English

Installation, Operation and Maintenance Instructions

CP Range - General Transfer Pumps

MPA514/14

Contents

Warranty	4
Introduction	5
Installation	5
Operation	6
Assembly Diagrams	7-21
Trouble Shooting Guide	22
Typical Pump Performance	23
Brine Injection Pump	24
CP25 Spear Pump	25
Molasses Feed Pumping Unit	26
Spare Parts	27-30

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE COMMENCING INSTALLATION

Warranty

Warranty Statement

1. The CP Pump manufactured by NOV is covered by warranty for a period not exceeding twelve months from purchase.

2. NOV will make good by repair, or at their option, the replacement of faulty parts under warranty, providing always that:

   (a) The equipment was correctly installed and properly used in accordance with NOV Installations and Operating instruction and accepted codes of good engineering practice.

   (b) The claim for goods under warranty arises solely from faulty design, material or workmanship.

   (c) The repair is carried out in the NOV factory or by an authorised agent or distributor appointed by NOV Australia Pty Ltd.

   (d) All freight costs to and from the factory or repair agent are to be paid by the purchaser.

3. In the case of equipment or components which are not of NOV manufacture, but supplied by them, the warranty is limited to that extended by the suppliers or manufacturers of such equipment.

4. NOV Australia Pty Ltd warranty does not cover any of the following:

   (a)Claims for third party liability of damage caused by failure of any of the company's products.

   (b) Damage caused by abnormal operating conditions, war, violence, storm cataclysm or any other force.

   (c) Damage caused by the equipment being used for an application for which it is not recommended.

   (d) Damage caused by sand or abrasive materials, corrosion due to salt water or electrolytic action.

   (e) Damage to the SMC if the SMC has been opened by removal of the back plate before being returned to NOV.

   (f) Damage to the motor if the motor is found to have been disassembled before being returned to NOV.

   (g) Damage caused by running the pump dry.

5. The decision of NOV in relation to any claims or disputes over warranty is final.

6. The warranty is in lieu of all other warranties and conditions expressed or implied, written or oral, statutory or otherwise, which are hereby negated and excluded.

7. This express warranty does not exclude any conditions or warranty implied by the Trade Practices Act 1974 or separate State laws and in addition to any other right, that the original purchasers or any subsequent purchaser may have at law.

In case of claim please contact your Authorised NOV distributor or contact NOV Australia Pty. Ltd.

Introduction, Installation & Operation

INTRODUCTION

MONO CP PUMPS

These pumps are designed for long, trouble-free service in many fields such as light industrial, domestic and agriculture. Their application include wine and beverage, filling machines, weak acid and alkali transfer, sump duties, septic and sullage disposal, brine injection, spear point, domestic water supply, garden reticulation and the like.

The discharge port of the pump is nearest to the driving (motor) end on all models. The maximum temperature allowable is 80°C and should never be exceeded.

For fluids other than water consult your dealer or NOV Australia Pty Ltd to ensure the correct stator and mechanical seal materials are used.

INSTALLATION

LOCATION OF UNIT

The pump should be bolted to a firm, flat base in a dry, well ventilated area. If mounted outside it is recommended that the motor be protected from the elements with a well ventilated cover. The pump should be accessible for inspection and repair.

PIPE CONNECTION



When connecting pipework to the pump it is preferable to use thread tape. Care should be taken not to over-tighten connections to the pump, in particular when tapered thread fittings are used. Plastic fittings are preferable.

Both the suction and discharge lines should be independently supported near the pump so that no strain is placed on the pump. The suction line should contain a minimum number of bends. Any bends necessary should have a large radii.

The suction line diameter shall be at least equal to the diameter of the suction port. For pumps operating with a suction lift, no valves should be placed in the suction line. For long suction lines a foot valve should be fitted. It is very important to have the suction line airtight. Arrange the suction pipework so that the pump has minimal time before it is primed.

Foot valves, when used, should have an open area of at least 1 1/2 times the area of the suction pipe. An efficient strainer should be provided to prevent foreign matter from being drawn into the pump and choking the foot valve. It is recommended that no foot valve or strainer be fitted for septic effluent duties.

The discharge line will preferably be the same or one size larger than the pumps discharge port. The discharge line should be short and direct with the least number of bends and fittings, thus minimising the head lost by friction.

A non-return valve should be fitted on the discharge side for high head, long discharge lines and auto pressure system applications. The non-return valve is to protect the pump from excessive back pressure. Where the pump is operating on a long suction line suitable valves should be fitted to ensure the pump does not run dry.

ELECTRICAL CONNECTION

Single -phase pump units are supplied complete with a plug and lead. This can be plugged into any single-phase power outlet. Single-phase pump units are supplied fitted with a thermal overload. In the event of the motor overheating, the overload will activiate and the motor will stop. Once the cause of the overheating has been identified and removed, the red button on the back of the capacitor box will reset the overload and the motor can be restarted.



All three-phase motor connections must be conducted by a registered electrical contractor.

Three-phase motors should be connected to the electrical supply as shown on the label in the terminal box.

In three phase pumps, it is important to check the direction of rotation of the pump prior to running the pump. Running the pump in reverse could result in the rotor unscrewing from the motor shaft and damaging the pump. Remove the pump from the motor before checking the direction of the pump. Care must be taken while checking direction to ensure that nothing entangles in the pump.

Introduction, Installation & Operation

Three-phase motors should be protected through the installation of a thermal cut out of the non-self resetting type.

When a three-phase power supply is available, the motor should be connected in star configuration.

When a single-phase frequency controller is being used, the motor should be connected in delta to the three-phase power that is being created by the frequency controller. Three-phase frequency controllers should not be used.

If a frequency controller is to be used, the motor speed for continuous applications should fall within the range 800rpm to 1500 rpm. Outside this speed range the motor is likely to overheat due to higher currents or reduced cooling effects from the fan.

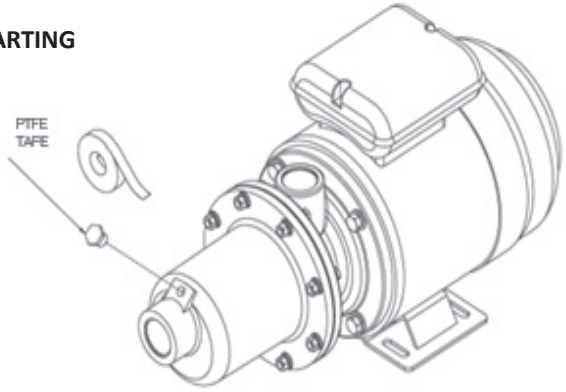
All three-phase motors on Mono pumps should be wired for direct on line starting. Do not use star-delta starting.

WARNING: Please contact NOV prior to installing a frequency drive (VFD) as some motors are NOT compatible. See rear of O&M Manual for contact details.

OPERATION

FILL THE PUMP WITH LIQUID BEFORE STARTING - NEVER RUN THE PUMP DRY

STARTING



The plug on the end cover immediately adjacent to the suction port, as shown below, should be removed before starting the pump for the first time and filled with liquid.

This is not to prime the pump, but provides lubrication to prevent damage to the stator on starting. The pump should be mounted with the suction port horizontal on the CP11 & CP25 and vertical on the CP800 & CP1600.

When the pump is stopped, sufficient liquid will be retained to provide start-up lubrication. If the pump has been standing for some time or has been drained by removal of the end cover the pump must again be filled with liquid to lubricate the stator.

SERVICING THE PUMP

ALL BUILDS

Assemble the pump following the instructions for the relevent build on the following pages.

Inspect the stator for signs of damage to the rubber surface and replace if necessary.

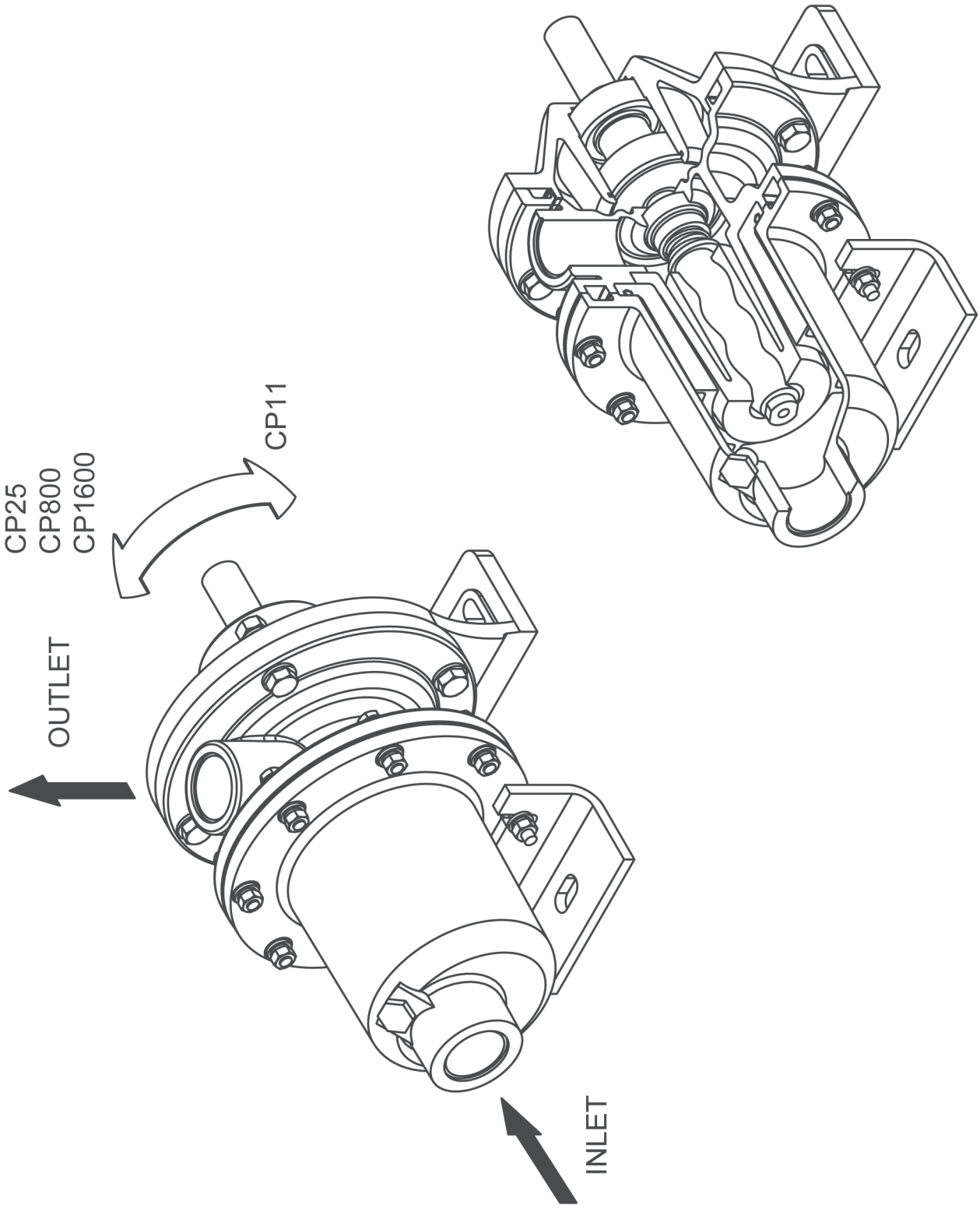
Inspect the Rotor for signs of wear and replace if damaged, If it is necessary to replace the rotor it is recommended that the stator be replaced at the same time.

