

**Horizontal Multistage variable Frequency Pump
Operation Instruction**



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一. Product Description

1.1 Product Features

(1) Closed-loop constant pressure automatic water supply can be realized, and the pressure is set according to the user's requirement.

(2) Automatic energy-saving operation: the pump automatically adjusts the speed according to the user's water consumption to ensure stable system pressure and save water and electricity.

(3) Protection function: stall control, water shortage protection, high pressure alarm and other protection functions.

(4) When no one is using water, the pump can be controlled to stop and when someone is using water it can be automatically started to resume constant pressure water supply.

(5) Self-starting function in case of power failure: it can automatically start and restore the constant pressure water supply after power supply

(6) Simple installation and operation, low noise.

1.2 Application Fields

The pump is suitable for conveying drinking water, hot water, condensate, etc. The main application areas include water supply system, boiler water supply system, cooling water system, etc. If the conveying medium is corrosive, please consult with the service center in advance.

1.3 Working Conditions

- (1) Installation environment: the product is for indoor use, if it is installed outdoors, you should prepare facilities that can protect the product from wind, rain, exposure to sunlight, and low temperature.
- (2) Altitude: less than 1000 meters, more than 1000 meters need to reduce the amount of use, every 100 meters of elevation 1% drop in use.
- (3) Ambient temperature: $-10^{\circ}\text{C}\sim+40^{\circ}\text{C}$
- (4) Medium temperature: $-15^{\circ}\text{C}\sim+110^{\circ}\text{C}$
- (5) Maximum pressure: 7 bar
- (6) Protection Class: IP 42
- (7) Temperature: $\leq 95\% \text{RH}$, no condensation of water droplets

1.4 Electrical Parameters

- (1) Input voltage range: single-phase 220V $\pm 15\%$ / three-phase 380V $\pm 15\%$
- (2) Output voltage range: three-phase 220V / 380V
- (3) Input frequency range: 50Hz $\pm 5\%$:
- (5) Control mode: automatic constant pressure control
- (6) Speed stabilization accuracy: $\pm 10\%$

二. Warning And Safety Precautions

2.1 Warning

Note: Do not splash water or other liquids on the pump.

Do not do pressure test on the controller.

If used incorrectly, the inverter or system may be damaged.

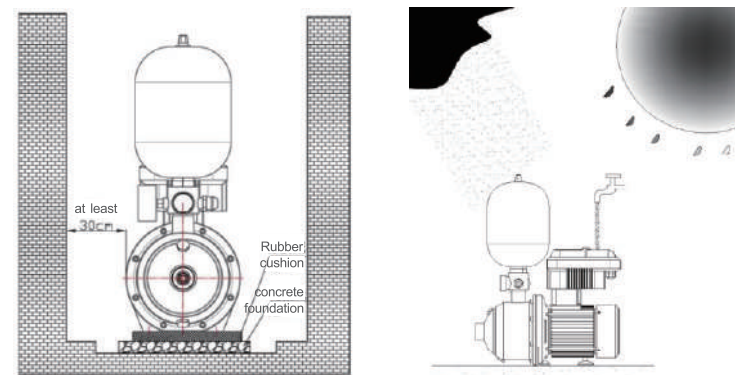
Warning: Do not disassemble or modify, otherwise it may cause electric shock, fire and injury.

Do not open the inverter panel while power is on

Wiring must be carried out by qualified electrical professionals and in accordance with electrical regulations.

