
PRO DUO PUMP SYSTEM

PDP-1000



User manual

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1 General information

1.1 General information

This user manual provides the user and the equipment maintenance specialist with essential information for operating the equipment. Therefore, it is strongly recommended that you should thoroughly understand this user manual.

In order to have easy access to this user manual, it must be placed where it can be easily seen, near the equipment.

1.2 Warranty

Except for a separate agreement and the following cases, the warranty period will be one year in the event of defects.

- Following -

1. In case you modify the equipment without permission by Taeha Corp.
2. If someone other than the technical support personnel of Taeha Corp. modifies the equipment or repairs the equipment without using the designated parts.
3. If any spare parts other than those specified by Taeha Corp. have been used for the product.
4. If the defect is due to an intentional damage.
5. If the defect is due to natural disaster or fire

1.3 Technical support

If necessary, Taeha Corp. will provide technical support service for the customer. Please contact us by phone or fax.

Head Office

Phone : +82(0)31 552 5300

Fax : +82(0)31 552 5400

2 Features of Pro Duo Pump System

2.1 Pro Duo Pump System

This system is a precise pump made using a special eccentric screw structure; it has organizational benefits that are simple in construction but excellent in performance.

It is also a high-performance dispenser equipped with dedicated software that comprises a control panel to perform a variety of tasks.

It is a good system that is designed to provide convenience, accuracy, and diversity for applying dispensers.

Please read this manual to get the most out of your product and do what you want.

2.2 Features

- ✓ The specially designed rotary auger pump allows long-term stability for two-component material. The system provides much enhanced pump efficiency and reproducibility compared with positive displacement.
- ✓ Mix ratio and dispensing volume can be easily adjusted by the number of turns and rotational speed of the rotor.
- ✓ A wide range of application options are available based on the viscosity and natural changes in materials.
- ✓ The special pump can handle a broad range of materials, regardless of viscosity and natural changes in materials.
- ✓ Clean dispensing can be achieved because drop formation is prevented by the sniff back function and freely rotate. No detergent is used for maintenance ; instead the mixer part can be replaced. Maintenance is therefore eco-friendly and economical.

2.3 Specification of Pro Duo Pump

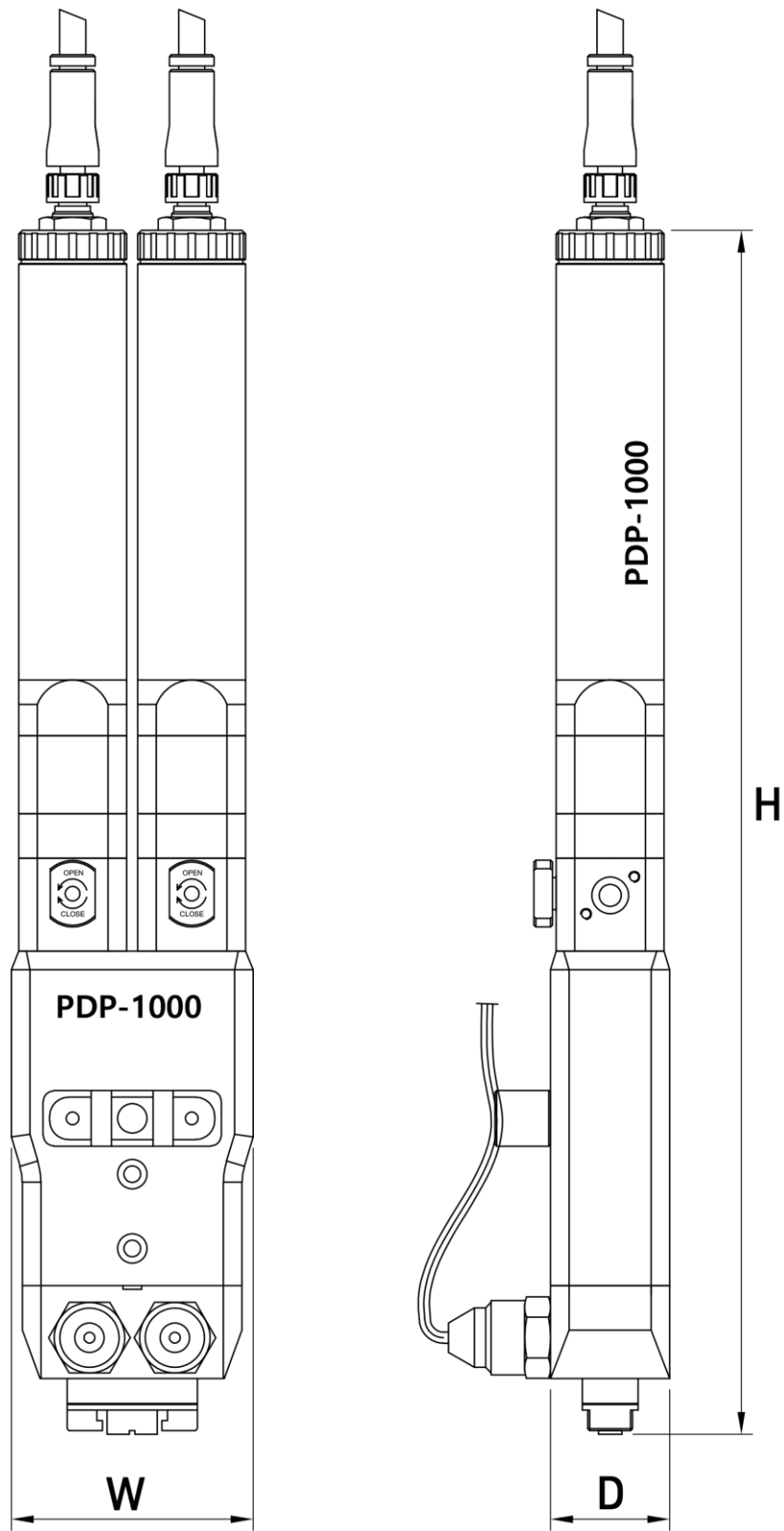


Figure 1. Appearance of pro duo pump

Table 1. Specification of pro duo pump

Item	Specification
Model	PDP-1000
Dimensions (WxDxH)[mm]	67 x 35 x 340
Weight	1.8kg
Input Pressure	0 ~ 0.6MPa
Max Dosing Pressure	2.0MPa
Viscosity (cPs)	10 ~ 300,000
Dosing Volume/Rev	≐ 2.2ml
Motor Speed(rpm)	0 ~ 120rpm
Accuracy of Dosing	±2%
Stator Material	FFKM / FKM / EPDM
Material Inlet Port	Module Type : Inlet Adapter Tap Type : BSPT 1/4"
Material Outlet Port	Mix adapter A/B/C/F/K type
Operating Condition	10 ~ 40°C, 10 ~ 85%RH

2.4 Specification of Pro Duo Pump Controller

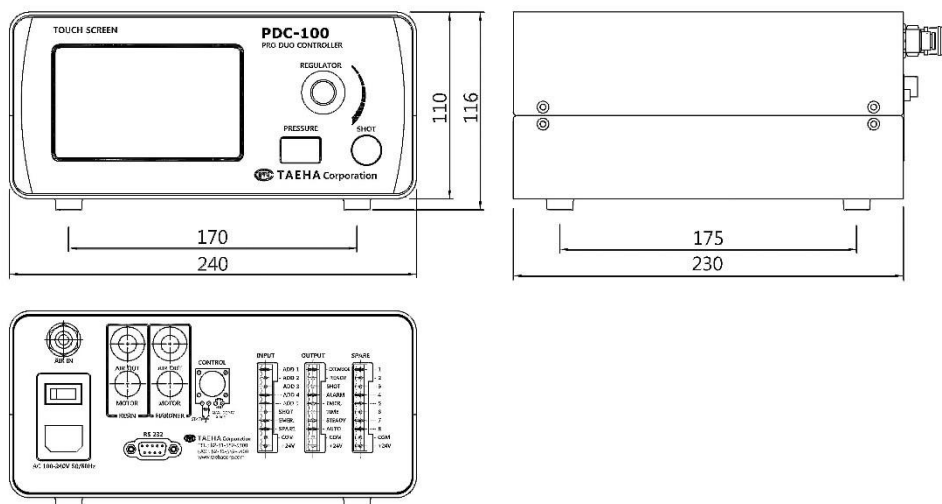


Figure 2. Appearance of PDC-100

Table 2. Specification of PDC-100

Item	Specification	Remarks
Name	PDC-100	
Weight	3.6kg	
Input power	AC 100~240V 50/60Hz,(1phase) DC24V(max)	±10%
Power consumption	Max.75W	
Display	5" TFT LCD	
Operation Mode	Time / Steady / Purge / Ratio	4 Mode
Operation Memory	15ch	User Define
Operating air pressure	0.5MPa	Air Filter : 5μ
Air In Port	One touch fitting PC(Ø6, max.0.7MPa)	
Air Out Port	One touch fitting PC(Ø6, max.0.7MPa)	
Liquid Indicator Sensor	OK	
External Control	OK	
Interface	RS232, D-SUB 9 PIN	
Input Signal	Contact Input or NPN Open Collector Tr	
Dosing End Signal	NPN Open Collector Tr	
Operating temperature	10 ~ 40°C	Avoid direct sunlight
Operating humidity	10 ~ 85%RH	No condensation
Vibration resistant	Less than 0.5G	G : acceleration of gravity

2.5 PDP(standard) system

A standard type means a structure in which the material suppliers(cartridge, tank, etc.) are separated from the Pro-duo pump.

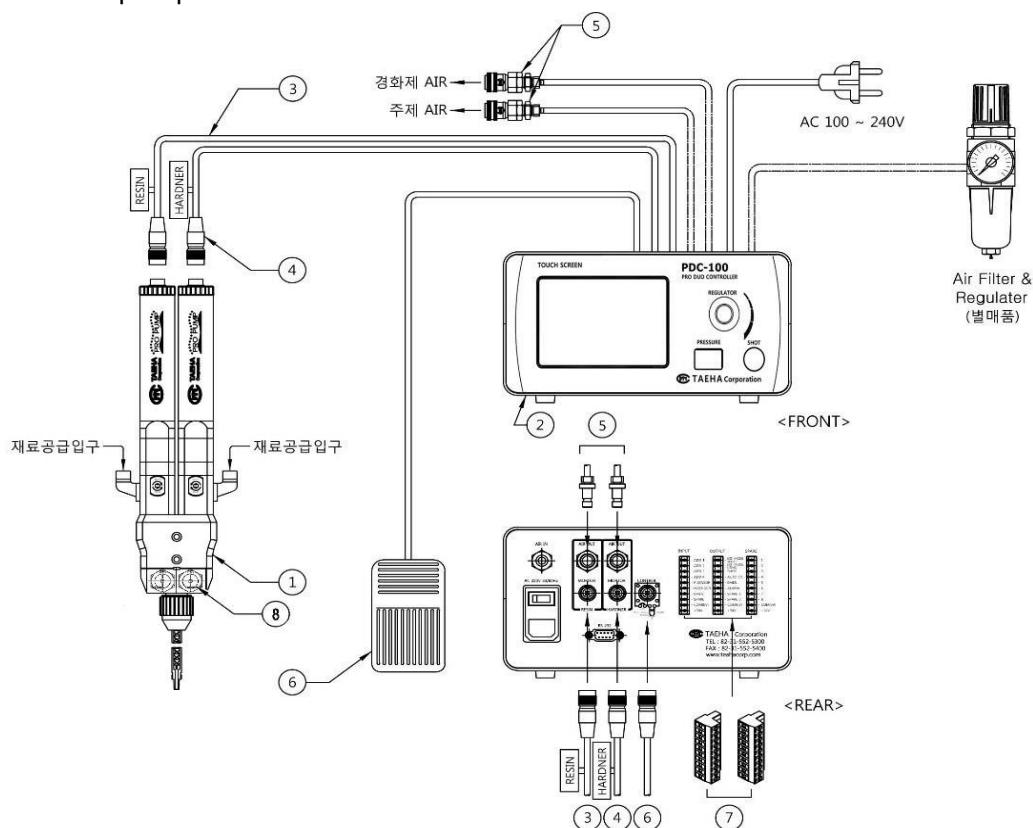


Figure 3. Pro duo pump system

Table 3. Pro duo pump system

No.	Description	Model	Q'ty	Remarks
1	2K Pro Duo Pump(PDP)		1 Set	
2	Pro Duo Pump Controller	PDC-100	1 Set	Pro duo pump controller
3	Resin Motor Cable		1 Pc	Length : 3m(STD)
4	Hardener Motor Cable		1 Pc	
5	Air Tube Ass'y (Resin, Hardener)	Ø6, Auto Jointer	2 Pcs	length : 2m(STD)
6	Foot Switch		1 Pc	length : 2m(Option)
7	Terminal Block	10 Pin	2 Pcs	External In/Out Connector
8	Pressure Sensor(option)	50B P3IK91	2 Pcs	Range : 0 ~ 50bar (gauge pressure) Output : 0.5 ~ 3.0 VDC Tolerable pressure : 150bar

2.6 PDPM (Module type) system

Module type means that the material supplier(barrel, cartridge, etc.)is integral with the Pro-duo pump unit.

