A05G027

YANGTECH®

(ENGLISH 2410)

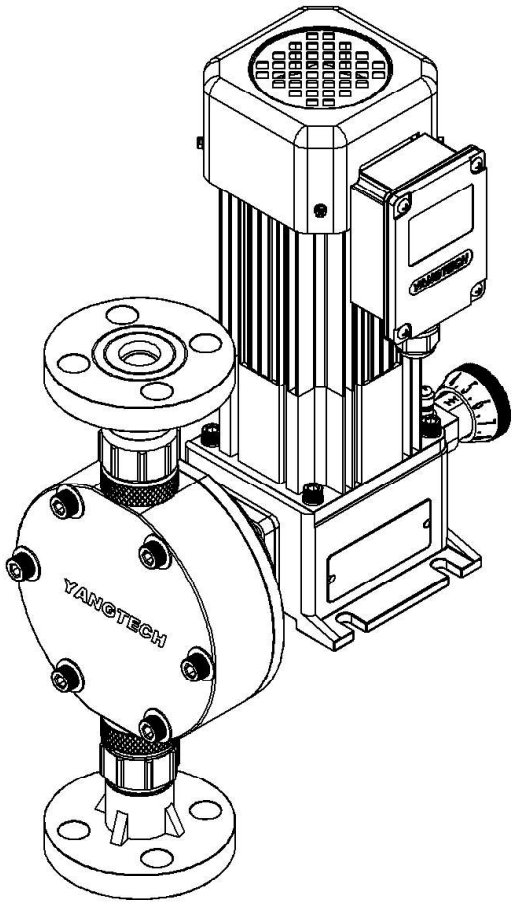
MPB-Series High performance Diaphragm Metering Pump

MPB-0815/0820/1115/1120

INSTALLATION / OPERATION MANUAL

CE

ISO-9001



YANGTECH TECHNOLOGY CO., LTD.

(Taiwan)

YANGTECH®

MPB-Series High performance Diaphragm Metering Pump

MPB-0815/0820/1115/1120
Installation / Operation Manual

Not in accordance with the manual may cause malfunction of pump or even injury of operator !

1. ATTENTIONS

- Read this manual thoroughly before installation and operation.
- Install this pump in a place of ventilation. Keep away from high temperature / high humidity / corrosive gases.
- Outdoor installation of this pump is not recommended. (motor IP55). But to give a shelter can effectively increase the pump`s life.
- This product is not explosion-proof rating, do not install in a place of potentially gas/dust explosion.
- Confirm the power source is correct before use.
- When using a inverter as power supply. Frequency range between 30~70Hz..
- Must drain the pipe before installation. Install pump to a pressured pipe is extremely high dangerous. It may cause a serious injure of operator.
- Do not operate the pump in a pressure higher than specification , or fluid viscosity >1000 cP or temperature >60℃.
- This unit is not suitable for all kind of fluid. Some solvents, extreme acid, high oxidization high temperature or high viscosity fluid may cause malfunction of pump.
- Wear a chemical protect mask and gloves before repair or maintenance.
- Please do not try to modify the pump or use non-original parts. This may damage pump and cause warranty become invalid.

2. STATEMENTS OF GUARANTEE

- From the shipment day, we provide one year of guarantee to our products. If in normal using and maintenance, the pump becomes abnormal, we would repair it of free charge(freight is not included).
- Grease, diaphragm or rubbers parts are consumables, they are exceptions of guarantee.
- In any situation, we are not responsible for any extended loss of users which is caused by malfunctions of this pump.

3. MODEL IDENTIFICATION

MPB-0815-ACH-23
A B C D E FG

A=Series Code	(Pump Series)
B=Diaphragm Diameter	(08= φ 85mm: 11= φ 115mm)
C= Transmission Ratio	(20=20:1 / 15=15:1)
D=Material Code	(Consult with the Catalog)
E=Joint Code	(H=Hose Type / U=Union Type / F=Flange Type)
F=Voltage Code	(22=200/220/240V, 38=380V, 41=415/440V, 48=480V)
G=Phase Code	(1= φ 1,Phase1, 3= φ 3,Phase3)

Material Code List

Material Code	AC	AF	BS	VS	SS
Application	Commonly Used Acids	Strong Acid / Strong Oxidizing	Commonly Used Lye	Viscous Liquid	Solvent Liquid
Pump Head	PVC	PTFE	PVC	PVC	SUS304
Valve Ball	Ceramic	Ceramic	SUS316	SUS316	SUS316
Valve Seat	FKM	PTFE	EPDM	EPDM	PTFE/ EPDM
O-Ring	FKM	PTFE	EPDM	EPDM	PTFE/ EPDM
Diaphragm	PTFE + EPDM + SUS304 + Nylon Fiber				

Note：PVC：Polyvinyl chloride
SUS304/316：Stainless Steel
FKM：Fluoro Rubber
EPDM：Ethylene Propylene Rubber
PVDF：Polyvinylidene fluoride
PTFE：Polytetrafluoro Ethylene

4. PACKING

PACKING SIZE：

MODEL	PACKING SIZE	N.W.(Kg)	G.W.(Kg)
0820/0815	L290mm*W175mm*H430mm (Carton)	7.9	9.9
1120/1115	L290mm*W175mm*H430mm (Carton)	9.9	11.7

PACKING LIST：

MPB-0815/0820:

ITEM	CONTENTS	ACH	BSH	AFH	VSH	SSH
1.	Pump*1	S	S		S	
2.	PVC Hose 3/8"(9.5* 15mm) *5.0m	S	S		S	
3.	Screw Set (M6-25Screw+Nut*2+Washer*4)*1	S	S		S	
4.	Operation Manual*1	S	S		S	
5.	PVC Foot valve 3/8"(9.5* 15mm) *1	S	S		S	
6.	PVC Injector 3/8"(9.5* 15mm) *1	O	O		O	

