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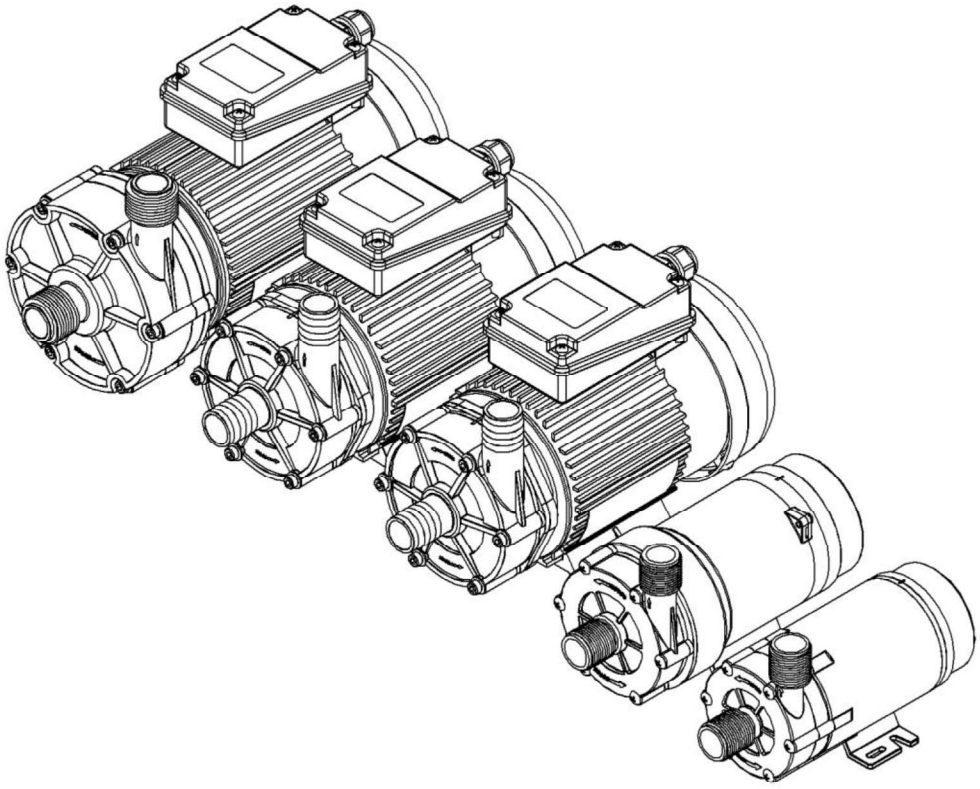
YANGTECH®

MDCP-HIGH-PERFORMANCE MAGNETIC DRIVE CENTRIFUGE PUMP

MDCP-25/60/100/160/250

CE IP54/64



INSTALLATION / OPERATION MANUAL

創裕實業股份有限公司

YANGTECH TECHNOLOGY CO., LTD (Taiwan)

YANGTECH

MDCP-High-performance Magnetic Drive Centrifuge Pump
MDCP-25/60/100/160/250
Installation / Operation Manual

A. Features

Thank you for your wise choice-purchase our company MDCP-series magnetic drive centrifuge pump. MDCP-series pumps have the following excellent characteristics, and can be widely used in automated processes such as chemical liquid pumping/distribution/pressurization/filtration/mixing in various industries：

- Complies with the CE regulations, manufacturing quality management meets ISO9001 quality standards.
- Diversified materials of wetted parts and muti-input/output connection types can meet more applications.
- All SUS304 stainless steel external screws.
- The motors are F insulation class and have temperature protection function, these make durable and safe motors.
- High protection grade IP54/64 waterproof and dustproof, suitable for outdoor installation.
- Lightweight and high transmission efficiency to obtain more flow and head.
- High-grade component materials for a quieter, power-saving and durable experience.
- The design of the easy disassembly of the head end should be easier to repair or maintain.
- Magnetic drive design, no drive shaft, so there is no leakage problem for long-term use.
- Provide the most various voltage specifications, suitable for various voltage applications.
- Complete spare parts inventory, fast maintenance services, these make no worries in useage.

B. Cautions

Failure to install or operate the pump in accordance with this manual may result in equipment failure or personal injury!

- Please read this manual thoroughly before installing and operating.
- This pump should be installed indoors and in a place with good ventilation and heat dissipation (ambient temperature 2~40℃). High temperature, high humidity or corrosive gas should be avoided.
- This pump can be installed for outdoor use, but outdoor installation can effectively increase the life of the pump if it is covered.
- This product is not explosion-proof. Do not use it in an environment where gas/dust explosion may be caused by electrical sparks.
- Be sure to confirm the power supply meets motor’ s power spec before connecting the power.
- Before connecting to the pipeline, make sure that the pipeline has been emptied (no pressure/ no liquid) to avoid danger.
- Do not exceed the specified operating pressure and fluid viscosity/temperature limits when operating this pump.
- Solvents, high concentrations of acids and bases, high oxidizability, high temperature, thick or high

specific gravity fluids may not be suitable for use. Before purchasing, you should ask for the product with the correct specifications. Otherwise, the life of the pump chould be much shortened.

- Wear chemical safety gloves and protective masks before maintaining the pump.
- Please do not modify pump by yourself. This pump has no design of user’ s modification.

C. MODEL CODE

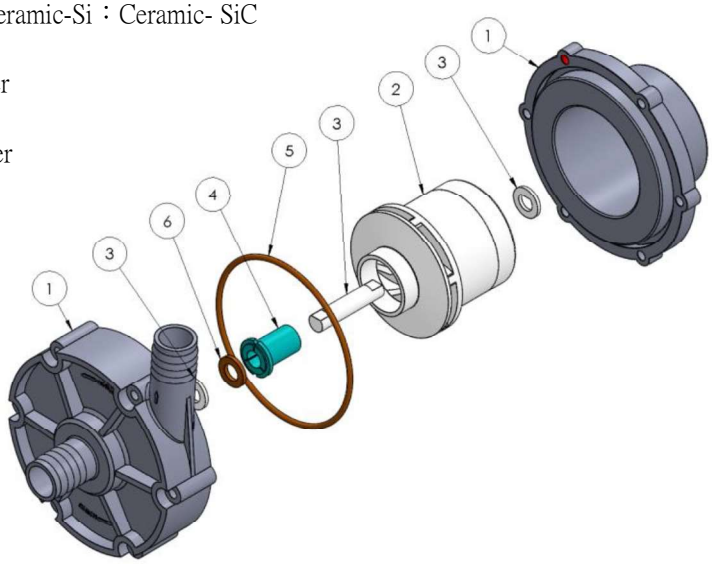
MDCP-160-22 1-H-GCFVF
A B C D E F

A= Series Code	(Pump Series)
B= Output Power	(25=25W, 60=60W, 100=100W, 160=160W ,250=250W)
C= Power Code	(10=100V, 11=110V, 20=200V, 22=220V, 23=230-240V, 8=380V)
D= Phase of Motor	(1= φ 1 1-Phase , 3= φ 3 3-Phase)
E= Joint Code	(H= Hose , U= Union , F= Flange)
F= Material Code	(5 English letters, Refer table below for detail)