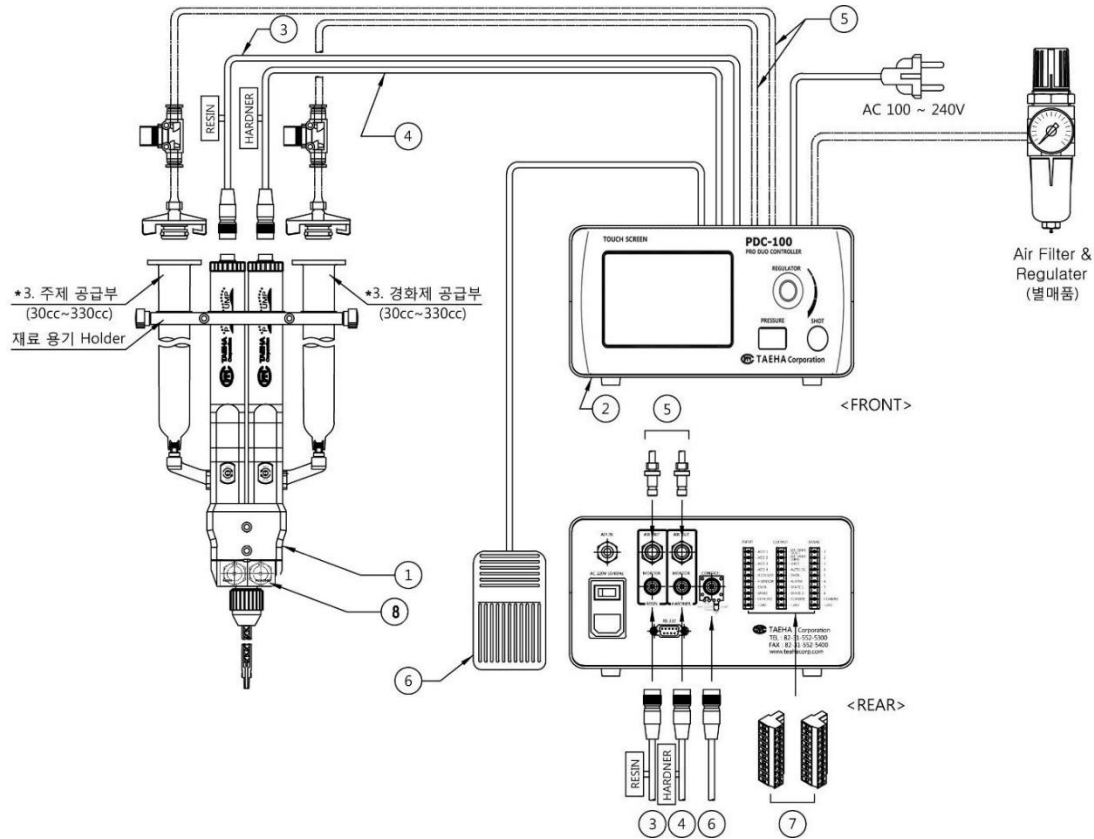


Figure 4. Pro duo pump module type(PDPM) system

Table 4. Pro duo pump module type(PDPM) system

No.	Description	Model	Q'ty	Remarks
1	2K Pro Duo Pump(PDP)		1 Set	
2	Pro Duo Pump Controller	PDC-100	1 Set	Pro duo pump controller
3	Resin Motor Cable		1 Pc	Length : 3m(STD)
4	Hardener Motor Cable		1 Pc	
5	Air Tube Ass'y (Resin, Hardener)	Ø6, Auto Jointer	2 Pcs	length : 2m(STD)
6	Foot Switch		1 Pc	length : 2m(Option)
7	Terminal Block	10 Pin	2 Pcs	External In/Out Connector
8	Pressure Sensor(option)	50B P3IK91	2 Pcs	Range : 0 ~ 50bar (gauge pressure) Output : 0.5 ~ 3.0 VDC Tolerable pressure : 150bar

3 Names of each part

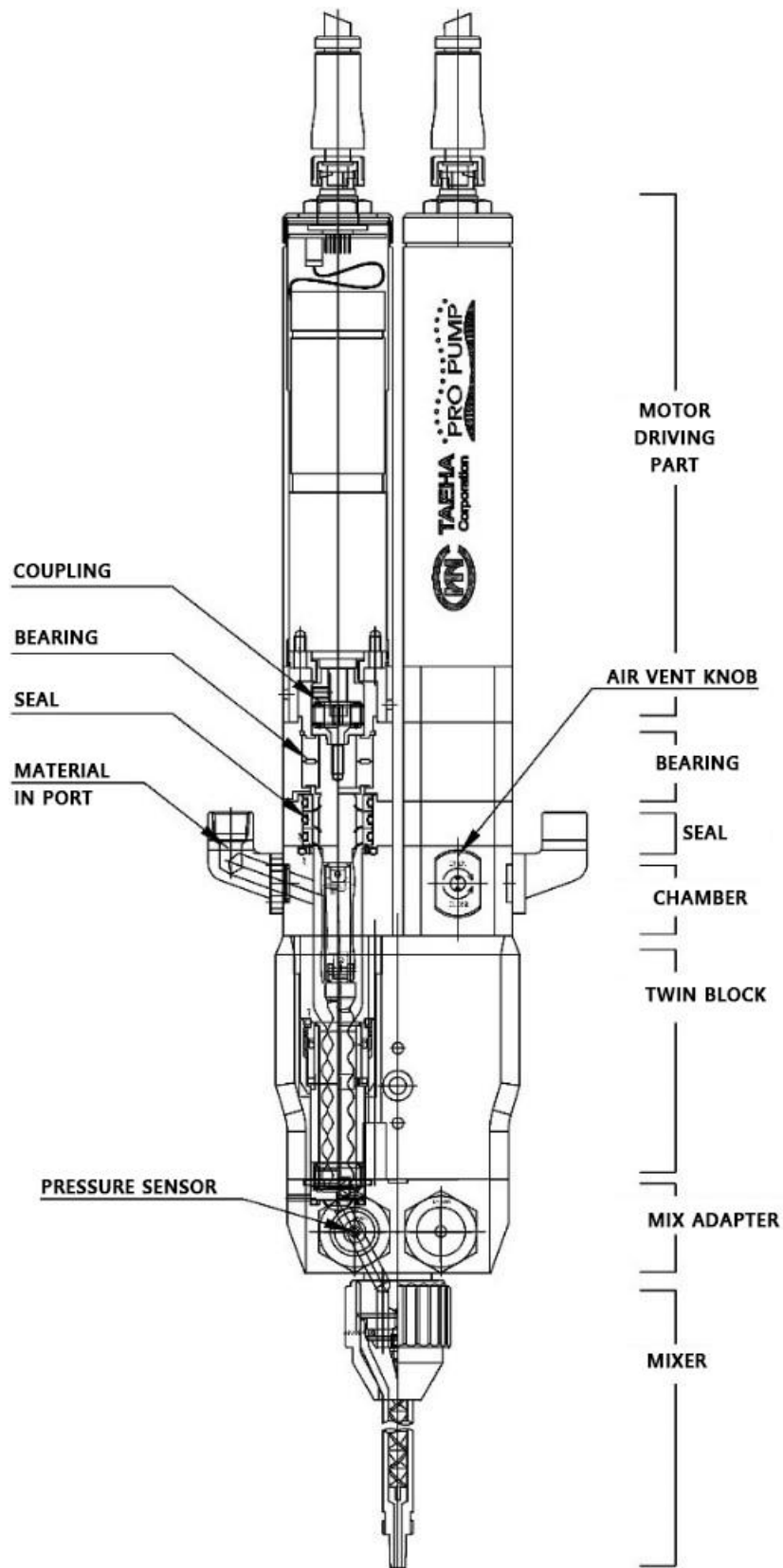


Figure 5. Names of each part

Table 5. The shape of mix adapter and mixer

	A Type	B Type	C Type	F Type
	A(1:1~3:1)	BA(1:1~3:1)	CA(1:1~3:1)	FA(1:1~3:1)
	A(4:1~10:1)	BB(4:1~10:1)	CB(4:1~10:1)	FB(4:1~10:1)
Mix Adapter	-			
	-	-	CC(4:1~10:1)	
	-	-		
Mixer				

4 Operation of Pro Duo Pump

4.1 Precautions on use and assembly

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

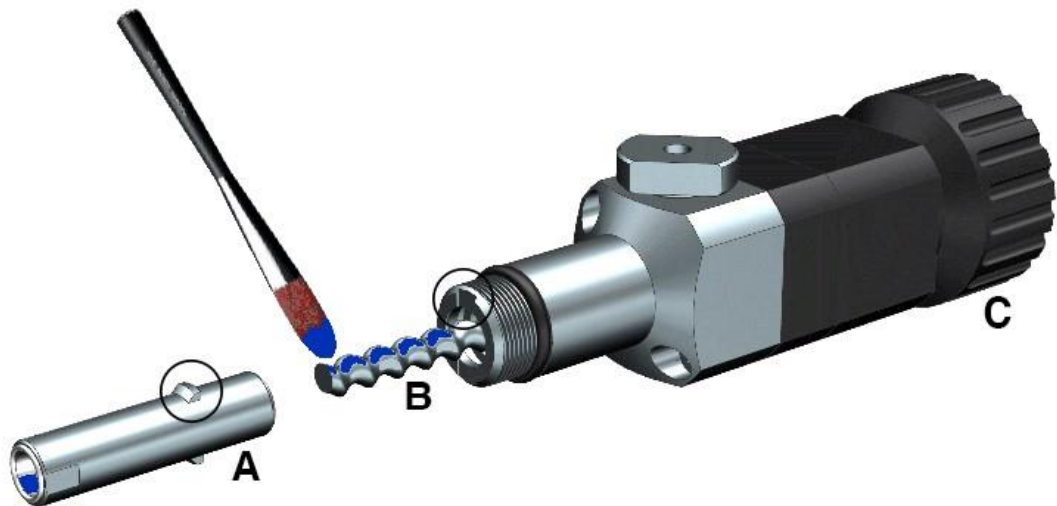


Figure 6. Rotor and stator connection

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 dispense



When the pump and the controller's setting are finished, before applying the solution to the product, rotate the D(Vent knob) as the arrow direction one to two rounds to dispense 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(5~10RPM) to dispense.

Figure 7. Eliminating bubbles

4.2 Ready to use

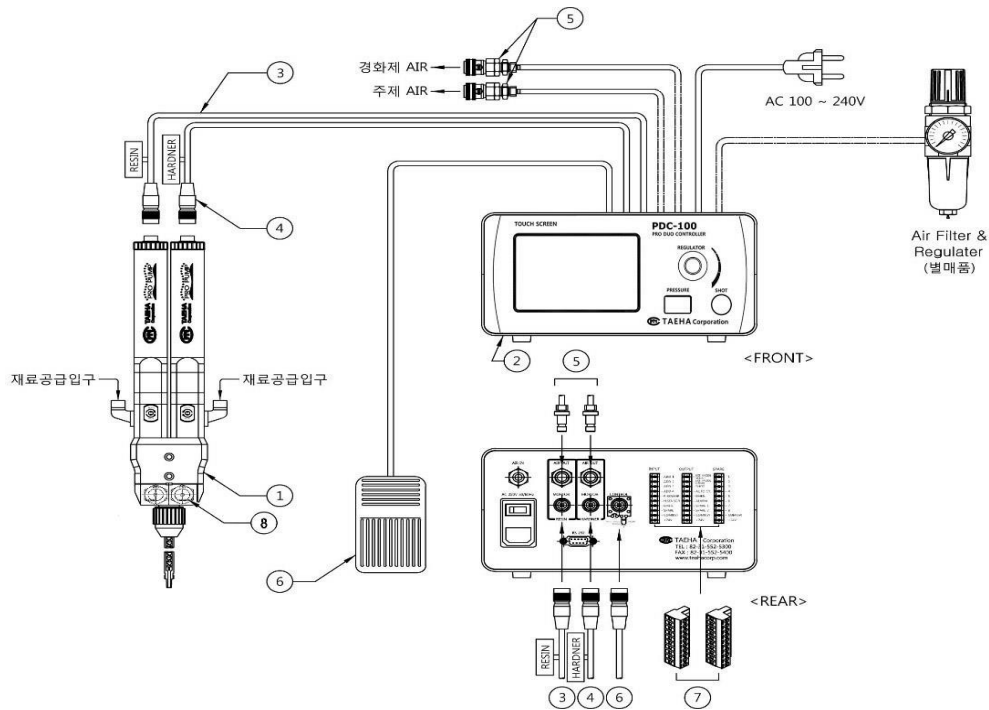


Figure 8. PDP system composition

- 1) Connect the motor cable(③) to the pro duo pump(①).
- 2) Connect the Air piping to the PDC-100 with the utility line, and connect the Air Out (④) to the material supply device. Please prepare the main air separately in a clean air of 5kgf/cm² or more.
Make sure that the Air piping of the material supply device does not get twisted.
- 3) Connect the Foot Switch (or external device) to the Control terminal.
- 4) After checking the input power supply of the Pro Duo Pump Controller, turn on the power switch.
- 5) Refer to <Table 6> to confirm that the Air pressure supplied to the material supply equipment (Tank, Barrel, Cartridge) is correct. However, it can be changed according to the dispensing conditions.

Table 6. Suitable setting for each material

Less than 2000 cPs	1~2kgf/cm ²
Over 2000 cPs	2~5kgf/cm ²

- 6) Open the air vent knob attached to the pro duo pump.
 - This is a work to remove air bubbles from the pump without driving the pump and to check whether the material supply is smooth. Open it one or two and a half turns counterclockwise.
 - Rotate the Air Vent Knob, where the liquid flows out sufficiently compared to the dispense rate, clockwise to lock it completely. Clean the remaining liquid.
- 7) After switching to manual mode and setting the discharge speed to about 10%, press the discharge button and check if the discharge is free of bubbles.
- 8) If bubbles appear, perform bubble removal until no bubbles are dispensed.
- 9) Set the mode and discharge amount suitable for the shot conditions, press the shot button, and confirm that normal dispensing is performed.
- 10) Select "Ratio" for Controller Mode and enter the setting value.
- 11) When all the preparations are completed, use an external device or Foot Switch to shot.

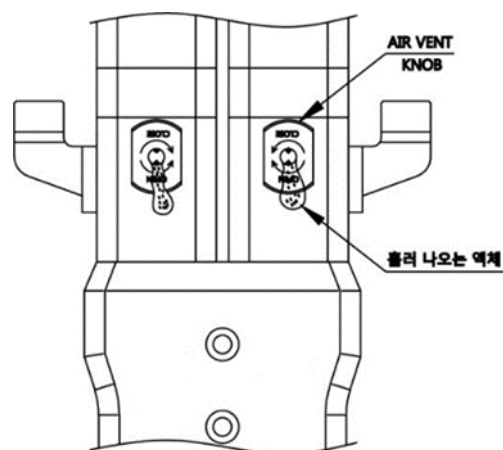


Figure 9. Air vent knob

5 PDP-1000 disassemble

This section describes the procedure for disassembling the PDP-1000 for its maintenance.