ASSEMBLY NOTES:

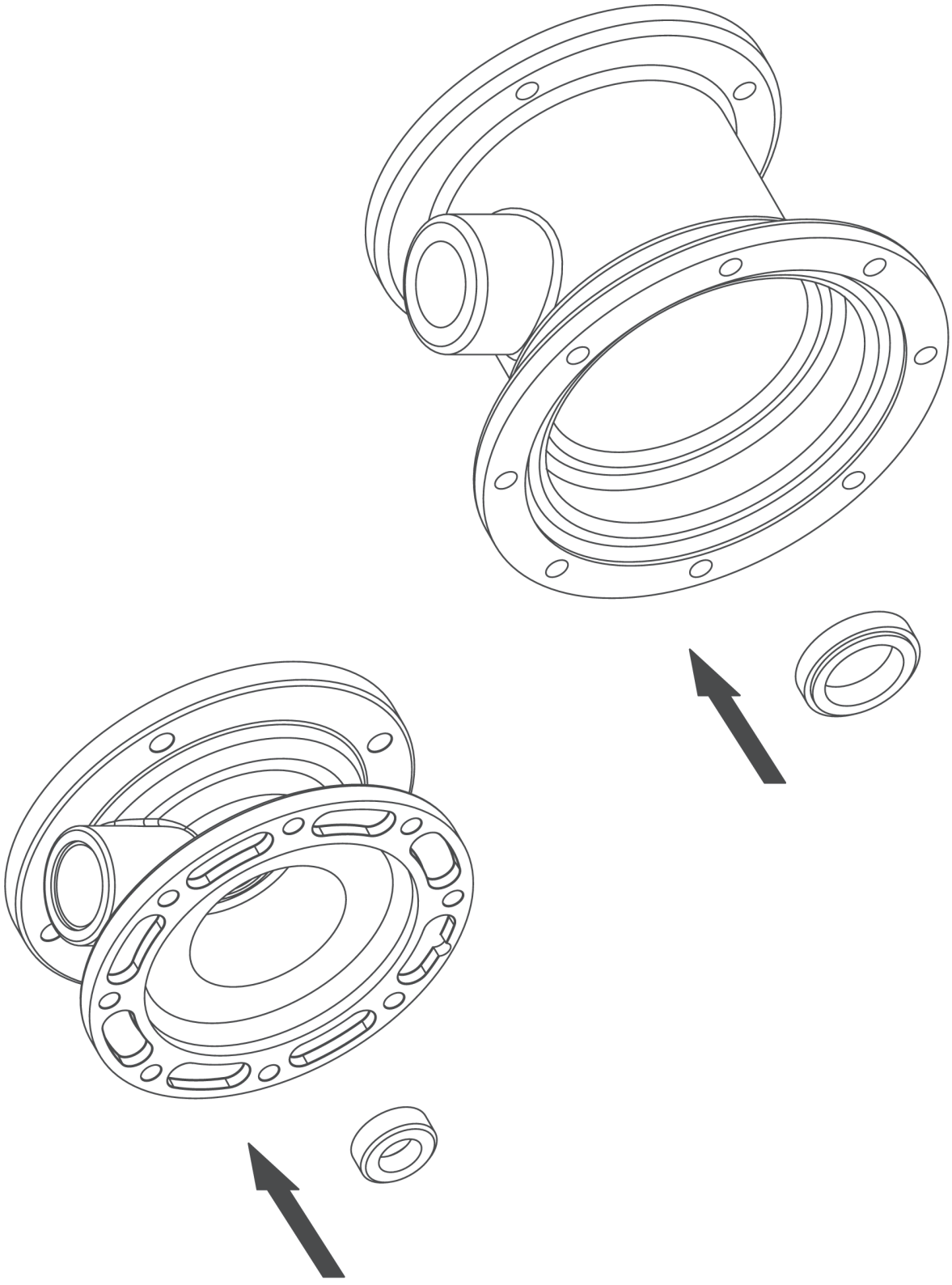
WARNING: Do not use grease, soap, hand cream etc. to lubricate the Stator. These products will damage a natural rubber stator and result in seizure of the pump. When assembling the rotor into the stator it is only necessary to wet the rotor and stator with water and slide the stator assembly over the rotor assembly. Some resistance will be felt as the rotor is pushed into the stator.

Assembly Diagrams

ISOMETRIC DIAGRAMS



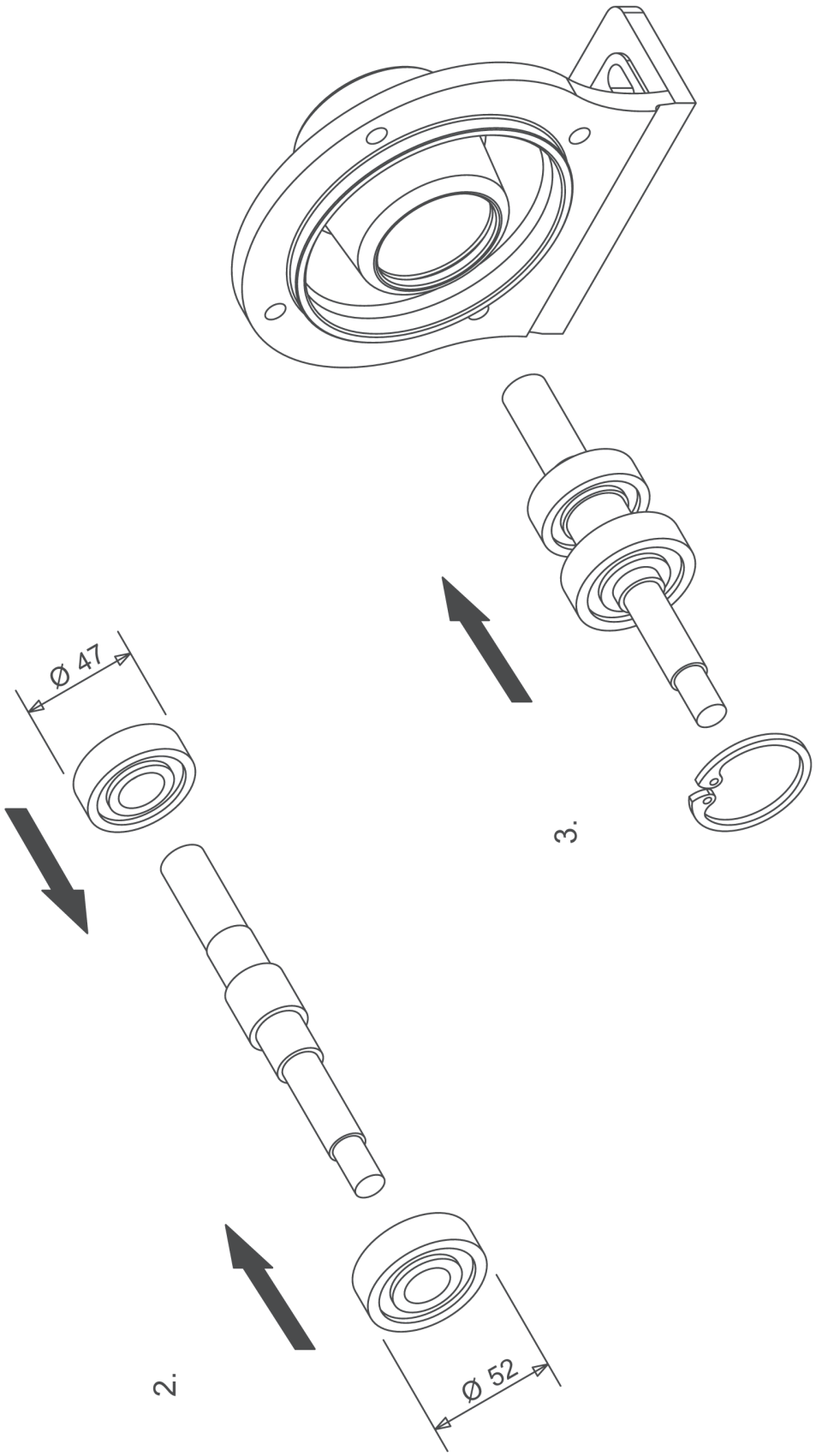
Assembly Diagrams



ALL MODELS

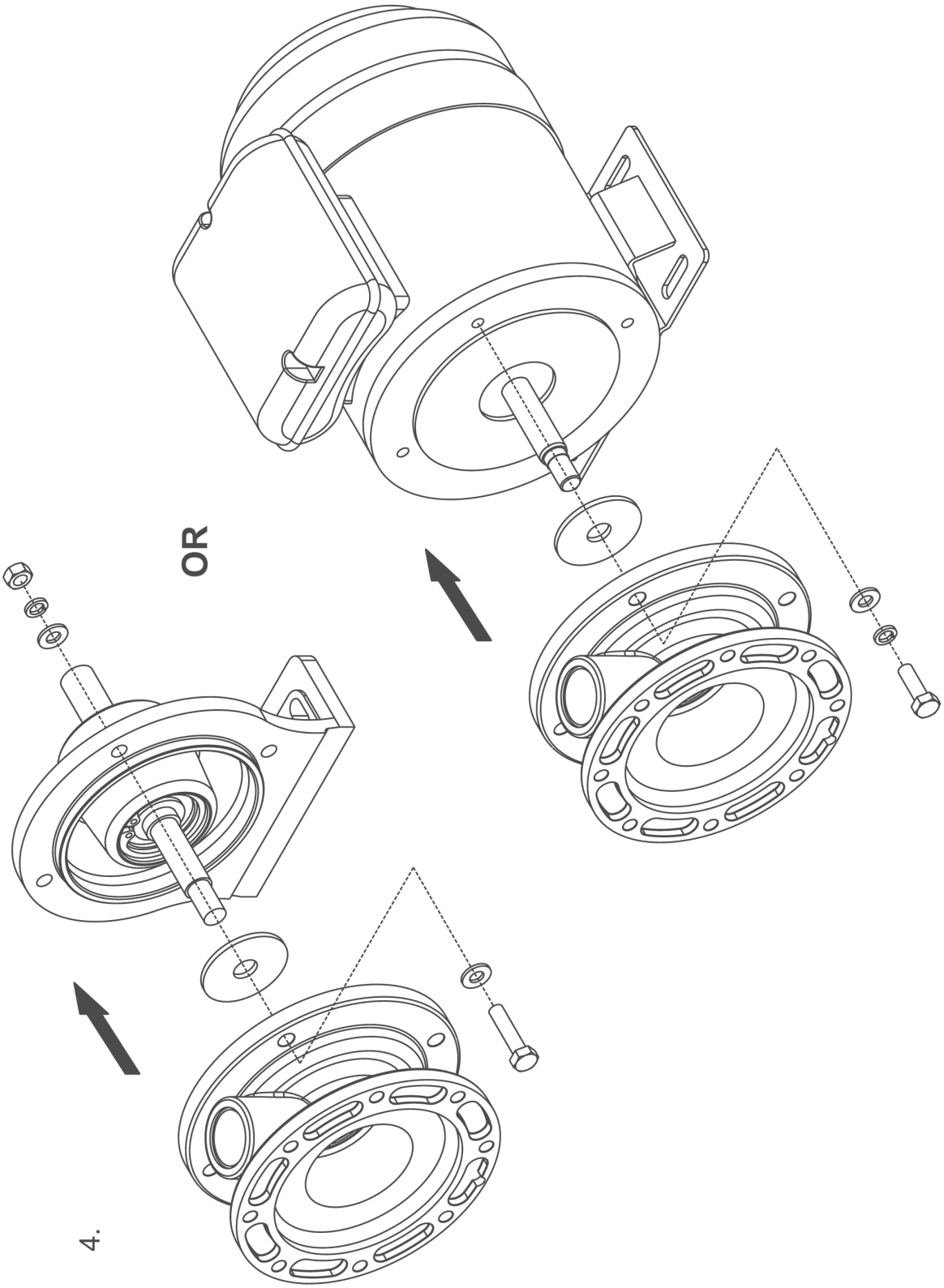
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Assembly Diagrams

