

Installation and maintenance guide



2K VOLUMETRIC PUMPS PDP

015 / 050 / 150 / 500 / 1000



DAV TECH SRL

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1 INTRODUCTION

1.1 The manual

The user guide is the document that accompanies the pumps from the time of its construction and throughout the period of use, it is therefore an integral part of the pump. It requires reading the manual before taking any action involving the pump. The manual must be readily available for use by staff and maintenance of the pump. The user and the attendant use are required to know the contents of this manual.

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1.2 Warranty

The warranty is valid for a period of 12 months from the date of commissioning and no later than 15 months from the date delivery. The interventions carried out during the warranty period does not extend in any way the validity period of the guarantee. The seller is not liable for defects caused by normal wear of parts which by their nature are subject to wear.

1.3 Goods receiving

The original configuration of the pump must never be changed. Upon receipt of the goods, check that:

- The packaging is intact
- The exact correspondence of the material ordered.

2 TECHNICAL DESCRIPTION

2.1 Pumps operation

The PDP volumetric pumps are an innovative, compact, versatile, precise and reliable 2k dispensing systems.

The specially designed rotary auger pump allow high performances dispensing for 2k material. The system provide an efficient and consistent dispensing more than any other piston or gear pump system. Mix ratio and dispensing volume can be easily adjusted through the controller, changing speed and rotation of the rotor. The pumps are driven by a gearmotor with encoder and allow volumetric dispensing in strips, drops, or filling a determined volume with the highest accuracy, without be affected from inlet fluid pressure, viscosity and temperature of the media.

2.2 Technical specification

ITEM	PDP-015	PDP-050	PDP-150	PDP-500	PDP-1000
Dimensions	60xL260xØ30mm	60xL260xØ30mm	67xL310xØ35mm	67xL310xØ35mm	67xL340xØ35mm
Weight	1.12 Kg	1.12 Kg	1.66 Kg	1.66 Kg	1.85 Kg
Input pressure	0~6 bar	0~6 bar	0~6 bar	0~6 bar	0~6 bar
Max. Dosing pressure	20 bar	20 bar	20 bar	15 bar	15 bar
Viscosity	0~500,000 cPs	0~500,000 cPs	0~500,000 cPs	0~500,000 cPs	0~500,000 cPs
Dosing Volume/Rev.	≈0.03 ml	≈0.1 ml	≈0.3 ml	≈1.0 ml	≈2.0 ml
Motor Speed (rpm)	1~120 rpm	1~120 rpm	1~120 rpm	1~120 rpm	1~120 rpm
Min Dosing Volume	0.0003 ml	0.001 ml	0.003 ml	0.009 ml	0.009 ml
Dosing Flow Rate (Max.)	≈ 3.6 mil/min (0.06 mil/sec)	≈ 12 mil/min (0.2 mil/sec)	≈ 36 mil/min (0.6 mil/sec)	≈ 120 mil/min (2.0 mil/sec)	≈ 240 mil/min (2.0 mil/sec)
Accuracy of dosing	±1%	±1%	±1%	±1%	±1%
Mixing Ratio	1:1 ~ 10:1	1:1 ~ 10:1	1:1 ~ 10:1	1:1 ~ 10:1	1:1 ~ 10:1
Stator Material	Inert Elastomer	Inert Elastomer	Inert Elastomer	Inert Elastomer	Inert Elastomer
Material Inlet Port	G 1/8" (STD) ¹	G 1/8" (STD) ¹	G 1/4" (STD) ¹	G 1/4" (STD) ¹	G 1/4" (STD) ¹
Material Outlet Port	Luer Lock ²	Luer Lock ²	Luer Lock ²	Luer Lock ²	Luer Lock ²
Wetting Part Material	SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³	SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³	SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³	SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³	SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³ SUS / UHMW - PE / FKM ³
Operating Condition	10~40°C	10~40°C	10~40°C	10~40°C	10~40°C

1. Different inlet, such as syringe fitting, possible upon request - 2. Different outlet possible upon request - 3. Different materials possible upon request.