Parts Code	Material Code
① Pump Head	G-(GFRPP) / P-(PP) / V-(PVDF) / F-(CFRETFE)
② Propeller	
③ Axis/Axis Gasket	C-(Ceramic-$Al_2O_{3)}$ / S-(CSi)
④ Bush	F-(PTFE) / C-(Carbon)/ A-(Ceramic) / S-(CSi)
⑤ O-ring	V-(FKM) / E-(EPDM) / F-(FFKM) / A-(AFLAS)
⑥ Gasket	F-(PTFE) / R-(Rulon)

***In order to suit variant liquids, the material of the pump head parts (contact the liquid) in the above table needs to be selected correctly**

GFRPP：Glass Fiber Reinforce Polypropylene PP: Polypropylene
CFRETFE：Carbon Fiber reinforce ETFE
PVDF: Polytetrafluoro ethylene
Ceramic-Al：Ceramic- Al_2O_3 Ceramic-Si：Ceramic- SiC
FKM：Fluoro Rubber
FFKM: perfluoro-elastomers Rubber
AFLAS:FEPM
EPDM：Ethylene Propylene Rubber



D. PACKING/ CONTENTS

- Packing Sizes：

Model	Package Size	Net Weight (Kg)	Packing Weight (Kg)
MDCP-25/60	L260mm*W120mm*H140mm (3-layrs Corrugated box)	1.9 / 3.0	2.3/ 3.4
MDCP-100/160/250	L350mm*W150mm*H200mm (3-layrs Corrugated box)	4.9 /5.5 /8.1	5.4 /6.1/ 8.7

- Accessories: ：

ITEM	CONTENTS/ACCESSORY	-H	-U	-F
1.	Pump *1	S	S	S
2.	Screw set (SUS304 Screw/Nut*2+Washer*4) *1	S	S	S
3.	Manual *1	S	S	S
4.	Pipe union +union cover +Gasket *2	-	S	S
5.	Hose	O	-	-
6.	PVC/ PTFE (coating) Flange	-	-	S

S : Standard O:Optional -: No demand or not applicable

(After unboxing, please confirm the specifications and quantity of contents are correct, if there is any loss or defect, please contact the purchase dealer to add/replace)

