OPERATOR'S MANUAL

DP11-50BXXXXXXX

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

Rev.B

2" DIAPHRAGM PUMP

1:1 RATIO (METALLIC)

READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

SERVICE KITS

Refer to "Model Description Chart" to match the pump material options.

SERVE2-50A for Air Section repair (see page 6).

SERVE2-50F-XXX for fluid section repair with seats (see page 4).

SERVE2-50F-XX for fluid section repair without seats (see page 4).

PUMP DATA

Models . . . . . . see Model Description Chart for "-XXX".

Pump Type. . . . Metallic, Air Operated, Double Diaphragm

Material . . . . . see Model Description Chart

Weight . . . . . Aluminum: 95 LBS(43kgs)
Stainless Steel: 139 LBS(63kgs)
Cast Iron: 139 LBS(63kgs)

Maximum Air Inlet Pressure. . . . . 120 p.s.i. (8.3 bar)

Maximum Material Inlet Pressure. . . . . 10 p.s.i. (0.69 bar)

Maximum Outlet Pressure. . . . . 120 p.s.i. (8.3 bar)

Maximum Flow Rate (flooded inlet). . 171 gpm (647 lpm)

Maximum Particle Size . . . . 1/4" dia. (6.4 mm)

Maximum Temperature Limits(Diaphragm/ball/seat material)

Acetal	10° to 180° F (-12° to 82° C)
E.P.R.	-60° to 280° F (-51° to 138° C)
Hytrel®	-20° to 180° F (-29° to 82° C)
Neoprene	0° to 200° F (-18° to 93° C)
Nitrile	10° to 180° F (-12° to 82° C)
Polypropylene	35° to 175° F (2° to 79° C)
Polyurethane	10° to 150° F (-12° to 66° C)
P.V.D.F. (Kynar®)	10° to 200° F (-12° to 93° C)
Santoprene®	-40° to 225° F (-40° to 107° C)
PTFE	40° to 225° F (4° to 107° C)
Viton®	-40° to 350° F (-40° to 177° C)

Dimensional Data. . . . . see page 8

Noise Level @ 70 p.s.i. - 60 cpm . . . . . 76 dB(A)

NOTICE: All possible options are shown in the chart, however, certain combinations may not be recommended, consult a representative or the factory if you have questions concerning availability.

GENERAL DESCRIPTION

Our Diaphragm Pump offers high volume delivery even at low air pressures and a broad range of material compatibility options available. Refer to the model and option chart. Our pumps feature stall resistant design, maintenance-free air motor,modular air motor / fluid sections. Air operated double diaphragm pumps utilize a pressure diferential in the air chambers to alternately create suction and positive fluid pressure in the fulid chambers, ball checks insure a positive flow of fluid. Pump cycling will begin as air pressure is applied and it will continue to pump and keep up with the demand.
It will build and maintain line pressure and will stop cycling once maximum line pressure is reached (dispensing device closed) and will resume pumping as needed.

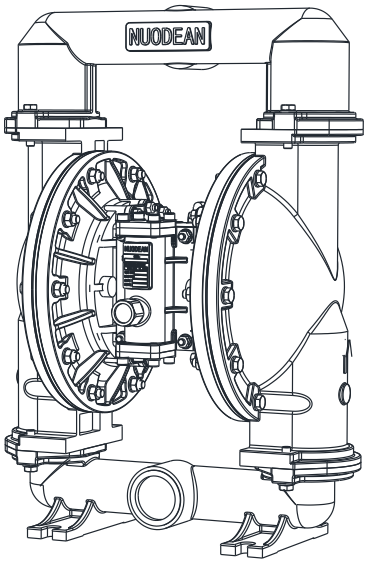

Figure 1

MODEL DESCRIPTION CHART

DP11- 50 B X X X X X X X

FLUID CAP/MANIFOLD MATERIAL
A- Aluminum I- Ductile Iron S- Stainless Steel

DIAPHRAGM MATERIAL
1-Neoprene 2-Nitrile 3-Viton
4-PTFE/Santoprene 5-E.P.R. 8-Hytrel
6-Composite PTFE 7-Santoprene

BALL MATERIAL
1-Neoprene 2-Nitrile 3-Viton 4-PTFE
5-E.P.R. 6-Acetal 7-Polyurethane
8-Stainless Steel 9-Hytrel B-Santoprene
A-Aluminum

SEAT MATERIAL
1-Aluminum 2- 316 Stainless Steel 3-Polypropylene
4-Kynar PVDF 5- Carbon Steel
7-Hard 440 Stainless Steel 8-Santoprene

CENTER SECTION MATERIAL
A-Aluminum B-Cast Iron

FLUID CONNECTIONS
N-NPT Threads B-BSPT Threads F-ANSI 150 Flange

HARDWARE
C-Carbon Steel S-Stainless Steel

FLUID SECTION SERVICE KIT SELECTION:

PUMP MODEL: **DP11-50BA X X X X X X**

Fluid Service Kit: **SERVE2-50F- X X X**

Diaphragm Material
Ball Material
Seat Material

EXAMPLE: MODEL# DP11-50BA443ABC
FLUID SECTION SERVICE KIT WITH SEAT : SERVE2-50F-443
FLUID SECTION SERVICE KIT WITHOUT SEAT: SERVE2-50F-44

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OPERATING AND SAFETY PRECAUTIONS

READ, UNDERSTAND, AND FOLLOW THIS INFORMATION TO AVOID INJURY AND PROPERTY DAMAGE.

⚠ WARNING EXCESSIVE AIR PRESSURE. Can cause personal injury, pump damage or property damage.

- Be sure material hoses and other components are able to withstand fluid pressures developed by this pump. Check all hoses for damage or wear. Be certain dispensing device is clean and in proper working condition.
- Do not exceed the maximum inlet air pressure as stated on the pump model plate.