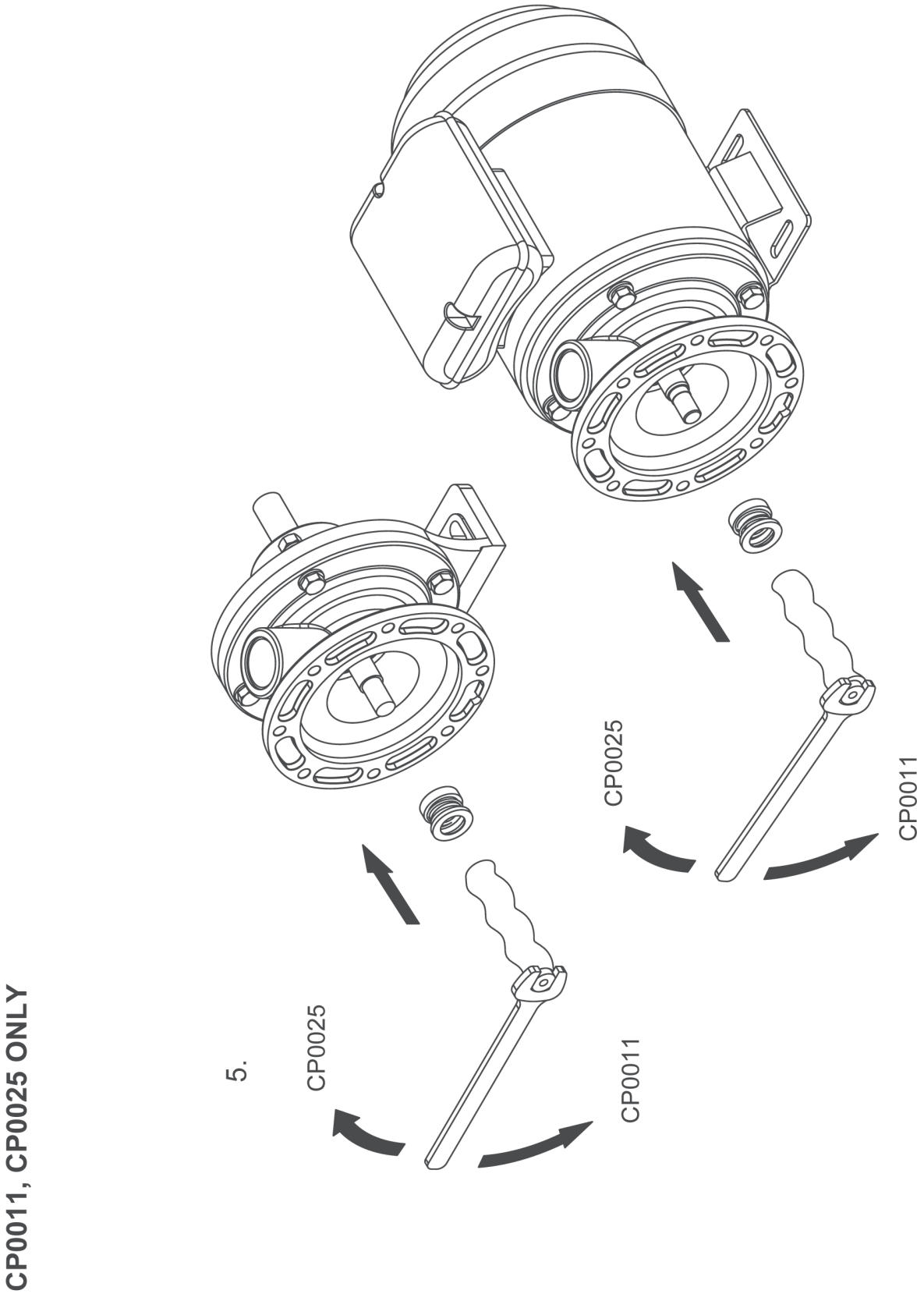


CP0011, CP0025
Bareshaft Only

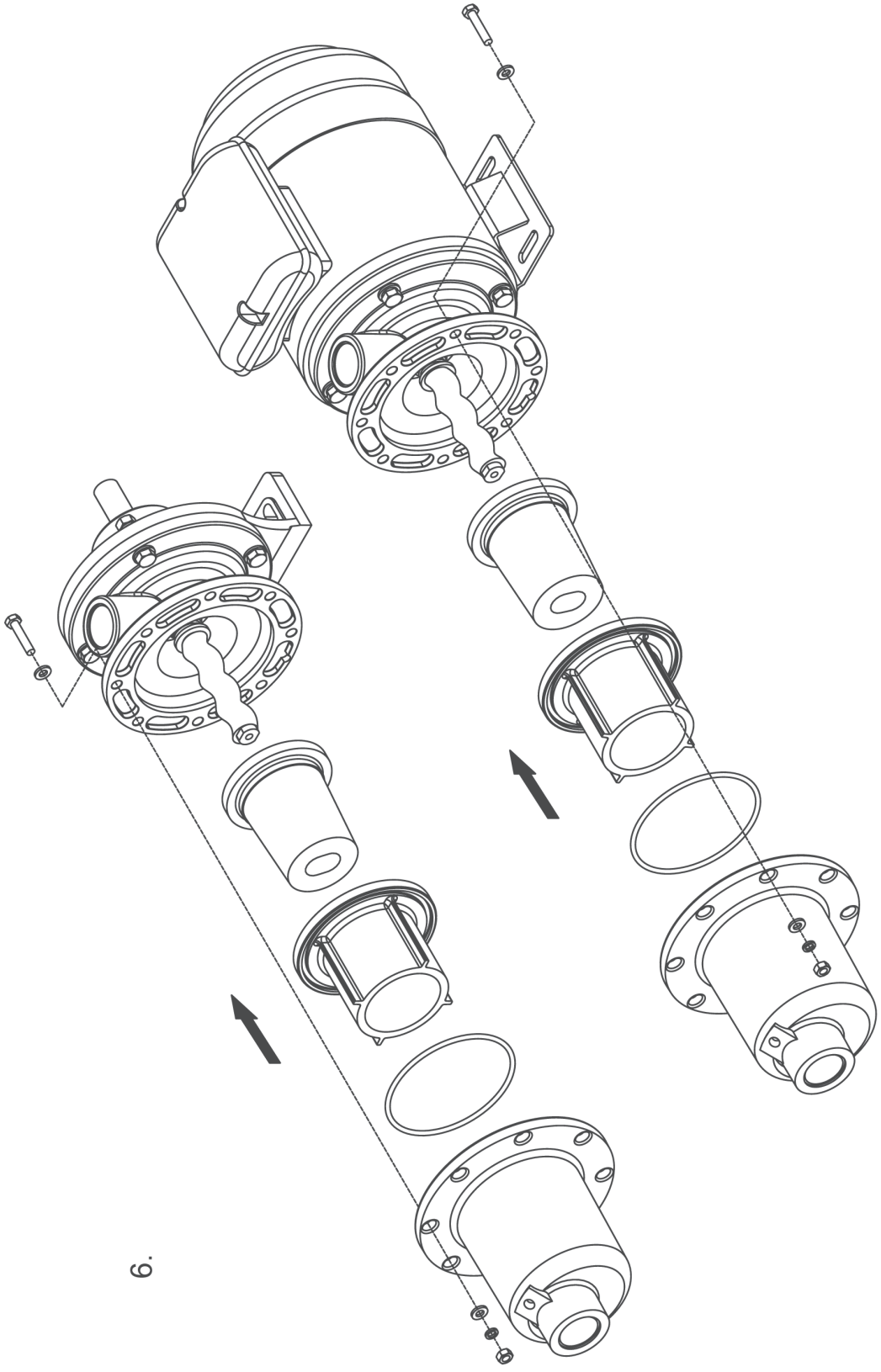
Assembly Diagrams



Assembly Diagrams



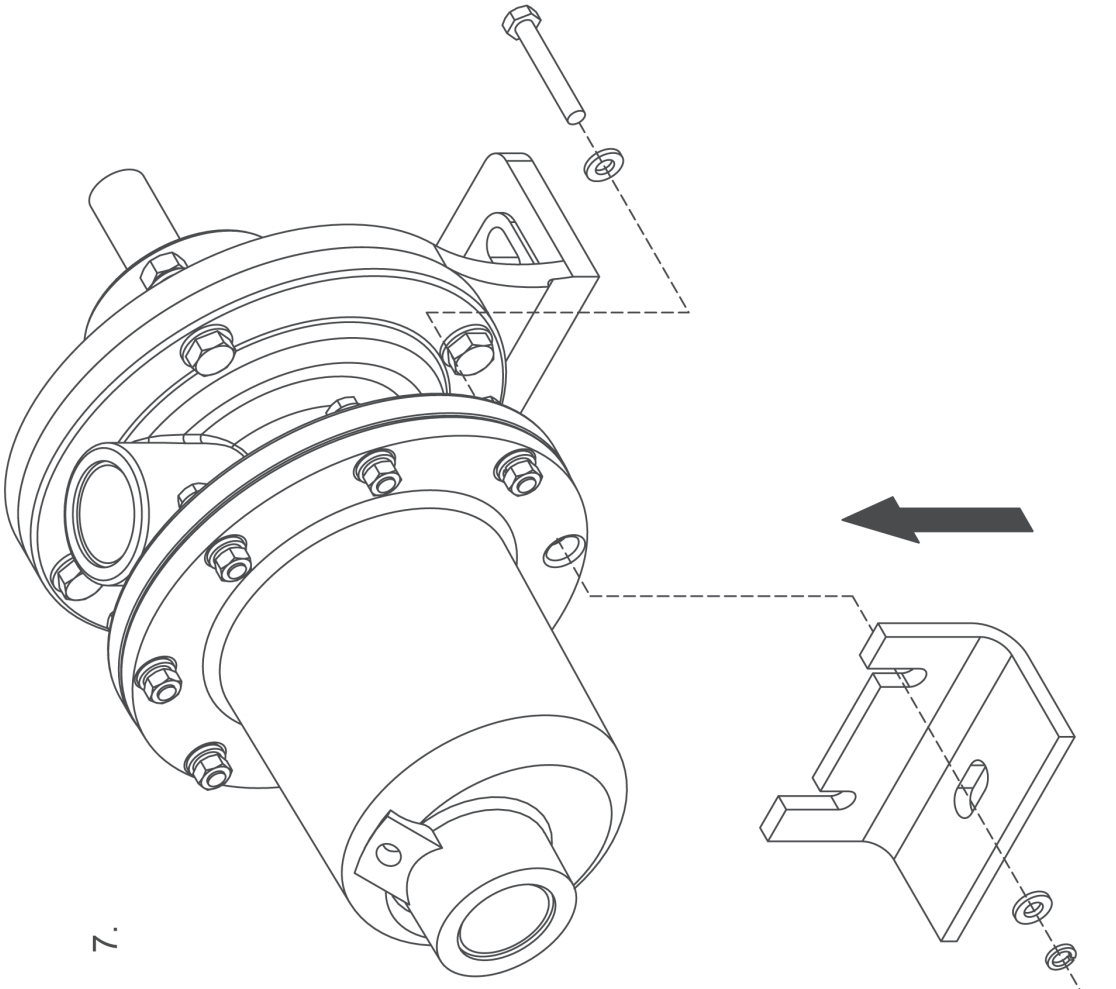
Assembly Diagrams



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CP0011, CP0025 ONLY

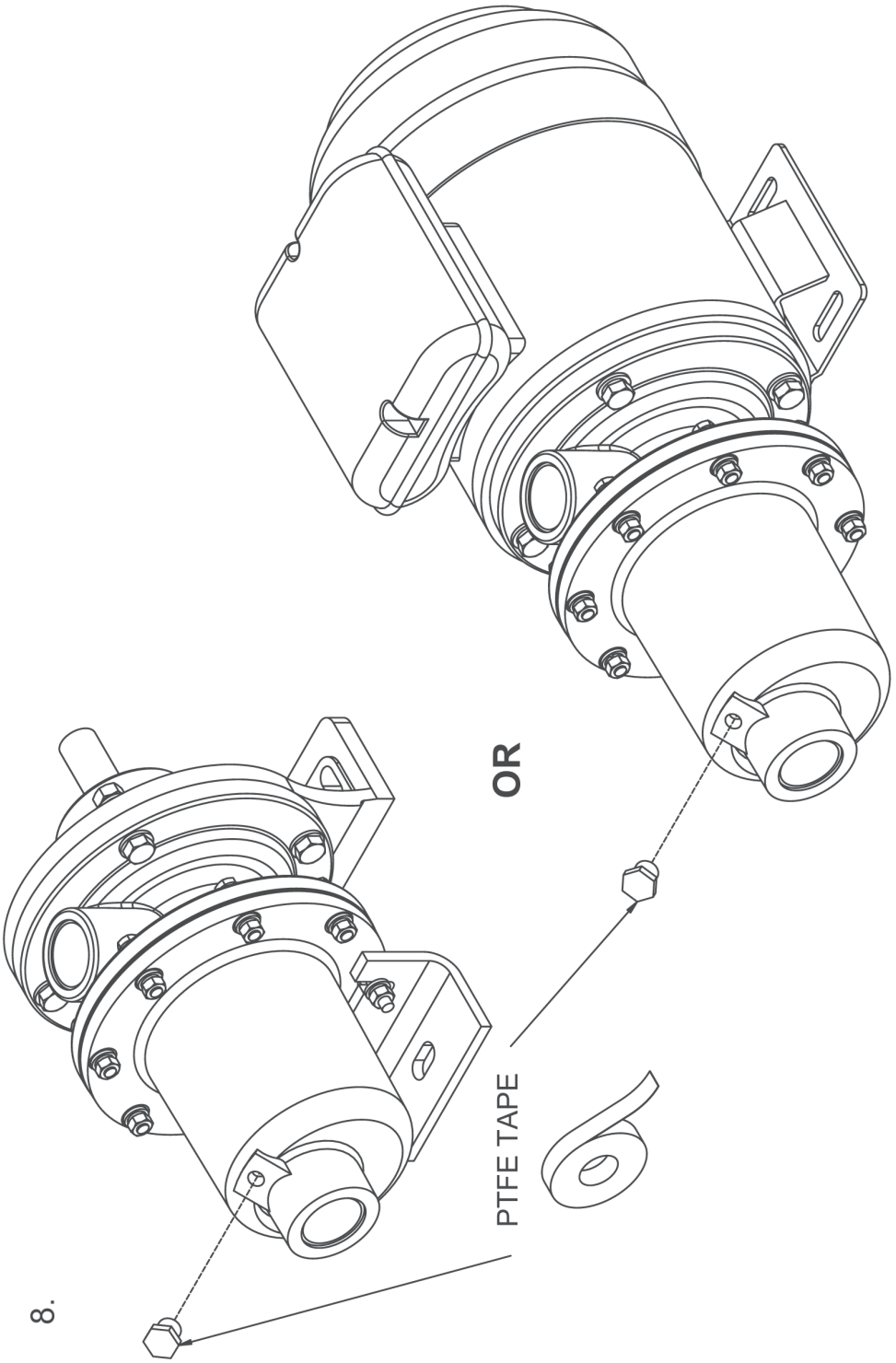
Assembly Diagrams



7.

