

SaniForce® Drum Unloader (SDU) System

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EN

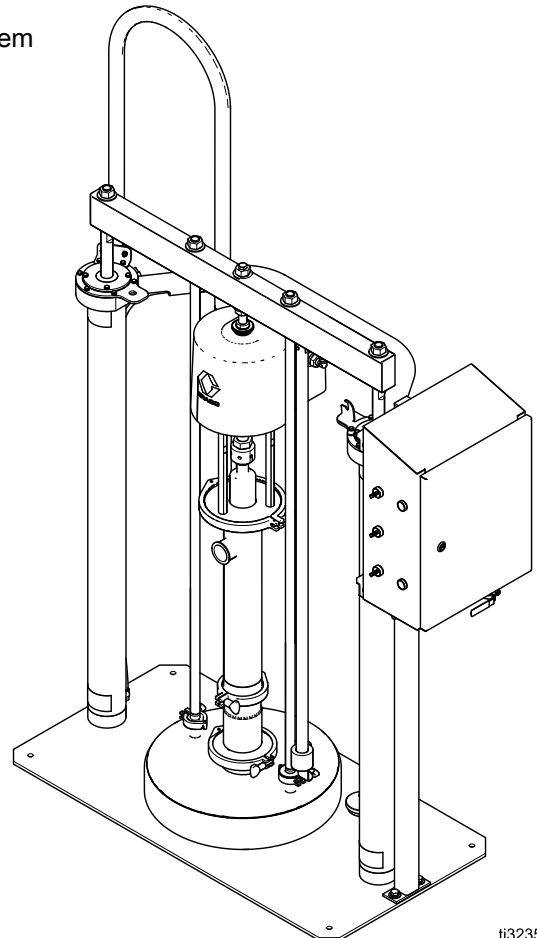
For use with hygienic bulk supply of medium to high viscosity product. For professional use only. Only select models are approved for use in explosive atmospheres or hazardous locations. See Configuration Matrix on page 6 for more information.



Important Safety Instructions

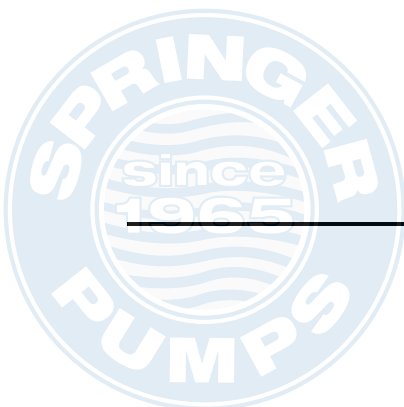
Read all warnings and instructions in this, and other, system manuals. **Save these instructions.**

*Maximum Working Air Pressure: 100
psi (0.69 MPa, 6.9 bar)
Maximum Working Fluid Pressure: See
Technical Data table.*



ti32355b

PROVEN QUALITY. LEADING TECHNOLOGY.



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Related Manuals










Manual Number	Title
3A5798	SaniForce 5:1 Sanitary Pumps, Instructions and Parts
3A5564	SaniForce 6:1 Sanitary Pumps, Instructions and Parts
3A5799	SaniForce 12:1 Sanitary Pumps, Instructions and Parts
3A5999	SaniForce High Sanitation Diaphragm Pumps, Operation
3A6781	SaniForce 1590 High Sanitation Diaphragm Pump, Repair and Parts
3A6782	SaniForce High Sanitation Diaphragm Pumps, Models 2150, 3150, 4150, Repair and Parts
3A5800	SaniForce Air Controls, Exposed pneumatic control, Instructions and Parts
3A6101	SaniForce Air Controls, Enclosed pneumatic control, Instructions and Parts
3A6102	Electro-pneumatic control, Instructions and Parts
3A5402	SaniForce Drum Unloader (SDU) System, Operation



Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 <h1 style="margin: 0;">WARNING</h1>	
 	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment. • Connect only to grounded power source. • All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
    	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking). • Ground all equipment in the work area. See Grounding instructions. • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Use only grounded hoses. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area. <p>Static charge may build up on plastic parts during cleaning and could discharge and ignite flammable vapors. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Clean plastic parts only in well ventilated area. • Do not clean with a dry cloth.

 <h1 style="margin: 0;">WARNING</h1>	
  	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> Keep clear of moving parts. Do not operate equipment with protective guards or covers removed. Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
    	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> Do not point dispensing device at anyone or at any part of the body. Do not put your hand over the fluid outlet. Do not stop or deflect leaks with your hand, body, glove, or rag. Follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing equipment. Tighten all fluid connections before operating the equipment. Check hoses and couplings daily. Replace worn or damaged parts immediately.





WARNING



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.



- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



SPLATTER HAZARD

Hot or toxic fluid can cause serious injury if splashed in the eyes or on skin. During blow off of platen, splatter may occur.

- Use minimum air pressure when removing platen from container.



PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Configuration Matrix

Check the identification plate (ID) for the Configuration Number of your pump. Use the following matrix to define the components of your system.

Sample Configuration Number: **SDU A01AAA1AA0C21**

SDU	A	01	A	A	A	1	AA	0	C21
Sanitary Drum Unloader	Frame	Pump	Platen	Seal Style	Seal Material	Controls	Accessories	Wash Bin	Certification

NOTE: Some combinations are not possible. Please check with your local supplier.

Sanitary Drum Unloader	Frame		Pump		Platen		Seal Style	
SDU	A	Stainless Steel	01	5:1 Double Ball	A	20" Conical, inflatable	A	Inflatable
	B	Carbon Steel	02	5:1 Priming Piston	B	21.25" Conical, static	B	Static
			03	6:1 Double Ball				
			04	6:1 Priming Piston				
			05	12:1 Priming Piston				
			06	1590HS-P.SSFKEO‡				
			07	1590HS-P.SSPFPO‡				
			08	1590HS-P.SSPTPS‡				
			09	1590HS-P.SSSPSP‡				
			11	2150HS-P.SSFKEO‡				
			12	2150HS-P.SSPTPO‡				
			13	2150HS-P.SSPTPS‡				
			14	2150HS-P.SSSPSP‡				
			16	3150HS-P.FL—EO‡				
			17	3150HS-P.FL—PO‡				
			18	3150HS-P.FL—PS‡				
			19	3150HS-P.FL—SP‡				

‡ Diaphragm pump, identified in size (e.g., 1590), high sanitation (HS), pneumatic (P), seat material (SS or FLapper), ball material (— for flapper), and diaphragm material.