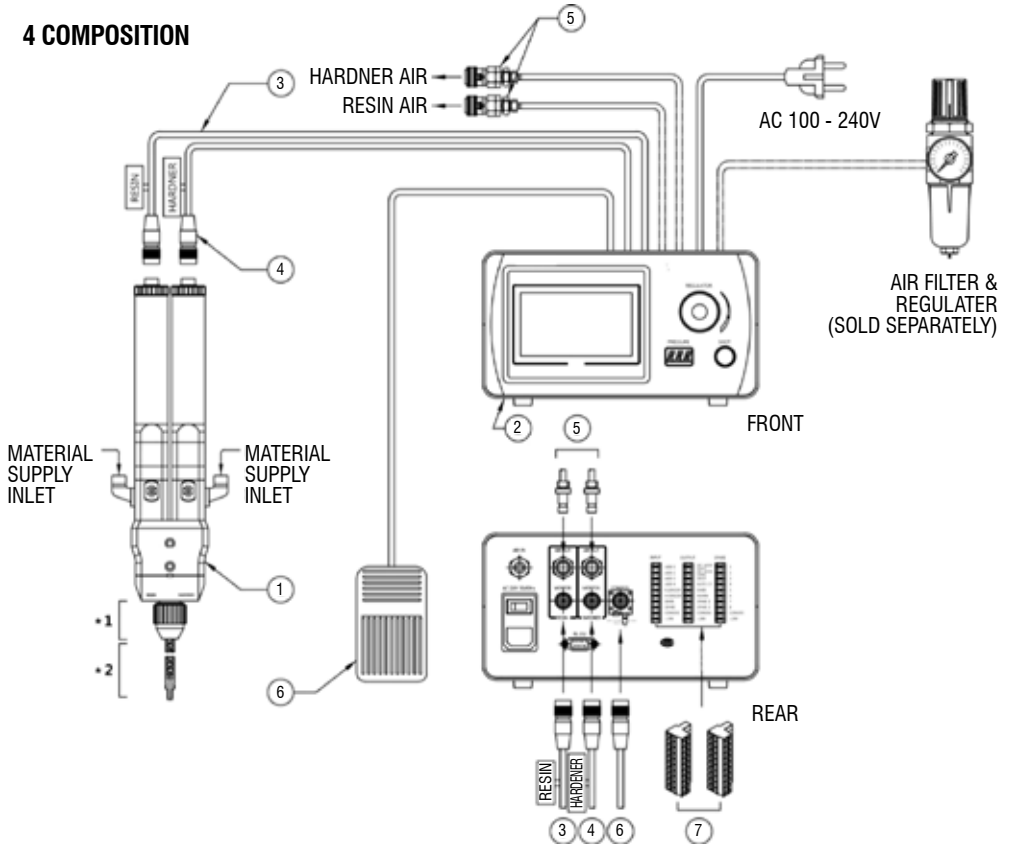
Installation and maintenance guide

3 SAFETY RULES

When in correct handling, this dangerous situation can occur if there is a potential risk of death or serious injury.

Do not use disassemble or remodel.	Fire, electric shock or danger of injury. If there is a problem, please contact us.
Do not close to the fire or clean water.	This may cause fire or electric shock.
Make sure the ground connection.	Without earth connection, it may cause fire, electric shock, injury or equipment malfunction.
Do not damage the power cord.	It may cause fire, electric shock or injury. <ul style="list-style-type: none">• Do not insert the power cord between the product, wall or shelf.• Do not place a heavy object and pull the power cord .• Do not plug in or unplug with wet hands.• When cleaning or moving, be sure to disconnect the power plug.• When unplugging the power cord, always grasp the plug.
Please use the power AC 100V~240V range.	It may cause equipment malfunction.
Plug the power cord into an outlet with a ground terminal and multi-outlet.	It may cause electric shock.
Do not use in an area exposed to direct sunlight, high-temperature place, a place with drastic temperature changes, humidity and many placed dust.	It may cause malfunction in internal circuit.
Do not use the air conditioner or the same power line.	It may cause malfunction in internal circuit.
Do not impact.	
Do not place the heavy object.	
Do not reverse or attach the liquid material in the machine.	If reflux through inside the adapter's tube, it may cause malfunction.
Do not use in enclosed space that is poorly ventilated.	It may cause malfunction in internal circuit.
It must be at least 15 cm of space between the wall and do not place any obstacle.	The internal temperature of the device. There is a risk of burn.
Disconnect all cables before cleaning.	It may cause electric shock or malfunction.
If the unit falls down or damaged, then unplug the power cord and contact us.	There is a risk of electric shock and fire when used in a broken state.