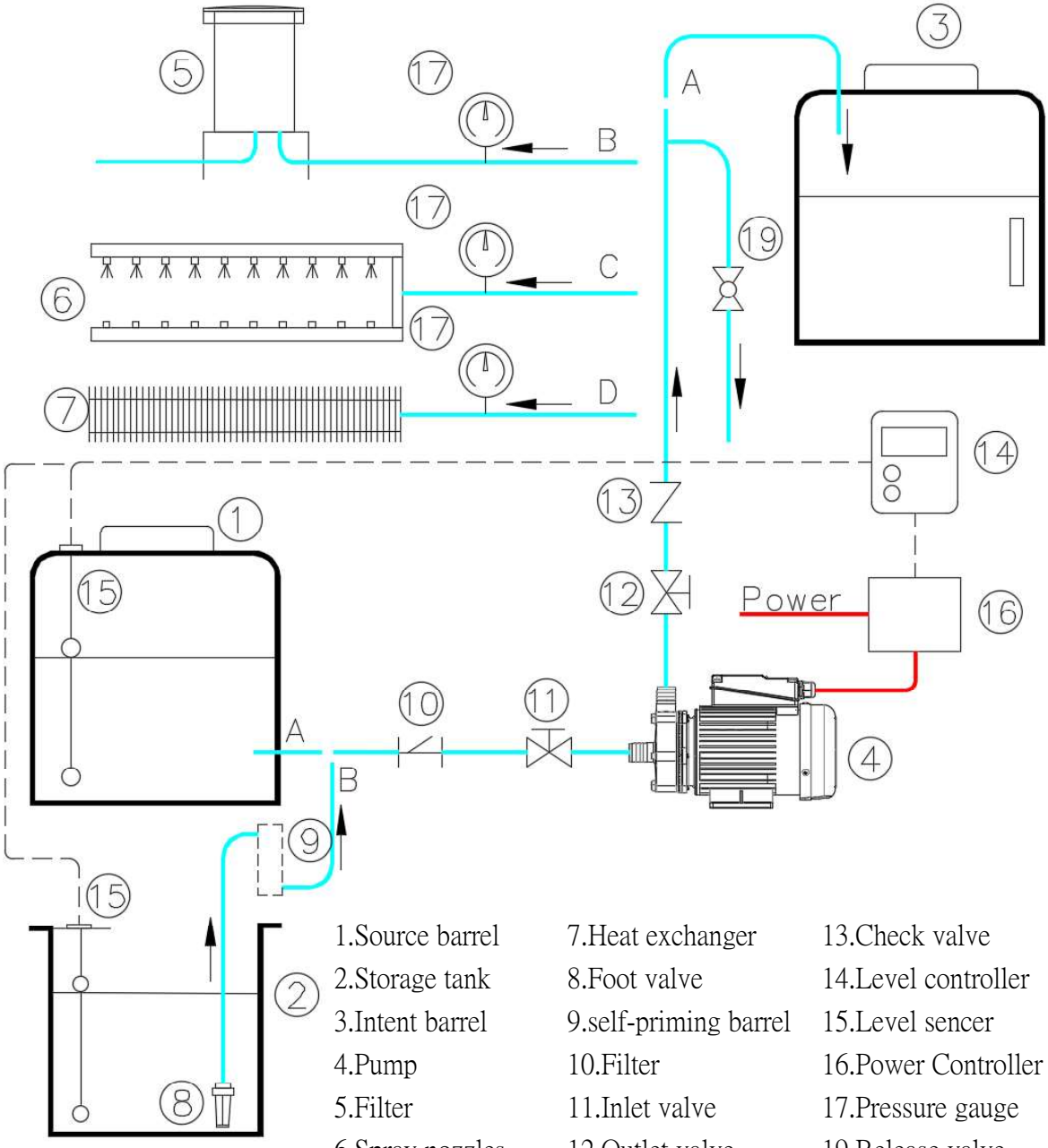
E. INSTALLATION

- Notes when install：

1. Installation position should be ventilated/ bright/ no high temperature, and the pump base needs to be level/ stable and tighten the fixing screws. For the size of the pump base, please refer to the specification table (page10).
2. Try not to install the pump outdoors, please give proper shielding when outdoor installation, this can effectively extend life of pump.
3. Since this pump does not have a self-priming function. The pump installation position needs to be lower than the minimum liquid level of the chemical, so that the liquid in the barrel can reach the pump by gravity. This arrangement can avoid damages of head end parts (Shaft and shaft bush).
4. Make sure the power supply and wiring methods are correct before powering on (follow the instructions on the pump).
5. The suction pipe diameter of the pump should be equal to or greater than the output pipe diameter.
6. Switching valves should be installed near the suction and output ends of the pump to isolate the pipeline liquid during maintenance or disassembly.
7. The specific gravity and viscosity of the liquid should not exceed the specifications of the pump, these prevent overheat of the motor.

8. No magnetic particles (including iron, nickel metal) or hard particles or liquids which easily generate gas (such as hydrogen peroxide, etc.) are allowed in the liquid.
9. A filter should be installed on the input line (or inside the tank) to avoid from damage of the pump cause by impurities.
10. If there is pressure at the outlet pipeline, such as a filter, nozzle, etc., please install an outlet pressure gauge to monitor the pressure, when the pressure is too high, the filter or nozzle should be cleaned/replaced. High pressure operation damages pump.
11. Please install a check valve in the outlet pipeline to avoid the backflow of liquid.
12. The following equipment may be added to the inlet and outlet pipelines when necessary:
    A. Import and export valves 11,12: Provide the function of stopping the liquid in the source barrel and output pipeline before maintenance, which provide convenient for maintenance.
    B. Pressure gauge 17: Monitor the pressure of the outlet pipeline and evaluate the blocking state of the filter or nozzle which at the end of the pipeline. If there is electric control device, it can be set to stop pump automatically when the pressure is over high.
    C. Pressure relief valve(safety valve)19: When the outlet pipeline is higher than the set pressure, it automatically opens the valve to protect the pipeline and the pump.
    D. Filter 8,10: To ensure the cleanliness of the chemical liquid and to protect the pump.
    E. Check valve 13: Please install it within 1.0m of the outlet end to prevent the back of the liquid when the pump stops.
    F. Bottom valve/self-priming barrel 8,9: When the pump stop for a longer time , the liquid in the inlet line may back flow cause by the gravity which makes the inlet line becomes vacuum. This causing pumping failure next time. These devices improve these situations.
13. Before starting, make sure that the head end of the water pump and the water inlet pipe are filled with liquid, otherwise the pump will not work and will be easily damaged.
14. The rated flow of the pump is about 70-80% of the maximum flow. Frequent pump output exceeding the rated flow will increase the working current of the pump and increase the temperature of the motor. Therefore, if the head is very low and a large flow is not required, a valve can be installed in the outlet pipeline to adjust to an appropriate flow output (not less than 20% of the maximum flow), which can save energy and reduce the motor temperature.

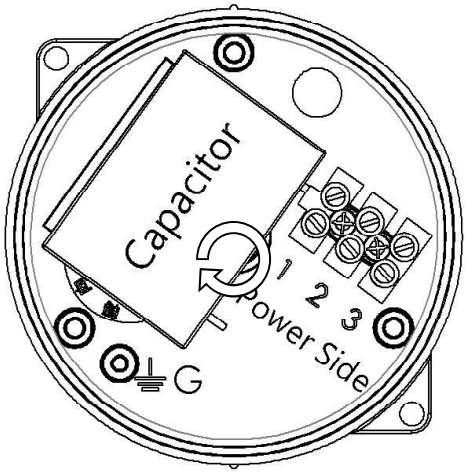
● THE PIPELINE AND EQUIPMENT SYSTEM CONFIGURATION DIAGRAM:



1.Source barrel	7.Heat exchanger	13.Check valve
2.Storage tank	8.Foot valve	14.Level controller
3.Intent barrel	9.self-priming barrel	15.Level sencer
4.Pump	10.Filter	16.Power Controller
5.Filter	11.Inlet valve	17.Pressure gauge
6.Spray nozzles	12.Outlet valve	19.Release valve

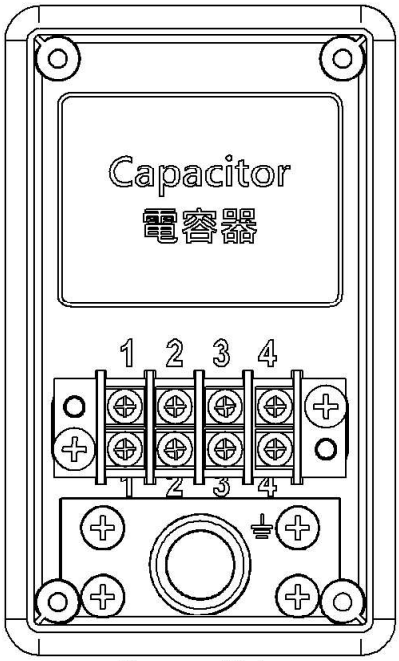
Note: The units shown above should be selected and installed according to the needs, not all units needs to be installed.

