

**FLUGO**

# Magnetic Drive Pump

## FMG Series



 Please read the instructions carefully before installing

# CATALOGUE

PREFACE .....	1
PRODUCT INTRODUCTION .....	2
INSTALLATION ATTENTION .....	3
OPERATING INSTRUCTIONS .....	7
MAINTENANCE AND REPAIR .....	7
BREAKDOWN REASON AND SOLVING METHODS .....	8
PRODUCT BREAKDOWN DIAGRAM .....	10

## ● PREFACE

Thank you very much for choose our company's products, in order to ensure you enjoy the high quality products and satisfied with the performance of after-sales service, please read this manual before use, operation, and according to the manual for failure to comply with the relevant operating hints, it might damage the equipment, or endanger personal safety.

### **Magnetic drive pump instruction**

Magnetic drive pump is a kind of centrifugal equipment, composed of pump head, magnetic actuators, motors of three parts. When the motor drivers the outer magnetic rotor to rotate, The magnetic field can penetrate air gap and non magnetic material, Synchronously rotating the inner magnetic rotor connected with the impeller to realize the non contact transmission of power. The pump shaft and the internal magnetic rotor are completely closed by the pump body and the isolation sleeve, The dynamic seal is transformed into a static seal, which completely solves the problem of "running, exuding, dropping and leaking", It eliminates the safety hazard of flammable, explosive, toxic and harmful liquid in chemical industry, It can ensure the health and safety of employees.

#### **Main feature:**

- A、 Whole sealing, no leakage
- B、 Corrosion resistance
- C、 Low noise, low vibration
- D、 Small volume, easy to operate, easy to maintain
- E、 Running stability
- F、 Shorten the time for operator to contact with toxic and harmful liquids

#### **⚠ Safety warning**

- ※ Before using this product, we must carefully read the instructions of the product and the use of relevant supporting products. In the process of installation, use and maintenance, the safety operation rules of this product and related equipment must be complied with.
- ※ In the process of handling and checking equipment, please operate by professional personnel so as to avoid safety accidents.
- ※ The magnetic pump can not run for a long time in small flow or without water. Otherwise it will cause the pump vibration even liquid vaporization, will cause personal injury and equipment damage .
- ※ Pump for rotating equipment, in the installation, maintenance pump unit must cut off the power supply, otherwise will cause personal injury.
- ※ The pump must be checked before use cable with and without damage, break and grounding are in good condition, the operation of the pump unit, body parts are strictly prohibited to enter or remove the protective cover, otherwise it will cause personal injury.
- ※ Before using the pump, please turn on the power to determine the correct rotation direction before use.
- ※ For inflammable and explosive places, please cooperate with explosion-proof motor and other safety measures in case of personal injury or injury.
- ※ The user and the enterprise are not allowed to change the standard package and the zero (yuan) component configuration

## Unpacking/Inspection items before installation

- ※ Based on actual demand, please check the pump model, flow, lift, frequency, voltage, current and other information.
- ※ The parts of the pump should be counted according to the requirements of the equipment technical documents if there have any missing parts, damage and corrosion.
- ※ The flange/union should be intact.
- ※ Check pump installation dimensions, the size should be correspond with the engineering design.
- ※ Main parts, seals and gaskets size and material of the pump for transport special liquid are to be checked.
- ※ If there are any abnormality or doubt, please contact the relevant responsible person in time.

## ● PRODUCT INTRODUCTION

### Model specification

FMG - C 44 0 C C V 5

(1) (2) (3) (4) (5) (6) (7) (8)

