

SERVICE & OPERATING MANUAL

Original Instructions

Certified Quality



SAI GLOBAL

ISO 9001 Certified
ISO 14001 Certified

Member of
Hydraulic
PUMP

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Poly/Alum Tranquilizer®

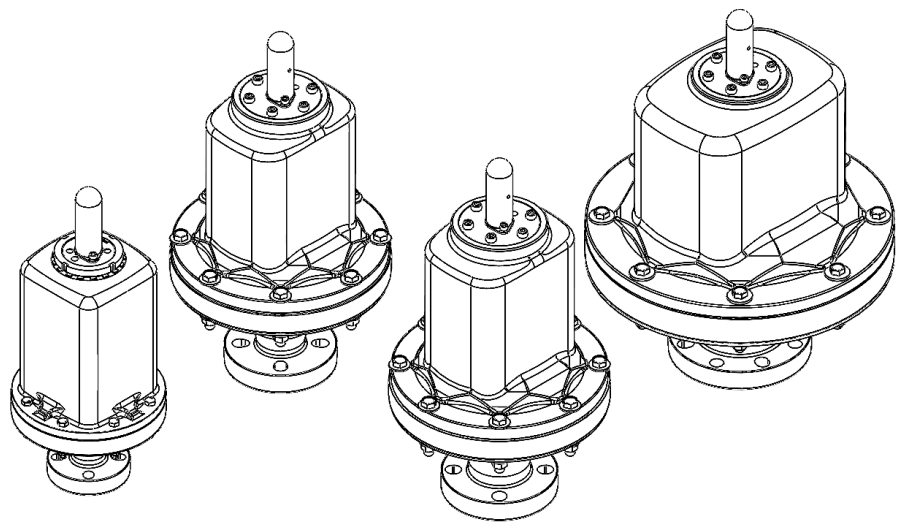
Models:

DC10

DC15

DC20

DC30



1: SPECS

2: INSTAL & OP

3: EXP VIEW

4: WARRANTY

SANDPIPER®
A WARREN RUPP, INC. BRAND

SANDPIPERPUMP.COM

Safety Information

! IMPORTANT



Read the safety warnings and instructions in this manual before Tranquillizer® installation and start-up. Failure to comply with the recommendations stated in this manual could damage the pump and void factory warranty.



When the Tranquillizer® is used for materials that tend to settle out or solidify, the Tranquillizer® should be flushed after each use to prevent damage. In freezing temperatures the Tranquillizer® should be completely drained between uses.

! CAUTION



Before Tranquillizer® operation, inspect all fasteners for loosening caused by gasket creep. Retighten loose fasteners to prevent leakage. Follow recommended torques stated in this manual.



WARNING

The use of non-OEM replacement parts will void (or negate) agency certifications, including CE, ATEX, CSA, 3A and EC1935 compliance (Food Contact Materials). Warren Rupp, Inc. cannot ensure nor warrant non-OEM parts to meet the stringent requirements of the certifying agencies.

! WARNING



When used for toxic or aggressive fluids, the Tranquillizer® should always be flushed clean prior to disassembly.



Before doing any maintenance on the pulsation dampener, be certain all pressure is completely vented from the Tranquillizer®, suction, discharge, piping, and all other openings and connections. Be certain the air supply is locked out or made non-operational, so that it cannot be started while work is being done on the pump. Be certain that approved eye protection and protective clothing are worn all times in the vicinity of the pump. Failure to follow these recommendations may result in serious injury or death.



In the event of diaphragm rupture, pumped material may enter the air end of the Tranquillizer®, and be discharged into the atmosphere. If pumping a product that is hazardous or toxic, the air exhaust must be piped to an appropriate area for safe containment.



Take action to prevent static sparking. Fire or explosion can result, especially when handling flammable liquids. The Tranquillizer®, piping, valves, containers and other miscellaneous equipment must be properly grounded.



This Tranquillizer® is pressurized internally with air pressure during operation. Make certain that all fasteners are in good condition and are reinstalled properly during reassembly.



Use safe practices when lifting

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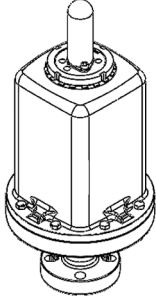
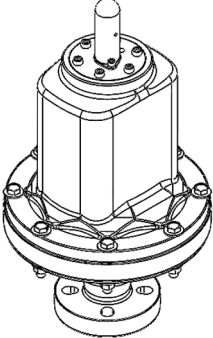
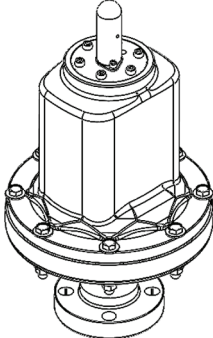
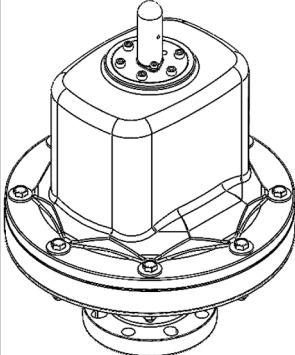
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Tranquilizer® Options

	Model & Description	Max. Pressure	Air Inlet Size	Liquid Inlet Size
	DC10 Designed for 1" Pumps	116 psi 8 bar Self-Charging Self-Venting	1/8" NPT	1" 150# Universal ANSI/DIN Poly Flange
	DC15 Designed for 1 1/2" Pumps	116 psi 8 bar Self-Charging Self-Venting	1/8" NPT	1 1/2" 150# Universal ANSI/DIN Poly Flange
	DC20 Designed for 2" Pumps	116 psi 8 bar Self-Charging Self-Venting	1/8" NPT	2" 150# Universal ANSI/DIN Poly Flange
	DC30 Designed for 3" Pumps	116 psi 8 bar Self-Charging Self-Venting	1/8" NPT	3" 150# Universal ANSI/DIN Poly Flange

Tranquilizer®

- Nearly surge-free flow
- Steadier pressures.
- Less shock to pipes.

• Air-operated diaphragm pumps offer a wide range of benefits not available in any other type of pump. However, in some applications, pulsations in the discharge flow may be undesirable. Pulsation can be virtually eliminated by installing a Sandpiper Tranquilizer®.

• Automatically maintains a constant volume of air cushion for most effective surge suppression, regardless of pump pressure.

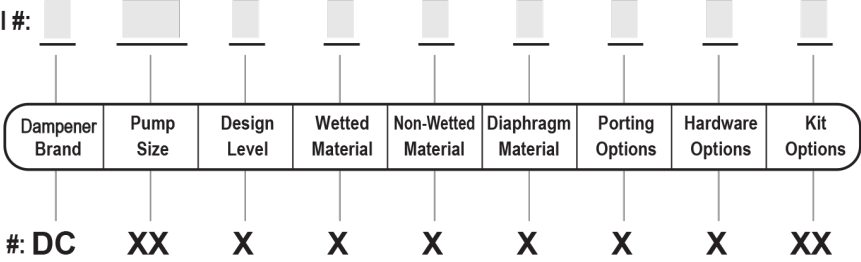
• Automatically self-charging and self-venting to maintain most efficient air cushion pressure, no more precharge pressure calculations or guesswork, no manual pressurizing, no periodic pressure checking.

