogen Peroxide	1	X	R			
Barium Chloride	1	1	Hydrogen Sulfide			RJ-1 (MIL-F-25558)		2	X
Barium Hydroxide	1	1	Wet, Cold	1	2	RP-1 (MIL-R-25576)		2	X
Beer	1	1	Wet, Hot	2	2	Rapeseed Oil		2	1
Beet Sugar Liquors	2	X	Hypochlorous Acid	4	X	S			
Bleach Liquor	4	X	I			Sewage		2	X
Boric Acid	1	1	Isopropanol	2	X	Silicone Greases		1	1
Bromine Trifluoride	4	4	Isopropyl Alcohol	2	1	Silicone Oils		1	1
Butane	1	1	J			Soap Solutions		2	1
Butter – Animal Fat	2	1	JP X (MIL-F-25604)	2	X	Soda Ash		1	1
Butyl Alcohol	1	X	K			Sodium Bicarb. / Baking Soda		1	1
C			Kerosene	2	1	Sodium Borate		1	1
Calcium Chloride	1	1	(similar to RP-1 & JP-1)			Sodium Bisulfate of Bisulfite		1	1
Calcium Hydroxide	1	1	L			Sodium Chloride		1	1
Calcium Nitrate	1	1	Lacquers	4	4	Sodium Hydroxide, 3 Molar		2	2
Cane Sugar Liquors	1	1	Lacquer Solvents	4	4	Sodium Hypochlorite 20%		4	1
Carbolic Acid, Phenol	4	X	Lard, Animal Fat	2	1	Sodium Nitrate		2	1
Castor Oil	1	1	Lime Sulphur	1	X	Sodium Sulphate		1	1
Chlorine Bleach	2	X	Linseed Oil	3	X	Sour Crude Oil		X	X
Chlorine, Wet	4	2	Liquid Petroleum Gas (LPG)	2	1	Soybean Oil		3	1
Chlorobenzene	4	4	Lubricating Oils, Di-ester	3	X	Stearic Acid		2	2
Chlorodane	3	X	Petroleum Base	2	1	Stoddard Solvent		2	1
Citric Acid	1	1	SAE 10, 20, 30, 40, 50	2	1	Sulfur Liquors		2	2
Cobalt Chloride	1	X	Lye Solutions	2	X	Sulfur Hexafluoride		1	1
Copper Acetate	2	X	M			Sulfuric Acid, 3 Molar		3	2
Corn Oil	3	1	Magnesium Chloride	1	1	Concentrated		4	4
Cottonseed Oil	3	1	Magnesium Hydroxide	2	1	Sulfurous Acid		2	X
Crude Oil	4	X	Magnesium Sulphate & Sulphate	1	1	T			
D			Mercuric Chloride	1	1	Tannic Acid		2	X
Denatured Alcohol	1	1	Mercury	1	1	Tartaric Acid		2	X
Detergent, Water Solution	2	1	Methane	2	1	Transformer Oil		2	X
Developing Fluids (photo)	1	X	Methanol	1	X	Transmission Fluid Type A		2	1
Diacetone Alcohol	4	4	Methyl Alcohol	1	2	Trichloroethylene		4	4
Dichloro-Isopropyl Ether	4	X	Milk	1	X	Turbine Oil		4	1
Diesel Oil	3	1	Mineral Oils	2	1	Turpentine		4	1
Diethylene Glycol	1	1	N			V			
Drinking Water	2	X	Naptha	4	1	Vegetable Oil		3	1
Dry Cleaning Fluids	4	X	Natural Gas	1	1	Versilube F-50		1	1
E			Nickel Chloride	2	X	W X Y Z			
Ethanol	1	X	Nickel Sulfate	1	X	Water		2	2
Ethers	4	X	Nitric Acid, 3 Molar	4	4	Whiskey and Wines		1	X
Ethyl Alcohol	1	1	Concentrated	4	4	Wood Alcohol		1	X
Ethylene Diamine	1	1	Red Fuming (RFNA)	4	4	Xylene		4	4
Ethyl Ether	4	2	Inhibited Red Fuming (IRFNA)	4	4	Zinc Chloride		1	X
Ethylene Glycol	1	1				Zinc Sulfate		1	X