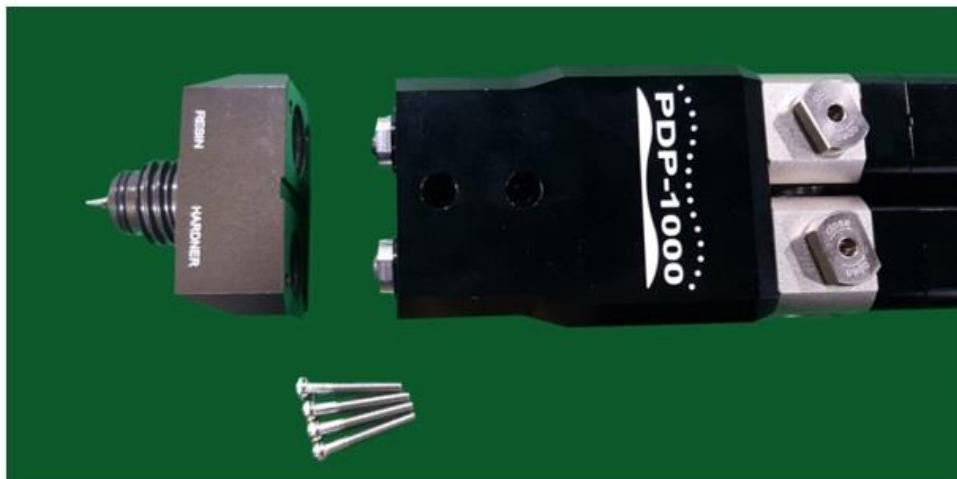
- 1) Prepare the Pro Duo Pump and tools.



- 2) Turn the mix cap counterclockwise to release the night cap.

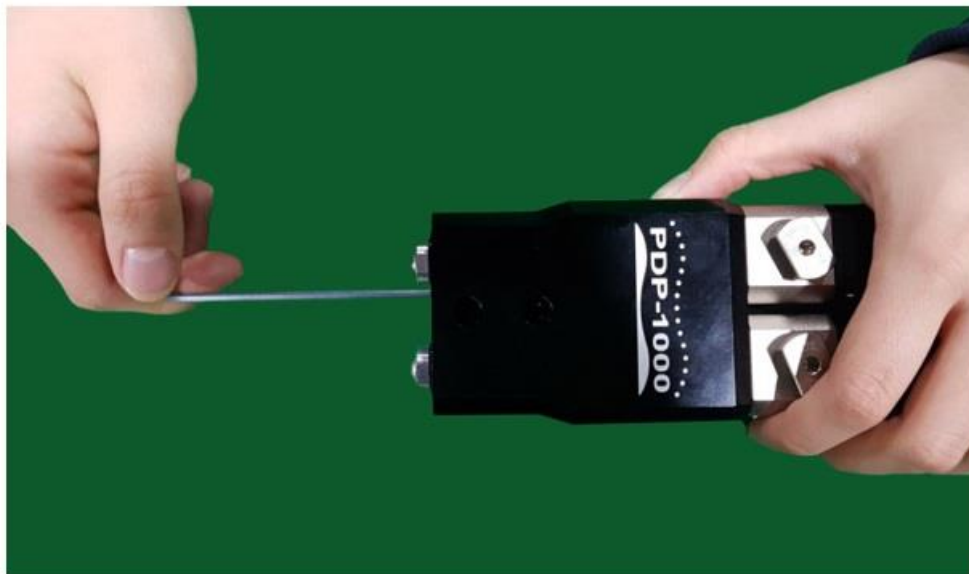


- 3) Turn the wrench bolts counterclockwise to release the mix adapter.



- 4) Wrench Remove the Twin Block by turning the four Wrench Bolt counterclockwise at the bottom.

(When the Twin Block is separated, it is separated into two pumps.)



- 5) Hold a pump and remove the orifice adapter using a spanner.



- 6) Hold a pump and remove the union cap using a spanner.



- 7) Turn the wrench bolts counterclockwise to release the motor.



- 8) Use the Repair Tool to fix one side, and then slowly turn the Stator counterclockwise with a spanner to remove it.



- 9) Turn the wrench bolts counterclockwise to release the chamber.

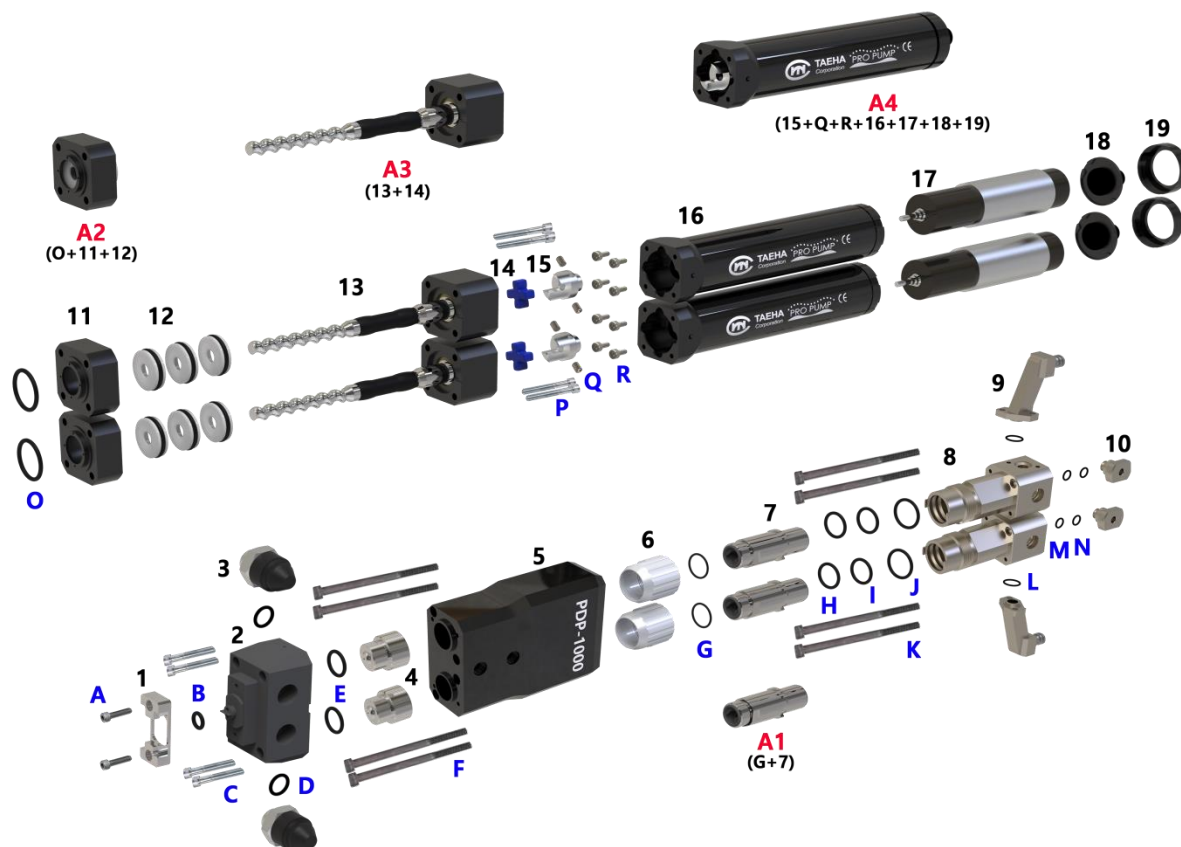


10) Remove motor and seal block by rocking them to the left and right.