• Air cushion separated from product by flexible diaphragm . . . prevents product aeration.

• Simple to install. Attention-free.

Explanation of Dampener Nomenclature

Your Model #:
(fill in from
nameplate)



Pump Brand
DC SANDPIPER®

Pump Size
10 1"
15 1-1/2"
20 2"
30 3"

Design Level
1 Design Level

Wetted Material
P Polypropylene

Non-Wetted Material Options
A Aluminum

Diaphragm Materials
T Virgin PTFE
S Santoprene
B Buna (Nitrile)
N Neoprene

Porting Option
U Universal ANSI / DIN Flange

Hardware
Z Zinc Plated Steel

Kit Options
00. None

Your Serial #: (fill in from pump nameplate) _____

Materials

Material Profile:	Operating Temperatures:	
	Max.	Min.
CAUTION! Operating temperature limitations are as follows:		
Conductive Acetal: Tough, impact resistant, ductile. Good abrasion resistance and low friction surface. Generally inert, with good chemical resistance except for strong acids and oxidizing agents.	190°F 88°C	-20°F -29°C
EPDM: Shows very good water and chemical resistance. Has poor resistance to oils and solvents, but is fair in ketones and alcohols.	280°F 138°C	-40°F -40°C
FKM: (Fluorocarbon) Shows good resistance to a wide range of oils and solvents; especially all aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils. Hot water or hot aqueous solutions (over 70°F(21°C)) will attack FKM.	350°F 177°C	-40°F -40°C
Hytrel®: Good on acids, bases, amines and glycols at room temperatures only.	220°F 104°C	-20°F -29°C
Neoprene: All purpose. Resistance to vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters and nitro hydrocarbons and chlorinated aromatic hydrocarbons.	200°F 93°C	-10°F -23°C
Nitrile: General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F 88°C	-10°F -23°C
Nylon: 6/6 High strength and toughness over a wide temperature range. Moderate to good resistance to fuels, oils and chemicals.	180°F 82°C	32°F 0°C

Polypropylene: A thermoplastic polymer. Moderate tensile and flex strength. Resists strong acids and alkali. Attacked by chlorine, fuming nitric acid and other strong oxidizing agents.	180°F 82°C	32°F 0°C
PVDF: (Polyvinylidene Fluoride) A durable fluoroplastic with excellent chemical resistance. Excellent for UV applications. High tensile strength and impact resistance.	250°F 121°C	0°F -18°C
Santoprene®: Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	275°F 135°C	-40°F -40°C
UHMW PE: A thermoplastic that is highly resistant to a broad range of chemicals. Exhibits outstanding abrasion and impact resistance, along with environmental stress-cracking resistance.	180°F 82°C	-35°F -37°C
Urethane: Shows good resistance to abrasives. Has poor resistance to most solvents and oils.	150°F 66°C	32°F 0°C
Virgin PTFE: (PFA/TFE) Chemically inert, virtually impervious. Very few chemicals are known to chemically react with PTFE; molten alkali metals, turbulent liquid or gaseous fluorine and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures.	220°F 104°C	-35°F -37°C
<i>Maximum and Minimum Temperatures are the limits for which these materials can be operated. Temperatures coupled with pressure affect the longevity of diaphragm pump components. Maximum life should not be expected at the extreme limits of the temperature ranges.</i>		
Metals:		
Alloy C: Equal to ASTM494 CW-12M-1 specification for nickel and nickel alloy.		
Stainless Steel: Equal to or exceeding ASTM specification A743 CF-8M for corrosion resistant iron chromium, iron chromium nickel and nickel based alloy castings for general applications. Commonly referred to as 316 Stainless Steel in the pump industry.		

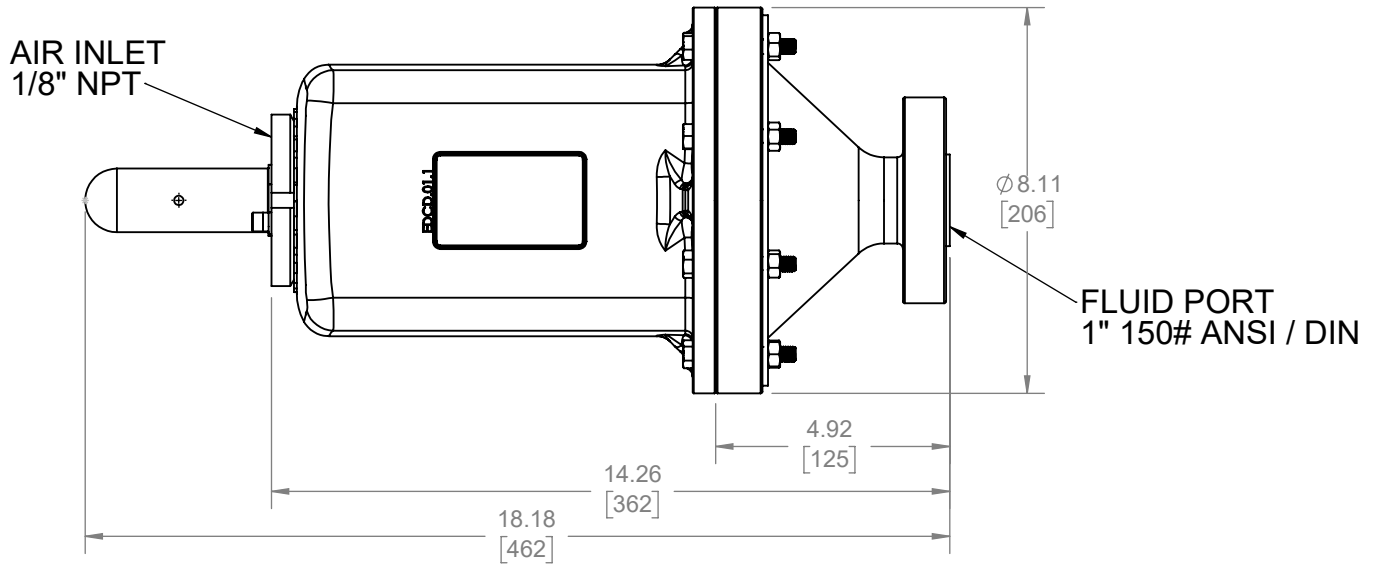
For specific applications, always consult the Chemical Resistance Chart.

