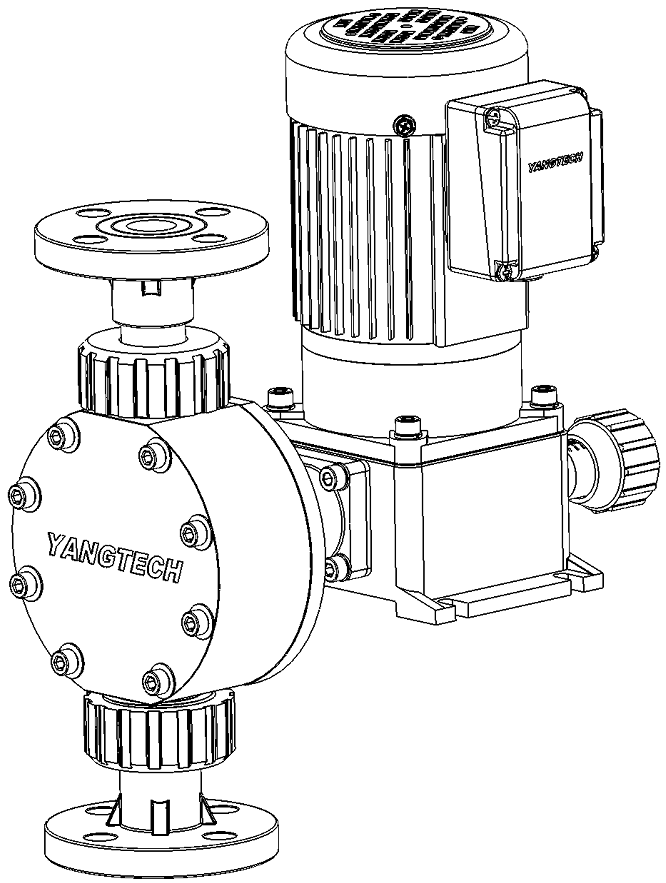
A05G077A

YANGTECH (ENGLISH 20/03)

HPJ - SERIES DIAPHRAGM METERING PUMP
FOR MODEL HPJ-1115/1125/1315/1325

OPERATION MANUAL



YANGTECH TECHNOLOGY CO., LTD.
(Taiwan)

YANGTECH

HPJ- SERIES DIAPHRAGM METERING PUMP
HPJ-1115/1125/1315/1325
OPERATION & MAINTENANCE MANUAL

1. NOTICES

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

- Read this manual thoroughly before installation and operation.
- Install this pump in a place of ventilation(environmental temp. between 5~40℃). Keep away from high temperature / high humidity / corrosive gases.
- Outdoor installation of this pump is allowed (IP54 proof enclosure). 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 both the power source and connection are correct before use.
- If use a inverter as power supply, the frequency variation range should between 30~60Hz. Frequency below 30Hz for a long period of time may cause high temperature damage of driven motor.
- Always drain the pipe before installation. Install pump to a pressured pipe is extremely high dangerous. It may cause a serious injure of operator.
- Always 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 damages pump and cause warranty become invalid.

2. MODEL IDENTIFICATION

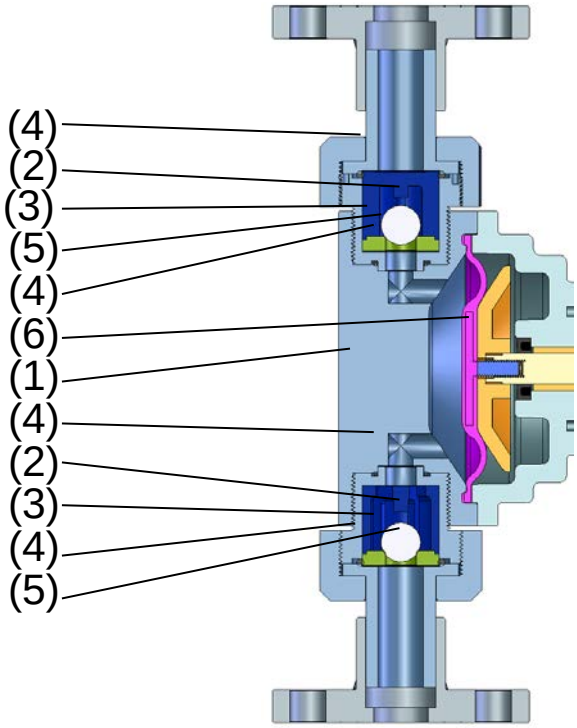
HPJ-13 15 - AC F-22 3
A B C D E F G

A= Series Code (Pump Series)
B= Diaphragm Diameter (11=φ115mm: 13=φ130mm)
C= Transmission Ratio (15=15:1 / 25=25:1)
D= Material Code (Consult following diagram)
E= Joint Code (U=UnionType / F=FlangeType)
F= Power Volt Code (22=200/220/240V, 38=380V, 41=415/440V, 48=480V)
G= Power Phase Code (1=φ1, 3=φ3)