⚠ WARNING STATIC SPARK. Can cause explosion resulting in severe injury or death. Ground pump and pumping system.

- Sparks can ignite flammable material and vapors.
- The pumping system and object being sprayed must be grounded when it is pumping, flushing, recirculating or spraying flammable materials such as paints, solvents, lacquers, etc. or used in a location where surrounding atmosphere is conductive to spontaneous combustion.Ground the dispensing valve or device, containers, hoses and any object to which material is being pumped.
- Secure pump, connections and all contact points to avoid vibration and generation of contact or static spark.
- Consult local building codes and electrical codes for specific grounding requirements.
- After grounding, periodically verify continuity of electrical path to ground. Test with an ohmmeter from each component (e.g., hoses, pump, clamps, container, spray gun, etc.) to ground to insure continuity. Ohmmeter should show 0.1 ohms or less.
- Submerse the outlet hose end, dispensing valve or device in the material being dispensed if possible. (Avoid free streaming of material being dispensed.)
- Use hoses incorporating a static wire.
- Use proper ventilation.
- Keep inflammables away from heat, open flames and sparks.
- Keep containers closed when not in use.

⚠ WARNING Pump exhaust may contain contaminants. Can cause severe injury. Pipe exhaust away from work area and personnel.

- In the event of a diaphragm rupture, material can be forced out of the air exhaust muffler.
- Pipe the exhaust to a safe remote location when pumping hazardous or inflammable materials.
- Use a grounded 3/8 minimum i.d. hose between the pump and the muffler.

⚠ WARNING HAZARDOUS PRESSURE. Can result in serious injury or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.

- Disconnect air supply line and relieve pressure from the system by opening dispensing valve or device and / or carefully and slowly loosening and removing outlet hose or piping from pump.

⚠ WARNING HAZARDOUS MATERIALS. Can cause serious injury or property damage. Do not attempt to return a pump to the factory or service center that contains hazardous material. Safe handling practices must comply with local and national laws and safety code requirements.

- Obtain Material Safety Data Sheets on all materials from the supplier for proper handling instructions.

⚠ WARNING EXPLOSION HAZARD. Models containing aluminum wetted parts cannot be used with 1,1,1-trichloroethane, methylene chloride or other halogenated hydrocarbon solvents which may react and explode.

- Check pump motor section, fluid caps, manifolds and all wetted parts to assure compatibility before using with solvents of this type.

⚠ CAUTION Verify the chemical compatibility of the pump wetted parts and the substance being pumped, flushed or recirculated. Chemical compatibility may change with temperature and concentration of the chemical(s) within the substances being pumped, flushed or circulated. For specific fluid compatibility, consult the chemical manufacturer.

⚠ CAUTION Maximum temperatures are based on mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperature. Consult the chemical manufacturer for chemical compatibility and temperature limits. Refer to PUMP DATA on page 1 of this manual.

⚠ CAUTION Be certain all operators of this equipment have been trained for safe working practices, understand its limitations, and wear safety goggles / equipment when required.

⚠ CAUTION Do not use the pump for the structural support of the piping system. Be certain the system components are properly supported to prevent stress on the pump parts.

- Suction and discharge connections should be flexible connections (such as hose), not rigid piped, and should be compatible with the substance being pumped.

⚠ CAUTION Prevent unnecessary damage to the pump. Do not allow pump to operate when out of material for long periods of time.

- Disconnect air line from pump when system sits idle for long periods of time.

⚠ CAUTION Use only genuine replacement parts to assure compatible pressure rating and longest service life

NOTICE Replacement warning labels are available upon request: Static Spark PN \ 93122 & Diaphragm Rupture PN \ 93616-1.

NOTICE RE-TORQUE ALL FASTENERS BEFORE OPERATION. Creep of housing and gasket materials may cause fasteners to loosen. Re-torque all fasteners to insure against fluid or air leakage.

⚠ WARNING	=	Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.
⚠ CAUTION	=	Hazards or unsafe practices which could result in minor personal injury, product or property damage.
NOTICE	=	Important installation, operation or maintenance information.

AIR AND LUBE REQUIREMENTS

⚠ WARNING EXCESSIVE AIR PRESSURE. Can cause pump damage, personal injury or property damage.

- A filter capable of filtering out particles larger than 50 microns should be used on the air supply. There is no lubrication required other than the ring lubricant which is applied during assembly or repair.
- If lubricated air is present, make sure that is compatible with the Nitrile rings in the air motor section of the pump.

OPERATING INSTRUCTIONS

- Always flush the pump with a solvent compatible with the material being pumped if the material being pumped is subject to setting up when not in use for a period of time.
- Disconnect the air supply from the pump if it is to be inactive for a few hours.
- The outlet material volume is governed not only by the air supply but also by the material supply available at the inlet. The material supply tubing should not be too small or restrictive. Be sure not to use hose which might collapse.
- When the diaphragm pump is used in a forced-feed (flooded inlet) situation, it is recommended that a Check Valve be installed at the air inlet.
- Secure the diaphragm pump legs to a suitable surface to insure against damage by vibration.

MAINTENANCE

Refer to the part views and descriptions as provided on page 4 through 7 for parts identification and Service Kit information.

- Certain Smart Parts are indicated which should be available for fast repair and reduction of down time.
- Service kits are divided to service two separate diaphragm pump functions: 1. AIR SECTION, 2. FLUID SECTION. The FLUID SECTION is divided further to match typical part MATERIAL OPTIONS.
- Provide a clean work surface to protect sensitive internal moving parts from contamination from dirt and foreign matter during service disassembly and reassembly.
- Keep good records of service activity and include pump in preventive maintenance program.
- Before disassembling empty captured material in the outlet manifold by turning the pump upside down to drain material from the pump.

FLUID SECTION DISASSEMBLY

1. Remove top manifold(s).
2. Remove (22) balls, (19) O rings and (21) seats.
3. Remove (15) fluid caps.

NOTE: Only PTFE diaphragm models use a primary diaphragm (7) and a backup diaphragm (8). Refer to the auxiliary view in the Fluid Section illustration.