Dimensional Drawings

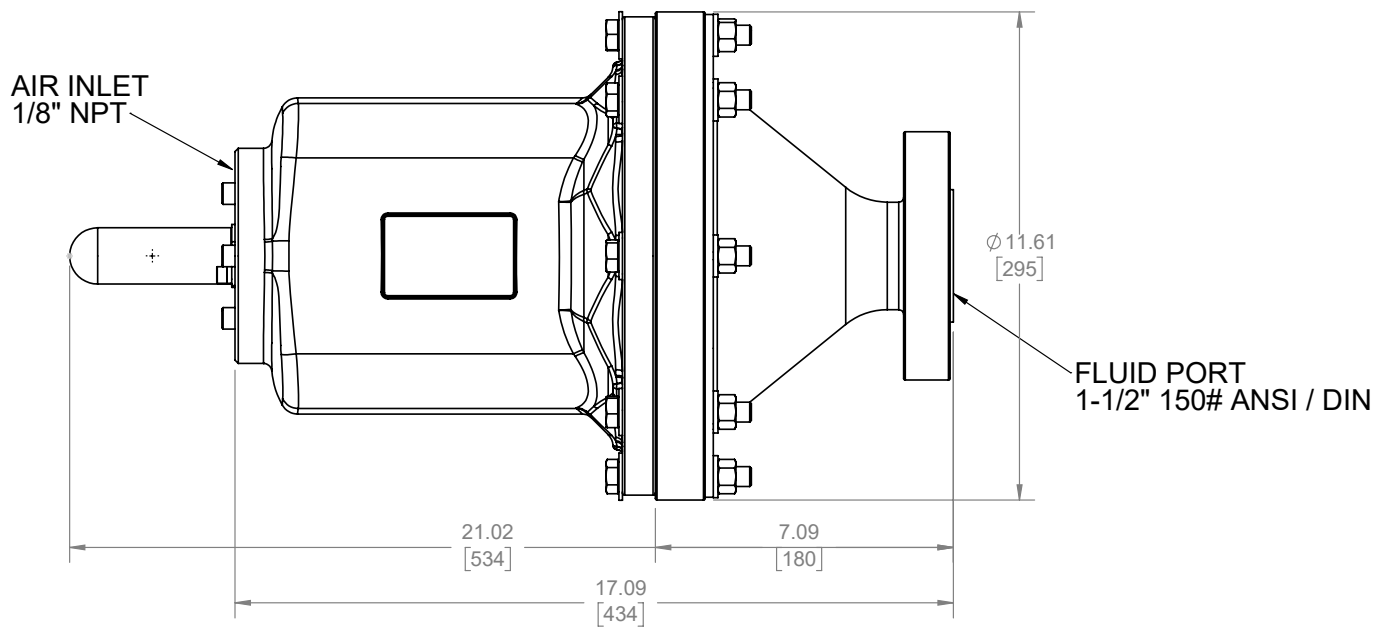
Dimensions are $\pm 1/8"$ ($\pm 3\text{mm}$). Figures in parenthesis = millimeters