Material Code List

Material Code	AC	AF	BS	VS	SS
Application	Acid	Oxidative Acid	Alkaline	Thick	Solvent
(1) Pump Head	PVC	PTFE	PVC	PVC	SUS316
(2)Valve Ball	Ceramic	Ceramic	SUS316	SUS316	SUS316
(3)Valve Seat	PVC	PTFE	PVC	PVC	SUS316
(4)O-Ring	FKM	FFKM	EPDM	EPDM	PTFE
(5)Valve Gasket	FKM	PTFE	EPDM	EPDM	PTFE
(6)Diaphragm	PTFE + EPDM + SUS304 + Nylon Fiber				

PVC：Polyvinyl chloride
SUS316：Stainless Steel
FKM：Fluoro Rubber FFKM:Full Fluoro Rubber
EPDM：Ethylene Propylene Rubber
PVDF：Polyvinylidene fluoride
Ceramic：Al_2O_3 (Aluminum Oxide)
PTFE：Polytetrafluoro Ethylene



Wet-End Structure(HPJ-13XX)

3. PACKING DIMANTIONS AND CONTENTS

●PACKING DIMENSIONS：：

Model	Packing Dimensions	N.W.(Kg)	G.W.(Kg)
HPJ-1115/1125	L520mm*W250mm*H490mm	14	16.5
HPJ-1315/1325	L520mm*W250mm*H530mm	16	18.5

●STANDARD CONTENTS：

Item	Contents	Quantity	Unit	Remark
1.	Pump	1	piece	
2.	1.0” (13XX)或 3/4”(11XX) 10K Flange	2	piece	flange type only
3.	Screw sets (M8-30screw*4、M8 nuts*4,M8 washers*8	1	set	
4.	Operation / Installing manual	1	piece	
5.	Spare O-ring (P36 for 13XX) (AS-568-116 for 11XX)	1	piece	

■ Check all the contents are correct when you receive package of your order.

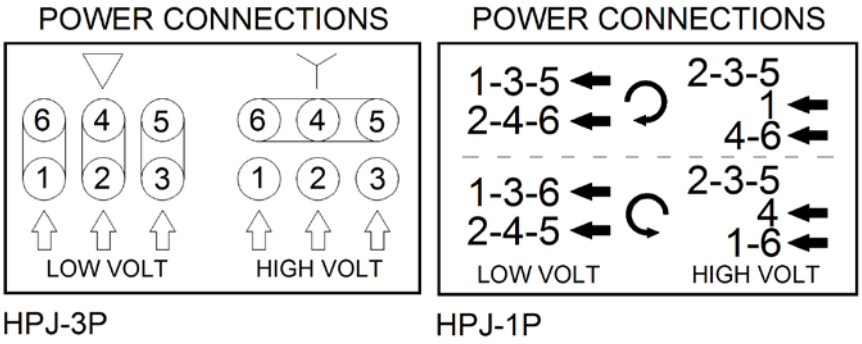
●OPTIONAL：：

Item	Contents	Quantity	Unit	Remark
1.	Floor type installation base HP3-26	1	set	SUS304
2.	Pipe injector (Anti-Siphon include)	1	piece	1.0” PVC/Glue on type

■ If Optional items are necessary, purchase them in the same order.

4. INSTALLATION

- Conform both the power source and connections are correct before use.



HPJ-3P HPJ-1P

- Use power cable include grounding line and connect to grounding line of motor.
- Pump should installed horizontally on a stable base (on the ground or onto the wall) and conform fixing screws are all tightened, which prevent pump from loosing or falling and ensure safety of operator.

- Install pump that pump-head is lower than the lowest level of pumping fluid. If it is not, a check valve should be installed. The sucking head of this pump is lower than 100cm and which is no guarantee.

- The pressure loss cause by pump pulse should below 1.0 Kgf/cm2, otherwise the pipe starts to vibrate. In this case, a pulse reducer can be installed or reduce piping length/elbow or increase pipe diameter.