Seal Material		Controls		Accessories‡		Wash Bin		Certification	
A	Polychloroprene	1	Exposed pneumatic, SST inflatable	AA	None	0	None	C21	EN 10204 type 2.1
B	EPDM	2	Enclosed pneumatic, SST inflatable	AB	Caster kit			C31	EN 10204 type 3.1
C	Buna-N	3*	Enclosed electro-pneumatic, SST inflatable	AC	Drum dolly Ram				
		5	Exposed pneumatic, SST static	AE	SST Ram piston rods				
		6	Exposed pneumatic, carbon steel, inflatable						
		7	Exposed pneumatic, carbon steel, static						

* Not ATEX. Not intended for use in explosive or hazardous environments.

‡ For accessory descriptions, see [Kits and Accessories, page 23](#).



All models are rated and are FDA compliant.

Diaphragm materials coded EO, PO or PS combined with flapper or PT ball checks are certified to:



EC 1935

ATEX models with piston pumps are rated



II 2 GD
Ex h IIA T4 Gb X
Ex h IIIB T100°C Db X

ATEX models with diaphragm pumps are rated



II 2 GD
Ex h IIA 82°C...160°C Gb X
Ex h IIIB T135°C Db



Electro-pneumatic control panel component approval



Intertek
9902741
Conforms to UL STD 508A
Certified to CSA STD C22.2 No. 14



Pressure Relief Procedures

Callout letters in these procedures correspond with control panel information in the operation manual.

Ram Pressure Relief Procedure



Follow the Ram Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from pressurized fluid, such as skin injection or splashing in the eyes or on skin, follow the Pressure Relief Procedure when you stop pumping and before you clean, check, or service the equipment.

1. For exposed manual pneumatic control:
 - a. Close the air motor slider valve (AH) and the main air slider valve (AA).
NOTE: Both are relieving air valves.
 - b. Set the ram director valve (AD) to DOWN. The ram will slowly move to the bottom of its travel.
 - c. Jog the ram director valve (AD) up and down to bleed air from ram cylinder.
2. For enclosed pneumatic control:
 - a. Close the air supply valve.
 - b. Toggle the ram position control switch (BC) up and down to bleed air from the ram cylinders. The ram will slowly move to the bottom of its travel.
3. For electro-pneumatic control:
 - a. Stop evacuation activity.
 - b. If used, open all user-supplied system fluid drain valves that are downstream of the pump.

- c. Navigate to the System Configuration screen. Press the Shutdown/Depressurize icon. When pressed, a pop-up will appear indicating the system is depressurizing. The ram will slowly move.
- d. The pop-up will indicate if depressurization was completed successfully. Close the air supply valve (CE).

NOTE: A pressure alarm will appear after supply air is removed.

Pump Pressure Relief Procedure



Follow the Pump Pressure Relief Procedure whenever you see this symbol.





This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from pressurized fluid, such as skin injection or splashing in the eyes or on skin, follow the Pressure Relief Procedure when you stop pumping and before you clean, check, or service the equipment.

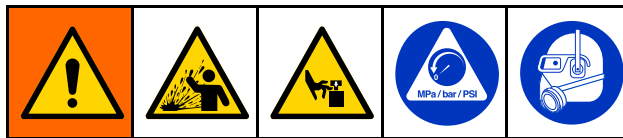
1. Using pump operation controls on the control panel, remove incoming air to the pump motor.
2. Open a pressure relief valve on the outlet line.

Air Cylinder Repair

NOTE: The numbers in parenthesis after items are reference numbers from the exploded drawings and parts list found later in the manual.

				
<p>To reduce the risk of serious injury during air cylinder repairs:</p> <ul style="list-style-type: none"> • Do not use pressurized air to remove any air cylinder interior components. • Use a lift or more than one person to move the components attached to the crossbar (16) after the crossbar is no longer attached to the air cylinder piston rod (2). 				

Disassemble Air Cylinder Cap



1. Perform the Pump Pressure Relief procedure.
2. Perform the Ram Pressure Relief procedure and turn off facility air to the system.
3. Disconnect the air cylinder air lines at the upper and lower air fittings on both air cylinders.
4. Disconnect the ram crossbar (16) from the air cylinder piston rods (2), pump support rods (17), and air motor support rod (107)
 - a. Remove the nuts (24) and washers (23).
 - b. Remove the ram crossbar and set aside.
5. Remove the air cylinder end cap (3):
 - a. Remove the four screws (28) and washers (27).
 - b. Lift the cylinder piston rod (2) and use the internal components to tap the end cap off of the air cylinder.
 - c. Lift the piston rod assembly out of the air cylinder.
6. Examine the cap seals and rings for damage or wear. Replace if necessary.



Reassemble Air Cylinder Cap and Unloader

NOTE: After o-rings are inserted into their grooves, lightly grease the exposed o-ring surfaces with food-safe grease to aid assembly with mating parts.

1. Assemble the piston assembly:
 - a. On piston (10), install inner packing (11) and outer packing (12).
 - b. Install piston sleeve (13) onto piston (10).
 - c. Install retainer (14) on piston.
 - d. Install o-ring (8) on piston sleeve (13).
2. Mount piston assembly on piston rod:

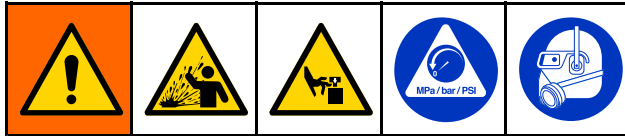
NOTE: The o-ring inside the piston can be damaged when passing by the retainer groove. Gently rotating the piston as it passes the retainer groove can lower the chance of the o-ring being trapped in the groove.

- a. On piston rod (2), install retainer (9) in the second groove from the bottom of the piston rod.
 - b. Install the spacer (15) on piston rod.
 - c. Install piston assembly, largest diameter side first, on piston rod. Position against retainer in piston rod.
 - d. Install retainer into lower piston rod groove, trapping the piston on the piston rod.
3. From the threaded end of the piston rod, install the spacer (15).