1: PUMP SPECS

Model DC10



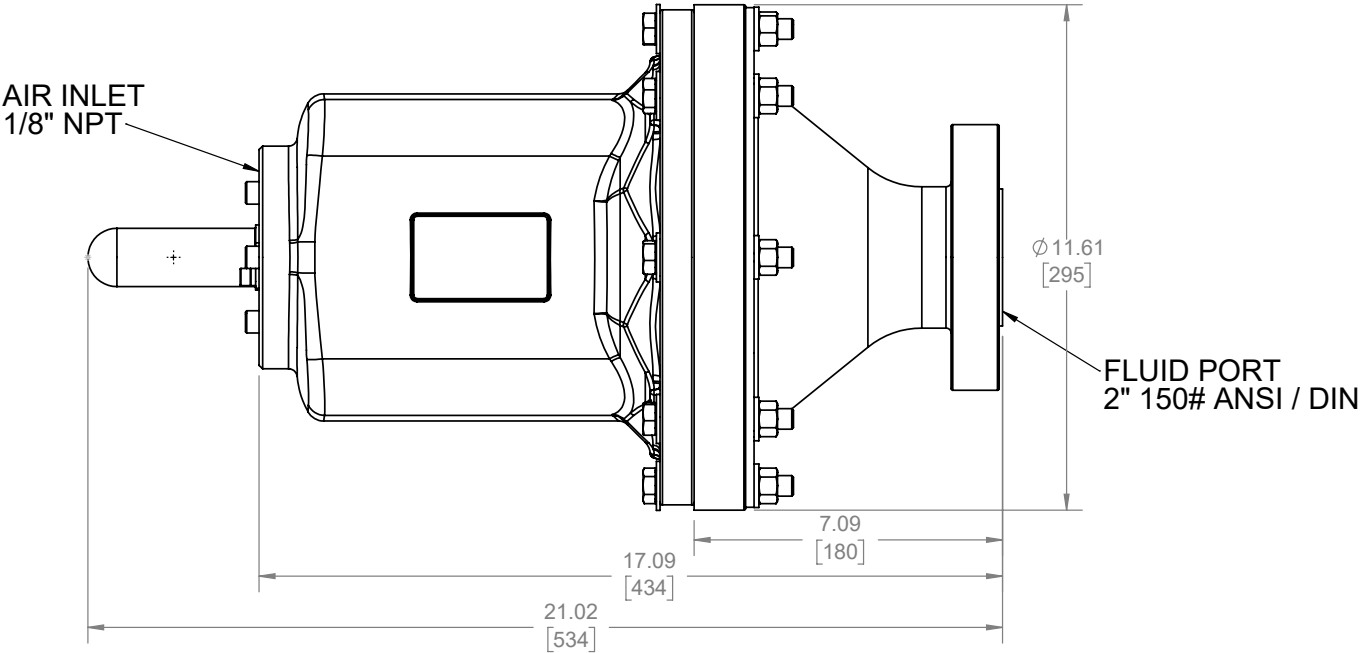
Model DC15



Dimensional Drawings

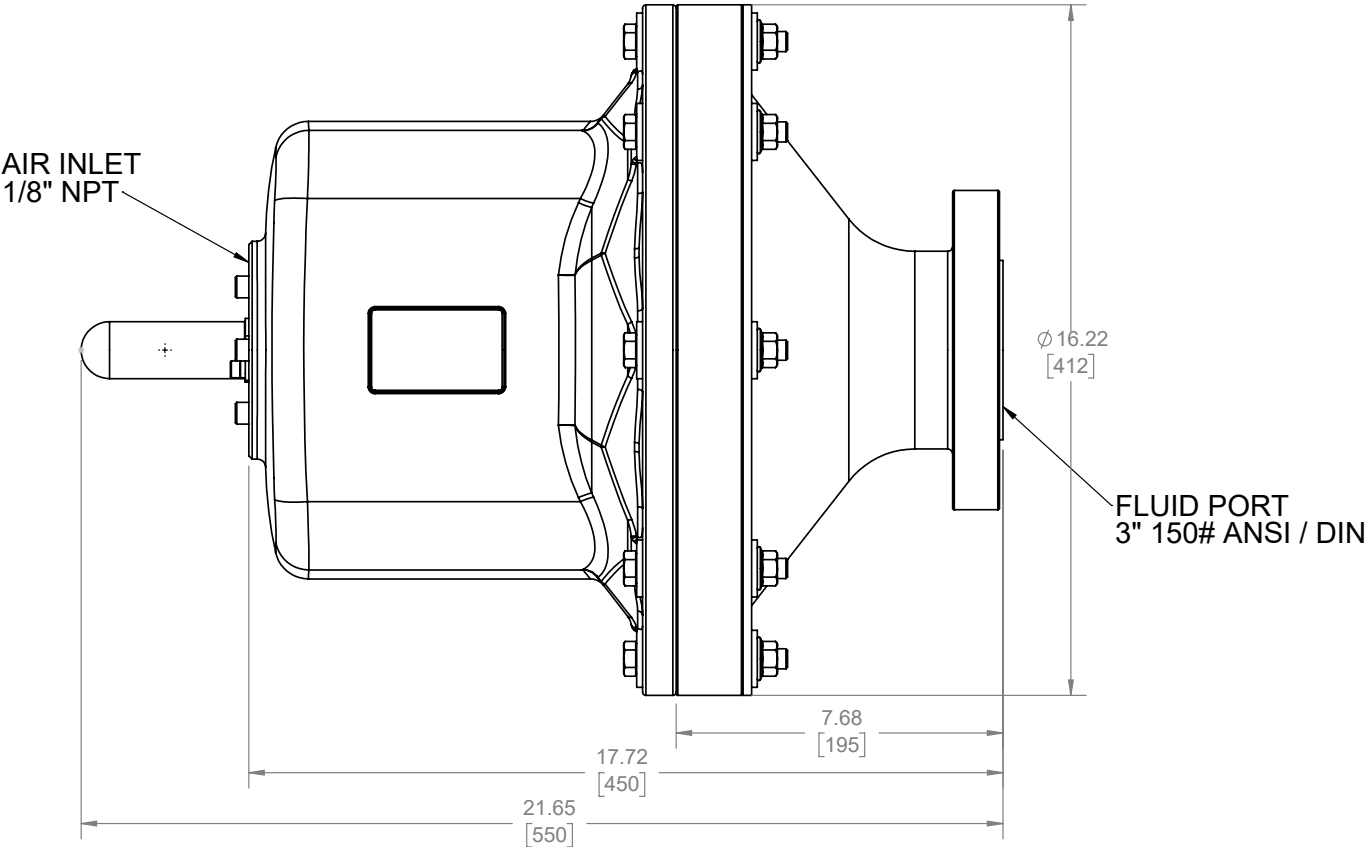
Dimensions are ± 1/8" (± 3mm). Figures in parenthesis = millimeters

Model DC20



1: PUMP SPECS

Model DC30



SERVICE AND OPERATING INSTRUCTIONS

This Sandpiper Tranquilizer® is a completely automatic diaphragm fitted surge suppressor to reduce the flow and pressure pulsations in a pumping system characteristic of reciprocating type pumps.

Principle of operation: The Tranquilizer uses a flexible diaphragm to separate a liquid chamber from a compressed air chamber. A rod connected to the center of the diaphragm activates the air inlet and exhaust valves, which automatically admits or exhausts air to the air chamber. This maintains the diaphragms in mid-range of stroke for maximum surge suppression.

quickly established by liquid pressure pushing diaphragm upward, permitting entrance of air into air chamber, until the balancing air cushion causes the diaphragm to center at its mid-stroke normal operating position.

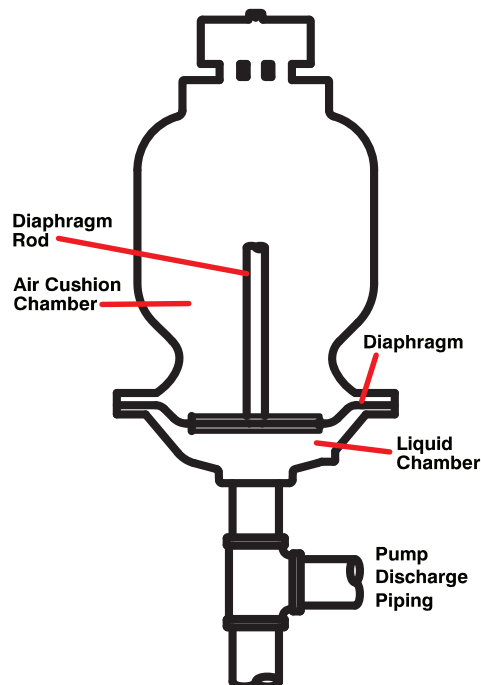
During normal continuous operation thereafter . . . the diaphragm always flexes at its mid-range position to absorb discharge pulsations against the adjoining air cushion already established.

In event of change in pumped liquid pressure . . . the air cushion pressure is automatically increased or decreased as required to compensate for the change . . . always maintaining constant volume of air cushion, and the diaphragm always operating at its mid-position.

When liquid flow stops and liquid pressure is released . . . the air in air chamber is also exhausted to atmosphere.

Service Instructions: DISCONNECT AIR INLET PRESSURE BEFORE SERVICING. The diaphragms are serviced by simply removing the hex nuts and removing the center spool casting.

When Virgin PTFE diaphragms are used in conjunction with the elastomeric diaphragms they are placed over the “wetted” side of the elastomeric diaphragm.