ITEM	CONTENTS	ACU	BSU	AFU	VSU	SSU
1.	Pump*1	S	S		S	
2.	Screw Set (M6-25Screw+Nut*2+Washer*4)*1	S	S		S	
3.	Operation Manual*1	S	S		S	
4.	PVC In/Outlet Connector 1/2"(13*22mm)*2	S	S		S	
5.	PVC Flange 1/2",10K(Gasket+ Flange) *2	ACF (S)	BSF (S)		VSF (S)	
6.	PVC Injector 1/2"(16*22mm)*1	O	O		O	

S: Standard O: Optional Null: No need

MPB-1115/1120:

ITEM	CONTENTS	ACH	BSH	AFH	VSH	SSH
1.	Pump*1	S	S		S	
2.	PVC Hose 1/2"(12.7* 17.7mm) *5.0m	S	S		S	
3.	Screw Set (M6-25Screw+Nut*2+Washer*4)*1	S	S		S	
4.	Operation Manual*1	S	S		S	
5.	PVC Foot valve 1/2"(12.7* 17.7mm) *1	S	S		S	
6.	PVC Injector 1/2"(12.7* 17.7mm) *1	O	O		O	

ITEM	CONTENTS	ACU	BSU	AFU	VSU	SSU
1.	Pump*1	S	S		S	
2.	Screw set (M6-25Screw+Nut*2+Washer*4)*1	S	S		S	
3.	Operation Manual*1	S	S		S	
4.	PVC In/Outlet Connector 3/4"(13*26mm)*2	S	S		S	
5.	PVC Flange 3/4",10K(Gasket+ Flange) *2	ACF (S)	BSF (S)		VSF (S)	
6.	PVC Injector 3/4"(20*26mm)*1	O	O		O	

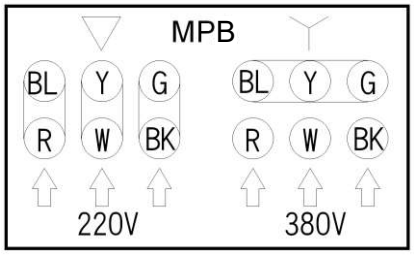
S: Standard O: Optional Null: No need

5. INSTALLATION

- Make sure that the power source is correct before power connections. The correct connections shown as below:

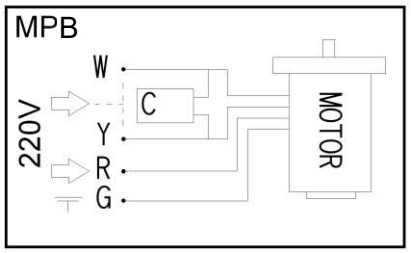
Fig. 1

POWER CONNECTIONS

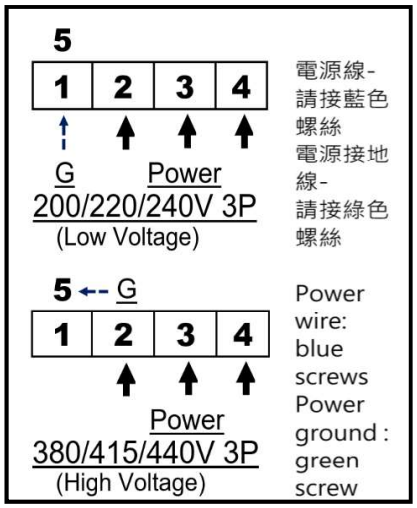


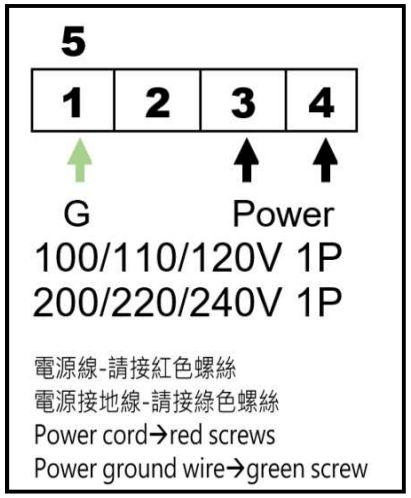
BLue **Y**ellow **G**ray **R**ed **W**hite **B**lacK