4. Remove the (14) screws,(6)washers,(7) or (7/8) diaphragms and (5) washers.
5. Remove (3) “O” rings.

FLUID SECTION REASSEMBLY

- Reassemble in reverse order.
- Clean and inspect all parts. Replace worn or damaged parts with new parts as required.
- Lubricate(1) diaphragm rod with white grease.
- Be certain (7) or (7 / 8) diaphragm(s) align properly with (15) fluid caps before making final torque adjustments on bolt and nuts to avoid twisting the diaphragm.
- For models with PTFE diaphragms: Item (8) Santoprene diaphragm is installed with the side marked AIR SIDE towards the pump center body. Install the PTFE Diaphragm with the side marked FLUID SIDE towards the fluid cap.
- When reassemble (2) Y cups,Pay attention to the orientation of Y Cups (2), Must ensure correct installation. See Figure 3.
- Re-check torque settings after pump has been restarted and run awhile.

PARTS LIST / DP11-50BXXXXXXX FLUID SECTION

★ **SERVE2-50F-XX FLUID SECTION KITS** include:BALLS(see Ball Option), DIAPHRAGMS (see Diaphragm option), plus items: 2, 3 and 19 and White lubricating grease.

DIAPHRAGM OPTIONS: DP11-50BX XXX XXX

	Service Kit With Seats - XXX= (Diaphragm) -XXX=(Ball) -XXX=(Seat)	Service Kit Without Seats -XX=(Diaphragm) -XX=(Ball)	★"7"/"8"		★"3"		★"19"	
DP11-50BX XXX XXS			Diaphragm(2)	Mtl	O-Ring (2) 19*1.6mm(o.d.* sect.)	Mtl	O-Ring (4) 92*3.2mm(o.d.* sect.)	Mtl
DP11-50BX 2XX XXS	SERVE2-50F-2XX	SERVE2-50F-2X	PAR97284-2	【B】	PARY325-16	【B】	PARY325-237	【B】
DP11-50BX 4XX XXS	SERVE2-50F-4XX	SERVE2-50F-4X	PAR96392-T/96393-A	【T/SP】	PARY328-16	【T】	PARY328-237	【T】
DP11-50BX 6XX XXS	SERVE2-50F-6XX	SERVE2-50F-6X	PAR48490072	[CP]			PARY328-237	【T】
DP11-50BX 8XX XXS	SERVE2-50F-8XX	SERVE2-50F-8X	PAR96391-C	[H]	PARY328-16	【T】	PARY327-237	[V]
DP11-50BX 7XX XXS	SERVE2-50F-7XX	SERVE2-50F-7X	PAR96391-A	[Sp]	PARY328-16	【T】	PAR94356	[E]

BALL OPTIONS: DP11-50BX XXX XXX

★"22" (2-1/2" dia.)

DP11-50BX XXX XXS	BALL	Qty	Mtl
DP11-50BX X2X XXS	PAR93358-2	4	[B]
DP11-50BX X4X XXS	PAR93358-4	4	[T]
DP11-50BX X8X XXS	PAR94805	4	[SS]
DP11-50BX X9X XXS	PAR93358-C	4	[H]
DP11-50BX XBX XXS	PAR93358-A	4	[Sp]

SEAT OPTIONS: DP11-50BX XXX XXX

★"21"

DP11-50BX XXX XXS	SEAT	Qty	Mtl
DP11-50BX XX1 XXS	PAR95673	4	【A】
DP11-50BX XX2 XXS	PAR92776	4	【SS】
DP11-50BX XX3 XXS	PAR92924	4	【P】
DP11-50BX XX4 XXS	PAR94514	4	【K】
DP11-50BX XX5 XXS	PAR95676	4	【C】
DP11-50BX XX7 XXS	PAR93266	4	【SH】

MANIFOLD/FLUID CAP MATERIAL OPTIONS DP11-50BX XXXXXX

ITEM	DESCRIPTION	Qty	Aluminum DP11-50BA XXXXXX		Stainless Steel DP11-50BS XXXXXX		Cast Iron DP11-50BI XXXXXX	
			Part No.	【Mtl】	Part No.	【Mtl】	Part No.	【Mtl】
15	Fluid Cap	2	PB73	【A】	PB91	【SS】	PB91	【CI】
16	Manifold, Outlet (Top)	1	PC70	【A】	PC92	【SS】	PC101	【CI】
31	Manifold, Inlet (Bottom)	1	PC71	【A】	PC93	【SS】	PC100	【CI】

HARDWARE OPTIONS DP11-50BX XXX XXX

			Carbon Steel DP11-50BX XXX XXC		Stainless Steel DP11-50BX XXX XXS	
ITEM	DESCRIPTION	Qty	Part No.	【Mtl】	Part No.	【Mtl】
5	Washer-Air Side	2	PH70	【C】	PH71	【SS】
26	Bolt	8	Hexagon Bolt M10*45 10.9Grade	【C】	Hexagon Bolt M10*45 A2-90	【SS】
29	Bolt	20	Hexagon Bolt M10*55 10.9Grade	【C】	Hexagon Bolt M10*55 A2-90	【SS】
30	Washer	48	Washer 10 CS	【C】	Washer 10 SS	【SS】
32	Nut	20	Hexagon Nut M10 10Grade	【C】	Hexagon Nut M10 A2-90	【SS】