4 COMPOSITION

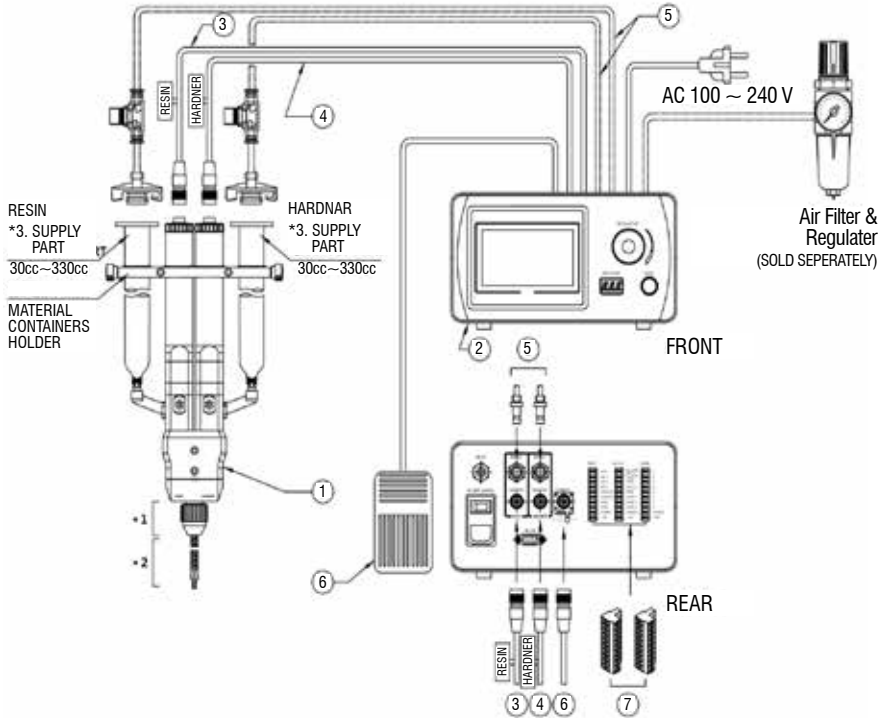


NR.	DESCRIPTION	MODEL	QUANTITY	REMARKS
1	2K Pump (PDP)	PDP-***	1 Set	Classify models upon dispensing amount
2	PDP Controller	PDC-100	1 Set	PDP Pump (2K Pump) Controller
3	Resin Motor Cable		1 Pc	Length : 1.5M Resin motor driving cable
4	Hardener Motor Cable		1 Pc	Length : 1.5M Hardener motor driving cable
5	Air tube Ass'y (Resin/Hardener)	Ø6, Auto Jointer	2 Pcs	Length : 1.5M Air hose for hardener · Main material
6	Foot Switch		1 Pcs	Length : 2M Driving Signal IN/OUT Cable
7	Terminal Block	For 10 Pin	2 Pcs	Connector for External IN/OUT signals

* 1. Mix-Adapter : There are three kinds- A, B and C- upon a mixer type. (Assign one model upon supply)
 * 2. Mixer : Mixer in compliance with the Mix-Adapter Type (A,B,C) should be purchased separately.

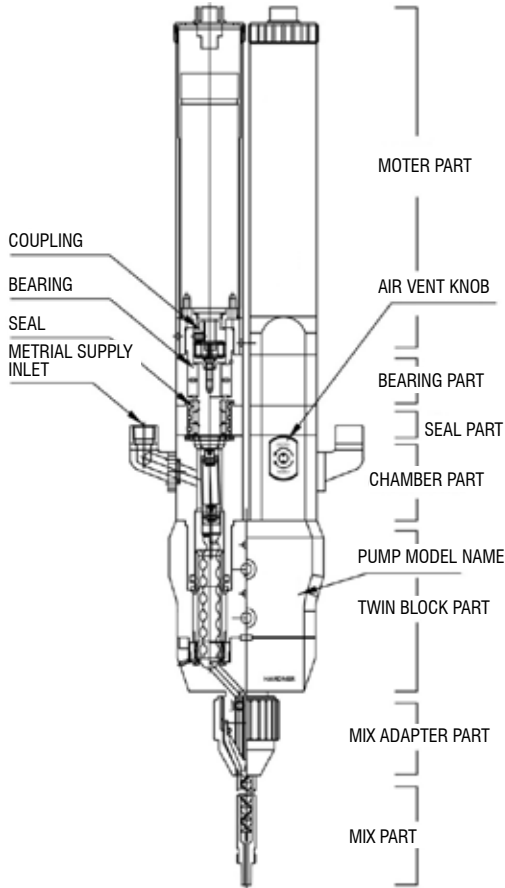
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4.1 Composition of PDP Module Type



NR.	DESCRIPTION	MODEL	QUANTITY	REMARKS
1	2K Pump (PDP)	PDPM-***	1 Set	Classify models upon dispensing amount integrated material feed part type (module type)
2	PDP Controller	PDP-100	1 Set	PDP Pump (2K Pump) Controller
3	Resin Motor Cable		1 Pc	Length : 1.5M Resin motor driving cable
4	Hardener Motor Cable		1 Pc	Length : 1.5M Hardener motor driving cable
5	Air tube Ass'y (Resin/Hardener)	Ø6, Auto Jointer	2 Pcs	Length : 1.5M Air hose for hardener · Main material
6	Foot Switch		1 Pcs	Length : 2M Driving Signal IN/OUT Cable
7	Terminal Block	For 10 Pin	2 Pcs	Connector for External IN/OUT signals

4.2 Names for Parts of PDP Pump

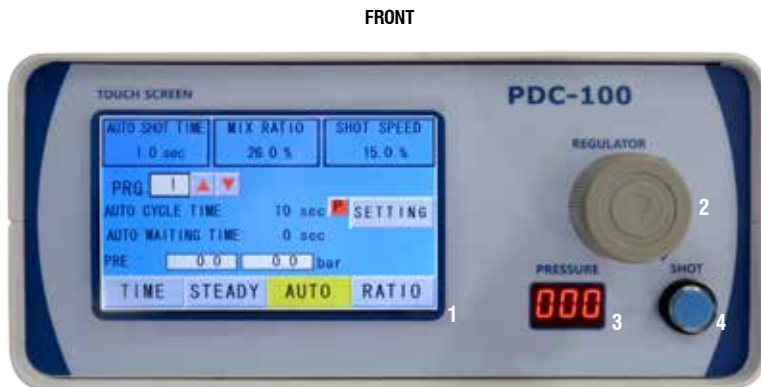


Specifications for marked parts are varied over pump model.