(1) Model: FMG

(2) Pump material: C-CFRPP E-ETFE

(3) In/Outlet: 44-40\*40 54-50\*40 66-65\*65

(4) Power: 0-1/2HP 1-1HP 2-2HP 3-3HP 5-5HP

(5) Shaft: C-Ceramic S-SSIC

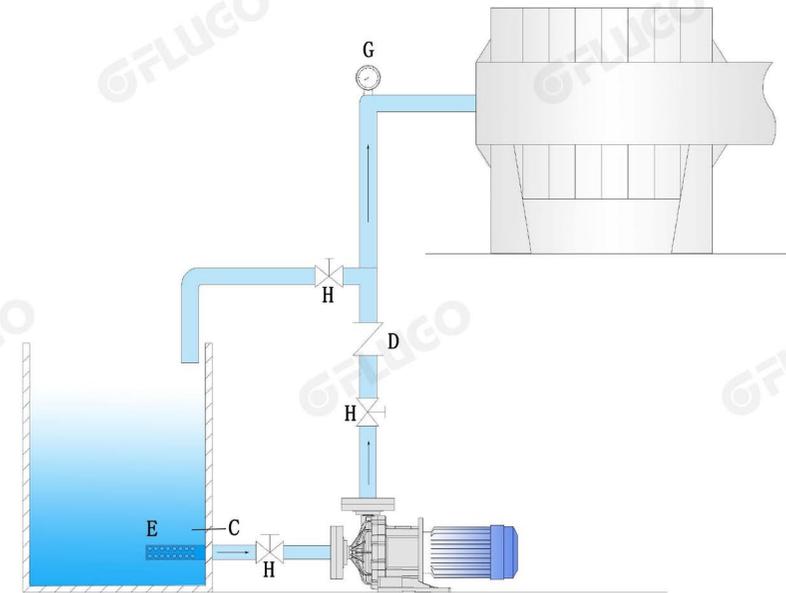
(6) Bearing material: C-Carbon S-SSIC

(7) Rubber: E-EPDM V-VITON N-NBR

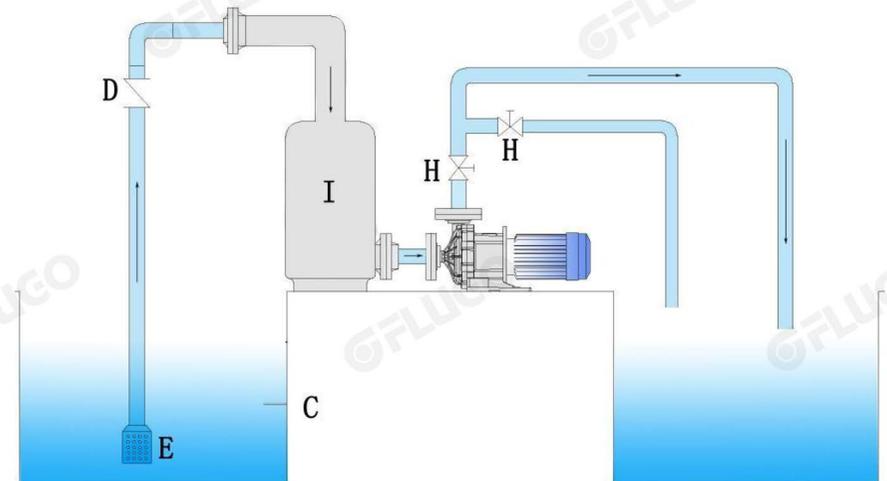
(8) Frequency: 5-50HZ 6-60HZ

Spec.	Inlet(m m)	Outlet (mm)	50HZ		60HZ		Power(Kw)
			max.He ad (m)	max.Capaci ty (l/min)	max.Hea d (m)	max.Capaci ty (l/min)	
FMG-440	40	40	11	200	/	/	0.37
FMG-441	40	40	14	233	/	/	0.75
FMG-542	50	40	18	435	17	415	1.5
FMG-543	50	40	22	465	22	465	2.2
FMG-545	50	40	27	500	21	650	3.75
FMG-652	65	50	12.5	465	12	435	1.5
FMG-653	65	50	15	550	16	535	2.2
FMG-655	65	50	21	685	/	/	3.75
FMG-662	65	65	12	750	12	700	1.5
FMG-663	65	65	15	835	16	835	2.2
FMG-665	65	65	21	1100	23	1100	3.75