POWER CONNECTIONS



C=**C**apacitor



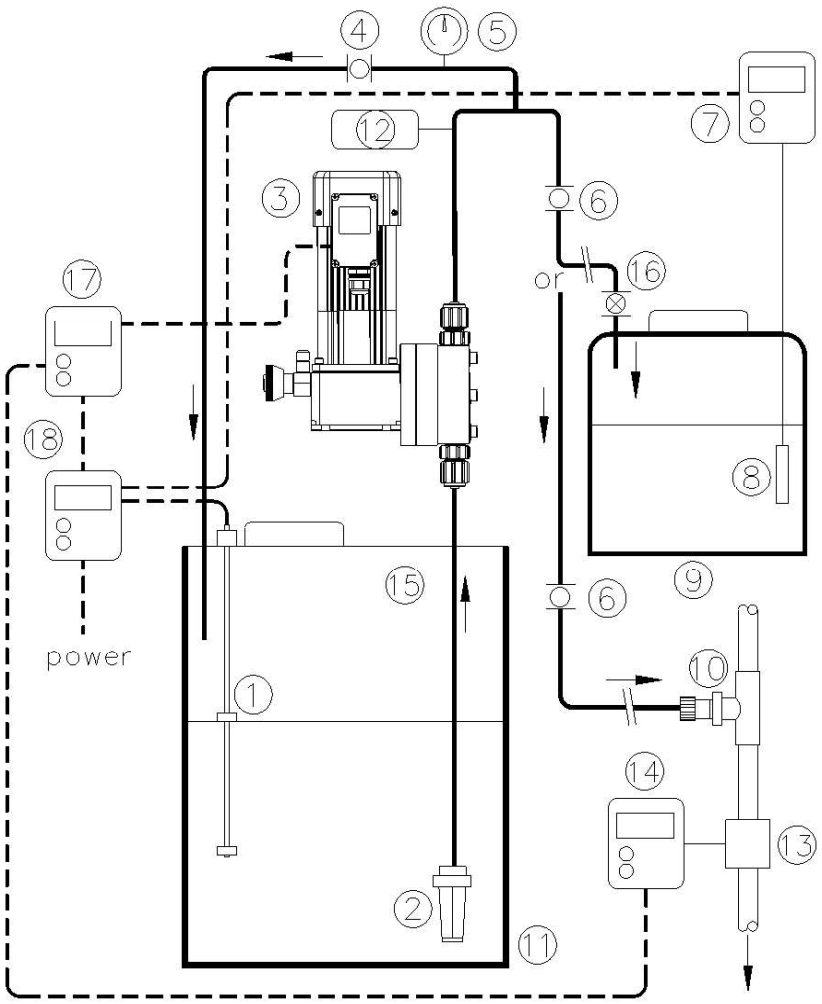


- Use diameter of 9-10mm power cable (3 or 4-wires). Ground terminal must connect to the ground wire and should be fixed.
- This product equip with a hermetical motor, in continuous operation motor temperature is about 70~75℃(3-phase) or 85~90℃(1-phase)，A place of ventilation is needed for this product to reduce both temperature and air concentration of chemicals. It can extend product life. Fig. 2 is a system illustration.
- Install this product horizontally and rigidly to avoid of looseness and danger. (Fig. 3)
- If the pump position is higher than the liquid tank, the bottom valve should be installed. The height of the bottom valve is 10-15 cm or higher above the bottom of the tank to avoid inhalation of sediment. If the bottom valve is not used, the tank must be higher than the pump position. If the height of the liquid tank is higher than the outlet, a siphon check valve must be installed to avoid the siphon phenomenon (the liquid in the liquid tank flows out without the pump being activated)
- Do not install this product that the motor is horizontal to the ground.
- After fixing the pump, connect certificated hose/pipe to the inlet/outlet connector and the foot-valve (with filter). The foot-valve should 10-15cm higher than the bottom of the source tank to prevent from sucking sediments.
- The connectors must be tightened with bare hands to avoid leakage. (Note: Do not use any tools to remove the connector to avoid excessive damage and damage). In the case of conveying highly viscous liquids, the filter head can be removed as appropriate to avoid affecting the flow.

- Pipeline assembly precautions:

1. The installation position of the pump is based on the lowest liquid level higher than the center of the pump head. If the pump is installed above the liquid tank, the foot valve must be installed (keep the bottom valve in a vertical state). Excessive suction heads can result no inhalation of liquids (inhalable heads are related to liquid viscosity, specific gravity, pipeline conditions.) this product does not guarantee inhalation head.
2. When the empty pipe can't automatically suck in the liquid, try to fill the inlet line with liquid and then pull up the pipeline to make the liquid flow into the pump head. Then low down the pipeline and start the pump. Generally, the inhalation problem can be solved. Wait for the pump to properly extract the liquid before installing an injector.
3. The output pressure loss due to pump pulse should be <1.0 Kgf/cm2. Excessive pressure loss will cause pipeline vibration. To improve this situation, add a pulse buffer (optional) / increased the pipeline diameter / shorten the length of the output pipeline or reduce the number of elbows of pipeline.
4. Inlet and outlet pressure difference > pump internal pressure loss, will produce excessive overfeeding phenomenon, the pressure difference between the inlet and outlet pipeline < pump internal pressure loss, will produce siphon phenomenon, at this time can be installed siphon check valve to improve the situation..
5. Gas-producing fluids (such as H2O2, low-vapor pressure solvents, etc.) should be installed in the exhaust valve to the barrel.
6. The export pipeline may install following equipment as need:
   A. Pulsating Buffer - The closer to the output connector, the less the line pulse (Vibration).
   B. Pressure gauge - to monitor the pressure of the outlet line.
   C. Pressure relief valve (safety valve)—If the pipeline is blocked due to blockage or if the valve (if any) is abnormally closed, the high pressure of the pipeline can be avoided and the safety of personnel can be protected.
   D. Back Pressure Valve — Maintain a certain pressure on the outlet line to stabilize the pump output flow.
   E. Pipeline injector - If liquid inject to a pressure line, please install it.
   F. Siphon check valve - if the elevation or pressure of the dosing point is lower than the pump will cause a siphon phenomenon. Install a siphon check valve can solve this problem.