4. Assemble the cap assembly:
 - a. Install inner o-ring (7) and outer o-ring (8) on the cap (3).
 - b. Install o-ring (6) in bushing (4).
 - c. From the side of the cap with the bolt flange, insert bushing into cap.
 - d. From the smaller diameter side of the cap, install bushing retainer (5) on the bushing.
5. Apply a thorough coating of food-grade lubricant to the inner surface of the air cylinder as far down as reachable by hand, and apply to the outer surfaces of the piston assembly.
6. Leaving a couple of sections of the piston shaft free of lubricant, to aid gripping during insertion, apply food-grade lubricant on all remaining portions of the piston rod and to the inside surfaces of the cap.
7. Install the cap assembly onto the piston rod, oriented so the cap mounting flange is furthest away from the piston assembly and slide it down to rest on the piston.
8. Insert the piston assembly into the air cylinder, making sure to align the cap with the air cylinder opening. Lower the piston and rod into the air cylinder until it comes to rest at the bottom of the air cylinder.
9. Install screws (28) and washers (27) in the cap mounting holes.
10. Attach the air lines to the top and bottom air fittings on the completed air cylinder.
11. Repeat for the other air cylinder.
12. Using nuts (24) and washers (23), attach the ram crossbar (116) to the air cylinder piston rods (2), pump support rods (17), and air motor support rod (107).

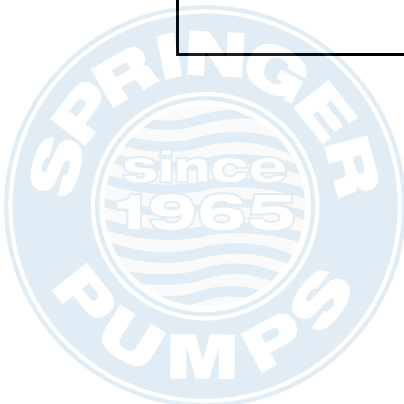


Troubleshooting



- Prior to performing any repairs, perform the Ram and Pump Pressure Relief procedures.
- Check all possible problems before disassembling the ram, pump, or platen.

Problem	Cause	Solution
Ram will not raise or lower.	Closed air valve or clogged upstream air line.	Open, clear.
	Not enough ram air pressure.	Increase.
	Worn or damaged air cylinder piston.	Replace.
Ram raises and lowers too fast or too slow (flow control adjustment only available in enclosed control panels).	Ram air flow needs adjusting.	Adjust flow control valves FC2 or FC3 as required. Refer to the control panel manual for more information.
Air leaks around cylinder rod.	Worn rod seal.	Replace.
Fluid squeezes past platen seal or wipers.	Ram air pressure is too high.	Decrease.
	Seal not fully inflated	Increase seal air pressure, check for seal air leak. Use the flow valve, if present.
	Worn or damaged wipers.	Replace.
Pump will not prime properly or pumps air.	Closed air valve or clogged air line.	Open, clear.
	Not enough ram air pressure.	Increase.
	Pump running too fast.	Reduce pump speed.
	Ram valve closed or clogged.	Open, clear.
	Exposed manual control Ram director valve is dirty, worn, or damaged.	Clean, service.
Pump fails to operate.	Restricted air line or inadequate air supply.	Increase air supply line diameter or increase air supply volume.
	Insufficient air pressure; closed or clogged air valves, etc.	Open or clean air valves, etc.
	Exhausted fluid supply.	Change drum.
	Damaged air motor.	Service.