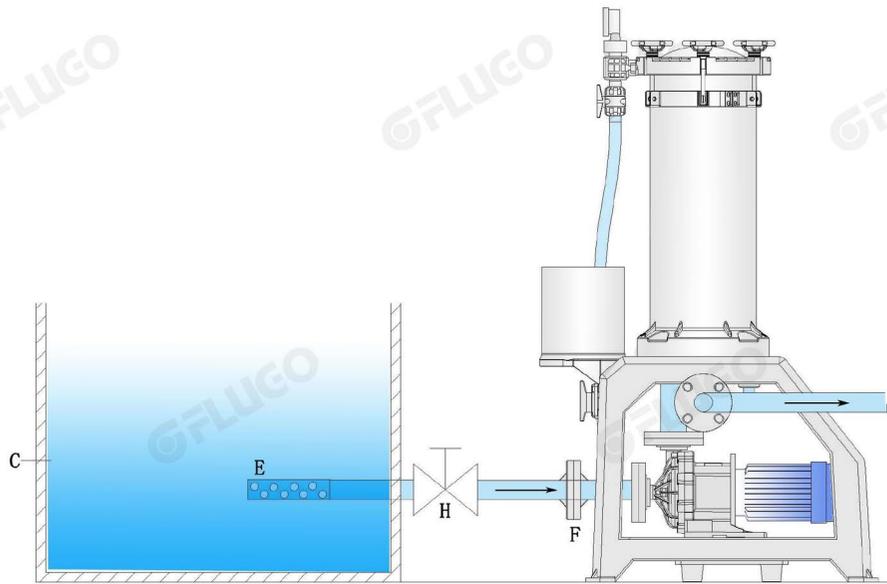
## ● INSTALL SHOW



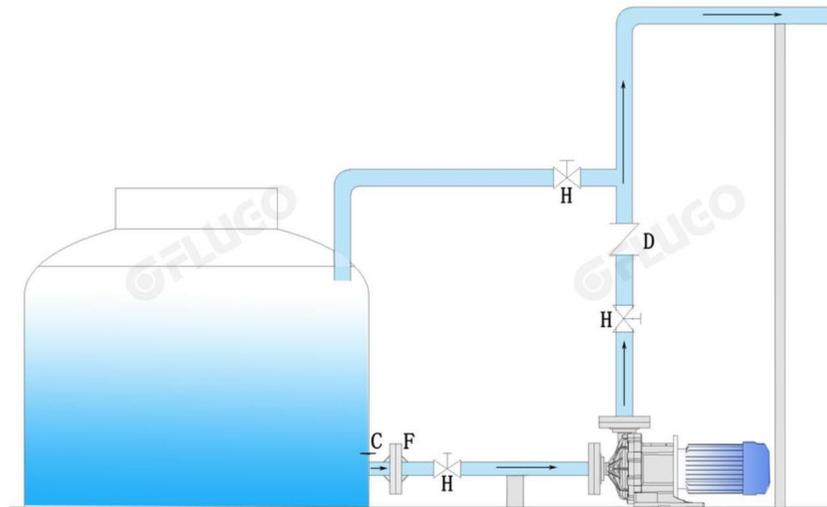
Used for reactive tank (C-The lowest level for liquid transfer D-Check Valve E-Strainer or foot valve H-Valve G-Pressure gauge)



Operated at negative pressure (C-The lowest level for liquid transfer D-Check Valve E-Strainer or foot valve H-Valve I-Self-priming tank)

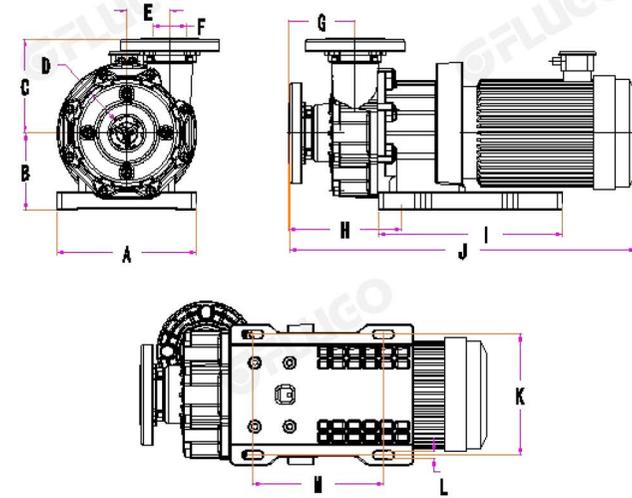


Matching with filter (C-The lowest level for liquid transfer E-Strainer or foot valve F-Flange H-Valve)