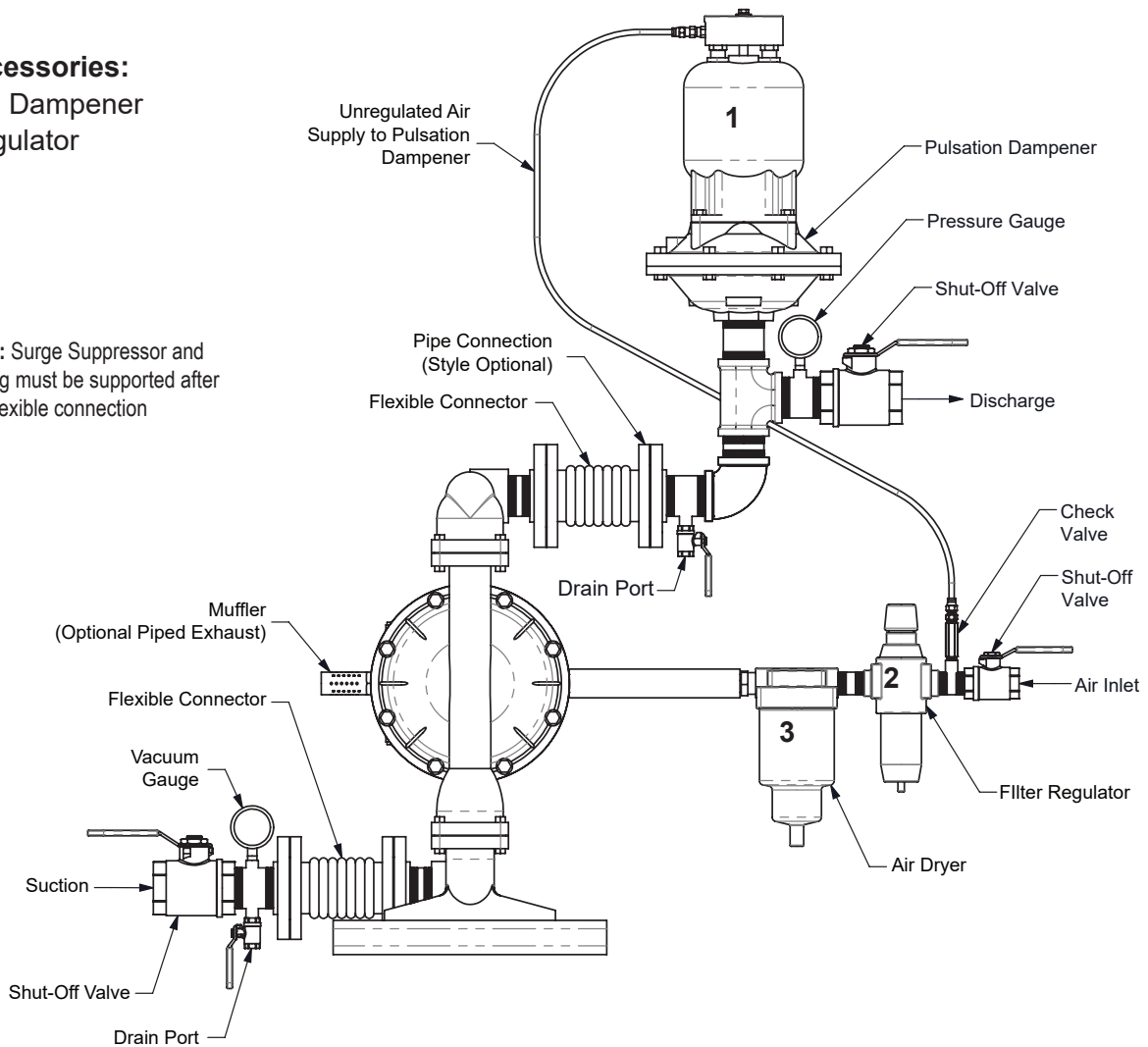


Recommended Installation Guide

Available Accessories:

1. Pulsation Dampener
2. Filter/Regulator
3. Air Dryer

Note: Surge Suppressor and Piping must be supported after the flexible connection



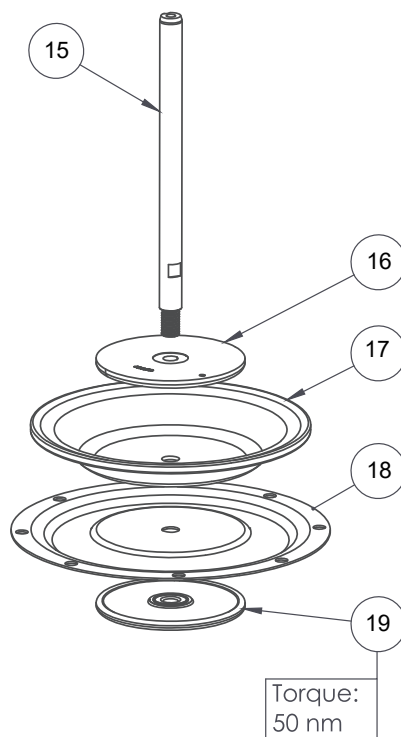
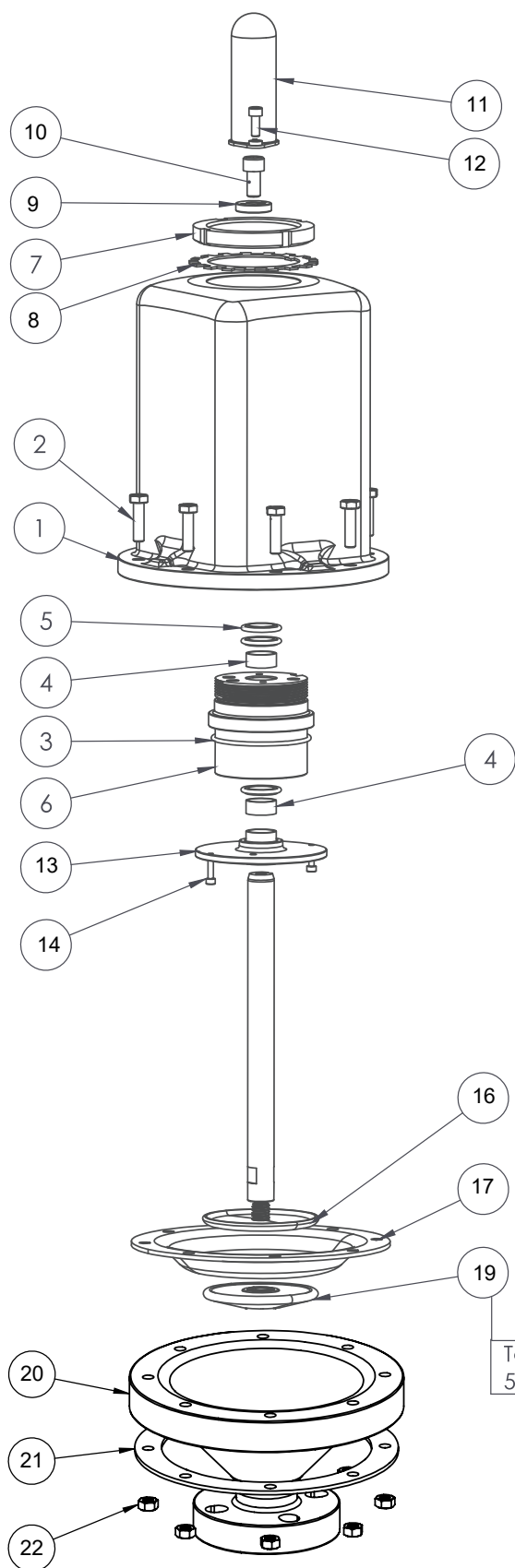
Installation:

Locate the Tranquilizer in discharge piping as close as possible to the pump. Connect air inlet connection to full plant air supply line before the air regulator to pump. Not to exceed 116 PSI.

The unit will operate in any position. However, when used with liquids that tend to settle out, the unit should be installed at the top side of piping to provide easy discharge of foreign solids by gravity.