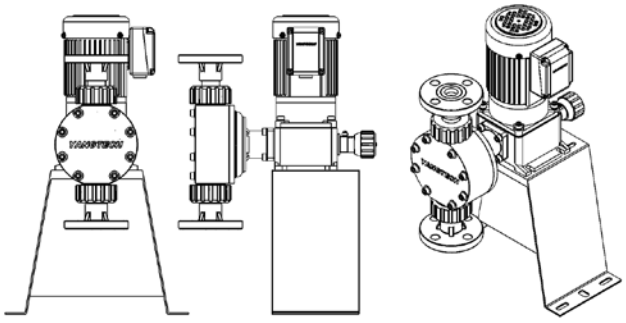
- Be aware that pressure discrepancy between input output pipe should higher than the inner pressure loss of this pump otherwise, overfeeding even siphon phenomenon may occur. In this case an anti-siphon/backpressure valve(both are optional) should be installed.

- Fluid which is easy to gasify or vaporize (Ex. H2O2, most solvents). Gas in pump head cause variation of flow rate. In this case purge the gas through drain valve.

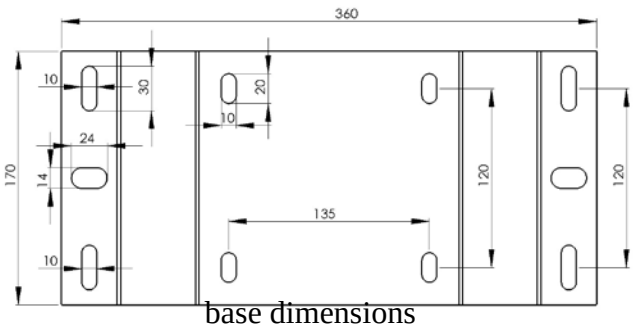
- Output pipe may install following devices to solve some problems：

Pulse reducer	-To reduce pipe vibration especially pipe is long/thin/plenty of elbows
Pressure gauge	-To monitor output pipe pressure.
Release valve	-To prevent pipe from rupture cause by exceptional high pressure and secure operator against hazard.
Back-pressure valve	-To keep constant pressure of output pipe and improve flow rate stability.
Pipe injector	-To connect hose/pipe to other pipe.
Anti-siphon Valve	- If pumping destination altitude is lower than source tank siphon phenomenon occur. In this case an anti-siphon valve should be installed.

- Pump base dimensions illustrate below:



Front view side view half-side view



base dimensions

Fixing：

Fix pump: screws M8(P1.25)-25 *4+ gaskets M8*8+ nuts M8(P1.25)*4 (Standard)

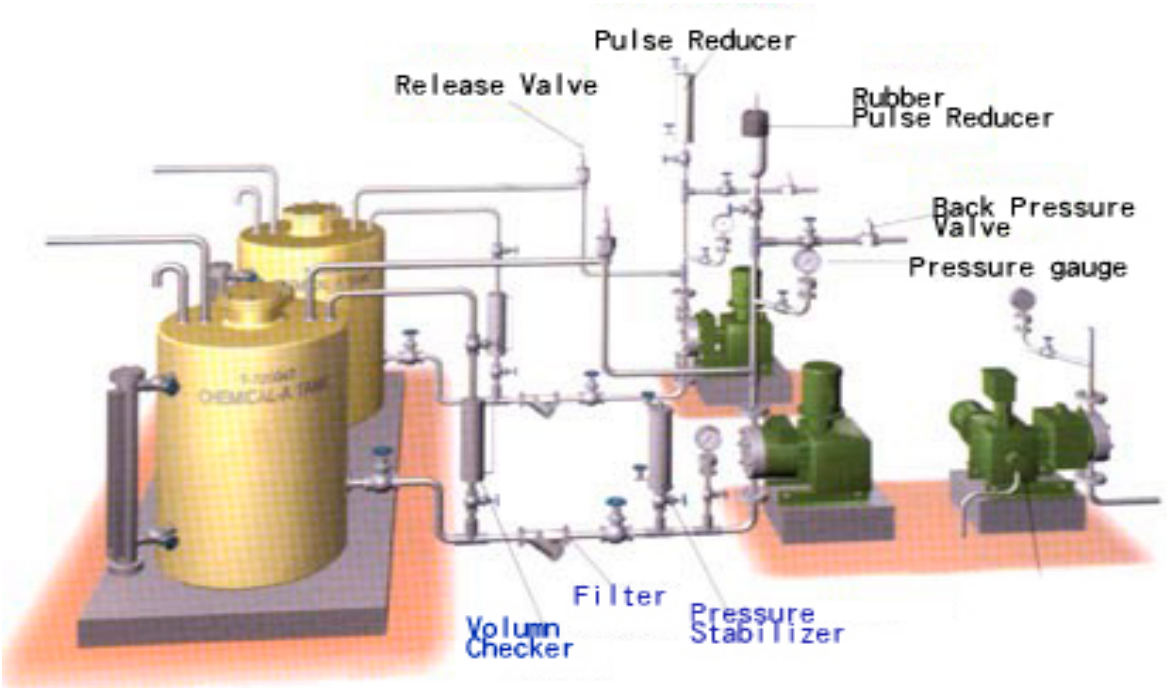
Fix base: foundation screw bolts M8(P1.25)*4 +gaskets M8*4+ nuts M8(P1.25)*4 (optional) or

