



## 1.5-MDI-SC Magnetic Drive – Semi Corrosive Fluids

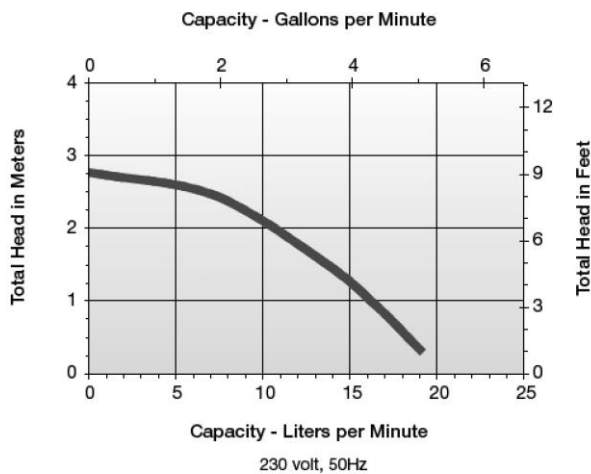
Circulation of moderately corrosive acids, alkalis, solvents, brine, plating solutions, sterile solutions, and other moderately corrosive chemicals and solutions that are compatible with the pump's material of construction



- Ceramic shaft and thrust washers are 99.5% pure alumina for excellent wear and trouble-free service
- 1/35 HP open FC motor
- Glass-filled polypropylene
- magnet housing and volute
- 1.1 specific gravity
- Viton® O-ring

<b>RPM:</b>	3100
<b>Capacity:</b>	19 LPM
<b>Shut Off:</b>	2.7m
<b>Liquid Temp:</b>	66°C
<b>Discharge:</b>	12.5mm O.D
<b>Intake:</b>	19mm
<b>Electrical:</b>	230V, 50/60Hz
<b>MODEL:</b>	<b>589211</b>

Performance Curves 1.5-MDI-SC 230V, 50/60Hz



## LIMITED WARRANTY

THIS WARRANTY SETS FORTH THE COMPANY'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDY FOR DEFECTIVE PRODUCT.

Franklin Electric Company, Inc. and its subsidiaries (hereafter "the Company") warrants that the products accompanied by this warranty are free from defects in materials or workmanship of the Company that exist at the time of sale by the Company and which occur or exist within the applicable warranty period. Any distributor, sub-distributor, recipient, end-user and/or consumer agrees that by accepting the receipt of the products, the distributor, sub-distributor, recipient, end user and/or consumer expressly agrees to be bound by the terms of the warranty set forth herein.

### I. Applicable Warranty Period

The products accompanied by this warranty shall be covered by this Limited Warranty for a period of 12 months from the date of original purchase by the consumer. In the absence of suitable proof of purchase date, the warranty period of this product will begin to run on the product's date of manufacture.

### II. Instructions Applicable to this Limited Warranty

1. Consumers wishing to submit a warranty claim must return the products accompanied by this warranty to the point of purchase for warranty consideration.
2. Upon discovery of a defect, any personal injury, property damage or any other type of resulting damage, if applicable, shall be reasonably mitigated to the extent possible.
3. At its discretion, the Company may inspect products either at its facilities, or in the field, and after determination of a warranty claim, will, at its option, repair or replace defective parts. Repaired or replaced parts will be returned freight prepaid by the Company.
4. This warranty policy does not cover any labor or shipping charges. The Company shall not be liable for any costs or charges attributable to any product testing, maintenance, installation, repair or removal, or for any tools, supplies, or equipment needed to install, repair, or remove any product.

### III. Limitations Applicable to this Limited Warranty

**THIS WARRANTY DOES NOT APPLY TO ANY OF THE FOLLOWING:**

1. Brushes, impeller or cam on models with brush-type motors and/or flex-vane impellers.
2. Any product that is not installed, applied, maintained and used in accordance with the Company's published instructions, applicable codes, applicable ordinances and/or with generally accepted industry standards.
3. Any product that has been subject to misuse, misapplication, neglect, alteration, accident, abuse, tampering, acts of God (including lightning), acts of terrorism, acts of war, fire, improper storage or installation, improper use, improper maintenance or repair, damage or casualty, or to an excess of the recommended maximums as set forth in the product instructions.
4. Any product that is operated with any accessory, equipment, component, or part not specifically approved by the Company.
5. Use of replacement parts not sold by the Company, the unauthorized addition of non-Company products to other Company products, and the unauthorized alteration of Company products.
6. Products damaged by normal wear and tear, normal maintenance services and the parts used in connection with such service, or any other conditions beyond the control of the Company.
7. Any product that has been used for purposes other than those for which it was designed and manufactured.
8. Any use of the product where installation instructions and/or instructions for use were not followed.
9. Products connected to voltage other than indicated on nameplate.
10. Products where the pump was exposed to any of the following: sand, gravel, cement, grease, plaster, mud, tar, hydrocarbons, hydrocarbon derivatives (oil, gasoline, solvents, etc.) or other abrasive or corrosive substances.