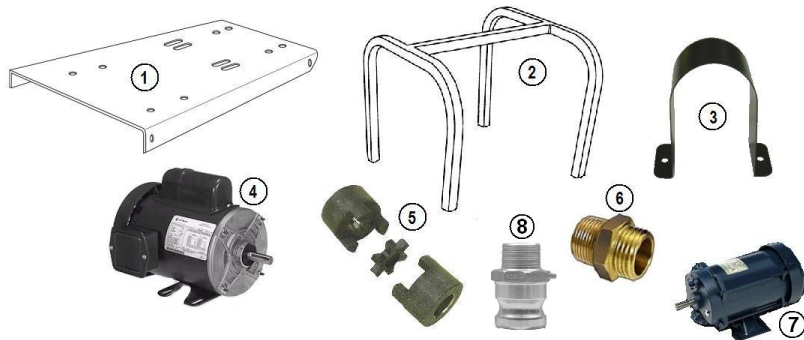
NOTE: The 53 and 63 impellers have been discontinued but are listed for reference

REPLACEMENT PARTS



Ref.	Description	Part # for Model:	
		BP20X	BP21X
1	Screws (1/4"-20 x 1/2" for BP20X) (5/16"-18 x 1/2" for BP21X)	Purchase Locally	
2	End Plate Kit (Incl. one end plate, screws, gasket and grease cup)	3025	3035
3	Gasket (2 Per Pack)	345026	345027
4	Impeller Kit (Includes Impeller, shaft and gaskets)	53X	63X
5	Housing Kit (Includes gaskets)	3026	3036
6	Grease Cup (1 Per Pack)	54	54

AVAILABLE ACCESSORIES



Ref. #	Description	Model #
1	Pump Base	SBO
2	Pump Handle	20400
3	Motor Coupling Guard	21210
4	1/2 HP TEFC Motor – 1725 rpm	20365
5	1/2" x 1/2" Motor Coupling	20312
5	5/8" x 5/8" Motor Coupling	20358
5	1/2" x 5/8" Motor Coupling	20328
6	1" NPT x 3/4" Garden Hose Adapter	20310
7	1/2 HP Explosion Proof Motor – 1725 rpm	20366
8	1" Quick Connect Cam Fitting (Male end Only)	10FXX

INSTALLATION (CONTINUED)

PIPE AND HOSE LINES

It is recommended to use the same size pipe or hose as the discharge size of the pump. Suction lines must be airtight, and as straight as possible. If discharge pipe/hose runs are over 50', it is recommended to use one size larger pipe or hose. The discharge size may be reduced when less output is desired but the pump should not be operated against a closed discharge.

TIP: When pumping from sources that contain sediment or debris, drop the suction hose (with a strainer or filter attached) to the bottom of the tank, then, lift it up by about 6 inches BEFORE starting the pump. This keeps unwanted materials from entering the suction line.

FLOW DIRECTION

From the factory, the pump is set up for counter clockwise rotation (from opposite shaft end) as shown in Figure 2. To reverse the direction of the pump, first remove one end plate and impeller. Reinsert the impeller into the housing making sure the blades of the impeller are oriented in the opposite direction. Replace end plate, making sure the gasket is properly aligned. **NOTE:** Make sure your motor is rotating the same direction as the pump.