Expansion screw bolts PF1/8”*4+ gaskets 1/8”*4 + nuts M8(P1.25)*4 (optional) or

Expansion screw bolts PF1/4”*2+ gaskets 1/4”*4 + nuts M8(P1.25)*2 (optional)

- Pipe configuration illustrated below：

System configuration (Example)



5. OPERATIONS

- After correct installation, turn on the power control switch to start the pump. Both direction of the motor are suitable for the pump.
- Make sure all the pipes are connected properly and no leakage before start the pump.
- If source tank fluid level is higher than pump head the fluid should flow into pump head automatically. In this case, start pump then the transporting should begin.
- If pump was installed above the source tank, pump may not be able to suck fluid into pump spontaneously. In this case a check valve should be installed.(Sucking head is not a guarantee.)
- To change the discharge 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 0-10mm(clockwise to reduce discharge rate and the opposite to increase). When indicator monitor at “10”(for HPJ-13xx) or “7”(for HPJ-11xx), the stroke is at full length, when at “0”, stroke length is 0 mm. The pump discharge rate is relative to the stroke length proportionally. (See page 7.).
- Turn flow regulator knob for one circle(360 degrees) the knob move 1unit(mm) on the indicator .
- For a precise flow control, after installation user should run a calibration before use.

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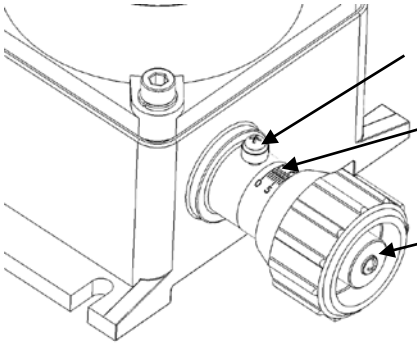
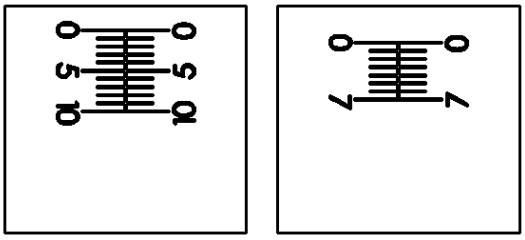


fix-nut

indicator

flow regulator knob
clockwise to increase flow rate and the opposite to reduce it.

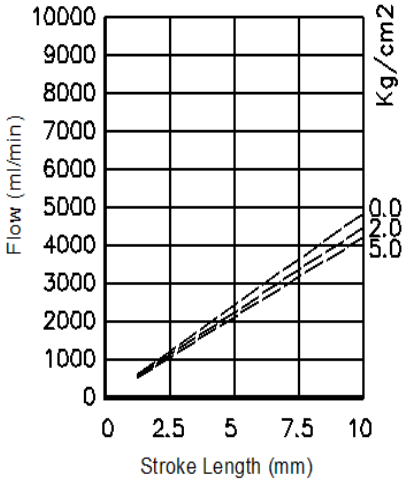


HPJ-13XX HPJ-11XX

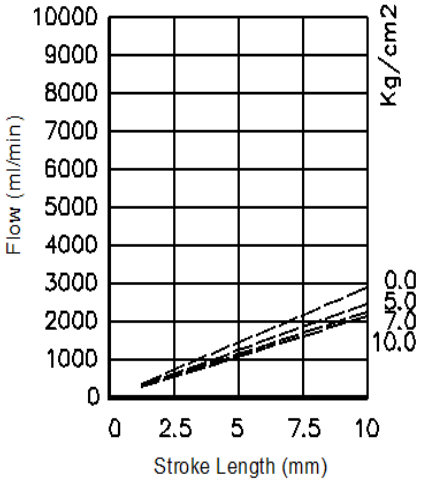
Indicator (unit: mm)

