

Owner's Manual

- *Installation*
- *Use*
- *Maintenance*



Pratissoli



General Pump
is a member of
the Interpump Group

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1. INTRODUCTION

This manual describes the use and maintenance instructions of the TR/SR Series pump, and should be carefully read and understood before using the pump.

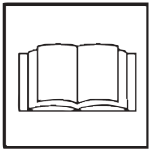
Correct use and adequate maintenance will guarantee the pumps trouble-free operation for a long time. General Pump declines any responsibility for damage caused by misuse or the non-observance of the instructions indicated in this manual.

Upon receiving the pump, check that it is complete and in perfect condition. Should anything be found out of order, please contact us before installing and starting the pump.

2. SYMBOL DESCRIPTIONS

**Warning**

Potential Danger



Read carefully and understand the manual before operating the pump

**Danger**

High Voltage

**Danger**

Wear protective mask

**Danger**

Wear goggles

**Danger**

Wear protective gloves

**Danger**

Wear protective boots

**Danger**

Protect against explosion

3. SAFETY

3.1 General Safety Indications

Improper use of pumps and high pressure systems, and the non-compliance with installation and maintenance instructions may cause severe injury to people and/or damage to property. Anyone assembling or using high pressure systems must possess the necessary competence to do so, should be aware of the characteristics of the components assembled/used, and must take all precautions necessary to ensure maximum safety in any operating condition. In the interest of safety, both for the Installer and the Operator, no reasonably applicable precaution should be omitted.

3.2 High pressure unit safety requirements

1. The pressure line must always be equipped with a safety valve.
2. High pressure system components, in particular for those units working outside, must be adequately protected against rain, frost and heat.
3. The electrical control system must be adequately protected from water spray, and must comply with the specific regulations in force.
4. High pressure hoses must be properly sized for maximum operating pressure of the system and always and only used within the operating pressure range specified by the hose manufacturer. The same rules should be observed for all other auxiliary systems affected by high pressure.
5. The ends of high pressure hoses must be sheathed and secured to a solid structure to prevent dangerous whiplash in case of bursting or broken connections.
6. Appropriate safety guards must be provided for the pump transmission systems (couplings, pulleys and belts, auxiliary drives).



3.3 Safety During Operation

The working area of a high pressure system must be clearly marked. Access must be prohibited to un-authorized personnel and, wherever possible, the area should be restricted or fenced. The personnel authorized to access this area should first be trained, and informed about the risks that may arise from failures or malfunctions of the high pressure unit.

Before starting the unit, the operator must check:

1. That the high pressure system is properly powered (see paragraph 9.4).
2. That pump intake filters are perfectly clean; we advise the use of a device that indicates the filters clogging level.
3. Electrical parts are adequately protected and in perfect condition.
4. The high pressure hoses do not show apparent signs of abrasion, and that fittings are in perfect shape.

Any fault or reasonable doubt that may arise before or during operation should be promptly reported and verified by competent personnel. In these cases, pressure should immediately be released and the high pressure system stopped.



3.4 General Procedures For Using Nozzles/Lances

1. The Operator must always place his own and other worker's safety before any other interest; his and should always be governed by good sense and responsibility.
2. The Operator must always wear a helmet with a protective visor, waterproof clothing, and appropriate boots capable of guaranteeing grip on wet pavement.

Note: appropriate clothing will effectively protect against water spray, but it may not offer adequate protection against the direct impact of water jets or sprays from a close distance. Some circumstances may require further protection.

3. It is generally best to organize personnel into teams of at least two people capable of giving mutual and immediate assistance in case of necessity and of taking turns during long and demanding operation.
4. Access to the work area that is within the water jets' range must be absolutely prohibited to and free from objects that, inadvertently under a pressure jet, can be damaged and or create dangerous situations.
5. The water jet must only and always be directed in the direction of the work area, including during testing or preliminary tests or checks..
6. The Operator must always pay attention to the trajectory of the debris removed by the water jet. If necessary, suitable guards must be provided by the Operator to protect anything that may be accidentally exposed.
7. The Operator should not be distracted for any reason during operation. Workers needing to access the operating area must wait for the Operator to stop work, and then immediately make their presence known.
8. For safety reasons, it is important that each member of the team is fully aware of the intentions and actions of other team members in order to avoid dangerous misunderstandings.
9. The high pressure system must not be started up and run under pressure without all team members in position and without the Operator having already directed his/her lance toward the work area.

3.5 Safety During System Maintenance

1. The pressure system maintenance must be carried out in the time intervals set by the manufacturer who is responsible for the whole group according to law.
2. Maintenance should always be carried out by trained and authorized personnel.
3. Assembly and disassembly of the pump and its various components must be performed exclusively by authorized personnel, using appropriate equipment in order to avoid damage to components and connections.
4. Always use original spare parts to ensure total reliability and safety.

4. PUMP IDENTIFICATION

Each pump has a specific label which contains:

- Pump model and version
- Serial Number
- Flow Rate - GPM
- Pressure - PSI
- Power - Hp-kW
- Maximum RPM



Pump model, version and serial number must always be specified when ordering spare parts.



For pumps ordered with the **ATEX** configuration:
 Pos. 2 - plate with **specific ATEX marking for explosion protection.**

Pos. 3 - plate for locating the **grounding screw.**

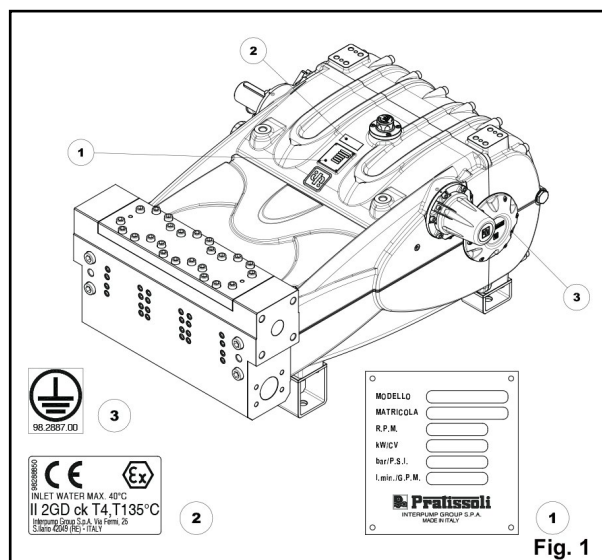


Fig. 1

5. TECHNICAL FEATURES @ 520 RPM

MODEL	RPM	FLOW RATE		PRESSURE		POWER	
		GPM	l/min	PSI	Bar	Hp	kW
SR50	1500	73	276	5,800	400	287	211
	1800						
	2200						
SR55	1500	88	333	5,075	350	303	223
	1800						
	2200						
SR60	1500	105	397	4,350	300	309	227
	1800						
	2200						
SR65	1500	123	466	3,625	250	302.5	222.5
	1800						
	2200						
SR70	1500	143	540	3,190	220	308.5	227
	1800						
	2200						
SR75	1500	164	620	2,900	200	322	236.8
	1800						
	2200						

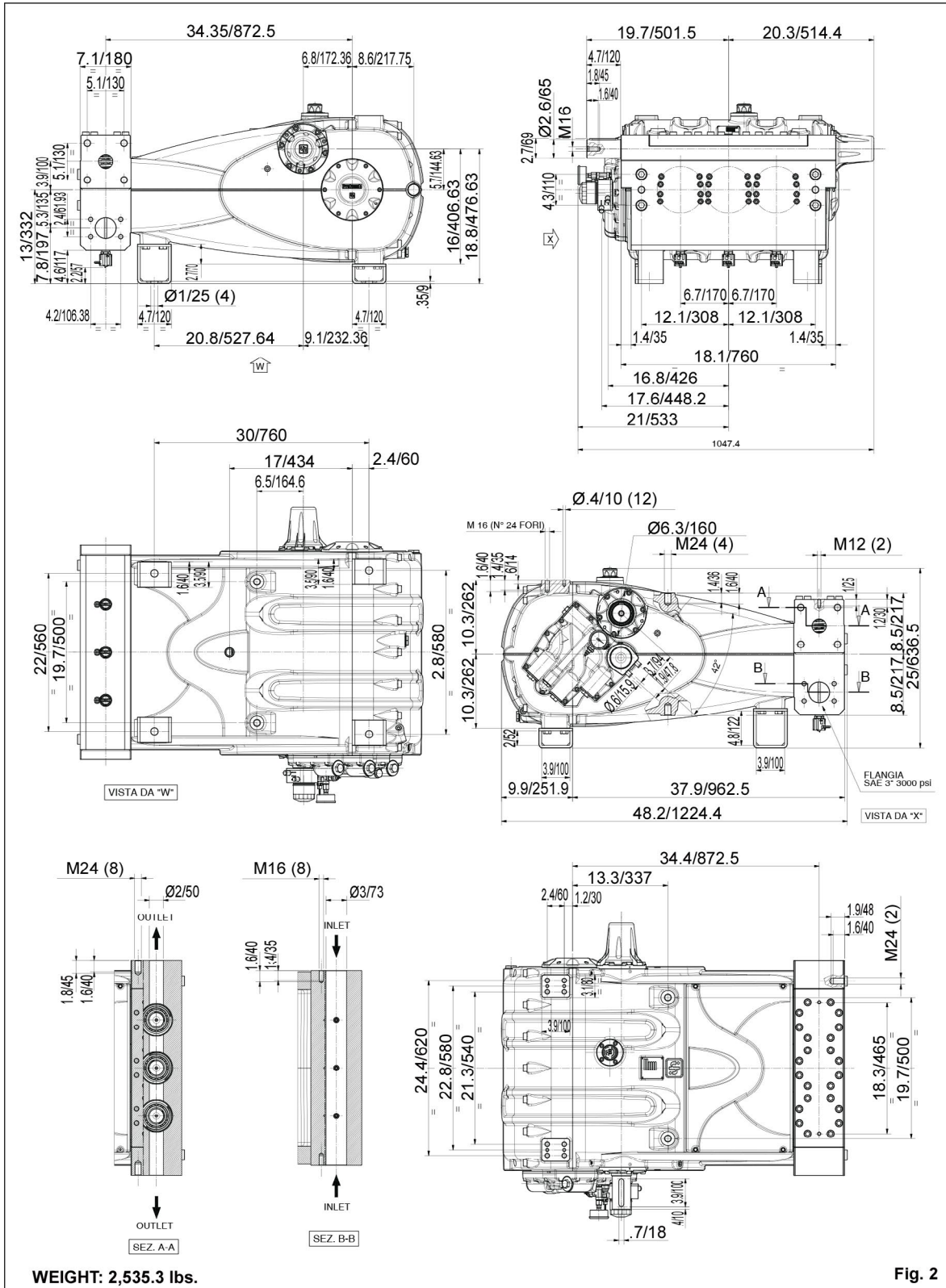
MODEL	RPM	FLOW RATE		PRESSURE		POWER	
		GPM	l/min	PSI	Bar	Hp	kW
TR50	1500	105	398	5,800	400	413.5	304
	1800						
	2200						
TR55	1500	127	482	5,075	350	438	322
	1800						
	2200						
TR60	1500	151.4	573	4,350	300	446.5	328.3
	1800						
	2200						
TR65	1500	178	673	3,625	250	437	321
	1800						
	2200						
TR70	1500	206	780.5	3,190	220	446	328
	1800						
	2200						
TR75	1500	236.7	896	2,900	200	465	342
	1800						
	2200						

5.1

Pump Moments of Inertia Reduced at the PTO		
Pump Series	RPM	J(kg mm ²)
SR	1500	231600
	1800	182400
	2200	140700
TR	1500	241200
	1800	189100
	2200	145200

6. DIMENSIONS AND WEIGHT

For dimensions and weight of SR Series HORIZONTAL, please refer to fig. 2.



6. DIMENSIONS AND WEIGHT

For dimensions and weight of SR Series VERTICAL, please refer to fig. 2a.

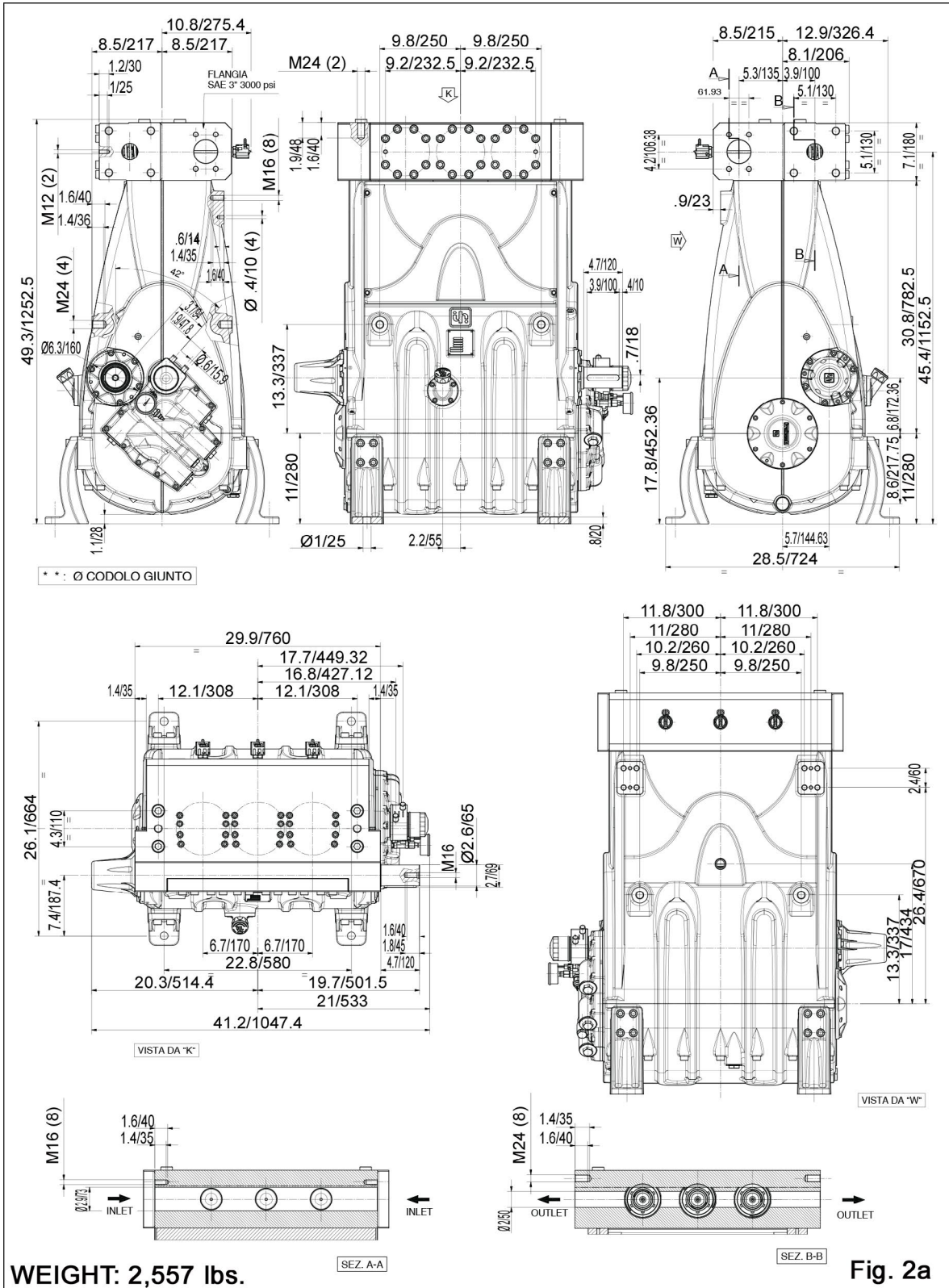
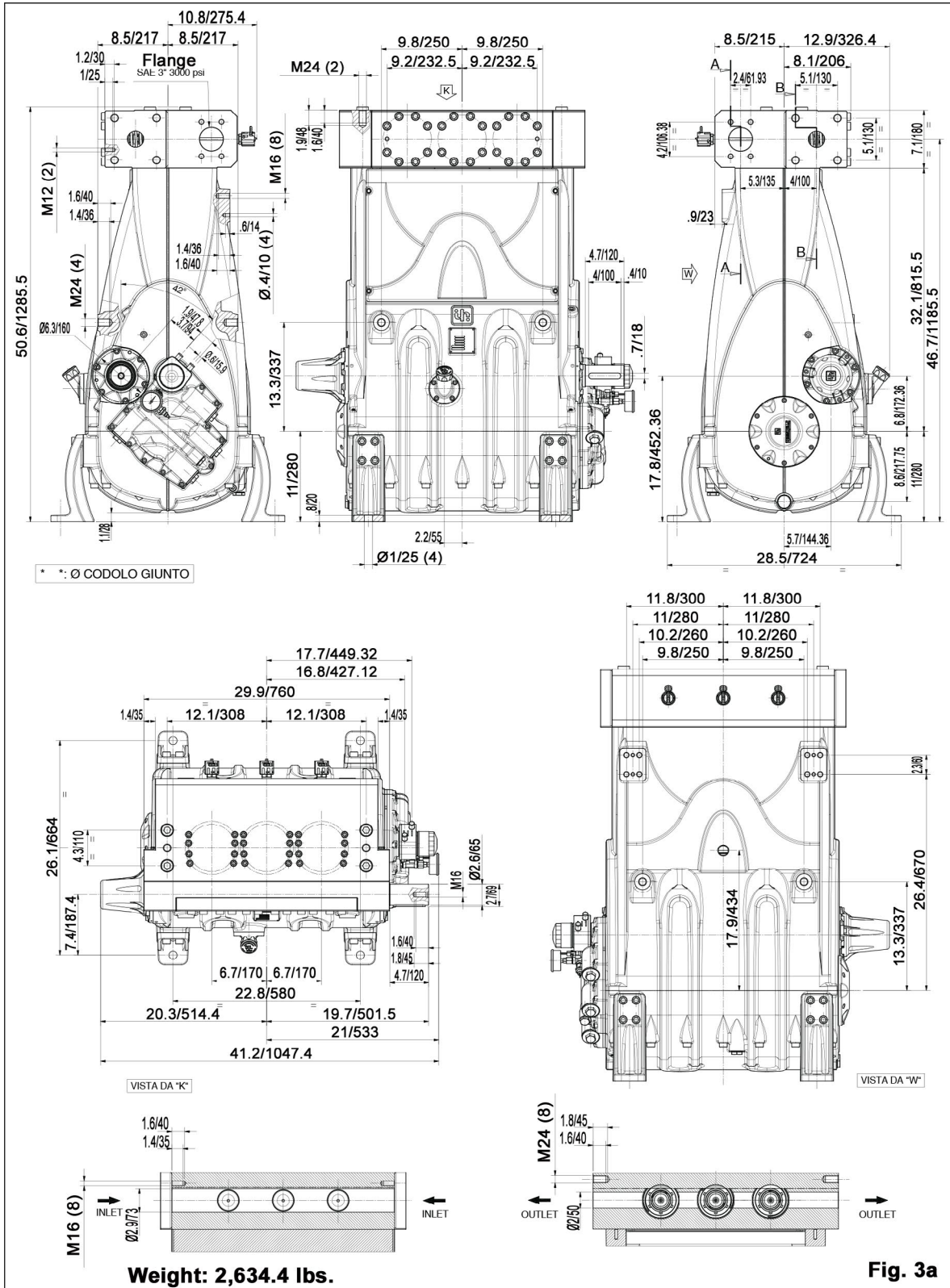


Fig. 2a

6. DIMENSIONS AND WEIGHT

For dimensions and weight of TR Series VERTICAL, please refer to fig. 3a.

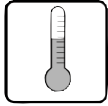


7. OPERATING INSTRUCTIONS



The TR/SR pumps, when not ordered with the ATEX configuration, are designed to work in environments with atmospheres that are not potentially explosive and with filtered water (paragraph 9.6).

Other fluids may be used only upon the approval of The Customer Service Department .



7.1 Water Temperature

The max water temperature is 104⁰ F (40⁰ C). However, it is possible to use the pump at temperatures of up to 140⁰F (60⁰C) for short periods of time. In this case we advise consulting the Customer Service Department.



ATEX version: The max water temperature in 104⁰ F (40⁰ C).

7.2 Max Flow Rate and Pressure Values

The performance values indicated in the catalog refer to the maximum performance of the pump. Regardless of the power used, pressure and maximum RPM values indicated on the plate may not be exceeded unless expressly authorized by the **Customer Service Department**.

7.3 Lowest RPM

The minimum speed allowed for these pumps is 250 RPM at the crankshaft. Any RPM value different from what is indicated in the performance table (see chapter 5) must be expressly authorized by the **Customer Service Department**.

7.4 Recommended Lubricant Oil Types & Manufacturers

The pump is delivered with lubricant oil compliant with room temperatures ranging between 32⁰ and 89.6⁰ F (0⁰ and 30⁰C). Some recommended lubricant types are indicated in the table below; these lubricants are treated with additives in order to increase corrosion protection and resistance to fatigue. As an alternative, Automotive SAE 85W-90 gearing lubricants may also be used.

7.4.1 Oil Type

The pump is delivered with TOTAL-ERG MISOLA MAP SH-150 lubricating oil, which ensures correct use of the pump in ambient temperatures from 14⁰ F to 104⁰ F (-10⁰ C to 40⁰ C). For alternative temperatures use single viscosity lubricating oil with adequate viscosity. For pump applications in low temperature conditions use suitable heaters. Forced lubrication is provided by the lube pump, which ensures the correct quantity of oil in all points required by the moving parts.

The need to use single viscosity oil is due to two reasons:

- Avoid oil viscosity change to comply with ambient temperature or seasonal change.
- Increases the time between oil changes (see preventive maintenance table in chapter 11).

7.4.2 Recommended Oil Brands

TOTAL-ERG MISOLA MAP SH-150.
 MOBIL SHC 629.

7.4.3 Required Oil Characteristics

If the recommended oil brands are unavailable or difficult to find, use alternative oils provided they comply with the following technical specifications:

Viscosity at 14 ⁰ F (-10 ⁰ C)	≤4000 cSt.
Viscosity at 104 ⁰ F (40 ⁰ C)	≤200 cSt.
Viscosity at 212 ⁰ F (100 ⁰ C)	≤18 cSt.
Viscosity Index:	≥135 cSt.
Pour Point:	≥-13 ⁰ F (-25 ⁰ C)
Additive Grade GL1-GL2	

If necessary, contact the **Customer Service Department**.

Check the oil level by using the oil level dipstick (1), fig. 4. Refill if necessary to top off level. Correct oil level inspection is done with the pump at room temperature; oil is changed with the pump at working temperature, by removing the plug (2), fig. 4. Use the plug (2a) for the vertical position.

Checking and changing oil is to be carried out as indicated in the Chapter 11. The amount required is 13.7 gallons (52 liters) for horizontal versions, and 9.7 gallons (37 liters) for vertical versions.



Set up the plant so that the oil temperature never exceeds 212 F (100° C) during pump operations under any circumstances. Use the oil temperature indicator in paragraph 9.10.

Caution: Use only oil with flash point higher than 392° F (200° C).



In any case, oil must be changed at least once a year since it may deteriorate by oxidation.

Used oil must be disposed of properly.

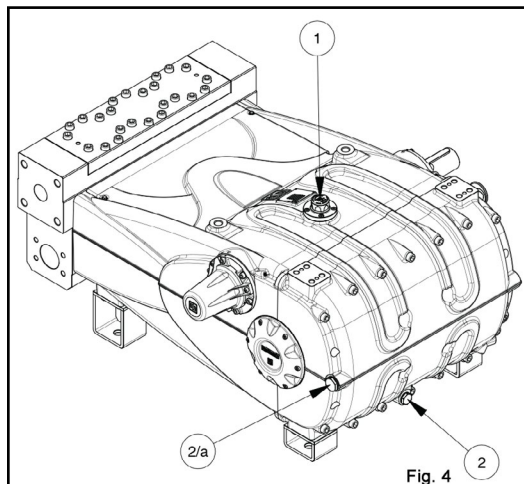


Fig. 4

8. PORTS AND CONNECTIONS

SR-TR Series pumps are equipped with (see fig. 5 and fig. 6):

1. 2 inlet ports "IN", SAE G3"

Line connection to any of the two ports is indifferent for proper pump functioning. The unused ports must be sealed off.

2. 2 outlet ports "OUT", Outlet flanges

3. 1 drain port, with G1" hole in the bottom of the cover to monitor any leakage of water due to preasure seals wear. If you find evidence of leaks, refer to the repair manual. The port must always remain open and may be connected to a detection system if required.