1. The pump installation system as below



1. Level sensor
2. Check valve/filter
3. Pump
4. Release valve
5. Pressure gauge
6. Back pressure valve
7. Analog controller
8. Analog sensor
9. Target chemical tank
10. Pipe injector
11. Source chemical tank
12. Pulse damper
13. Flow sensor
14. Digital/analog flowcontroller
15. Drain valve pipe
16. Anit-siphon valve
17. Inverter
18. Power supply control box

NOTICE：
Not all of these devices are installed. In most case only part of the components will be installed

G. OPERATIONS

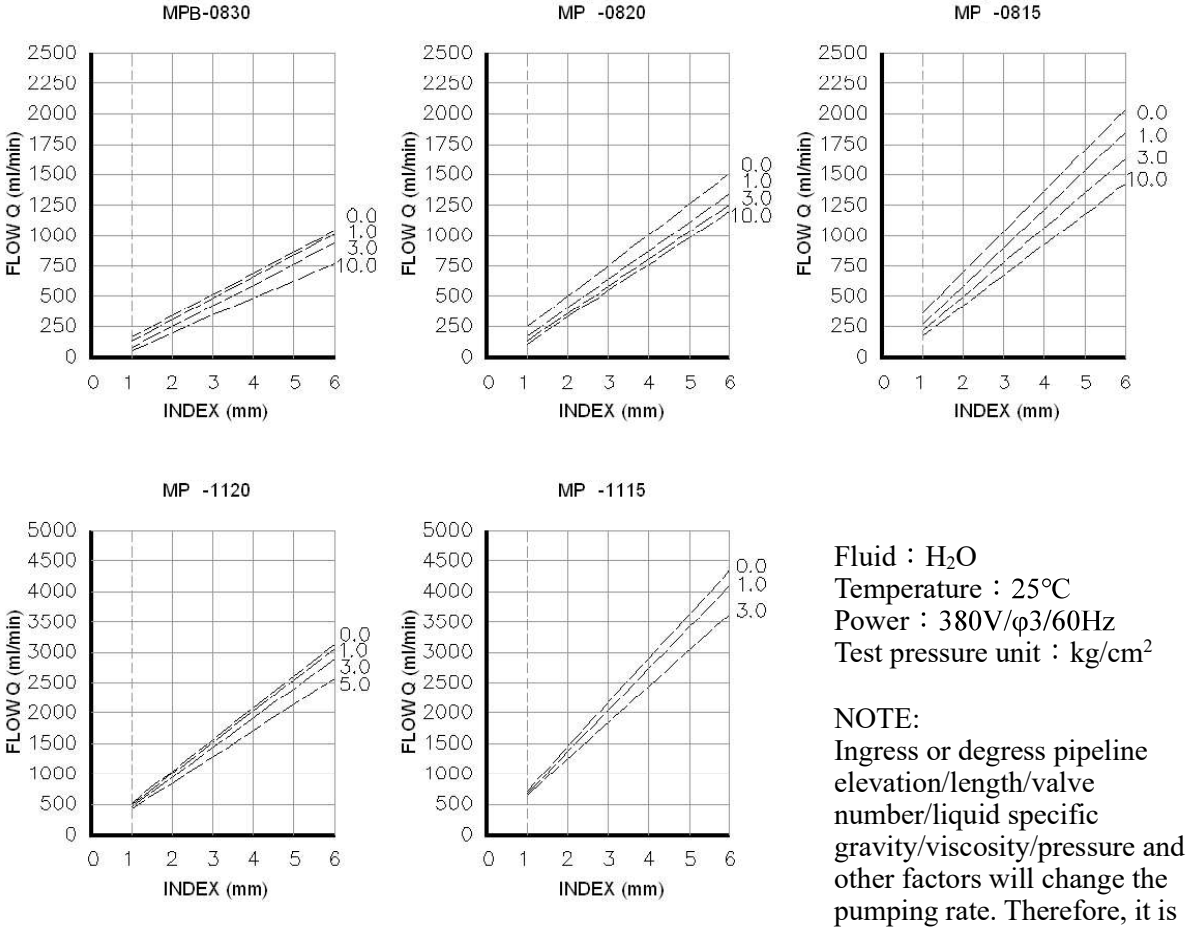
- After correct installation, turn on the power control switch to start the pump. Both direction of the motor are suitable for the pump. (No need to check the motor moving direction)
- When the empty pipe can't automatically suck in the liquid, try to fill the inlet line with liquid and then pull up the pipeline to make the liquid flow into the pump head. Then low down the pipeline and start the pump. Generally, the inhalation problem can be solved. Wait for the pump to properly extract the liquid before installing an injector.
- To change the flow rate, loosen the fix-nut then turn the flow regulator knob while the pump is running. (Do not turn the flow regulator knob when pump is stop). Set the indicator between 0-100% (clockwise to reduce flow rate the opposite to increase). When indicator monitor at 100%, the stroke is at full length, when0%, it means stroke is running at 0% of max. stroke length. The pump flow rate is proportional to the stroke length (see Fig. 4 at p.6).

SITUATIONS	FACTORS	SOLUTIONS
Can not start the motor	No power or power source is incorrect	Support correct power source
	Power switch not turn on	Turn on power switch
	Malfunction of Magnetic switch or an action of current protector	Repair(renew) the magnetic switch or reset the current protector
	The coil of the motor is burned out	Replace a new one
	Loosed power connection	Check and reconnect
Motor over heat (3P-motor>80 ℃ or 1P-motor>95 ℃)	Over high viscosity of fluid	Reduce viscosity of the fluid
	Over high pressure of outlet	Reduce the pressure
	Blocking of the pipe	Eliminate the blocking
	Power source is too high or too low	Use correct power source
	Bad insulation of the motor coil	Renew motor coil
	Abrasion of bearing or the bad lubricity	Renew the bearing or improve the lubricity
	High environmental temperature or bad ventilation	Improve temperature and ventilation of the environment
No fluid output or output reduce obviously	Motor is not running (No output)	Start the motor
	Fluid viscosity become high	Reduce fluid viscosity
	Blocking of the pipe or foot valve	Eliminate from blocking
	Check-ball pad is dirty or deformed	Clean or Renew the pad
	No fluid to be pumped	Fill the inlet-tank
	Leakage of the pipe	Patch up the leakage
	Rift of the diaphragm	Replace with a new one
	Drive mechanism malfunction(Noise)	Renew the drive mechanism
Abnormal noise or vibration	Power source problem (incorrect or disconnection of power or lack of a phase)	Check and reinstall power source
	Abrasion of bearing or the bad lubricity	Renew the bearing or improve the lubricity
	Abrasion of gears of the reducer	Replace with a new reducer
	Air choke occur in the pump head	Open purge valve to purge the air
Leakage of fluid	Looseness inlet/outlet connector or incorrect installation of O-ring	Fix the connector / reinstall O-ring
	Looseness of fix-screws	Fix the loosen screws
	O-ring / seal gasket is broken or deformed	Replace with a new one
	Rift of the diaphragm	Replace with a new one