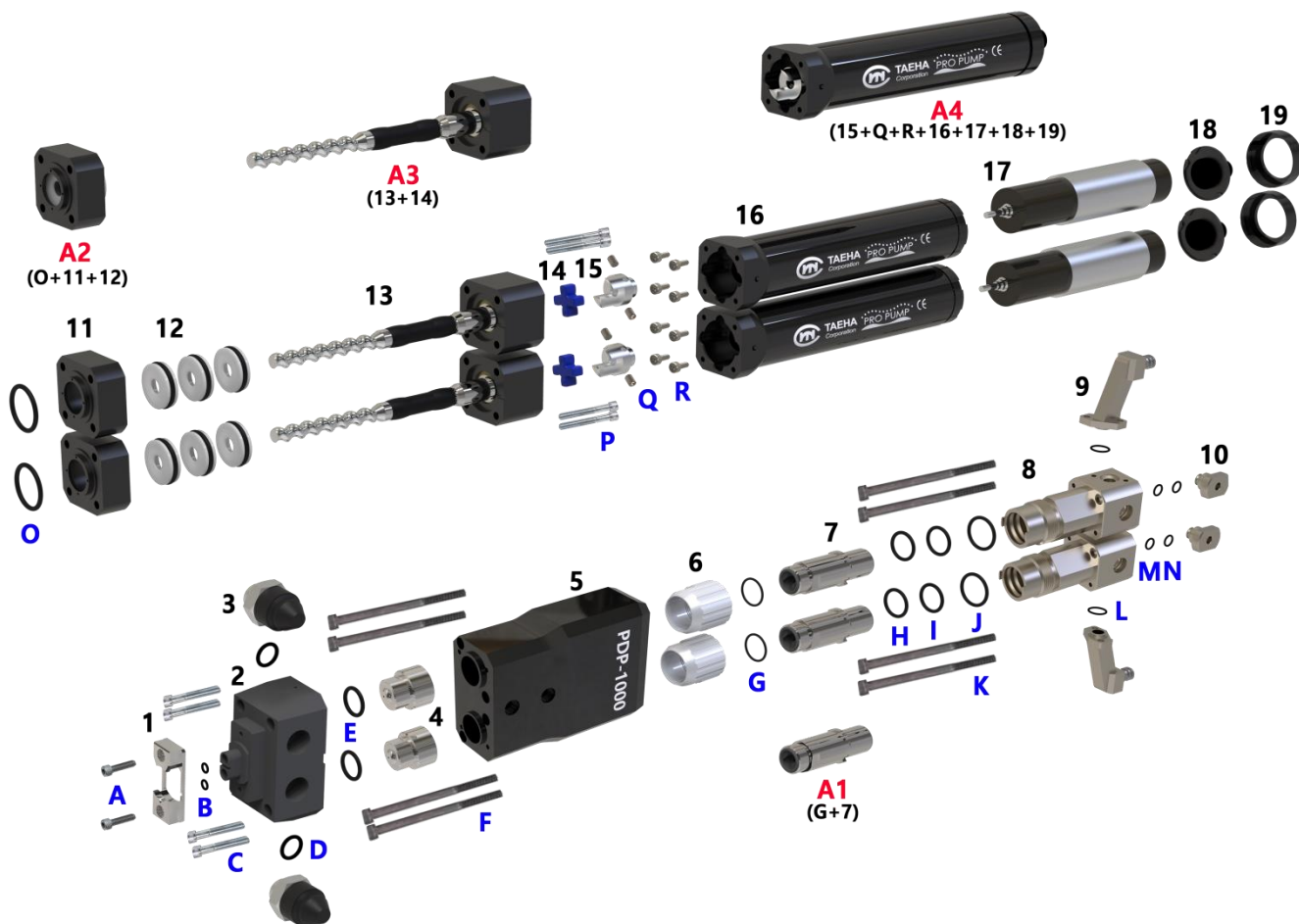
6 PDP-1000 Partlist

6.1 PDP-1000 A type



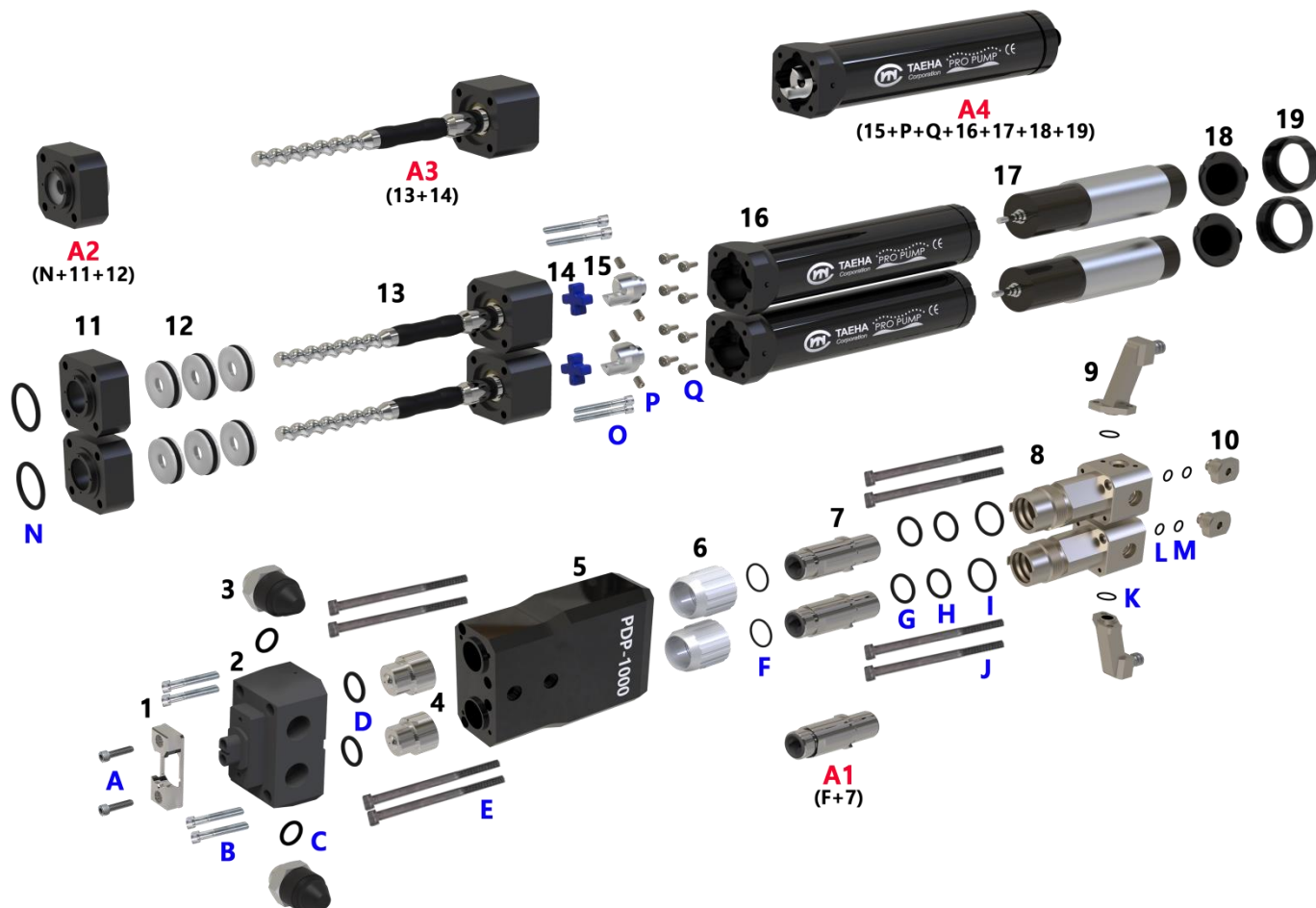
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-A-A1	Stator ass'y	2		18	PDP-1000-A-18	Connector	2	
A2	PDP-1000-A-A2	Seal block ass'y	2		19	PDP-1000-A-19	Connector cap	2	
A3	PDP-1000-A-A3	Rotor ass'y	2		A	PDP-1000-A-A	Bolt(M3x8)	2	High-strength
A4	PDP-1000-A-A4	Motor ass'y	2		B	PDP-1000-A-B	O-Ring(P6)	1	FKM(1472)
1	PDP-1000-A-1	Mix clip-A type	1	AL6061	C	PDP-1000-A-C	Bolt(M3x25)	4	High-strength
2	PDP-1000-A-2	Mix adapter	1	AL6061	D	PDP-1000-A-D	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-A-3	Pressure sensor	2		E	PDP-1000-A-E	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-A-4	Orifice adapter	2	SUS303	F	PDP-1000-A-F	Bolt(M3x60)	4	High-strength
5	PDP-1000-A-5	Twin block	1	AL6061	G	PDP-1000-A-G	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-A-6	Union cap	2	SUS303	H	PDP-1000-A-H	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-A-7	Stator	2		I	PDP-1000-A-I	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-A-8	Chamber	2	AL2024	J	PDP-1000-A-J	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-A-9	Inlet adapter	2	AL6061	K	PDP-1000-A-K	Bolt(M3x60)	4	High-strength
10	PDP-1000-A-10	Vent knob	2	AL6061	L	PDP-1000-A-L	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-A-11	Seal block	2	AL2011	M	PDP-1000-A-M	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-A-12	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-A-N	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-A-13	Rotor + bearing block	2		O	PDP-1000-A-O	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-A-14	Urethane sleeve	2	Poly urethane	P	PDP-1000-A-P	Bolt(M3x35)	4	High-strength
15	PDP-1000-A-15	Coupling driving flange	2	SUS303	Q	PDP-1000-A-Q	Set screw(M3x5)	4	
16	PDP-1000-A-16	Motor housing	2	AL2024	R	PDP-1000-A-R	Bolt(M3x8)	8	
17	PDP-1000-A-17	Motor	2						

6.2 PDP-1000 BA type partlist



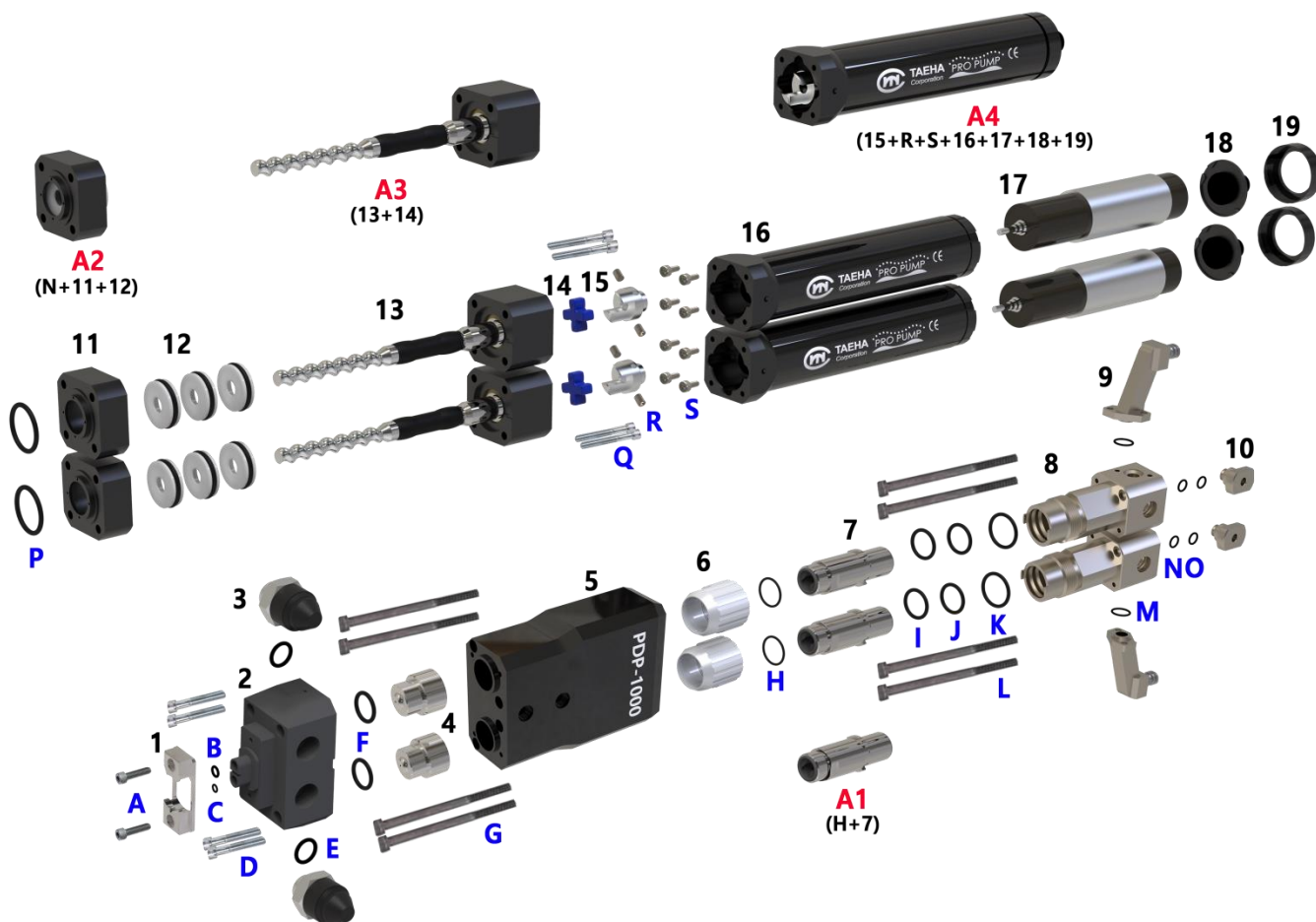
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-BA-A1	Stator ass'y	2		18	PDP-1000-BA-18	Connector	2	
A2	PDP-1000-BA-A2	Seal block ass'y	2		19	PDP-1000-BA-19	Connector cap	2	
A3	PDP-1000-BA-A3	Rotor ass'y	2		A	PDP-1000-BA-A	Bolt(M3x8)	2	High-strength
A4	PDP-1000-BA-A4	Motor ass'y	2		B	PDP-1000-BA-B	O-Ring(SS3)	2	FKM(1472)
1	PDP-1000-BA-1	Mix clip-B type	1	AL6061	C	PDP-1000-BA-C	Bolt(M3x25)	4	High-strength
2	PDP-1000-BA-2	Mix adapter	1	AL6061	D	PDP-1000-BA-D	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-BA-3	Pressure sensor	2		E	PDP-1000-BA-E	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-BA-4	Orifice adapter	2	SUS303	F	PDP-1000-BA-F	Bolt(M3x60)	4	High-strength
5	PDP-1000-BA-5	Twin block	1	AL6061	G	PDP-1000-BA-G	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-BA-6	Union cap	2	SUS303	H	PDP-1000-BA-H	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-BA-7	Stator	2		I	PDP-1000-BA-I	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-BA-8	Chamber	2	AL2024	J	PDP-1000-BA-J	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-BA-9	Inlet adapter	2	AL6061	K	PDP-1000-BA-K	Bolt(M3x60)	4	High-strength
10	PDP-1000-BA-10	Vent knob	2	AL6061	L	PDP-1000-BA-L	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-BA-11	Seal block	2	AL2011	M	PDP-1000-BA-M	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-BA-12	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-BA-N	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-BA-13	Rotor + bearing block	2		O	PDP-1000-BA-O	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-BA-14	Urethane sleeve	2	Poly urethane	P	PDP-1000-BA-P	Bolt(M3x35)	4	High-strength
15	PDP-1000-BA-15	Coupling driving flange	2	SUS303	Q	PDP-1000-BA-Q	Set screw(M3x5)	4	
16	PDP-1000-BA-16	Motor housing	2	AL2024	R	PDP-1000-BA-R	Bolt(M3x8)	8	
17	PDP-1000-BA-17	Motor	2						

6.3 PDP-1000 BAH type partlist



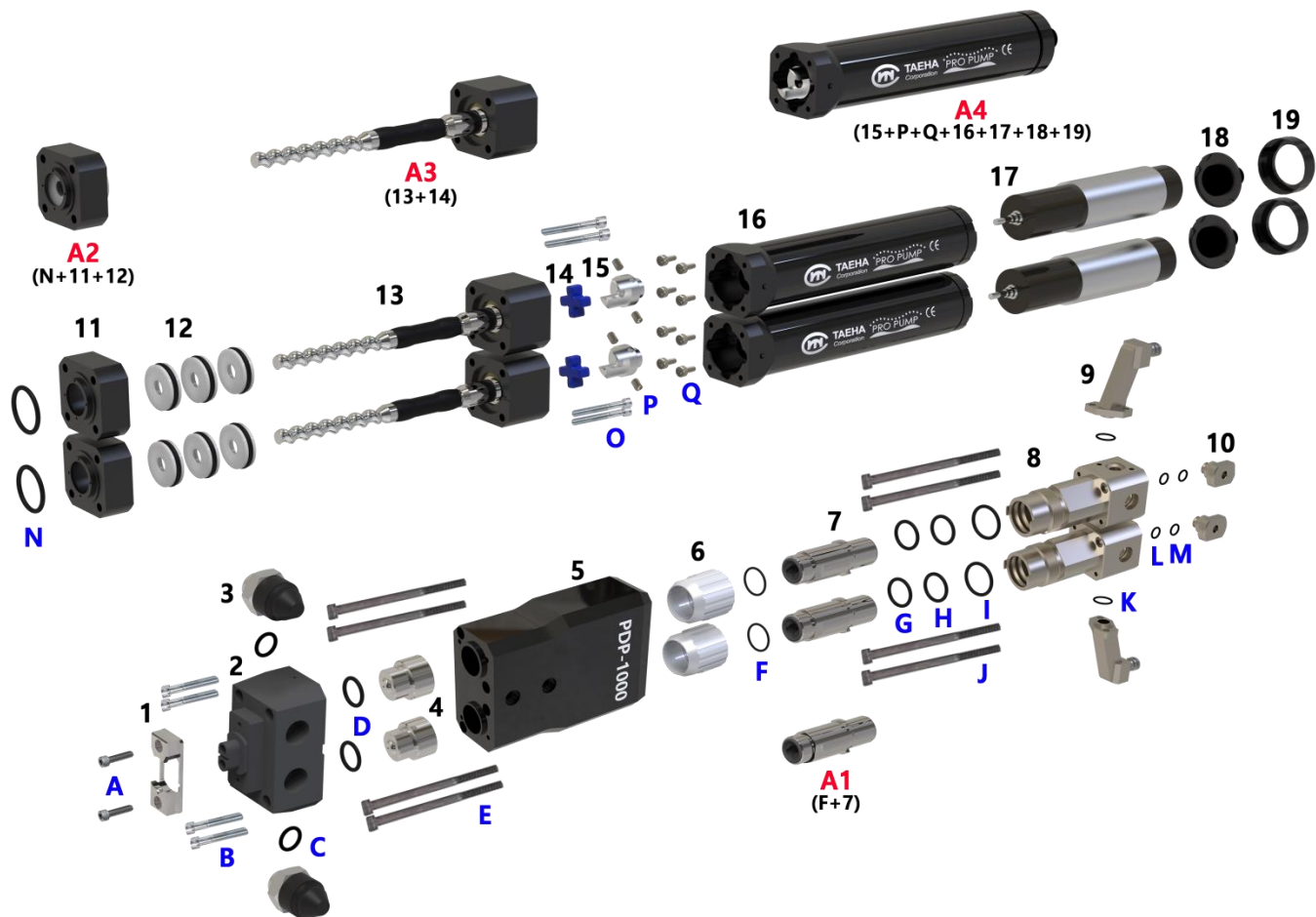
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-BAH-A1	Stator ass'y	2		17	PDP-1000-BAH-17	Motor	2	
A2	PDP-1000-BAH-A2	Seal block ass'y	2		18	PDP-1000-BAH-18	Connector	2	
A3	PDP-1000-BAH-A3	Rotor ass'y	2		19	PDP-1000-BAH-19	Connector cap	2	
A4	PDP-1000-BAH-A4	Motor ass'y	2		A	PDP-1000-BAH-A	Bolt(M3x8)	2	High-strength
1	PDP-1000-BAH-1	Mix clip-B type	1	AL6061	B	PDP-1000-BAH-B	Bolt(M3x25)	4	High-strength
2	PDP-1000-BAH-2	Mix adapter	1	AL6061	C	PDP-1000-BAH-C	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-BAH-3	Pressure sensor	2		D	PDP-1000-BAH-D	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-BAH-4	Orifice adapter	2	SUS303	E	PDP-1000-BAH-E	Bolt(M3x60)	4	High-strength
5	PDP-1000-BAH-5	Twin block	1	AL6061	F	PDP-1000-BAH-F	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-BAH-6	Union cap	2	SUS303	G	PDP-1000-BAH-G	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-BAH-7	Stator	2		H	PDP-1000-BAH-H	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-BAH-8	Chamber	2	AL2024	I	PDP-1000-BAH-I	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-BAH-9	Inlet adapter	2	AL6061	J	PDP-1000-BAH-J	Bolt(M3x60)	4	High-strength
10	PDP-1000-BAH-10	Vent knob	2	AL6061	K	PDP-1000-BAH-K	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-BAH-11	Seal block	2	AL2011	L	PDP-1000-BAH-L	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-BAH-12	Rotary seal(+O-Ring)	6	UHMW-PE	M	PDP-1000-BAH-M	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-BAH-13	Rotor + bearing block	2		N	PDP-1000-BAH-N	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-BAH-14	Urethane sleeve	2	Poly urethane	O	PDP-1000-BAH-O	Bolt(M3x35)	4	High-strength
15	PDP-1000-BAH-15	Coupling driving flange	2	SUS303	P	PDP-1000-BAH-P	Set screw(M3x5)	4	
16	PDP-1000-BAH-16	Motor housing	2	AL2024	Q	PDP-1000-BAH-Q	Bolt(M3x8)	8	