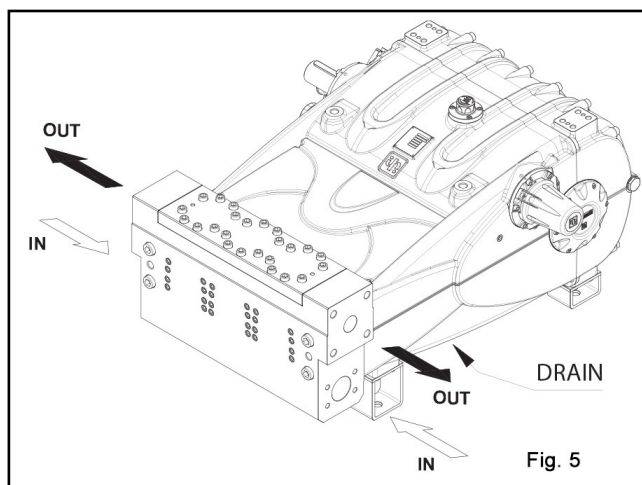


Fig. 5

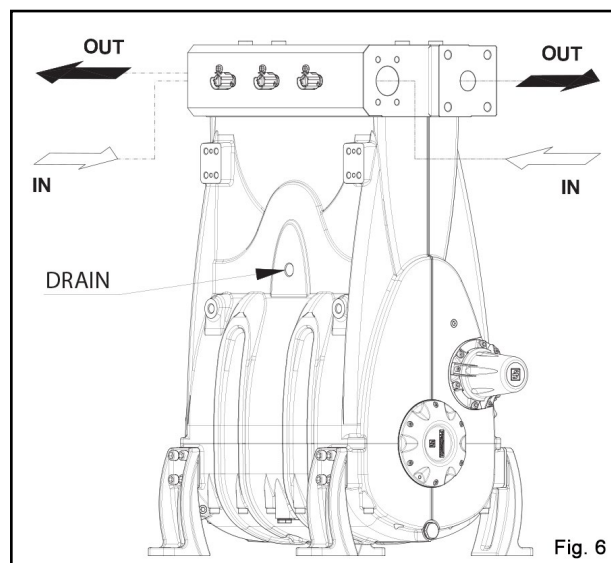


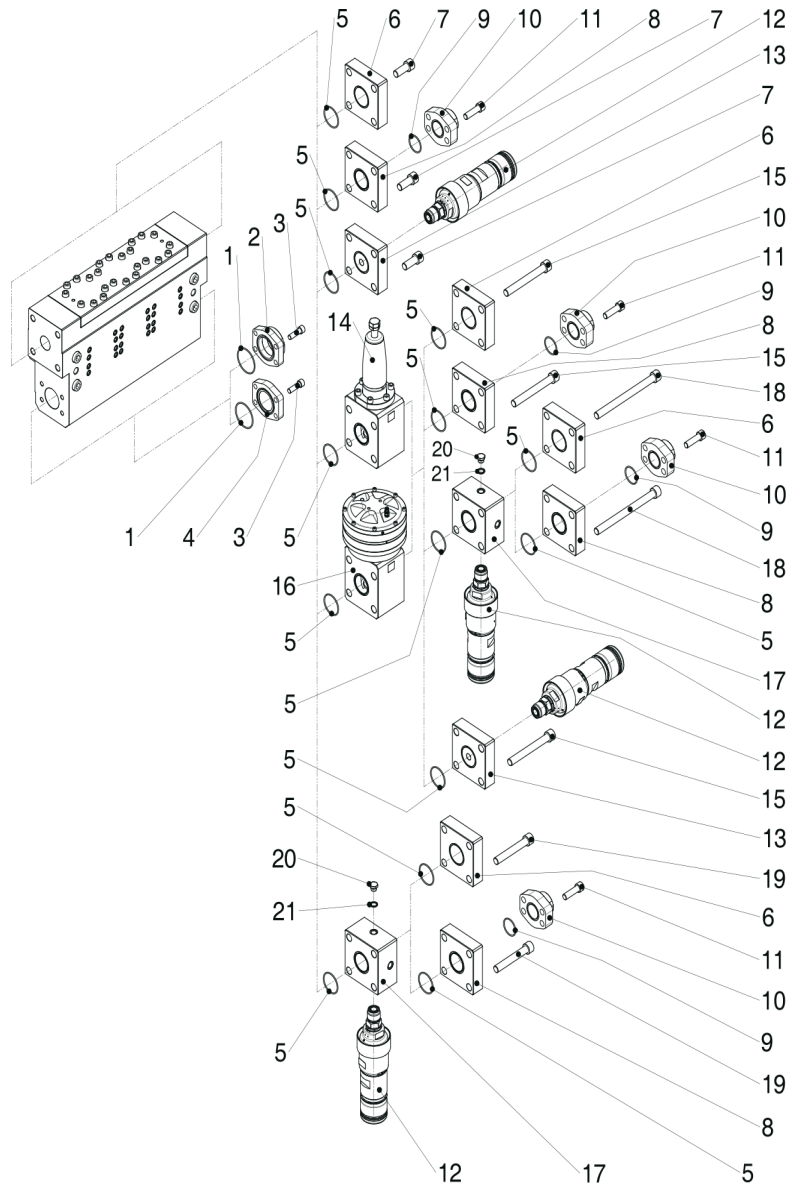
Fig. 6

8.1 Inlet and Outlet Layout Diagram

SR-TR ALL VERSIONS				
	Pos	P/N	Description	QTY
INLET	1	F90414100	O-ring, Ø 85.32 x 3.53	1
	2	F96458500	Flange, Inlet, BSP, 3" F, Zinc	1
		F96459000	Flange, Inlet, BSP, 3" F, Inox	1
		F96459500	Flange, Inlet, NPT, 3" F, Zinc	1
		F96460000	Flange, Inlet, NPT, 3" F, Zinc	1
3	F99514700	Screw, TCEI, M16 x 55	1	
4	F96489500	Flange, Inlet, Closed, 3", Zinc	1	
	F96490000	Flange, Inlet, Closed, 3", Inox	1	

SR50 & TR50				
	Pos	P/N	Description	QTY
OUTLET	5	F90412200	O-ring, Ø 69.44 x 3.53	1
	6	F36021966	Flange, Inlet, Closed	1
	7	F99531000	Screw, TCEI, M24 x 60	4
	8	36021466	Flange, 1-1/2"	1
	9	F90407900	O-ring, Ø 47.22 x 3.53	1
	10	F96468500	Flange, Inlet, Gas, 1-1/2" F, S6 Zinc	1
		F96469000	Flange, Inlet, Gas, 1-1/2" F, S6 Inox	1
		F96469500	Flange, Inlet, NPT, 1-1/2" F, S6 Zinc	1
		F96470000	Flange, Inlet, NPT, 1-1/2" F, S6 Inox	1
	11	F99154700	Screw, TCEI, M16 x 55	4
	12	F36722501	Compressor	1
	13	F36272856	Flange, BSP, 1-1/2"	1
	14	F36722101	Valve	1
	15	F99535000	Screw, TCEI, M24 x 200	4
	16	F36722001	Valve	1
	17	F36273156	Flange, BSP, 1-1/2"	1
	18	F99537000	Screw, TCEI, M24 x 300	4
	19	F99534000	Screw, TCEI, M24 x 160	4
	20	F98218100	Plug, BSP, 1/2 x 13	3
	21	F93197100	Washer, Ø 1/2"	3

SR65 & TR60				
	Pos	P/N	Description	QTY
OUTLET	5	F90412200	O-ring, Ø 69.44 x 3.53	1
	6	F36021966	Flange, Inlet, Closed	1
	7	F99531000	Screw, TCEI, M24 x 60	4
	8	F36021366	Flange, 2"	1
	9	F90409900	O-ring, Ø 56.74 x 3.53	1
	10	F96473500	Flange, Inlet, Gas, 2" F, S6 Zinc	1
		F96474000	Flange, Inlet, Gas, 2" F, S6 Inox	1
		F96474500	Flange, Inlet, NPT, 2" F, S6 Zinc	1
		F96475000	Flange, Inlet, NPT, 2" F, S6 Inox	1
	11	F99529000	Screw, TCEI, M20 x 70	4
	12	F36722501	Compressor	1
	13	F36272856	Flange, BSP, 1-1/2"	1
	14	F36722101	Valve	1
	15	F99535000	Screw, TCEI, M24 x 200	4
	16	F36722001	Valve	1
	17	F36273156	Flange, BSP, 1-1/2"	1
	18	F99537000	Screw, TCEI, M24 x 300	4
	19	F99534000	Screw, TCEI, M24 x 160	4
	20	F98218100	Plug, BSP, 1/2 x 13	3
	21	F93197100	Washer, Ø 1/2"	3



8.1 Inlet and Outlet Layout Diagram

SR75 & TR70 & TR75			
Pos	P/N	Description	QTY
5	F90412200	O-ring, Ø 69.44 x 3.53	1
6	F36021966	Flange, Inlet, Closed	1
7	F99531000	Screw, TCEI, M24 x 60	4
8	F36021266	Flange, 2-1/2"	1
9	F90412200	O-ring, Ø 69.44 x 3.53	1
10	F96478500	Flange, Inlet, Gas, 2-1/2" F, S6 Zinc	1
	F96479000	Flange, Inlet, Gas, 2-1/2" F, S6 Inox	1
	F96479500	Flange, Inlet, NPT, 2-1/2" F, S6 Zinc	1
	F96480000	Flange, Inlet, NPT, 2-1/2" F, S6 Inox	1
11	F99532000	Screw, TCEI, M24 x 80	4
12	F36722501	Compressor	1
13	F36272856	Flange, BSP, 1-1/2"	1
14	F36722101	Valve	1
15	F99535000	Screw, TCEI, M24 x 200	4
16	F36722001	Valve	1
17	F36273156	Flange, BSP, 1-1/2"	1
18	F99537000	Screw, TECl, M24 x 300	4
19	F99534000	Screw, TCEI, M24 x 160	4
20	F98218100	Plug, BSP, 1/2 x 13	3
21	F93197100	Washer, Ø 1/2"	3

OUTLET

TORQUE SPECS		
POS.	FT. LBS	NM
3	152	206
7	526.6	714
11 (M16)	152	206
11 (M20)	306	415
11 (M24)	526.6	714
12	295	400
15	526.6	714
18	526.6	714
19	526.6	714
20	55.3	75

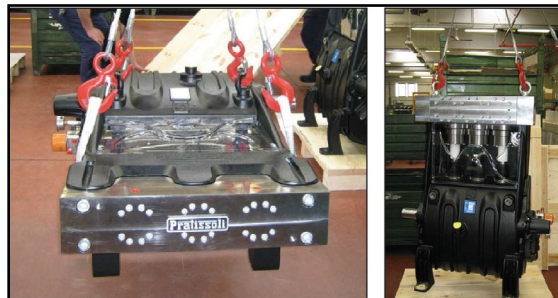
9. PUMP INSTALLATION

9.1 Installation

The fixing hole on the feet are approx. 1" (25 mm) in diameter. The base must be perfectly flat and rigid enough as not to allow bending or misalignment on the pump coupling axis/transmission due to torque transmitted during operation. There are 4 M24 holes on the pump to accept lifting eyebolts to facilitate installation of the unit, as shown in the figures below.



The eyebolts are sized for lifting the pump only and must never be used to handle additional loads.



Grounding: The pump must be connected to a ground conductor using the stainless steel M8 screw and stainless steel serrated washer marked with a YELLOW label. See "ATEX EXPLOSION PROTECTION" manual.



Remove the oil filler plug located on the cover and replace it with the oil level dipstick. The dipstick must always be accessible.



The pump's shaft (PTO) must not be rigidly connected to the motor unit.

The following transmission types are suggested:

- Flexible coupling
- Universal joint (comply with the maximum working angles recommended by the manufacturer).



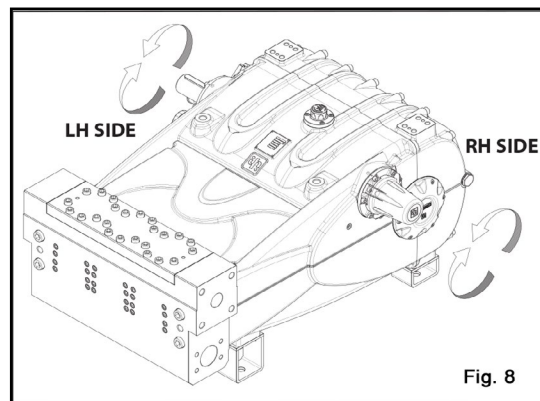
The belt drive on the pinion is not allowed. For belt transmission see chapter 17.1 "Direct PTO version on crankshaft".



The transmission must be assembled correctly to avoid incorrect operation of the connection parts and to prevent excessive wear, temperature rise and/or hazardous breakages that may create potential sources of ignition and explosion. See "ATEX EXPLOSION PROTECTION" manual.

9.2 Direction of rotation

The rotation direction can be clockwise or counter-clockwise either on the left or right side (see fig. 8).



Drive can be connected to the pump on either side; on the **LEFT SIDE** pay attention to the protrusion of the lube pump. The end cover must be fitted over the unused PTO.

9.3 Hydraulic Connections

In order to isolate the circuit from the vibrations produced by the pump the first section of the hose adjoining the pump (both inlet and outlet) must be flexible. The inlet hose must be sufficiently rigid to prevent deformation due to pressure exerted by the action of the pump.

9.4 Pump Supply

SR-TR pumps must always be installed with a pressure supply delivered by a booster pump. The booster pump must have at least twice the flow rate of the rated flow rate of the plunger pump and pressure of between 29 and 50 PSI (2 and 3.5 bar). These supply conditions must be observed at all operating speeds.



The booster pump must always be started before the plunger pump. It is advisable to install a pressure switch on the supply line downstream of the filters protecting the pump.

9.5 Suction Line

For the pump’s correct operation, the suction line must have the following characteristics:

1. Minimum internal diameter as indicated in the diagram in paragraph 9.8 and in any case equal or greater than the pump head’s value.



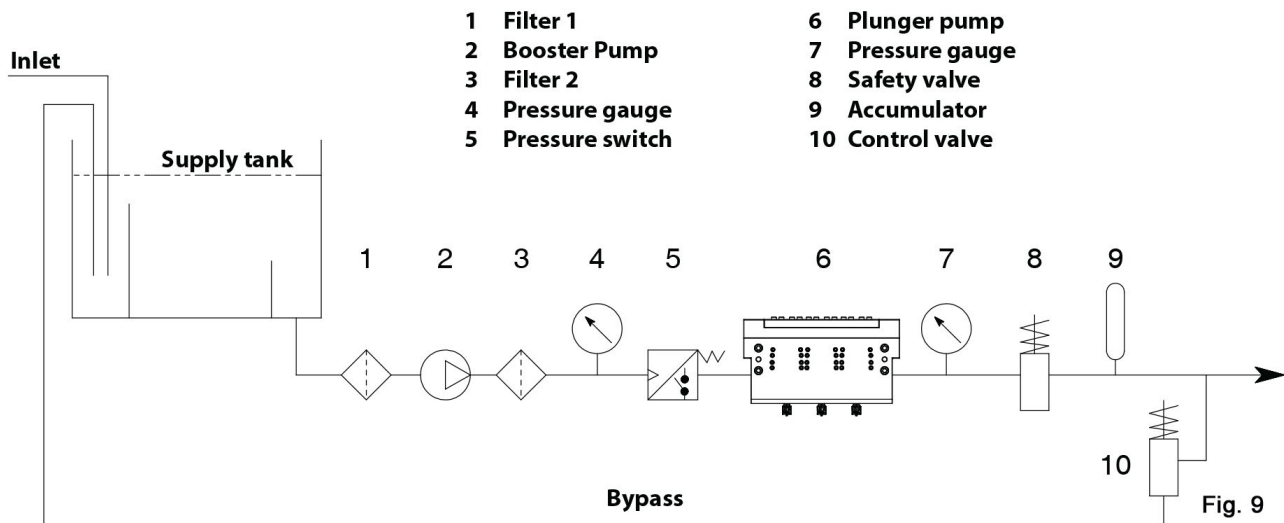
Along the duct, avoid localized diameter reductions that may cause pressure drops with subsequent cavitation. **Absolutely avoid 90° elbows**, connections with other hoses, bottlenecks, counter-slopes, upside down “U” shaped curves, “T” connections.

2. With a layout that is set in such a way to prevent cavitation.
3. It should be perfectly airtight, and built in a way that guarantees perfect sealing over time.
4. Avoid pump emptying when stopping (even partial emptying).
5. Do not use hydraulic fittings, 3 or 4 way fittings, adapters, etc., since they may hinder the pump’s performance.
6. Do not install Venturi tubes or injectors for detergent intake.
7. Avoid the use of standing valves, check valves, or any other type of one-way valves.
8. Do not connect the by-pass line from the valve directly to the pump suction line.
9. Provide appropriate baffle plates inside the tank in order to avoid water flows coming from both the by-pass and feeding which lines may create turbulence near the tank’s outlet port.
10. Make sure that the suction line is perfectly clean inside before connecting it to the pump.
11. Install the pressure gauge for checking the booster pressure near the plunger pump suction port and always downstream from the filters.

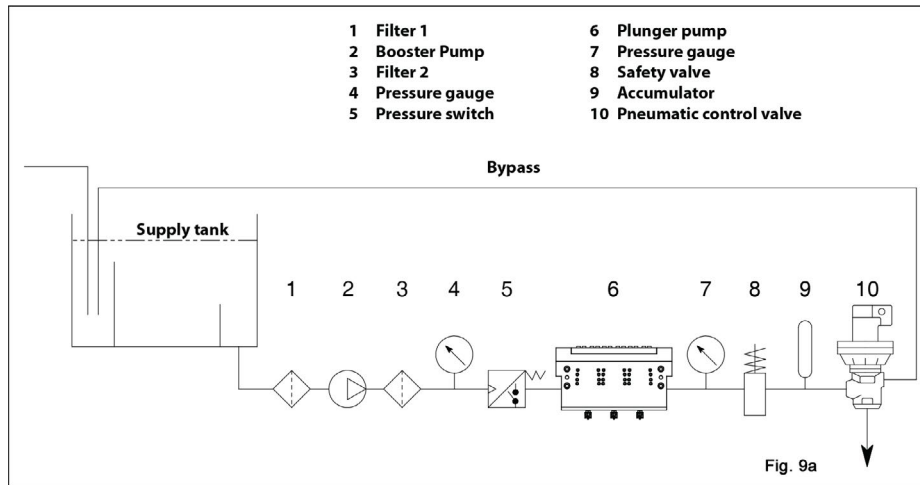
9.6 Filtering

On the suction line, install two filters as indicated in fig. 9 and fig. 9a.

With the manual adjustment valve:



With pneumatic control valve



The filter must be installed as close as possible to the pump, should allow easy inspection and have the following characteristics:

1. Minimum capacity 3 times greater than the pump's rated flow value.
2. Filter port diameters must not be smaller than the pump inlet ports.
3. Filtration degree ranging between 200 and 360 µm.



In order to guarantee correct pump operation, it is important to plan periodical cleaning of the filter depending on actual pump usage, water quality and actual clogging conditions.

9.7 Outlet Line

To obtain a correct delivery line, please comply with the following installation instructions:

1. The internal diameter of the hose must allow to guarantee correct fluid speed; see diagram in paragraph 9.8.
2. The first section of the hose connected to the pump must be flexible in order to isolate pump vibrations from the rest of the system.
3. Use high pressure hoses and fittings that guarantee wide safety margins in any working condition.
4. Install a safety valve on the delivery line.
5. Use pressure switches suitable for the pulsating loads typical of plunger pumps.
6. In the design phase, take into proper account the pressure drop along the line, since this causes a reduction in usage pressure with respect to the value measured at the pump.
7. If the pump pulsations are harmful for particular applications, install an appropriately sized pulsation dampener on the outlet line.

9.8 Internal Hose Diameters

The following table show the internal diameter values for the suction and outlet hoses.

SR PUMPS		
MODEL	SUCTION	OUTLET
SR50	SAE 3" - 3,000 PSI	SAE 1-1/2" - 6,000 PSI
SR65	SAE 3" - 3,000 PSI	SAE 2" - 6,000 PSI
SR75	SAE 3" - 3,000 PSI	SAE 2-1/2" - 6,000 PSI

TR PUMPS		
MODEL	SUCTION	OUTLET
TR50	SAE 3" - 3,000 PSI	SAE 1-1/2" - 6,000 PSI
TR60	SAE 3" - 3,000 PSI	SAE 2" - 6,000 PSI
TR70	SAE 3" - 3,000 PSI	SAE 2-1/2" - 6,000 PSI
TR75	SAE 3" - 3,000 PSI	SAE 2-1/2" - 6,000 PSI

9.9 Water/Oil Heat Exchanger Connection



For optimal performance connect the exchanger in the reverse flow direction (see fig. 10).

Water flow rate:

- a) Maximum efficiency 6.6 GPM (25 LPM)
- b) Medium efficiency 5.3 GPM (20 LPM)
- c) Minimum efficiency 3.2 GPM (12 LPM)

If the pump operates in ambient temperatures below 41° F (5° C) the heat exchanger is not essential. Refer to Section 11 for maintenance information.

9.9.1 Regulating the water flow rate to the heat exchanger

The heat exchanger is designed to control the pump oil temperature and ensure it does not exceed 200° F (95° C). The heat exchanger requires an adjustable water flow rate of up to 6.6 GPM (25 l/min).

The flow rate must be adjusted in order to comply with the equation:

$$\Delta t (T1-T2) \leq 113^{\circ} - 122^{\circ} \text{ F } (45^{\circ} - 50^{\circ} \text{ C})$$

T1= Oil Temperature measured in the crankcase

T2= Ambient temperature

The water inlet temperature must not exceed 104° F (40° C).

The inlet water can be drawn from the plunger pump feeding line.

The heat exchanger circuit must be supplied at a max 101.5 PSI (7 bar).

When the pump operates at temperatures below 41° F (5° C) the use of the heat exchanger is not essential.



It is recommended to use water free from impurities that could obstruct the passage inside the exchanger and to perform preventive maintenance (Chap. 11.2). The outlet hose (OUT) must be left free with no restrictions or bottleneck so that water can circulate freely without generating outlet pressure.

9.10 Lube Pump Assembly

The maximum time from starting the pump to prime the lubricating oil and detect its pressure in the gauge installed on the oil pump body is 5 seconds at a minimum speed of 250 RPM.

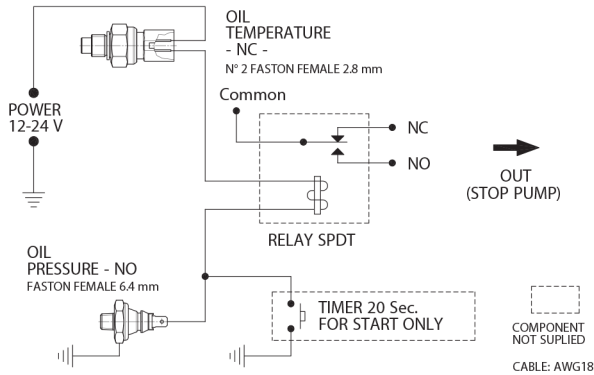


During the first priming, if no pressure is shown on the pressure gauge after this time, proceed as described in the "Repair Manual" in chap. 2.1.2.1 - oil pump assembling (steps 1 and 2).

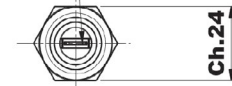
COMPONENTS:

- 1) Oil filter cartridge - to be hand-tightened. Refer to chapter 11 for maintenance information.
- 2) 0 - 232 PSI (16 bar) pressure gauge for periodic lube oil pressure checks
- 3) Pressure switch: NORMALLY OPEN (normally closed on request); 12V. For stationary units it is good practice to connect the pressure switch via a protection system.
- 4) Oil thermostat: NORMALLY CLOSED; 12V.
- 5) Safety devices wiring diagram.

SAFETY WIRING DIAGRAM (OIL PRESSURE AND TEMPERATURE)
 SERIES PUMPS 65 SR-TR STANDARD TYPE
 (FOR ATEX TYPE, SEE NOTE)



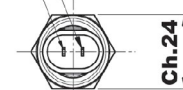
Terminal 6.5x0.8



PRESSURE SWITCH CONNECTION

TRIP PRESSURE: 4.4 PSI

N.2 terminals 2.8x0.8



TEMPERATURE INDICATOR SWITCH CONNECTIONS

TRIP TEMPERATURE: 221° F

10. START-UP AND OPERATION

10.1 Preliminary Inspections

Before Start-up Be sure that:



The suction line is connected and up to pressure (see Chapter 9) the pump must never run dry.

1. The suction line must be perfectly airtight.
2. All the On-Off valves between the pump and the feeding source are completely open. The delivery line must discharge freely in order to allow the air in the pump to be expelled easily, thus facilitating pump priming.
3. All suction/delivery connections and fittings must be correctly tightened.
4. Coupling tolerances on the pump/transmission axis (half-joint misalignment, angle of universal joint, etc.) must remain within the limits indicated by the transmission Manufacturer.
5. The pump's oil level must be verified using the correct dipsticks (position 1, fig 11 and 11a) on the top of the crankcase.

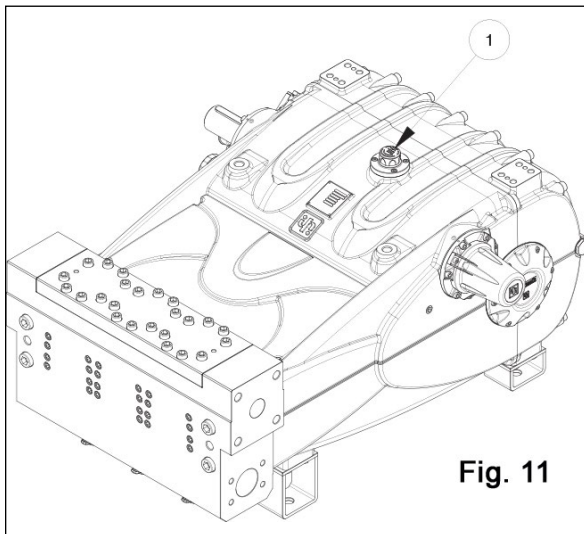


Fig. 11

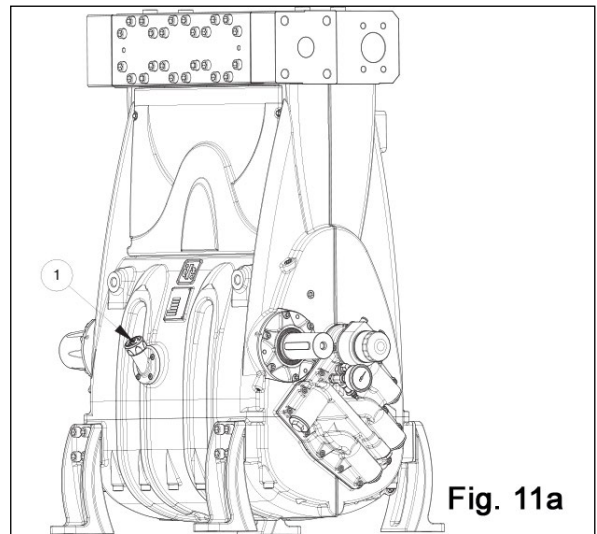


Fig. 11a



In case the pump has not run for a long period of time, check proper functioning of the suction valves by opening the three valve-lifters. (See 2, fig. 12). Make sure you have closed the valves before starting the pump. For the “work” and “rest” positions see fig. 12a.