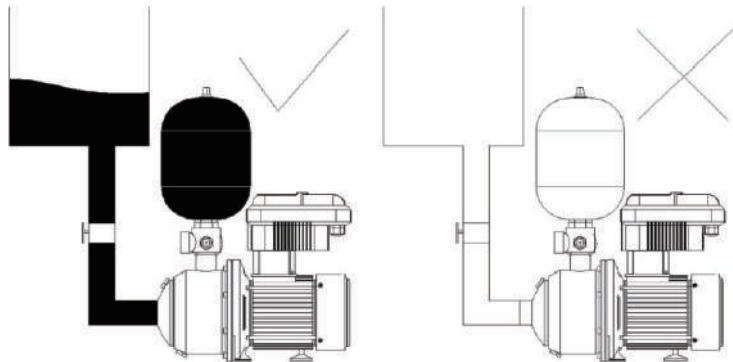
2.2 Safety Precautions

- (1) As shown in the figure below. Installation of the pump, for maintenance, servicing and ventilation, requires a minimum space of 30cm Bolt the pump to the shock absorber to reduce vibration.

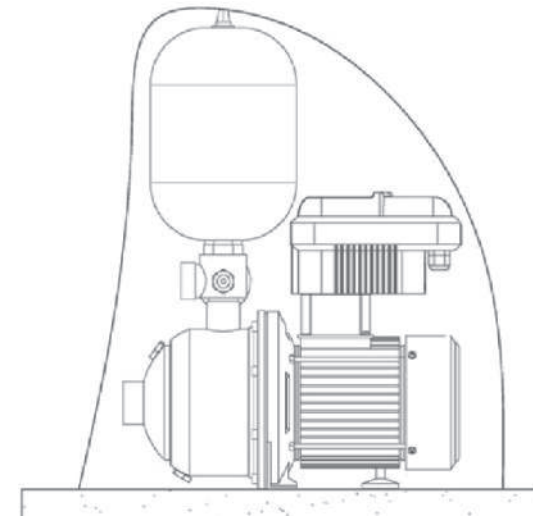


(2) The installation as shown above is wrong. Please do not expose the product directly to rain or sunlight outdoors, otherwise it will shorten the life of the pump, inverter and motor. The inverter and motor should be kept away from the humid environment, otherwise leakage or other failures may occur.

(3) As shown in the diagram on the right, the pump can only be operated when there is water in the pressure tank or pump, and when the outlet valve and inlet valve are open, otherwise it cannot be operated for a long time, which will damage the pump.



(4) As shown in the figure, do not cover the pump with fabric, wrapping paper, etc. to keep warm, otherwise the motor and inverter cannot dissipate heat and may cause fire.



(5) As shown in the picture on the above. The input power should be rated voltage (220V /380V± 10%), grounded, and cut off the power when the pump is installed, moved, repaired and not used for a long time.

(6) When cleaning the pump, please use water, not alcohol, gasoline, etc.

(7) Please do not touch during operation to prevent burns.

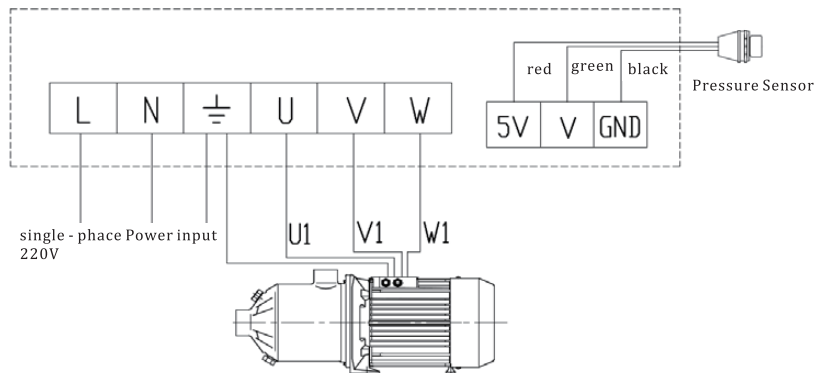
三. Product Specifications And Performance