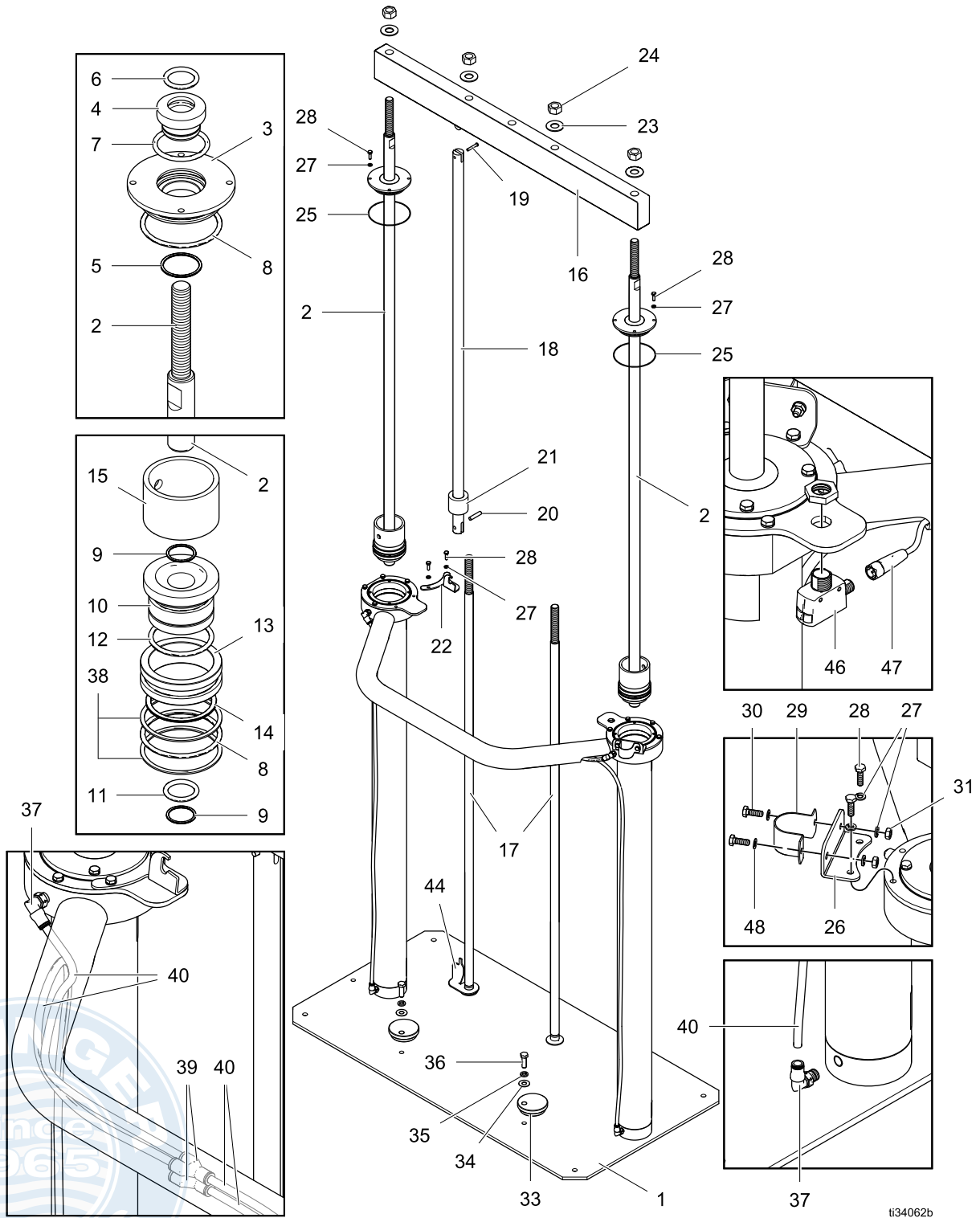


Troubleshooting

Problem	Cause	Solution
Pump operates, but output low on both strokes.	Restricted air line or inadequate air supply.	Clear air line or increase air supply.
	Insufficient air pressure; closed or clogged air valves, etc.	Open or clean air valves, etc.
	Exhausted fluid supply.	Change drum.
	Obstructed fluid line, valves, dispensing valve, etc.	Clear. Relieve pressure and disconnect fluid line. Turn on air. If pump starts, the fluid line is clogged.
	Worn throat packing.	Replace throat packing.
	Damaged cylinder seal.	Replace seal.
Pump operates, but dives on down stroke.	Pump inlet blocked.	Unblock.
	Pump running too fast.	Slow pump speed.
	Material too thick.	Thin material.
	Ram down pressure too low.	Increase pressure.
Pump operates, but output low on up stroke.	Worn or damaged pump seal(s).	Service pump.
Erratic or accelerated operation.	Exhausted fluid supply.	Change drum.
	Worn or damaged pump seal(s).	Service pump.



Parts



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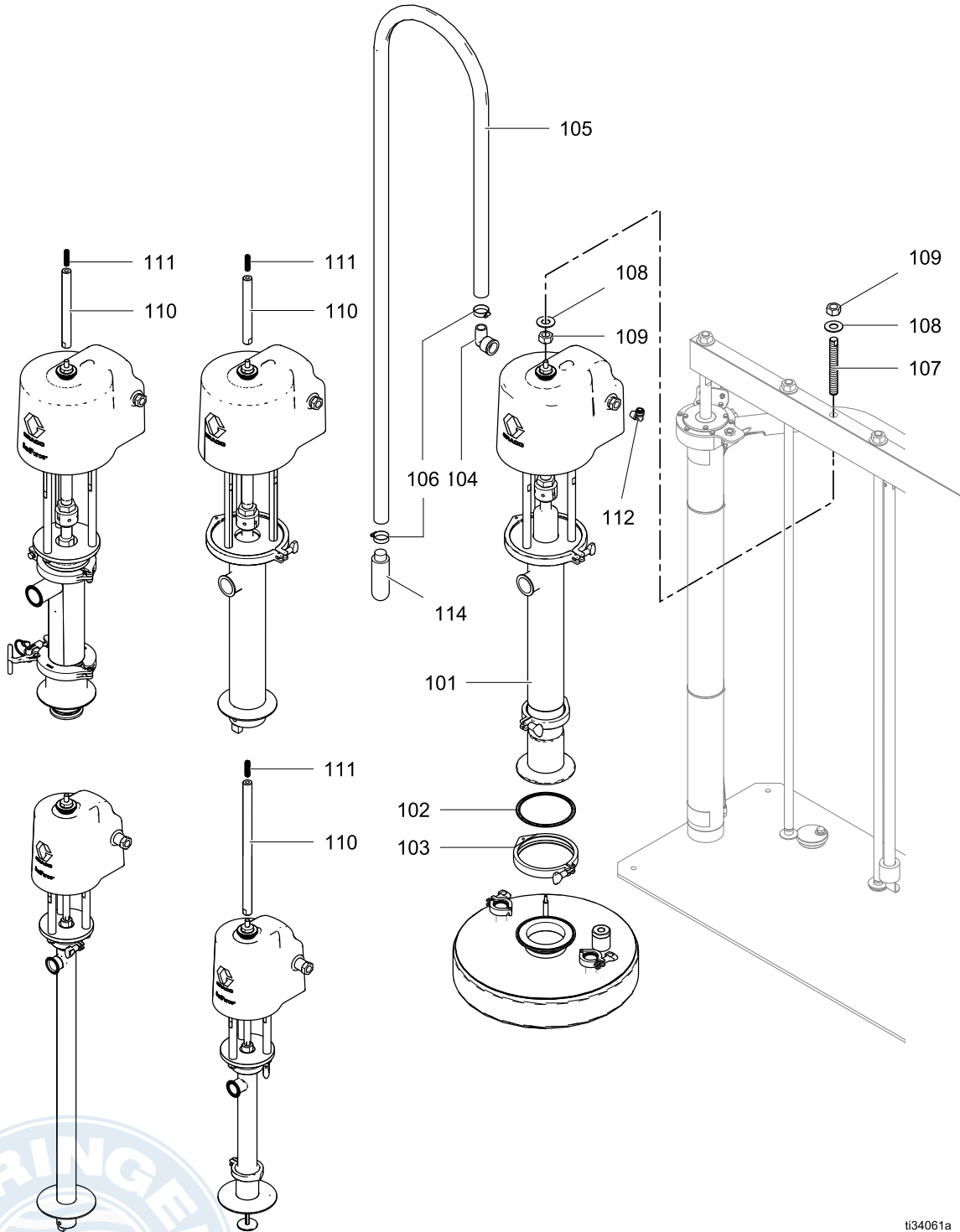
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Tel: 866-777-6060
Fax: 866-777-6383