6.4 PDP-1000 BB type partlist



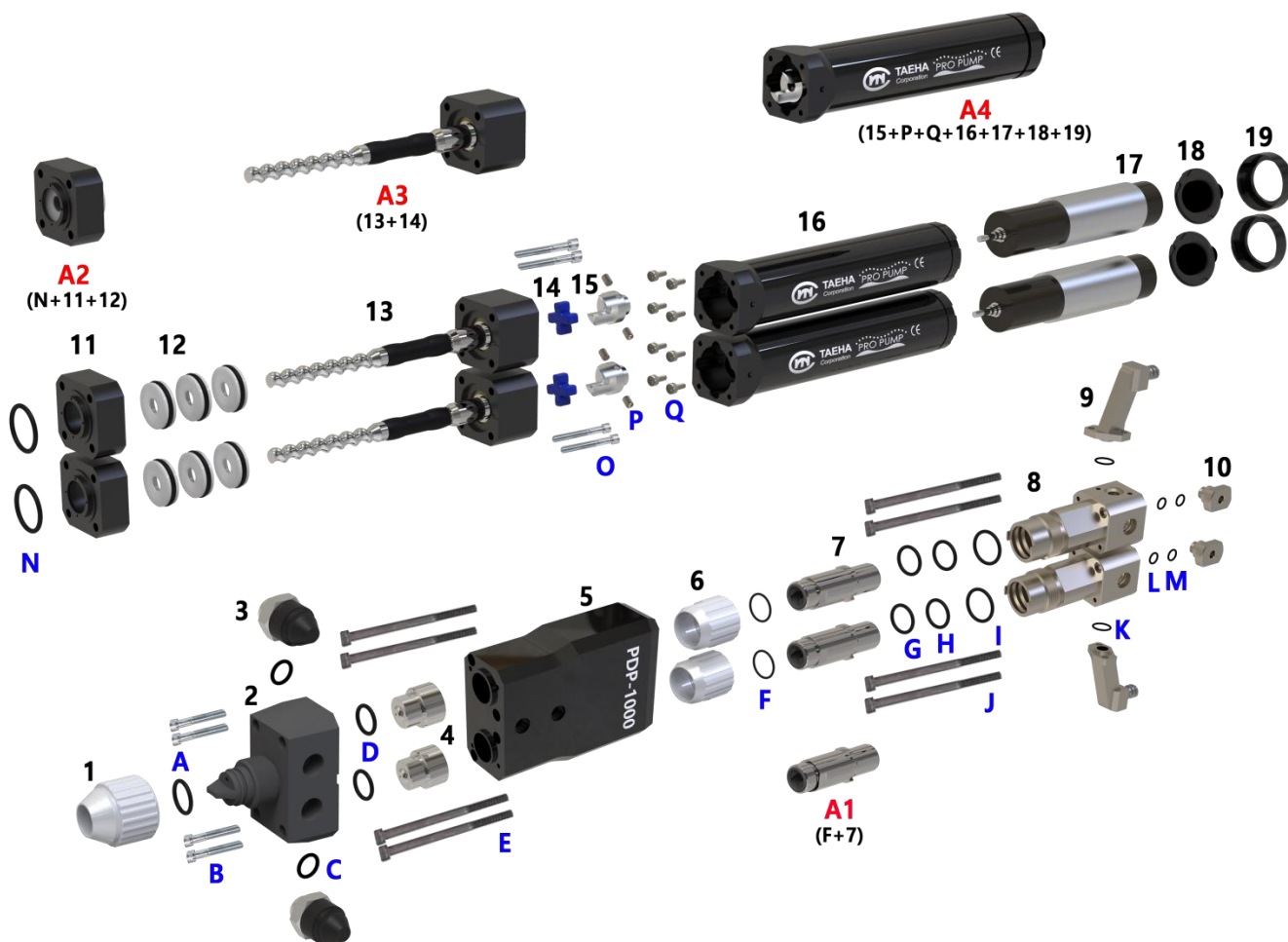
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-BB-A1	Stator ass'y	2		18	PDP-1000-BB-18	Connector	2	
A2	PDP-1000-BB-A2	Seal block ass'y	2		19	PDP-1000-BB-19	Connector cap	2	
A3	PDP-1000-BB-A3	Rotor ass'y	2		A	PDP-1000-BB-A	Bolt(M3x8)	2	High-strength
A4	PDP-1000-BB-A4	Motor ass'y	2		B	PDP-1000-BB-B	O-Ring(SS3.5)	1	FKM(1472)
1	PDP-1000-BB-1	Mix clip-B type	1	AL6061	C	PDP-1000-BB-C	O-Ring(SS2)	1	FKM(1472)
2	PDP-1000-BB-2	Mix adapter	1	AL6061	D	PDP-1000-BB-D	Bolt(M3x25)	4	High-strength
3	PDP-1000-BB-3	Pressure sensor	2		E	PDP-1000-BB-E	O-Ring(AS010)	2	FKM(1472)
4	PDP-1000-BB-4	Orifice adapter	2	SUS303	F	PDP-1000-BB-F	O-Ring(AS012)	2	FKM(1472)
5	PDP-1000-BB-5	Twin block	1	AL6061	G	PDP-1000-BB-G	Bolt(M3x60)	4	High-strength
6	PDP-1000-BB-6	Union cap	2	SUS303	H	PDP-1000-BB-H	O-Ring(S15)	2	FKM(1472)
7	PDP-1000-BB-7	Stator	2		I	PDP-1000-BB-I	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-BB-8	Chamber	2	AL2024	J	PDP-1000-BB-J	O-Ring(AS017)	2	FKM(1472)
9	PDP-1000-BB-9	Inlet adapter	2	AL6061	K	PDP-1000-BB-K	O-Ring(AS019)	2	FKM(1472)
10	PDP-1000-BB-10	Vent knob	2	AL6061	L	PDP-1000-BB-L	Bolt(M3x60)	4	High-strength
11	PDP-1000-BB-11	Seal block	2	AL2011	M	PDP-1000-BB-M	O-Ring(SS8)	2	FKM(1472)
12	PDP-1000-BB-12	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-BB-N	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-BB-13	Rotor + bearing block	2		O	PDP-1000-BB-O	O-Ring(SS5)	2	FKM(1472)
14	PDP-1000-BB-14	Urethane sleeve	2	Poly urethane	P	PDP-1000-BB-P	O-Ring(AN016)	2	FKM(1472)
15	PDP-1000-BB-15	Coupling driving flange	2	SUS303	Q	PDP-1000-BB-Q	Bolt(M3x35)	4	High-strength
16	PDP-1000-BB-16	Motor housing	2	AL2024	R	PDP-1000-BB-R	Set screw(M3x5)	4	
17	PDP-1000-BB-17	Motor	2		S	PDP-1000-BB-S	Bolt(M3x8)	8	

6.5 PDP-1000 BBH type partlist



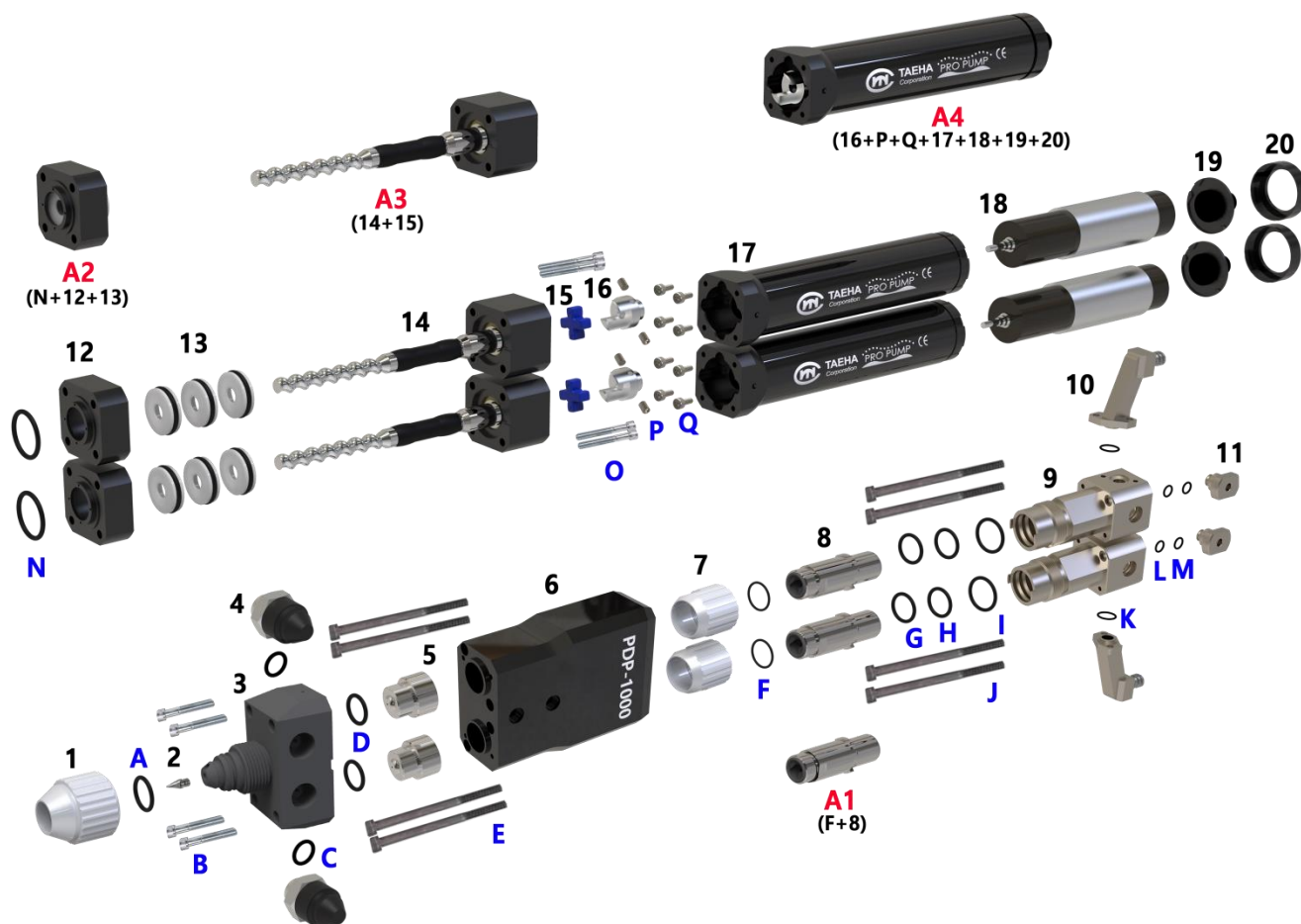
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-BBH-A1	Stator ass'y	2		17	PDP-1000-BBH-17	Motor	2	
A2	PDP-1000-BBH-A2	Seal block ass'y	2		18	PDP-1000-BBH-18	Connector	2	
A3	PDP-1000-BBH-A3	Rotor ass'y	2		19	PDP-1000-BBH-19	Connector cap	2	
A4	PDP-1000-BBH-A4	Motor ass'y	2		A	PDP-1000-BBH-A	Bolt(M3x8)	2	High-strength
1	PDP-1000-BBH-1	Mix clip-B type	1	AL6061	B	PDP-1000-BBH-B	Bolt(M3x25)	4	High-strength
2	PDP-1000-BBH-2	Mix adapter	1	AL6061	C	PDP-1000-BBH-C	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-BBH-3	Pressure sensor	2		D	PDP-1000-BBH-D	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-BBH-4	Orifice adapter	2	SUS303	E	PDP-1000-BBH-E	Bolt(M3x60)	4	High-strength
5	PDP-1000-BBH-5	Twin block	1	AL6061	F	PDP-1000-BBH-F	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-BBH-6	Union cap	2	SUS303	G	PDP-1000-BBH-G	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-BBH-7	Stator	2		H	PDP-1000-BBH-H	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-BBH-8	Chamber	2	AL2024	I	PDP-1000-BBH-I	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-BBH-9	Inlet adapter	2	AL6061	J	PDP-1000-BBH-J	Bolt(M3x60)	4	High-strength
10	PDP-1000-BBH-10	Vent knob	2	AL6061	K	PDP-1000-BBH-K	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-BBH-11	Seal block	2	AL2011	L	PDP-1000-BBH-L	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-BBH-12	Rotary seal(+O-Ring)	6	UHMW-PE	M	PDP-1000-BBH-M	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-BBH-13	Rotor + bearing block	2		N	PDP-1000-BBH-N	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-BBH-14	Urethane sleeve	2	Poly urethane	O	PDP-1000-BBH-O	Bolt(M3x35)	4	High-strength
15	PDP-1000-BBH-15	Coupling driving flange	2	SUS303	P	PDP-1000-BBH-P	Set screw(M3x5)	4	
16	PDP-1000-BBH-16	Motor housing	2	AL2024	Q	PDP-1000-BBH-Q	Bolt(M3x8)	8	