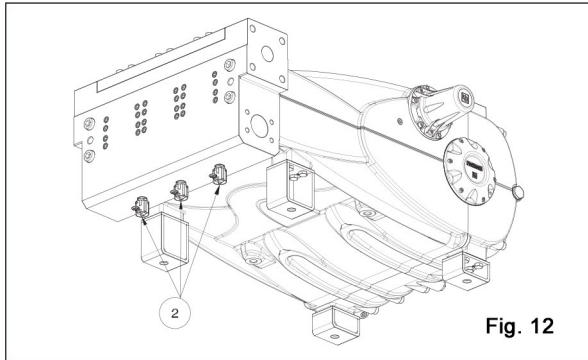


Fig. 12

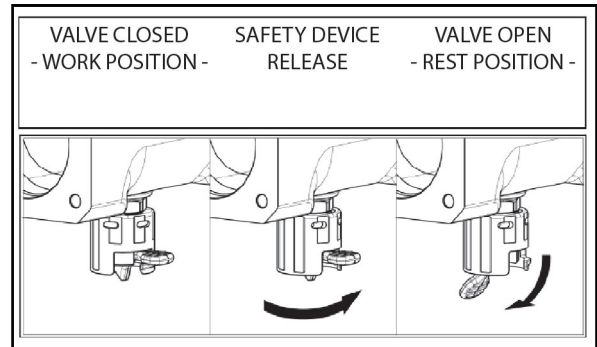


Fig. 12/a

10.2 Start-up

1. The pump must be started off-load.
2. Verify correct feeding pressure.
3. During operation, check that the rotating speed does not exceed the rated value.
4. Before putting the pump under pressure let it run for at least 3 minutes.
5. Before stopping the pump, release the pressure using the control valve or any pressure relieving device and reduce to a minimum RPM.

11. PREVENTIVE MAINTENANCE

To guarantee pump reliability and efficiency, comply with the maintenance intervals as indicated in the table below.

PREVENTIVE MAINTENANCE		
EVERY 1000 HOURS	EVERY 1500 HOURS	EVERY 3000 HOURS
Check oil level		
	Check / Replace:* <ul style="list-style-type: none"> • Valves • Valve seats • Valve springs • Valve guides 	Oil and oil filter change Bellows Replacement (vertical versions)
	Check / Replace: <ul style="list-style-type: none"> • H.P packings • L.P. packings 	

* For replacement follow instructions contained in the repair manual.

11.1 Bellows (SR-TR vertical versions)

Check that the bellows fastening clamps are properly tightened after the first 1,000 hours of operation. **Replace the bellows every 3,000 hours of operation, for pumps with ATEX replace bellows every 2000 hours of operation.** To replace, follow the instructions given in the **repair manual**.

11.2 Water/oil heat exchanger

The heat exchanger cleaning intervals must be established on the basis of the water hardness of the application. It is good practice to clean the exchanger every **2,000 hours if water hardness is ≤ 30° f; every 1,000 hours for hardness > 30° f and ≤ 40° f. Above 40° f water hardness the exchanger should be cleaned every 500 hours.** Flush the exchanger using commercial antiscaling products; it is not necessary to dismantle the unit. NOTE: the heat exchanger is constructed of **Stainless Steel**.



Mechanical parts lubrication circuit protection:

Set up the system so that the pressure switch on the forced lubrication pump causes the SR-TR pump to stop if oil pressure fails.



PREVENTIVE MAINTENANCE	
SUBJECT	INTERVAL
Check Lubrication Pressure Gauge Calibration	Every 1000 Hours
Visually Inspect the manifold for possible water leaks	Every 500 Hours

12. PUMP STORAGE

12.1 Long-term Inactivity

If the pump is started for the first time after a long period from the date of shipment, before operation, check the oil level, inspect the valves as specified in Chapter 10, then follow described star-up procedures.

12.1 Filling the Pump With An Anti-Corrosion Emulsion or Anti-freeze By Using An External Diaphragm Pump As In The Layout Shown in Paragraph 9.7.

- In place of the service tank, use a suitable container containing the solution to be pumped.
- Close the filter drainage, if open.
- Make sure that the hoses to be used are clean inside and spread grease on their connections.
- Connect the high pressure exhaust hose to the pump
- Connect the suction hose to the diaphragm pump
- Connect the suction hose between the pump head and the diaphragm pump.
- Fill the service container with solution.
- Insert the free ends of the suction hose and the high pressure exhaust hose inside the container.
- Switch on the diaphragm pump.
- Pump the solution until it exits from the high pressure hose.
- Continue pumping for at least another minute.
- Stop the pump and remove the previously connected hoses.
- Clean, grease and plug the connections on the pump head.

12.2 Hoses

- a) Before greasing and protecting hoses according to previously described procedure, dry connections with compressed air.
- b) Cover with polyethylene
- c) Do not wrap too tightly; ensure that there are no folds.

13. PRECAUTIONS AGAINST FREEZING



In areas and periods of the year where there is risk of freezing, follow the instructions indicated in Chapter 12.



In the presence of ice, in no case must the pump be started until the entire circuit has been completely thawed out; not complying with this indication may cause serious damage to the pump.

14. WARRANTY TERMS

The pump is guaranteed for a period of 5 years from the delivery date, with the exception of parts subject to wear. In any case, please refer to the contract terms for other warranty conditions. The warranty is void if:

- a) The pump has been used for purposes that differ from that agreed.
- b) The pump has been fit with an electric or diesel engine with performance greater than that indicated in the table.
- c) The required safety devices were un-adjusted or disconnected.
- d) The pump was used with accessories or spare parts not supplied by General Pump.
- e) Damage was caused by:
 - 1) improper use
 - 2) the non-observance of maintenance instructions
 - 3) use not compliant with operating instructions
 - 4) insufficient flow rate
 - 5) faulty installation
 - 6) incorrect positioning or sizing of the hoses
 - 7) non-authorized design changes
 - 8) cavitation

15. TROUBLESHOOTING



The pump does not produce any noise at start-up:

- The pump is not primed and is running dry
- There is no water in the inlet line
- The valves are blocked
- The delivery line is closed and does not allow the air in the pump to be discharged



The pump pulses irregularly (knocking):

- Air suction
- Insufficient feeding
- Bends, elbows, fittings along the suction line obstruct the fluid's passage
- The inlet filter is dirty or too small
- The booster pump, where provided, supplies insufficient pressure or flow rate
- The pump is not primed due to insufficient head or the delivery line is closed during priming
- The pump is not primed due to valve seizing
- Worn valves
- Worn pressure packings
- Incorrect operation of the pressure adjustment valve
- Transmission problems



The pump does not deliver the rated flow / is noisy:

- Insufficient feeding (see the causes listed above)
- RPM are less than the rated flow
- Excessive amount of water by-passed by the pressure adjustment valve



- Worn valves
- Leakage from the pressure packings
- Cavitation due to:
 - 1) Wrong sizing of the suction hose/
undersized diameters
 - 2) Insufficient flow rate
 - 3) High water temperature



Insufficient pump pressure:

- The nozzle (or has become) too large
- Insufficient RPM
- Leakage from the pressure packings
- Incorrect operation of the pressure adjustment valve
- Worn valves

15. TROUBLESHOOTING (cont.)



Overheated pump:

- The pump is overloaded (pressure or RPM exceed the rated values)
- Oil level is too low, or the oil is not of a suitable type, indicated in Chapter 7 (see paragraph 7.4)
- Incorrect alignment of the joint or pulleys
- Excessive inclination of the pump during operation



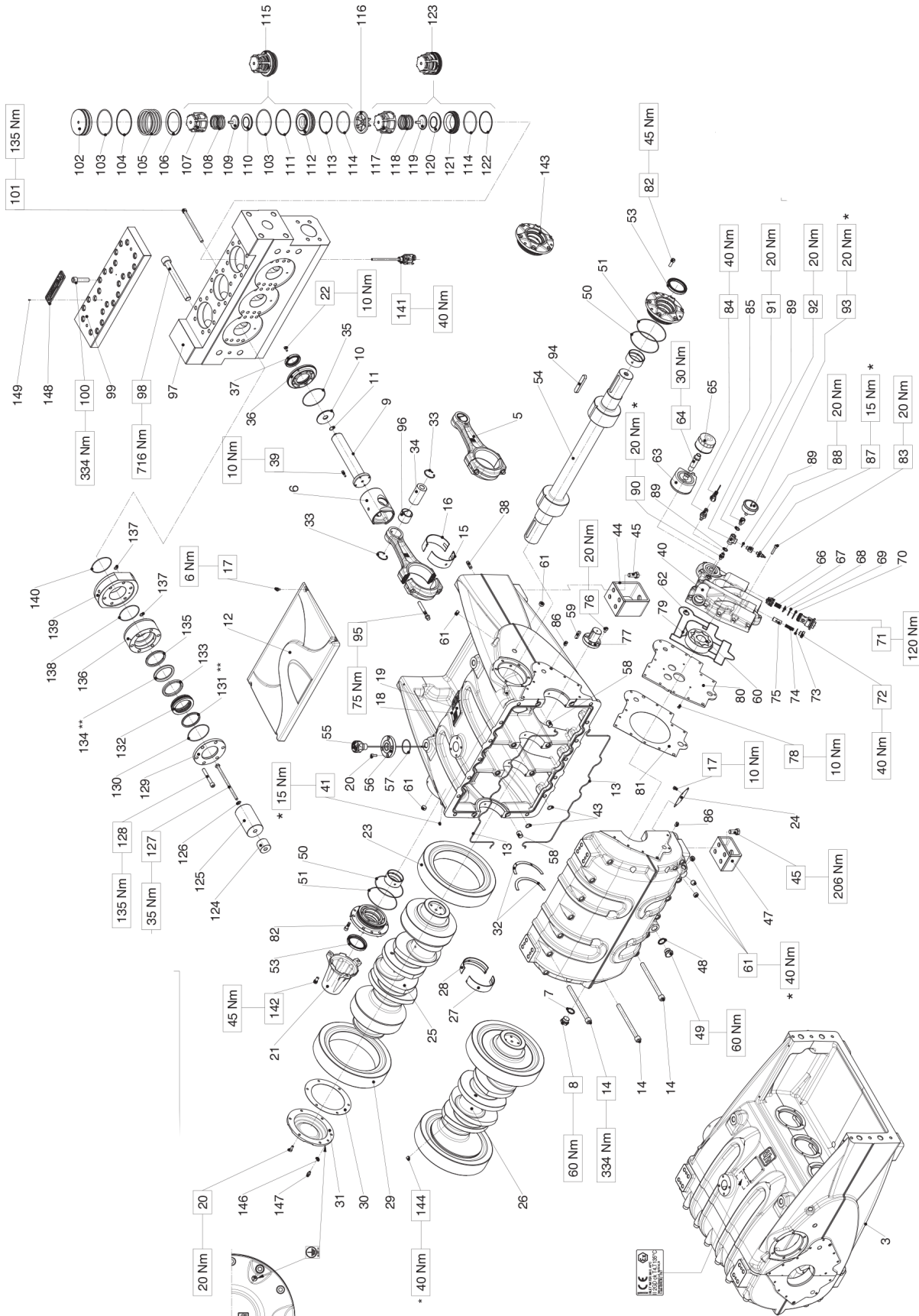
Pump vibrations or knocking:

- Air suction
- Incorrect operation of the pressure adjustment valve
- Valve malfunction
- Irregular drive transmission motion

FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
No noise from pump at start-up	No water at inlet. Valves jammed. Outline is closed and thus prevents the release of air trapped in the pump manifold.	Check booster pump operation and flow rate. Check operation of the valves. Check for possible problems on the outlet line.
Insufficient pressure	Leaks from pressure control valve or incorrect pressure setting. Defective set of valve seats. Suction or discharge valves damaged. Leaks from manifold.	Identify leaks and repair.
		Repair leaks or restore pressure setting
		Fit new seals
		Renew suction and discharge valves. Check condition of valve springs.
Excess pump running noise	Worn valves. Undersized suction hoses and/or filters. Insufficient flow rate, high water temperature, clogged filter.	Check installation and components on suction line; measure water temperature.
Irregular hammering of hoses.	Air suction and/or insufficient water supply. Bends, elbows, and fittings on the suction line are choking the passage of liquid. Supply filter is clogged or undersized. Booster pump supplies insufficient pressure and/or flow rate.	Check installation and components on suction line. Check booster pump operation and flow rate. Clean or replace supply filter.
Water leak from gaskets supports	Low pressure gasket defective/worn.	Replace low pressure gasket.
Pump overheats	Pump pressure and/or speed are higher than rated pressure/speed. Low oil level in pump crankcase or oil not recommended type. Coupling or driveline not aligned.	Restore correct pressure and/or speed. Top up oil level; change oil if necessary. Check transmission.
Oil leaks from pump crankcase	Piston guide rod oil seal defective/worn. Various crankcase gaskets defective/worn. For vertical versions check condition of bellows.	Replace oil seal, bellows and gaskets.
Emulsified oil ejected from breather. Oil dipstick shows signs of emulsion.	Lube oil contaminated with pumped liquid.	Check correct operation of piston guide oil seals (or of bellows) and change lube oil

16. EXPLODED VIEW AND PARTS LIST SR-TR PUMPS

16.1 Exploded View & Parts List of SR Horizontal Pumps



16.1 Exploded View & Parts List of SR Horizontal Pumps

Item	Part #	Description	QTY.
3	F65010801	Crankcase	1
5	F65030601	Connecting Rod	3
6	F79050043	Piston Guide	3
	F79050243	Piston Guide, ± 1.0	
7	F93198000	Washer, Seal, Ø 3/4"	1
8	F98226500	Plug, G 3/4" x16	1
9	F65050566	Piston Guide Stem	3
10	F65210566	Splashguard	3
11	F90359600	O-ring, Ø 77x1.78	3
12	F65150853	Upper Crankcase Cover	1
13	F65214082	Seal, Ø 3.53x530	2
14	F99522400	Screw, M16x200	22
15	F90932300	Upper Babbitt	3
	F90932400	Upper babbitt, +0.25	
	F90932500	Upper babbitt, +0.50	
	F90932000	Lower Babbitt	3
16	F90932100	Lower Babbitt, +0.25	
	F90932200	Lower Babbitt, +0.50	
17	F99182000	Screw, M6x12	8
18	F91570000	Rivet, Ø 2.5x5	4
19	F97826800	Pump Plate	1
20	F99305900	Screw, M8x20	10
21	F65150920	Crankshaft End Cover	1
22	F99185300	Screw, M6x16	6
23	F10081555	Gear, SX Z81 R 2.90, Helical	1
	F10081755	Gear, SX Z83 R 3.46, Helical	
	F10081955	Gear, SX Z89 R 4.23, Helical	
24	F65210874	Oil Filter	1
25	F65020555	Crankshaft Elbow	1
26	F65020701	Bearing, C: 90, R: 2.90	1
	F65020801	Bearing, C: 90, R:3.46	
	F65020901	Bearing, C: 90, R:4.23	
27	F90935000	Upper Bushing	4
	F90935100	Upper Bushing, +0.254	
	F90935200	Upper Bushing, +0.5.8	
28	F90934700	Lower Bushing	4
	F90934800	Lower Bushing, +0.254	
	F90394900	Lower Bushing, +0.508	
29	F10081455	Gear, DX Z81 R 2.90, Helical	1
	F10081655	Gear, DX Z83 R. 3.43, Helical	
	F10081855	Gear, DX Z89 R. 4.23, Helical	
30	F65210984	Front Cover Seal	1
31	F65150620	Crankshaft Cover	1
32	F90935300	Half ring	2
33	F90075500	Ring, Seeger, Ø 45	6
34	F97747000	Pin, Ø 45x86	3
35	F90392000	O-ring, Pin, Ø 101.27x2.62	3
36	F79210022	Piston Guide Seal Cover	3
37	F90171500	Ring, Rad, Ø 50x70x10/11.5	3
38	F97630000	Pin, Ø 12x40	2
39	F99189700	Screw, M6x24	12
40	F79212420	Pump Oil Body	1
41	F98193000	Plug, Conical, M8x1	2
43	F90384500	O-ring, Ø 18.72x2.62	4
44	F65200602	Front Pump Feet	2
45	F99513300	Screw, M16x35	16
47	F65200502	Rear Pump Feet	2
48	F93198000	Washer, 3/4"	1
49	F98226500	Plug, 3/4"x16	1
50	F90392650	O-ring, Ø 126.67x2.62	2
51	F90380500	O-ring, Ø 132.00x2.50	2
53	F90190000	Ring, Rad. Ø 70x90x10	2
54	F10081155	Pinion, Z28 R. 2.90, Helicol	1
	F10081255	Pinion, Z24 R. 3.46, Helicol	
	F10081355	Pinion, Z21 R. 4.23, Helicol	
55	F98234050	Oil Dipstick, 1"x343	1
56	F65211254	Oil Dipstick Support	1
57	F90389800	O-ring, Ø 56.82x2.62	1
58	F79211689	Bushing	4
59	F91499500	Key, 12x8x40	1
60	F79211907	Oil Pump Rotor	1
61	F98215500	Plug, Conical, M20x1.5	6
62	F90385200	O-ring, Ø 22.22x2.62	6
63	F65213700	Exchanger, Water-Oil	1

Item	Part #	Description	QTY.
64	F65213864	Fitting, Oil Filter Exchanger	1
65	F92899000	Oil Filter, M20	1
66	F36200951	Inlet Valve Guide	4
67	F94744000	Spring, 15.4x26.5	4
68	F36201076	Valve, Spherical	4
69	F90386500	O-ring, Ø 29.82x2.62	4
70	F90387300	O-ring, Ø 36.14x2.62	4
71	F79213964	Valve Cage	4
72	F98213780	Plug, M18x11	1
73	F96741000	Washer, Ø 18.2x24x1.5	1
74	F94739000	Spring, 10.8x37.9	1
75	F79213664	Piston Valve, H.P.	1
76	F99303900	Screw, M8x16	4
77	F79212654	Control, Oil Pump	1
78	F99185100	Screw, M6x16	3
79	F79212747	Oil Seal, Oil Pump	1
80	F79212874	Plate, Oil Pump	1
81	F79212984	Seal, Oil Pump Plate	1
82	F99368600	Screw, M10x30	12
83	F99311600	Screw, M8x40	15
84	F93510500	High Temperature Light	1
85	F93551500	Connector, High Temperature Light	1
86	F79213589	Bushing, Oil Pump	2
87	F93555500	Pressure Switch, 12V	1
88	F94513100	Connector, M-F, 1/4"-M10x1	1
89	F96723000	Washer, Ø 13.5x19x1.5	3
90	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
91	F96310000	Connector, T, F-F-F, G1/4"	1
92	F95256600	Nipple, M-F, G1/4"	1
93	F94607000	Pressure Gauge	1
94	F91505000	Key, 18x11x100	1
95	F99441000	Screw, Connecting Rod	6
96	F90918500	Bushing, Connecting Rod	3
97	F65120556	Manifold	1
98	F99535500	Screw, M24x2x220	4
99	F65212056	Valve Cover, LP	1
100	F99514900	Screw, M16x65	24
101	F99449500	Screw, M12x180	24
102	F65212156	Plug, Valve	3
103	F90414600	O-ring, Ø 104.4x3.53	6
104	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
105	F94805000	Spring, 103x87.5	3
106	F65213956	Ring, Delivery Valve Seat	3
107	F36213105	Guide, Delivery Valve	3
108	F94774500	Spring, 56x57.3	3
109	F36212951	Internal Valve Guide	3
110	F36212601	Valve, Spherical, Complete	3
111	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
112	F36212156	Valve Seat, Delivery	3
113	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
114	F90414400	O-ring, Ø 88.5x3.53	6
115	F36722701	Complete Delivery Valve	3
116	F65212251	Valve Guide Spacer	3
117	F36213005	Inlet Valve Guide	3
118	F94775500	Spring, 58.5x103.1	3
119	F36212851	Internal Valve Guide	3
120	F36212701	Spherical Valve, Complete	3
121	F36212056	Inlet Valve Seat	3
122	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
123	F36722601	Inlet Valve, Complete	3
124	F65211966	Piston Spacer	3
	F74040209	Plunger, Ø 50x127	3
	F74040309	Plunger, Ø 55x127	
	F74040409	Plunger, Ø 60x127	
	F74040509	Plunger, Ø 65x127	
	F65043209	Plunger, Ø 70x127	
	F65040909	Plunger, Ø 75x127	
126	F96710500	Washer, Ø 10x18x0.9	3
127	F99386500	Screw, M10x200	24
128	F99441800	Screw, M12x90	18
	F65212856	Support Ring Seal, Ø 50	3
	F65218356	Support Ring Seal, Ø 55	
	F65213056	Support Ring Seal, Ø 60	
	F65213256	Support Ring Seal, Ø 65	
	F65213456	Support Ring Seal, Ø 70	
	F65213656	Support Ring Seal, Ø 75	

16.1 Exploded View & Parts List of SR Horizontal Pumps

Item	Part #	Description	QTY.
130	F90391350	O-ring, Ø 71.12x2.62v Ø 50, 55	3
	F90391600	O-ring, Ø 82.22x2.62, Ø 60, 65	
	F90391700	O-ring, Ø 88.57x2.62, Ø 70	
	F90391800	O-ring, Ø 94.82x2.62, Ø 75	
131	F90286000	Packing, Ø 50x58x5.5, LP	3
	F90287000	Packing, Ø 55x63x5.5, LP	
	F90288000	Packing, Ø 60x68x5.5, LP	
	F90289000	Packing, Ø 65x73x5.5, LP	
	F90290000	Packing, Ø 70x80x5.5, LP	
132	F90291000	Packing, Ø 75x85x5.5, LP	3
	F65212770	Support Seal, Ø 50	
	F65218170	Support Seal, Ø 55	
	F65212970	Support Seal, Ø 60	
	F65213170	Support Seal, Ø 65	
133	F65213370	Support Seal, Ø 70	3
	F65213570	Support Seal, Ø 75	
	F90286500	Restop Ring, Ø 50x58x8/4.5	
	F90287500	Restop Ring, Ø 55x70x8/4.5	
	F90288500	Restop Ring, Ø 60x76x8/4.5	
134	F90289500	Restop Ring, Ø 65x80x8/4.5	3
	F90290200	Restop Ring, Ø 70x85x8/4.5	
	F90291200	Restop Ring, Ø 75x95x9.5/4.5	
	F90286300	Packing, Ø 50x65x7.5/4.5 HP	
	F90287300	Packing, Ø 55x70x7.5/4.5 HP	
135	F90288300	Packing, Ø 60x76x8.0/4.8 HP	3
	F90289300	Packing, Ø 65x80x7.5/4.5 HP	
	F90290400	Packing, Ø 70x85x7.5/4.5 HP	
	F90291400	Packing, Ø 75x95x10.0/6.0 HP	

Item	Part #	Description	QTY.
135	F74100292	Head Ring, Ø 50	3
	F74100392	Head Ring, Ø 55	
	F74100492	Head Ring, Ø 60	
	F74100592	Head Ring, Ø 65	
	F65100592	Head Ring, Ø 70	
136	F65100692	Head Ring, Ø 75	3
	F65060556	Piston Sleeve, Ø 50	
	F65061656	Piston Sleeve, Ø 55	
	F65060656	Piston Sleeve, Ø 60	
	F65060756	Piston Sleeve, Ø 65	
137	F65060856	Piston Sleeve, Ø 70	3
	F65060956	Piston Sleeve, Ø 75	
137	F90383000	O-ring, Ø 12.1x2.62	3
138	F90391350	O-ring, Ø 71.12x2.62, 50-55-60	3
	F90391700	O-ring, Ø 88.57x2.65, Ø 65, 70, 75	
139	F65212356	Piston Support, Ø 50, 55	3
	F65218236	Piston Support, Ø 60	
	F65212456	Piston Support, Ø 65, 70, 75	
140	F90391700	O-ring, Ø 88.57x2.65	3
141	F10744901	Valve Device Opening	1
142	F99365200	Screw, M10x20	3
143	F65700501	PTO Cover + Pinion Bushing	2
144	F99425000	Screw, M12x12	2
146	F96701750	Washer, Ø 8.4x15x0.8	1
147	F99301900	Screw, M8x10	1
148	F97827600	Pump Tag	1
149	F91570300	Rivet	2
150	F93108000	Eye bolt	2

REPAIR KITS

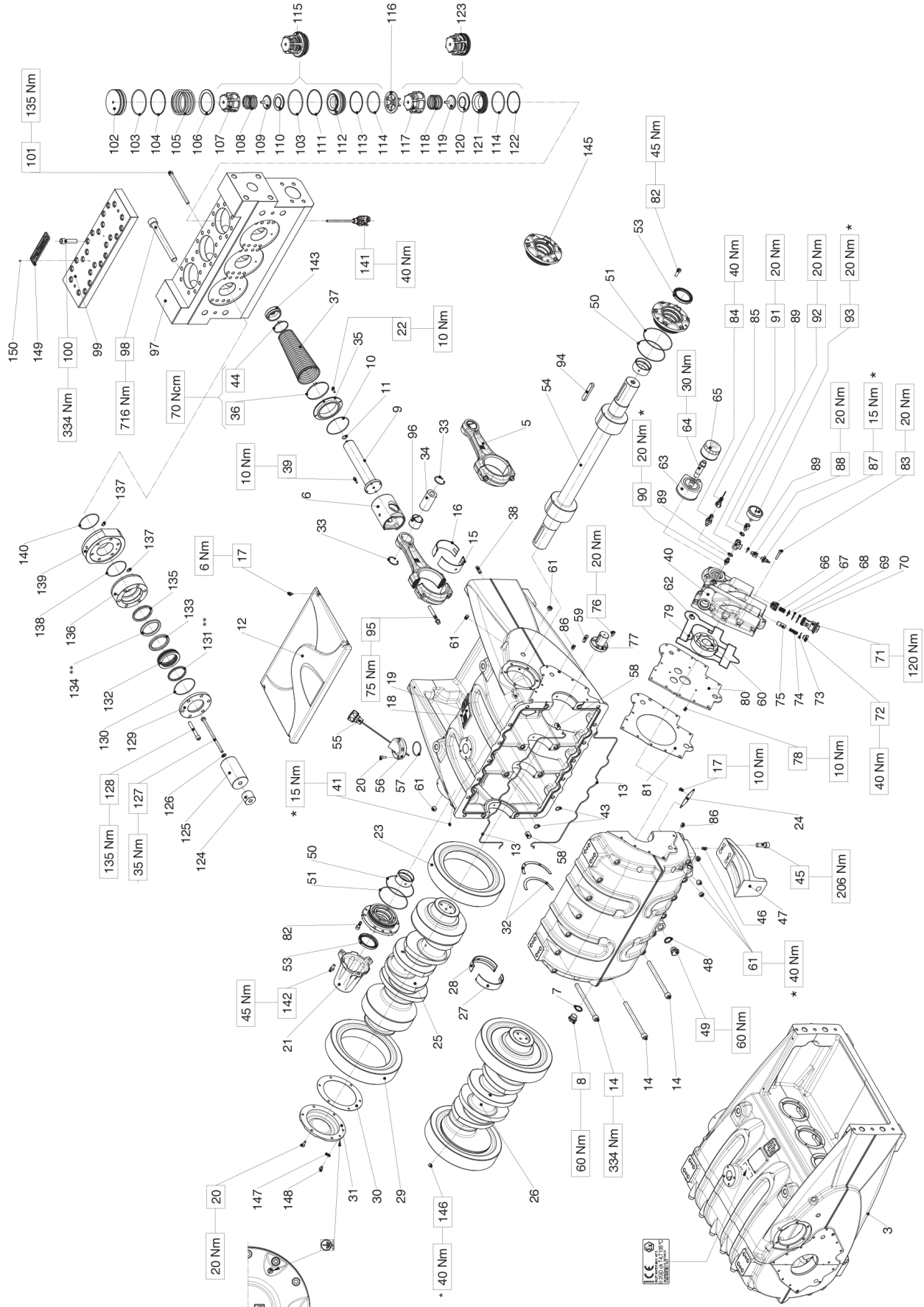
KIT NUMBER	F2261 Plunger Packing Kit SR50	F2322 Plunger Packing Kit SR55	F2268 Plunger Packing Kit SR60	F2262 Plunger Packing Kit SR65	F2270 Plunger Packing Kit SR70	F2263 Plunger Packing Kit SR75
Positions Included	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140