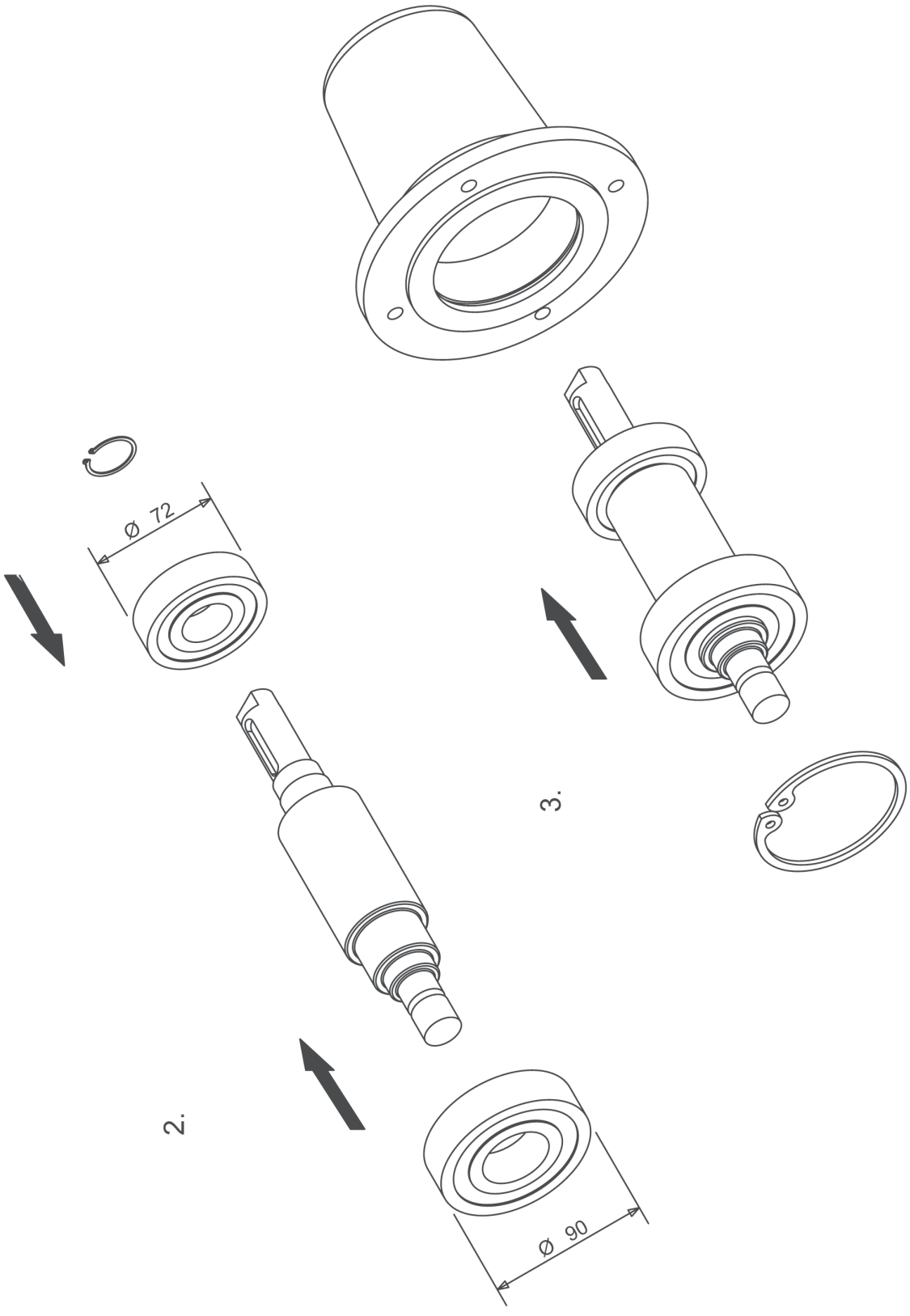
CP0011, CP0025
Bareshaft Only

Assembly Diagrams

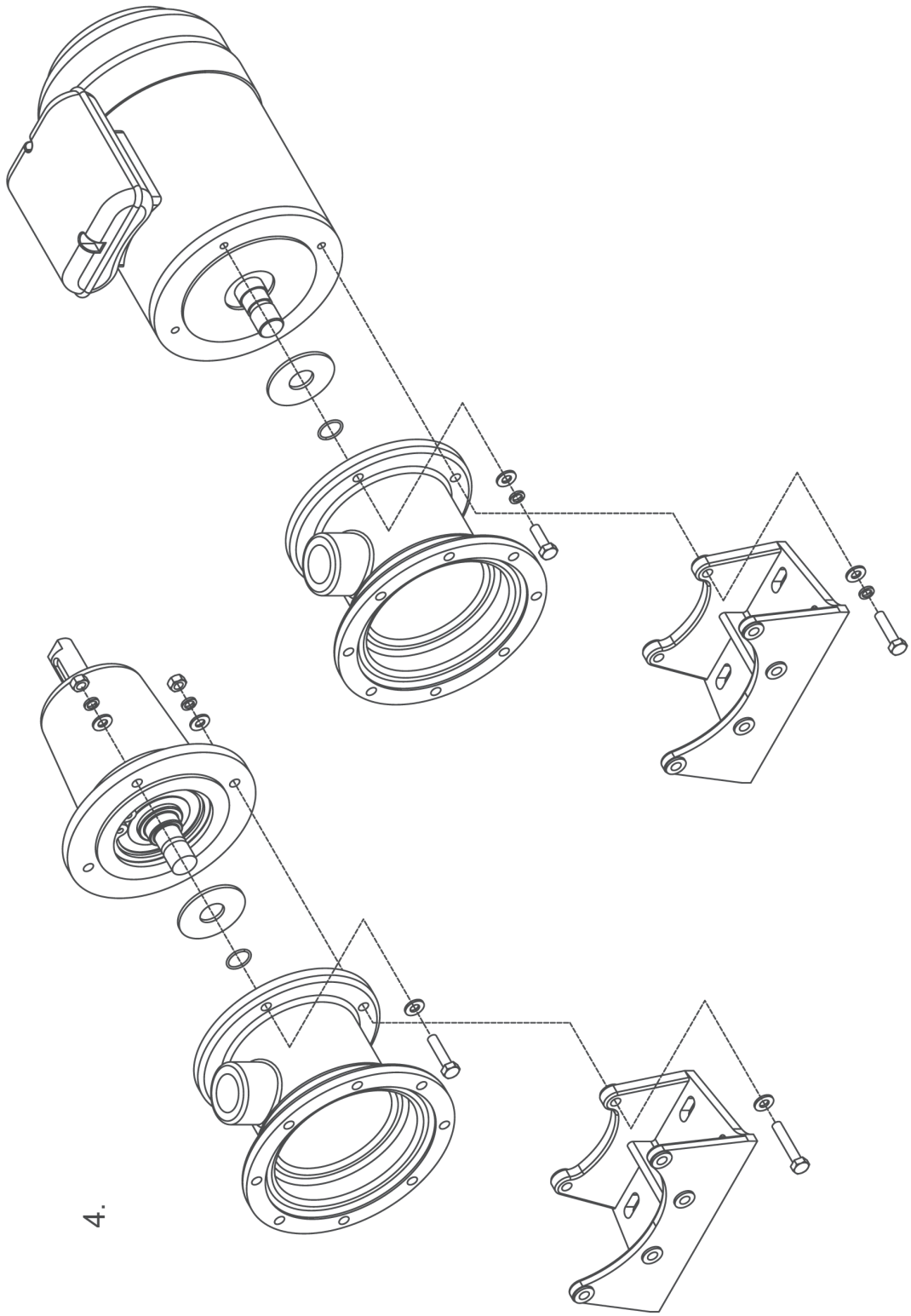


CP0011, CP0025 ONLY

Assembly Diagrams



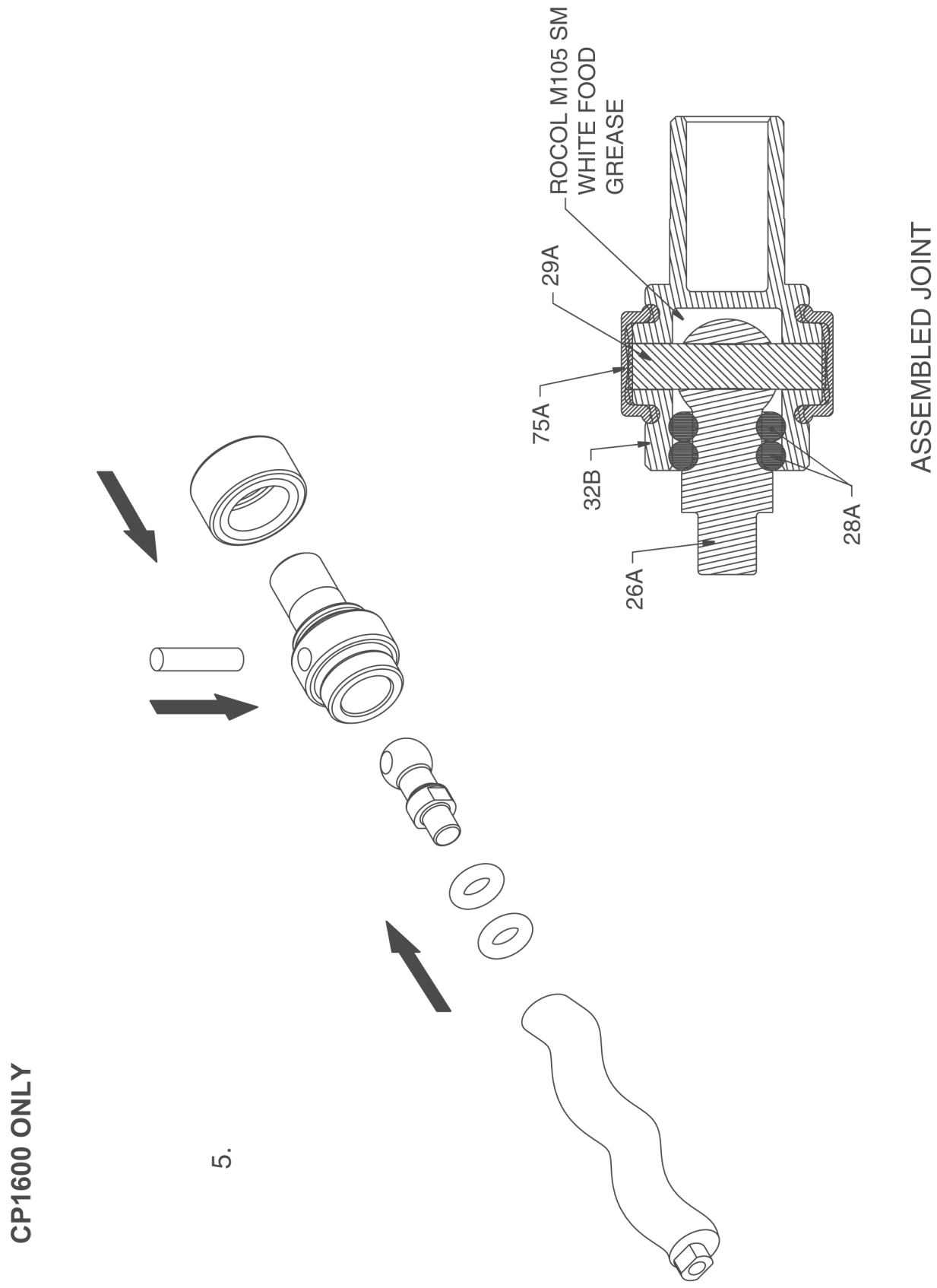
Assembly Diagrams



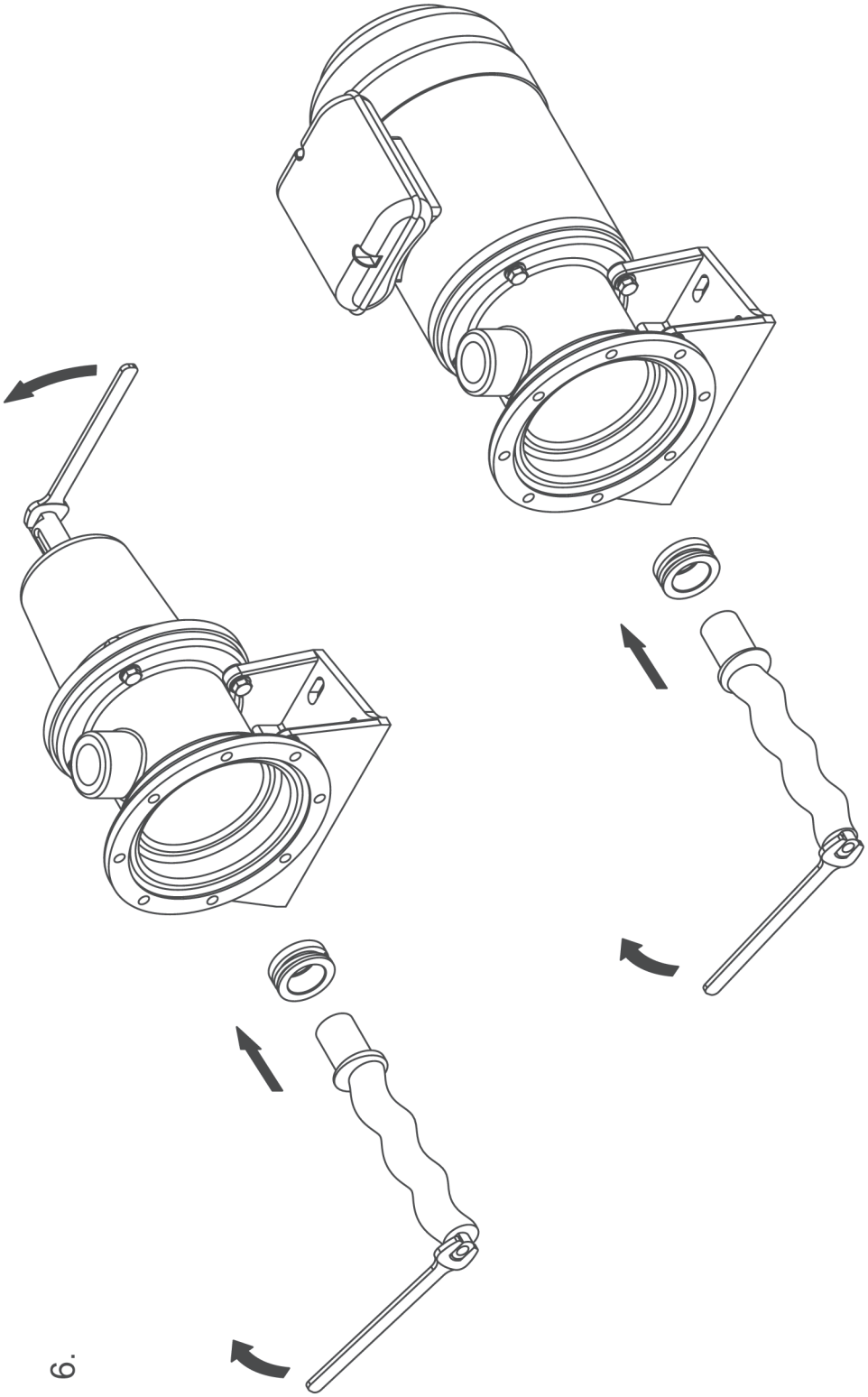
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CP0800, CP1600 ONLY