6. MAINTENANCE

- Keep low temperature and good ventilation of the operating environment
- If blocking happens, disassemble the connector/foot-valve/pipe then clean up and reassemble the parts according to the illustrations at P.6-7.
- Check the power cable is normal and connectors are clean and tight regularly.
- Avoid the chemical splash on the pump. If do, wash off immediately.
- Check for abnormal noise/temperature (higher then 70℃)/leakage regularly. Solve them according to the “COMMON ABNORMAL SITUATIONS AND SOLUTIONS” at page7.
- Check and tighten setscrews of the pump every six months.
- The reducer of this pump is no need of lubrication.

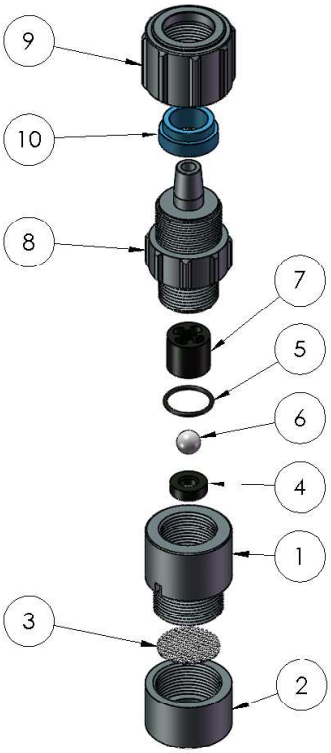
7. FLOW CHART



Fluid：H_2O
Temperature：25℃
Power：380V/φ3/60Hz
Test pressure unit：kg/cm^2

NOTE:
Ingress or degress pipeline elevation/length/valve number/liquid specific gravity/viscosity/pressure and other factors will change the pumping rate. Therefore, it is recommended to measure the pumping rate before operation.

8. DISASSEMBLE ILLUSTRATIONS

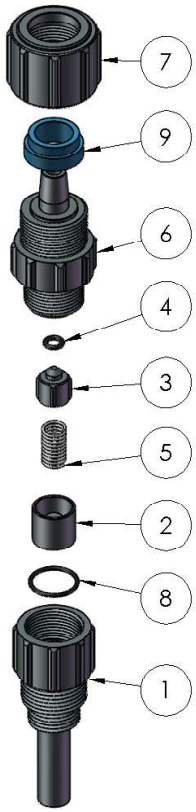


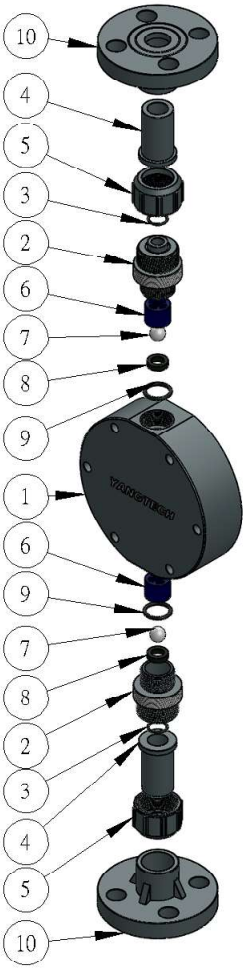
MPB-0815/0820-ACH,BSH,VSH Foot Valve Parts List (L):

ITEM	PARTS CODE / NAME	Qty.
1	MP3-14C Mesh filter connector	1
2	MP3-14D Mesh fix nut	1
3	MP3-14E Mesh filter	1
4	MP3-15C Check ball	1
5	MP3-15D O-ring AS568-114	1
6	MP3-15B Check ball	1
7	MP3-15A Check ball guide	1
8	MP3-16A4 Hose connector	1
9	MP3-14A1 Hose fix nut	1
10	MP3-14A2 Hose fix rim	1

MPB-0815/0820ACH,BSH,VSH Injector Parts List (R):

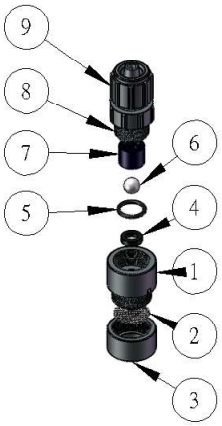
ITEM	PARTS CODE / NAME	Qty.
1	MP3-18A Injector	1
2	MP3-18C Rear check head	1
3	MP3-18B Front check head	1
4	MP3-18E Check head O-ring P5 FKM	1
5	MP5-18D Check head spring	1
6	MP3-16A1 Hose connector	1
7	MP3-14A1 Hose fix nut	1
8	MP3-15D O-ring AS568-114	1
9	MP3-14A2 Hose fix rim M27	1





MPB-1115/1120ACF,BSF Wet Section Parts (Left):

ITEM	PART CODE / NAME	Qty.
1	MPB5-05A Pump head	1
2	MP5-17A In/outlet connector	2
3	MP5-17E O-ring AS-016	2
4	MP5-17C Union head	2
5	MP5-17D Union head fix nut	2
6	MP5-15A Check ball guide	2
7	MP5-15B Check ball	2
8	MP5-15C Check ball seat	2
9	MP5-15D O-ring AS568-116	2
10	MP5-17F Flange 3/4" PVC	2