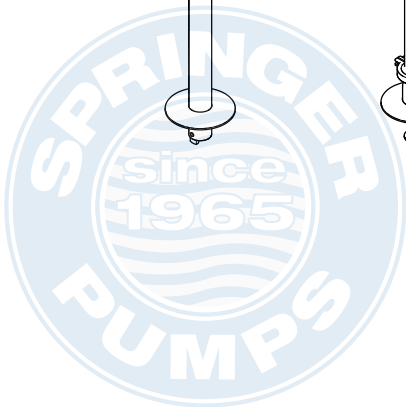
Springer Pumps, LLC

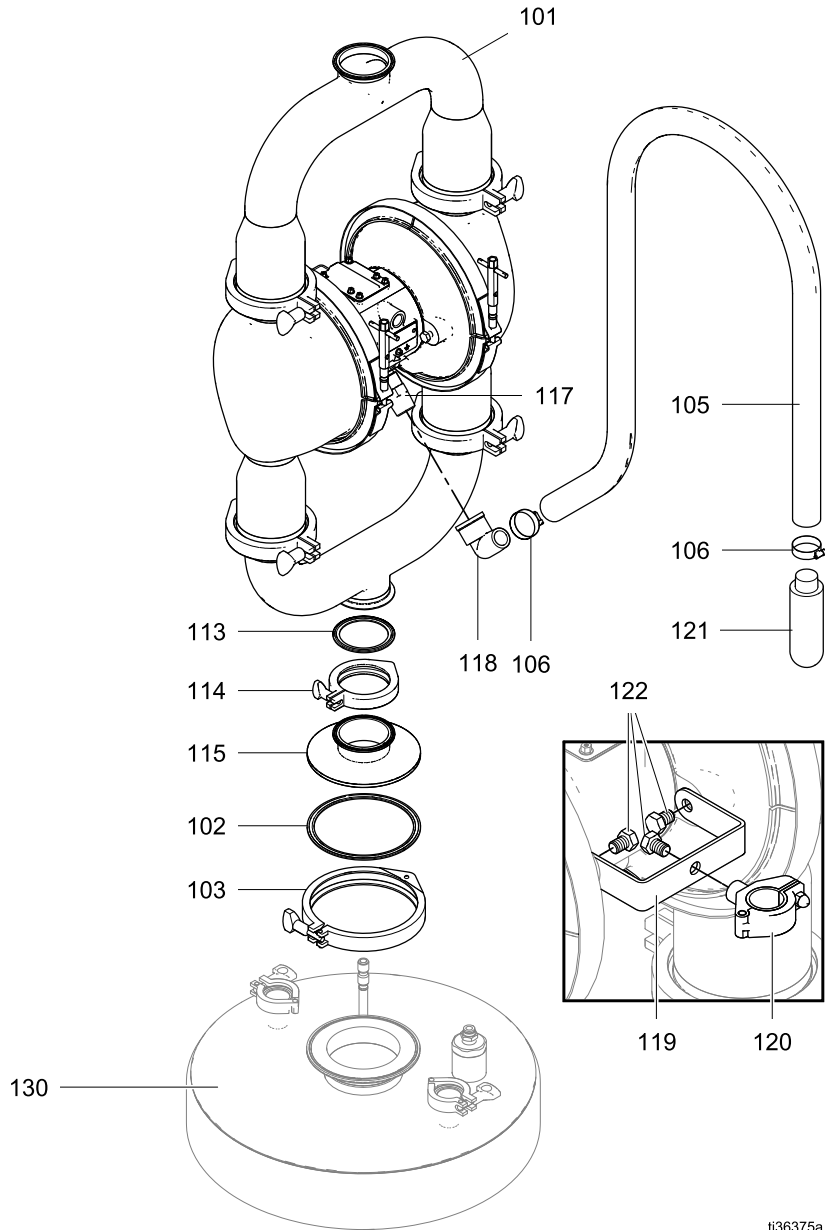
Website: www.springerpumps.com
Int'l: +001 267 404 2910

Parts



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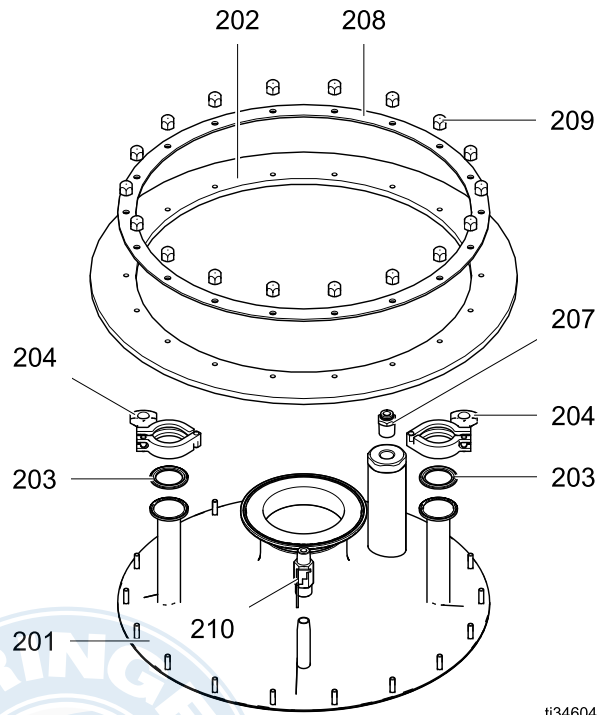
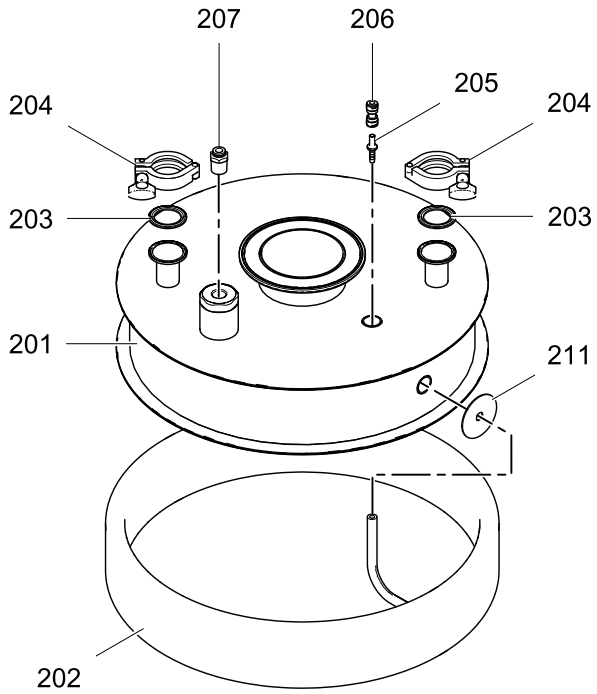
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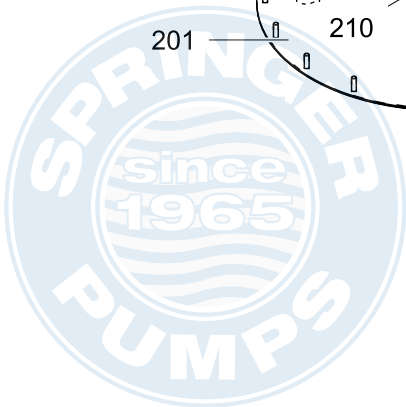
Springer Pumps, LLC