Assembly Diagrams



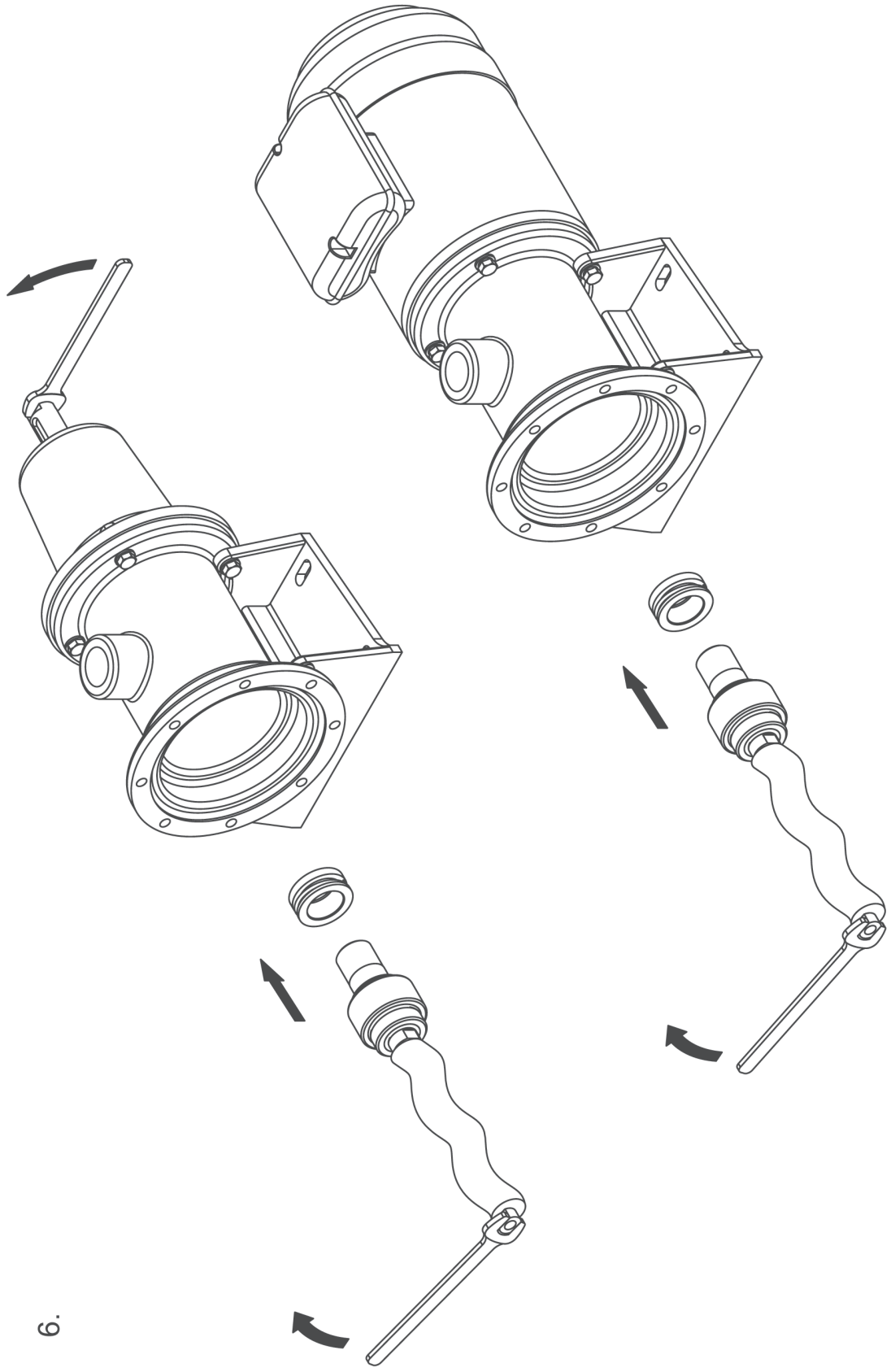
Assembly Diagrams



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CP0800 ONLY

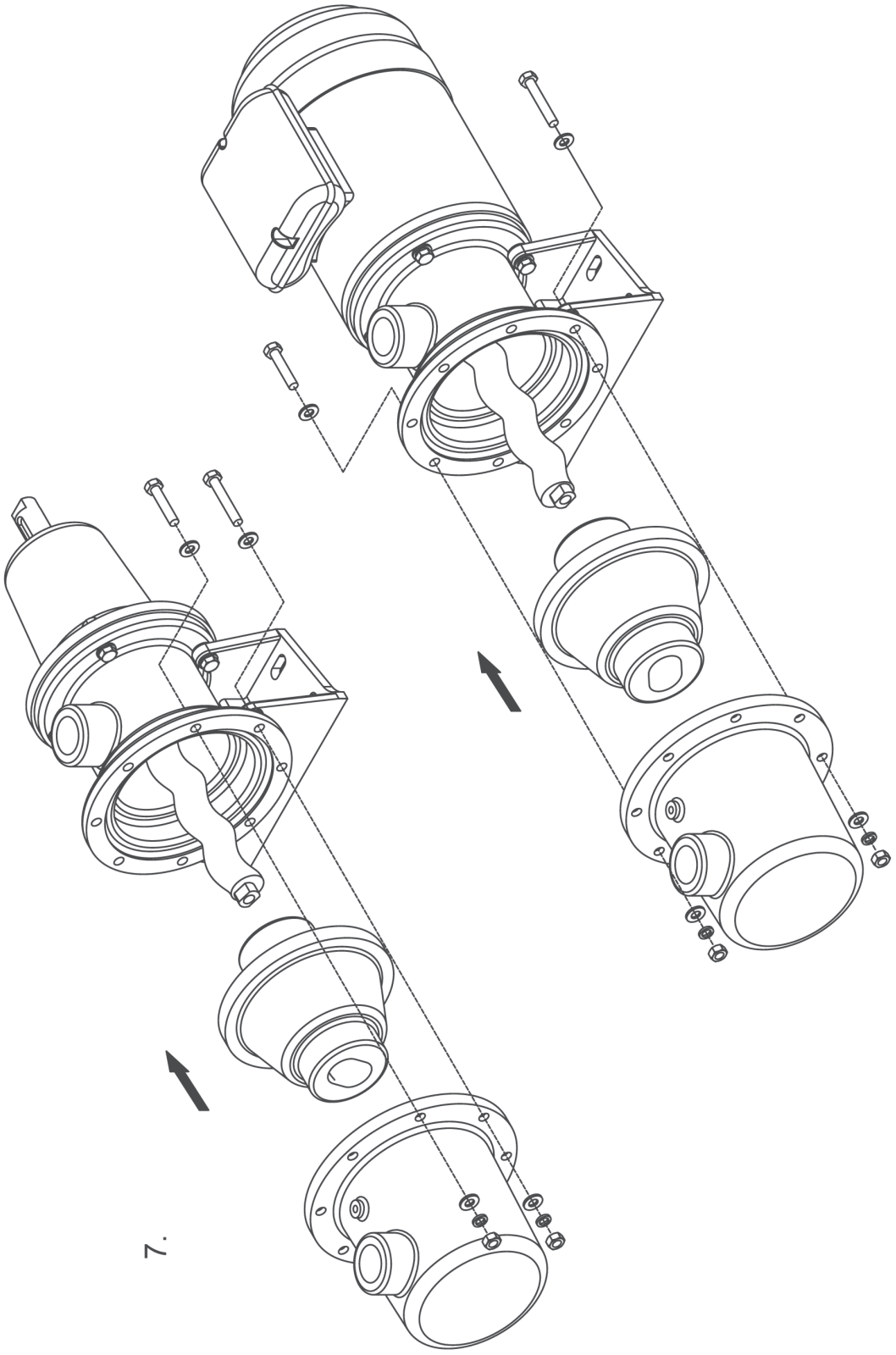
Assembly Diagrams



CP1600 ONLY

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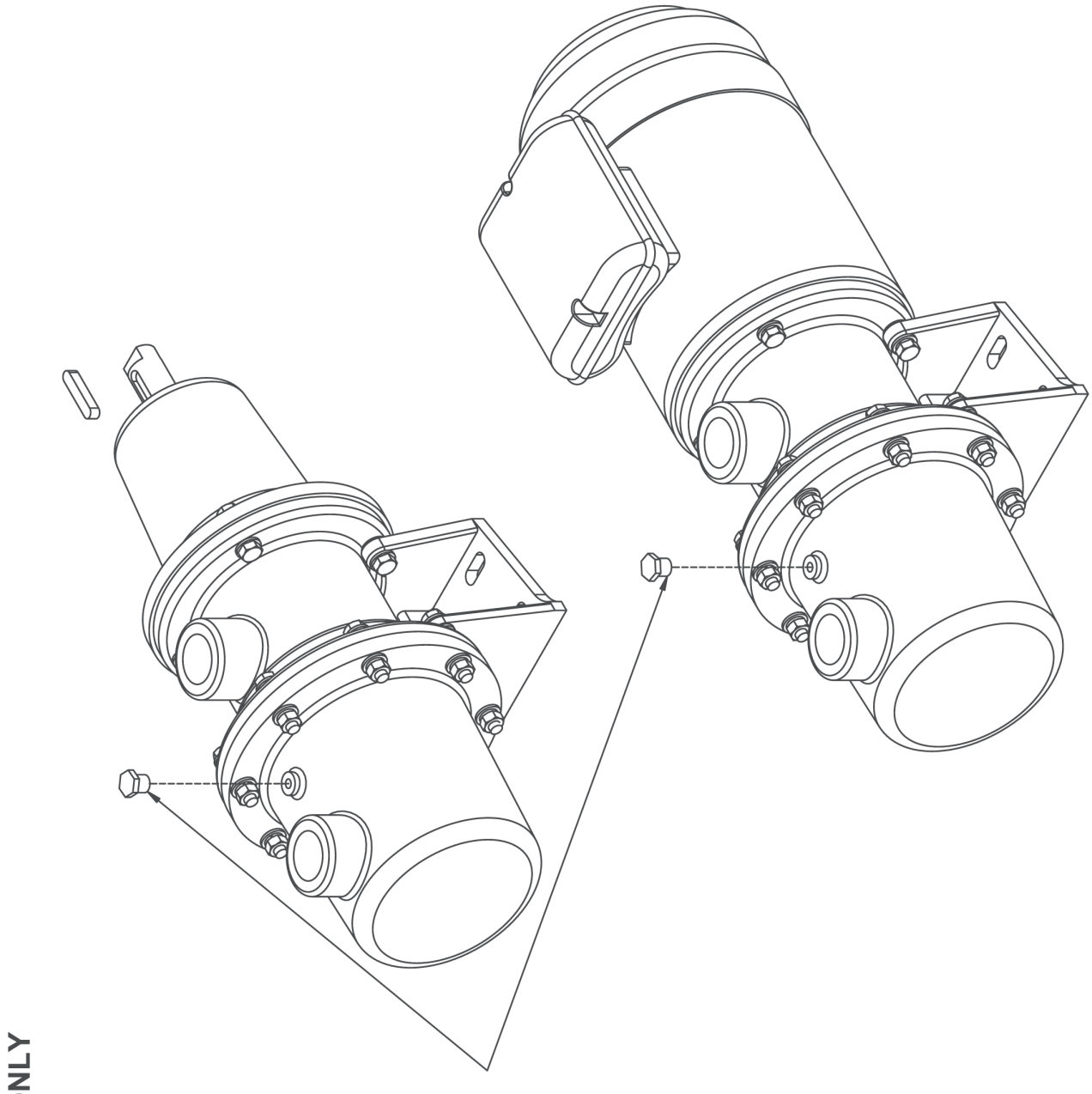
Assembly Diagrams



7.

CP0800, CP1600 ONLY

Assembly Diagrams



8.

PTFE TAPE

CP0800, CP1600 ONLY

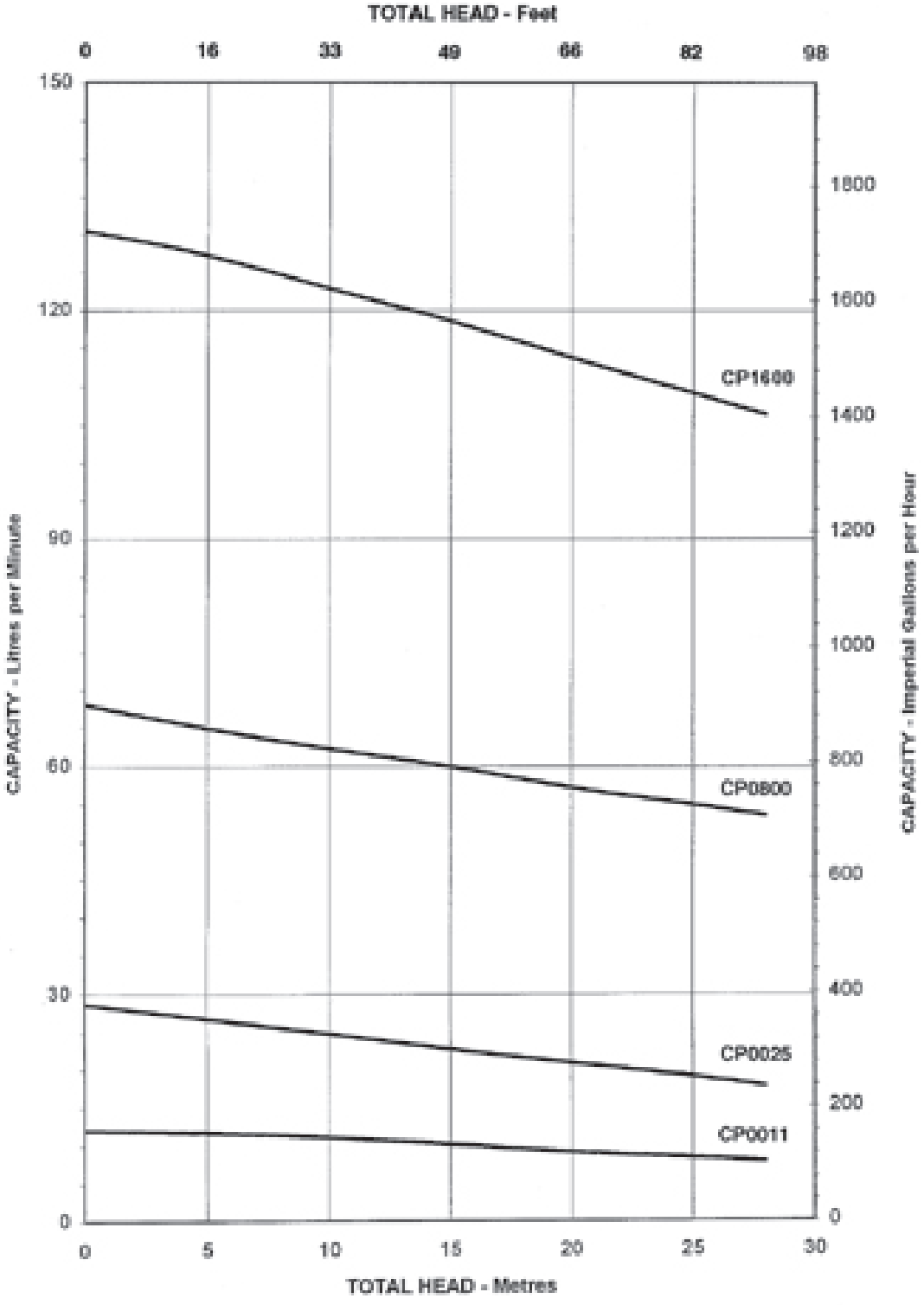
Troubleshooting

	PROBLEM		CAUSE
1.	Motor will not run	-	Overload tripped out
		-	Blown fuse/power failure
		-	Defects in motor
		-	Faulty pressure switch (pressure system)
2.	No liquid delivered (Pump will not prime)	-	Pump not filled before starting
		-	Air leak on suction
		-	Discharge head too high (above rating)
		-	Suction lift too high
		-	Inlet pipe not submerged enough
		-	Non return valve too close to pump
		-	Insufficient net inlet head
		-	Damaged/worn stator/rotor
3.	Not enough liquid delivered	-	Air leak on suction
		-	Discharge head too high (above rating)
		-	Suction lift too high
		-	Inlet pipe not submerged enough
		-	Viscosity of liquid greater than rating
4.	Loss of liquid after starting	-	Air or gas in liquid
		-	Air leak on suction
		-	Suction lift too high
		-	Inlet pipe not submerged enough