6.6 PDP-1000 CA type partlist



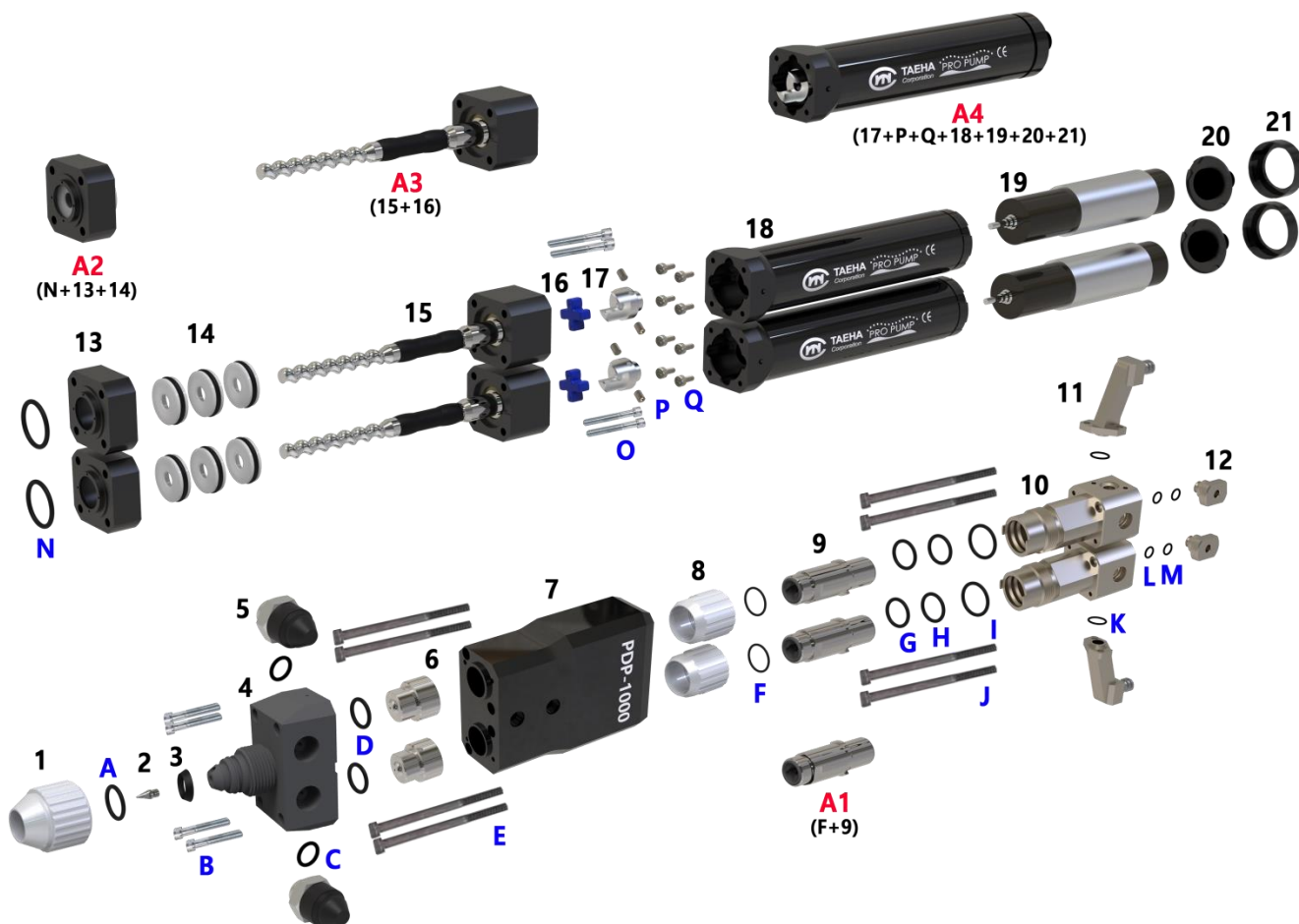
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-CA-A1	Stator ass'y	2		17	PDP-1000-CA-17	Motor	2	
A2	PDP-1000-CA-A2	Seal block ass'y	2		18	PDP-1000-CA-18	Connector	2	
A3	PDP-1000-CA-A3	Rotor ass'y	2		19	PDP-1000-CA-19	Connector cap	2	
A4	PDP-1000-CA-A4	Motor ass'y	2		A	PDP-1000-CA-A	O-Ring(AS014)	1	FKM(1472)
1	PDP-1000-CA-1	Mix cap	1	AL6061	B	PDP-1000-CA-B	Bolt(M3x25)	4	High-strength
2	PDP-1000-CA-2	Mix adapter	1	AL6061	C	PDP-1000-CA-C	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-CA-3	Pressure sensor	2		D	PDP-1000-CA-D	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-CA-4	Orifice adapter	2	SUS303	E	PDP-1000-CA-E	Bolt(M3x60)	4	High-strength
5	PDP-1000-CA-5	Twin block	1	AL6061	F	PDP-1000-CA-F	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-CA-6	Union cap	2	SUS303	G	PDP-1000-CA-G	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-CA-7	Stator	2		H	PDP-1000-CA-H	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-CA-8	Chamber	2	AL2024	I	PDP-1000-CA-I	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-CA-9	Inlet adapter	2	AL6061	J	PDP-1000-CA-J	Bolt(M3x60)	4	High-strength
10	PDP-1000-CA-10	Vent knob	2	AL6061	K	PDP-1000-CA-K	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-CA-11	Seal block	2	AL2011	L	PDP-1000-CA-L	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-CA-12	Rotary seal(+O-Ring)	6	UHMW-PE	M	PDP-1000-CA-M	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-CA-13	Rotor + bearing block	2		N	PDP-1000-CA-N	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-CA-14	Urethane sleeve	2	Poly urethane	O	PDP-1000-CA-O	Bolt(M3x35)	4	High-strength
15	PDP-1000-CA-15	Coupling driving flange	2	SUS303	P	PDP-1000-CA-P	Set screw(M3x5)	4	
16	PDP-1000-CA-16	Motor housing	2	AL2024	Q	PDP-1000-CA-Q	Bolt(M3x8)	8	

6.7 PDP-1000-CB type partlist



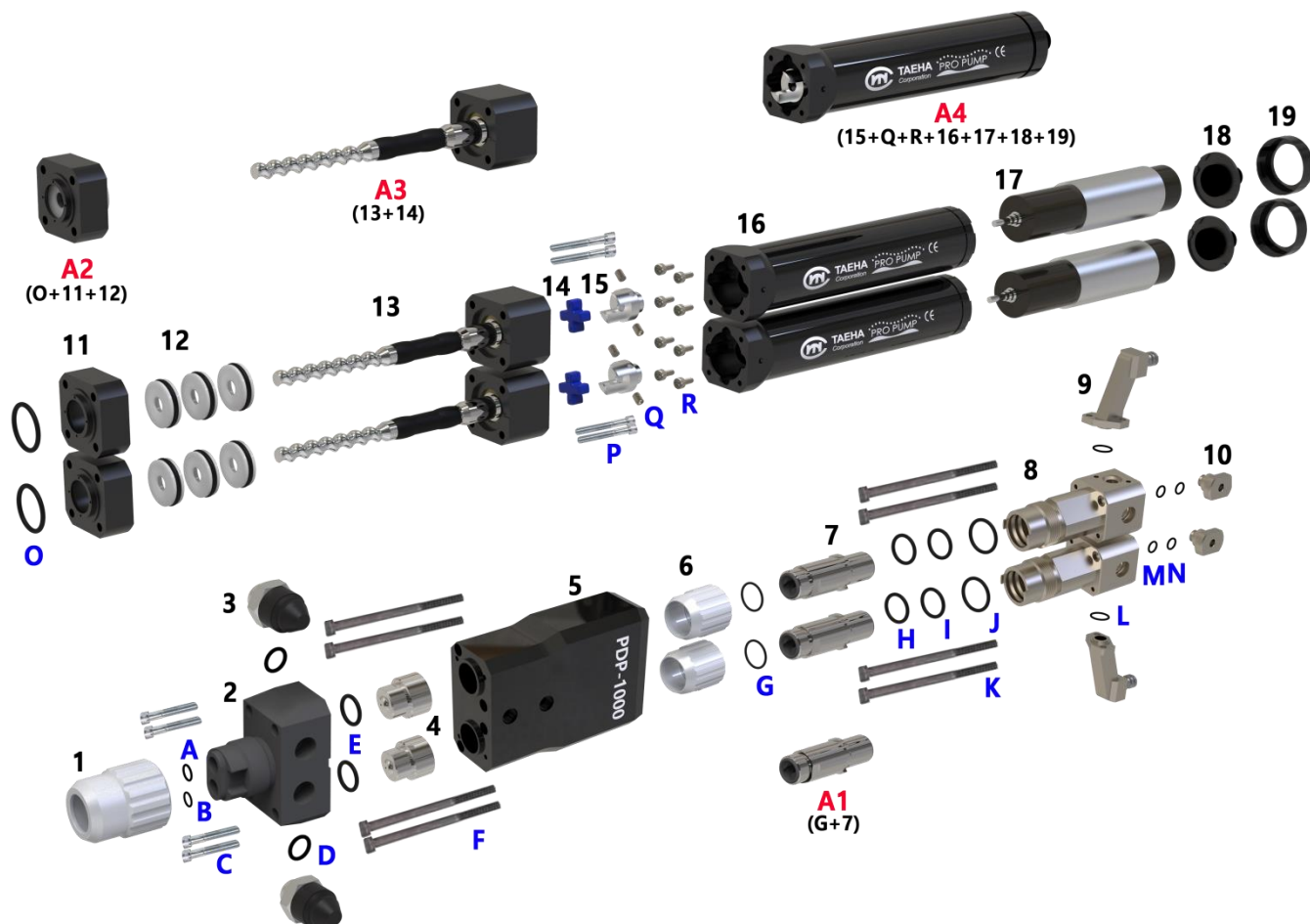
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-CB-A1	Stator ass'y	2		18	PDP-1000-CB-18	Motor	2	Motor
A2	PDP-1000-CB-A2	Seal block ass'y	2		19	PDP-1000-CB-19	Connector	2	Connector
A3	PDP-1000-CB-A3	Rotor ass'y	2		20	PDP-1000-CB-20	Connector cap	2	Connector cap
A4	PDP-1000-CB-A4	Motor ass'y	2		A	PDP-1000-CB-A	O-Ring(AS014)	1	FKM(1472)
1	PDP-1000-CB-1	Mix cap	1	AL6061	B	PDP-1000-CB-B	Bolt(M3x25)	4	High-strength
2	PDP-1000-CB-2	PCNA tip	1		C	PDP-1000-CB-C	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-CB-3	Mix adapter	1	AL6061	D	PDP-1000-CB-D	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-CB-4	Pressure sensor	2		E	PDP-1000-CB-E	Bolt(M3x60)	4	High-strength
5	PDP-1000-CB-5	Orifice adapter	2	SUS303	F	PDP-1000-CB-F	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-CB-6	Twin block	1	AL6061	G	PDP-1000-CB-G	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-CB-7	Union cap	2	SUS303	H	PDP-1000-CB-H	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-CB-8	Stator	2		I	PDP-1000-CB-I	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-CB-9	Chamber	2	AL2024	J	PDP-1000-CB-J	Bolt(M3x60)	4	High-strength
10	PDP-1000-CB-10	Inlet adapter	2	AL6061	K	PDP-1000-CB-K	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-CB-11	Vent knob	2	AL6061	L	PDP-1000-CB-L	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-CB-12	Seal block	2	AL2011	M	PDP-1000-CB-M	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-CB-13	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-CB-N	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-CB-14	Rotor + bearing block	2		O	PDP-1000-CB-O	Bolt(M3x35)	4	High-strength
15	PDP-1000-CB-15	Urethane sleeve	2	Poly urethane	P	PDP-1000-CB-P	Set screw(M3x5)	4	
16	PDP-1000-CB-16	Coupling driving flange	2	SUS303	Q	PDP-1000-CB-Q	Bolt(M3x8)	8	
17	PDP-1000-CB-17	Motor housing	2	AL2024					