● WIRING GUIDE：



Wiring for MDCP-25/60

Power wiring:
Single-phase power supply:
Connect to terminal#1,#3,Ground line to terminal G
Triple-phase power supply:
Connect to terminal#1#2,,#3,Ground line to terminal G
(Check motor turing clockwise)



Power Side

Wiring for MDCP-100/160/250

Power wiring:
Single-phase power supply:
Connect to terminal#1,#3,Ground line to terminal #4
Triple-phase power supply:
Connect to terminal#1,#2,#3,Ground line to terminal #4
(Check motor turing clockwise)

NOTES：

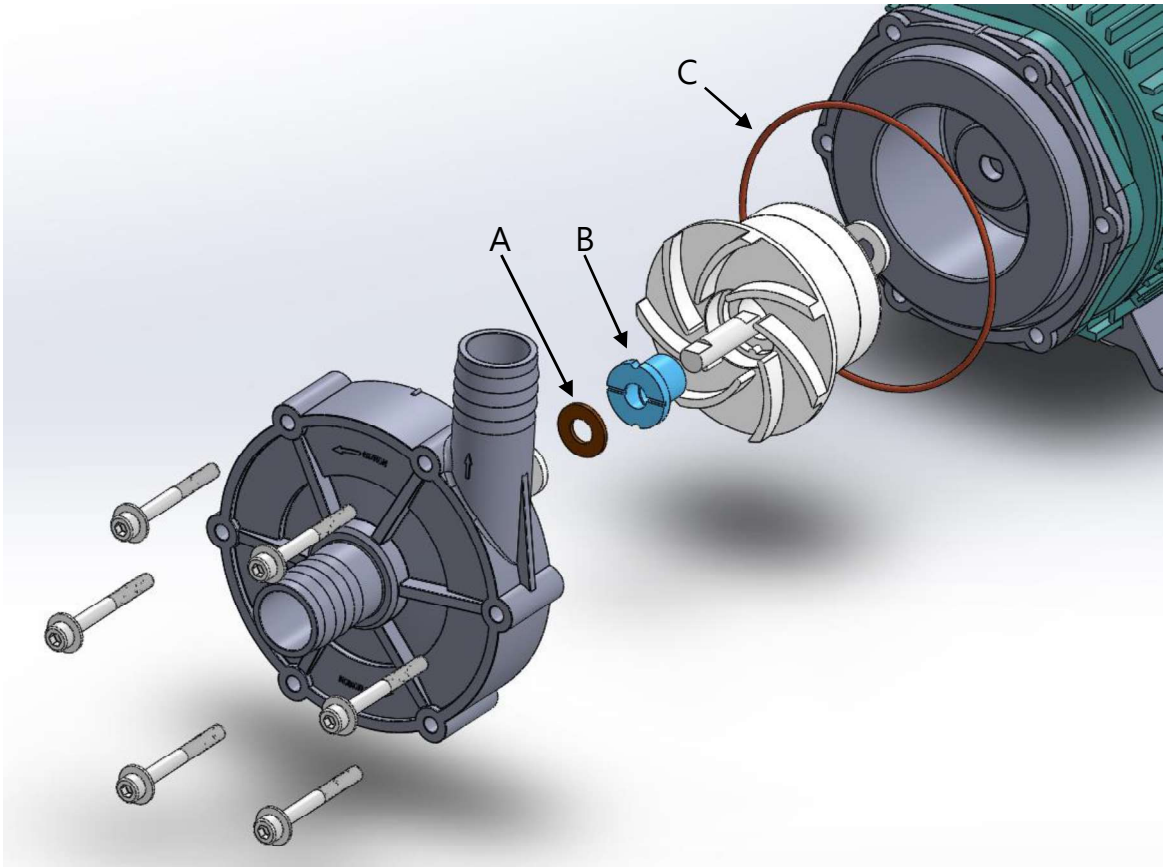
1. Make sure that the power supply is correct before connecting. The ground wire must be connected to the ground terminal to avoid electric shock when electric leakage occurs.
2. MDCP-25/60: For single-phase power, 2 power lines connect to terminals #1, #3. for three-phase power, 3 power lines connect to terminals #1, #2, #3 and confirm motor turning clockwise.
3. MDCP-100/160/250: For single-phase power, 2 power lines connect to terminals #1, #3. For three-phase power, 3 power lines connect to terminals #1, #2, #3 and confirm motor turning clockwise.
4. Applicable cable outer diameter for MDCP-25/60 is 4.5-7.8mm and for MDCP-100/160/250 is 6-10mm.
5. The wire terminals must be firmly fixed. Do not remove the waterproof gasket inside the cover of the junction box. Securely fix the 4 cover locking screws. (The protection grade of the junction box is IP65 waterproof and dustproof, but it must be installed correctly)
6. Confirm the power direction is correct. The rotation of the φ3 and φ1 power motor is clockwise. (φ1 power supply is the default.)

F. COMMON ABNORMAL ANALYSIS TABLE

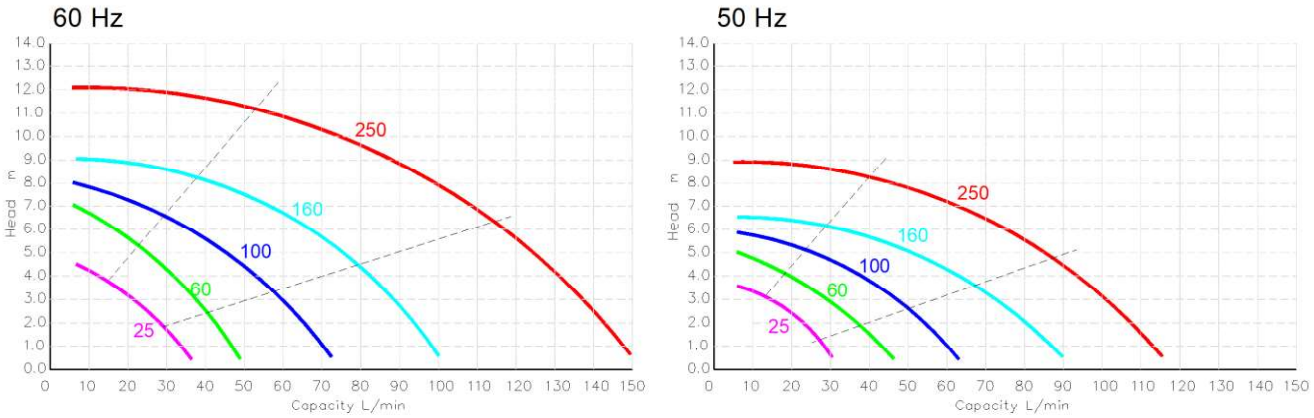
Item	Phenomenon	Possible Causes	Countermeasure
1.	Pump unable to start	Power is not turned on	Turn on the power switch
		Incorrect power wiring	Check power wiring
		The electromagnetic switch is not activated	Check the cause and eliminate
		Active of current protector	Reset protector or replace fuse
		Overheat protection switch action	Check the cause of overheating (Pump will start automatically after cooling down)
		Motor failure	Return to factory and repair
2.	Operating temperature higher than normal temperature above 10˚C)	Fluid viscosity is too high	Reduce fluid viscosity
		The output pipe pressure is too high	Reduce output pipe pressure
		Output line/valve blocked	Remove blockage or open valve
		Incorrect power supply specifications	Correct power specifications
		Continuous operation for a long time	If the overheat protection switch does not active, continue to observe
		High ambient temperature or insufficient ventilation	Improve ambient temperature and ventilation
3.	No pumping output (Become abnormal from normal condition)	No power	Power on
		Input line or bottom valve filter is completely blocked	Remove clogging/ clean filter
		Motor failure	Return factory and repair
		Motor overheating protection action	Check the cause of overheating and wait for cooling
4.	Significantly reduced pumping output (From normal situation to abnormal)	Gas accumulation inside pump head (unstable output)	Identify the source of gas and exclude
		The viscosity of the liquid suddenly increases	Reduce liquid viscosity
		Pipeline leakage at output or input	Fix the leak
		Input line or bottom valve filter is partially blocked	Remove blockages, clean filter
5.	Abnormal noise	Outlet pressure is too high	Check the cause and eliminate
		Gas accumulation inside pump head	Identify the source of gas and exclude
		Blade or blade axis problems	Check/Replaces parts
		Blade shaft/bush wear	Check/Replaces parts
		Motor bearing fault	Replaces faulty bearing
6.	Leakage	Leaking parts is not tightened	Tighten the leaking parts
		Washer/ gasket hardened or deformed	Renew the washer/ gasket
		Gasket is not installed or not installed correctly	Add new gasket or reinstall correctly
		Loose of pump head screws	Tighten the screws