KIT NUMBER	F2264 Valve Kit
Positions Included	103, 104, 115, 116, 123

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

16.2 Exploded View & Parts List of SR Vertical Pumps



16.2 Exploded View & Parts List of SR Vertical Pumps

Item	Part #	Description	QTY.
3	F65010801	Crankcase	1
5	F65030601	Connecting Rod	3
6	F79050043	Piston Guide	3
	F79050243	Piston Guide, ± 1.0	
7	F93198000	Washer, Seal, Ø 3/4"	1
8	F98226500	Plug, G 3/4" x16	1
9	F65050566	Piston Guide Stem	3
10	F90392000	O-ring, Ø101.27x2.62	3
11	F90359600	O-ring, Ø 77x1.78	3
12	F65150853	Upper Crankcase Cover	1
13	F65214082	Seal, Ø 3.53x530	2
14	F99522400	Screw, M16x200	22
15	F90932300	Upper Babbitt	3
	F90932400	Upper babbitt, +0.25	
	F90932500	Upper babbitt, +0.50	
	F90932000	Lower Babbitt	3
16	F90932100	Lower Babbitt, +0.25	
	F90932200	Lower Babbitt, +0.50	
17	F99182000	Screw, M6x12	8
18	F91570000	Rivet, Ø 2.5x5	4
19	F97826800	Pump Plate	1
20	F99305900	Screw, M8x20	10
21	F65150920	Crankshaft End Cover	1
22	F99185300	Screw, M6x16	6
23	F10081555	Gear, SX Z81 R 2.90, Helical	1
	F10081755	Gear, SX Z83 R 3.46, Helical	
	F10081955	Gear, SX Z89 R 4.23, Helical	
24	F65210874	Oil Filter	1
25	F65020555	Crankshaft Elbow	1
26	F65020701	Bearing, C: 90, R: 2.90	1
	F65020801	Bearing, C: 90, R:3.46	
	F65020901	Bearing, C: 90, R:4.23	
27	F90935000	Upper Bushing	4
	F90935100	Upper Bushing, +0.254	
	F90935200	Upper Bushing, +0.5.8	
28	F90934700	Lower Bushing	4
	F90934800	Lower Bushing, +0.254	
	F90394900	Lower Bushing, +0.508	
29	F10081455	Gear, DX Z81 R 2.90, Helical	1
	F10081655	Gear, DX Z83 R. 3.43, Helical	
	F10081855	Gear, DX Z89 R. 4.23, Helical	
30	F65210984	Front Cover Seal	1
31	F65150620	Crankshaft Cover	1
32	F90935300	Half ring	2
33	F90075500	Ring, Seeger, Ø 45	6
34	F97747000	Pin, Ø 45x86	3
35	F65210766	Flange for Bellows	3
36	F92811000	Clip, Ø 98-109	3
37	F65211047	Bellows	3
38	F97630000	Pin, Ø 12x40	2
39	F99189700	Screw, M6x24	12
40	F79212420	Pump Oil Body	1
41	F98193000	Plug, Conical, M8x1	2
43	F90384500	O-ring, Ø 18.72x2.62	4
44	F92810000	Clip, Ø 58-89	2
45	F99513300	Screw, M16x35	16
46	F97623000	Pin, Ø 10x24	8
47	F65200713	Vertical Feet	4
48	F93198000	Washer, 3/4"	1
49	F98226500	Plug, 3/4"x16	1
50	F90392650	O-ring, Ø 126.67x2.62	2
51	F90380500	O-ring, Ø 132.00x2.50	2
53	F90190000	Ring, Rad. Ø 70x90x10	2
54	F10081155	Pinion, Z28 R. 2.90, Helicol	1
	F10081255	Pinion, Z24 R. 3.46, Helicol	
	F10081355	Pinion, Z21 R. 4.23, Helicol	
55	F98233950	Oil Dipstick, 1"x275	1
56	F65211254	Oil Dipstick Support	1
57	F90389800	O-ring, Ø 56.82x2.62	1
58	F79211689	Bushing	4
59	F91499500	Key, 12x8x40	1
60	F79211907	Oil Pump Rotor	1
61	F98215500	Plug, Conical, M20x1.5	6
62	F98385200	O-ring, Ø 22.22x2.62	6
63	F65213700	Exchanger, Water-Oil	1

Item	Part #	Description	QTY.
64	F65213864	Fitting, Oil Filter Exchanger	1
65	F92899000	Oil Filter, M20	1
66	F36200951	Inlet Valve Guide	4
67	F94744000	Spring, 15.4x26.5	4
68	F36201076	Valve, Spherical	4
69	F90386500	O-ring, Ø 29.82x2.62	4
70	F90387300	O-ring, Ø 36.14x2.62	4
71	F79213964	Valve Cage	4
72	F98213780	Plug, M18x11	1
73	F96741000	Washer, Ø 18.2x24x1.5	1
74	F94739000	Spring, 10.8x37.9	1
75	F79213664	Piston Valve, H.P.	1
76	F99303900	Screw, M8x16	4
77	F79212654	Control, Oil Pump	1
78	F99185100	Screw, M6x16	3
79	F79212747	Oil Seal, Oil Pump	1
80	F79212874	Plate, Oil Pump	1
81	F79212984	Seal, Oil Pump Plate	1
82	F99368600	Screw, M10x30	12
83	F99311600	Screw, M8x40	15
84	F93510500	High Temperature Light	1
85	F93551500	Connector, High Temperature Light	1
86	F79213589	Bushing, Oil Pump	2
87	F93555500	Pressure Switch, 12V	1
88	F94513100	Connector, M-F, 1/4"-M10x1	1
89	F96723000	Washer, Ø 13.5x19x1.5	3
90	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
91	F96310000	Connector, T, F-F-F, G1/4"	1
92	F95256600	Nipple, M-F, G1/4"	1
93	F94607000	Pressure Gauge	1
94	F91505000	Key, 18x11x100	1
95	F99441000	Screw, Connecting Rod	6
96	F90918500	Bushing, Connecting Rod	3
97	F65120556	Manifold	1
98	F99535500	Screw, M24x2x220	4
99	F65212056	Valve Cover, LP	1
100	F99514900	Screw, M16x65	24
101	F99449500	Screw, M12x180	24
102	F65212156	Plug, Valve	3
103	F90414600	O-ring, Ø 104.4x3.53	6
104	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
105	F94805000	Spring, 103x87.5	3
106	F65213956	Ring, Delivery Valve Seat	3
107	F36213105	Guide, Delivery Valve	3
108	F94774500	Spring, 56x57.3	3
109	F36212951	Internal Valve Guide	3
110	F36212601	Valve, Spherical, Complete	3
111	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
112	F36212156	Valve Seat, Delivery	3
113	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
114	F90414400	O-ring, Ø 88.5x3.53	6
115	F36722701	Complete Delivery Valve	3
116	F65212251	Valve Guide Spacer	3
117	F36213005	Inlet Valve Guide	3
118	F94775500	Spring, 58.5x103.1	3
119	F36212851	Internal Valve Guide	3
120	F36212701	Spherical Valve, Complete	3
121	F36212056	Inlet Valve Seat	3
122	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
123	F36722601	Inlet Valve, Complete	3
124	F65211966	Piston Spacer	3
	F74040209	Plunger, Ø 50x127	3
	F74040309	Plunger, Ø 55x127	
	F74040409	Plunger, Ø 60x127	
	F74040509	Plunger, Ø 65x127	
	F65043209	Plunger, Ø 70x127	
	F65040909	Plunger, Ø 75x127	
126	F96710500	Washer, Ø 10x18x0.9	3
127	F99386500	Screw, M10x200	24
128	F99441800	Screw, M12x90	18
	F65212856	Support Ring Seal, Ø 50	3
	F65218356	Support Ring Seal, Ø 55	
	F65213056	Support Ring Seal, Ø 60	
	F65213256	Support Ring Seal, Ø 65	
	F65213456	Support Ring Seal, Ø 70	
	F65213656	Support Ring Seal, Ø 75	

16.2 Exploded View & Parts List of SR Vertical Pumps

Item	Part #	Description	QTY.
130	F90391350	O-ring, Ø 71.12x2.62, 50-55	3
	F90391600	O-ring, Ø 82.22x2.62, 60-65	
	F90391700	O-ring, Ø 88.57x2.62, 70	
131	F90391800	O-ring, Ø 94.82x2.62, 75	3
	F90286000	Packing, Ø 50x58x5.5, LP	
	F90287000	Packing, Ø 55x63x5.5, LP	
	F90288000	Packing, Ø 60x68x5.5, LP	
	F90289000	Packing, Ø 65x73x5.5, LP	
	F90290000	Packing, Ø 70x80x5.4, LP	
132	F90291000	Packing, Ø 75x85x5.5, LP	3
	F65212770	Support Seal, Ø 50	
	F65218170	Support Seal, Ø 55	
	F65212970	Support Seal, Ø 60	
	F65213170	Support Seal, Ø 65	
	F65213370	Support Seal, Ø 70	
133	F65213570	Support Seal, Ø 75	3
	F90286500	Restop Ring, Ø 50x58x8/4.5	
	F90287500	Restop Ring, Ø 55x70x8/4.5	
	F90288500	Restop Ring, Ø 60x76x8/4.5	
	F90289500	Restop Ring, Ø 65x80x8/4.5	
	F90290200	Restop Ring, Ø 70x85x8/4.5	
134	F90291200	Restop Ring, Ø 75x95x5/4.5	3
	F90286300	Packing, Ø 50x65x7.5/4.5, HP	
	F90287300	Packing, Ø 55x70x7.5/4.5, HP	
	F90288300	Packing, Ø 60x76x8.0/4.8, HP	
	F90289300	Packing, 65x80x7.5/4.5, HP	
	F90290400	Packing, Ø 70x85x7.5/4.5, HP	
	F90291400	Packing, Ø 75x95x10.0/6.0, HP	

Item	Part #	Description	QTY.
135	F74100292	Head Ring, Ø 50	3
	F74100392	Head Ring, Ø 55	
	F74100492	Head Ring, Ø 60	
	F74100592	Head Ring, Ø 65	
	F65100592	Head Ring, Ø 70	
	F65100692	Head Ring, Ø 75	
136	F65060556	Piston Sleeve, Ø 50	3
	F65061656	Piston Sleeve, Ø 55	
	F65060656	Piston Sleeve, Ø 60	
	F65060756	Piston Sleeve, Ø 65	
	F65060856	Piston Sleeve, Ø 70	
	F65060956	Piston Sleeve, Ø 75	
137	F90383000	O-ring, Ø 12.1x2.62	3
138	F90391350	O-ring, Ø 71.12x2.62, Ø 50, 55, 60	3
	F90391700	O-ring, Ø 88.57x2.65, Ø 65, 70, 75	
139	F65212356	Piston Support, Ø 50, 55	3
	F65218236	Piston Support, Ø 60	
	F65212456	Piston Support, Ø 65, 70, 75	
140	F90391700	O-ring, Ø 88.57x2.65	3
141	F10744901	Valve Device Opening	1
142	F99365200	Screw, M10x20	3
143	F65210666	Flap for Bellows (?)	
145	F65700501	PTO Cover + Pinion Bushing	2
146	F99425000	Screw, M12x12	2
146	F96701750	Washer, Ø 8.4x15x0.8	1
147	F99301900	Screw, M8x10	1
148	F97827600	Pump Tag	1
149	F91570300	Rivet	2
150	F93108000	Eye bolt	

REPAIR KITS

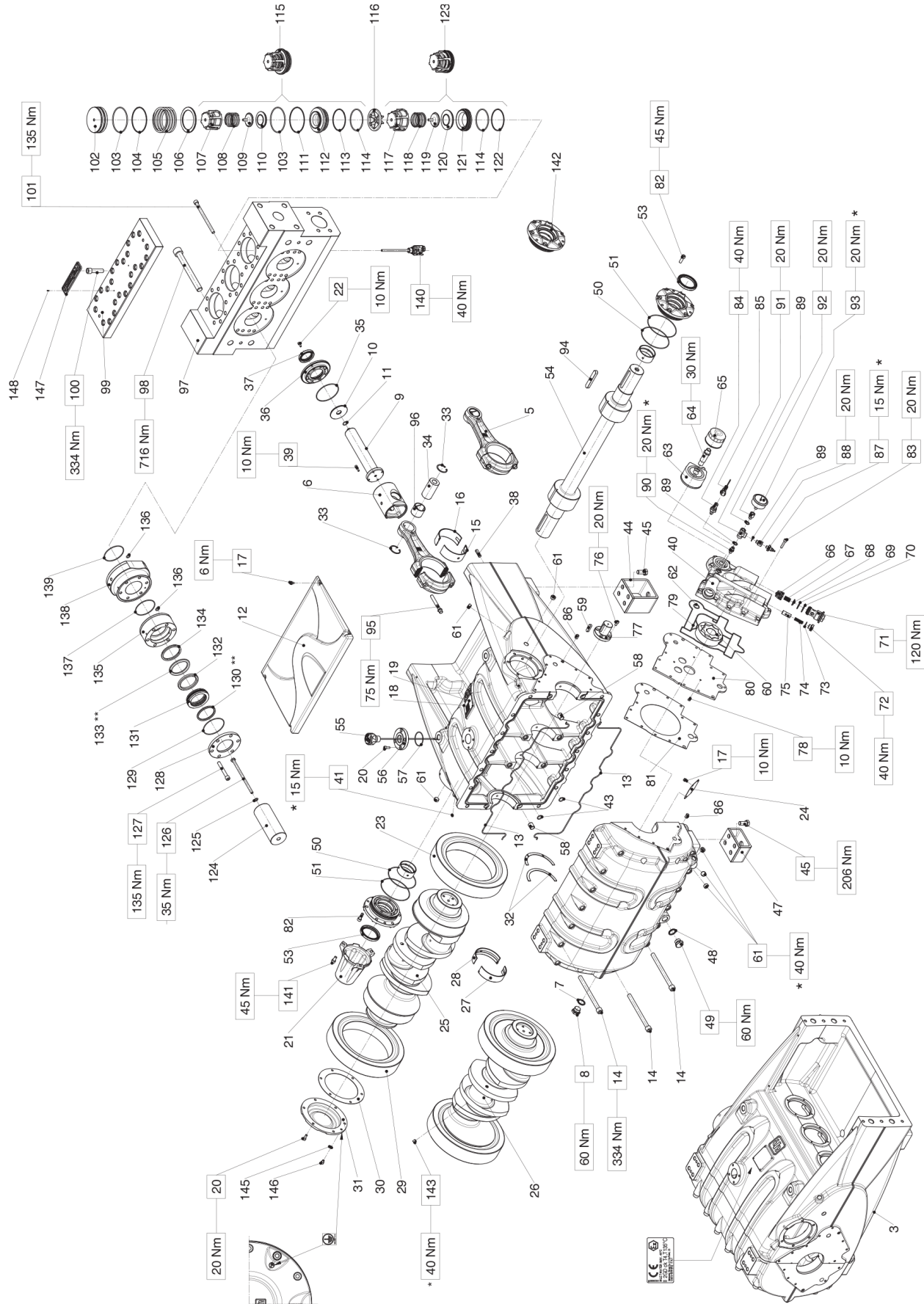
KIT NUMBER	F2261 Plunger Packing Kit SR50	F2322 Plunger Packing Kit SR55	F2268 Plunger Packing Kit SR60	F2262 Plunger Packing Kit SR65	F2269 Plunger Packing Kit SR70	F2263 Plunger Packing Kit SR75
Positions Included	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140

KIT NUMBER	F2264 Valve Kit
Positions Included	103, 104, 115, 116, 123

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

16.3 Exploded View & Parts List of TR Horizontal Pumps



16.3 Exploded View & Parts List of TR Horizontal Pumps

Item	Part #	Description	QTY.
3	F65010901	Crankcase	1
5	F65030601	Connecting Rod	3
6	F79050043	Piston Guide	3
	F79050343	Piston Guide, ± 1.0	
7	F93198000	Washer, Seal, Ø 3/4"	1
8	F98226500	Plug, G 3/4" x16	1
9	F65050566	Piston Guide Stem	3
10	F65210566	Splashguard	3
11	F90359600	O-ring, Ø 77x1.78	3
12	F65150753	Upper Crankcase Cover	1
13	F65214082	Seal, Ø 3.53x530	2
14	F99522400	Screw, M16x200	22
	F90932300	Upper Babbitt	
	F90932400	Upper babbitt, +0.25	
15	F90932500	Upper babbitt, +0.50	3
	F90932000	Lower Babbitt	
	F90932100	Lower Babbitt, +0.25	
16	F90932200	Lower Babbitt, +0.50	3
	F99182000	Screw, M6x12	
	F91570000	Rivet, Ø 2.5x5	
17	F99182000	Screw, M6x12	8
18	F91570000	Rivet, Ø 2.5x5	4
19	F97826800	Pump Plate	1
20	F99305900	Screw, M8x20	10
21	F65150920	Crankshaft End Cover	1
22	F99185300	Screw, M6x16	6
	F10081555	Gear, SX Z81 R 2.90, Helical	
	F10081755	Gear, SX Z83 R 3.46, Helical	
23	F10081955	Gear, SX Z89 R 4.23, Helical	1
	F65210874	Oil Filter	
24	F65210874	Oil Filter	1
25	F65020655	Crankshaft Elbow	1
26	F65021001	Bearing, C: 130, R: 2.90	1
	F65021101	Bearing, C: 130, R:3.46	
	F65021201	Bearing, C: 130, R:4.23	
27	F90935000	Upper Bushing	4
	F90935100	Upper Bushing, +0.254	
	F90935200	Upper Bushing, +0.5.8	
28	F90934700	Lower Bushing	4
	F90934800	Lower Bushing, +0.254	
	F90394900	Lower Bushing, +0.508	
29	F10081455	Gear, DX Z81 R 2.90, Helical	1
	F10081655	Gear, DX Z83 R. 3.43, Helical	
	F10081855	Gear, DX Z89 R. 4.23, Helical	
30	F65210984	Front Cover Seal	1
31	F65150620	Crankshaft Cover	1
32	F90935300	Half ring	2
33	F90075500	Ring, Seeger, Ø 45	6
34	F97747000	Pin, Ø 45x86	3
35	F90392000	O-ring, Pin, Ø 101.27x2.62	3
36	F79210022	Piston Guide Seal Cover	3
37	F90171500	Ring, Rad. Ø 50x70x10/11.5	3
38	F97630000	Pin, Ø 12x40	2
39	F99189700	Screw, M6x24	12
40	F79212420	Pump Oil Body	1
41	F98193000	Plug, Conical, M8x1	2
43	F90384500	O-ring, Ø 18.72x2.62	4
44	F65200602	Front Pump Feet	2
45	F99513300	Screw, M16x35	16
47	F65200502	Rear Pump Feet	2
48	F93198000	Washer, 3/4"	1
49	F98226500	Plug, 3/4"x16	1
50	F90392650	O-ring, Ø 126.67x2.62	2
51	F90380500	O-ring, Ø 132.00x2.50	2
53	F90190000	Ring, Rad. Ø 70x90x10	2
54	F10081155	Pinion, Z28 R. 2.90, Helicol	1
	F10081255	Pinion, Z24 R. 3.46, Helicol	
	F10081355	Pinion, Z21 R. 4.23, Helicol	
55	F98234050	Oil Dipstick, 1"x343	1
56	F65211254	Oil Dipstick Support	1
57	F90389800	O-ring, Ø 56.82x2.62	1
58	F79211689	Bushing	4
59	F91499500	Key, 12x8x40	1
60	F79211907	Oil Pump Rotor	1
61	F98215500	Plug, Conical, M20x1.5	6
62	F98385200	O-ring, Ø 22.22x2.62	6
63	F65213700	Exchanger, Water-Oil	1

Item	Part #	Description	QTY.
64	F65213864	Fitting, Oil Filter Exchanger	1
65	F92899000	Oil Filter, M20	1
66	F36200951	Inlet Valve Guide	4
67	F94744000	Spring, 15.4x26.5	4
68	F36201076	Valve, Spherical	4
69	F90386500	O-ring, Ø 29.82x2.62	4
70	F90387300	O-ring, Ø 36.14x2.62	4
71	F79213964	Valve Cage	4
72	F98213780	Plug, M18x11	1
73	F96741000	Washer, Ø 18.2x24x1.5	1
74	F94739000	Spring, 10.8x37.9	1
75	F79213664	Piston Valve, H.P.	1
76	F99303900	Screw, M8x16	4
77	F79212654	Control, Oil Pump	1
78	F99185100	Screw, M6x16	3
79	F79212747	Oil Seal, Oil Pump	1
80	F79212874	Plate, Oil Pump	1
81	F79212984	Seal, Oil Pump Plate	1
82	F99368600	Screw, M10x30	12
83	F99311600	Screw, M8x40	15
84	F93510500	High Temperature Light	1
85	F93551500	Connector, High Temperature Light	1
86	F79213589	Bushing, Oil Pump	2
87	F93555500	Pressure Switch, 12V	1
88	F94513100	Connector, M-F, 1/4"-M10x1	1
89	F96723000	Washer, Ø 13.5x19x1.5	3
90	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
91	F96310000	Connector, T, F-F-F, G1/4"	1
92	F96256600	Nipple, M-F, G1/4"	1
93	F94607000	Pressure Gauge	1
94	F91505000	Key, 18x11x100	1
95	F99441000	Screw, Connecting Rod	6
96	F90918500	Bushing, Connecting Rod	3
97	F65120556	Manifold	1
98	F99535500	Screw, M24x2x220	4
99	F65212056	Valve Cover, LP	1
100	F99514900	Screw, M16x65	24
101	F99449500	Screw, M12x180	24
102	F65212156	Plug, Valve	3
103	F90414600	O-ring, Ø 104.4x3.53	6
104	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
105	F94805000	Spring, 103x87.5	3
106	F65213956	Ring, Delivery Valve Seat	3
107	F36213105	Guide, Delivery Valve	3
108	F94774500	Spring, 56x57.3	3
109	F36212951	Internal Valve Guide	3
110	F36212601	Valve, Spherical, Complete	3
111	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
112	F36212156	Valve Seat, Delivery	3
113	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
114	F90414400	O-ring, Ø 88.5x3.53	6
115	F36722701	Complete Delivery Valve	3
116	F65212251	Valve Guide Spacer	3
117	F36213005	Inlet Valve Guide	3
118	F94775500	Spring, 58.5x103.1	3
119	F36212851	Internal Valve Guide	3
120	F36212701	Spherical Valve, Complete	3
121	F36212056	Inlet Valve Seat	3
122	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
123	F36722601	Inlet Valve, Complete	3
	F65040509	Plunger, Ø 50x180	
	F65043309	Plunger, Ø 55x180	
	F65040609	Plunger, Ø 60x180	
	F65043409	Plunger, Ø 65x180	
	F65040709	Plunger, Ø 70x180	
124	F65040809	Plunger, Ø 75x180	3
	F96710500	Washer, Ø 10x18x0.9	
	F99386500	Screw, M10x200	
	F99441800	Screw, M12x90	
	F65212856	Support Ring Seal, Ø 50	
128	F65218356	Support Ring Seal, Ø 55	3
	F65213056	Support Ring Seal, Ø 60	
	F65213256	Support Ring Seal, Ø 65	
	F65213456	Support Ring Seal, Ø 70	
	F65213656	Support Ring Seal, Ø 75	

GENERAL PUMP *A member of the Interpump Group*

TR50/55/60/65/70/75-SR50/55/60/65/70/75
TRR50/55/60/65/70/75-SRR50/55/60/65/70/75

16.3 Exploded View & Parts List of TR Horizontal Pumps

Item	Part #	Description	QTY.
129	F90391350	O-ring, Ø 71.12x2.62v 50, 55	3
	F90391600	O-ring, Ø 82.22x2.62, 60, 65	
	F90391700	O-ring, Ø 88.57x2.62, 70	
	F90391800	O-ring, Ø 94.82x2.62, 75	
130	F90286000	Packing, Ø 50x58x5.5, LP	3
	F90287000	Packing, Ø 55x63x5.5, LP	
	F90288000	Packing, Ø 60x68x5.5, LP	
	F90289000	Packing, Ø 65x73x5.5, LP	
	F90290000	Packing, Ø 70x80x5.5, LP	
131	F90291000	Packing, Ø 75x85x5.5, LP	3
	F65212770	Support Seal, Ø 50	
	F65218170	Support Seal, Ø 55	
	F65212970	Support Seal, Ø 60	
	F65213170	Support Seal, Ø 65	
132	F65213370	Support Seal, Ø 70	3
	F65213570	Support Seal, Ø 75	
	F90286500	Restop Ring, Ø 50x58x8/4.5	
	F90287500	Restop Ring, Ø 55x70x8/4.5	
	F90288500	Restop Ring, Ø 60x76x8/4.5	
	F90289500	Restop Ring, Ø 65x80x8/4.5	
133	F90290200	Restop Ring, Ø 70x85x8/4.5	3
	F90291200	Restop Ring, Ø 75x95x9.5/4.5	
	F90286300	Packing, Ø 50x65x7.5/4.5, HP	
	F90287300	Packing, Ø 55x70x7.5/4.5, HP	
	F90288300	Packing, Ø 60x76x8/4.8, HP	
	F90289300	Packing, Ø 65x80x7.5/4.5, HP	
	F90290400	Packing, Ø 70x85x7.5/4.5, HP	
	F90291400	Packing, Ø 75x95x10/6 HP	