Liquid convey (C-The lowest level for liquid transfer E-Strainer or foot valve F-Flange H-Valve)

Install size (mm)



Model	A	B	C	D	E	F	G	H	I	J	K	L	M
FMG-C-440CCE5	199	101	137	∅ 40	60	∅ 40	92	150	238	470	170	10	183
FMG-C-441CCE5	235	119	150	∅ 40	71	∅ 40	93	161	280	508	201	10	216
FMG-C-542CCE5	261	120	163	∅ 50	80	∅ 40	94	169	337	546	223	12	244
FMG-C-652CCE5	261	120	173	∅ 65	80	∅ 50	124	211	344	588	223	12	244
FMG-C-662CCE5	261	120	173	∅ 65	80	∅ 65	124	211	344	588	223	12	244
FMG-C-543CCE5	261	120	163	∅ 50	80	∅ 40	94	169	337	545	223	12	244
FMG-C-653CCE5	261	143	173	∅ 65	80	∅ 50	124	211	344	588	223	12	244
FMG-C-663CCE5	261	143	173	∅ 65	80	∅ 65	124	211	344	588	223	12	244
FMG-C-545CCE5	261	120	163	∅ 50	80	∅ 40	94	169	337	606	223	12	244
FMG-C-655CCE5	261	143	173	∅ 65	80	∅ 50	124	211	344	646	223	12	244
FMG-C-665CCE5	261	143	173	∅ 65	80	∅ 65	124	211	344	646	223	12	244

## Installation considerations

- 1、 Check the appearance of the pump for any damage caused by any transport process.
- 2、 The rotating motor cools the fan and the fan should be easily rotated.If the fan is working,feel the fan tight or abnormal, the pump may be damaged during transportation.
- 3、 If the pump has any damage, contact the freight company or the relevant business personnel of the company immediately.
- 4、 Each pump has a special nameplate, marking the pump's MODEL, manufacturing number, lift, flow and motor power, voltage and frequency, check its data to ensure that it meets your order and use.
- 5、 Check whether the fasteners are firmly in place.

## Special remind

### Idling

- 1、 The magnetic pump transport the liquid as the internal cooling medium,So idling caused a sharp rise in temperature,to reach the dangerous stage of serious damage to the pump.
- 2、 If there is a idling,turn off the pump immediately, before the water enters the pump, let it cool at least an hour, be careful not to let the pump cool fast, otherwise, the internal parts may be damaged.
- 3、 It is suggested that the air rotation protector be used to detect the occurrence of the idling,to avoid unnecessary damage to the pump.

## Operation temperature

- 1、 Operating temperature may change the viscosity, vapor pressure and corrosion of the liquid. Please ensure that your pump operates within the proper temperature range.
- 2、 The chemical liquid temperature range is 5 °C to 80 °C , depends on the nature of the chemical liquid medicine, please contact with the company relevant personnel to confirm the medium temperature range.

### Concentration, viscosity and gravity

- 1、 The concentration of liquid changes will affects the viscosity and specific gravity of liquid , or other physical characteristics such as corrosiveness, so the selected pump body material should be able to withstand the corresponding characteristics of the liquid.
- 2、 When liquid viscosity or gravity is different from water, shaft power, flow rate and lift may change accordingly.
- 3、 The conveyed liquid contains small particles or precipitates.The service life of the pump is shortened, and its service life depends on the particle concentration, size and hardness.
- 4、 The medium adsorbed by magnetic bodies is strictly prohibited.

## ● OPERATION INSTRUCTION

### Considerations of Before starting

- 1、 Check motor power, including frequency, voltage range and wiring.
- 2、 Re-check to confirm that all parts (flange, base, etc.) are securely fixed.
- 3、 Fill the pump with liquid to remove any air from the pump and inlet piping.
- 4、 Check to ensure inlet valve is open.
- 5、 Check whether the bolts are installed, the power cord and plug are in good condition, and ensure that the motor wire is in good contact.
- 6、 Check whether the storage fluid inside the pump is higher than the impeller. It is absolutely forbidden to start the water pump without the water, otherwise it will burn the mechanical sealing part of the pump.