COMMON PARTS

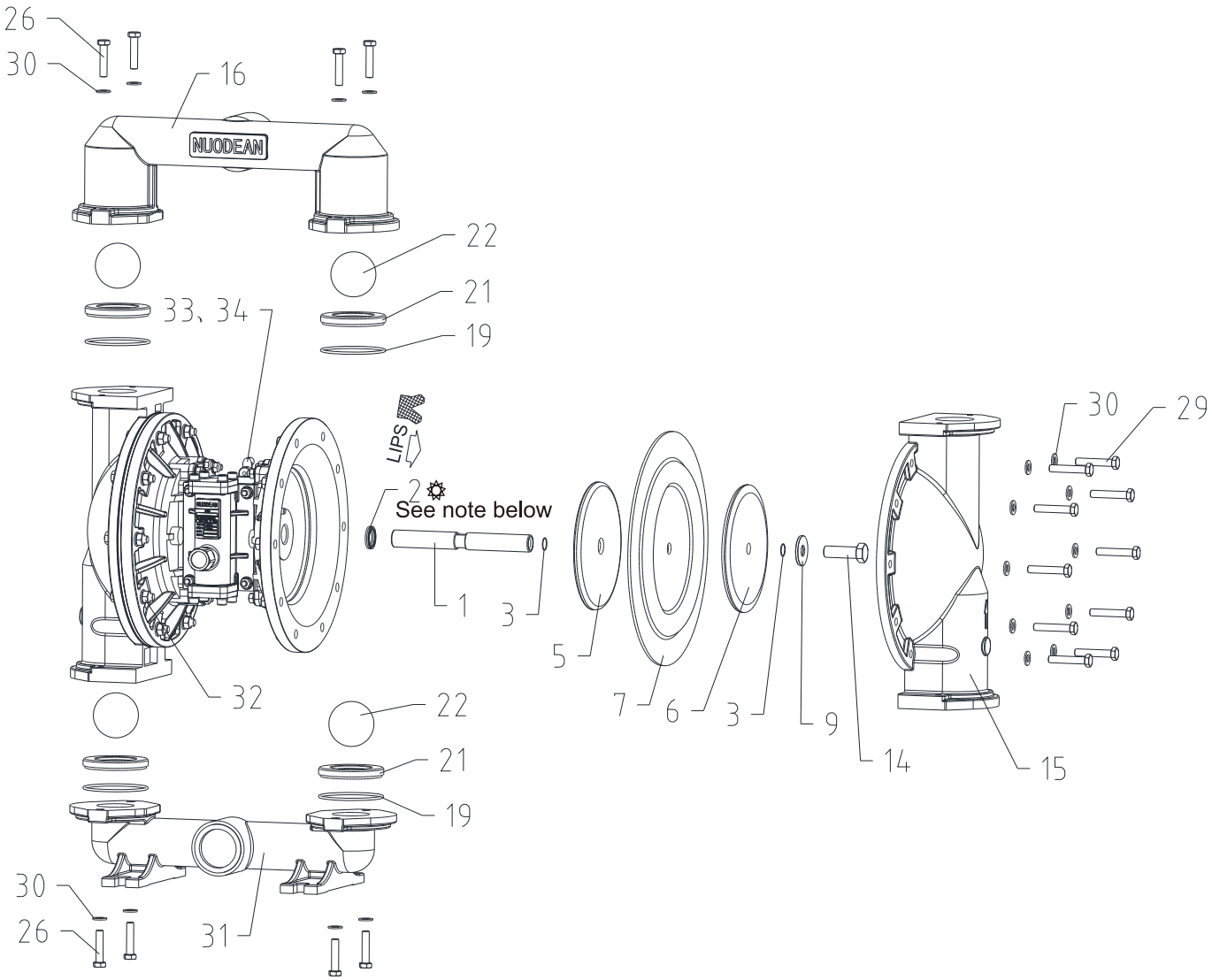
ITEM	DESCRIPTION	Qty	Part No.	【Mtl】
□ 1	Rod	1	PD68	【SS】
★2	Y Cup	2	Y24x32x4.5	【B】
□ 6	Washer-Fluid Side	2	PH71	【SS】
9	Washer	2	PN71	【SS】
14	Bolt	2	Hexagon Bolt M16x1.5x50	【SS】
33	Ground Lug	1	PN93004	【Co】
34	Screw	1	Screw M5*15	【SS】

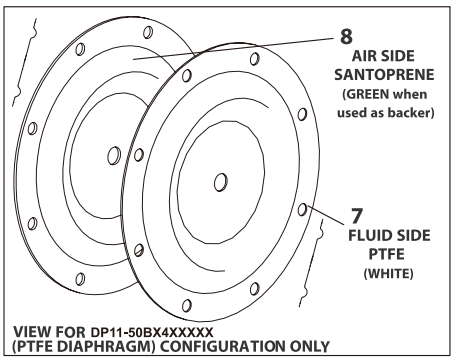
MATERIAL CODE

【B】=Nitrile 【P】=Polypropylene 【C】=Carbon Steel
【SH】=Hard stainless steel 【CP】=Composite PTFE
【SP】=Santoprene 【E】=E.P.R. 【SS】=Stainless Steel
【H】=Hytrel 【T】=PTFE 【K】=PVDF(Kynar)
【U】=Polyurethane 【N】=Neoprene 【V】=Viton
【Co】=Copper

□"Smart Parts"keep these items on hand in addtion to the Service Kits for fast repair and reduction of down time.

PARTS LIST / DP11-50BXXXXXXX FLUID SECTION





TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN FASTENERS

(14) Bolts,65-70 ft lbs(88.1-94.9Nm).

(26)&29 Bolts, 30-40 ft.lbs(40.7-54.2Nm).

LUBRICATION/SEALANTS

Apply Loctite 271 to threads.

Apply Lubricating grease to all o-rings, V cups&mating parts.

Apply anti-seize compound to threads and bolts and nut flange heads which contact pump case when using stainless steel fasteners.

NOTE: Radius edge of parts (5 &6) is against diaphragm.

☼ **Notice:**
Pay attention to the orientation of Y Cups (2),
Must ensure correct installation.