Item	Part #	Description	QTY.
134	F74100292	Head Ring, Ø 50	3
	F74100392	Head Ring, Ø 55	
	F74100492	Head Ring, Ø 60	
	F74100592	Head Ring, Ø 65	
	F65100592	Head Ring, Ø 70	
135	F65100692	Head Ring, Ø 75	3
	F65060556	Piston Sleeve, Ø 50	
	F65061656	Piston Sleeve, Ø 55	
	F65060656	Piston Sleeve, Ø 60	
	F65060756	Piston Sleeve, Ø 65	
136	F65060856	Piston Sleeve, Ø 70	3
	F65060956	Piston Sleeve, Ø 75	
137	F90383000	O-ring, Ø 12.1x2.62	6
138	F90391350	O-ring, Ø 71.12x2.62, Ø 50, 55, 60	3
	F90391700	O-ring, Ø 88.57x2.65, Ø 65, 70, 75	
139	F65214656	Piston Support, Ø 50, 55	3
	F65212556	Piston Support, Ø 60	
	F65212656	Piston Support, Ø 65, 70, 75	
140	F90391700	O-ring, Ø 88.57x2.65	3
141	F65210666	Flap for bellows (?)	
142	F10744901	Valve Device Opening	1
143	F99365200	Screw, M10x20	3
144	F65700501	PTO Cover + Pinion Bushing	2
145	F99425000	Screw, M12x12	2
146	F96701750	Washer, Ø 8.4x15x0.8	1
147	F99301900	Screw, M8x10	1
148	F97827600	Pump Tag	1
149	F91570300	Rivet	2
150	F93108000	Eye Bolt	2

REPAIR KITS

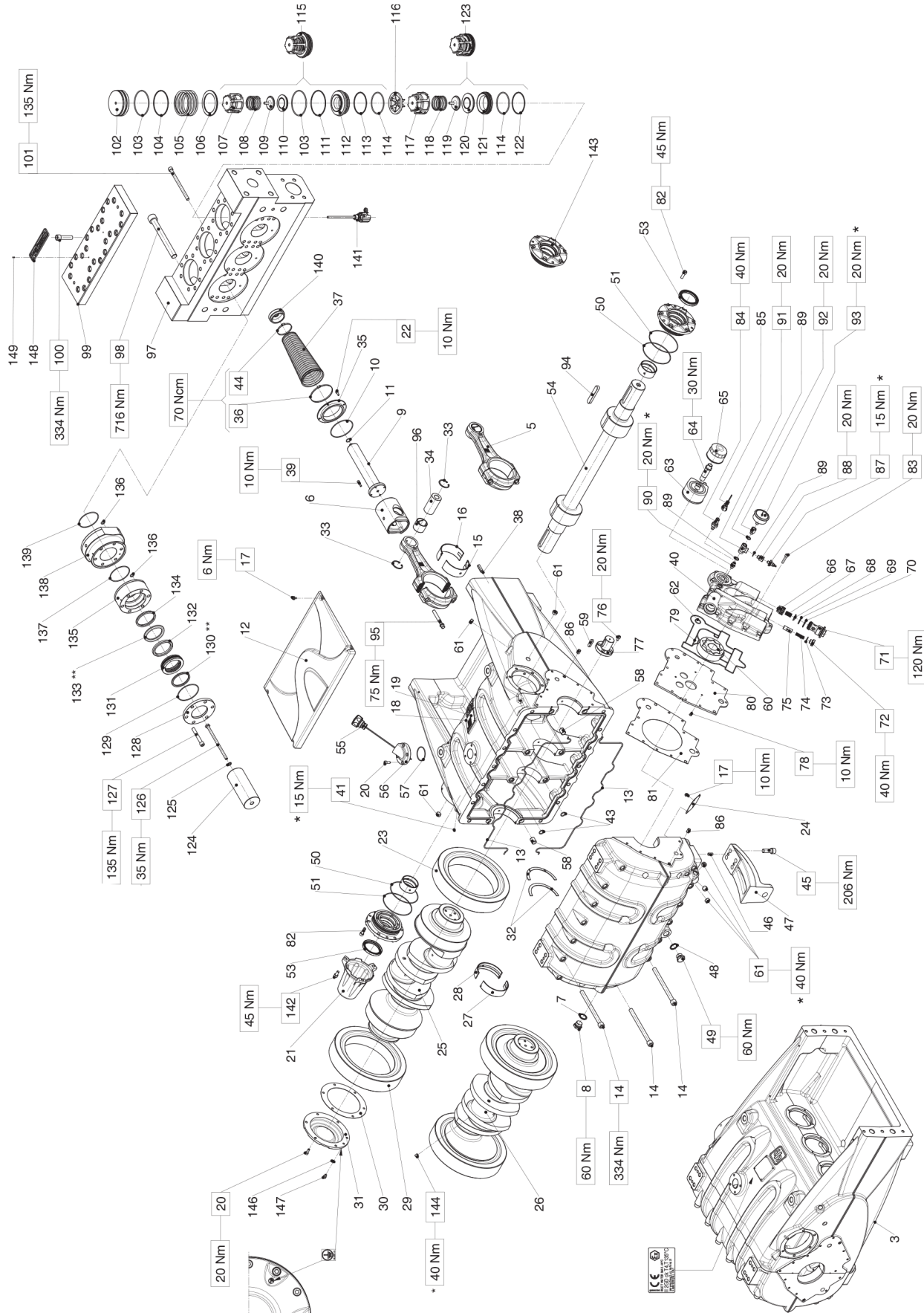
KIT NUMBER	F2261 Plunger Packing Kit TR50	F2322 Plunger Packing Kit TR55	F2268 Plunger Packing Kit TR60	F2262 Plunger Packing Kit TR65	F2269 Plunger Packing Kit TR70	F2263 Plunger Packing Kit TR75
Positions Included	129, 130, 132, 133, 136, 137, 139	129, 130, 132, 133, 136, 137, 139	129, 130, 132, 133, 136, 137, 139	129, 130, 132, 133, 136, 137, 139	129, 130, 132, 133, 136, 137, 139	129, 130, 132, 133, 136, 137, 139

KIT NUMBER	F2264 Valve Kit
Positions Included	103, 104, 115, 116, 123

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

16.4 Exploded View & Parts List of TR Vertical Pumps



GENERAL PUMP A member of the Interpump Group

TR50/55/60/65/70/75-SR50/55/60/65/70/75 TRR50/55/60/65/70/75-SRR50/55/60/65/70/75

16.4 Exploded View & Parts List of TR Vertical Pumps

Item	Part #	Description	QTY.
3	F65010901	Crankcase	1
5	F65030601	Connecting Rod	3
6	F79050043	Piston Guide	3
	F79050243	Piston Guide, ± 1.0	
7	F93198000	Washer, Seal, Ø 3/4"	1
8	F98226500	Plug, G 3/4" x16	1
9	F65050566	Piston Guide Stem	3
10	F90392000	O-ring, Ø 101.27x2.62	3
11	F90359600	O-ring, Ø 77x1.78	3
12	F65150753	Upper Crankcase Cover	1
13	F65214082	Seal, Ø 3.53x530	2
14	F99522400	Screw, M16x200	22
15	F90932300	Upper Babbitt	3
	F90932400	Upper babbitt, +0.25	
	F90932500	Upper babbitt, +0.50	
16	F90932000	Lower Babbitt	3
	F90932100	Lower Babbitt, +0.25	
	F90932200	Lower Babbitt, +0.50	
17	F99182000	Screw, M6x12	8
18	F91570000	Rivet, Ø 2.5x5	4
19	F97826800	Pump Plate	1
20	F99305900	Screw, M8x20	10
21	F65150920	Crankshaft End Cover	1
22	F99185300	Screw, M6x16	6
23	F10081555	Gear, SX Z81 R 2.90, Helical	1
	F10081755	Gear, SX Z83 R 3.46, Helical	
	F10081955	Gear, SX Z89 R 4.23, Helical	
24	F65210874	Oil Filter	1
25	F65020655	Crankshaft Elbow	1
26	F65021001	Bearing, C: 130, R: 2.90	1
	F65021101	Bearing, C: 130, R:3.46	
	F65021201	Bearing, C: 130, R:4.23	
27	F90935000	Upper Bushing	4
	F90935100	Upper Bushing, +0.254	
	F90935200	Upper Bushing, +0.5.8	
28	F90934700	Lower Bushing	4
	F90934800	Lower Bushing, +0.254	
	F90394900	Lower Bushing, +0.508	
29	F10081455	Gear, DX Z81 R 2.90, Helical	1
	F10081655	Gear, DX Z83 R. 3.43, Helical	
	F10081855	Gear, DX Z89 R. 4.23, Helical	
30	F65210984	Front Cover Seal	1
31	F65150620	Crankshaft Cover	1
32	F90935300	Half ring	2
33	F90075500	Ring, Seeger, Ø 45	6
34	F97747000	Pin, Ø 45x86	3
35	F65210766	Flange for Bellows	3
36	F92811000	Clip, Ø 98-109	3
37	F65211047	Bellows	3
38	F97630000	Pin, Ø 12x40	2
39	F99189700	Screw, M6x24	12
40	F79212420	Pump Oil Body	1
41	F98193000	Plug, Conical, M8x1	2
43	F90384500	O-ring, Ø 18.72x2.62	4
44	F92810000	Clip, Ø 58-89	3
45	F99513300	Screw, M16x35	16
46	F97623000	Pin, Ø 10x24	8
47	F65200713	Vertical Feet	4
48	F93198000	Washer, 3/4"	1
49	F98226500	Plug, 3/4"x16	1
50	F90392650	O-ring, Ø 126.67x2.62	2
51	F90380500	O-ring, Ø 132.00x2.50	2
53	F90190000	Ring, Rad. Ø 70x90x10	2
54	F10081155	Pinion, Z28 R. 2.90, Helicol	1
	F10081255	Pinion, Z24 R. 3.46, Helicol	
	F10081355	Pinion, Z21 R. 4.23, Helicol	
55	F98233950	Oil Dipstick, 1"x275	1
56	F65211254	Oil Dipstick Support	1
57	F90389800	O-ring, Ø 56.82x2.62	1
58	F79211689	Bushing	4
59	F91499500	Key, 12x8x40	1
60	F79211907	Oil Pump Rotor	1
61	F98215500	Plug, Conical, M20x1.5	6
62	F90385200	O-ring, Ø 22.22x2.62	6
63	F65213700	Exchanger, Water-Oil	1

Item	Part #	Description	QTY.
64	F65213864	Fitting, Oil Filter Exchanger	1
65	F92899000	Oil Filter, M20	1
66	F36200951	Inlet Valve Guide	4
67	F94744000	Spring, 15.4x26.5	4
68	F36201076	Valve, Spherical	4
69	F90386500	O-ring, Ø 29.82x2.62	4
70	F90387300	O-ring, Ø 36.14x2.62	4
71	F79213964	Valve Cage	4
72	F98213780	Plug, M18x11	1
73	F96741000	Washer, Ø 18.2x24x1.5	1
74	F94739000	Spring, 10.8x37.9	1
75	F79213664	Piston Valve, H.P.	1
76	F99303900	Screw, M8x16	4
77	F79212654	Control, Oil Pump	1
78	F99185100	Screw, M6x16	3
79	F79212747	Oil Seal, Oil Pump	1
80	F79212874	Plate, Oil Pump	1
81	F79212984	Seal, Oil Pump Plate	1
82	F99368600	Screw, M10x30	12
83	F99311600	Screw, M8x40	15
84	F93510500	High Temperature Light	1
85	F93551500	Connector, High Temperature Light	1
86	F79213589	Bushing, Oil Pump	2
87	F93555500	Pressure Switch, 12V	1
88	F94513100	Connector, M-F, 1/4"-M10x1	1
89	F96723000	Washer, Ø 13.5x19x1.5	3
90	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
91	F96310000	Connector, T, F-F-F, G1/4"	1
92	F95256600	Nipple, M-F, G1/4"	1
93	F94607000	Pressure Gauge	1
94	F91505000	Key, 18x11x100	1
95	F99441000	Screw, Connecting Rod	6
96	F90918500	Bushing, Connecting Rod	3
97	F65120556	Manifold	1
98	F99535500	Screw, M24x2x220	4
99	F65212056	Valve Cover, LP	1
100	F99514900	Screw, M16x65	24
101	F99449500	Screw, M12x180	24
102	F65212156	Plug, Valve	3
103	F90414600	O-ring, Ø 104.4x3.53	6
104	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
105	F94805000	Spring, 103x87.5	3
106	F65213956	Ring, Delivery Valve Seat	3
107	F36213105	Guide, Delivery Valve	3
108	F94744500	Spring, 56x57.3	3
109	F36212951	Internal Valve Guide	3
110	F36212601	Valve, Spherical, Complete	3
111	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
112	F36212156	Valve Seat, Delivery	3
113	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
114	F90414400	O-ring, Ø 88.5x3.53	6
115	F36722701	Complete Delivery Valve	3
116	F65212251	Valve Guide Spacer	3
117	F36213005	Inlet Valve Guide	3
118	F94775500	Spring, 58.5x103.1	3
119	F36212851	Internal Valve Guide	3
120	F36212701	Spherical Valve, Complete	3
121	F36212056	Inlet Valve Seat	3
122	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
123	F36722601	Inlet Valve, Complete	3
124	F65040509	Plunger, Ø 50x180	3
	F65043309	Plunger, Ø 55x180	
	F65040609	Plunger, Ø 60x180	
	F65043409	Plunger, Ø 65x180	
	F65040709	Plunger, Ø 70x180	
125	F65040809	Plunger, Ø 75x180	3
	F96710500	Washer, Ø 10x18x0.9	
126	F99386500	Screw, M10x200	24
127	F99441800	Screw, M12x90	18
128	F65212856	Support Ring Seal, Ø 50	3
	F65218356	Support Ring Seal, Ø 55	
	F65213056	Support Ring Seal, Ø 60	
	F65213256	Support Ring Seal, Ø 65	
	F65213456	Support Ring Seal, Ø 70	
	F65213656	Support Ring Seal, Ø 75	

16.4 Exploded View & Parts List of TR Vertical Pumps

Item	Part #	Description	QTY.
129	F90391350	O-ring, Ø 71.12x2.62, 50,55	3
	F90391600	O-ring, Ø 82.22x2.62, 60, 65	
	F90391700	O-ring, Ø 88.57x2.62, 70	
	F90391800	O-ring, Ø 94.82x2.62, 75	
130	F90286000	Packing, Ø 50x58x5.5, LP	3
	F90287000	Packing, Ø 55x63x5.5, LP	
	F90288000	Packing, Ø 60x68x5.5, LP	
	F90289000	Packing, Ø 65x73x5.5, LP	
	F90290000	Packing, Ø 70x80x5.5, LP	
131	F90291000	Packing, Ø 75x85x5.5, LP	3
	F65212770	Support Seal, Ø 50	
	F65218170	Support Seal, Ø 55	
	F65212970	Support Seal, Ø 60	
	F65213170	Support Seal, Ø 65	
132	F65213370	Support Seal, Ø 70	3
	F65213570	Support Seal, Ø 75	
	F90286500	Restop Ring, Ø 50x58x8/4.5	
	F90287500	Restop Ring, Ø 55x70x8/4.5	
	F90288500	Restop Ring, Ø 60x76x8/4.5	
	F90289500	Restop Ring, Ø 65x80x8/4.5	
133	F90290200	Restop Ring, Ø 70x85x8/4.5	3
	F90291200	Restop Ring, Ø 75x95x9.5/4.5	
	F90286300	Packing, Ø 50x65x7.5/4.5, HP	
	F90287300	Packing, Ø 55x70x7.5/4.5, HP	
	F90288300	Packing, Ø 60x76x8/4.8, HP	
	F90289300	Packing, Ø 65x80x7.5/4.5 HP	
	F90290400	Packing, Ø 70x85x7.5/4.5, HP	
	F90291400	Packing, Ø 75x95x10/6 HP	

Item	Part #	Description	QTY.
134	F74100292	Head Ring, Ø 50	3
	F74100392	Head Ring, Ø 55	
	F74100492	Head Ring, Ø 60	
	F74100592	Head Ring, Ø 65	
	F65100592	Head Ring, Ø 70	
	F65100692	Head Ring, Ø 75	
135	F65060556	Piston Sleeve, Ø 50	3
	F65061656	Piston Sleeve, Ø 55	
	F65060656	Piston Sleeve, Ø 60	
	F65060756	Piston Sleeve, Ø 65	
	F65060856	Piston Sleeve, Ø 70	
	F65060956	Piston Sleeve, Ø 75	
136	F90383000	O-ring, Ø 12.1x2.62	6
137	F90391350	O-ring, Ø 71, 12x2.62, Ø 50, 55, 60	3
	F90391700	O-ring, Ø 88, 57x2.65, Ø 65, 70, 75	
	F65214656	Piston Support, Ø 50, 55	
138	F65212556	Piston Support, Ø 60	3
	F65212656	Piston Support, Ø 65, 70, 75	
139	F90391700	O-ring, Ø 88.57x2.65	3
140	F65210666	Flap for Bellows (?)	
141	F10744901	Valve Device Opening	1
142	F99365200	Screw, M10x20	3
143	F65700501	PTO Cover + Pinion Bushing	2
144	F99425000	Screw, M12x12	2
146	F96701750	Washer, Ø 8.4x15x0.8	1
147	F99301900	Screw, M8x10	1
148	F97827600	Pump Tag	1
149	F91570300	Rivet	2
150	F93108000	Eye Bolt	2

REPAIR KITS

KIT NUMBER	F2261 Plunger Packing Kit TR50	F2322 Plunger Packing Kit TR55	F2268 Plunger Packing Kit TR60	F2262 Plunger Packing Kit TR65	F2269 Plunger Packing Kit TR70	F2263 Plunger Packing Kit TR75
Positions Included	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140	130, 131, 133, 134, 137, 138, 140

KIT NUMBER	F2264 Valve Kit
Positions Included	103, 104, 115, 116, 123

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

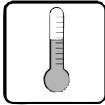
17. SRR-TRR Version Pumps

17.1 Operating Instructions



SRR-TRR pumps, when not ordered with the ATEX configuration, are designed to operate in environments with atmospheres that are **not** potentially explosive and with filtered water. Other liquids can be used only upon formal approval by the **Customer Service Department**.

17.2 Water Temperature



Although the maximum water temperature is 104° F (40° C), the pump can be used with water temperature at up to 140° F (60° C), but only for a short periods. In this case we recommend consulting the **Customer Service Department**.



ATEX version: The maximum permissible water temperature in 104° F (40° C)

17.3 Maximum Pressure and Flow Rate

The rated specifications stated in our catalog are the maximum that can be obtained by the pump. Independently of the power used, the maximum pressure and rpm indicated on the specification table can never be exceeded unless prior authorization is given by the **Customer Service Departments**.

17.4 Minimum Operating Speed

The minimum speed allowed for these types of pumps is **250 rpm at the crankshaft**; any speed other than the value shown in the performance table (see chapter 5) must be authorized by the **Customer Service Department**.

17.5 Technical Characteristics

SRR Pump Technical Characteristics (@520 RPM)

Model	RPM	Flow Rate		Pressure		Power	
		l/min	GPM	bar	PSI	kW	HP
SRR 50	1500	276	73	400	5800	211	287
	1800						
	2200						
SRR 55	1500	333	87.9	350	5075	222.8	303
	1800						
	2200						
SRR 60	1500	397	104.8	300	4350	227.2	309
	1800						
	2200						
SRR 65	1500	466	123	250	3625	222.5	302.5
	1800						
	2200						
SRR 70	1500	540	142.6	220	3190	226.8	308.5
	1800						
	2200						
SRR 75	1500	620	164	200	2900	236.8	322
	1800						
	2200						

17.5 Technical Characteristics

TRR Pump Technical Characteristics (@520 RPM)

Model	RPM	Flow Rate		Pressure		Power	
		l/min	GPM	bar	PSI	kW	HP
TRR 50	1500	398	105	400	5800	304	413.5
	1800						
	2200						
TRR 55	1500	482	127.3	350	5075	322	438
	1800						
	2200						
TRR 60	1500	573	151.4	300	4350	328.3	446.5
	1800						
	2200						
TRR 65	1500	673	177.8	250	3625	321.3	437
	1800						
	2200						
TRR 70	1500	780.5	206	220	3190	328	446
	1800						
	2200						
TRR 75	1500	896	236.7	200	2900	342	465
	1800						
	2200						

17.6 Dimensions and Weights of SRR Pumps

For dimensions and weight of SRR Series Horizontal pumps, refer to fig. 13.

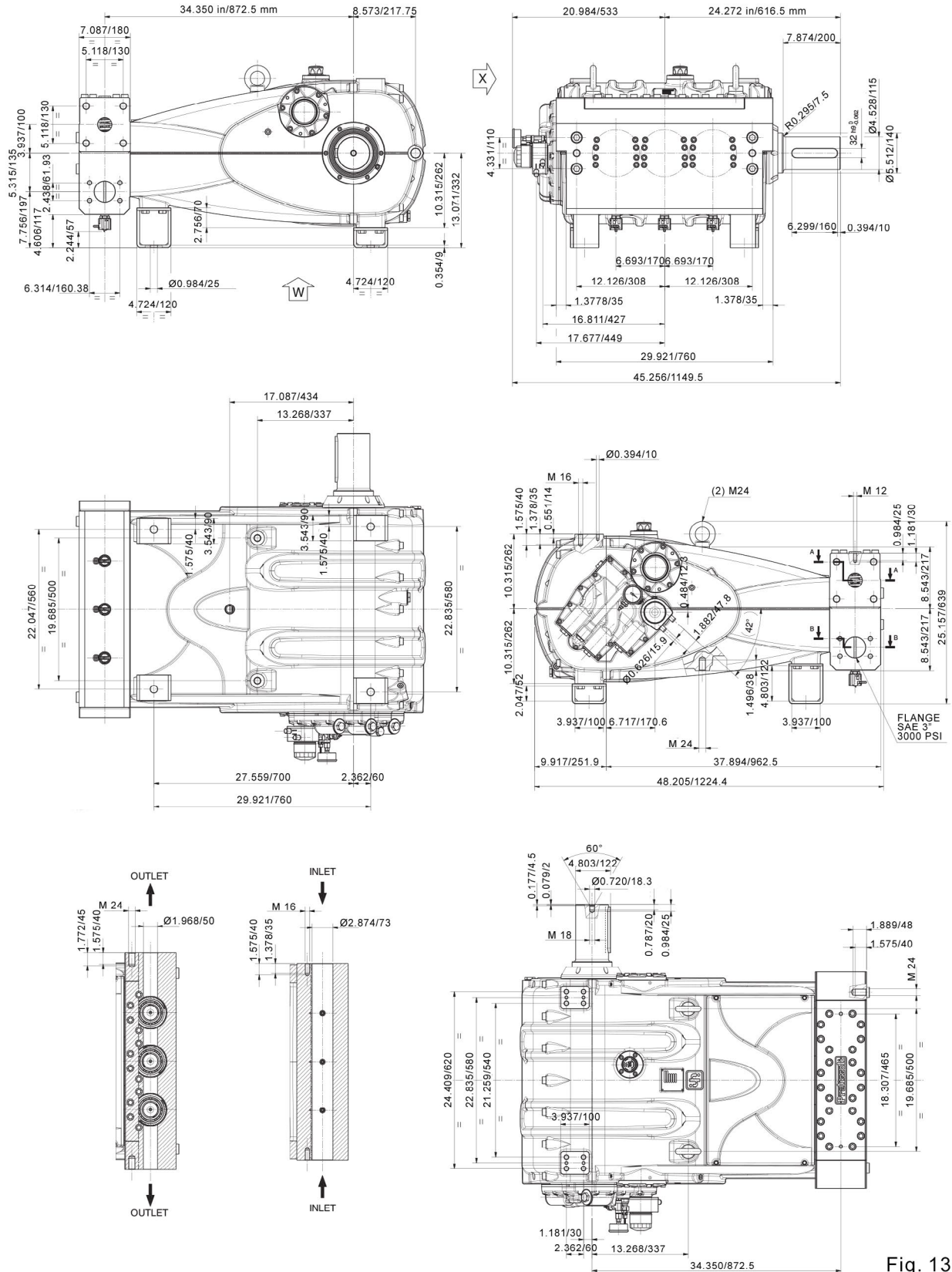


Fig. 13

Dry weight 2436.11 lbs (1105 kg.)

17.6 Dimensions and Weights of SRR Pumps

For dimensions and weight of SRR Vertical Pumps, refer to fig. 13/a.