3.1 Specification

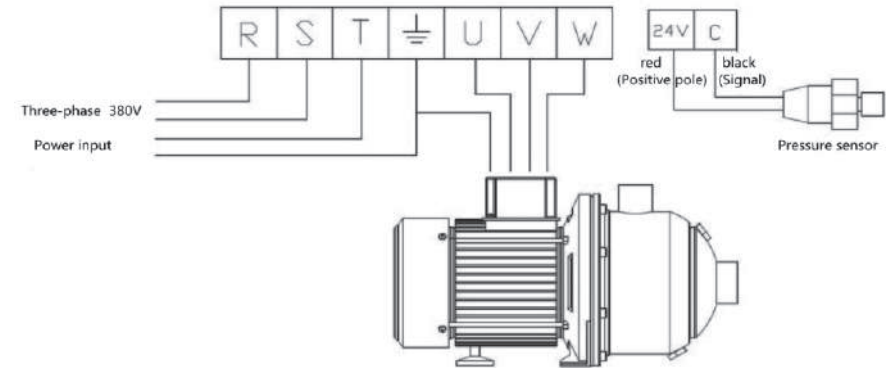
Model Specification	F-MHI 202Q	F-MHI 203Q	F-MHI 403Q	F-MHI 404Q	F-MHI 405Q	F-MHI 803Q	F-MHI 804Q	F-MHI 805Q	F-MHI 1603Q
Power supply	Input: single - phase 220V/50HZ Output: Three - phase 220V/50HZ								
Input power (kw)	0.55	0.75	0.75	0.98	1.35	1.35	1.8	2.2	2.2
Output power (kw)	0.37	0.55	0.55	0.75	1.1	1.1	1.5	1.85	1.85
Max.head (m)	22	33	33	42	57	35	48	59	36
Max.flow (m ³ /h)	5	5	8	8	8	12	12	12	26
Inlet	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	2"
Outlet	1"	1"	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/2"