Figure 3

PARTS LIST / DP11-50BXXXXXXX AIR MOTOR SECTION

√ Indicates parts included in **SERVE2-50A Air Section Service Kit.**

ITEM	DESCRIPTION	Qty	Part No.	【Mtl】
101	Air Cap 1	1	PB72	【A】
102	Stud (M8x35)	8	Stud M8x35 A2-70	【SS】
	Stud (M8x35)		Stud M8x35 CS	【C】
103	Sleeve	2	PG67	【POM】
√ 104	O-Ring (28mm*2.65mm)	2	Oring ID28x2.65	【B】
√ 105	O-Ring (8mm*1.8mm)	2	Oring ID8x1.8	【B】
106	Feeler	2	PK99	【SS】
√ 107	"Y" Cup	2	Y14x22x4.5	【B】
108	Pilot Spool	1	PK95	【POM】
109	Screw (M5x15)	1		【SS】
110	Sleeve	2	PK96	【POM】
√ 111	Gasket	2	PF87	【B】
112	Hex Flange Nut (M8)	12	Hex Flange Nut M8 A2-70	【SS】
			Hex Flange Nut M8 CS	【C】
113	Center Body	1	PA67	【A】
√ 114	Gasket	1	PF86	【B】
115	Retainer Ring	2	PK98	【Brass】
√ 116	"Y" Cup	2	Y24x32x4.5	【B】
√ 117	"Y" Cup	1	Y24x16x4.5	【B】
√ 118	"Y" Cup	2	Y30x22x4.5	【B】
119	Sleeve	1	PK87	【POM】
√ 120	O-Ring (36.5mm*2.65mm)	2	Oring ID36.5*2.65	【B】
121	Helping Shaft	1	PK88	【POM】
122	Ring	1	PK89	【POM】
123	Sleeve	1	PK90	【POM】

ITEM	DESCRIPTION	Qty	Part No.	【Mtl】
124	Stud (M8x40)	4	Stud M8*40 A2-70	【SS】
			Stud M8*40 CS	【C】
125	Air Cap 2		PB80	【A】
126	Air Valve Body	1	PI67	【A】
□ 127	Valve Insert	1	PK92	【AO】
□ 128	Valve Plate	1	PK91	【AO】
√ 129	Gasket	1	PF76	【B】
√ 130	Gasket	1	PF79	【B】
131	Adapter	1	PN69	【A】
√ 132	Gasket	1	PF79	【B】
□ 133	Pilot Valve Plate	1	PK94	【AO】
□ 134	Pilot Valve Insert	1	PK93	【AO】
135	Spool	1	PK86	【POM】
136	Sleeve	1	PK85	【POM】
√ 137	O-Ring (41mm*2.4mm)	1	Oring id41*2.4	【B】
138	Cover	2	PJ67	【A】
139	Washer (F 8)	8	Washer 8 SS	【SS】
			Washer 8 CS	【C】
140	Hexagon Socket Cap Screws (M8*20)	8	Hexagon Socket M8*20 A2	【SS】
			Hexagon Socket M8*20 CS	【C】
141	Ground Lug	1	PN93004	【Co】
142	Muffler	1	PT40	
√	Lubricant Grease			

【B】=Nitrile 【P】=Polypropylene 【C】=Carbon Steel 【AO】=Aluminum Oxide
【SH】=Hard stainless steel 【CP】=Composite PTFE
【SP】=Santoprene 【E】=E.P.R. 【SS】=Stainless Steel
【H】=Hytrel 【T】=PTFE 【K】=PVDF(Kynar)
【U】=Polyurethane 【N】=Neoprene 【V】=Viton

□"Smart Parts" Keep these items on hand in addition to the Service Kits for fast repair and reduction of downtime.

AIR MOTOR SECTION SERVICE

Service is divided into two parts- 1. Pilot Valve, 2. Major Valve

GENERAL REASSEMBLY NOTES:

- Air Motor Section Service is continued from Fluid Section repair.
- Inspect and replace old parts with new parts as necessary. Look for deep scratches on surfaces, and nicks or cuts in "O"rings and Y cups.
- Take precautions to prevent cutting "O"rings and Y cups upon installation.
- Lubricate "O"rings and Y cups with lubricant grease.
- Do not overtighten fasteners, refer to torque specification block on view.
- Re-torque fasteners following restart.

PILOT VALVE DISASSEMBLY

1.Remove (112)nut and (188)major valve.See figure 4.
2.Remove (129)gasket, (130)gasket, (131)adapter, (143)gasket, (132)gasket, (133)Pilot Valve plate, and (134)pilot valve insert. See figure 4.

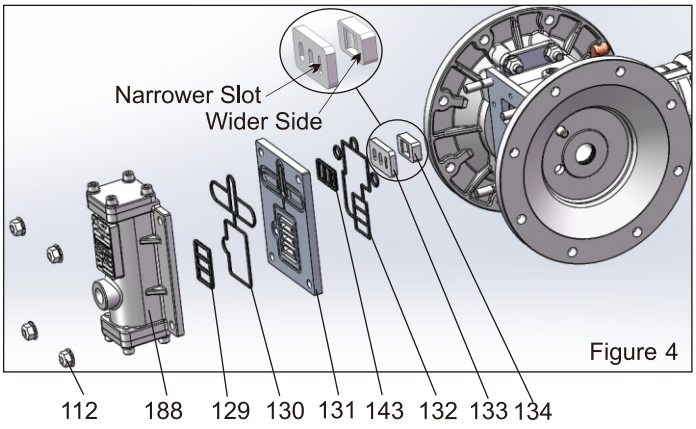


Figure 4

3.Remove (112)nut, (101)air cap 1, (125)air cap 2, (111)gasket, and (114)gasket. See figure 5.
4.Remove (103) sleeves from (113)center body,and remove (116)Y cups from (101) & (125). See figure 6.
5.Remove(104)o-ring, (106)feeler, (115)retainer ring, and (105)O-ring. See figure 5.
6.Remove (108)pilot spool and (107) Y cup. See figure 5.
7.Remove (110)sleeve and (104)o-ring. See figure 5.