Composite Repair Parts Drawing- DC10

TA1 & TA25
3: EXP VIEW



Service & Repair Kits

476.416.000 Air End Kit
Seals, O-Ring, Bushings, Retainer

476.418.654 Wet End Kit
Santoprene Diaphragm & PTFE Overlay

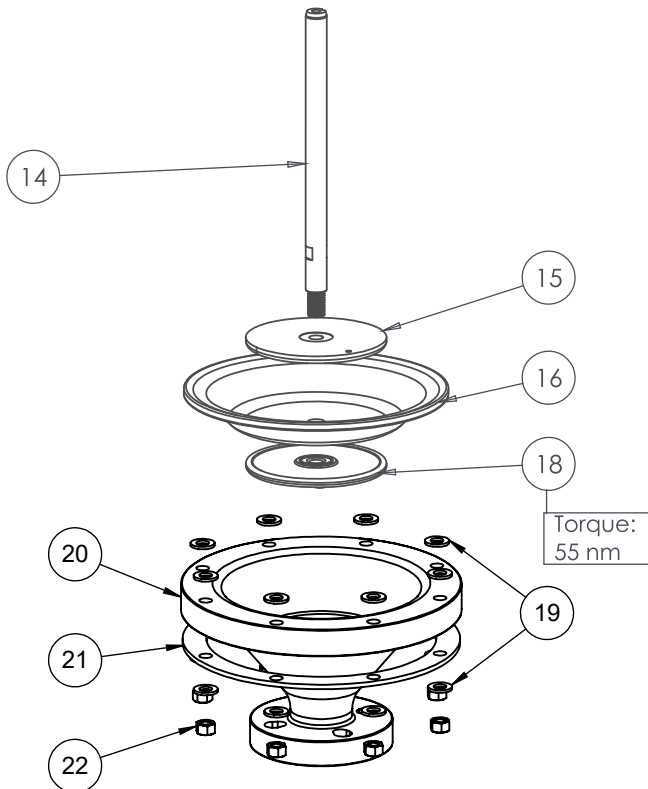
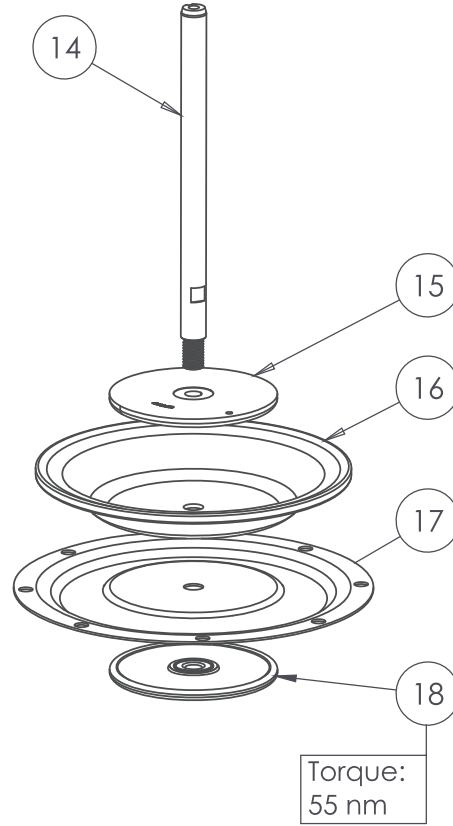
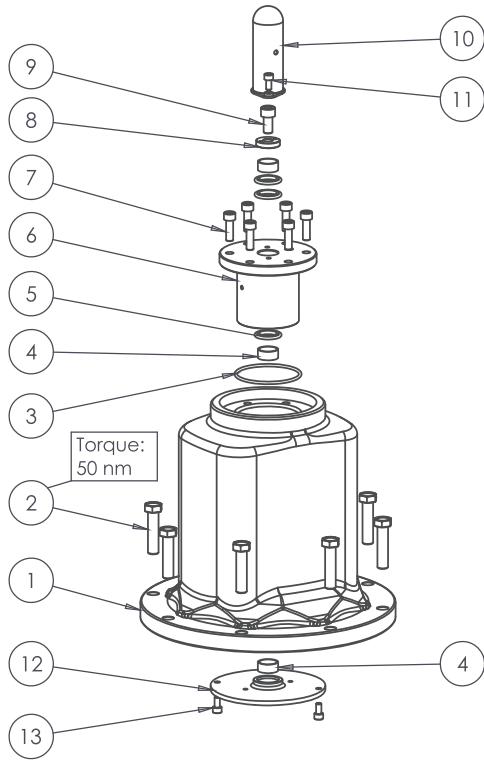
Composite Repair Parts List- DC10

ITEM NO.	PART NUMBER	DESCRIPTION	TOTAL RQD.
1	88950016	Top Dome 1", Aluminum	1
2	26650007	M8X55 Bolt, Zinc	8
3	26630001	O-Ring, Buna	1
4	26610001	Bearing, Sleeve	3
5	26610002	Seal, Rod	3
6	88950004	Dampener Sleeve, SS	1
7	26650002	Nut, Lock	1
8	26600091	Washer, Lock	1
9	88930006	Stopper	1
10	26650011	M10X20 SHCS, Zinc	1
11	88930008	Dust Cap, Black	1
12	26650009	M6X16 SHCS, Zinc	2
13	88950003	Plate, Sleeve	1
14	26650010	M4X16 SHCS, Zinc	2
15	88950005	Rod, Diaphragm	1
16	612.022.330	Plate, Diaphragm Inner	1
17	286.008.354	Diaphragm, Santoprene	1
17	286.008.360	Diaphragm, Buna	1
17	286.008.365	Diaphragm, Neoprene	1
18	286.015.604	Diaphragm, PTFE Overlay	1
19	88950015	Plate, Outer Diaphragm, Poly	1
20	88950019	Bottom Dome 1", Poly	1
21	88950014	Support Ring 1"	1
22	26650008	M8 Flange Nut, Zinc	8