3.2 Wiring diagram

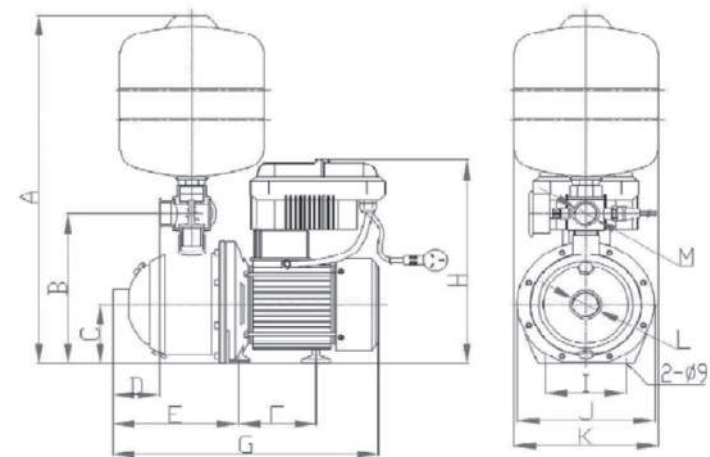
o Single-phase input inverter



o Three-phase input inverter



3.3 Installation

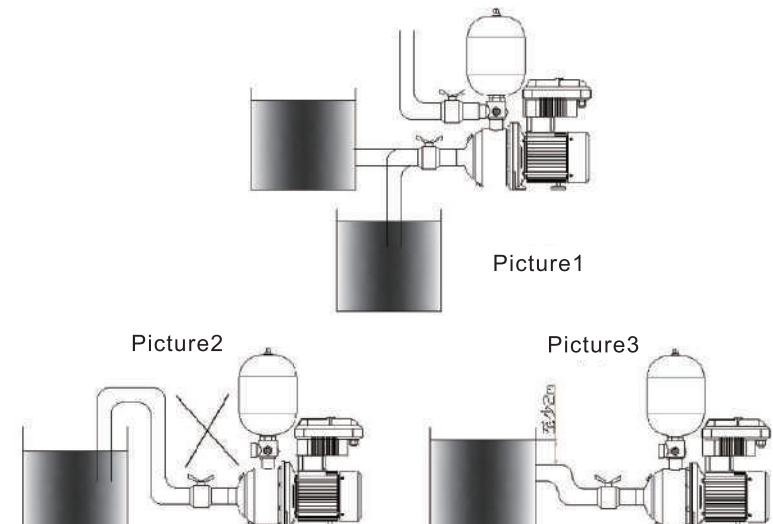


Model	A	B	C	D	E	F	G	H	I	J	K
F-MHI202Q	525	225	90	64.5	205	88	375	308	108	Φ190	200
F-MHI203Q	525	225	90	64.5	205	88	375	308	108	Φ190	200
F-MHI403Q	525	225	90	64.5	205	88	375	308	108	Φ190	200
F-MHI404Q	525	225	90	101	253	88	426	308	108	Φ190	200
F-MHI405Q	525	225	90	101	253	100	450	316	108	Φ190	200
F-MHI803Q	565	226.5	90	76.5	217	100	410	316	108	Φ190	200
F-MHI804Q	570	228	90	137	275	120	511	331	108	Φ190	200
F-MHI805Q	570	228	90	137	275	120	511	331	108	Φ190	200
F-MHI1603Q	570	228	90	89.5	231	120	432	340	108	Φ190	200

四. Product Installation

This product is for indoor use. If it is installed outdoors, measures should be taken to prevent rain and sun exposure.

As shown in Figures 1 and 3, the water inlet position should meet the pressure requirements. The height of the water inlet should be more than two meters higher than the center of the water pump; if the pump is filled with air, the water pump seals will leak due to friction and overheating. The air must be discharged after cleaning the water tank. Figure 2 shows the wrong installation method.



五. Operation Guide

5.1 Operation Interface

5.1.1 The operation interface is shown in the figure

5.1.2 Indicator light description



Manual	Constant light: manual operation without constant pressure control
Automatic	Constant light: automatic operation for constant pressure control
Run	Constant light: running; blinking: sleeping
Stop	Constant light: stop

Pressure	Press "+/-" during operation, the pressure can be changed when the light is always on
Low Flow	Constant light: Water shortage protection
Upward	Constant light: up boost model
Downward	Constant light: down boost model
Timing	Constant light: cyclic operation with U3-54 and U3-55 set times

5.1.3 Button description

Model	Long press for three seconds to enter menu mode, short press to switch between "up boost", "down boost" and "timing" modes
Menu	Transfer from fixed mode to parameter setting mode
+ / -	Setting parameter values and pressure values
Shift	<ol style="list-style-type: none"> 1、Display the content and modify the parameters when moving the cursor 2、State press "shift" key to switch back and forth between output voltage, inverter temperature, set pressure / feedback pressure 3、Parameters press "shift" key when the flashing bit is the current modifiable bit.
Run/ Stop	Inverter start, stop, fault reset button
Automatic/ Manual	<ol style="list-style-type: none"> 1. When the non-menu mode stops, it is manual and automatic switch key 2. It is the confirm key in the menu mode
Press the Shift key and OK (Auto/Manual) key simultaneously to restore the original factory settings	

5.2 Quick Commissioning Parameter Design

Pressure up or down: (inverter can be changed in running state), press the +/- key to change directly. No need to press the confirmation key after changing, it will be saved automatically	
U0-01(Start pump pressure value) Factory default U0-01 Parameters can be changed in standby and operation	
Step 1	Press menu button for 3 seconds to enter the menu and then press e confirm button
Step 2	Press press-up or press-down button to enter U0-01 then press confirm button
Step 3	Press press-up or press-down button to select the appropriate start pump pressure value and press confirm button
Note	The start pump pressure value should be lower than the setting value.If the start pump pressure is higher than the setting value,the pump will continue to run when the user does not use water,which will lead damage of the pump
U0-02(Running direction) Factory default U0-02=0 Parameters can be changed in standby and operation	
Step 1	Press menu button for 3 seconds to enter the menu and then press e confirm button
Step 2	Press press-up or press-down button to enter U0-02 then press confirm button
Step 3	Press press-up or press-down button to select the running direction then press confirm button
Note	Please pay attention to the rotation direction of the pump after installation, if reversed, adjust the parameter

5.3 Parameter table

Note: "o": indicates that the set value of this parameter can be changed in the running or standby state.