Classification of Mixer Shape and Mix Adapter

	A TYPE	B TYPE	C TYPE
MIX ADAPTER			
MIXER			

4.3 Controller port assembly



The following table explains each button's function. Please read before use.

NO.	NAME	FUNCTION
1	TOUCH SCREEN	Controls and sets up the data.
2	REGULATOR	Provides pressure in the pump
3	PRESSURE	Shows the pressure set in the controller
4	SHOT	It is used when start dispensing

BACK



Fig. 4

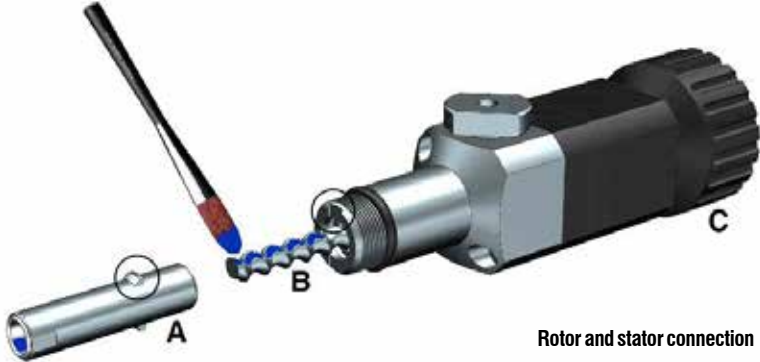
Connect the controller power cord and turn switch on, then is possible to use the system, at this time the system is ready to be used.

NO.	NAME	FUNCTION
1	POWER SOCKET	Input supply connection 230V
2	AIR IN PORT	Pneumatic power input from the plant circuit
3	RESIN AIR OUTPUT AND MOTOR CONNECTION PORT	Connect the supplied Auto-Jointer (PH-H4) to the air-out
4	HARDENER AIR OUTPUT AND MOTOR CONNECTION PORT	Connect the supplied Auto-Jointer (PH-H4) to the air-out
5	CONTROL	Use for remote control
6	RS 232 PORT	<i>In development</i>
7	INPUT	Use for remote control
8	OUTPUT	Use for remote control
9	SENSOR	Use for remote control

5 PREPARATION PROCEDURE WITH USING PDP PUMPS

1. In connecting A(Stator) and B(Rotor).

Use C (fixed tool) to fix the tools and apply solution (material) inside A(stator) and on B(rotor). Connect A(stator) and B(rotor) and rotate them up to the marked position and rotate C(fixed tool) in clockwise direction.



Do not activate the pump without applying the material to the stator. If so, even for a short duration of time, there might be a damage on the stator.

2. Eliminating bubbles before liquid discharge.

When the pump and the controller's settings are finished, before applying the solution to the product, rotate the D(Vent Knob) as the arrow direction one to two rounds to discharge the bubbles and some liquid (about 5~10 seconds). When it is confirmed that the bubbles are all eliminated, then close it off again.

When eliminating bubbles, set the motor speed at low (5~10 rpm) to discharge.

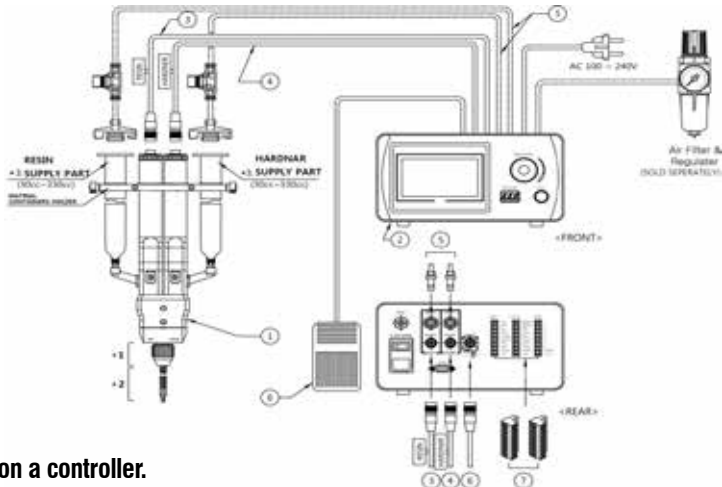


3. Connect air to motor cables and feeders.

Connect the Foot S/W(or external device) to a control terminal.