G. MAINTENANCE

- Keep the environment be cool and ventilated during daily operation.
- Please pay attention and clean up, (if there is any leakage) to avoid corrosion of pump parts.
- If the filter or the inlet and outlet joints are blocked, please remove and clean them in the order shown in the exploded view and reassemble them correctly.
- Regularly check whether the cable is undamaged and whether the inlet and outlet joints are leak-free.
- Always check the pump for abnormal sounds, high operating temperature, liquid leakage, etc. and determine the causes of the failure according to the "COMMON ABNORMAL ANALYSIS TABLE" on the previous page and try to eliminate them.
- Regularly check/tighten the fixing screws of the pump and the base to make sure there is no looseness.
- No need to change lubricating oil or gear oil of the pump.
- If you need to replace the internal parts of the pump head, please loosen and pull out 6 sets of fixing screws to disassemble the pump head, and then take out the relevant parts and replace according to the "System exploded views" at page 11,12. (A. Wearing gasket/ B. Bushing/ C. O-ring are all consumables and need to be replaced regularly.)



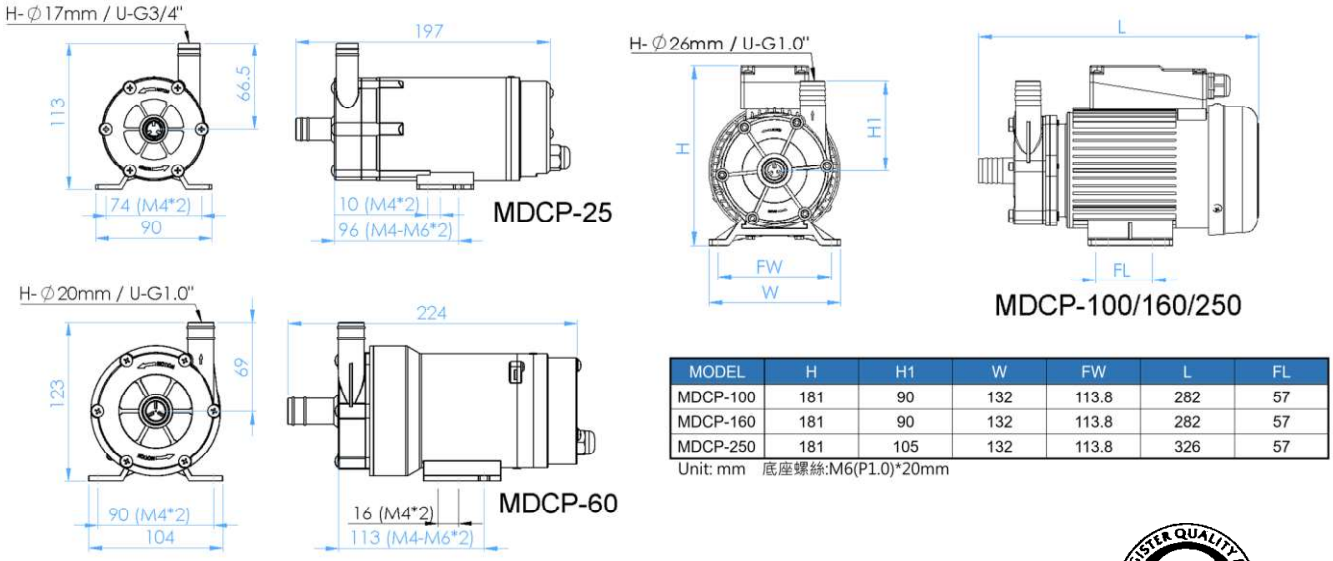
H. PERFORMANCE CURVES



*The dotted line is the recommended operating range. (Please try to operate the pump within the recommended range to achieve higher efficiency and service life.)

**Flow is measured in laboratory with H2O/25°C optimum line conditions. Actual due to liquid concentration/specific gravity/viscosity, and pipeline state will be quite different.