6. PERFORMANCE DIAGRAM

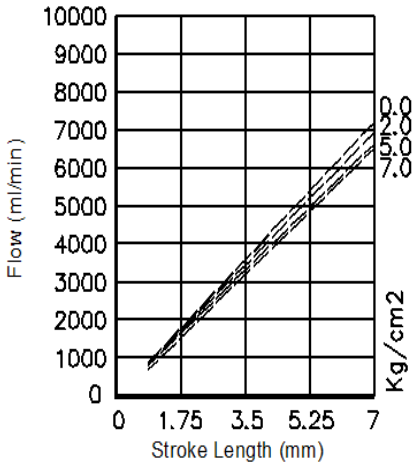
HPJ-1115



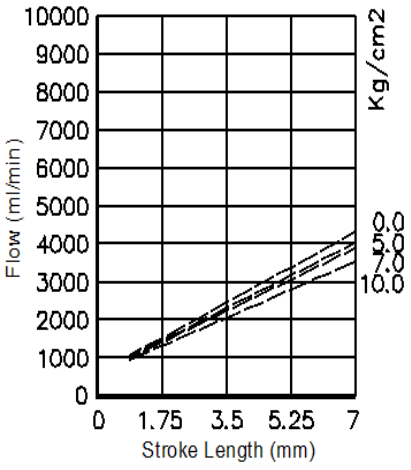
HPJ-1125



HPJ-1315



HPJ-1325



Test Fluid：H_2O
Temperature：25℃
Power Source：220V/φ3/60Hz
Pressure unit：kg/cm^2

Note：

1. Pipe altitude/length/number of valves/liquid viscosity/pressure, all these factors vary discharge rate.
2. For best accuracy, calibrate discharge rate before normally use.
3. At 50Hz power source, the flow rate vary to 5/6 of 60Hz flow rate.

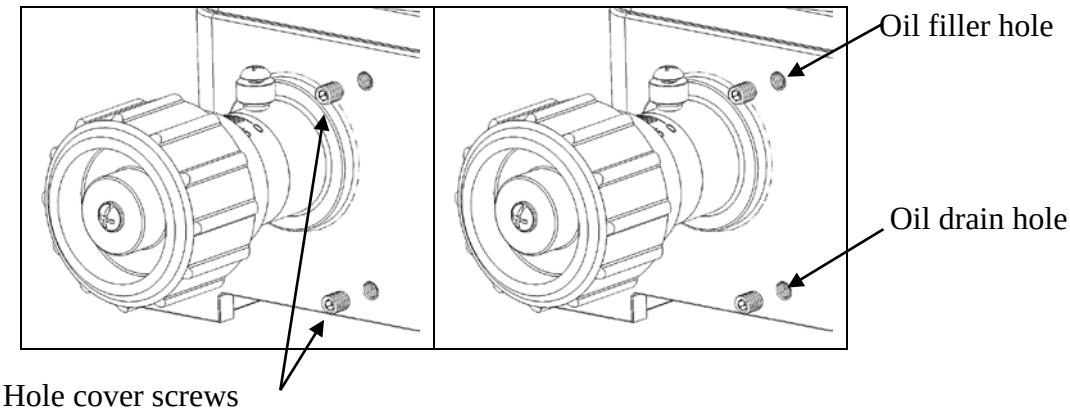
7. COMMON ABNORMAL SITUATIONS AND SOLUTIONS

ITEM	SITUATIONS	POSSIBLE CAUSES	SOLUTIONS
1.	Pump stop or pump can`t start	No power or incorrect power	Supply power or correct power source
		Magnetic switch damaged	Replace a new one
		Fuse/current protector action	Reset or change fuse
		Motor coil fail / damaged	Replace a new one
		Power cable loosing	Check and reconnect
2.	High temp. (Motor temp.>75℃)	High viscosity of fluid	Reduce the fluid viscosity
		High pressure output	Check reason and correct it
		Capacity of inverter too much or insufficient	Change a suitable one
		Frequency of inverter too high or too low	Set frequency variation range between 30~60Hz
		Output line block or valve closed	Clear block or open valve
		Incorrect power source	Change to a correct one
		The motor coil insulation is bad	Replace a new motor
		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
3.	No fluid output	Motor is stop	Check with ITEM 1.
		Blocking of the inlet pipe (or foot valve)	Eliminate from blocking
		Damage of the diaphragm	Replace with a new one
		Flow regulator was set too low (stroke <1.0mm)	Adjust to proper setting
		Drive mechanism malfunction	Renew the drive mechanism (Return to factory)
4.	Flow rate reduce obviously	Blocking of the inlet pipe (or foot valve)	Eliminate from blocking
		Fluid viscosity become high	Reduce fluid viscosity
		Leakage of the pipe	Patch up the leakage
		Drain valve not close	Close drain valve
		Gas accumulates in pump head	Purge gas through drain valve
5.	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 (Return to factory)or improve the lubricity
		Abrasion of gears of the reducer	Replace with a new reducer (Return to factory)
		Eccentric mechanism bearing failure	Replace with a new one (Return to factory)
6.		Looseness of fix-screws	Fix the loosen screws