3: EXP VIEW
TA1 & TA25

Composite Repair Parts Drawing- DC15

3: EXP VIEW
TA1½ & TA40



Service & Repair Kits

476.417.000 Air End Kit
Seals, O-Ring, Bushings, Retainer

476.419.654 Wet End Kit
Santoprene Diaphragm & PTFE Overlay

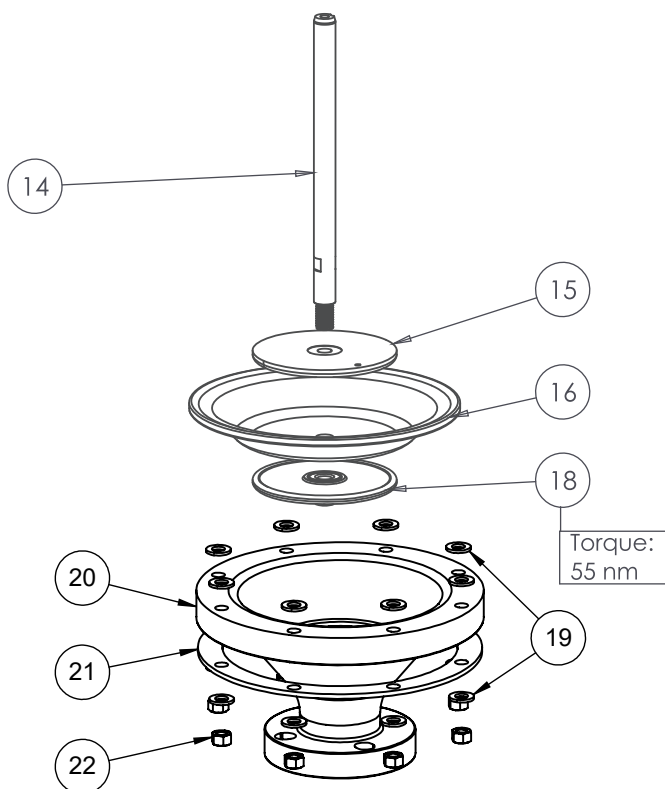
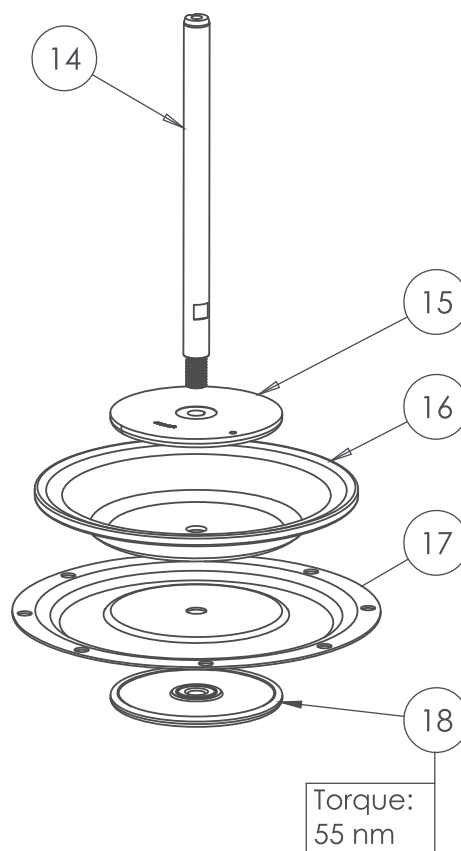
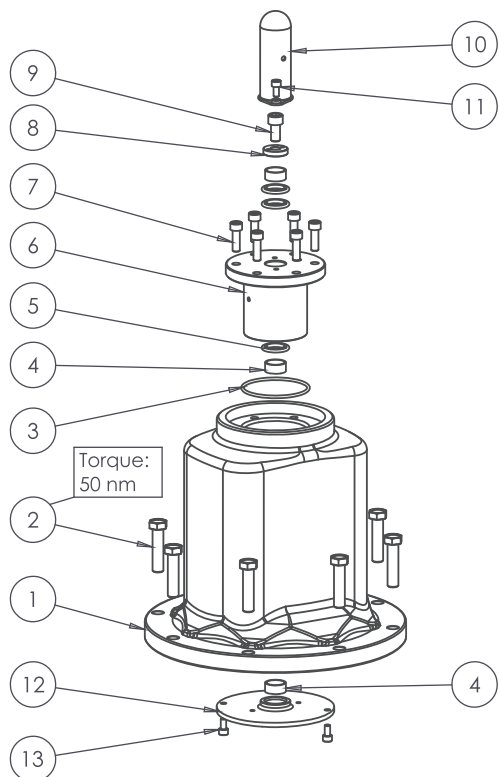
Composite Repair Parts List- DC15

ITEM NO.	PART NUMBER	DESCRIPTION	TOTAL RQD.
1	88930020	Top Dome 2", Aluminum	1
2	26600095	M12X1.75X85 Bolt, Zinc	8
3	26630001	O-Ring, Buna	1
4	26610001	Bearing, Sleeve	3
5	26610002	Seal, Rod	3
6	88930004	Dampener Sleeve, SS	1
7	26600094	M8X25 SHCS, Zinc	6
8	88930006	Stopper	1
9	26650011	M10X20 SHCS, Zinc	1
10	88930008	Dust Cap, Black	1
11	26650009	M6X16 SHCS, Zinc	2
12	88930003	Plate, Sleeve	1
13	26600088	M6X16 SHCS, Zinc	2
14	88930005	Rod, Diaphragm	1
15	88930007	Plate, Diaphragm Inner	1
16	286.005.354	Diaphragm, Santoprene	1
16	286.005.360	Diaphragm, Buna	1
16	286.005.365	Diaphragm, Neoprene	1
17	286.020.604	Diaphragm, PTFE Overlay	1
18	612.180.552	Plate, Outer Diaphragm, Poly	1
19	26600093	Washer, Zinc	16
20	CED196.187.552	Bottom Dome 1-1/2", Poly	1
21	EDPD.03.2.V1	Support Ring 2"	1
22	26600089	M12X1.75 Nut, Zinc	8