### Considerations of Before starting pum

- 1、 After rule out the air of the pump,quickly open and turn off the power to check the rotation direction of the motor.
- 2、 Turn off the exit valve and start the pump.
- 3、 When the motor reaches a stable speed, open the outlet valve slowly and adjust the outlet valve to obtain the desired operating pressure and flow.
- 4、 When closing the exit valve, the outlet pressure should increase, if the pressure does not increase, or the pressure is too low, close the pump and check the piping and wiring.

### Considerations of on/off pump

- 1、 Lowly close the exit valve to prevent damage to the pump due to liquid reflux
- 2、 2、 The pump should be checked regularly, if the pump should be in the low temperature operating environment (relative to the freezing point of the liquid), to avoid crystallization, should be in the piping system equipped with discharge head or using heating system , in order to keep temperature during downtime.

## ● MAINTENANCE

### Routine inspection

- 1、 Check the oxidation or corrosion of the front cover, the stand and the base.
- 2、 Check the leakage of pump and piping system.
- 3、 Check irregular sound and vibration.
- 4、 Check the liquid height and inlet and outlet pressure in the tank.
- 5、 Check the power supply and motor load.
- 6、 Check and run the pump regularly to ensure the normal operation of the pump

Regular maintenance

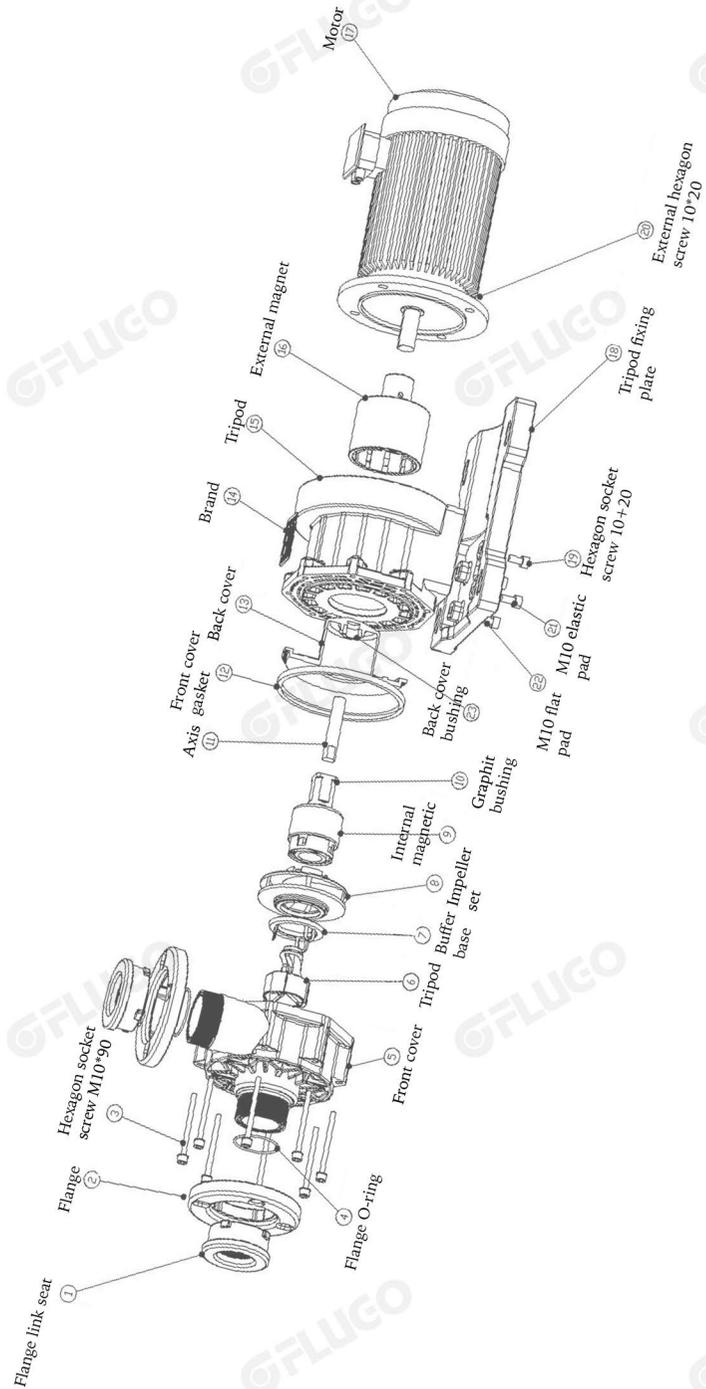
Parts Name	The cause of the problem	Troubleshooting method
Pump head	Crack	Contact the relevant personnel of the company
	Scratch (In addition to transporting liquid containing particles)	Contact the relevant personnel of the company
	Crystallization or precipitation	Clean
	Deformation of shaft support	Contact the relevant personnel of the company
O ring	Deformation, corrosion, or swelling	Replacement
Impeller & Magnet	Scratch or Crack	Contact the relevant personnel of the company
	Bearing rupture or crystallization	Contact the relevant personnel of the company
	Bearing wear or tear marks	If serious wear is replaced
	Crystallization and other precipitates	Clean
	Impurities stuck in the impeller	Remove the impurities
	Impeller deformation	Contact the relevant personnel of the company