On a motor cable, a Resin/Hardner label is attached. Check the motor and controller to assure that there is no mix up and then, connect it.

Main air must be clean air and more than 5kgf/cm² should be prepared additionally.



4. Turn on a controller.

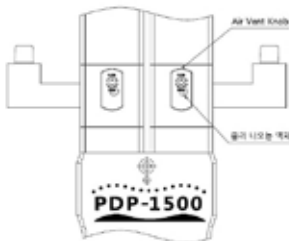
5. Check whether the air pressure supplied to feeders (tank, barrel, cartridge) is proper.

Table 1. Recommended setting

Low viscosity of 2000cps or less	1~2kgf/cm ²
Medium/high viscosity of 2000cps or above	2~5kgf/cm ²

> It could be varied upon dispensing conditions

6. Loose the vent knob which is attached to each Pro-Duo resin/hardner.



- It is an operation for checking whether the supply of materials can be made smoothly without the operation of a pump and for the removal of bubbles from a pump. (Open it for one and a half rotation in counterclockwise.)

- If liquid is flowing out sufficiently (in comparison of the dispensing volume), turn off a knob completely and then clean it.

7. Select a controller mode upon a ratio and enter the setting values.

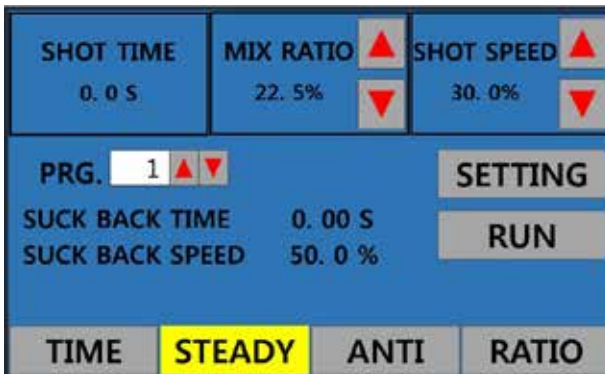
6 OPERATION BY USING PDP-100.

6.1 “Mixing Ratio” checking



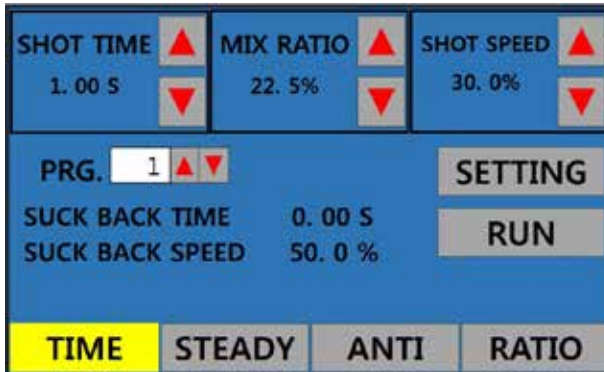
1. Setting with an actual mixing ratio.
2. It is a volumetric ratio of hardener for a mixing ratio of materials (Resin 100%).
3. Dispense it multiple times so sufficient liquid could be flown out to a mixer adapter while 'Resin On' and 'Hardener On'.
4. Prepare a proper measuring cup.
5. To measure only resin materials, set as 'Resin On' and 'Hardener Off'.
6. To measure only hardeners, set as 'Resin Off' and 'Hardener On'.
7. Setting the above mixing ratio process by repeating 5~6 times.

6.2 Dispensing Volume checking



1. Please attach the static mixer to mix adapter of PDP pump.
2. Please dispense the material in a 'Steady Mode'.
> If you face the ball up issue of end of static mixer, please set up the suck back time and speed properly.
(Extremely suck-back time and speed could cause the backflow of liquid into the inside of a pump.)

6.3 Setting as a “Time Mode”, set the proper dispensing time and check the target volume of the prepared measuring cup



- > As for a PDP, its dispensing amount is proportional to time/speed linearly.
- > If it is calculated with the rule of three, the dispensing amount is similar with the desired dispensing amount.
- 4. If a dispensing amount is somewhat different more than 3% than usual, it might be due to the abrasion of a pump. Change a stator.

7 OPERATION

1. Check whether the dispensing time, mixing ratio and dispensing speed are in compliance with the set values.
 - > Set the set points related with the intermittent dispense in advance for managing of a mixer.
 - > Check whether a dispensing mode and start the operation.
2. Select an operation suitable for the dispensing mode and start the operation.
3. After the completion of an operation, remove a mixer and change to a 'Ratio Mode'. Do the dispensing of main materials (2~3 times) and hardeners(2~3 times) and then clean a mix-adaptor dispensing outlet. And insert a night cap and finish the operation.
 - > It is a safety assurance operation for preventing the back flow of mixed liquid.