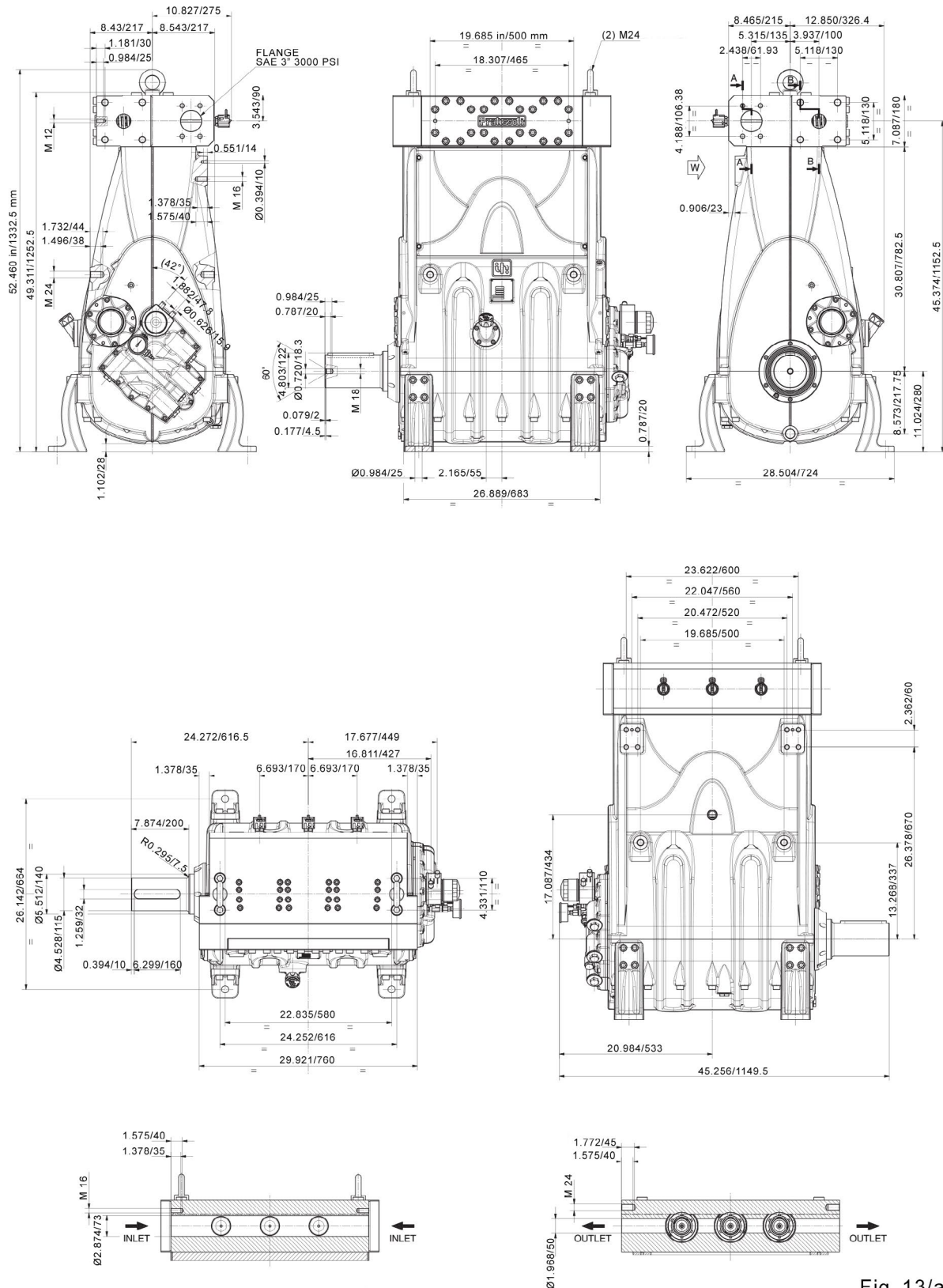


Fig. 13/a

Dry weight 2458.15 lbs (1115 kg.)

17.7 Dimensions and Weights of TRR Pumps

For dimensions and weight of TRR Horizontal Pumps, refer to fig. 14

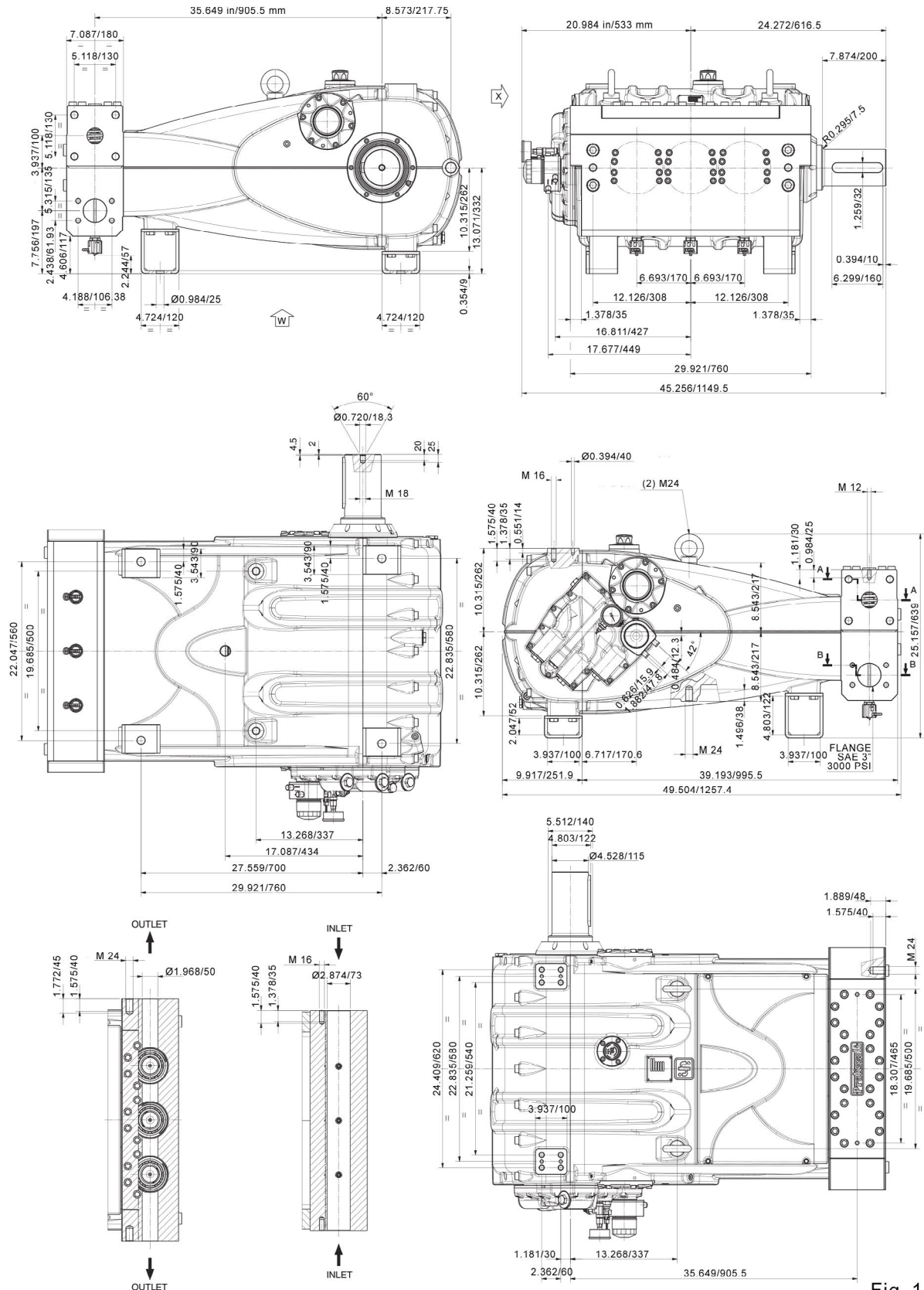
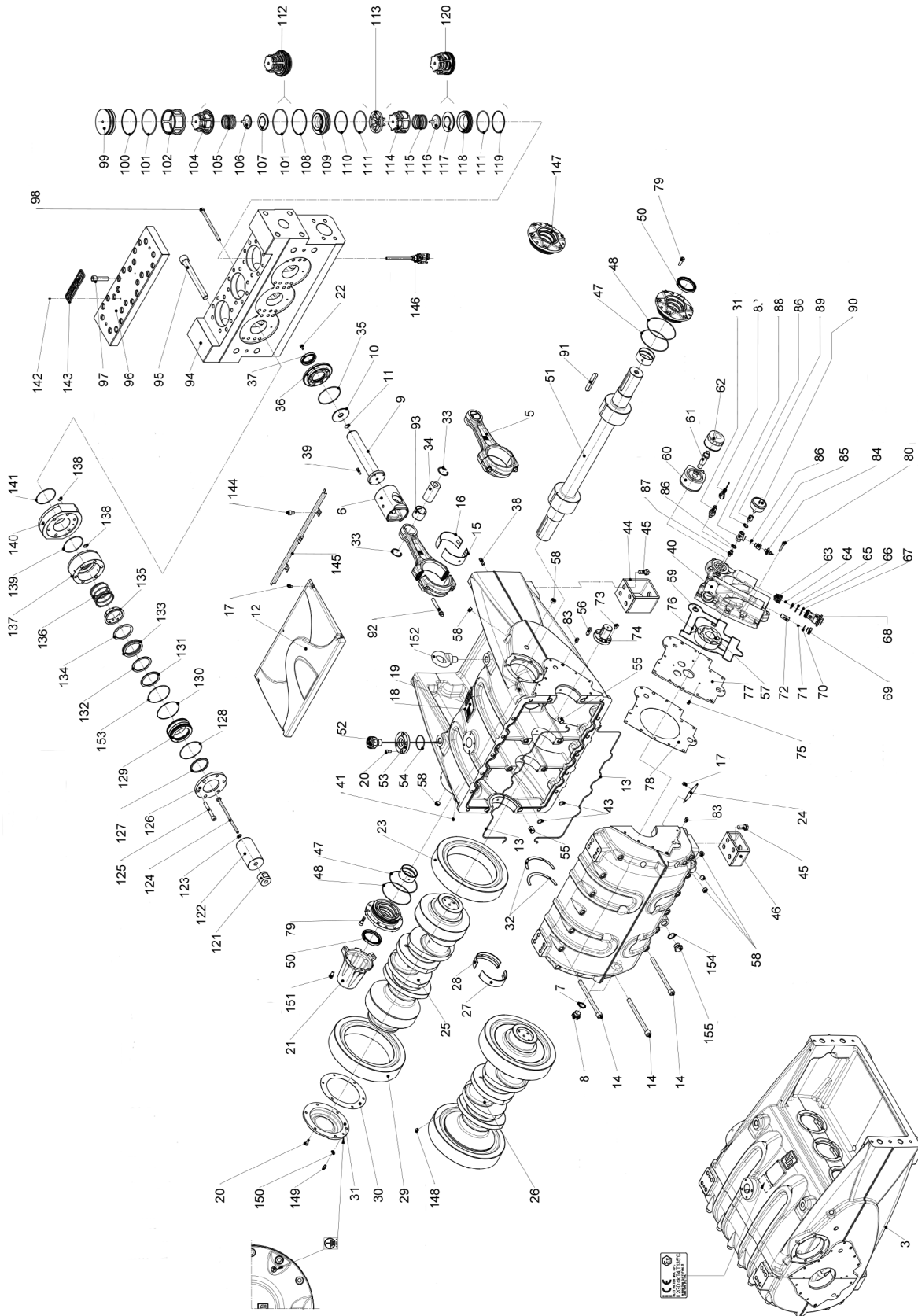


Fig. 14

Dry weight 2513.27 lbs (1140 kg.)

18. EXPLODED VIEW AND PARTS LIST SRR-TRR PUMPS

18.1 Exploded View & Parts List of SRR Horizontal Pumps



GENERAL PUMP

A member of the Interpump Group

TR50/55/60/65/70/75-SR50/55/60/65/70/75 TRR50/55/60/65/70/75-SRR50/55/60/65/70/75

18.1 Exploded View & Parts List of SRR Horizontal Pumps

Item	Part #	Description	QTY.	Item	Part #	Description	QTY.
3	F65010801	Crankcase	1	61	F65213864	Fitting, Oil Filter Exchanger	1
5	F65030601	Connecting Rod	3	62	F92899000	Oil Filter, M20	1
6	F79050043	Piston Guide	3	63	F36200951	Inlet Valve Guide	4
	F79050243	Piston Guide, ± 1.0		64	F94744000	Spring, 15.4x26.5	4
7	F93198000	Washer, Seal, Ø 3/4"	2	65	F36201076	Valve, Spherical	4
8	F98226500	Plug, G 3/4" x16	2	66	F90386500	O-ring, Ø 29.82x2.62	4
9	F65050566	Piston Guide Stem	3	67	F90387300	O-ring, Ø 36.14x2.62	4
10	F65210566	Splashguard	3	68	F79213964	Valve Cage	4
11	F90359600	O-ring, Ø 77x1.78	3	69	F98213780	Plug, M18x11	1
	F65150853	Upper Crankcase Cover		70	F96741000	Washer, Ø 18.2x24x1.5	1
12	F65151176	Upper Crankcase Cover - ATEX	1	71	F94739000	Spring, 10.8x37.9	1
	F65214082	Seal, Ø 3.53x530		72	F79213664	Piston Valve, H.P.	1
13	F99522400	Screw, M16x200	22	73	F99303900	Screw, M8x16	4
15	F90932300	Upper Babbitt	3	74	F79212654	Control, Oil Pump	1
	F90932400	Upper babbitt, +0.25		75	F99185100	Screw, M6x16	3
	F90932500	Upper babbitt, +0.50		76	F79212747	Oil Seal, Oil Pump	1
16	F90932000	Lower Babbitt	3	77	F79212874	Plate, Oil Pump	1
	F90932100	Lower Babbitt, +0.25		78	F79212984	Seal, Oil Pump Plate	1
	F90932200	Lower Babbitt, +0.50		79	F99368600	Screw, M10x30	12
17	F99182000	Screw, M6x12	9	80	F99311600	Screw, M8x40	15
18	F91570000	Rivet, Ø 2.5x5	4	81	F93510500	High Temperature Light	1
19	F97826800	Pump Plate	1	82	F93551500	Connector, High Temperature Light	1
20	F99305900	Screw, M8x20	10	83	F79213589	Bushing, Oil Pump	2
21	F65150920	Crankshaft End Cover	1	84	F93555500	Pressure Switch, 12V	1
22	F99185300	Screw, M6x16	6	85	F94513100	Connector, M-F, 1/4"-M10x1	1
23	F10081555	Gear, SX Z81 R 2.90, Helical	1	86	F96723000	Washer, Ø 13.5x19x1.5	3
	F10081755	Gear, SX Z83 R 3.46, Helical		87	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
	F10081955	Gear, SX Z89 R 4.23, Helical		88	F96310000	Connector, T, F-F-F, G1/4"	1
24	F65210874	Oil Filter	1	89	F95256600	Nipple, M-F, G1/4"	1
25	F65020555	Crankshaft Elbow	1	90	F94607000	Pressure Gauge Ø 63	1
26	F65020701	Bearing, C: 90, R: 2.90	1	91	F91505000	Key, 18x11x100	1
	F65020801	Bearing, C: 90, R:3.46		92	F99441000	Screw, Connecting Rod	6
	F65020901	Bearing, C: 90, R:4.23		93	F90918500	Bushing, Connecting Rod	3
27	F90935000	Upper Bushing	4	94	F65120556	Manifold	1
	F90935100	Upper Bushing, +0.254		95	F99535500	Screw, M24x2x220	4
	F90935200	Upper Bushing, +0.5.8		96	F65212056	Valve Cover, LP	1
28	F90934700	Lower Bushing	4	97	F99514900	Screw, M16x65	24
	F90934800	Lower Bushing, +0.254		98	F99449500	Screw, M12x180	24
	F90934900	Lower Bushing, +0.508		99	F65212156	Plug, Valve	3
29	F10081455	Gear, DX Z81 R 2.90, Helical	1	100	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
	F10081655	Gear, DX Z83 R. 3.43, Helical		101	F90414600	O-ring, Ø 104.37x3.53	6
	F10081855	Gear, DX Z89 R. 4.23, Helical		102	F65220305	Delivery Spacer Valve	3
30	F65210984	Front Cover Seal	1	104	F36215105	Delivery Valve Guide	3
31	F65150620	Crankshaft Cover	1	105	F94774500	Spring, 56x57.3	3
32	F90935300	Half ring	2	106	F36212951	Internal Valve Guide	3
33	F90075500	Ring, Seeger, Ø 45	6	107	F36212601	Valve, Spherical, Complete	3
34	F97747000	Pin, Ø 45x86	3	108	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
35	F90392000	O-ring, Pin, Ø 101.27x2.62	3	109	F36212156	Valve Seat, Delivery	3
36	F79210022	Piston Guide Seal Cover	3	110	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
37	F90171500	Ring, Rad, Ø 50x70x10/11.5	3	111	F90414400	O-ring, Ø 88.5x3.53	6
38	F97630000	Pin, Ø 12x40	2	112	F36725301	Delivery Group Valve	3
39	F99189700	Screw, M6x24	12	116	F65212251	Valve Guide Spacer	3
40	F79212420	Pump Oil Body	1	114	F36213005	Inlet Valve Guide	3
41	F98193000	Plug, Conical, M8x1	2	115	F94775500	Spring, 58.5x103.1	3
43	F90384500	O-ring, Ø 18.72x2.62	4	116	F36212851	Internal Valve Guide	3
44	F65200602	Front Pump Feet	2	117	F36212701	Spherical Valve, Complete	3
45	F99513300	Screw, M16x35	16	118	F36212056	Inlet Valve Seat	3
47	F90392650	O-ring, Ø 126.67x2.62	2	119	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
48	F90380500	O-ring, Ø 132x2.50	1	120	F36722601	Inlet Valve, Complete	3
50	F90190000	O-ring, Ø 126.67x2.62	2	121	F65211966	Piston Spacer	3
51	F10081155	Pinion, Z28 R. 2.90, Helical	1	122	F74040209	Plunger, Ø 50x127	3
	F10081255	Pinion, Z24 R. 3.46, Helical			F74040309	Plunger, Ø 55x127	
	F10081355	Pinion, Z21 R. 4.23, Helical			F74040409	Plunger, Ø 60x127	
	F98234050	Oil Dipstick G 1"x343			F74040509	Plunger, Ø 65x127	
F98234070	Oil Dipstick G 1"x343 ATEX	F65043209	Plunger, Ø 70x127				
52	F98234070	Oil Dipstick G 1"x343 ATEX	2	F65040909	Plunger, Ø 75x127		
53	F65211254	Oil Dipstick Support	1	123	F96710500	Washer, Ø 10x18x0.9	3
54	F90389800	O-ring, Ø 56.82x2.62	1	124	F99386500	Screw, M10x200	3
55	F79211689	Bushing	4	125	F99441800	Screw, M12x90	18
56	F91499500	Key, 12x8x40	1	126	F65220056	Support Ring Seal, Ø 50	3
57	F79211907	Oil Pump Rotor	1		F65220156	Support Ring Seal, Ø 55	
58	F98215500	Plug, Conical, M20x1.5	6		F65220256	Support Ring Seal, Ø 60	
59	F90385200	O-ring, Ø 22.22x2.62	1		F65213256	Support Ring Seal, Ø 65	
60	F65213700	Exchanger, Water-Oil	1		F65213556	Support Ring Seal, Ø 70	
					F65213656	Support Ring Seal, Ø 75	

18.1 Exploded View & Parts List of SRR Horizontal Pumps

Item	Part #	Description	QTY.
127	F90286000	Packing, Ø 50x58x5.5, LP	3
	F90287000	Packing, Ø 55x63x5.5, LP	
	F90288000	Packing, Ø 60x68x5.5, LP	
	F90289000	Packing, Ø 65x73x5.5, LP	
	F90290000	Packing, Ø 70x80x5.5, LP	
128	F90291000	Packing, Ø 75x85x5.5, LP	3
	F90379700	O-ring Ø 85x2.5 SRR50 SRR55	
129	F90379900	O-ring Ø 91x2.5 SRR60 SRR65	3
	F90380200	O-ring Ø 100x2.5 SRR70 SRR75	
	F65218456	Packing Support Ø 50	
130	F65218556	Packing Support Ø 55	3
	F65218656	Packing Support Ø 60	
	F65218756	Packing Support Ø 65	
	F65218856	Packing Support Ø 70	
	F65218956	Packing Support Ø 75	
131	F90528900	Anti-extrusion Ring Ø 76.9x81x1.5 SRR50 SRR55	3
	F90529400	Anti-extrusion Ring Ø 82.9x87x1.5 SRR60	
	F90532000	Anti-extrusion Ring Ø 92.2x96x1.5 SRR65	
	F90533000	Anti-extrusion Ring Ø 101.2x105x1.5 SRR70 SRR75	
132	F65219056	Support Ring Ø 50	3
	F65219156	Support Ring Ø 55	
	F65219256	Support Ring Ø 60	
	F65219356	Support Ring Ø 65	
	F65219456	Support Ring Ø 70	
133	F65219556	Support Ring Ø 75	3
	F90524400	Anti-extrusion Ring Ø 50x66x2	
	F90526650	Anti-extrusion Ring Ø 55x71x2	
	F90526890	Anti-extrusion Ring Ø 60x76x2	
	F90527450	Anti-extrusion Ring Ø 65x81x2	
134	F90528300	Anti-extrusion Ring Ø 70x86x2	3
	F90528680	Anti-extrusion Ring Ø 75x91x2	
	F90569900	Packing Ø 50x66x15	
	F90572400	Packing Ø 55x71x15	
	F90574900	Packing Ø 60x76x15	
	F90577400	Packing Ø 65x81x15	
135	F90578500	Packing Ø 70x86x15	3
	F90579500	Packing Ø 75x91x15	

Item	Part #	Description	QTY.
134	F74213882	Scraper Ring Ø 50	3
	F74213982	Scraper Ring Ø 55	
	F74214082	Scraper Ring Ø 60	
	F74214182	Scraper Ring Ø 65	
	F65219882	Scraper Ring Ø 70	
135	F65219982	Scraper Ring Ø 75	3
	F74213456	Ring for Spring Ø 50	
	F74213556	Ring for Spring Ø 55	
	F74213656	Ring for Spring Ø 60	
	F74213756	Ring for Spring Ø 65	
136	F65219656	Ring for Spring Ø 70	3
	F65219756	Ring for Spring Ø 75	
	F94777000	Spring Ø 61x35 SRR50 SRR55	
137	F94790000	Spring Ø 71.5x45 SRR60 SRR65	3
	F94801000	Spring Ø 81.3x65.5x65.5 SRR70 SRR75	
	F65061856	Packing Sleeve Ø 50-55	
	F65061956	Packing Sleeve Ø 60	
138	F65062056	Packing Sleeve Ø 65	3
	F65062156	Packing Sleeve Ø 70-75	
139	F90383000	O-ring Ø 13.0x2.62	6
	F90391350	O-ring Ø 71.12x2.62 SRR50 SRR55 SRR60	
	F90391700	O-ring Ø 88.57x2.62 SRR65 SRR70 SRR75	
140	F65212356	Support Sleeve Ø 50-55	3
	F65218256	Support Sleeve Ø 60	
141	F65212456	Support Sleeve Ø 65-70-75	3
	F91570300	O-ring Ø 88.57x2.62	
142	F99425000	Self-tapping Rivet Ø 2.5x8	2
143	F97827600	Pump Targe	1
144	F99425400	Screw M10x12	2
145	F65218476	Upper Cover Support Housing	1
146	F10744901	Valve Opening Device	3
147	F93108000	PTO Pinion Cover	2
148	F99425000	Screw M12x12	2
149	F99301900	Screw M8x10 ATEX	1
150	F96701750	Washer Ø 8.4x15x0.8 ATEX	1
151	F99365200	Screw M10x20	3
152	F93108000	Eye Bolt	2
153	F90391450	O-ring Ø 75.87x2.62 SRR50 SRR55	3
	F90391600	O-ring Ø 82.22x2.62 SRR60	
	F90379900	O-ring Ø 91x2.5 SRR65	
	F90380200	O-ring Ø 100x2.5 SRR70 SRR75	
154	F93198000	Washer Seal G3/4"	1
155	F98226500	Plug G3/4"x16	1
	F98226850	Plug G3/4"x16 ATEX	

REPAIR KITS

KIT NUMBER	F2345 Plunger Packing Kit SRR50	F2346 Plunger Packing Kit SRR55	F2347 Plunger Packing Kit SRR60	F2348 Plunger Packing Kit SRR65	F2349 Plunger Packing Kit SRR70	F2350 Plunger Packing Kit SRR75
Positions Included	127, 128, 130, 132, 133, 134, 138,139, 141, 153	127, 128, 130, 132, 133, 134, 138,139, 141, 153	127, 128, 130, 132, 133, 134, 138,139, 141, 153	127, 128, 130, 132, 133, 134, 138,139, 141, 153	127, 128, 130, 132, 133, 134, 138,139, 141, 153	127, 128, 130, 132, 133, 134, 138,139, 141, 153

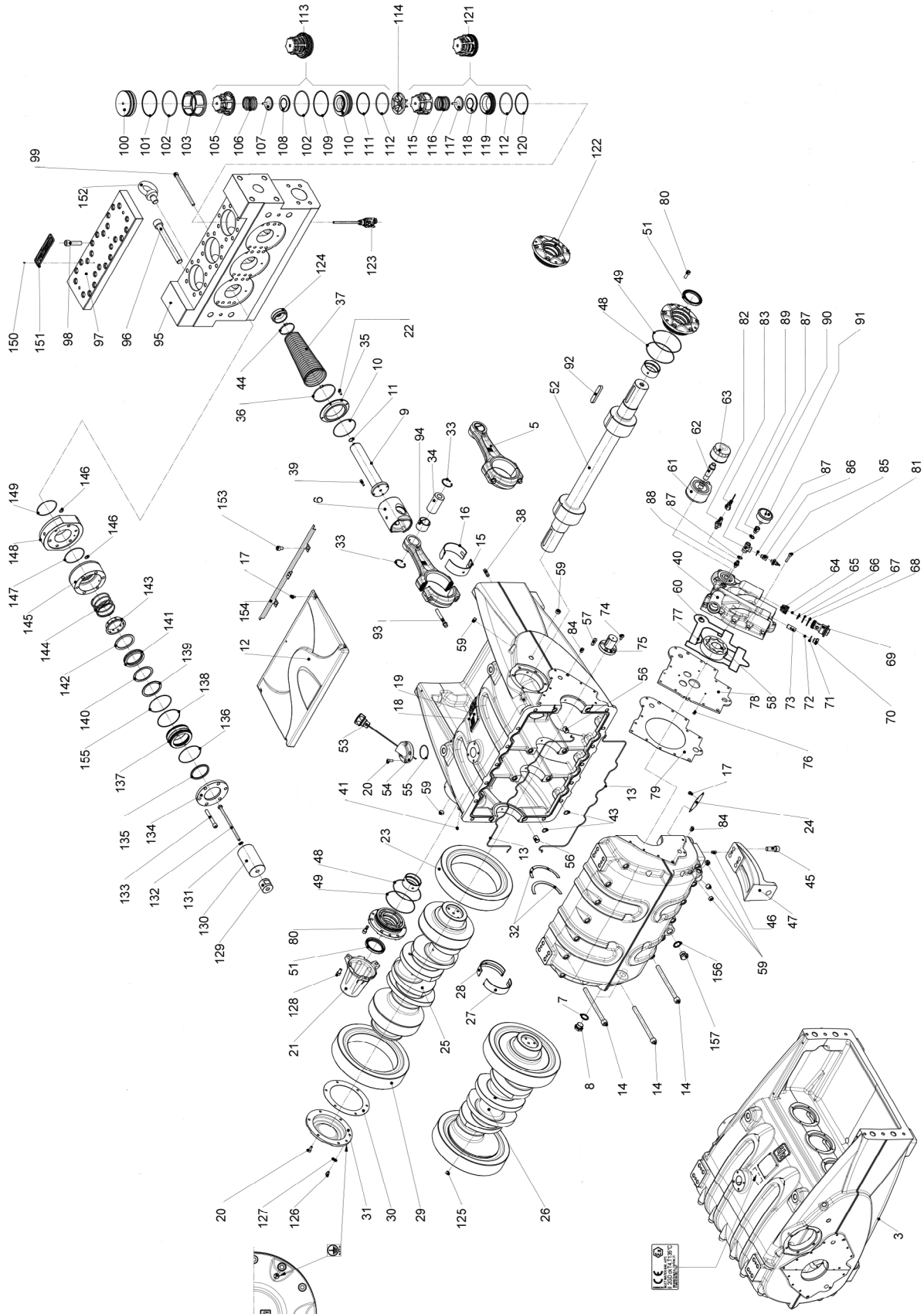
KIT NUMBER	F2351 Complete Seal Kit SRR50	F2352 Complete Seal Kit SRR55	F2353 Complete Seal Kit SRR60	F2354 Complete Seal Kit SRR65	F2355 Complete Seal Kit SRR70	F2356 Complete Seal Kit SRR75	
Positions Included	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 100, 101,108, 110, 111,119, 127, 128, 130, 132, 133, 134, 138, 139, 141,153