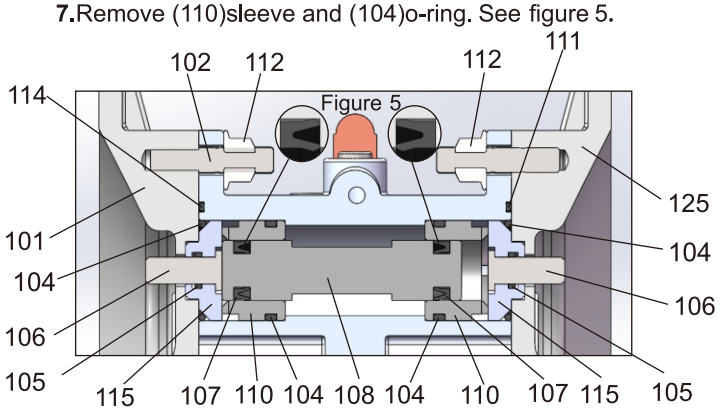


Figure 5

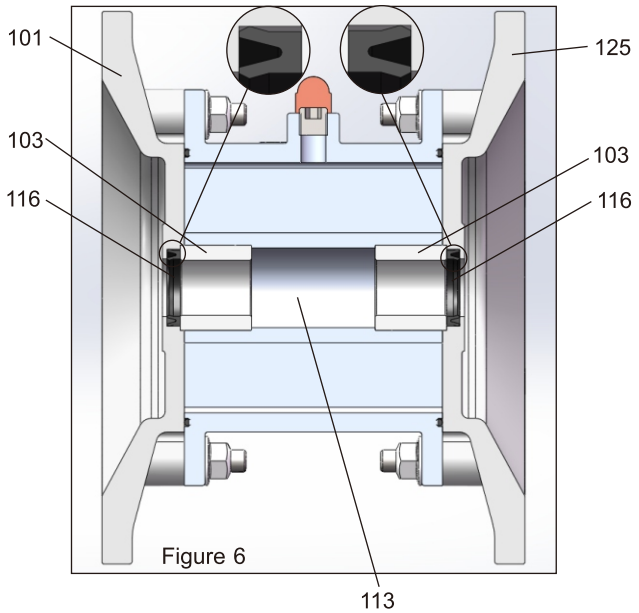


Figure 6

PARTS LIST / DP11-50BXXXXXXX AIR MOTOR SECTION

PILOT VALVE REASSEMBLY

1. Replace all o-rings,Y cups and gaskets if worn or damaged. These are (129),(130),(143),(132),(111), (104),(105),(107),(114), and (116).
2. Look for deep scratches or damages on surfaces of (133) pilot valve plate and (134) pilot valve insert. If there are scratches or damages , Replace them.

Note: (133) pilot valve plate and (134) pilot valve insert are not included in Air Section Repair Kit, but Keep them on hand in addition to the Service Kits for fast repair and reduction of down time.
3. Reassemble in reverse order.

Note:

- In the process of reassembly, be careful and not brutal.
- Lubricate all o-rings and Y cups with lubricant grease.
- Lubricate the planes with lubricant grease, where (133) pilot valve plate and (134)pilot valve insert contact with each other.
- Lubricate (106)feeler with lubricant grease.
- **Pay attention to the orientation of Y Cups (116)&(107), Must ensure correct installation. See Figure 5 ,Figure 6 &Figure 8.**
- **Pay attention to the orientation of (133) pilot valve plate and (134)pilot valve insert. Must ensure correct installation. See Figure 4 & Figure 8.**

MAJOR VALVE DISASSEMBLY

1. Remove (112)nuts, then remove the assembly of major valve. See Figure 7.
2. Remove (128) valve plate and (127) valve insert. See Figure 7.
3. Remove (140)screws, (139)washers, (138)covers. See Figure 7.
4. Remove (137)O-rings. See Figure 7.
5. Remove (136)sleeve and (135)spool. See Figure 7.
6. Remove (121)helping shaft, (119)sleeve, and (122)Ring. See Figure 7.
7. Remove (118)Y cup from (121)helping shafe; Remove (117) Y cup and (120)o-ring from (122) Ring. See Figure 7.
8. Remove (123)sleeve, then remove (120)o-ring from (123)sleeve. See Figure 7.