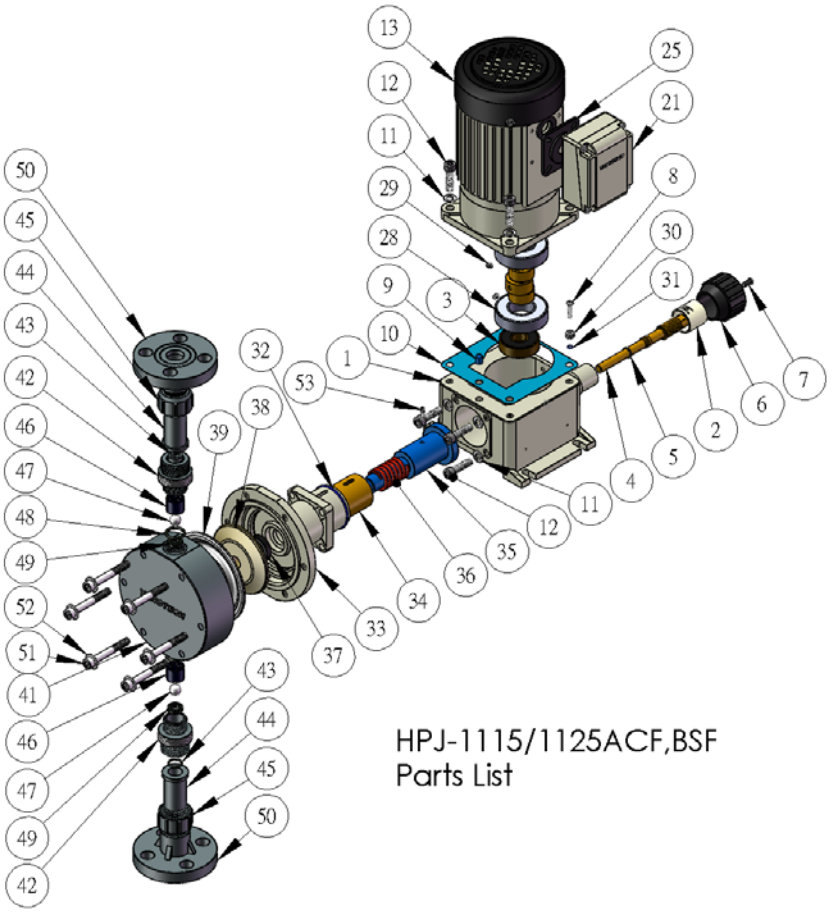
	Leakage of fluid	O-ring / seal gasket is broken or deformed	Replace with a new one
		Lack of O-ring / seal gasket or incorrect installation	Supply new one or reinstall correctly
		Pump head fixing screws loose	Tighten screws of pump head
		Rift of the diaphragm (Fluid draining from bottom hole of pump)	Replace with a new one

8. 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.10-11.
- 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 page8.-9.
- Check and tighten screws of the pump regularly.
- Every 2,000 operation hours, the gear oil should be changed. The gear oil should MIL-L-2105B and API GL-5 classification standards certified, the viscosity about 80W140.(Some models which have no both oil filler hole and drain hole, there is no need to change oil)
- Stop the pump, open upper oil filler cap then turn counterclockwise to open bottom oil drain cap. Drain out all gear oil then recover oil drain cap. Add new gear oil from upper filler hole until oil level reach the upper filler hole then recover the oil filler cap. (Models with no oil holes which are lubricated by long-life-grease are no need to be changed)