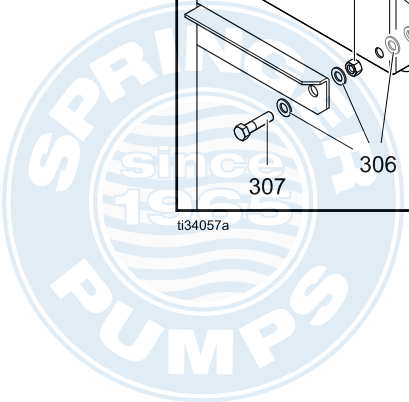
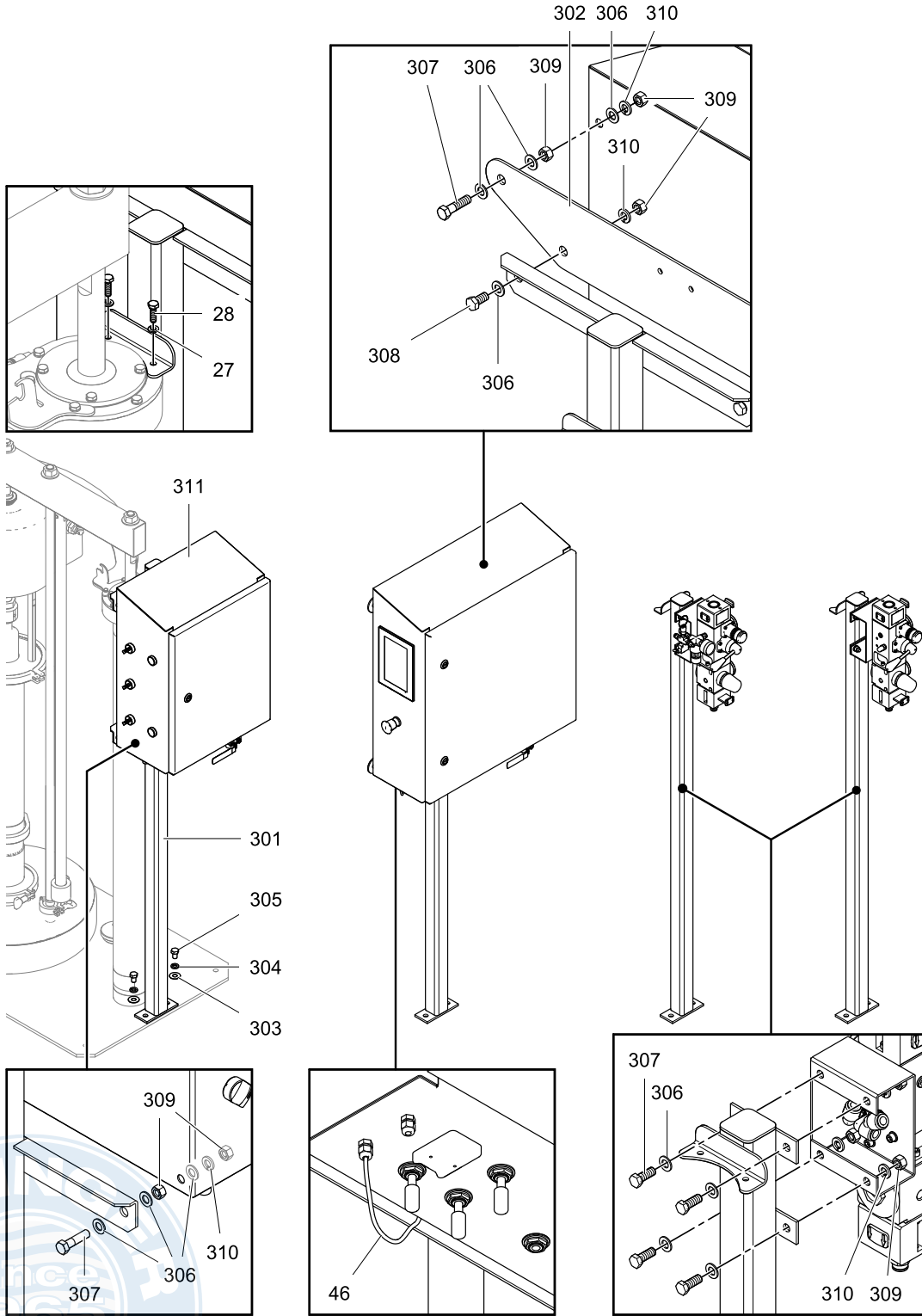
Website: www.springerpumps.com
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Parts



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Parts/Kits Quick Reference

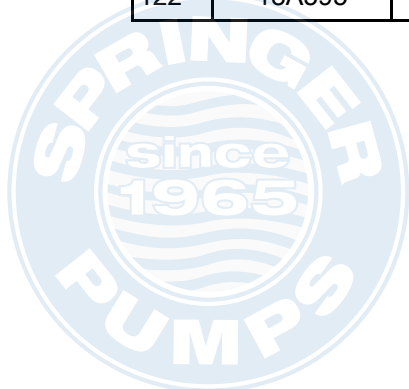
Use these tables as a quick reference for parts and kits. Some parts can be ordered separately in a quantity of one. Most parts are available in repair kits. Repair kits provide the total number of parts needed to perform the repair associated with the kit.

Ref.	Part	Kit	Description	Total Qty.
Frame				
1	25C752	25D947	FRAME, includes base, air cylinder tubes, and cylinder support (ref. 1a)	1
1a	17S008	25D947	SUPPORT, cylinder	1
2	17V701 17X536	25D947 25E135	ROD, piston, carbon steel (configuration accessory AA) SST (configuration accessory AE)	2
3	17V700	25D947	CAP	2
4	17V713	25E543	BUSHING, ram top	2
5	17R789	25E543	RETAINER, spiral	2
6	17R802	25E543	O-RING, #322	2
7	120998	25E543	O-RING	2
8	514316	25E543	O-RING	4
9	17R791	25E543	RETAINER	4
10	17R759	25E543	PISTON	2
11	114321	25E543	PACKING	2
12	160258	25E543	PACKING, Buna-N	2
13	17R767	25E543	SLEEVE, piston	2
14	17R794	25E543	RETAINER, spiral	2
15	17V703	25D947	SPACER	2
16	17S022	25D947	CROSSBAR	1
17	17S713	25D947	ROD	2
18	17S467	25D947	ROD, lock	1
19	17S465	25D947	PIN, clevis	1
20	17W333	25D947	PIN, dowel	1
21	17V153	25D947	COLLAR	1
22	17V154	25D947	BRACKET, lock rod	1
23	512743	25D947	WASHER	4
24	510221	25D947	NUT	4
25	120812	25D947	O-RING	2
26	17V612	25D947	BRACKET, muffler	1
27	104123	25D947	WASHER, lock	22
28	104119	25D947	SCREW, cap	20
29	17W334	25D947	CLAMP, damping	1
30	102023	25D947	SCREW, cap	2
31	104121	25D947	NUT	2
32	17Z673	— — —	MUFFLER	1
33	17T122	25D947	GUIDE, drum	2