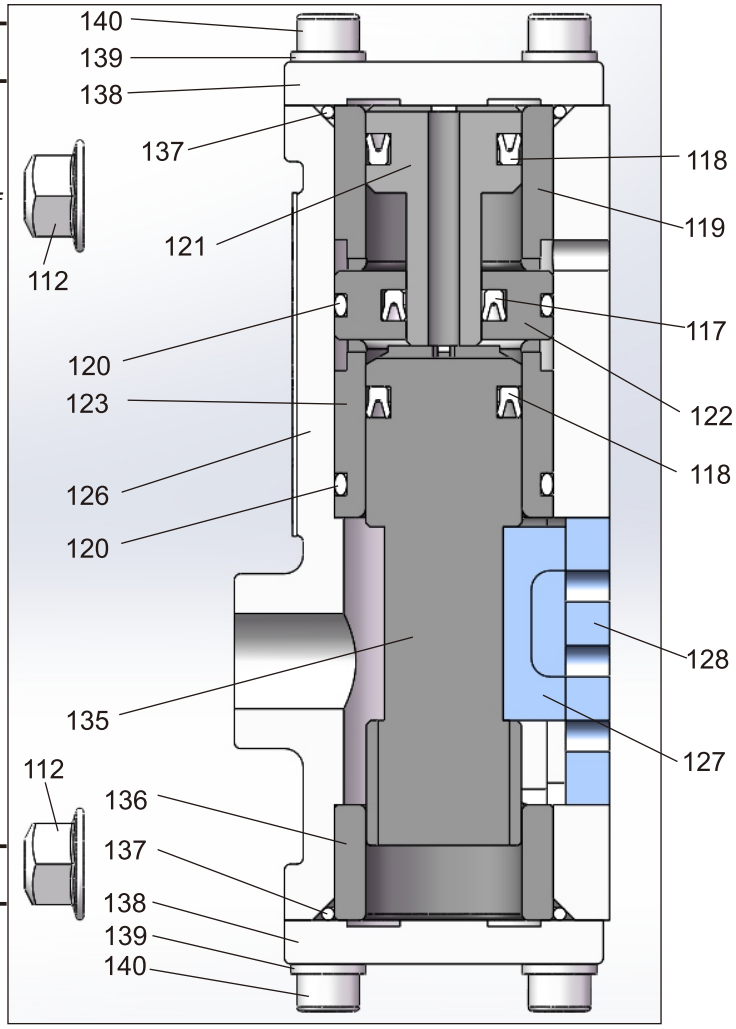


Figure 7

Note:

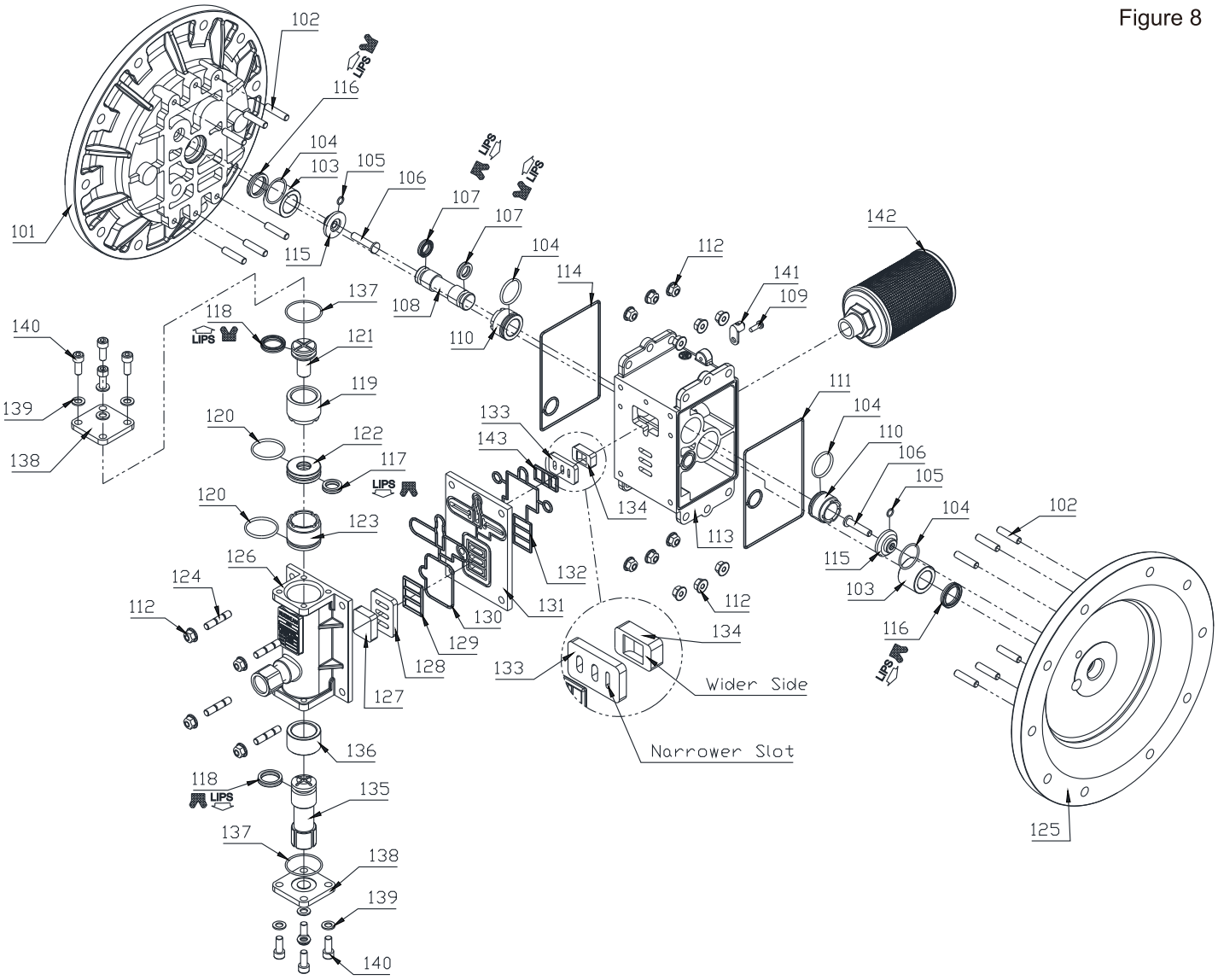
- In the process of reassembly, be careful and not brutal.
- Lubricate all o-rings and Y cups with lubricant grease.
- Lubricate the planes with lubricant grease, where (128) valve plate and (127)valve insert contact with each other.
- **Pay attention to the orientation of Y Cups (118)&(117). Must ensure correct installation. See Figure 7 & Figure 8.**
- **Pay attention to the orientation of (127)valve insert. Must ensure correct installation. See Figure 7 & Figure 8.**

MAJOR VALVE REASSEMBLY

1. Replace all o-rings,Y cups and gaskets if worn or damaged. These are (137),(118),(120), and (117).
2. Look for deep scratches or damages on surfaces of (128) pilot valve plate and (127) pilot valve insert. If there are scratches or damages , Replace them.
Note: (128) pilot valve plate and (134) pilot valve insert are not included in Air Section Repair Kit, but Keep them on hand in addition to the Service Kits for fast repair and reduction of down time.
3. Reassemble in reverse order.