I. DIMENSIONS



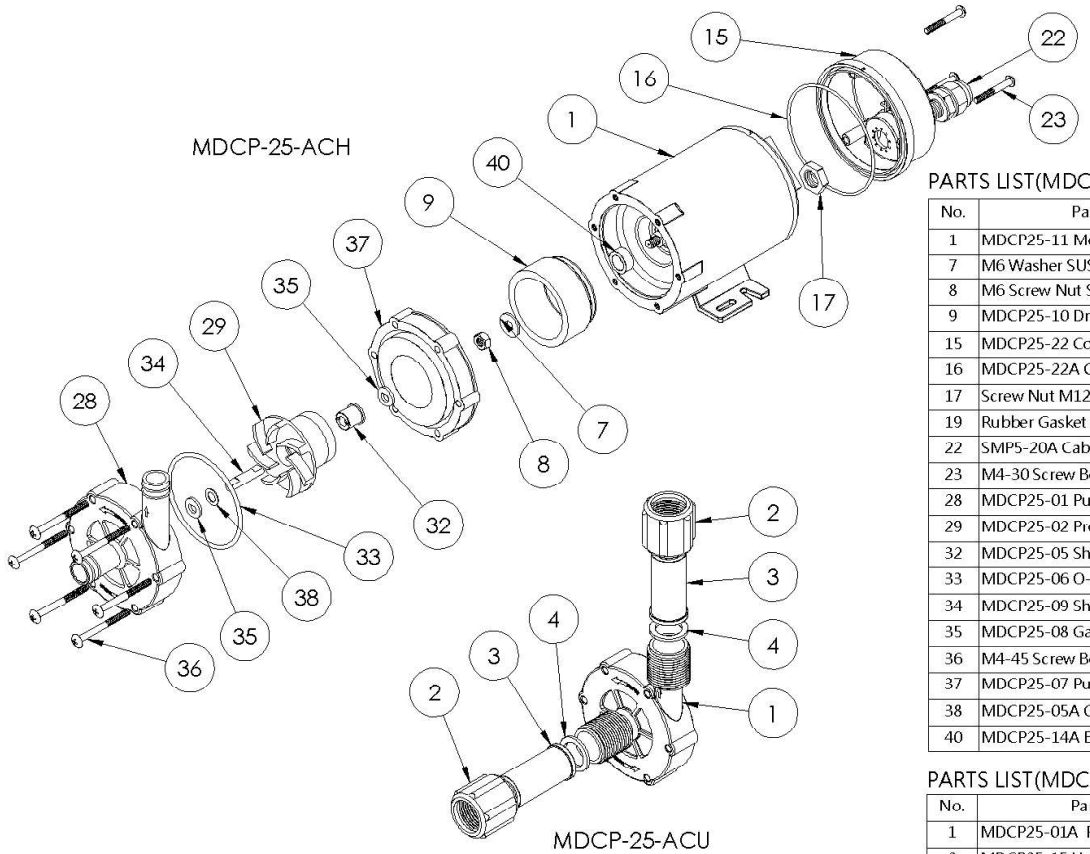
MODEL	H	H1	W	FW	L	FL
MDCP-100	181	90	132	113.8	282	57
MDCP-160	181	90	132	113.8	282	57
MDCP-250	181	105	132	113.8	326	57

Unit: mm 底座螺絲:M6(P1.0)*20mm

*規格表內容若有變更恕不另行通知

The above specifications are subject to change without prior notice.

J. SYSTEM EXPLODED VIEWS



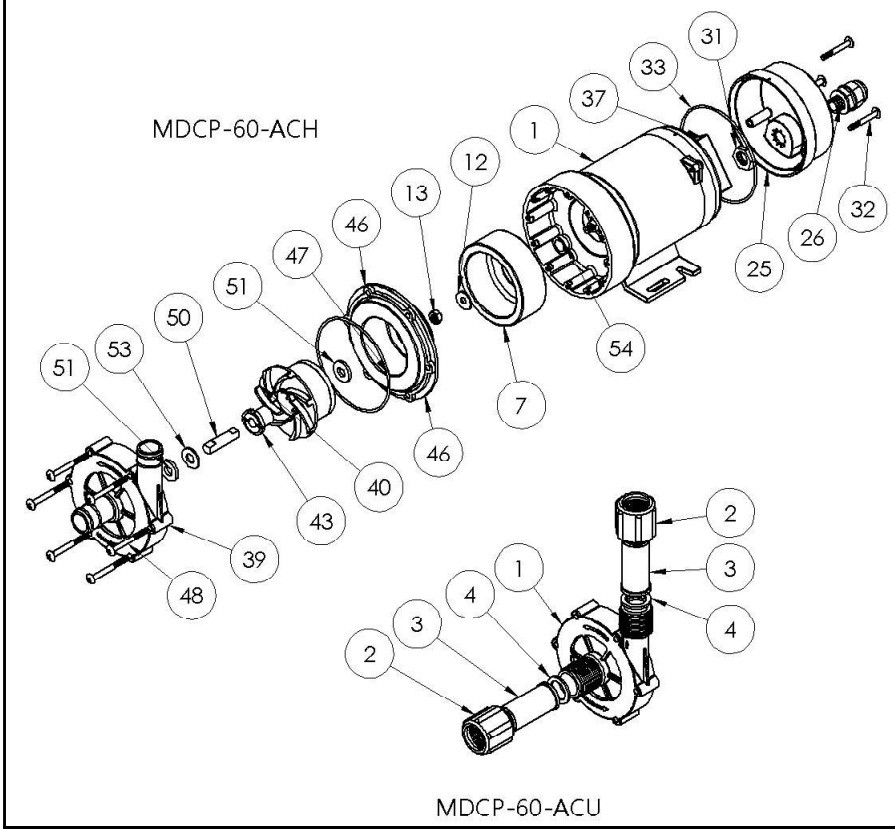
PARTS LIST(MDCP-25-ACH)

No.	Parts Code / Name	Qty.
1	MDCP25-11 Motor ADC-12(A383)	1
7	M6 Washer SUS304	1
8	M6 Screw Nut SUS304	1
9	MDCP25-10 Driving Magnet	1
15	MDCP25-22 Connect Box Cover PP/GF30	1
16	MDCP25-22A Connect Box Seal AS040 NBR	1
17	Screw Nut M12	1
19	Rubber Gasket M12 EPDM	1
22	SMP5-20A Cable Gland MG12A-08	1
23	M4-30 Screw Bolt SUS304	3
28	MDCP25-01 Pump Front Head-H PP/GF30	1
29	MDCP25-02 Propeller PP/GF30	1
32	MDCP25-05 Shaft Bush PTFE	1
33	MDCP25-06 O-ring AS-142FKM	1
34	MDCP25-09 Shaft -Ceramic	1
35	MDCP25-08 Gasket -Ceramic	2
36	M4-45 Screw Bolt SUS304	6
37	MDCP25-07 Pump Rear Head PP/GF30	1
38	MDCP25-05A Gasket/PTFE	1
40	MDCP25-14A Bush	1

PARTS LIST(MDCP-25-ACU)

No.	Parts Code / Name	Qty.
1	MDCP25-01A Pump Front Head-U PP/GF30	1
2	MDCP25-15 Union Nut 1/2" PVC	2
3	MDCP25-16 Pipe Union 1/2" PVC	2
4	MDCP25-16A Union Gasket 1/2" 19-24t2	2

Note: Different material code models will use corresponding materials



PARTS LIST (MDCP-60-ACH)