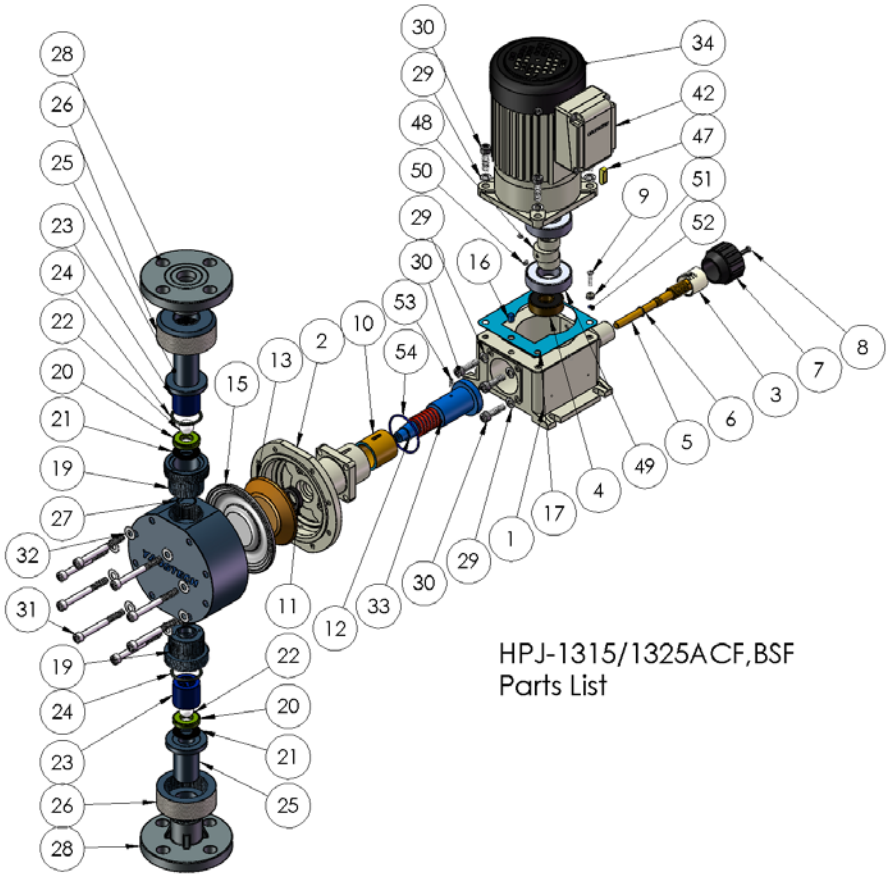


9. SYSTEM DISASSEMBLE ILLUSTRATION



Parts List:

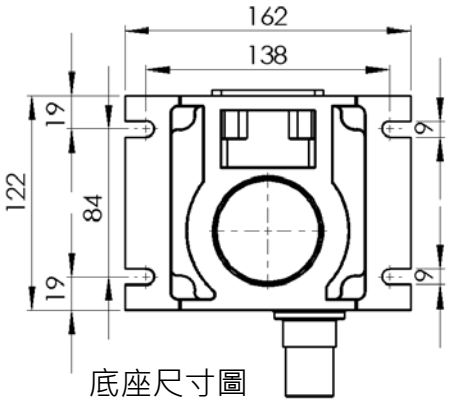
Item	Parts Code/ Name	Qty.
1	HP1-02A Drive base	1
2	HP1-11A1 Stroke length indicator/SUS304	1
3	HP1-02C Reducer shaft bearing 6303	1
4	HP1-12A Flow rate adjust knob	1
5	HP3-12B O-ring P10N-BR	1
6	HP5-13A Flow rate adjust knob	1
7	Screw M5-10	1
8	Screw M4-20	1
9	HP1-02D Enhanced pin	1
10	HP1-01B Reducer oil seal gasket	1
11	M8 Spring washer	8
12	Screw M8-30	8
13	Motor /200W	1
21	Power connect box	1
25	Power box gasket	1
27	HP1-10A1 eccentric wheel	1
28	HP1-10C Eccentric wheell bearing 6206	2
29	Screw M5-6	2
30	SMP5-12C Oil seal fixed nut	1
31	EMP3-20D O-ring S4	1
32	HP1-04B Drive base front flange O-ring S53	1
33	HP1-04A1 Drive base front flange	1
34	HP1-09E Drive shaft bushing 354240	1
35	HP1-09A1 Drive shaft MP5	1
36	HP1-09C Spring	1
37	HP1-09D Drive shaft Oil seal TC20327	1
38	HP1-08 Diaphragm seat MP5	1
39	MP5-06 Diaphragm	1
41	HP1-05A1 Pump head MP5	1
42	MP5-17A In/Out Connector	2
43	MP5-17E Union O-ring AS-016	2
44	MP5-17C In/Out union	2
45	MP5-17D In/Out union fixed nut	2
46	MP5-15A Check ball guide	2
47	MP5-15B Check ball	2
48	MP5-15D O-ring for M28	2
49	MP5-15C Check ball seat	2
50	MP5-17F Flange 3/4"PVC	2
51	Screw M8-60	6
52	Flate washer M8	6
53	Screw M4-12	1