"●": indicates that the set value of the parameter can not be changed in the running state of the pump

U0 Basic function parameter group						
Code	Description	Range	Unit	Factory default	Modification	note
U0-00	Pressure setting	0.5-60	Bar	Appendix 1	o	
U0-01	Start pump pressure value	0 - U0-00	Bar	Appendix 1	o	
U0-02	Running direction	0: Forward rotation 1: Reverse rotation 2: forbidde		0	o	
U0-03	Sensor Feedback	0: (1-10) 1: (4-20) 2: (0-5) 3: (0.5-4.5)	V mA V V	3	●	
U0-04	Sensor range	0.0-60.0	Bar	10.0	o	
U0-08	Dormancy frequency	0-100Hz	Hz	30.00	●	
U0-11	Power-on memory reboot option	0: fail 1: work		1	o	
U0-15	Maximum frequency	5.0-200	Hz		●	
U0-16	Upper limit frequency	5.0-200	Hz		●	

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U0-17	lower limit frequency	5.00-50	Hz		•	
U1 parameter group						
Code	Description	Range	Unit	Factory default	Modification	note
U1-00	Water shortage test	0: NO 1: Current 2: Pressure 3: Current and Pressure 4: Water shortage terminals		3		
U1-01	Water shortage detection pressure	0-60.0	Bar	0.5	○	
U1-02	Water shortage detection frequency	0.00-100.0	Hz	45	○	
U1-03	Water shortage detection delay time	0.1-999.9	S	50	○	
U1-04	Water shortage detection current value	Model	A		○	
U1-05	High voltage alarm setting	0-60.0	Bar	15	○	
U1-06	High voltage alarm detection time	0.0-200.0	S	3.0	○	

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U1-07	Low voltage alarm setting	0-60.0	Bar	0.5	○	
U1-08	Low voltage alarm detection time	0.0-6000.0	S	60.0	○	
U3 Advanced parameter groups						
U3-54	Timing mode Running time	0-60000	Min		•	
U3-55	Timing mode Stop time	0-60000	Min		•	

六. Common Alarm Codes And Solutions

Code	Description	Reasons	Solutions
A-01	Water shortage protection	1. Water shortage in the inlet pipe or insufficient water supply to the inlet pipe 2. Inverter power is higher than the pump power, the pressure is lower than 0.5Bar3. U1-01 setting is too high,	1. Check if there is water or blockage in the water inlet pipe and solve it 2. When the inverter power is higher than the pump power, change U1-00 to 2 3. Lowers U1-01 protection value -
A-02	High water pressure protection	1. The actual water pressure is higher than 15Bar 2. Sensor failure, inverter displays more than 15Bar	1. Turn up U1-06 high pressure alarm pressure value 2. Replace the sensor

A-03	Low water pressure protection	<ol style="list-style-type: none"> 1. The water pressure is lower than 0.5Bar when the pump is working normally 2. Water pressure is lower than 0.5Bar when the pump is reversed 3. Water consumption is higher than the pump flow 4. UI-08 setting is too high - 	<ol style="list-style-type: none"> 1. Exclude the air inside the pump 2. Adjust the pump running direction 3. Replace the high flow pump or reduce the water consumption 4. Lower UI-08 protection value
A-04	Low current protection	<ol style="list-style-type: none"> 1. Water shortage in the inlet pipe or insufficient water supply to the inlet pipe 2. Inverter power is higher than the pump power setting is too high 	<ol style="list-style-type: none"> 1. Check if there is water or blockage in the water inlet pipe and solve it 2. When the inverter power is higher than the pump power, change U1-00 to 2 3. Lowers U1-04 current protection value