		-	Insufficient net inlet head
		-	Blocked inlet
5.	Pump is noisy (cavitation)	-	Air or gas in liquid
		-	Blocked foot valve/strainer
		-	Restriction in line
		-	Too great total suction lift
6.	Pump vibrates	-	As for No. 5 above
		-	Pump not bolted down firmly
7.	Pump will not give rated pressure	-	Worn Stator/rotor or both rotor and stator
8.	Motor runs hot	-	Viscosity of liquid greater than rating
		-	Voltage/frequency differ to rating
		-	Overloads set too low (three phase)
		-	Defects in motor
		-	Pump overloaded (current too high)
			NOTE: Motor normally runs too hot to hold.
9.	Overload tripped out	-	Low voltage
		-	Too frequent starting (single phase)
		-	Overload set too low (three phase)
		-	Pump overloaded (current too high)
		-	Motor not protected from sun
10.	Pump starts too often (pressure system)	-	Incorrect pressure switch setting
		-	Leaking non return valve
		-	Lead in system pipework
		-	Pressure/diaphragm tank too small
		-	Pressure diaphragm tank air pre-charge too low
		-	Air bag in pressure tank damaged.
11.	Pump runs continuously	-	Pressure switch set incorrectly

Typical Pump Performance

PERFORMANCE CURVE @ 1450RPM

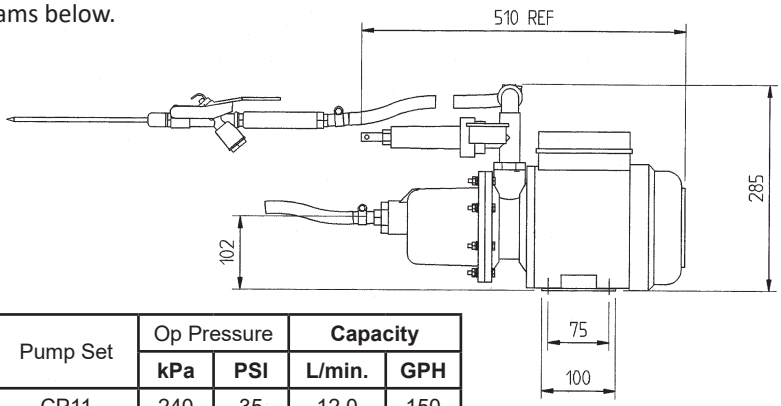
NOTE: All pumps provide a maximum suction lift of 6 metres.