8 TROUBLESHOOTING

8.1 Error Message on Controller

CONTROLLER TROUBLE	POSSIBLE CAUSE AND CORRECTION
If the power is not turned on	<ol style="list-style-type: none">1) Make sure that the power cord is connected to equipment.2) Make sure that the Touch LCD is working.3) Make sure the status of fuse.4) Make sure that there was a shock from the outside
If the pump is not working	<ol style="list-style-type: none">1) Make sure that the power cord is connected to equipment2) Make sure that the cable is connected to equipment.3) Make sure that there no changes in setting value of controller.4) Check the curing of the liquid in the chamber of pump.5) Check the value of supplying pressure.
If can not touch function	<ol style="list-style-type: none">1) Make sure the LCD screen is well.2) Make sure there are no cracks.3) Make sure that the button is pressed due to deformation of controller case.
If the button can not wok	<ol style="list-style-type: none">1) Make sure the button is broken.2) Make sure that pressing the button is not normal.
If the pressure does not go up	<ol style="list-style-type: none">1) Make sure that the supplying pressure is normal.2) Make sure that the lever of regulator is normal.3) Check the pneumatic connections.



This mark on the products indicates that not being able to deal with other household waste when it's used in the product life. Separately from other waste and recycle it responsibly to promote the re-use resources for preventing possible damage to the environment or people due to the waste treatment. Household users should contact for more details and ways to retailer or local government offices that can recycle safely with using this product. Industrial users should contact their supplier and check the terms and conditions of purchasing.

9 OTHER ABNORMAL PHENOMENON AND THEIR CAUSES AND COUNTERMEASURES

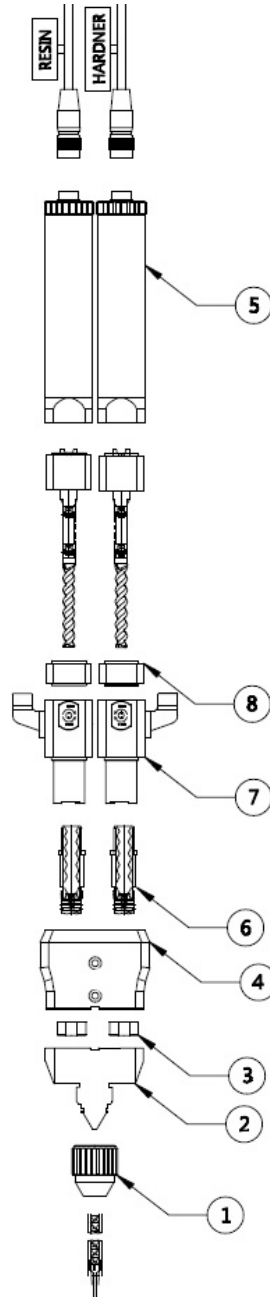
9.1 Dispensed resin fails to be hardened

- 1) Is a mixing rate correct?
Check whether materials in a tank are sufficient.
Check whether sufficient materials are supplied from a feeder (Tank) to a pump inlet.
Check whether there is any leakage of materials when a pump stops.
If there is at least 1 drop of the leakage for 10 seconds, exchange a pump part.
- 2) Is there any blocking of water leakage of a mixer?
Check if there is any leakage on mixer adapter/connection part.
Check if the inside of a mixer is hardened.

9.2 Dispensing pressure of materials is higher than usual

- 1) Is there any hardening or blockage of a mixer or a nozzle?
Exchange a mixer or a nozzle.
- 2) Is there any blockage of the outlet of a mixer adapter?
Disassemble a mixer adapter and clean it.

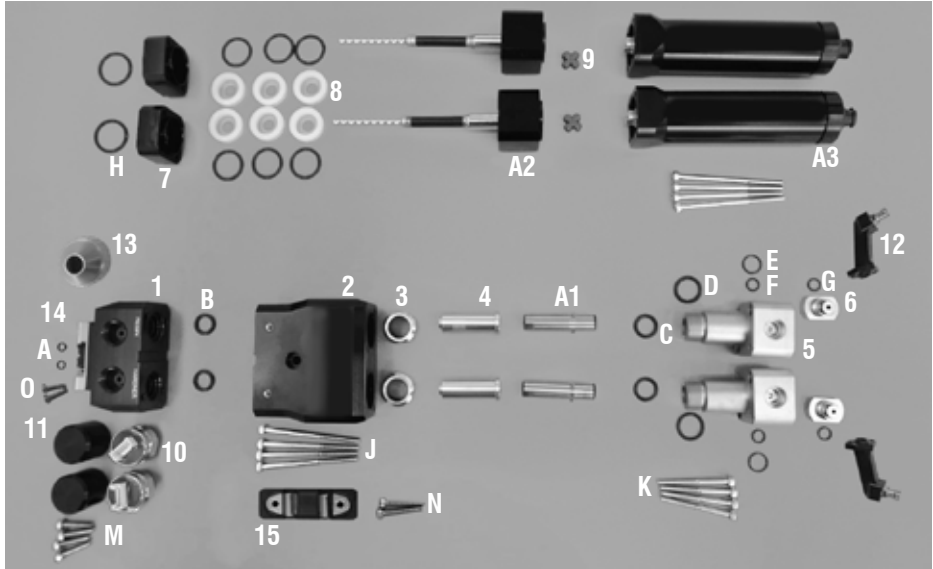
10. DISASSEMBLY/ASSEMBLY OF A PDP PUMP



PDP Pump Disassembly order:

1. In case of MIX-CAP(C TYPE), turn it counterclockwise to disassemble it.
2. Separate four WRENCH BOLTS to separated a MIX-ADAPTER.
3. Turn a STATOR LOCK NUT counterclockwise to separate it. .
4. Separate a WRENCH BOLT to separate it from TWIN BLOC. .
5. Separate a WRENCH BOLT to separate it from CHAMBER PART and MOTOR HOUSING.
6. Turn a STATOR counterclockwise to separate it. (With a REPAIR TOOL)
7. Separate a WRENCH BOLT to separate it from a CHAMBER.
8. Separate a SEAL BLOCK.

11. BREAKDOWN PDP-005 - 050

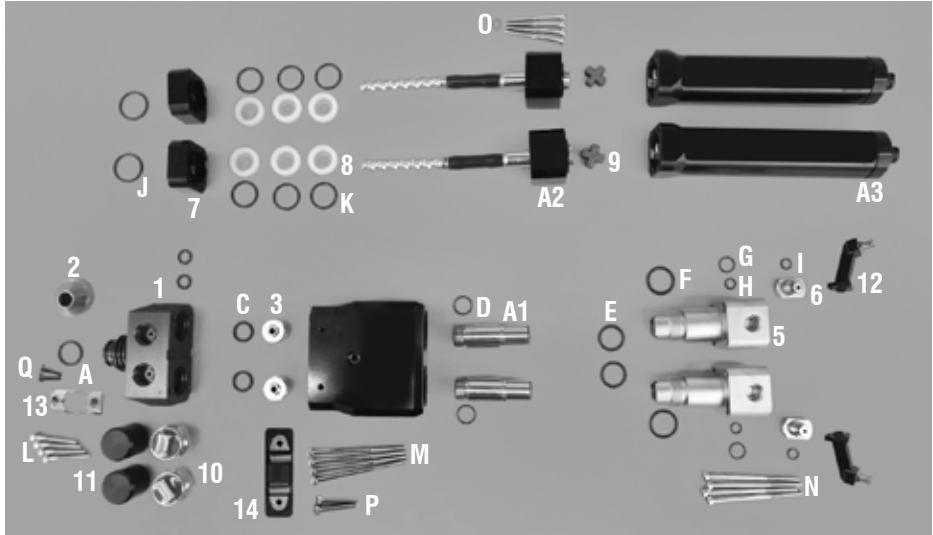


NR.	CODE	DESCRIPTION	Q.TY
A1	PDP-005-A1	Stator Ass'y	2
A2	PDP-005-A2	Rotor Ass'y	2
A3	PDP-005-A3	Motor Ass'y	2
1	PDP-005-1-A	Mix Adapter-A	1
	PDP-005-1-BA	Mix Adapter-BA	
	PDP-005-1-BB	Mix Adapter-BB	
	PDP-005-1-CA	Mix Adapter-CA	
2	PDP-005-1-CB	Mix Adapter-CB	1
	PDP-005-1-CC	Mix Adapter-CC	
	PDP-005-2	Twin Block	
3	PDP-005-3	Union Cap	2
4	PDP-005-4	Stator Sleeve (Ø3 / Ø1.5 / Ø1 / Ø0.4)	2
5	PDP-005-5-ML	Chamber-ML	2
	PDP-005-5-TL	Chamber-TL	
	PDP-005-5-MR	Chamber-MR	
	PDP-005-5-TR	Chamber-TR	
6	PDP-005-6	Vent Knob	2
7	PDP-005-7	Seal Block	2
8	PDP-005-8	Rotary Seal	6
9	PDP-005-9	Urethane Sleeve	2
10	PDP-005-10	Pressure Sensor	2
11	PDP-005-11	Sensor Cap	2
12	PDP-005-12-A	Inlet Adapter(Cartridge)	2
	PDP-005-12-B	Inlet Adapter(Barrel)	
	PDP-005-12-C	Inlet Adapter (Sealant Cartridge)	
	PDP-005-12-D	Inlet Adapter(PT1/8")	
	PDP-005-12-E	Inlet Adapter(PT3/8")	