Parts List

Item	Parts Code/ Name	Qty.
1	HP1-02A Drive base	1
2	HP1-04A Drive base front flange	1
3	HP1-11A Stroke length indicator/SUS304	1
4	HP1-02C Reducer shaft bearing 6303	1
5	HP1-12A Stroke length adjust shaft	1
6	HP3-12B O-ring P10N-BR	1
7	HP5-13A Flow rate adjust knob	1
8	Screw M5-10	1
9	Screw M4-20	1
10	HP1-09E Drive shaft bushing 354240	1
11	HP1-09D Oil seal TC20327	1
12	HP1-09A Drive shaft	1
13	HP3-08 Diaphragm support	1
15	HP3-06 Diaphragm	1
16	HP1-02D Enhanced pin	1
17	HP1-01B Reducer oil seal gasket	1
18	HP3-05A Pump head	1
19	HP5-17A In/Out connector	2
20	HP5-15C Check ball seat	2
21	HP3-15D_D1 Check ball seat gasket	2
22	HP5-15B Check ball	2
23	HP5-15A Check ball guide	2
24	HP5-17E In/Out union O-ring P36	2
25	HP5-17C In/Out union 1.0"	2
26	HP5-17D In/Out union fixed nut	2
27	HP5-17B In/Out connector O-ring P22	2
28	HP3-19A Flange_10K,1.0"	2
29	M8 Spring washer	8
30	Screw M8-30	8
31	Screw M8-80	8
32	Flate washer M8	8
33	HP1-09C Spring	1
34	Motor/200W	1
42	Power connect box	1
47	7_25 Pin	1
48	HP1-10A Eccentric wheel	1
49	HP1-10C Eccentric wheel bearing 6206	2
50	Screw M5-6	4
51	SMP5-12C Oil seal fixed nut	1
52	EMP3-20D O-ring S4	1
53	Screw M4-12	1
54	HP1-04B Drive base front flange o-ring S53	1

10. DIMENSIONS / SPEC.



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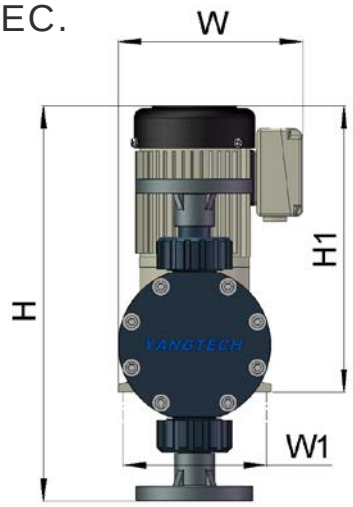

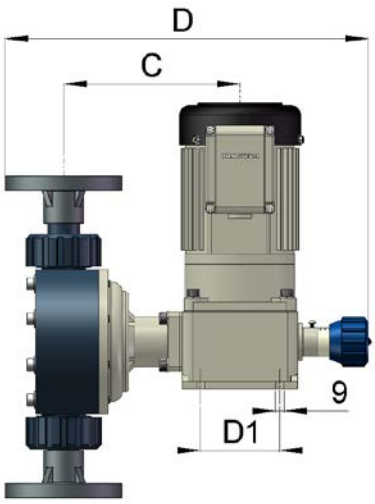

DIMENSIONS

機型 Model	H	W	D	H1	W1	D1	C
HPJ-1315/1325	419	195	385	303	138	84	187
HPJ-1115/1125	369	185	370	263	138	84	172

SPECIFICATIONS

Item \ Model\ Freq.			HPJ-1115		HPJ-1125		HPJ-1315		HPJ-1325	
			60	50	60	50	60	50	60	50
1. RATE Max. (L/min) (H_2O at 25°C)	0.0	Kg / cm^2	4.8	4.0	2.9	2.4	7.2	6.0	4.3	3.6
	2.0		4.5	3.8	2.7	2.3	6.9	5.8	4.1	3.4
	5.0		4.2	3.5	2.5	2.1	6.6	5.5	4.0	3.3
	7.0		-	-	2.4	2.0	6.5	5.3	3.9	3.2
	10.0		-	-	2.3	1.9	-	-	3.7	3.1
2. PRESSURE Max. (kg/cm^2)	PVC/PVDF		5.0(9.0)*		7.5(10.0)*		7.5		10.0	
	SUS				7.5(12.0)*					
3. STROKE(mm)			0.0~7.0				0.0~10.0			
4. PULSE(pulse/min)			116	97	70	58	116	97	70	58
5. DIAPHRAGM Dia.(mm)			110				130			
6. JOINT			3/4" Union connector OD.34mm 3/4" 10K Flange				1.0" Union connector OD.34mm 1.0" 10K Flange			
7. POWER			220V,φ1 / 220V+380V,φ3 / 380V+440V,φ3 50,60Hz/4P/0.2Kw (0.4Kwcustom)*				220V+380V,φ3 / 380V+415V,φ3 50,60Hz/4P/0. 4Kw			
8. 淨重 NET WEIGHT(Kg)	PVC/PVDF		14				16			
	SUS316		17				20			

*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.

YANGTECH™

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(Taiwan)