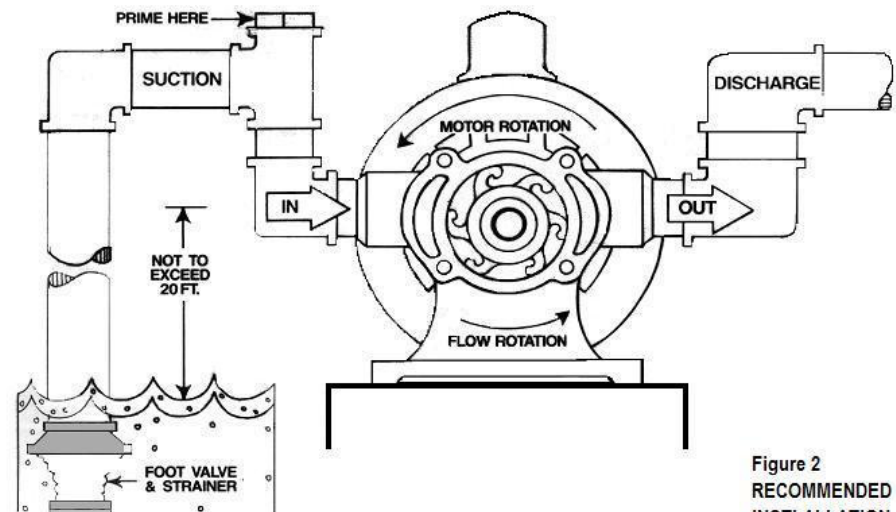


Figure 2
RECOMMENDED
INSTALLATION

OPERATION

INITIAL STARTUP

NOTE: When the pump is new, it may be difficult for the motor to turn the impeller. It is recommended to spray oil or other lubricant in the suction and discharge ports to help lubricate the impeller. The pump will also prime faster and easier if the impeller is wet. Turn the pump shaft (you may need to use a wrench) several turns in the direction the pump will run to loosen and lubricate the impeller. Turn each grease cup one turn to lubricate impeller shaft. Start motor. As soon as water starts flowing the pump is ready for use.

NOTE: If the pump does not prime itself in 30-45 seconds, turn off the motor. **DO NOT RUN THE PUMP DRY FOR EXTENDED PERIODS OF TIME AS SEVERE DAMAGE MAY OCCUR.** Follow priming tips below.

PRIMING

When in good condition, this pump is noted for its powerful suction. Priming in most cases is not necessary but if the liquid level is below 15' or if the liquid has a high viscosity you may find it necessary to prime the pump.

PRIMING TIPS

- Fill the suction line with water to help displace the air in the line.
- Use a check or foot valve to help prevent the liquid from draining out of the suction line.
- Use a "T" fitting (figure 2) on the suction line will make filling the hose/pipe easier.
- Partially restricting the discharge line may help with priming.

LUBRICATION

Turn the grease cups one turn before initial use and one turn for each eight hours of operation. Periodically inspect and re-fill the grease cups. White lithium grease is a good choice as it performs well and is water resistant.

GENERAL OPERATING TIPS

- Keep the pump as close to the water supply as possible.
- Do not let the suction line sit in sand or dirt as these materials will cause rapid wear of the pump.
- Do not pump liquids that exceed 180°F (82°C).
- Do not pump liquids that are rated as unsatisfactory on the chemical resistance chart (pg.7).
- Use an explosion proof motor when pumping flammable liquids.
- Keep hose and pipe runs as short and straight as possible.

TROUBLESHOOTING

If the pump impeller shaft will not turn

1. Make sure the motor is rotating the same direction as the pump.
2. If the pump is new, you may need to turn the impeller by hand to loosen.
3. On new pumps, spray oil or other lubricant in the suction and discharge ports to loosen.
4. Make sure you have a properly sized motor to operate the pump.

TROUBLESHOOTING (CONTINUED)

If the pump moves little or no water

1. Check for air leaks in the suction line. Make sure all pipe joints are air tight.
2. Check for obstructions in suction and/or discharge lines.
3. Make sure liquid supply is within pumping range. (Up to 20' depth)
4. Check impeller for signs of wear. Replace if necessary.
5. Check pump housing for wear. Replace if necessary.

If you have other questions or problems, please contact us at 1-800-495-9278 or at www.superiorpump.com for assistance.

PERFORMANCES

<i>Gallons per minute at listed pressure and discharge head</i>							
<i>Pressure</i>	<i>0 psi</i>	<i>5 psi</i>	<i>10 psi</i>	<i>15 psi</i>	<i>20 psi</i>	<i>25 psi</i>	<i>30 psi</i>
<i>Head in Feet</i>	<i>0'</i>	<i>11'</i>	<i>23'</i>	<i>35'</i>	<i>46'</i>	<i>58'</i>	<i>70'</i>
BP20X	15	12	9	6	4	2	-
BP21X	28	21	16	13	9	6	2

SPECIFICATIONS

Bronze Composition.....	85-5-5-5
Impeller Shaft.....	#416 Stainless Steel
Rubber Impeller.....	Epichlorohydrin
Fasteners.....	Stainless Steel
Liquid Temperature Range.....	32°-180° F (0°-82° C)
Solids Handling	1/4"
Discharge Size.....	3/4" NPT – BP20X 1" NPT– BP21X
Warranty	
Impeller.....	90 Days
Bronze Parts.....	1 Year