6.8 PDP-1000-CC type partlist



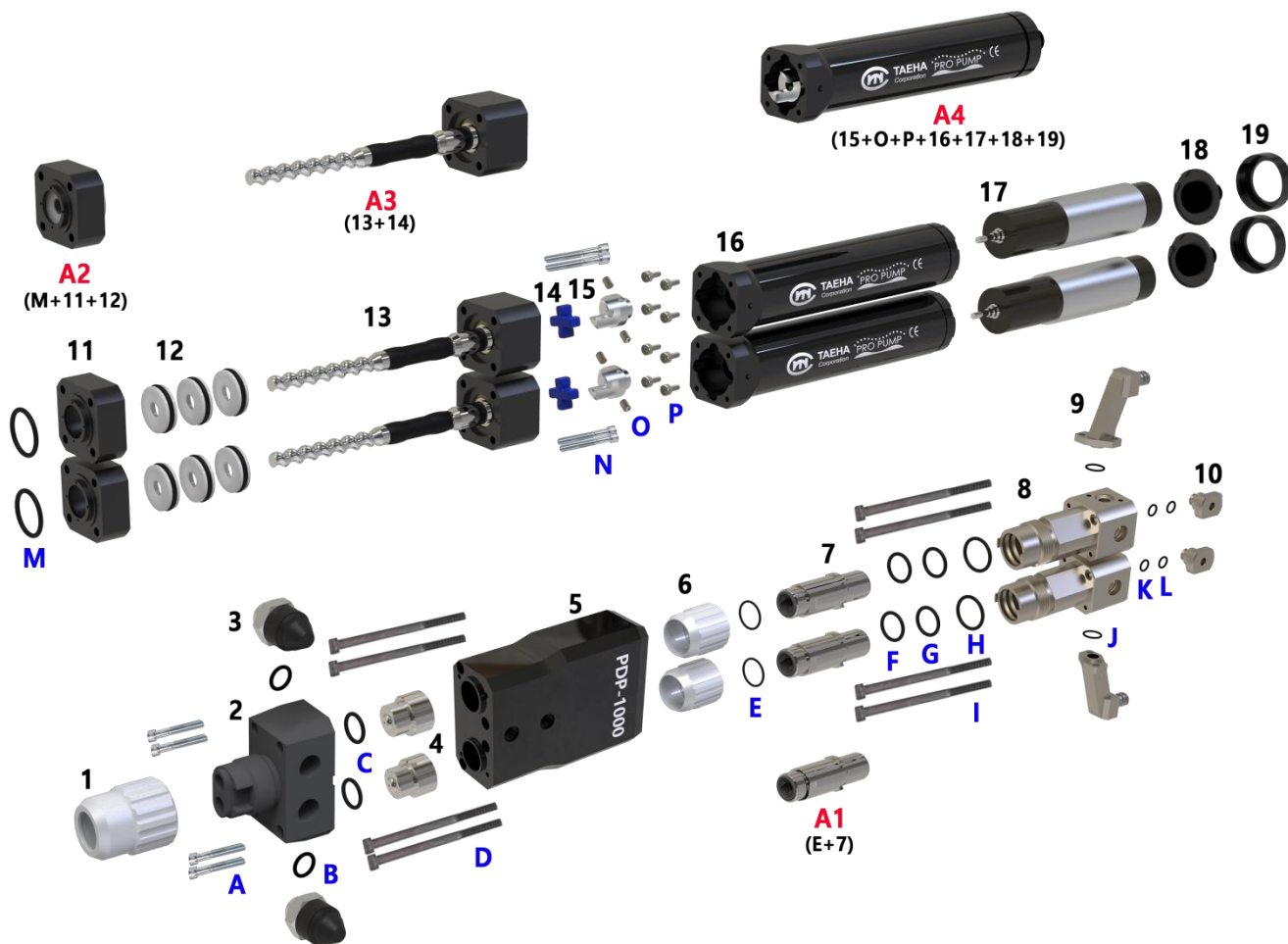
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-CC-A1	Stator ass'y	2		18	PDP-1000-CC-18	Motor housing	2	AL2024
A2	PDP-1000-CC-A2	Seal block ass'y	2		19	PDP-1000-CC-19	Motor	2	Motor
A3	PDP-1000-CC-A3	Rotor ass'y	2		20	PDP-1000-CC-20	Connector	2	Connector
A4	PDP-1000-CC-A4	Motor ass'y	2		21	PDP-1000-CC-21	Connector cap	2	Connector cap
1	PDP-1000-CC-1	Mix cap	1	AL6061	A	PDP-1000-CC-A	O-Ring(AS014)	1	FKM(1472)
2	PDP-1000-CC-2	Precision nozzle	1		B	PDP-1000-CC-B	Bolt(M3x25)	4	High-strength
3	PDP-1000-CC-3	Packing	1	FKM	C	PDP-1000-CC-C	O-Ring(AS010)	2	FKM(1472)
4	PDP-1000-CC-4	Mix adapter	1	AL6061	D	PDP-1000-CC-D	O-Ring(AS012)	2	FKM(1472)
5	PDP-1000-CC-5	Pressure sensor	2		E	PDP-1000-CC-E	Bolt(M3x60)	4	High-strength
6	PDP-1000-CC-6	Orifice adapter	2	SUS303	F	PDP-1000-CC-F	O-Ring(S15)	2	FKM(1472)
7	PDP-1000-CC-7	Twin block	1	AL6061	G	PDP-1000-CC-G	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-CC-8	Union cap	2	SUS303	H	PDP-1000-CC-H	O-Ring(AS017)	2	FKM(1472)
9	PDP-1000-CC-9	Stator	2		I	PDP-1000-CC-I	O-Ring(AS019)	2	FKM(1472)
10	PDP-1000-CC-10	Chamber	2	AL2024	J	PDP-1000-CC-J	Bolt(M3x60)	4	High-strength
11	PDP-1000-CC-11	Inlet adapter	2	AL6061	K	PDP-1000-CC-K	O-Ring(SS8)	2	FKM(1472)
12	PDP-1000-CC-12	Vent knob	2	AL6061	L	PDP-1000-CC-L	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-CC-13	Seal block	2	AL2011	M	PDP-1000-CC-M	O-Ring(SS5)	2	FKM(1472)
14	PDP-1000-CC-14	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-CC-N	O-Ring(AN016)	2	FKM(1472)
15	PDP-1000-CC-15	Rotor + bearing block	2		O	PDP-1000-CC-O	Bolt(M3x35)	4	High-strength
16	PDP-1000-CC-16	Urethane sleeve	2	Poly urethane	P	PDP-1000-CC-P	Set screw(M3x5)	4	
17	PDP-1000-CC-17	Coupling driving flange	2	SUS303	Q	PDP-1000-CC-Q	Bolt(M3x8)	8	

6.9 PDP-1000-FA type partlist



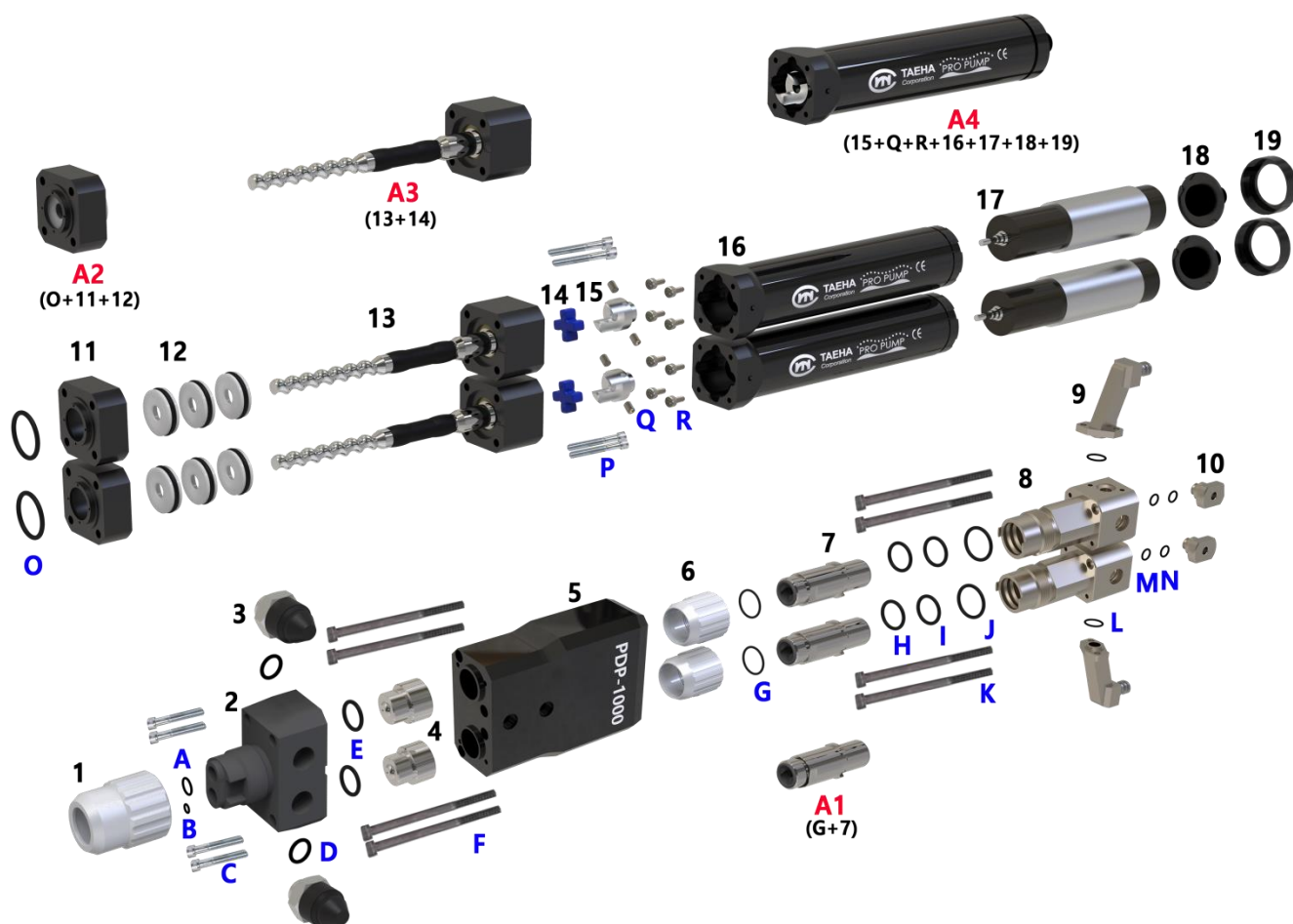
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-FA-A1	Stator ass'y	2		18	PDP-1000-FA-18	Connector	2	
A2	PDP-1000-FA-A2	Seal block ass'y	2		19	PDP-1000-FA-19	Connector cap	2	
A3	PDP-1000-FA-A3	Rotor ass'y	2		A	PDP-1000-FA-A	O-Ring(S6)	1	FKM(1472)
A4	PDP-1000-FA-A4	Motor ass'y	2		B	PDP-1000-FA-B	O-Ring(S5)	1	FKM(1472)
1	PDP-1000-FA-1	Mix cap-F type	1	AL6061	C	PDP-1000-FA-C	Bolt(M3x25)	4	High-strength
2	PDP-1000-FA-2	Mix adapter	1	AL6061	D	PDP-1000-FA-D	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-FA-3	Pressure sensor	2		E	PDP-1000-FA-E	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-FA-4	Orifice adapter	2	SUS303	F	PDP-1000-FA-F	Bolt(M3x60)	4	High-strength
5	PDP-1000-FA-5	Twin block	1	AL6061	G	PDP-1000-FA-G	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-FA-6	Union cap	2	SUS303	H	PDP-1000-FA-H	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-FA-7	Stator	2		I	PDP-1000-FA-I	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-FA-8	Chamber	2	AL2024	J	PDP-1000-FA-J	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-FA-9	Inlet adapter	2	AL6061	K	PDP-1000-FA-K	Bolt(M3x60)	4	High-strength
10	PDP-1000-FA-10	Vent knob	2	AL6061	L	PDP-1000-FA-L	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-FA-11	Seal block	2	AL2011	M	PDP-1000-FA-M	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-FA-12	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-FA-N	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-FA-13	Rotor + bearing block	2		O	PDP-1000-FA-O	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-FA-14	Urethane sleeve	2	Poly urethane	P	PDP-1000-FA-P	Bolt(M3x35)	4	High-strength
15	PDP-1000-FA-15	Coupling driving flange	2	SUS303	Q	PDP-1000-FA-Q	Set screw(M3x5)	4	
16	PDP-1000-FA-16	Motor housing	2	AL2024	R	PDP-1000-FA-R	Bolt(M3x8)	8	
17	PDP-1000-FA-17	Motor	2						

6.10 PDP-1000-FAH type partlist



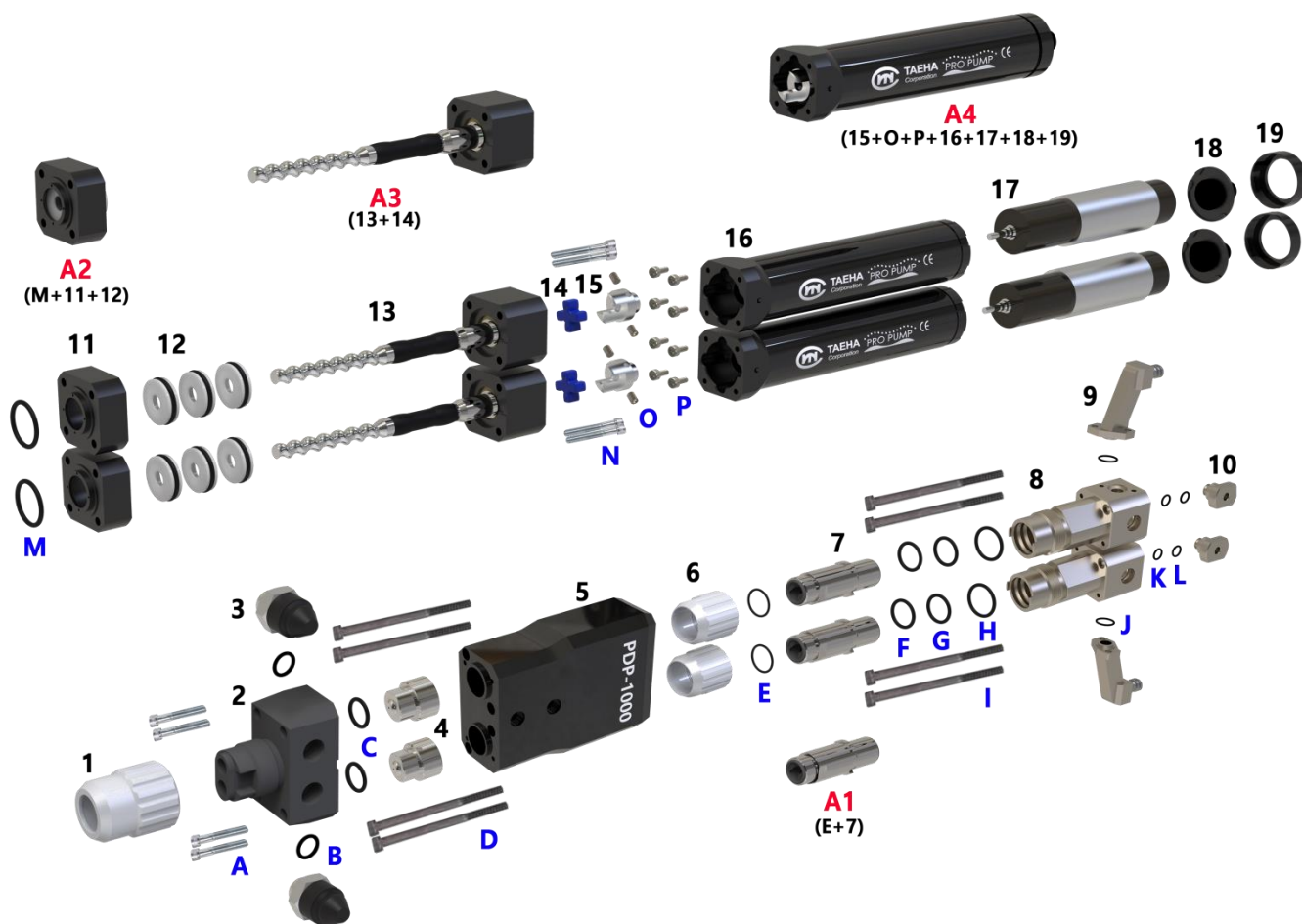
No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-FAH-A1	Stator ass'y	2		17	PDP-1000-FAH-17	Motor	2	
A2	PDP-1000-FAH-A2	Seal block ass'y	2		18	PDP-1000-FAH-18	Connector	2	
A3	PDP-1000-FAH-A3	Rotor ass'y	2		19	PDP-1000-FAH-19	Connector cap	2	
A4	PDP-1000-FAH-A4	Motor ass'y	2		A	PDP-1000-FAH-A	Bolt(M3x25)	4	High-strength
1	PDP-1000-FAH-1	Mix cap-F type	1	AL6061	B	PDP-1000-FAH-B	O-Ring(AS010)	2	FKM(1472)
2	PDP-1000-FAH-2	Mix adapter	1	AL6061	C	PDP-1000-FAH-C	O-Ring(AS012)	2	FKM(1472)
3	PDP-1000-FAH-3	Pressure sensor	2		D	PDP-1000-FAH-D	Bolt(M3x60)	4	High-strength
4	PDP-1000-FAH-4	Orifice adapter	2	SUS303	E	PDP-1000-FAH-E	O-Ring(S15)	2	FKM(1472)
5	PDP-1000-FAH-5	Twin block	1	AL6061	F	PDP-1000-FAH-F	O-Ring(AS017)	2	FKM(1472)
6	PDP-1000-FAH-6	Union cap	2	SUS303	G	PDP-1000-FAH-G	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-FAH-7	Stator	2		H	PDP-1000-FAH-H	O-Ring(AS019)	2	FKM(1472)
8	PDP-1000-FAH-8	Chamber	2	AL2024	I	PDP-1000-FAH-I	Bolt(M3x60)	4	High-strength
9	PDP-1000-FAH-9	Inlet adapter	2	AL6061	J	PDP-1000-FAH-J	O-Ring(SS8)	2	FKM(1472)
10	PDP-1000-FAH-10	Vent knob	2	AL6061	K	PDP-1000-FAH-K	O-Ring(SS5)	2	FKM(1472)
11	PDP-1000-FAH-11	Seal block	2	AL2011	L	PDP-1000-FAH-L	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-FAH-12	Rotary seal(+O-Ring)	6	UHMW-PE	M	PDP-1000-FAH-M	O-Ring(AN016)	2	FKM(1472)
13	PDP-1000-FAH-13	Rotor + bearing block	2		N	PDP-1000-FAH-N	Bolt(M3x35)	4	High-strength
14	PDP-1000-FAH-14	Urethane sleeve	2	Poly urethane	O	PDP-1000-FAH-O	Set screw(M3x5)	4	
15	PDP-1000-FAH-15	Coupling driving flange	2	SUS303	P	PDP-1000-FAH-P	Bolt(M3x8)	8	
16	PDP-1000-FAH-16	Motor housing	2	AL2024					