Ref.	Part	Kit	Description	Total Qty.
34	EQ1152	25D947	WASHER, flat	2
35	EQ1135	25D947	WASHER, lock	2
36	EQ1519	25D947	BOLT	2
37	17S478	25D947	FITTING, 1/4" npt to 3/8" ptc	4
38	17Z673	25D947	RING, back-up	4
39	125539	25D947	FITTING, Y, tube	2
40	513066	25D947	TUBING, 3/8" O.D.	16 FT
41	111750	25D947	WASHER, plain	2
44	17X977	25D947	BRACKET, lock rod	1
45▲	15J074	25D947	LABEL, crush and pinch	4
46	— — —	— — —	CABLE, laser	1
47	17Y665	— — —	LASER	1
Pump and platen				
101	PUMP, priming piston			1
	25N009	— — —	5:1 (2.1 approval, per EN10204:2004)	
	25N009C31	— — —	5:1 (3.1 approval, per EN10204:2004)	
	25M912	— — —	6:1 (2.1 approval, per EN10204:2004)	
	25M912C31	— — —	6:1 (3.1 approval, per EN10204:2004)	
	25N008	— — —	12:1 (2.1 approval, per EN10204:2004)	
	25N008C31	— — —	12:1 (3.1 approval, per EN10204:2004)	
101	PUMP, double ball			
	25N010	— — —	5:1 (2.1 approval, per EN10204:2004)	
	25N010C31	— — —	5:1 (3.1 approval, per EN10204:2004)	
	25N007	— — —	6:1 (2.1 approval, per EN10204:2004)	
	25N007C31	— — —	6:1 (3.1 approval, per EN10204:2004)	
	— — —	— — —	12:1 (2.1 approval, per EN10204:2004)	
	— — —	— — —	12:1 (3.1 approval, per EN10204:2004)	
101	1590 PUMP, double diaphragm			
	SP15.0071	— — —	FK check balls, EO diaphragms	
	SP15.0074	— — —	PT check balls, PO diaphragms	
	SP15.0076	— — —	PT check balls, PS diaphragms	
	SP15.0080	— — —	SP check balls, SP diaphragms	
101	2150 PUMP, double diaphragm			
	SP2B.0042	— — —	FK check balls, EO diaphragms	
	SP2B.0046	— — —	PT check balls, PO diaphragms	
	SP2B.0048	— — —	PT check balls, PS diaphragms	
	SP2B.0052	— — —	SP check balls, SP diaphragms	
101	3150 PUMP, double diaphragm			
	SP3F.0024	— — —	EO diaphragms	
	SP3F.0028	— — —	PO diaphragms	
	SP3F.0030	— — —	PS diaphragms	
	SP3F.0032	— — —	SP diaphragms	

Parts

Ref.	Part	Kit	Description	Total Qty.
102	16D246	---	GASKET, 6"	1
103	16D245	---	CLAMP, 6"	1
104	16A942	---	FITTING, exhaust	1
105	18A090	---	HOSE, exhaust	1
106	101818	---	CLAMP, hose	2
107	17W710	---	ROD, threaded	1
108	512743	---	WASHER, flat	2
109	510221	---	NUT	2
110			ROD, motor	
	---	---	5:1 priming piston pump, 6:1 double ball pump	0
	17W711	---	5:1 double ball pump	1
	17W712	---	12:1 priming piston pump	1
	17W713	---	6:1 priming piston pump	1
111	17W714	---	SETSCREW; only used if Ref 110 is used	1
112	16F384	---	FITTING, 1/2 npt x 1/2 PTC	1
113			CLAMP, sanitary	1
	118598	---	1.5 inch	
	500984	---	2 inch	
	15D475	---	3 inch	
114			GASKET, sanitary	1
	160169	---	1.5 inch	
	15H598	---	2 inch	
	15H459	---	3 inch	
115			ADAPTER	1
	18A449	---	1590	
	18A448	---	2150	
	18A446	---	3150	
117	16C946	---	FITTING, 3/4 in npt	1
118	16A942	---	FITTING, exhaust hose	1
119	18A553	---	BRACKET	1
120	18A554	---	CLAMP	1
121	512914	---	MUFFLER	1
122	18A595	---	BOLT, 3/8-16 x 0.5 in	3



Ref.	Part	Kit	Description	Total Qty.
130	-----	-----	PLATEN assembly	1
	-----	-----	20 in. Conical, polychloroprene inflatable seal, type 2.1	
	-----	-----	20 in. Conical, polychloroprene inflatable seal, type 3.1	
	-----	-----	20 in. Conical, EPDM inflatable seal, type 2.1	
	-----	-----	20 in. Conical, EPDM inflatable seal, type 3.1	
	-----	-----	21.25 in. Conical, Buna-N wiper seal, type 2.1	
	-----	-----	21.25 in. Conical, Buna-N wiper seal, type 3.1	
201	25E095	-----	PLATEN, for inflatable seal	1
	25E095C31	-----	type 2.1	
	25E142	-----	type 3.1	
	25E142C31	-----	PLATE, for wiper seal	
		-----	type 2.1	
		-----	type 3.1	
202	-----	25P317	SEAL,	1
	-----	25P318	inflatable, polychloroprene	
	608193	-----	inflatable, EPDM	
	18A057	-----	WIPER	
		-----	Buna-N wiper seal for 21.5 in diameter drum	
		-----	Buna-N wiper seal for 22.5 in diameter drum	
203	16D169	-----	GASKET	2
204	118598		CLAMP, sanitary	2
205	16F367	25P317 25P318	FITTING, 1/4 PTCM x 1/4 barb	1
206	17Y752	25P317 25P318	FITTING, 1/4 PTC x 3/8 PTC	1
207	16G247	-----	FITTING, 1/2 NPT x 3/8 tube	1
208	17X782	-----	RETAINER, seal	1
209	17S944	-----	NUT	18
210	237534	-----	VALVE, ball	1
211	17T380	25P317 25P318	GASKET, seal	1
Air control				
301	25D265	-----	STANCHION, control panel	1
	25C825	-----	Exposed control	
		-----	Enclosed control	
302	17V409	-----	BRACKET	2
303	EQ1152	-----	WASHER, flat, 1/2 in. SST	2
304	EQ1135	-----	WASHER, lock, 1/2 in. SST	2
305	131259	-----	BOLT, 1/2-13	2
306			WASHER, plain	
	112914	-----	Pneumatic controls	8
	112914	-----	Electro-pneumatic controls	12