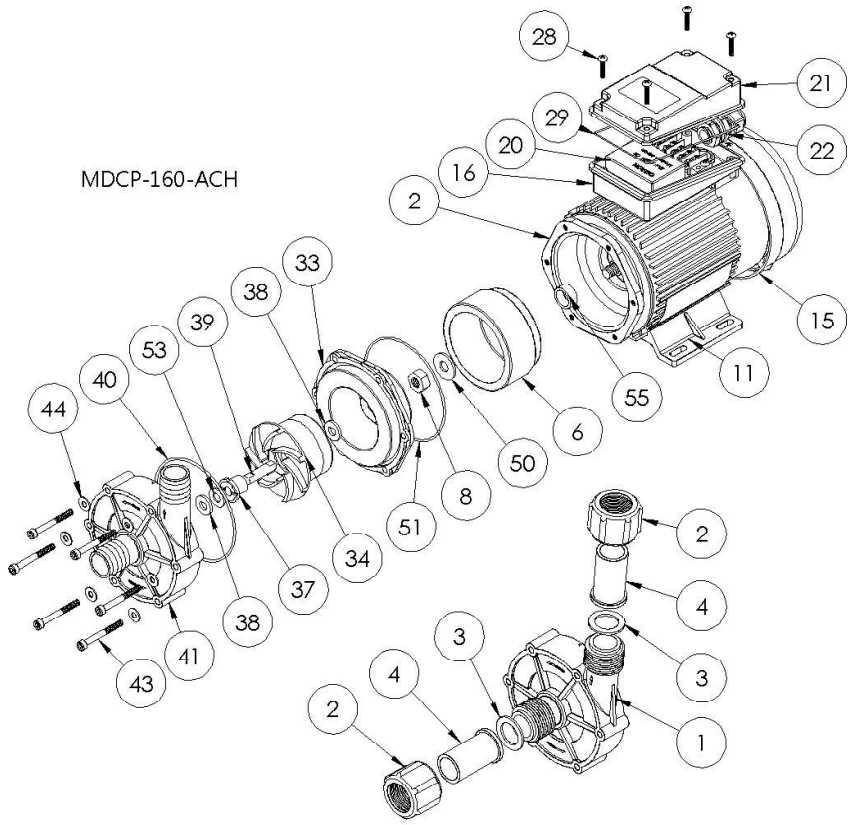
No.	Parts Code / Name	Qty.
1	MDCP60-11 Motor ADC-12(A383)	1
7	MDCP60-10 Driving Magnet	1
12	M6 Washer SUS304	1
13	M6 Screw Nut SUS304	1
25	MDCP60-22 Connect Box Cover PP/GF30	1
26	MG12A 08 Cable Gland MG12A 08	1
31	Screw Nut M12	1
32	M4-30 Screw Bolt SUS304	3
33	MDCP60-22A Connect Box O-ring AS-042NBR	1
37	MDCP25-20A Capactor	1
39	MDCP60-01 Pump Front Head-H PP/GF30	1
40	MDCP60-02 Propeller PP/GF30	1
43	MDCP160-05 Shaft Bush PTFE	1
50	MDCP160-09 Shaft-Ceramic	1
46	MDCP60-07 Pump Rear Head PP/GF30	1
47	MDCP60-06 O-ring AS-041FKM	1
48	M4-45 Screw Bolt SUS304	6
49	M4-8 Screw Bolt SUS304	2
51	MDCP160-08 Gasket Ceramic	2
53	MDCP160-05A Gasket/Rulon	1
54	MDCP60 14A Bush	1

Note: Different material code models will use corresponding materials

PARTS LIST (MDCP-60-ACU)

No.	Parts Code / Name	Qty.
1	MDCP60-01A Pump Front Head-U PP/GF30	1
2	MDCP25-15 Union Nut 1/2" PVC	2
3	MDCP25-16 Pipe Union 1/2" PVC	2
4	MDCP25-16A Union Gasket 1/2" 19-24,t2	2

Note: Different material code models will use corresponding materials



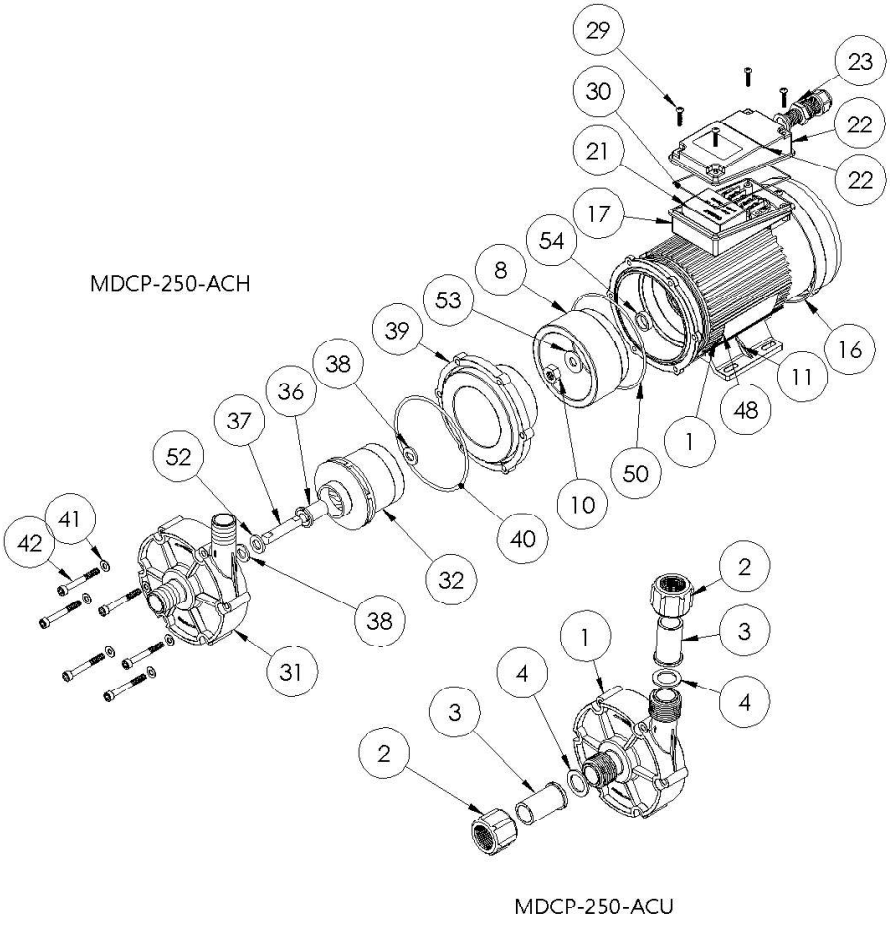
PARTS LIST(MDCP-160-ACH)