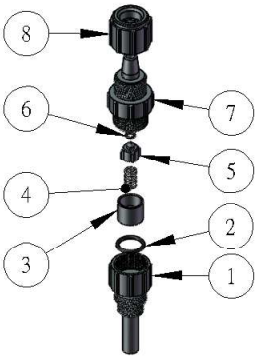


MPB-1115/1120ACH,BSH Foot Valve Parts(Up right):

ITEM	PARTS CODE / NAME	Qty.
1	MP5-14C Connector	1
2	MP5-14E Mesh filter	1
3	MP5-14D Mesh cover	1
4	MP5-15C Check ball seat	1
5	MP5-15D O-ring AS568-116	1
6	MP5-15B Check ball	1
7	MP5-15A Check ball guide	1
8	MP5-16A Connector Hose-type	1
9	MP5-14A Hose fix nut	1

MPB-1115/1120ACH,BSH Foot Valve Parts (Down right)

ITEM	PARTS CODE / NAME	Qty.
1	MP5-18A Injector head	1
2	MP5-15D O-ring AS568-116	1
3	MP5-18C Front check head	1
4	MP5-18D Check head spring	1
5	MP5-18B Rear check head	1
6	MP3-18E O-ring P5 FKM	1
7	MP5-16A1 Connector Hose-type	1
8	MP5-14A Hose fix nut	1



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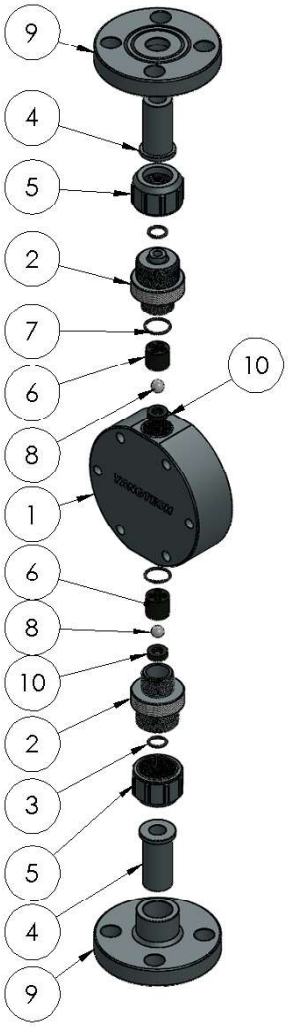
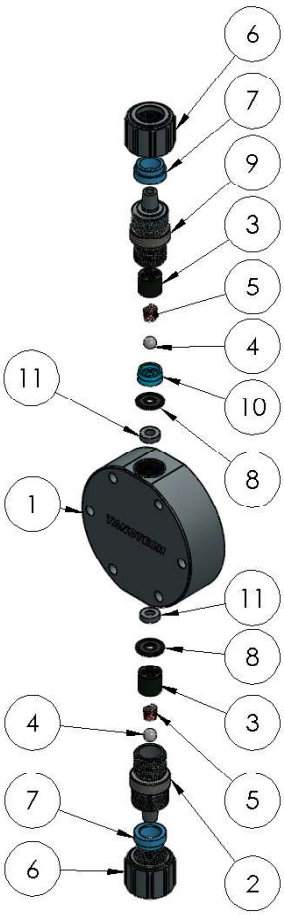


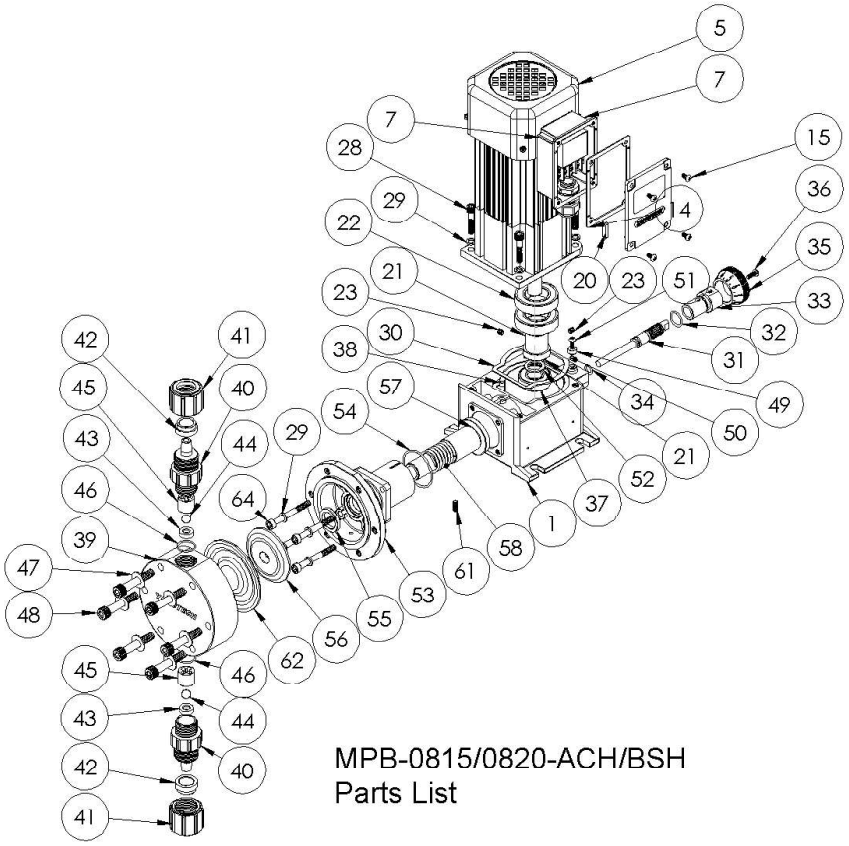
MPB-0815/0820ACF,BSF
Wet Section Parts List (L):