6.11 PDP-1000-FB type partlist



No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-FB-A1	Stator ass'y	2		18	PDP-1000-FB-18	Connector	2	
A2	PDP-1000-FB-A2	Seal block ass'y	2		19	PDP-1000-FB-19	Connector cap	2	
A3	PDP-1000-FB-A3	Rotor ass'y	2		A	PDP-1000-FB-A	O-Ring(S7)	1	FKM(1472)
A4	PDP-1000-FB-A4	Motor ass'y	2		B	PDP-1000-FB-B	O-Ring(SS3)	1	FKM(1472)
1	PDP-1000-FB-1	Mix cap-F type	1	AL6061	C	PDP-1000-FB-C	Bolt(M3x25)	4	High-strength
2	PDP-1000-FB-2	Mix adapter	1	AL6061	D	PDP-1000-FB-D	O-Ring(AS010)	2	FKM(1472)
3	PDP-1000-FB-3	Pressure sensor	2		E	PDP-1000-FB-E	O-Ring(AS012)	2	FKM(1472)
4	PDP-1000-FB-4	Orifice adapter	2	SUS303	F	PDP-1000-FB-F	Bolt(M3x60)	4	High-strength
5	PDP-1000-FB-5	Twin block	1	AL6061	G	PDP-1000-FB-G	O-Ring(S15)	2	FKM(1472)
6	PDP-1000-FB-6	Union cap	2	SUS303	H	PDP-1000-FB-H	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-FB-7	Stator	2		I	PDP-1000-FB-I	O-Ring(AS017)	2	FKM(1472)
8	PDP-1000-FB-8	Chamber	2	AL2024	J	PDP-1000-FB-J	O-Ring(AS019)	2	FKM(1472)
9	PDP-1000-FB-9	Inlet adapter	2	AL6061	K	PDP-1000-FB-K	Bolt(M3x60)	4	High-strength
10	PDP-1000-FB-10	Vent knob	2	AL6061	L	PDP-1000-FB-L	O-Ring(SS8)	2	FKM(1472)
11	PDP-1000-FB-11	Seal block	2	AL2011	M	PDP-1000-FB-M	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-FB-12	Rotary seal(+O-Ring)	6	UHMW-PE	N	PDP-1000-FB-N	O-Ring(SS5)	2	FKM(1472)
13	PDP-1000-FB-13	Rotor + bearing block	2		O	PDP-1000-FB-O	O-Ring(AN016)	2	FKM(1472)
14	PDP-1000-FB-14	Urethane sleeve	2	Poly urethane	P	PDP-1000-FB-P	Bolt(M3x35)	4	High-strength
15	PDP-1000-FB-15	Coupling driving flange	2	SUS303	Q	PDP-1000-FB-Q	Set screw(M3x5)	4	
16	PDP-1000-FB-16	Motor housing	2	AL2024	R	PDP-1000-FB-R	Bolt(M3x8)	8	
17	PDP-1000-FB-17	Motor	2						

6.12 PDP-1000-FBH type part list



No.	Part No.	Item Name	Q'ty	Material	No.	Part No.	Item Name	Q'ty	Material
A1	PDP-1000-FBH-A1	Stator ass'y	2		17	PDP-1000-FBH-17	Motor	2	
A2	PDP-1000-FBH-A2	Seal block ass'y	2		18	PDP-1000-FBH-18	Connector	2	
A3	PDP-1000-FBH-A3	Rotor ass'y	2		19	PDP-1000-FBH-19	Connector cap	2	
A4	PDP-1000-FBH-A4	Motor ass'y	2		A	PDP-1000-FBH-A	Bolt(M3x25)	4	High-strength
1	PDP-1000-FBH-1	Mix cap-F type	1	AL6061	B	PDP-1000-FBH-B	O-Ring(AS010)	2	FKM(1472)
2	PDP-1000-FBH-2	Mix adapter	1	AL6061	C	PDP-1000-FBH-C	O-Ring(AS012)	2	FKM(1472)
3	PDP-1000-FBH-3	Pressure sensor	2		D	PDP-1000-FBH-D	Bolt(M3x60)	4	High-strength
4	PDP-1000-FBH-4	Orifice adapter	2	SUS303	E	PDP-1000-FBH-E	O-Ring(S15)	2	FKM(1472)
5	PDP-1000-FBH-5	Twin block	1	AL6061	F	PDP-1000-FBH-F	O-Ring(AS017)	2	FKM(1472)
6	PDP-1000-FBH-6	Union cap	2	SUS303	G	PDP-1000-FBH-G	O-Ring(AS017)	2	FKM(1472)
7	PDP-1000-FBH-7	Stator	2		H	PDP-1000-FBH-H	O-Ring(AS019)	2	FKM(1472)
8	PDP-1000-FBH-8	Chamber	2	AL2024	I	PDP-1000-FBH-I	Bolt(M3x60)	4	High-strength
9	PDP-1000-FBH-9	Inlet adapter	2	AL6061	J	PDP-1000-FBH-J	O-Ring(SS8)	2	FKM(1472)
10	PDP-1000-FBH-10	Vent knob	2	AL6061	K	PDP-1000-FBH-K	O-Ring(SS5)	2	FKM(1472)
11	PDP-1000-FBH-11	Seal block	2	AL2011	L	PDP-1000-FBH-L	O-Ring(SS5)	2	FKM(1472)
12	PDP-1000-FBH-12	Rotary seal(+O-Ring)	6	UHMW-PE	M	PDP-1000-FBH-M	O-Ring(AN016)	2	FKM(1472)
13	PDP-1000-FBH-13	Rotor + bearing block	2		N	PDP-1000-FBH-N	Bolt(M3x35)	4	High-strength
14	PDP-1000-FBH-14	Urethane sleeve	2	Poly urethane	O	PDP-1000-FBH-O	Set screw(M3x5)	4	
15	PDP-1000-FBH-15	Coupling driving flange	2	SUS303	P	PDP-1000-FBH-P	Bolt(M3x8)	8	
16	PDP-1000-FBH-16	Motor housing	2	AL2024					

7 Maintenance

The Pro Duo Pump System consists of a Dispenser (Pro Pump) and a Dispenser Controller, so regular inspections are required.

- Make sure there are sufficient materials in the material inlet port.
(If the pump is idle without materials, it will be damaged by overheating.)
- If any abnormal sound occurs during the operation or starting operation, stop the operation immediately and check.

In order to prevent malfunctions caused by various factors, please perform occasional(user-determined) and periodic(within a year) inspection.



Danger

Be sure to take necessary measures such as manual mode of the equipment, emergency stop, power off, etc. before performing maintenance and inspection. If the power is not turned off, any material inside the equipment or the inspector may be detected by the sensor, which may occur movement of the equipment. It may also cause electric shock.

Do not perform megger test(insulation resistance measurement). It may cause malfunction.

As the functional use time of parts becomes long, aging may occur and it may cause the failure of the equipment. Check regularly for trouble prevention and preservation of the equipment, and, in case of abnormality, replace parts.

7.1 Alarm display and countermeasures

When an error occurs, the Pro Duo Pump System notifies the user of the fact that Alarm has occurred in the following ways.

- Front Touch Panel
- System status I/O contact point output

The related alarm codes can be checked through the front touch panel, where each alarm code is displayed.

Classification of abnormal phenomena is as follows.

- Alarms that may occur due to hardware protection or internal element breakage
- Alarms that may occur from incorrect settings when setting motion programs and points
- Alarms that may occur due to other mishandling, etc
-

If an alarm occurs in the hardware protection system during operation, the output to the motor is cut off and the servo is turned off. In order to restart operation, it is necessary to remove the cause of alarm and then release it for normal operation.



Caution
Some alarms cannot be released even after reset. In this case, you must reboot(power On/Off) after completing action for the relevant error.

7.2 Inspection and measures

Inspection	Cycle	What to check and what to do	Remarks
Environment	Occasionally	Confirm that it meets the usage standards of the equipment.	
Power Supply	Occasionally	Check if the power is AC220V and 50/60Hz.	
Appearance of Equipment	Periodically	Check if the connection parts(connector, terminal block, etc.)are loose, and tightly fasten the loose parts.	
Cables	Periodically	Check if the cover is peeled or there is severe bending.	
Internal State of Equipment	Periodically	Keep it clean to prevent so that the contamination by dust or solution does not interfere with the operation of the equipment.	
Supplied Air	Occasionally	Check the piping connection, joints, or if there is no leakage so that the supplied air maintains normal pressure.	
Purge Condition	Occasionally	If the equipment is stopped for more than 10 minutes, dispense a certain volume depending on the set time so that hardening does not occur at the end of the valve.	
Robot	Occasionally	<ol style="list-style-type: none"> 1) Check for abnormal vibration or abnormal noise. 2) Check for abnormal heat generation. 3) Check for abnormal vibration or abnormal noise on the bearing part. 	
Other Checks	Periodically	<ol style="list-style-type: none"> 1) Fastening condition of the fixed parts and joints in the equipment. 2) Joined and tightened condition of wiring. 3) Arrangement condition around the equipment. 	

7.3 Trouble Shooting

Trouble	Possible Cause & Correction
<p>If the dispensing is not possible</p>	<ol style="list-style-type: none"> 1. Check the air supply in the tank. 2. Check the controller power supply. 3. Check whether the solution is there. 4. Check if the solution is loaded in the conduit line. 5. Check the connection of the air fitting. 6. Check the connection of the air fitting in the conduit line of solution. 7. Check whether the nozzle is clogged. 8. Check whether the pump motor is operating.
<p>If there is a change in the dispensing volume</p>	<ol style="list-style-type: none"> 1. Check if there is any change in the setting value of the controller. 2. Check if there is any solidification of the solution in the chamber. 3. Check if there is any clogging in the needle. 4. Check if there is any air bubble in the conduit line and chamber. 5. Check if there is a change in the tank air supply pressure. 6. Check if there is a leak in the liquid connection fitting.
<p>If there is a leak in nozzle end during the standby time after dispensing</p>	<ol style="list-style-type: none"> 1. Check if there is an abrasion in the rubber part of stator. 2. Check if the tank air pressure has been set high. (The pressure setting for the tank air must be set to the extent that the fluid is transported to the pump chamber.) 3. Check if there is continuous operation of the pump drive motor.
<p>If the pump drive motor does not operate</p>	<ol style="list-style-type: none"> 1. Check the connection of the motor cable. 2. Check the set value of the controller. 3. Check the power supply status. 4. Check if the solution is solidified in the pump chamber.
<p>If the solution leaks out of the pump</p>	<ol style="list-style-type: none"> 1. Check if o-ring between chamber and seal block has been damaged. 2. Check the status of abrasion of the rotary seal in the seal block.
<p>If an abnormal noise occurs while the pump is operating</p>	<ol style="list-style-type: none"> 1. Check if the bearing in the bearing block has been damaged. 2. Check the status of abrasion of the rotary seal in the seal block. 3. Check the condition of the motor reducer.