No.	Parts Code / Name	Qty.
1	MDCP160-11 Motor	1
4	MDCP160-13 Seal VB152204 NBR	1
6	MDCP160-10 Driving Magnet	1
8	M10 Screw Nut SUS304	1
11	MDCP250-24 Motor Base PP/GF30	1
15	MDCP250-28 Motor Fan Cover PP	1
16	MDCP250-29 Connection Box PP/GF30	1
20	Capactor	1
21	MDCP250-30 ConnectionBox Cover PP/GF30	1
22	MP3-20E Cable Gland MG16A	1
23	MP3-20E1 Rubber Gasket EPDM	1
28	M4-20 Screw SUS304	4
29	MDCP250-31 Connect Box Seal EPDM	1
33	MDCP160-07 Pump Rear Head PP/GF30	1
34	MDCP160-02 Propeller PP/GF30	1
37	MDCP160-05 Bush PTFE	1
38	MDCP160-08 Gasket Ceramic	2
39	MDCP160-09 Shaft Ceramic	1
40	MDCP160-06 O-ring S-95 FKM	1
41	MDCP160-01 Pump Front Head-H PP/GF30	1
43	M5-45 Bolt SUS304	6
44	M5 Washer SUS304	6
50	M10 Washer SUS304(10-18-t1)	1
51	MDCP160-07A O-ring AS-044 FKM	1
53	MDCP160-05A Gasket/Rulon	1
54	MDCP160-33 Model Lable SUS304	1
55	MDCP160-14A Bush	1

PARTS LIST(MDCP-160-ACU)

No.	Parts Code / Name	Qty.
1	MDCP160-01A Pump Front Head-H PP/GF30	1
2	MDCP250-15 Union Nut 3/4" PP/GF30	2
3	MDCP250-16A Gasket 3/4" FKM	2
4	MDCP250-16 Pipe Union 3/4" PVC	2

Note: Different material code models will use corresponding materials



PARTS LIST(MDCP-250-ACH)

No.	Parts Code / Name	Qty.
1	MDCP250-11 Motor	1
6	MDCP160-13 Seal VB152204 NBR	1
8	MDCP250-10 Driving Magnet	1
53	M10 Gasket SUS304(10-18-t1)	1
10	M10 Screw Nuts SUS304	1
11	MDCP250-24 Motor Base PP/GF30	1
16	MDCP250-28 Motor Fan Cover PP	1
17	MDCP250-29 Connect Box Seat PP/GF30	1
21	Capactor	1
22	MDCP250-30 Connect Box Cover PP/GF30	1
23	MP3-20E Cable Gland MG16A	1
29	M4-20 Screw Bolt SUS304	4
30	MDCP250-31 Connect Box Seal EPDM	1
31	MDCP250-01 Pump Front Head-H PP/GF30	1
32	MDCP250-02 Propeller PP/GF30	1
36	MDCP250-05 Shaft Bush PTFE	1
37	MDCP250-09 Shaft - Ceramic	1
38	MDCP250-08 Gasket -Ceramic	2
39	MDCP250-07 Pump Rear Head PP/GF30	1
40	MDCP250-06 O-ring G105 FKM	1
41	M6 Washer SUS304-6.1*12.5	6
42	M6-50 Screw Bolt SUS304	6
50	MDCP250-07AO-ring AS-156NBR	1
52	MDCP250-05A Gasket Rulon	1
54	MDCP250-14A Bush	1

Note: Different material code models will use corresponding materials

PARTS LIST(MDCP-250-ACU)

No.	Parts Code / Name	Qty.
1	MDCP250-01A Pump Front Head-U PP/GF30	1
2	MDCP250-15 Union Nut 3/4" PP/GF30	2
3	MDCP250-16 Pipe Union 3/4" PVC	2
4	MDCP250-16A Union Gasket3/4" FKM	2

Note: Different material code models will use corresponding materials

K. SPECIFICATIONS

Model	MDCP-25		MDCP-60		MDCP-100		MDCP-160		MDCP-250	
1. Frequancy (Hz.)	60	50	60	50	60	50	60	50	60	50
2. Max rate (L/min H_2O)	35	31	48	43	72	62	100	87	150	115
3. Max Head (m/H_2O)	4.7	3.4	6.8	5.1	8.0	5.7	8.9	6.3	12.0	8.6
4. Gravity Limit	1.3		1.3		1.2		1.2		1.1	
5. In/Outlet Type/ Size	17mm-H G3/4"-1/2"U		20mm-H G3/4"-1/2"U		26mm-Hose G1.0"-3/4"Union					
6. Output Power (W)	25	25	60	60	100	100	160	160	250	250
7. Consumption Power (W)	40	45	105	110	160	180	240	260	370	350
8. Power Supply	100/110/200/220V φ1 220/380V φ3,50/60 Hzs				100/110/200/220V φ1 220,380V/220,415V φ3 (Dual Voltage) 50/60 Hzs					
9. IP / Insulation Class	IP64 / Class F				IP54 / Class F					
10. Temp. of Liquid	-GA/PA: < 65 ◦ C -VA/FS: < 75 ◦ C									
11. Temp. of Motor	φ1: 80-85 ◦ C φ3: 70-75 ◦ C				φ1: 70-75 ◦ C φ3: 60-65 ◦ C					
12. Net Weight (Kg)	1.9		3.0		4.9		5.4		7.4	
13. Packing Weight (Kg)	2.3		3.4		5.4		6.0		8.0	

PRECUATIONS:

1. Operating environment temperature/humidity: 2-40. ˚C / Less than 95% RH or below the environmental dew point.
2. Operating liquid viscosity: less than 30 mPa.s.
3. The rated flow is about 70-80% of the maximum flow. Please try to operate the pump within the recommended range to achieve higher efficiency and long service life.
4. The operation liquid must not contain iron, nickel, and other metal particles.
5. High temperature/strong oxidizing/corrosive/solvent liquids must be carefully selected, the use of inappropriate models may damage the pump.
6. This type of pump has no self-priming function, so the installation position must be lower than the height of the liquid level.
7. Absolutely avoid operating the pump when there is no liquid inside the pump head (Dry pumping), which cause the shaft/bushing inside the pump head burn out.

Produce / Sale

YANGTECH®

創裕實業股份有限公司(台灣)

YANGTECH TECHNOLOGY CO., LTD.(Taiwan)