PARTS LIST / DP11-50BXXXXXXX AIR MOTOR SECTION

Figure 8



NOTE:

- Pay attention to the orientation of Y Cups (118), (117), (107) and (116). Must ensure correct installation, otherwise the pump will not work.
- Pay attention to the orientation of (133) pilot valve plate and (134)pilot valve insert. Must ensure correct installation, otherwise the pump will not work properly.
- Pay attention to the orientation of (127)valve insert. Must ensure correct installation. otherwise the pump will not work.

TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN FASTENERS
(140)40-50 in.lbs(4.5-5.6Nm).

LUBRICATION

- Lubricate all o-rings and Y cups with lubricant grease. These are (129),(130),(143),(132),(111), (104),(105),(107),(114), (116),(137),(118),(120), and (117).
- Lubricate the planes with lubricant grease, where (133) Pilot valve plate and (134) Pilot valve insert contact with each other.
- Lubricate the planes with lubricant grease, where (128) valve plate and (127)valve insert contact with each other.

TROUBLE SHOOTING

Product discharged from exhaust outlet

- Check for diaphragm rupture.
- Check tightness of diaphragm nut.

Air bubbles in product discharge.

- Check connections of suction plumbing.
- Check o−rings between intake manifold and fluid caps.
- Check tightness of diaphragm nut.

Low output volume, erratic flow, or no flow.

- Check air supply.
- Check for plugged outlet hose.
- Check for kinked (restrictive) outlet material hose.
- Check for kinked (restrictive) or collapsed inlet material hose.
- Check for pump cavitation−suction pipe should be sized at least as large as the inlet thread diameter of the pump for proper flow if high viscosity fluids are being pumped. Suction hose must be a non−collapsing type, capable of pulling a high vacuum.
- Check all joints on the inlet manifolds and suction connections. These must be air tight.
- Inspect the pump for solid objects lodged in the diaphragm chamber or the seat area.

DIMENSIONAL DATA

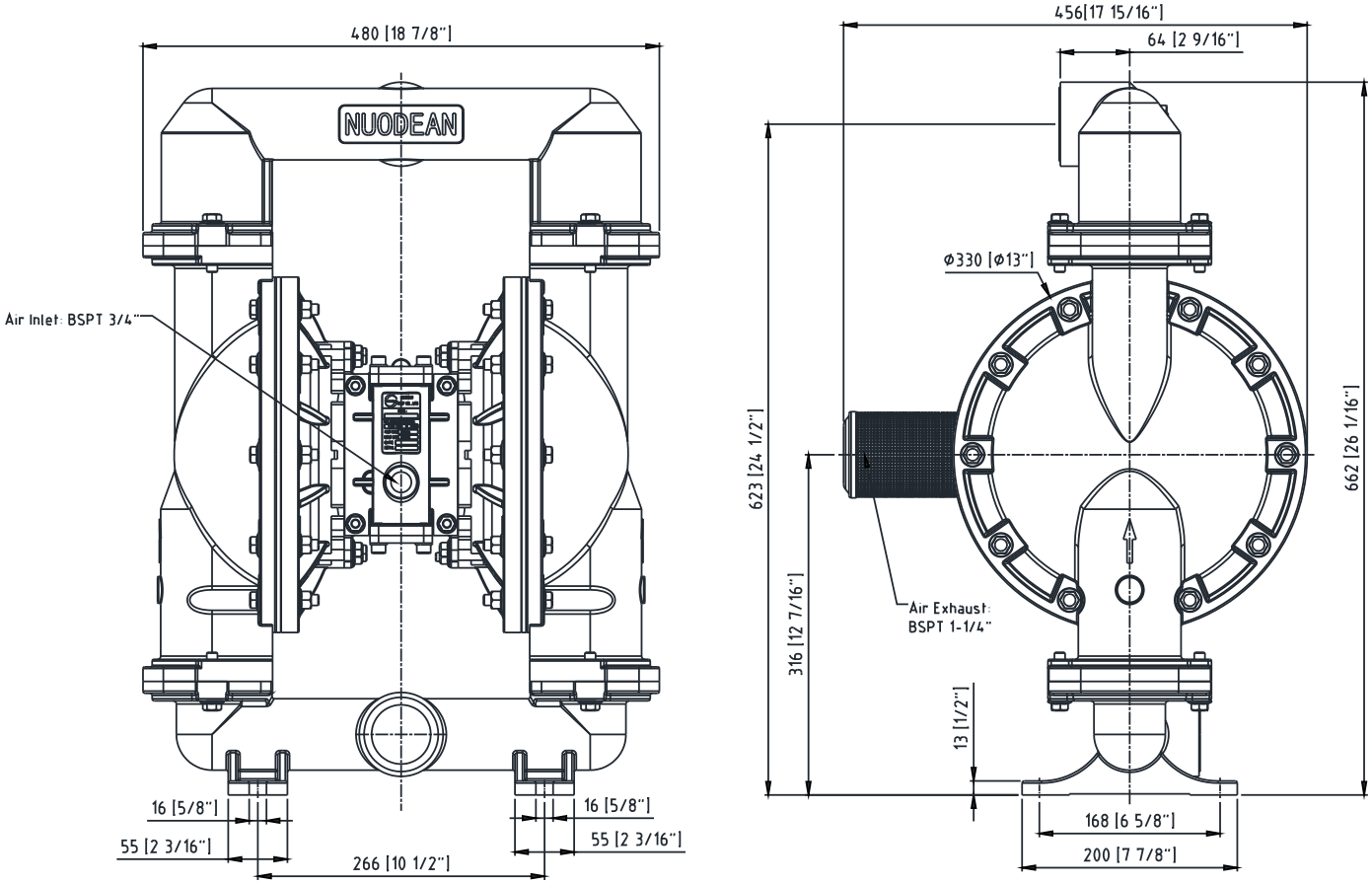


Figure 9