ITEM	PARTS CODE / NAME	Qty.
1	MPB3-05A Pump head	1
2	MP3-17A In/Outlet connector (Glue on)	2
3	MP3-17E Union O-ring	2
4	MP3-17C In/Outlet union head	2
5	MP3-17D Union head fix nut	2
6	MP3-15A Check ball guide	2
7	MP3-15D O-ring AS568-114	2
8	MP3-15B Check ball	2
9	MP3-17F Flange 1/2" PVC	2
10	MP3-15C Check ball seat	2

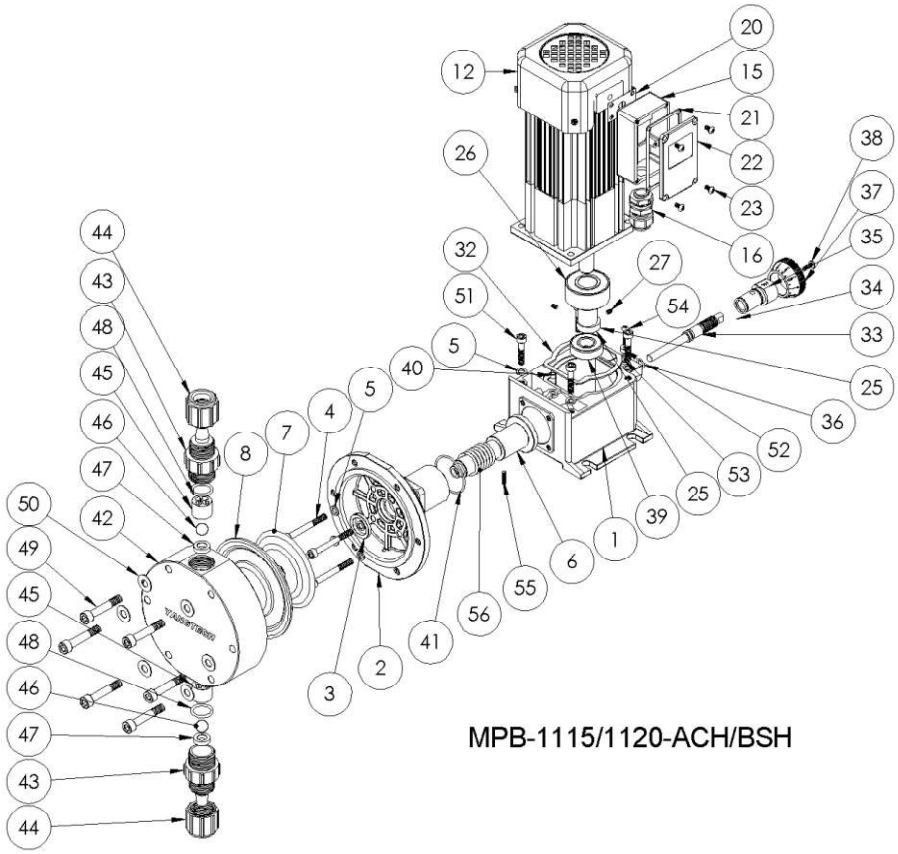
MPB-0815/0820VSH
Wet Section Parts List (R):

ITEM	PARTS CODE / NAME	Qty.
1	MPB3-05A Pump head	1
2	EMP3-52 VS Connector 3/8" Hose	1
3	EMP3-53 VS Check ball guide	2
4	MP3-15B Check ballCeramic/PTFE	2
5	EMP3-54 VS Spring	2
6	MP3-14A1 Hose fix nut	2
7	MP3-14A2 Hose fix rim M27	2
8	SMP5-14D Gasket M24	2
9	EMP3-55 VS Hose connector 3/8"	1
10	EMP3-56 VS Check ball seat PVC	1
11	MP3-15C4 Check ball seat FKM	2





Item	Parts Code / Name	Qty.
1	MPB3-02A Driving Chassis	1
5	MP5-01A1 A+ Reducer	1
7	MPB3-20A Connection box	1
14	MP3-20D Connection box gasket	1
15	Screw M4-8	4
22	MP3-01F Reducer shaft bond	1
23	MPB3-10A Eccentric wheel	1
24	MP3-10C Eccentric wheel bearing 6005	2
25	Set screw M5-06	2
30	Bolt M6-30	4
31	Spring washer M6	8
32	MPB3-01C Gasket NBR	1
33	MPB3-12 Stroke length adjustment shaft	1
34	MP3-11D O-ring AS-011 NBR	1
35	MPB3-11A Adjustment shaft holder	1
36	MP3-11E O-ring AS-011	1
37	MP3-13A Stroke length adjustment knob	1
38	Screw M4-18	1
39	MPB3-02C Bearing 6202VV	1
40	MPB3 02D Cylinder bond D5 5	1
41	MPB3-05A Pump head	1
42	MP3-16A4 Hose connector	2
43	MP3-14A1 Hose fasten nut M27	2
44	MP3-14A2 Hose fasten ring M27	2
45	MP3-15C Check ball seat	2
46	MP3-15B Check ball Ceramic/PTFE	2
47	MP3-15A Check ball guide	2
48	MP3-15D M24 O-ring	2
49	Washer M8	6
50	Bolt M8-45	6
51	SMP5-12C Screw nut M4	1
52	EMP3-20D O-ring S4 NBR	1
53	Screw M4-20	1
54	MPB3-02D Gasket PTFE	1
55	MPB3-04A Driving chassis front flange	1
56	MPB3-04D I-ring AS-030	1
57	MPB3-04E Oil seal VB202804	1
58	MPB3-08 Diaphragm seat	1
59	MPB3-09A Driving shaft	1
60	MPB3-09C Spring	1
61	MPB3-09E1 Front bushing 202605	1
62	MPB3-09E Rear bushing 283410	1
63	Set screw M5-12	1
64	MP3-06A Diaphragm	1
66	Bolt M6-55	4