11. Products in which the pump has been used to pump or circulate anything other than fresh water at room temperature.
12. Products in which the pump was allowed to operate dry (fluid supply cut off).
13. Products in which the sealed motor housing has been opened or the product has been otherwise dismantled by customer.
14. Products in which the cord has been cut to a length of less than three feet.

The Company reserves the right at any time, and from time to time, to make changes in the design and/or improvements upon its product without thereby imposing any obligation upon itself to make corresponding changes or improvements in or upon its products already manufactured and/or previously sold. The Company further reserves the right to substitute parts or components of substantially equal quality in any warranty service required by operation of this Limited Warranty.

This written Limited Warranty is the entire warranty authorized and offered by the Company. There are no warranties or representations beyond those expressed in this document.

THIS WARRANTY AND REMEDY IS IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY SPECIFICALLY DISCLAIMED AND EXPRESSLY EXCLUDED. CORRECTION OF NON-CONFORMITIES, IN THE MANNER AND FOR THE PERIOD OF TIME AS SET FORTH ABOVE, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITY OF THE COMPANY TO THE PURCHASER WHETHER BASED ON CONTRACT, NEGLIGENCE, OR OTHERWISE.

**THE COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES SUCH AS, BUT NOT LIMITED TO:**

**DAMAGE TO OR LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF USE OF EQUIPMENT, FACILITIES OR SERVICE, LOSS OF PROFIT OR SALES, COST OF PURCHASES OR REPLACEMENT GOODS, CLAIMS OF CUSTOMERS OF THE PURCHASER, FAILURE TO WARN AND/OR INSTRUCT, LOSS OF OTHER PRODUCTS, OR COSTS OF ENVIRONMENTAL REMEDIATION, OR DIMINUTION IN PROPERTY VALUE. THE REMEDIES OF THE PURCHASER SET FORTH HEREIN ARE EXCLUSIVE, AND THE LIABILITY OF THE COMPANY SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE PRODUCTS UPON WHICH SUCH LIABILITY IS BASED. DAMAGES AS SET FORTH IN THIS PARAGRAPH SHALL BE REASONABLY MITIGATED TO THE EXTENT POSSIBLE. THIS PARAGRAPH SHALL ALSO APPLY TO ALL DAMAGES RESULTING FROM CONDITIONS SET FORTH IN SECTION III ABOVE AND (1) DEFECTS IN PRODUCT PROTOTYPES OR REPLACEMENT PART PROTOTYPES THAT HAVE NOT BEEN PUT INTO PRODUCTION, CIRCULATED AND SOLD BY THE COMPANY, AND/OR (2) DEFECTS THAT WERE NOT FOUND AT THE TIME OF SALE DUE TO SCIENTIFIC AND TECHNOLOGICAL REASONS.**

This Limited Warranty gives you specific legal rights. You may have other rights, which vary according to the applicable laws and regulations. Where any term of this warranty is prohibited by such laws, it shall be null and void, but the remainder of this warranty shall remain in full force and effect.

DISCLAIMER: Any oral statements about the product made by the seller, the Company, the representatives or any other parties, do not constitute warranties, shall not be relied upon by the user, and are not part of the contract for sale. Seller's and the Company's only obligation, and buyer's only remedy, shall be the replacement and/or repair by the Company of the product as described above. Before using, the user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith.

## INTRODUCTION

This instruction sheet will provide you with information required to safely own and operate Little Giant MD Series pump. The pump you have purchased is a magnetic driven pump. These MD series pumps handle most mildly corrosive fluids such as low concentrations of acids and alkalis in pH range of 5 to 9 at fluid temperatures up to 150 °F. The pump head parts are made of glass filled polypropylene. The spindle shaft and thrust washers are ceramic. The impeller driven magnet is uncoated ceramagnet A (barium ferrite) type ceramic. O-ring seals are Fluoroelastomer (FKM). The motor is thermally protected. This instruction sheet covers the standard models in this pump series. This form is applicable to other models in this series not listed by catalog number in the replacement parts list section of this pamphlet. If the catalog number of your pump is not listed in the replacement parts section, then caution should be exercised when ordering replacement parts. Always give the catalog number of your pump when ordering replacement parts.

The Little Giant unit you have purchased is of the highest quality workmanship and material. It has been engineered to give you long and trouble-free service.

The Little Giant pumps are carefully packaged, inspected and tested to insure safe operation and delivery. When you receive your pump, examine it carefully to determine that there are no broken or damaged parts that may have occurred during shipment. If damage has occurred, make notation and notify the firm that you purchased the pump from. They will assist you in replacement or repair, if required.