3: EXP VIEW
TA1 1/2 & TA40

Composite Repair Parts Drawing- DC20

TA2 & TA50
3: EXP VIEW



Service & Repair Kits

476.417.000 Air End Kit
Seals, O-Ring, Bushings, Retainer

476.419.654 Wet End Kit
Santoprene Diaphragm & PTFE Overlay

Composite Repair Parts List- DC20

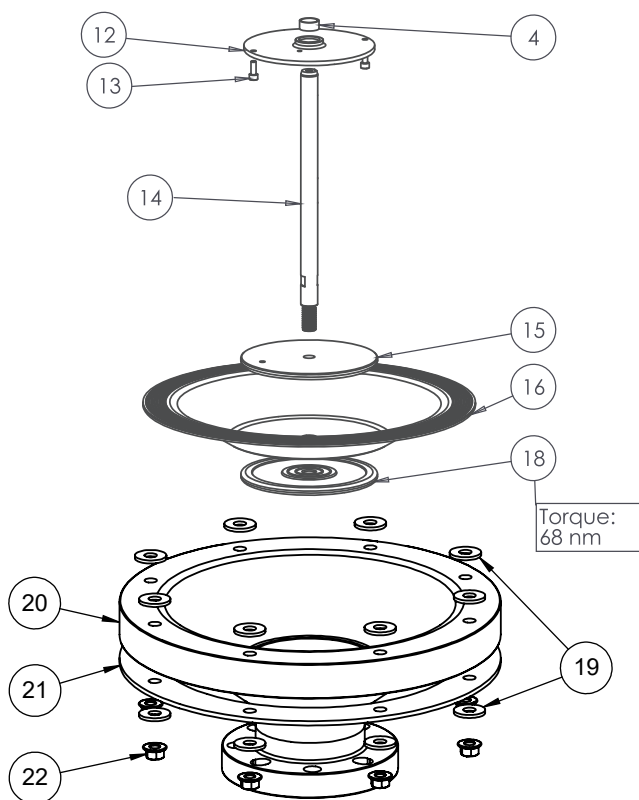
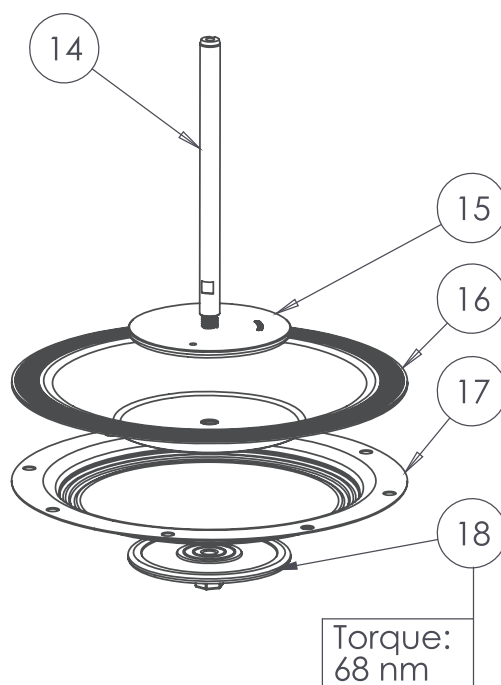
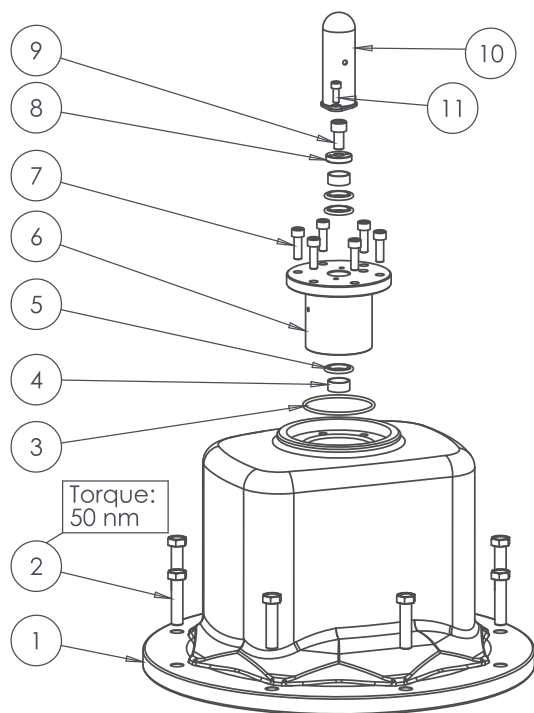
ITEM NO.	PART NUMBER	DESCRIPTION	TOTAL RQD.
1	88930020	Top Dome 2", Aluminum	1
2	26600095	M12X1.75X85 Bolt, Zinc	8
3	26630001	O-Ring, Buna	1
4	26610001	Bearing, Sleeve	3
5	26610002	Seal, Rod	3
6	88930004	Dampener Sleeve, SS	1
7	26600094	M8X25 SHCS, Zinc	6
8	88930006	Stopper	1
9	26650011	M10X20 SHCS, Zinc	1
10	88930008	Dust Cap, Black	1
11	26650009	M6X16 SHCS, Zinc	2
12	88930003	Plate, Sleeve	1
13	26600088	M6X16 SHCS, Zinc	2
14	88930005	Rod, Diaphragm	1
15	88930007	Plate, Diaphragm Inner	1
16	286.005.354	Diaphragm, Santoprene	1
16	286.005.360	Diaphragm, Buna	1
16	286.005.365	Diaphragm, Neoprene	1
17	286.020.604	Diaphragm, PTFE Overlay	1
18	612.180.552	Plate, Outer Diaphragm, Poly	1
19	26600093	Washer, Zinc	16
20	CED196.191.552	Bottom Dome 2", Poly	1
21	EDPD.03.2.V1	Support Ring 2"	1
22	26600089	M12X1.75 Nut, Zinc	8

TA2 & TA50

3: EXP VIEW

Composite Repair Parts Drawing- DC30

TA3 & TA80
3: EXP VIEW



Service & Repair Kits

476.417.000 Air End Kit
Seals, O-Ring, Bushings, Retainer

476.420.654 Wet End Kit
Santoprene Diaphragm & PTFE Overlay

Composite Repair Parts List- DC30

ITEM NO.	PART NUMBER	DESCRIPTION	TOTAL RQD.
1	88910064	Top Dome 3", Aluminum	1
2	26610009	M12X1.75X95 Bolt, Zinc	8
3	26630001	O-Ring, Buna	1
4	26610001	Bearing, Sleeve	3
5	26610002	Seal, Rod	3
6	88930004	Dampener Sleeve, SS	1
7	26600094	M8X25 SHCS, Zinc	6
8	88930006	Stopper	1
9	26650011	M10X20 SHCS, Zinc	1
10	88930008	Dust Cap, Black	1
11	26650009	M6X16 SHCS, Zinc	2
12	88910014	Plate, Sleeve	1
13	26600088	M6X16 SHCS, Zinc	2
14	88910015	Rod, Diaphragm	1
15	88910016	Plate, Diaphragm Inner	1
16	286.098.354	Diaphragm, Santoprene	1
16	286.098.360	Diaphragm, Buna	1
16	286.098.365	Diaphragm, Neoprene	1
17	286.098.604	Diaphragm, PTFE Overlay	1
18	612.251.552	Plate, Outer Diaphragm, Poly	1
19	26600093	Washer, Zinc	16
20	CED196.141.552	Bottom Dome 3", Poly	1
21	EDPD.03.3.V1	Support Ring 3"	1
22	26600089	M12X1.75 Nut, Zinc	8

3: EXP VIEW
TA3 & TA80

5 - YEAR Limited Product Warranty

Warren Rupp, Inc. ("Warren Rupp") warrants to the original end-use purchaser that no product sold by Warren Rupp that bears a Warren Rupp brand shall fail under normal use and service due to a defect in material or workmanship within five years from the date of shipment from Warren Rupp's factory. Warren Rupp brands include Warren Rupp®, SANDPIPER®, SANDPIPER Signature Series™, MARATHON®, Porta-Pump®, SludgeMaster™ and Tranquilizer®.

The use of non-OEM replacement parts will void (or negate) agency certifications, including CE, ATEX, CSA, 3A and EC1935 compliance (Food Contact Materials). Warren Rupp, Inc. cannot ensure nor warrant non-OEM parts to meet the stringent requirements of the certifying agencies.

~ See sandpiperpump.com/content/warranty-certifications for complete warranty, including terms and conditions, limitations and exclusions. ~