NR.	CODE	DESCRIPTION	Q.TY
13	PDP-005-13-A	Mix Cap-A	1
	PDP-005-13-B	Mix Cap-B	
	PDP-005-13-C	Mix Cap-C	
	PDP-005-13-D	Mix Cap-D	
14	PDP-005-14-A	Mix Clip-A	1
	PDP-005-14-B	Mix Clip-B	
15	PDP-005-15	Sensor Block	1
A	PDP-005-A-1	O-Ring(P6) (Mix Adapter-A)	1
	PDP-005-A-2	O-Ring(SS3) (Mix Adapter-BA)	2
	PDP-005-A-3	O-Ring(SS3.5) (Mix Adapter-BB)	1
	PDP-005-A-4	O-Ring(SS2) (Mix Adapter-BB)	1
	PDP-005-A-5	O-Ring(AS014) (Mix Adapter-C)	1
B	PDP-005-B	O-Ring(P8)	2
C	PDP-005-C	O-Ring(P9)	2
D	PDP-005-D	O-Ring(AS013)	2
E	PDP-005-E	O-Ring(SS8)	2
F	PDP-005-F	O-Ring(SS5)	2
G	PDP-005-G	O-Ring(SS5)	2
H	PDP-005-H	O-Ring(AN016)	2
I	PDP-005-I	O-Ring(AN015)	6
J	PDP-005-J	Bolt(M3x50)	4
K	PDP-005-K	Bolt(M3x35)	4
L	PDP-005-L	Bolt(M3x55)	4
M	PDP-005-M	Bolt(M3x25)	4
N	PDP-005-N	Bolt(M3x20)	2
O	PDP-005-O	Bolt(M3x8)	2

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12 BREAKDOWN PDP-150 - 1000



NR.	CODE	DESCRIPTION	Q.TY
A1	PDP-150-A1	Stator Ass'y	2
A2	PDP-150-A2	Rotor Ass'y	2
A3	PDP-150-A3	Motor Ass'y	2
1	PDP-150-1-A	Mix Adapter-A	1
	PDP-150-1-BA	Mix Adapter-BA	
	PDP-150-1-BB	Mix Adapter-BB	
	PDP-150-1-CA	Mix Adapter-CA	
	PDP-150-1-CB	Mix Adapter-CB	
2	PDP-150-2-A	Mix Adapter-CC	1
	PDP-150-2-B	Mix Cap-A	
	PDP-150-2-C	Mix Cap-B	
	PDP-150-2-D	Mix Cap-C	
3	PDP-150-3	Orifice Adapter (Ø4/Ø1/Ø0.6/Ø0.4)	2
4	PDP-150-4	Twin Block	1
5	PDP-150-5-ML	Chamber-ML	2
	PDP-150-5-TL	Chamber-TL	
	PDP-150-5-MR	Chamber-MR	
	PDP-150-5-TR	Chamber-TR	
6	PDP-150-6	Vent Knob	2
7	PDP-150-7	Seal Block	2
8	PDP-150-8	Rotary Seal	6
9	PDP-150-9	Urethane Sleeve	2
10	PDP-150-10	Pressure Sensor	2
11	PDP-150-11	Sensor Cap	2
12	PDP-150-12-A	Inlet Adapter (Cartridge)	2
	PDP-150-12-B	Inlet Adapter (Barrel)	
	PDP-150-12-C	Inlet Adapter (Sealant Cartridge)	
	PDP-150-12-D	Inlet Adapter (PT3/8")	

NR.	CODE	DESCRIPTION	Q.TY
13	PDP-150-13-A	Mix Clip-A	1
	PDP-150-13-B	Mix Clip-B	
14	PDP-150-14	Sensor Block	1
A	PDP-150-A-1	O-Ring(P6) (Mix Adapter-A)	1
	PDP-150-A-2	O-Ring(SS3) (Mix Adapter-BA)	2
	PDP-150-A-3	O-Ring(SS3.5) (Mix Adapter-BB)	1
	PDP-150-A-4	O-Ring(SS2) (Mix Adapter-BB)	1
	PDP-150-A-5	O-Ring(AS014) (Mix Adapter-C)	1
B	PDP-150-B	O-Ring(AS010)	2
C	PDP-150-C	O-Ring(AS012)	2
D	PDP-150-D	O-Ring(SS10)	2
E	PDP-150-E	O-Ring(AS014)	2
F	PDP-150-F	O-Ring(AS015)	2
G	PDP-150-G	O-Ring(SS8)	2
H	PDP-150-H	O-Ring(SS5)	2
I	PDP-150-I	O-Ring(SS5)	2
J	PDP-150-J	O-Ring(AN016)	2
K	PDP-150-K	O-Ring(AN015)	6
L	PDP-150-L	Bolt(M3x25)	4
M	PDP-150-M	Bolt(M3x55)	4
N	PDP-150-N	Bolt(M3x55)	4
O	PDP-150-O	Bolt(M3x35)	4
P	PDP-150-P	Bolt(M3x20)	2
Q	PDP-150-Q	Bolt(M3x8)	2

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We reserve the right to modify at any time, without notice, the specifications, dimensions and weights in this manual. The illustrations are not binding.