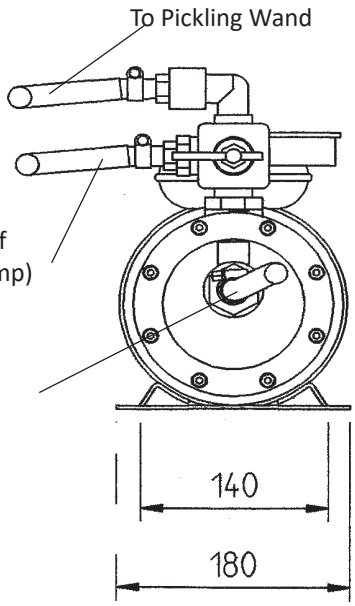


Brine Injection Pump

The No-Nonsense Mono Pickling Pump for butchers.

NOTE: Hoses may be supplied disconnected. Connect as shown in diagrams below.

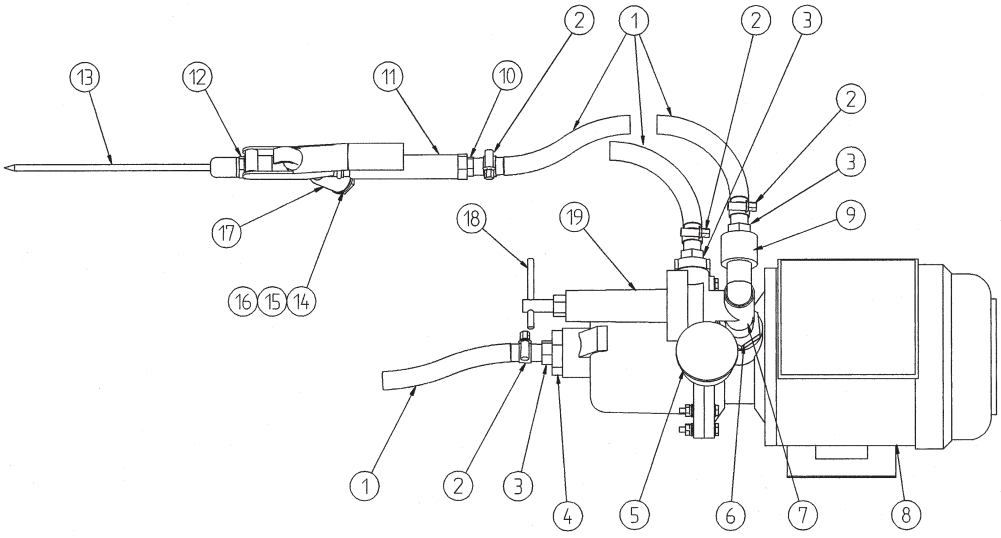




Pump Set	Op Pressure		Capacity	
	kPa	PSI	L/min.	GPH
CP11	240	35	12.0	150
CP25	240	35	27.7	365

Item	Description	Part Number	Qty.
1	Reinforced Hose 12.5mm/ metre	BRI-HOS050PL	13m Total
2	Hoseclip 'ABA' 12-20mm St. Stl.	BRI-CLIP050SF	4
3	D1234 13mm tail x 3/4" BSP PP	BRI-0500	3
4	1" x 3/4" PP BSP	BRI-0400	1
5	Gauge-50mm 0-800kPa-St.Stl.	BRI-GUAGE0-800	1
6	1" x 3/4" red hex nipple PP BSP	BRI-0100	1
7	3/4" Tee PP BSP	BRI-0200	1
8	Motor .025HP S. Ph. Epoxy Paint	CPE0251MBRI	1
9	3/4" 90D Elbow M+F PP BSP	BRI-0300	1

Item	Description	Part Number	Qty.
10	Swivel tail 1/2" BSP	BRI-SWIVELTAIL	1
11	Handle coval gun	BRI-LS3STRAINER	1
12	Hex Adaptor-Spec 60 (Coval)	BRI-HEXADAPTOR	1
13	Lance 1/4" x 8"	BRI-LANCE025X8	1
14	Fibre Washer 18 x 9 x 1.5mm	BRI-FIBRWASH17	1
15	Fibre Washer 19 x 12.5 x 1.5mm	BRI-FIBWASH19	1
16	Fibre Washer 23 x 16 x 1.6mm	BRI-FIBRWASH22	1
17	High Pressure Cutoff Valve	BRI-HPGUNGM	1
18	Adj. Screw SS - DRG No. AUX 3093	BRI-RVSCREW	1
19	Relief Valve 3/4"	BRI-R0758460V	1



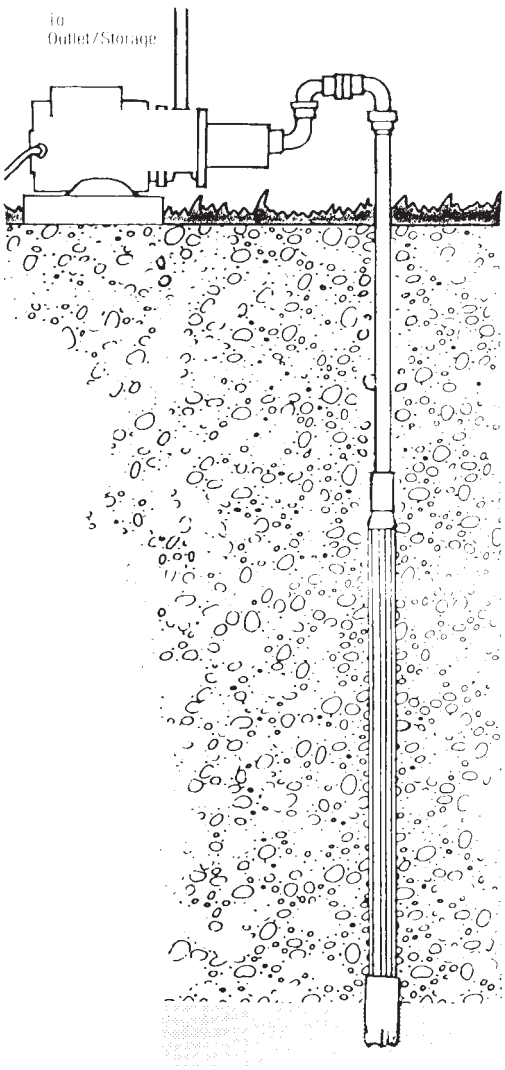
CP25 Spear Pump

CP25 SPEAR PUMP

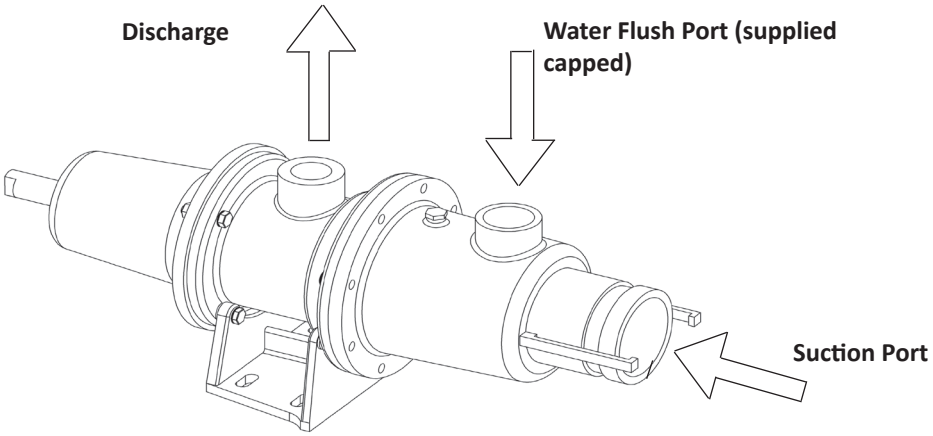
The CP25 pump can be easily adapted for use as a spear pump. It needs to be coupled to a stainless steel or plastic sand spear for a maximum suction lift of 6 metres.

This system is an ideal economical system for using underground water for garden watering, hosing, garden sprinklers, filling header tanks or other storage areas for domestic use.

For spear pump operation a pressure relief valve Part No. BRI-R078460V should be fitted and set to maximum pressure of 280 kPa. Also a pressure gauge on the discharge pipework should be fitted.



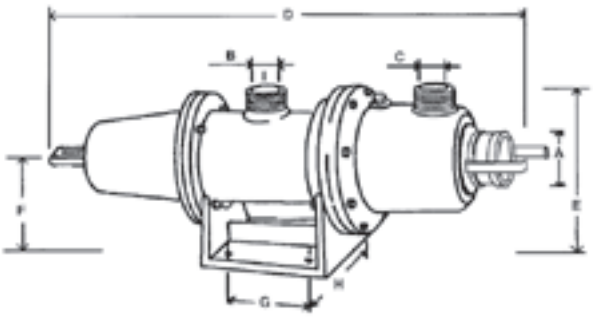
Molasses Feed Pump



MOLASSES FEED PUMPING UNIT

APPLICATIONS

Ideally molasses should be no less than 20 degrees Celsius. If the molasses temperature is above 20 degrees, it is recommended that a heat trace be added to the suction pipe. Due to variation in molasses consistencies, care should be taken to ensure molasses will flow prior to pumping.



The molasses feed pumping unit is designed to run at a maximum of 400 RPM.

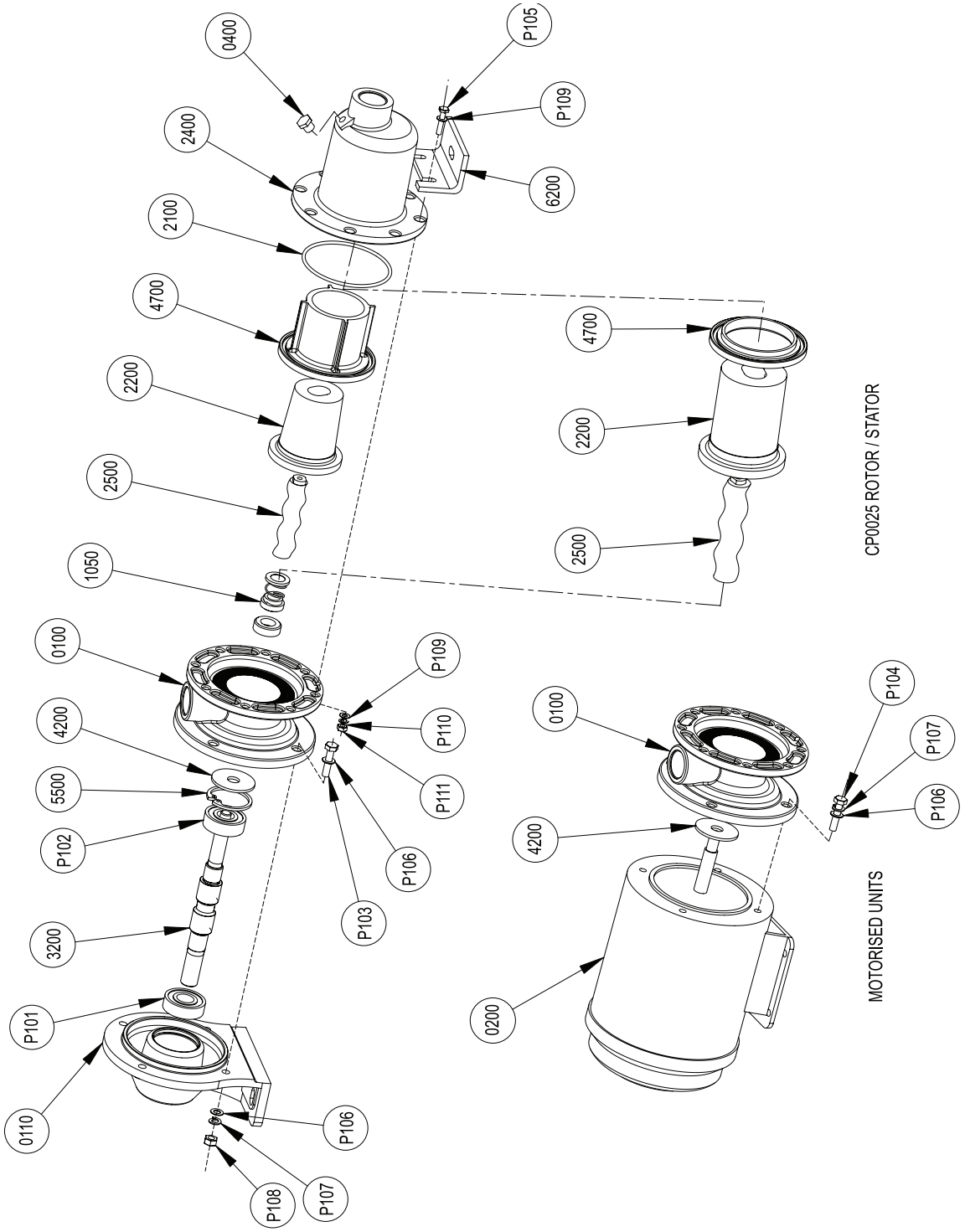
Ensure that the suction pipe or end cover is externally supported to take the weight of the suction pipe.