KIT NUMBER	F2264 Valve Kit
Positions Included	100, 101, 102, 108, 112, 113, 120

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

18.2 Exploded View & Parts List of SRR Vertical Pumps



18.2 Exploded View & Parts List of SRR Vertical Pumps

Item	Part #	Description	QTY.
3	F65010801	Crankcase	1
5	F65030601	Connecting Rod	3
6	F79050043	Piston Guide	3
	F79050243	Piston Guide, ± 1.0	
7	F93198000	Washer, Seal, Ø 3/4"	2
8	F98226500	Plug, G 3/4"x16	2
9	F65050566	Piston Guide Stem	3
10	F90392000	O-ring, Ø101.27x2.62	3
11	F90359600	O-ring, Ø 77x1.78	3
12	F65150853	Upper Crankcase Cover	1
	F65151176	Upper Crankcase Cover ATEX	
13	F65214082	Seal, Ø 3.53x530	2
14	F99522400	Screw, M16x200	22
15	F90932300	Upper Babbitt	3
	F90932400	Upper babbitt, +0.25	
	F90932500	Upper babbitt, +0.50	
16	F90932000	Lower Babbitt	3
	F90932100	Lower Babbitt, +0.25	
	F90932200	Lower Babbitt, +0.50	
17	F99182000	Screw, M6x12	9
18	F91570000	Rivet, Ø 2.5x5	4
19	F97826800	Pump Plate	1
20	F99305900	Screw, M8x20	10
21	F65150920	Crankshaft End Cover	1
22	F99185300	Screw, M6x16	12
23	F10081555	Gear, SX Z81 R 2.90, Helical	1
	F10081755	Gear, SX Z83 R 3.46, Helical	
	F10081955	Gear, SX Z89 R 4.23, Helical	
24	F65210874	Oil Filter	1
25	F65020555	Crankshaft Elbow	1
26	F65020701	Bearing, C: 90, R: 2.90	1
	F65020801	Bearing, C: 90, R:3.46	
	F65020901	Bearing, C: 90, R:4.23	
27	F90935000	Upper Bushing	4
	F90935100	Upper Bushing, +0.254	
	F90935200	Upper Bushing, +0.5.8	
28	F90934700	Lower Bushing	4
	F90934800	Lower Bushing, +0.254	
	F90394900	Lower Bushing, +0.508	
29	F10081455	Gear, DX Z81 R 2.90, Helical	1
	F10081655	Gear, DX Z83 R. 3.43, Helical	
	F10081855	Gear, DX Z89 R. 4.23, Helical	
30	F65210984	Front Cover Seal	1
31	F65150620	Crankshaft Cover	1
32	F90935300	Half ring	2
33	F90075500	Ring, Seeger, Ø 45	6
34	F97747000	Pin, Ø 45x86	3
35	F65210766	Flange for Bellows	3
36	F92811000	Clip, Ø 98-109	3
37	F65211047	Bellows	3
38	F97630000	Pin, Ø 12x40	2
39	F99189700	Screw, M6x24	12
40	F79212420	Pump Oil Body	1
41	F98193000	Plug, Conical, M8x1	2
43	F90384500	O-ring, Ø 18.72x2.62	4
44	F92810000	Clip, Ø 58-89	3
45	F99514200	Screw, M16x45	16
46	F97623000	Pin, Ø 10x24	8
47	F65200713	Vertical Feet	2
48	F90392650	O-ring, Ø 126.67x2.62	2
49	F90380500	O-ring, Ø 132.00x2.50	2
51	F90190000	Ring, Rad. Ø 70x90x10	2
52	F10081155	Pinion, Z28 R. 2.90, Helicol	1
	F10081255	Pinion, Z24 R. 3.46, Helicol	
	F10081355	Pinion, Z21 R. 4.23, Helicol	
53	F98233950	Oil Dipstick, 1"x275	1
	F98234020	Oil Dipstick, 1"x275 ATEX	
54	F65211154	Oil Dipstick Support	1
55	F90389800	O-ring, Ø 56.82x2.62	1
56	F79211689	Bushing	4
57	F91499500	Key, 12x8x40	1
58	F79211907	Oil Pump Rotor	1
59	F98215500	Plug, Conical, M20x1.5	6
60	F98385200	O-ring, Ø 22.22x2.62	1
61	F65213700	Exchanger, Water-Oil	1

Item	Part #	Description	QTY.
62	F65213864	Fitting, Oil Filter Exchanger	1
63	F92899000	Oil Filter, M20	1
64	F36200951	Inlet Valve Guide	4
65	F94744000	Spring, 15.4x26.5	4
66	F36201076	Valve, Spherical	4
67	F90386500	O-ring, Ø 29.82x2.62	4
68	F90387300	O-ring, Ø 36.14x2.62	4
69	F79213964	Valve Cage	4
70	F98213780	Plug, M18x11	1
71	F96741000	Washer, Ø 18.2x24x1.5	1
72	F94739000	Spring, 10.8x37.9	1
73	F79213664	Piston Valve, H.P.	1
74	F99303900	Screw, M8x16	4
75	F79212654	Control, Oil Pump	1
76	F99185100	Screw, M6x16	3
77	F79212747	Oil Seal, Oil Pump	1
78	F79212874	Plate, Oil Pump	1
79	F79212984	Seal, Oil Pump Plate	1
80	F99368600	Screw, M10x30	12
81	F99311600	Screw, M8x40	15
82	F93510500	High Temperature Light	1
83	F93551500	Connector, High Temperature Light	1
84	F79213589	Bushing, Oil Pump	2
85	F93555500	Pressure Switch, 12V	1
86	F94513100	Connector, M-F, 1/4"-M10x1	1
87	F96723000	Washer, Ø 13.5x19x1.5	3
88	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
89	F96310000	Connector, T, F-F-F, G1/4"	1
90	F95256600	Nipple, M-F, G1/4"	1
91	F94607000	Pressure Gauge	1
92	F91505000	Key, 18x11x100	1
93	F99441000	Screw, Connecting Rod	6
94	F90918500	Bushing, Connecting Rod	3
95	F65120556	Manifold	1
96	F99535500	Screw, M24x2x220	4
97	F65212056	Valve Cover, LP	1
98	F99514900	Screw, M16x65	24
99	F99449500	Screw, M12x180	24
100	F65212156	Plug, Valve	3
101	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
102	F90414600	O-ring, Ø 104.4x3.53	6
103	F65220305	Delivery Valve Spacer	3
105	F36213105	Delivery Valve Guide	3
106	F94774500	Spring, 56x57.3	3
107	F36212951	Internal Valve Guide	3
108	F36212601	Valve, Spherical, Complete	3
109	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
110	F36212156	Valve Seat, Delivery	3
111	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
112	F90414400	O-ring, Ø 88.5x3.53	6
113	F36725301	Complete Delivery Valve	3
114	F65212251	Valve Guide Spacer	3
115	F36213005	Inlet Valve Guide	3
116	F94775500	Spring, 58.5x103.1	3
117	F36212851	Internal Valve Guide	3
118	F36212701	Spherical Valve, Complete	3
119	F36212056	Inlet Valve Seat	3
120	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
121	F36722601	Inlet Valve, Complete	3
122	F65700501	PTO Cover + Pinion Bushing	2
123	F10744901	Valve Device Opening	3
124	F65210666	Bellows Flap	3
126	F99301900	Screw M8x10 ATEX	1
127	F96701750	Washer Ø 8.4x15x0.8 ATEX	1
128	F99365200	Screw M10x20	3
129	F65211966	Plunger Spacer	3
130	F74040209	Plunger, Ø 50x127	3
	F74040309	Plunger, Ø 55x127	
	F74040409	Plunger, Ø 60x127	
	F74040509	Plunger, Ø 65x127	
	F65043209	Plunger, Ø 70x127	
	F65040909	Plunger, Ø 75x127	
131	F96710500	Washer Ø 10x18x0.9	3
132	F99386500	Screw M10x200	3
133	F99441800	Screw M12x90	18

GENERAL PUMP *A member of the Interpump Group*

TR50/55/60/65/70/75-SR50/55/60/65/70/75 TRR50/55/60/65/70/75-SRR50/55/60/65/70/75

18.2 Exploded View & Parts List of SRR Vertical Pumps

Item	Part #	Description	QTY.
134	F65220056	Support Ring Seal Ø 50	3
	F65220156	Support Ring Seal Ø 55	
	F65220256	Support Ring Seal Ø 60	
	F65213256	Support Ring Seal Ø 65	
	F65213456	Support Ring Seal Ø 70	
	F35213556	Support Ring Seal Ø 75	
135	F90286000	Packing, Ø 50x58x5.5, LP	3
	F90287000	Packing, Ø 55x63x5.5, LP	
	F90288000	Packing, Ø 60x68x5.5, LP	
	F90289000	Packing, Ø 65x73x5.5, LP	
	F90290000	Packing, Ø 70x80x5.5, LP	
	F90291000	Packing, Ø 75x85x5.5, LP	
136	F90379700	O-ring Ø 85x2.5 SRR50 SRR55	3
	F90379900	O-ring Ø 91x2.5 SRR60 SRR65	
	F90380200	O-ring Ø 100x2.5 SRR70 SRR75	
137	F65218456	Packing Support Ø 50	3
	F65218556	Packing Support Ø 55	
	F65218656	Packing Support Ø 60	
	F65218756	Packing Support Ø 65	
	F65218856	Packing Support Ø 70	
	F65218956	Packing Support Ø 75	
138	F90528900	Anti-extrusion Ring Ø 76.9x81x1.5 SRR50 SRR55	3
	F90529400	Anti-extrusion Ring Ø 82.9x87x1.5 SRR60	
	F90532000	Anti-extrusion Ring Ø 92.2x96x1.5 SRR 65	
	F90533000	Anti-extrusion Ring Ø 101.2x105x1.5 SRR70 SRR75	
139	F65219056	Support Ring Ø 50	3
	F65219156	Support Ring Ø 55	
	F65219256	Support Ring Ø 60	
	F65219356	Support Ring Ø 65	
	F65219456	Support Ring Ø 70	
	F65219556	Support Ring Ø 75	
140	F90524400	Anti-extrusion Ring Ø 50x66x2	3
	F90526650	Anti-extrusion Ring Ø 55x71x2	
	F90526890	Anti-extrusion Ring Ø 60x76x2	
	F90527450	Anti-extrusion Ring Ø 65x81x2	
	F90528300	Anti-extrusion Ring Ø 70x86x2	
	F90528680	Anti-extrusion Ring Ø 75x91x2	

Item	Part #	Description	QTY.
141	F90569900	Packing Ø 50x66x15	3
	F90572400	Packing Ø 55x71x15	
	F90574900	Packing Ø 60x76x15	
	F90577400	Packing Ø 65x81x15	
	F90578500	Packing Ø 70x86x15	
	F90579500	Packing Ø 75x91x15	
142	F74213882	Scraper Ring Ø 50	3
	F74213982	Scraper Ring Ø 55	
	F74214082	Scraper Ring Ø 60	
	F74214182	Scraper Ring Ø 65	
	F65219882	Scraper Ring Ø 70	
	F65219982	Scraper Ring Ø 75	
143	F74123456	Ring for Spring Ø 50	3
	F74213556	Ring for Spring Ø 55	
	F74213656	Ring for Spring Ø 60	
	F74213756	Ring for Spring Ø 65	
	F65219656	Ring for Spring Ø 70	
	F65219756	Ring for Spring Ø 75	
144	F94777000	Spring 61x35 SRR50 SRR55	3
	F94790000	Spring 71.5x45 SRR60 SRR65	
	F94801000	Spring 81.3x65.5 SRR70 SRR75	
145	F65061856	Packing Sleeve Ø 50-55	3
	F65061956	Packing Sleeve Ø 60	
	F65062056	Packing Sleeve Ø 65	
	F65062156	Packing Sleeve Ø 70-75	
146	F90383000	O-ring Ø 13.1x2.62	6
147	F90391350	O-ring Ø 71.12x2.62 SRR50 SRR55 SRR60	3
	F9039700	O-ring Ø 88.57x2.62 SRR65 SRR70 SRR75	
148	F65212356	Liner Support Ø 50-55	3
	F65218256	Liner Support Ø 60	
	F65212456	Liner Support Ø 65-70-75	
149	F90391750	O-ring Ø 88.57x2.62	3
150	F91570300	Rivet	2
151	F97827600	Pump Tag	1
152	F99301900	Eye Bolt M24	2
153	F99425400	Screw M12x16	2
154	F65218476	Upper Cover Housing Support	1
155	F90391450	O-ring Ø 75.87x2.62 SRR50 SRR55	3
	F90391600	O-ring Ø 82.22x2.62 SRR60	
	F90379900	O-ring Ø 91x2.5 SRR65	
	F90380200	O-ring Ø 100x2.5 SRR70 SRR75	
156	F93198000	Washer Seal G 3/4"	1
157	F98226500	Plug G 3/4"x16	1
	F98226850	Plug G 3/4"x16 ATEX	

REPAIR KITS

KIT NUMBER	F2345 Plunger Packing Kit SRR50	F2346 Plunger Packing Kit SRR55	F2347 Plunger Packing Kit SRR60	F2348 Plunger Packing Kit SRR65	F2349 Plunger Packing Kit SRR70	F2350 Plunger Packing Kit SRR75
Positions Included	135, 136, 138, 140, 141, 142, 146, 147, 149, 155	135, 136, 138, 140, 141, 142, 146, 147, 149, 155	135, 136, 138, 140, 141, 142, 146, 147, 149, 155	135, 136, 138, 140, 141, 142, 146, 147, 149, 155	135, 136, 138, 140, 141, 142, 146, 147, 149, 155	135, 136, 138, 140, 141, 142, 146, 147, 149, 155

KIT NUMBER	F2351 Complete Seal Kit SRR50	F2352 Complete Seal Kit SRR55	F2353 Complete Seal Kit SRR60	F2354 Complete Seal Kit SRR65	F2355 Complete Seal Kit SRR70	F2356 Complete Seal Kit SRR75	
Positions Included	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 101, 102, 109, 111, 112, 120, 135, 136, 138, 140, 141, 142, 146, 147, 149, 155

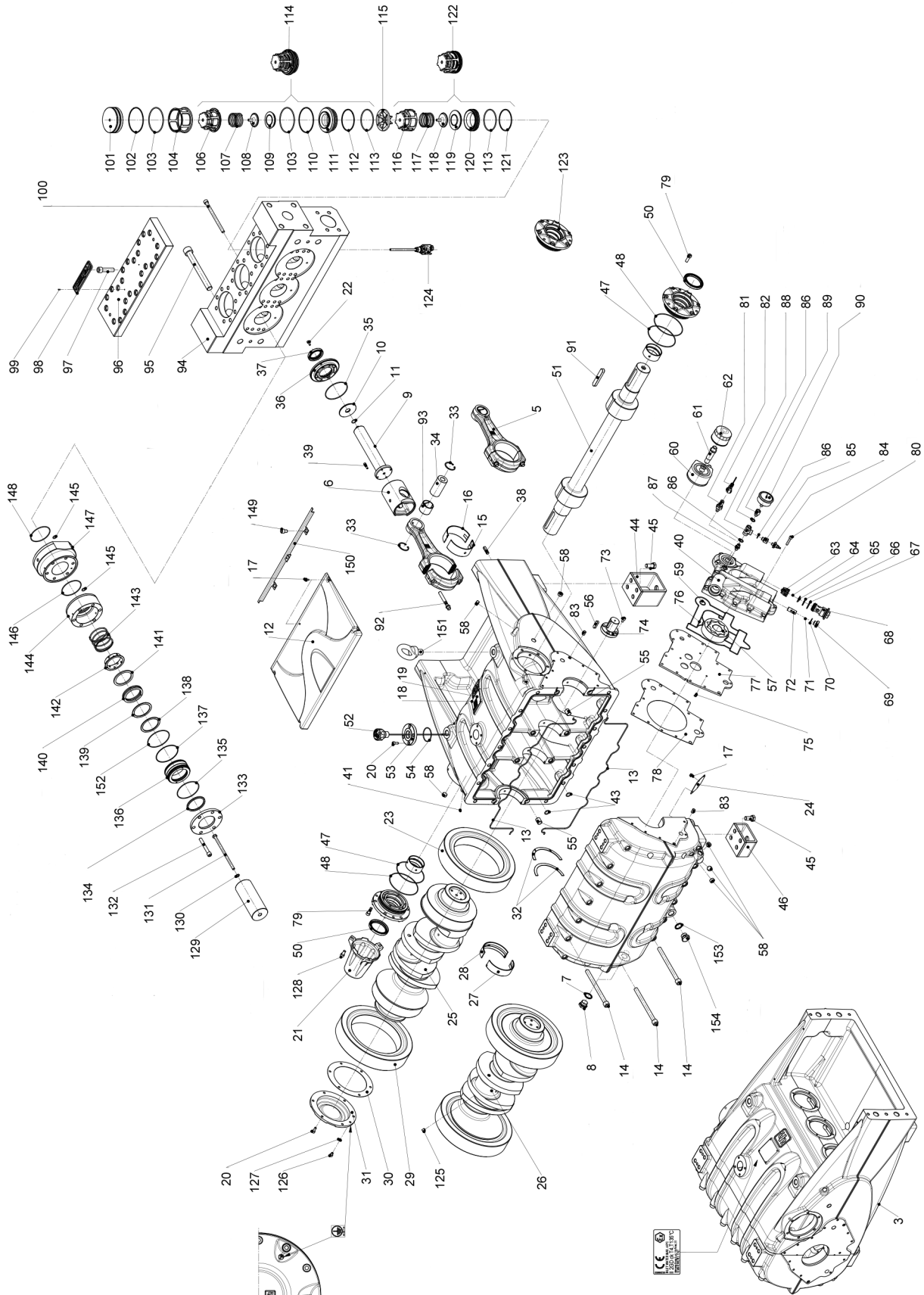
KIT NUMBER	F2264 Valve Kit
Positions Included	101, 102, 103, 109, 113, 114, 121

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

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18.3 Exploded View & Parts List of TRR Horizontal Pumps



18.3 Exploded View & Parts List of TRR Horizontal Pumps

Item	Part #	Description	QTY.	Item	Part #	Description	QTY.
3	F65010901	Crankcase	1	61	F65213864	Fitting, Oil Filter Exchanger	1
5	F65030601	Connecting Rod	3	62	F92899000	Oil Filter, M20	1
6	F79050043	Piston Guide	3	63	F36200951	Inlet Valve Guide	4
	F79050243	Piston Guide, ± 1.0		64	F94744000	Spring, 15.4x26.5	4
7	F93198000	Washer, Seal, Ø 3/4"	2	65	F36201076	Valve, Spherical	4
8	F98226500	Plug, G 3/4"x16	2	66	F90386500	O-ring, Ø 29.82x2.62	4
9	F65050566	Piston Guide Stem	3	67	F90387300	O-ring, Ø 36.14x2.62	4
10	F65210566	Splashguard	3	68	F79213964	Valve Cage	4
11	F90359600	O-ring, Ø 77x1.78	3	69	F98213780	Plug, M18x11	1
12	F65150753	Upper Crankcase Cover	1	70	F96741000	Washer, Ø 18.2x24x1.5	1
	F65151076	Upper Crankcase Cover - ATEX		71	F94739000	Spring, 10.8x37.9	1
13	F65214082	Seal, Ø 3.53x530	2	72	F79213664	Piston Valve, H.P.	1
14	F99522400	Screw, M16x200	22	73	F99303900	Screw, M8x16	4
15	F90932300	Upper Babbitt	3	74	F79212654	Control, Oil Pump	1
	F90932400	Upper Babbitt, +0.25		75	F99185100	Screw, M6x16	3
	F90932500	Upper Babbitt, +0.50		76	F79212747	Oil Seal, Oil Pump	1
16	F90932000	Lower Babbitt	3	77	F79212874	Plate, Oil Pump	1
	F90932100	Lower Babbitt, +0.25		78	F79212984	Seal, Oil Pump Plate	1
	F90932200	Lower Babbitt, +0.50		79	F99368600	Screw, M10x30	12
17	F99182000	Screw, M6x12	9	80	F99311600	Screw, M8x40	15
18	F91570000	Rivet, Ø 2.5x5	4	81	F93510500	High Temperature Light	1
19	F97826800	Pump Plate	1	82	F93551500	Connector, High Temperature Light	1
20	F99305900	Screw, M8x20	10	83	F79213589	Bushing, Oil Pump	2
21	F65150920	Crankshaft End Cover	1	84	F93555500	Pressure Switch, 12V	1
22	F99185300	Screw, M6x16	6	85	F94513100	Connector, M-F, G 1/4"-M10x1	1
23	F10081555	Gear, SX Z81 R 2.90, Helical	1	86	F96723000	Washer, Ø 13.5x19x1.5	3
	F10081755	Gear, SX Z83 R 3.46, Helical		87	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
	F10081955	Gear, SX Z89 R 4.23, Helical		88	F96310000	Connector, T, F-F-F, G1/4"	1
24	F65210874	Oil Filter	1	89	F95256600	Nipple, M-F, G1/4"	1
25	F65020655	Crankshaft Elbow	1	90	F94607000	Pressure Gauge	1
26	F65021001	Bearing, C: 130, R: 2.90	1	91	F91505000	Key, 18x11x100	1
	F65021101	Bearing, C: 130, R:3.46		92	F99441000	Screw, Connecting Rod	6
	F65021201	Bearing, C: 130, R:4.23		93	F90918500	Bushing, Connecting Rod	3
27	F90935000	Upper Bushing	4	94	F65120556	Manifold	1
	F90935100	Upper Bushing, +0.254		95	F99535500	Screw, M24x2x220	4
	F90935200	Upper Bushing, +0.5.8		96	F65212056	Valve Cover, LP	1
28	F90934700	Lower Bushing	4	97	F99514900	Screw, M16x65	24
	F90934800	Lower Bushing, +0.254		98	F97827600	Pump Tag	1
	F90934900	Lower Bushing, +0.508		99	F91570300	Rivet	2
29	F10081455	Gear, DX Z81 R 2.90, Helical	1	100	F99449500	Screw, M12x180	24
	F10081655	Gear, DX Z83 R. 3.43, Helical		101	F65212156	Plug, Valve	3
	F10081855	Gear, DX Z89 R. 4.23, Helical		102	F90534500	Anti-extrusion Ring, Ø 105.4x111.2x1.5	3
30	F65210984	Front Cover Seal	1	103	F90414600	O-ring Ø 104.37x3.53	6
31	F65150620	Crankshaft Cover	1	104	F65213956	Delivery Valve Spacer	3
32	F90935300	Half ring	2	106	F36215105	Guide, Delivery Valve	3
33	F90075500	Ring, Seeger, Ø 45	6	107	F94774500	Spring, 56x57.3	3
34	F97747000	Pin, Ø 45x86	3	108	F36212951	Internal Valve Guide	3
35	F90392000	O-ring, Pin, Ø 101.27x2.62	3	109	F36212601	Valve, Spherical, Complete	3
36	F79210022	Piston Guide Seal Cover	3	110	F90534000	Anti-extrusion Ring Ø 105.2x111x1.5	3
37	F90171500	Ring, Rad, Ø 50x70x10/11.5	3	111	F36212156	Valve Seat, Delivery	3
38	F97630000	Pin, Ø 12x40	2	112	F90531500	Anti-extrusion Ring Ø 89.4x95.2x1.5	3
39	F99189700	Screw, M6x24	12	113	F90414400	O-ring, Ø 88.5x3.53	6
40	F79212420	Pump Oil Body	1	114	F36725301	Complete Delivery Valve	3
41	F98193000	Plug, Conical, M8x1	2	115	F65212251	Valve Guide Spacer	3
43	F90384500	O-ring, Ø 18.72x2.62	4	116	F36213005	Inlet Valve Guide	3
44	F65200602	Front Pump Feet	2	117	F94775500	Spring, 58.5x103.1	3
45	F99513300	Screw, M16x35	16	118	F36212851	Internal Valve Guide	3
46	F65200502	Rear Pump Feet	2	119	F36212701	Spherical Valve, Complete	3
47	F90392650	O-ring, Ø 126.67x2.62	2	120	F36212056	Inlet Valve Seat	3
48	F90380500	O-ring, Ø 132.00x2.50	2	121	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
50	F90190000	Ring, Rad. Ø 70x90x10	2	122	F36722601	Inlet Valve, Complete	3
51	F10081155	Pinion, Z28 R. 2.90, Helical	1	123	F65700501	PTO Cover + Pinion Bushing	1
	F10081255	Pinion, Z24 R. 3.46, Helical		124	F10744901	Valve Opening Device	3
	F10081355	Pinion, Z21 R. 4.23, Helical		125	F99425000	Screw M12x12	2
52	F98234050	Oil Dipstick G1"x343	1	126	F99301900	Screw M8x10 - ATEX	1
	F98234070	Oil Dipstick G1"x343 - ATEX		127	F96701750	Washer Ø 8.4x15x0.8 - ATEX	1
53	F65211254	Oil Dipstick Support	1	128	F99365200	Screw M10x20	3
54	F90389800	O-ring, Ø 56.82x2.62	1	129	F65040509	Plunger, Ø 50x180	3
55	F79211689	Bushing	4		F65043309	Plunger, Ø 55x180	
56	F91499500	Key, 12x8x40	1		F65040609	Plunger, Ø 60x180	
57	F79211907	Oil Pump Rotor	1		F65043409	Plunger, Ø 65x180	
58	F98215500	Plug, Conical, M20x1.5	6		F65040709	Plunger, Ø 70x180	
59	F90385200	O-ring, Ø 22.22x2.62	1	F65040809	Plunger, Ø 75x180		
60	F65213700	Exchanger, Water-Oil	1	130	F96710500	Washer Ø 10x18x0.9	3
				131	F99386500	Screw M10x200	3
				132	F99441800	Screw M12x90	18