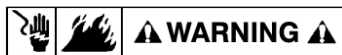
**READ INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THE LITTLE GIANT PUMP. KNOW THE PUMP APPLICATIONS, LIMITATIONS, AND POTENTIAL HAZARDS. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE! RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.**

## SAFETY GUIDELINES

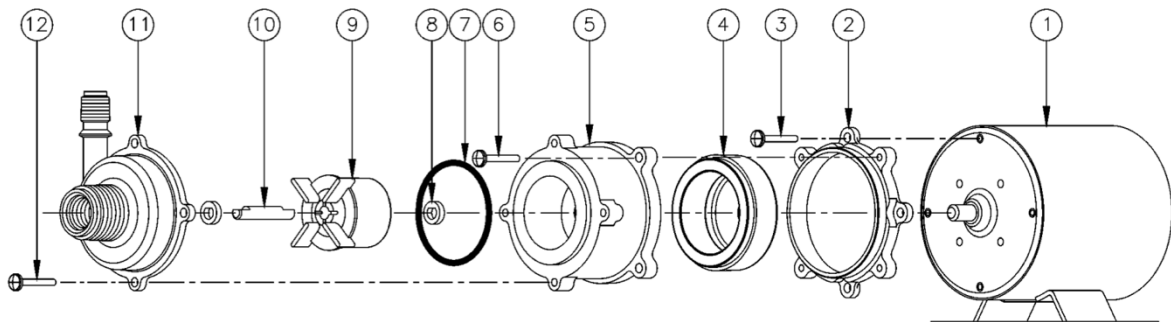


- Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in explosive atmospheres. Pump should be used with liquids compatible with pump component materials.
- Do not handle pump with wet hands or when standing on a wet or damp surface or in water.
- This pump is supplied with a grounding conductor and /or grounding type attachment plug. To reduce the risk of electrical shock, be certain that it is connected to a properly grounded grounding type receptacle.
- The national electric code requires a ground fault circuit interrupter (GFCI) be installed in the branch circuit supplying fountain equipment, pools, etc.
- In any installations where property damage and/or personal injury might result from inoperative pumps or basin overflow due to power outages, discharge line blockage, or any other reason, a backup system(s) and/or alarm should be used.

## ELECTRICAL CONNECTIONS



- Check the pump label for proper voltage required. Do not connect to voltage other than that shown.
- If pump is supplied with a 3-prong electrical plug, the third prong is to ground the pump to prevent possible electrical shock hazard. **DO NOT REMOVE** the third prong from the plug. A separate branch circuit is recommended. Do not use an extension cord. Do not cut plug from the cord. If the plug is cut or the cord is shortened, then this action will void the warranty.
- If the cord is equipped with stripped lead wires, such as on 230 V models, be sure that the lead wires are connected to a power source correctly. The green/yellow wire is the ground, the other two are live.



## OPERATION

- The pump is supplied completely pre-assembled and pretested from the factory.
- Use a thread sealer on all pipe connections and hand tighten only.
- The pump is not self-priming. It must be operated with the volute intake below the liquid level. That is, the inlet of the pump must be below the level of the surface of the liquid being pumped. (See Figure 1.)
- This pump is not submersible. Operate the pump only in the in-line mode. DO NOT put the unit in liquid. Pump should be located in a well ventilated area and away from where accidental water spillage would cause wetting of the pump.
- The weight of the pump must be supported adequately. DO NOT support the pump by the intake and discharge connections alone.
- Do not allow the pump to run dry (without liquid). Heat build up caused by friction will damage the pump parts when dry.
- Do not attempt to restrict the intake side of these pumps. Restricting the intake may cause damage to the pump head. If you require reduced flow rates, then place a valve on the discharge side of the pump or if flexible vinyl tubing is used, a clamp can be used on the tubing to restrict the flow.
- If the unit is going to be idle for a period of time, follow the cleaning instructions outlined in the next section. Do not let the unit freeze in the wintertime. This may cause cracking or distortion that may destroy the unit.

## SERVICE INSTRUCTIONS



- MAKE CERTAIN THAT THE UNIT IS DISCONNECTED FROM THE POWER SOURCE BEFORE ATTEMPTING TO SERVICE OR REMOVE ANY COMPONENT.
- The motor's sleeve bearings should be lubricated every six months with two to three drops of S.A.E. 20 weight non-detergent oil. The oil holes are located on top at each end of the motor.
- All wetted parts can be serviced by removing the 4 screws (item 12) which hold the volute to the housing. The pump head components can easily be replaced in the field if necessary.
- Lightly clean any corrosion or debris that may clog the impeller.
- If pump is tripping circuit breakers, GFCI, or not operating properly after cleaning, return to a Little Giant authorized service center. DO NOT attempt repairs yourself.
- Be certain power cord is in good condition and contains no nicks or cuts.