The pump can be either a CP800 or CP1600 depending on application. Maintanence to be preformed as per the instructions in this manual.

		CP0800M	CP1600M
A.	Suction Port Diameter	3"	3"
B.	Discharge Port	1 1/2" BSP	1 1/2" BSP
C.	Water Flush Port	1 1/2" BSP	1 1/2" BSP
D.	Overall Length	588	641
E.	Overall Height	212	212
F.	Centre Height	120	120
G.	Mount Centres	55	110
H.	Mount Centres	135	135
Shaft Diameter		***24mm***	
Key Detail		***8 x 7mm***	
Rotation		***Clockwise viewed from shaft end***	

Spare Parts

CP 11 & 25



Spare Parts

REF:	DESCRIPTION	Qty.	CP11 B/S	CP11 ELEC	CP25 B/S	CP25 ELEC
0100	BODY	1	AC CP11 0100			
0110	BEARING HOUSING	1	AL CP11 0110	N/A	AL CP11 0110	N/A
0200	MOTOR 240V (STD)	1	N/A	CPE0251CSTFM	N/A	CPE0501CSTFM
0200	MOTOR 415V (STD)	1	N/A	CPE0253TFM	N/A	CPE0503TFM
0400	PLUG NYLON HX HD 1/4"BSPT TAP.	1	OO CP00 0430			
1050	MECH SEAL CARB/CER/FLUORO	1	RV CP11 1050			
1050	MECH SEAL CARB/ST STEEL	1	ST CP11 1050			
1050	MECH SEAL CARB/TUFNOL	1	ZU CP11 1050			
1050	MECH SEAL TUNGSTEN	1	TU CP11 1050			
1050	MECH SEAL/O'RING KIT (STD)	1	MPK-SK011			
2010	O'RING (STD)	1	RR CP11 2010			
2010	O'RING FLUORO.	1	RV CP11 2010			
2200	STATOR FLOUROELASTOMER	1	RV CP11 2200		RV CP25 2200	
2200	STATOR HIGH NITRILE	1	RJ CP11 2200		RJ CP25 2200	
2200	STATOR HYPALON	1	RH CP11 2200		RH CP25 2200	
2200	STATOR NATURAL RUBBER	1	RA CP11 2200		RA CP25 2200	
2200	STATOR NITRILE (STD)	1	RR CP11 2200		RR CP25 2200	
2400	END COVER	1	AC CP11 2400			
2500	ROTOR (SOLAR)	1	SF SWP25 2500			
2500	ROTOR 316	1	SF CP11 2500		SF CP25 2500	
2500	ROTOR 316/HCP (STD)	1	SF CP11 2520		SF CP25 2520	
3200	MAIN SHAFT	1	SF CP11 3212	N/A	SF CP25 3212	N/A
3210	STUB SHAFT *	1	SF CP11 3210	N/A	SF CP25 3210	N/A
P102	BEARING	1	OO CP11 3400	N/A	OO CP11 3400	N/A
4200	THROWER	1	RR CP11 4200			
4700	STATOR SUPPORT	1	AC CP11 4700		AC CP25 4700	
5500	CIRCLIP	1	MG CP11 5500	N/A	MG CP11 5500	N/A
P101	BEARING	1	A170202B	N/A	A170202B	N/A
P105	BOLT	8	SUN S0547			
P103	BOLT	4	K113260F		K113260F	
P104	BOLT	4	K113220F		K113220F	
P111	NUT	8	SUN S0545			
P108	NUT	4	N113100F	N/A	N113100F	N/A
P109	WASHER	16	W112051F			
P108	WASHER-SPRING	16	W112251F			
P106	WASHER	4	W113050F	N/A	W113050F	N/A
P107	WASHER - SPRING	4	W113251F	N/A	W113251F	N/A
	DRIVE SCREW	2	R104112F			
	NAMEPLATE	1	AL CP11 0610		AL CP25 0611	

* Stub shafts SF CP11 3210 & SF CP25 3210 are only required on CP11 & CP25 pumps that use a separate bearing shaft-two piece design, such as those built prior to 1998.

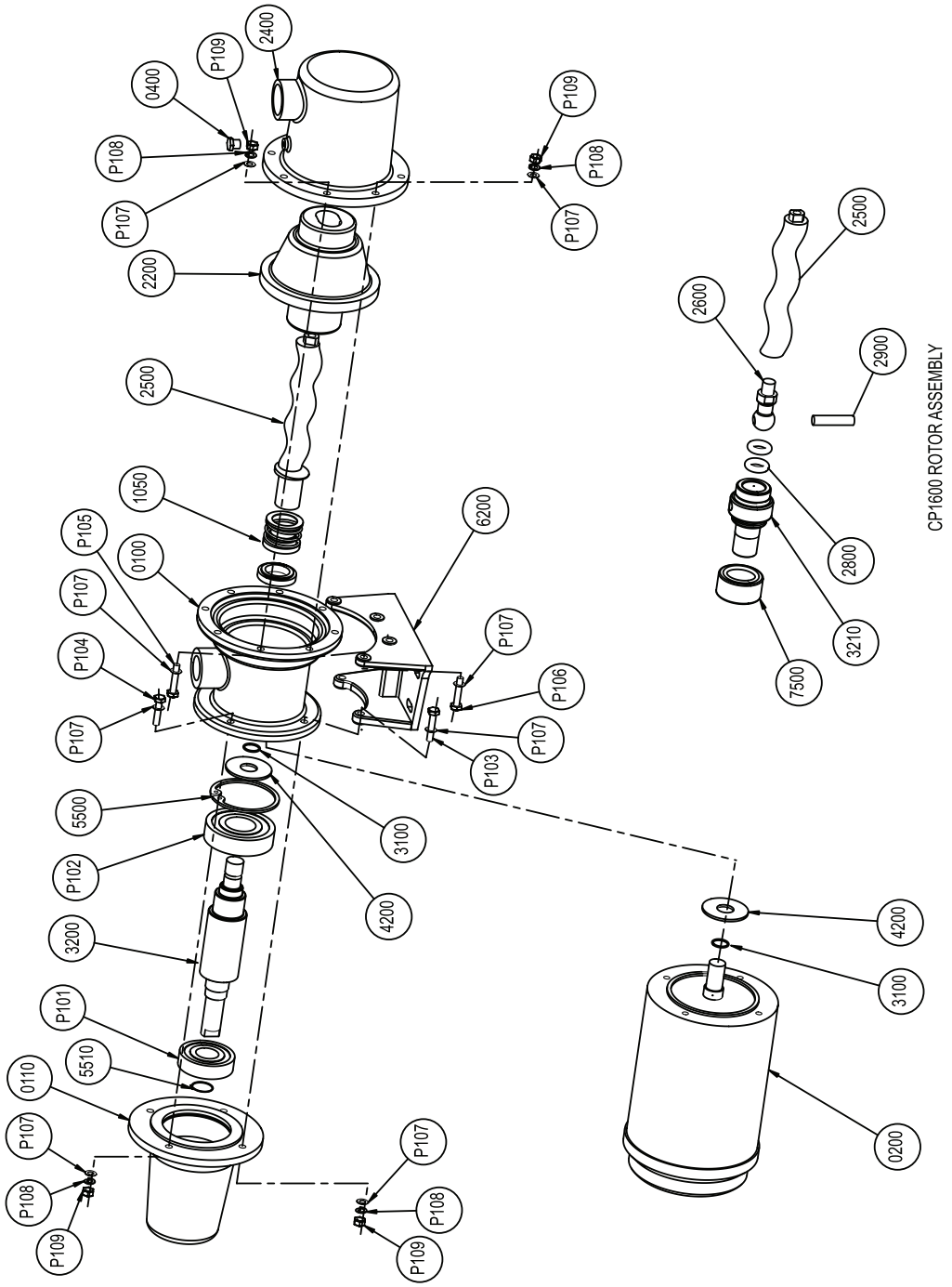
Spare Parts

REF:	DESCRIPTION	Qty.	CP800 B/S	CP800 ELEC	800 MOLAS	CP1600 B/S	CP1600 ELEC	CP1600 MOLAS
0100	BODY	1	AC CP800 0100			AC CP1600 0100		
0110	BEARING HOUSING	1	AL CP800 0110	N/A	AL CP800 0110		N/A	AL CP800 0110
0400	PLUG NYLON	1	OO CP00 0430					
0600	NAMEPLATE (Not Shown)	1	AL CP25 0610					
0200	MOTOR 240V (STD)	1	N/A	CPE1251CSM	N/A		CPE1251CSM	N/A
0200	MOTOR 415V (STD)	1	N/A	CPE1253M	N/A		CPE1253M	N/A
1050	MECHANICAL SEAL (STD)	1	OO CP800 1060					
2200	STATOR HIGH NITRILE	1	RJ CP800 2200			RJ CP1600 2200		
2200	STATOR NATURAL RUBBER	1	RA CP800 2200			RA CP1600 2200		
2200	STATOR NITRILE (STD)	1	RR CP800 2200			RR CP1600 2200		
2400	END COVER (END COVER ASSY)	1	AC CP800 2400		AC CP800M 2410	AC CP800 2400		AC CP800M 2410
2500	ROTOR (SOLAR)	1	SF SWP800 2500			SF SWP1600 2500		
2500	ROTOR 316 STAINLESS	1	SF CP800 2500			SF CP1600 2500		
2500	ROTOR 316/HCP (STD)	1	SF CP800 2520			SF CP1600 2520		
2500	ROTOR 431 STAINLESS	1	SB CP800 2500			SB CP1600 2500		
2500	ROTOR 431/HCP	1	SB CP800 2520			SB CP1600 2520		
2600	COUPLING BALL	1	N/A			SB CP1600 2600		
2800	SEAL RING	2	N/A			RR D60 2800		
2900	PIN	1	N/A			SB D60 2900		
3100	O RING	1	RR CP800 3110					
3200	DRIVE SHAFT	1	MM CP800 3200	N/A	MM CP800 3200	N/A		MM CP800 3200
3210	COUPLING DRIVE HEAD	1	N/A			SB CP1600 3210		
4200	THROWER	1	RR CP800 4200	RR AGR310 4200	RR CP800 4200	RR CP800 4200	RR AGR310 4200	RR CP800 4200
5500	CIRCLIP	1	MG CP800 5500	N/A	MG CP800 5500		N/A	MG CP800 5500
5510	CIRCLIP	1	MG CP800 5510	N/A	MG CP800 5510		N/A	MG CP800 5510
6200	SUPPORT FOOT	1	AL CP800 6200			AL CP1600 6200		
7500	RUBBER BOOT	1	N/A			RR CP1600 7500		
P101	BEARING	1	A170302B	N/A	A170302B		N/A	A170302B
P102	BEARING	1	A170402B	N/A	A170402B		N/A	A170402B
P104	BOLT	2	K113260F	K113220F	K113260F		K113220F	K113260F
P105	BOLT	4	K113280F					
P106	BOLT	4	K113300F					
P103	BOLT	4	K113290F					
P109	NUT	*12	N113100F					
P107	WASHER	*24	W113051F					
P108	SPRING WASHER	*16	W113251F					
	FLUSH PORT CAP	1	N/A		S023191	N/A		S023191
	KEY	1	K100840P	N/A	K100840P		N/A	K100840P

*240V 415V unit uses 8 x P102, 20 x P110, 12 x P111

Spare Parts

CP800 & 1600



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