18.3 Dimensions & Weights of TRR Horizontal Pumps

Item	Part #	Description	QTY.	Item	Part #	Description	QTY.								
133	F65220056	Support Ring Seal Ø 50	3	140	F90569900	Packing Ø 50x66x15	3								
	F65220156	Support Ring Seal Ø 55			F90572400	Packing Ø 55x71x15									
	F65220256	Support Ring Seal Ø 60			F90574900	Packing Ø 60x76x15									
	F65213256	Support Ring Seal Ø 65			F90577500	Packing Ø 65x81x15									
	F65213456	Support Ring Seal Ø 70			F90578500	Packing Ø 70x86x15									
	F65213656	Support Ring Seal Ø 75		F90579500	Packing Ø 75x91x15										
134	F90286000	Packing, Ø 50x58x5.5, LP	3	141	F74213882	Scraper Ring Ø 50	3								
	F90287000	Packing, Ø 55x63x5.5, LP			F74213982	Scraper Ring Ø 55									
	F90288000	Packing, Ø 60x68x5.5, LP			F74214082	Scraper Ring Ø 60									
	F90289000	Packing, Ø 65x73x5.5, LP			F74214182	Scraper Ring Ø 65									
	F90290000	Packing, Ø 70x80x5.5, LP			F65219882	Scraper Ring Ø 70									
	F90291000	Packing, Ø 75x85x5.5, LP		F65219982	Scraper Ring Ø 75										
135	F90379700	O-ring Ø 85x2.5 TRR50 TRR55	3	142	F74213456	Ring for Spring Ø 50	3								
	F90379900	O-ring Ø 91x2.5 TRR60 TRR65			F74213556	Ring for Spring Ø 55									
	F90380200	O-ring Ø 100x2.5 TRR70 TRR75			F74213656	Ring for Spring Ø 60									
136	F65218456	Support Packing Ø 50	3	143	F74213756	Ring for Spring Ø 65	3								
	F65218556	Support Packing Ø 55			F65219656	Ring for Spring Ø 70									
	F65218656	Support Packing Ø 60			F65219756	Ring for Spring Ø 75									
	F65218756	Support Packing Ø 65			F94777000	Spring 61x35 TRR50 TRR55									
	F65218856	Support Packing Ø 70			F94790000	Spring 71.5x45 TRR60 TRR65									
	F65218956	Support Packing Ø 75		F94801000	Spring 81.3x65.5 TRR70 TRR75										
137	F90528900	Anti-extrusion Ring Ø TRR50 TRR55	3	144	F65061856	Packing Sleeve Ø 50-55	3								
	F90529400	Anti-extrusion Ring Ø TRR60			F65061956	Packing Sleeve Ø 60									
	F90532000	Anti-extrusion Ring Ø TRR65			F65062056	Packing Sleeve Ø 65									
	F90533000	Anti-extrusion Ring Ø TRR70 TRR75			F65062156	Packing Sleeve Ø 70-75									
138	F65219056	Support Ring Ø 50	3	145	F90383000	O-ring Ø 13.1x2.62	6								
	F65219156	Support Ring Ø 55			146	F90391350		O-ring Ø 71.12x2.62 TRR50 TRR55 TRR60	3						
	F65219256	Support Ring Ø 60				F90391700		O-ring Ø 88.57x2.62 TRR65 TRR70 TRR75							
	F65219356	Support Ring Ø 65				F65214656		Liner Support Ø 50-55		3					
	F65219456	Support Ring Ø 70				F65212556		Liner Support Ø 60							
F65219556	Support Ring Ø 75	F65212656	Liner Support Ø 65-70-75												
139	F90524400	Anti-extrusion Ring Ø 50x66x2	3	148	F90391750	O-ring Ø 88.57x2.62	3								
	F90526650	Anti-extrusion Ring Ø 55x71x2			149	F99425400		Screw M12x16	2						
	F90526890	Anti-extrusion Ring Ø 60x76x2				150		F99425000		Upper Cover Housing Support	1				
	F90527450	Anti-extrusion Ring Ø 65x81x2						151		F93108000		Eye Bolt M24	2		
	F90528300	Anti-extrusion Ring Ø 70x86x2								152		F90391450		O-ring Ø 75.87x2.62 TRR50 TRR55	3
	F90528680	Anti-extrusion Ring Ø 75x91x2										F90391600		O-ring Ø 82.22x6.62 TRR60	
		F90379900	O-ring Ø 91x2.5 TRR65	1											
		F90380200	O-ring Ø 100x2.5 TRR70 TRR75												
		F97827600	Seal Washer Ø 3/4"												
		F98226500	Plug G 3/4"x16	1											
		F98226850	Plug G 3/4"x16 - ATEX												

REPAIR KITS

KIT NUMBER	F2345 Plunger Packing Kit TRR50	F2346 Plunger Packing Kit TRR55	F2347 Plunger Packing Kit TRR60	F2348 Plunger Packing Kit TRR65	F2349 Plunger Packing Kit TRR70	F2350 Plunger Packing Kit TRR75
Positions Included	134, 135, 137, 139, 140, 141, 145, 146, 148, 152	134, 135, 137, 139, 140, 141, 145, 146, 148, 152	134, 135, 137, 139, 140, 141, 145, 146, 148, 152	134, 135, 137, 139, 140, 141, 145, 146, 148, 152	134, 135, 137, 139, 140, 141, 145, 146, 148, 152	134, 135, 137, 139, 140, 141, 145, 146, 148, 152

KIT NUMBER	F2351 Complete Seal Kit TRR50	F2352 Complete Seal Kit TRR55	F2353 Complete Seal Kit TRR60	F2354 Complete Seal Kit TRR65	F2355 Complete Seal Kit TRR70	F2356 Complete Seal Kit TRR75	
Positions Included	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152	11, 13, 30, 35, 37, 43, 47, 48, 50, 54, 59, 66, 67, 76, 78, 102, 103, 110, 112, 113, 121, 134, 135, 137, 139, 140, 141, 145, 146, 148, 152

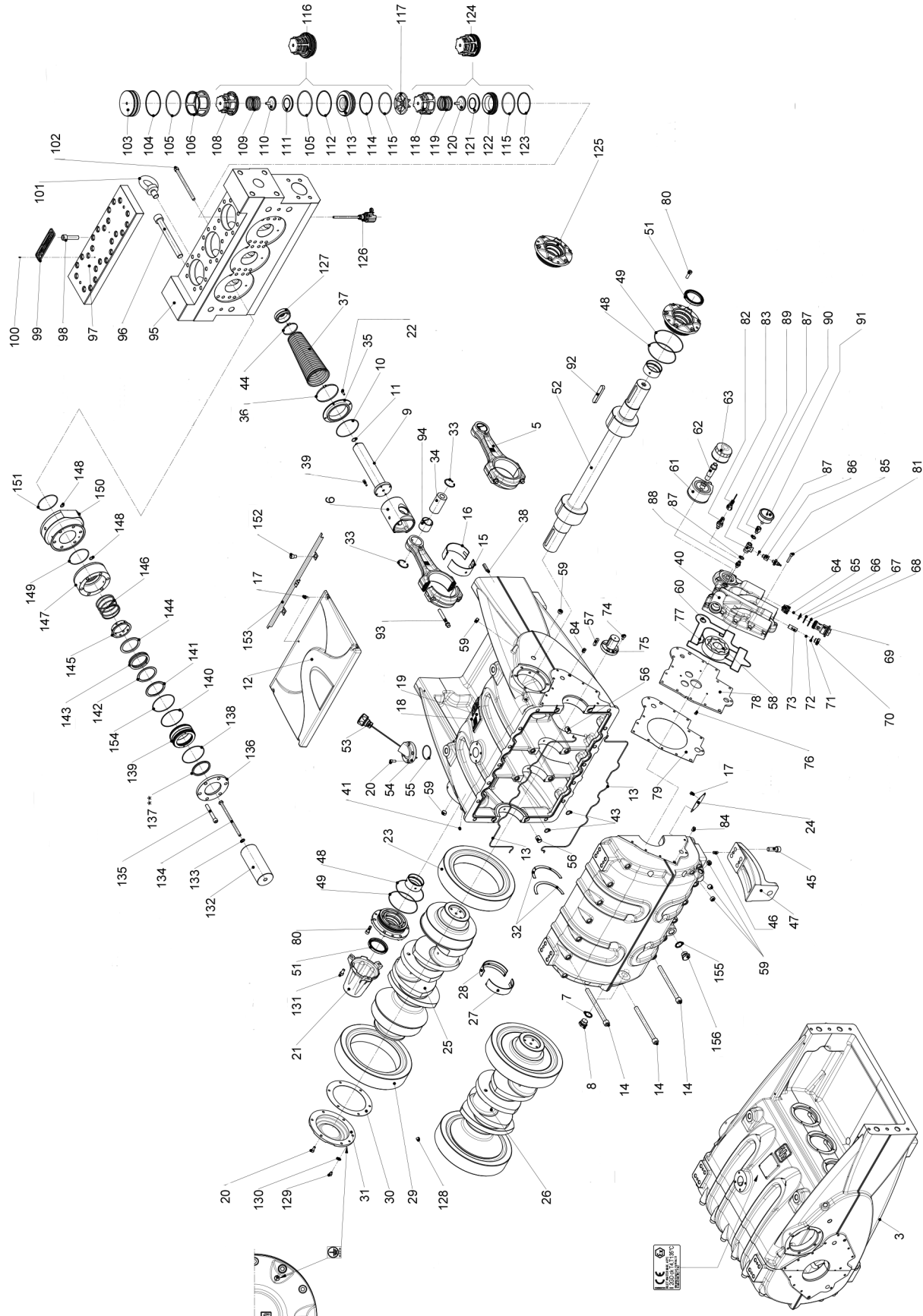
KIT NUMBER	F2264 Valve Kit
Positions Included	102, 103, 104, 110, 114, 115, 122

KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

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09-17

18.4 Exploded View & Parts List of TRR Vertical Pumps



18.4 Exploded View & Parts List of TRR Vertical Pumps

Item	Part #	Description	QTY.
3	F65010901	Crankcase	1
5	F65030601	Connecting Rod	3
6	F79050043	Piston Guide	3
	F79050243	Piston Guide, ± 1.0	
7	F93198000	Washer, Seal, Ø 3/4"	2
8	F98226500	Plug, G 3/4" x16	2
9	F65050566	Piston Guide Stem	3
10	F90392000	O-ring, Ø 101.27x2.62	3
11	F90359600	O-ring, Ø 18.77x1.78	3
12	F65150753	Upper Crankcase Cover	1
	F65151076	Upper Crankcase Cover - ATEX	
13	F65214082	Seal, Ø 3.53x530	2
14	F99522400	Screw, M16x200	22
15	F90932300	Upper Babbitt	3
	F90932400	Upper babbitt, +0.25	
	F90932500	Upper babbitt, +0.50	
16	F90932000	Lower Babbitt	3
	F90932100	Lower Babbitt, +0.25	
	F90932200	Lower Babbitt, +0.50	
17	F99182000	Screw, M6x12	9
18	F91570000	Rivet, Ø 2.5x5	4
19	F97826800	Pump Plate	1
20	F99305900	Screw, M8x20	10
21	F65150920	Crankshaft End Cover	1
22	F99185300	Screw, M6x16	12
23	F10081555	Gear, SX Z81 R 2.90, Helical	1
	F10081755	Gear, SX Z83 R 3.46, Helical	
	F10081955	Gear, SX Z89 R 4.23, Helical	
24	F65210874	Oil Filter	1
25	F65020655	Crankshaft Elbow	1
26	F65021001	Bearing, C: 130, R: 2.90	1
	F65021101	Bearing, C: 130, R:3.46	
	F65021201	Bearing, C: 130, R:4.23	
27	F90935000	Upper Bushing	4
	F90935100	Upper Bushing, +0.254	
	F90935200	Upper Bushing, +0.5.8	
28	F90934700	Lower Bushing	4
	F90934800	Lower Bushing, +0.254	
	F90394900	Lower Bushing, +0.508	
29	F10081455	Gear, DX Z81 R 2.90, Helical	1
	F10081655	Gear, DX Z83 R. 3.43, Helical	
	F10081855	Gear, DX Z89 R. 4.23, Helical	
30	F65210984	Front Cover Seal	1
31	F65150620	Crankshaft Cover	1
32	F90935300	Half ring	2
33	F90075500	Ring, Seeger, Ø 45	6
34	F97747000	Pin, Ø 45x86	3
35	F65210766	Flange for Bellows	3
36	F92811000	Clip, Ø 98-109	3
37	F65211047	Bellows	3
38	F97630000	Pin, Ø 12x40	2
39	F99189700	Screw, M6x24	12
40	F79212420	Pump Oil Body	1
41	F98193000	Plug, Conical, M8x1	2
43	F90384500	O-ring, Ø 18.72x2.62	4
44	F92810000	Clip, Ø 58-69	3
45	F99514200	Screw, M16x45	16
46	F97623000	Pin, Ø 10x24	8
47	F65200713	Vertical Feet	2
48	F90392650	O-ring, Ø 126.67x2.62	2
49	F90380500	O-ring, Ø 132.00x2.50	2
51	F90190000	Ring, Rad. Ø 70x90x10	2
52	F10081155	Pinion, Z28 R. 2.90, Helical	1
	F10081255	Pinion, Z24 R. 3.46, Helical	
	F10081355	Pinion, Z21 R. 4.23, Helical	
53	F98233950	Oil Dipstick G 1"x275	1
	F98224020	Oil Dipstick G 1"x275 - ATEX	
54	F65211254	Oil Dipstick Support	1
55	F90389800	O-ring, Ø 56.82x2.62	1
56	F79211689	Bushing	4
57	F91499500	Key, 12x8x40	1
58	F79211907	Oil Pump Rotor	1
59	F98215500	Plug, Conical, M20x1.5	6
60	F90385200	O-ring, Ø 22.22x2.62	1
61	F65213700	Exchanger, Water-Oil	1

Item	Part #	Description	QTY.
62	F65213864	Fitting, Oil Filter Exchanger	1
63	F92899000	Oil Filter, M20x1.5	1
64	F36200951	Inlet Valve Guide	4
65	F94744000	Spring, 15.4x26.5	4
66	F36201076	Valve, Spherical	4
67	F90386500	O-ring, Ø 29.82x2.62	4
68	F90387300	O-ring, Ø 36.14x2.62	4
69	F79213964	Valve Cage	4
70	F98213780	Plug, M18x11	1
71	F96741000	Washer, Ø 18.2x24x1.5	1
72	F94739000	Spring, 10.8x37.9	1
73	F79213664	Piston Valve, H.P.	1
74	F99303900	Screw, M8x16	4
75	F79212654	Control, Oil Pump	1
76	F99185100	Screw, M6x16	3
77	F79212747	Oil Seal, Oil Pump	1
78	F79212874	Plate, Oil Pump	1
79	F79212984	Seal, Oil Pump Plate	1
80	F99368600	Screw, M10x30	12
81	F99311600	Screw, M8x40	15
82	F93510500	High Temperature Light	1
83	F93551500	Connector, High Temperature Light	1
84	F79213589	Bushing, Oil Pump	2
85	F93555500	Pressure Switch, 12V	1
86	F94513100	Connector, M-F, 1/4"-M10x1	1
87	F96723000	Washer, Ø 13.5x19x1.5	3
88	F95256000	Connector, M-M, NPT 1/4"-G1/4"	1
89	F96310000	Connector, T, F-F-F, G1/4"	1
90	F95256600	Nipple, M-F, G1/4"	1
91	F94607000	Pressure Gauge	1
92	F91505000	Key, 18x11x100	1
93	F99441000	Screw, Connecting Rod	6
94	F90918500	Bushing, Connecting Rod	3
95	F65120556	Manifold	1
96	F99535500	Screw, M24x2x220	4
97	F65212056	Valve Cover, LP	1
98	F99514900	Screw, M16x65	24
99	F97827600	Pump Tag	1
100	F91570300	Rivet Ø 2.5x8	2
101	F93108000	Eye Bolt M24	2
102	F99449500	Screw M12x180	24
103	F65212156	Plug, Valve	3
104	F90534500	Anti-extrusion Ring 105.4x111.2x1.5	3
105	F90414600	O-ring, Ø 104.4x3.53	6
106	F65220305	Delivery Valve Spacer	3
108	F36213105	Guide, Delivery Valve	3
109	F94774500	Spring, 56x57.3	3
110	F36212951	Internal Valve Guide	3
111	F36212601	Valve, Spherical, Complete	3
112	F90534000	Ring, Anti-extrusion, Ø 105.2x111x1.5	3
113	F36212156	Valve Seat, Delivery	3
114	F90531500	Anti-extrusion Ring, Ø 89.4x95.2x1.5	3
115	F90414400	O-ring, Ø 88.5x3.53	6
116	F36725301	Complete Delivery Valve	3
117	F65212251	Valve Guide Spacer	3
118	F36213005	Inlet Valve Guide	3
119	F94775500	Spring, 58.5x103.1	3
120	F36212851	Internal Valve Guide	3
121	F36212701	Spherical Valve, Complete	3
122	F36212056	Inlet Valve Seat	3
123	F90531000	Anti-extrusion Ring, Ø 89.2x95x1.5	3
124	F36722601	Inlet Valve, Complete	3
125	F65700501	PTO Cover + Pinion Bushing	2
126	F10744901	Valve Opening Device	3
127	F65210666	Bellows Flap	3
128	F99425000	Screw M12x12	2
129	F99301900	Screw M8x10 - ATEX	1
130	F96701750	Washer Ø 8.4x15x0.8 - ATEX	1
131	F99365200	Screw M10x20	3
132	F65040509	Plunger Ø 50x180	3
	F65043309	Plunger Ø 55x180	
	F65040609	Plunger Ø 60x180	
	F65043409	Plunger Ø 65x180	
	F65040709	Plunger Ø 70x180	
	F65040809	Plunger Ø 75x180	

GENERAL PUMP *A member of the Interpump Group*

TR50/55/60/65/70/75-SR50/55/60/65/70/75
TRR50/55/60/65/70/75-SRR50/55/60/65/70/75

18.4 Exploded View & Parts List of TRR Vertical Pumps

Item	Part #	Description	QTY.	Item	Part #	Description	QTY.	
133	F96710500	Washer Ø 10x18x0.9	3	143	F90569900	Packing Ø 50x66x15	3	
134	F99386500	Screw M10x200	3		F90572400	Packing Ø 55x71x15		
135	F99441800	Screw M12x90	18		F90574900	Packing Ø 60x76x15		
136	F65220056	Support Ring Seal Ø 50	3		F90577400	Packing Ø 65x81x15		
	F65220156	Support Ring Seal Ø 55			F90578500	Packing Ø 70x86x15		
	F65220256	Support Ring Seal Ø 60		F90579500	Packing Ø 75x91x15			
	F65213256	Support Ring Seal Ø 65		144	F74213882	Scraper Ring Ø 50	3	
	F65213456	Support Ring Seal Ø 70			F74213982	Scraper Ring Ø 55		
F65213656	Support Ring Seal Ø 75	F74214082	Scraper Ring Ø 60					
137	F90286000	Packing Ø 50x58x5.5 LP	3	F74214182	Scraper Ring Ø 65	3		
	F90287000	Packing Ø 55x63x5.5 LP		F65219882	Scraper Ring Ø 70			
	F90288000	Packing Ø 60x68x5.5 LP		F65219982	Scraper Ring Ø 75			
	F90289000	Packing Ø 65x73x5.5 LP		145	F74213456		Ring for Spring Ø 50	3
	F90290000	Packing Ø 70x80x5.4 LP			F74213556		Ring for Spring Ø 55	
F90291000	Packing Ø 75x85x5.4 LP	F74213656	Ring for Spring Ø 60					
138	F90379700	O-ring Ø 85x2.5 TRR50 TRR55	3	F74213756	Ring for Spring Ø 65	3		
	F90379900	O-ring Ø 91x2.5 TRR60 TRR65		F65219656	Ring for Spring Ø 70			
	F90380200	O-ring Ø 100x2.5 TRR70 TRR75		F65219756	Ring for Spring Ø 75			
139	F65218456	Packing Support Ø 50	3	146	F94777000	Spring 61x35	3	
	F65218556	Packing Support Ø 55			F94790000	Spring 71.5x45		
	F65218656	Packing Support Ø 60			F94801000	Spring 81.3x65.5		
	F65218756	Packing Support Ø 65		147	F65061856	Packing Sleeve Ø 50-55	3	
	F65218856	Packing Support Ø 70			F65061956	Packing Sleeve Ø 60		
140	F65218956	Packing Support Ø 75	3	F65062056	Packing Sleeve Ø 65	3		
	F90528900	Anti-extrusion Ring Ø 76.9x81x1.5 TRR50 TRR55		F65062156	Packing Sleeve Ø 70-75			
	F90529400	Anti-extrusion Ring Ø 82.9x87x1.5 TRR60		148	F90383000		O-ring Ø 13.1x6.62	6
	F90532000	Anti-extrusion Ring Ø 92.2x96x1.5 TRR65		149	F90391350		O-ring Ø 71.12x2.62 TRR50 TRR55 TRR60	3
	F90533000	Anti-extrusion Ring Ø 101.2X105X1.5 TRR70 TRR75			F90391700		O-ring Ø 88.57x2.62 TRR65 TRR70 TRR75	
141	F65219056	Support Ring Ø 50	3	150	F65214656	Support Sleeve Ø 50-55	3	
	F65219156	Support Ring Ø 55			F65212556	Support Sleeve Ø 60		
	F65219256	Support Ring Ø 60		F65212656	Support Sleeve Ø 65-70-75			
	F65219356	Support Ring Ø 65		151	F90391750	O-ring 88.57x2.62	3	
	F65219456	Support Ring Ø 70		152	F99425400	Screw M12x16	2	
142	F65219456	Support Ring Ø 75	3	153	F65218476	Upper Housing Support Cover	1	
	F90524400	Anti-extrusion Ring Ø 50x66x2		154	F90391450	O-ring Ø 75.8x2.62 TRR50 TRR55	1	
	F90526650	Anti-extrusion Ring Ø 55x71x2			F90391600	O-ring Ø 82.22x2.62 TRR60		
	F90526890	Anti-extrusion Ring Ø 60x76x2			F90379900	O-ring Ø 91x2.5 TRR65		
	F90527450	Anti-extrusion Ring Ø 65x81x2			F90380200	O-ring Ø 100x2.5 TRR70 TRR75		
	F90528300	Anti-extrusion Ring Ø 70x86x2			155	F93198000		Washer Ø 3/4"
F90528680	Anti-extrusion Ring Ø 75x91x2	156	F98226500	Plug G 3/4"x16	1			
		F98226850	Plug G 3/4"x16 - ATEX					

REPAIR KITS

KIT NUMBER	F2345 Plunger Packing Kit TRR50	F2346 Plunger Packing Kit TRR55	F2347 Plunger Packing Kit TRR60	F2348 Plunger Packing Kit TRR65	F2349 Plunger Packing Kit TRR70	F2350 Plunger Packing Kit TRR75
Positions Included	137, 138, 140, 142, 143, 144, 148, 149, 151, 154	137, 138, 140, 142, 143, 144, 148, 149, 151, 154	137, 138, 140, 142, 143, 144, 148, 149, 151, 154	137, 138, 140, 142, 143, 144, 148, 149, 151, 154	137, 138, 140, 142, 143, 144, 148, 149, 151, 154	137, 138, 140, 142, 143, 144, 148, 149, 151, 154

KIT NUMBER	F2351 Complete Seals Kit TRR50	F2352 Complete Seals Kit TRR55	F2353 Complete Seals Kit TRR60	F2354 Complete Seals Kit TRR65	F2355 Complete Seals Kit TRR70	F2356 Complete Seals Kit TRR75	
Positions Included	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154	10, 11, 13, 30, 37, 43, 48, 49, 51, 55, 60, 67, 68, 77, 79, 104, 105, 112, 114, 115, 123, 137, 138, 140, 142, 143, 144, 148, 149, 151, 154

KIT NUMBER	F2264 Valve Kit	KIT NUMBER	F2265 Shaft Bushing Kit (Standard)	F2266 Shaft Bushing Kit +0.25	F2267 Shaft Bushing Kit +0.50
Positions Included	104, 105, 106, 112, 116, 117, 124	Positions Included	27, 28, 32	27, 28, 32	27, 28, 32

KIT NUMBER	F2186 Connecting Rod Bushing Kit (Standard)	F2187 Connecting Rod Bushing Kit (+0.25)	F2188 Connecting Rod Bushing Kit (+0.50)
Positions Included	15, 16	15, 16	15, 16

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09-17

19. MAINTENANCE LOG

HOURS & DATE

OIL CHANGE							
GREASE							
PACKING REPLACEMENT							
PLUNGER REPLACEMENT							
VALVE REPLACEMENT							



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