Parts List:

ITEM	Parts Code / Name	Qty.
1	MPB3-02A Drive base	1
2	MPB5-04A Front flange	1
3	MPB3-04E Drive Shaft oil seal	1
4	Screw M6-55	4
5	Spring washer M6	8
6	MPB3-09A drive shaft	1
7	MP5-08 Diaphragm seat	1
8	MP5-06 Diaphragm	1
12	MP5-01A1 Motor+Reducer	1
15	MP3-20A Power box	1
16	MP3-20E Power cable holder MG16A	1
20	MP3-20C Gsket	1
21	MP3-20D Gasket	1
22	MP3-20B Power box cover	1
23	Screw M4-8	4
25	MPB3-10A Eccentric wheel	1
26	MP3-10C Eccentric wheel bearing 5204ZZ	1
27	Screw M4-6	2
32	MPB3-01C Gasket for drive base	1
33	MPB3-12 Flow rate adject shaft	1
34	MP3-11D Oil seal (O-ring)	1
35	MPB3-11A Flow rate adject shaft holder	1
36	MP3-11E Oil seal O-ring AS011	1
37	MP3-13A Flow rate adject knob	1
38	Screw M4-18	1
39	MPB3-02C Bearing 6202VV	1
40	MPB3-02D Secure pin D5-5	1
41	MPB3-04D O-ring AS030	1
42	MPB5-05A Pump head	1
43	MP5-16A Connector hose-type	2
44	MP5-14A Hose fix nut	2
45	MP5 15A Check ball guide	2
46	MP5-15B Check ball	2
47	MP5-15C Check ball seat	2
48	MP5-15D O-ring AS568-116	2
49	Screw M8-45	6
50	M8 Flate washer	6
51	Screw M6-30	4
52	SMP5-12C Oil seal nut	1
53	EMP3-20D O-ring S4	1
54	Screw M4-20	1
56	MPB5-09C Drive shaft spring	1
57	MPB3-09E1 Front bushing 202605	1
58	MPB3-09E Rear bushing 283410	1

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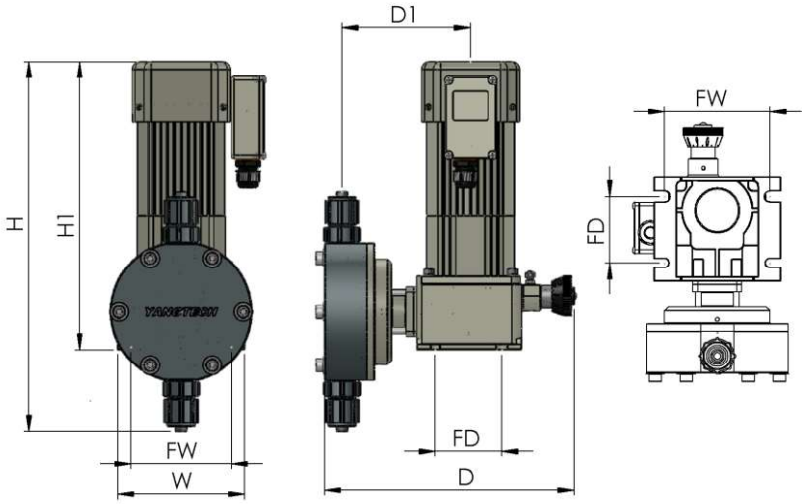
9. DIMENSIONS

CE

ISO9001



Dimensions(mm)：

Model	H	W	D	H1	FW	FD	D1
MPB-0830/20/15	307	132	238	244	106	69	107
MPB-1120/15	320	145	243	244	106	69	110

Specifications：

ITEM \ MODELS\ FREQUENCY			MPB-0830		MPB-0820		MPB-0815		MPB-1120		MPB-1115	
			60	50	60	50	60	50	60	50	60	50
1. RATE Max .(ml/min) (H_2O at 25℃)	0.0	Kg / cm^2	900	750	1400	1150	2000	1650	3200	2775	4300	3700
	1.0		900	750	1350	1120	1900	1550	3150	2610	4100	3480
	3.0		790	650	1200	1000	1650	1370	2850	2420	3800	3230
	5.0		750	620	1150	950	1600	1320	2550	2150	-	-
	10.0		680	560	1050	870	-	-	-		-	
2. PRESSURE Max. (kg/cm^2)			10.0		8.0		6.0		5.0		3.0	
3. STROKE (mm)			6.0									
4. PULSE (pulse/min)			60	50	90	75	120	100	90	75	120	100
5. DIAPHRAGM DIAMETER (mm)			85						115			
6. JOINTS			3/8” PVC Hose I.D.9.5*O.D.15(mm)						1/2” PVC Hose I.D.12.7*O.D.17.7(mm)			
			1/2” Glue-on Union O.D.22(mm)						3/4” Glue-on Union O.D.26(mm)			
7.POWER			220V/380V/φ3/50,60Hz/4P 100W						220V/380V/φ3/50,60Hz /4P 120W			
8. NET/GROSS WEIGHT(Kg)	PP/PVC/PTFE		7.9/9.1						9.7/10.9			
	SUS316		9.9/11.1						11.7/12.9			

*The above specifications are subject to change without prior notice.

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