● CAUSES AND METHODS OF TROUBLESHOOTING

Fault condition	The cause of the problem	Troubleshooting method
The pump does not discharge water	Air in the pump	The pump is filled with liquid
	Inlet pipe blockage	Dredge the import pipe
	Pump reversal	Change the wiring of the motor
	High suction range	Adjust the pump installation position
	The magnet fell off	Reducing motor starting torque or switching magnet
	No power supply	Check the power supply
	Unreasonable pipeline configuration	Adjusting line

Insufficient flow	The suction pipe is too small	Change the inlet pipe	
	Pipe and impeller blocking and scaling	Thorough cleaning	
	Outlet valve closure	Open large outlet valve	
	The speed is too low	Restore the fixed speed	
	The entrance valve is not fully found and opened	Open the valve completely	
	Turning error	Change the phase sequence of two wiring	
	Non-conformity of pump specification	Replacing the pump with the specifications	
Low lift	Excessive flow	Shut off valve	
	The speed is too low	Restore the fixed speed	
	Turning error	Change the phase sequence of two wiring	
	Non-conformity of pump specification	Replacing the pump with the specifications	
	Axis sleeve and bearing wear	Replacement of axis sleeve and bearing	
Too much noise	Cavitation erosion in the pump	Adjust the pump installation position	
	Rear cover and magnet rubbing	Removal of pump head and reinstall	
	Disappearance of magnetic force	Replacement of a magnetic pair	
Demagnetization	Liquid density or viscosity is too high	Reduce impeller size	
	The voltage is too high	Reduce impeller size	
	Improper combination of magnetic pairs	Replace the correct magnetic couple	
	Turning error	Change the phase sequence of two wiring	
	Improper selection of pump	Pipeline recalculation	
	Pump overheating or fusion	The exhaust action is not actually executed	Do the exhaust action
		Cavitation	Pipeline recalculation
Pipeline blocking		Remove impurities	
Liquid draining causes idling		Adjust the minimum level of liquid level	

● **PRODUCT DECOMPOSITION DIAGRAM**  
**FMG Series**



**Quality assurance card**

Product name		Product model	
Date of production		Inspector	
Maintenance personnel		Maintenance date	
Maintenance personnel		Maintenance date	
Maintenance personnel		Maintenance date	

Motor model :

Pump model :

**Quality assurance card**

Respected users :

Thank you for you using our brand chemical pump and filter. The product design principle of our company is completely according to the national standard/ It has strict quality management, qualified quality and good performance. In order to make you more satisfied with our service, please read the instructions carefully and keep this quality assurance card properly.

**Quality assurance matters :**

1. Quality assurance period : Within a year after the sale.
  2. Please preserve quality assurance card well, please show the certificate of quality as voucher when it is necessary to repair.
  3. During the warranty period, due to malfunction of the following circumstances, our company will charge part of maintenance cost:
    - A. Without our permission any damage by your disassemble
    - B. The product is damaged by inadvertent or incorrect use or not used according to operation manual.
    - C. Damaged caused by an irresistible disaster caused by a natural disaster or a change of earth,
  4. This quality assurance card does not contain other accessories and consumables.
  - D. This quality guarantee is valid after the sealed.
- If there is any doubt about our company's products, please contact each dealer or our company.