Parts

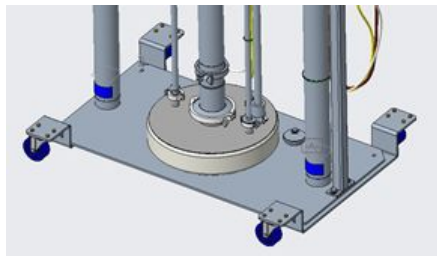
Ref.	Part	Kit	Description	Total Qty.
307			WASHER, lock	
	103975	— — —	Pneumatic controls	4
	103975	— — —	Electro-pneumatic controls	8
308	17V628	— — —	SCREW, 3/8-16 x 3/4 in.	4
309			NUT	
	112913	— — —	Pneumatic controls	8
	112913	— — —	Electro-pneumatic controls	12
310	102471	— — —	SCREW, 3/8-16 x 1 in.	4
311			CONTROL, air (<i>refer to separate air controller manual</i>)	1
	25E038	25E030	Manual pneumatic, exposed, static seal	
	25D266	25E650	Manual pneumatic, exposed, inflatable seal	
	25C543	25P255	Enclosed manual pneumatic, 5:1 pump	
	— — —	25P256	Enclosed manual pneumatic, 6:1, 12:1 pump	
	— — —	25P257	Enclosed manual pneumatic, AODD pump	
	25D057	25P258	Enclosed electro-pneumatic , 5:1 pump	
	— — —	25P259	Enclosed electro-pneumatic , 6:1, 12:1 pump	
— — —	25P260	Enclosed electro-pneumatic , AODD pump		
312	113976	— — —	SCREW, 3/8-16 x 1.5 in.	4

— — — *Item not available.*



Kits and Accessories

Caster Kit (Accessory code AB)



Kit includes:

- 2 dollies, each with 2 swivel casters
- Mounting hardware

Drum Dolly (Accessory code AC)

Painted carbon steel dolly for drums up to 24 inch diameter. Load rating of 2000 pounds.

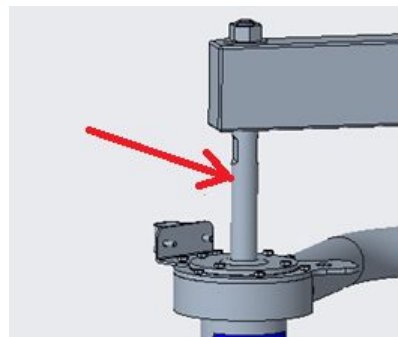


Kit contains:

- Dolly with 5 swivel casters
- Mounting hardware
- Vinyl rubber ramp

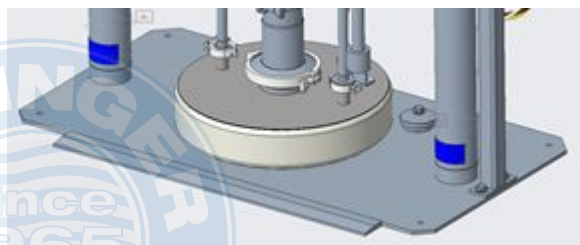
Stainless Steel Piston Rods (Accessory code AE)

Provides added corrosion protection.



Kit contains:

- 316 stainless steel piston rods



Technical Data

	US	Metric
Maximum fluid working pressure		
5:1 pump	410 psi	2.9 MPa, 28.7 bar
6:1 pump	650 psi	4.5 MPa, 44.8 bar
12:1 pump	1200 psi	8.3 MPa, 83 bar
1:1 diaphragm pumps	120 psi	0.8 MPa, 8 bar
Maximum system air inlet pressure	100 psi	0.69 MPa, 6.9 bar
Maximum ambient temperature	90° F	32° C
Air consumption	See pump manual	
Maximum recommended pump speed		
Maximum fluid temperature		
Fluid Outlet Size		
Wetted Parts		
Maximum weight (system with 12:1 pump)	615 lbs	279 Kg
Electro-pneumatic Control Panel		
Enclosure Type: 4X (IP65) Voltage: 100–240 VAC Phase: 1 Frequency: 50/60 Hz Maximum Current: 1.3 A NOTE: Branch Circuit Protection (maximum 15 A) and disconnect switch not provided.		
Sound data		
Sound power*	78.5 dBa	
Sound pressure**	71.6 dBa	

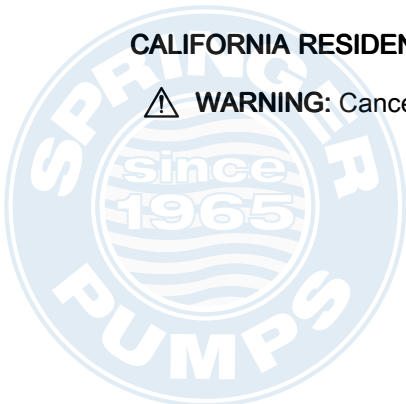
* Sound power at 70 psi (0.48 MPa, 4.8 bar), 20 cpm. Sound power measured per ISO-9614–2.

** Sound pressure was tested 3.28 feet (1 m) from equipment.

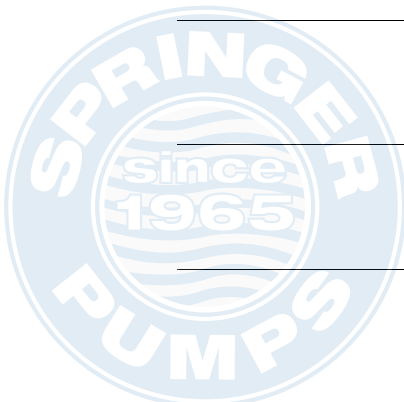
California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm — www.P65warnings.ca.gov.



Notes



Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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For the latest information about Graco products, visit www.graco.com.
For patent information, see www.graco.com/patents.

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Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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Graco reserves the right to make changes at any time without notice.
Original Instructions. This manual contains English. MM 3A5404

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