

IOM

INSTALLATION, OPERATION
& MAINTENANCE MANUAL

811SP SERIES

Self-Priming Centrifugal Pumps

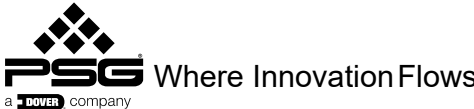
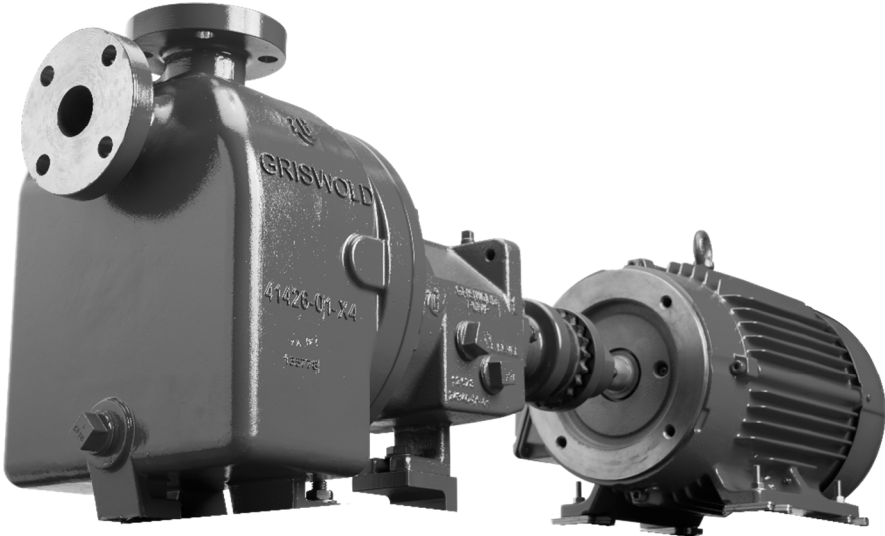




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INTRODUCTION

811SP Series Manual Note

This manual is intended to be a supplemental manual to the Griswold 811 ANSI Series manual. This manual covers the items specific to the 811SP Series pump line and for topics common to both the 811 ANSI Series and 811SP Series pump lines (such as baseplate installation, coupling alignment procedures, etc.), see the Griswold 811 ANSI Series IOM for details, available on our website:

https://www.psgdover.com/docs/default-source/griswold-docs/ioms/811_iom.pdf.

Safety

Failure to read and comply with installation, operation and maintenance instructions found in the Griswold 811 ANSI Series manual will void the responsibility of the manufacturer and may result in bodily injury or equipment damage.

The Griswold 811 ANSI Series manual and the 811SP Series manual should be kept as a part of the permanent records for the pump and should be readily accessible as a reference to anyone working on the pumping unit.

These pumps have been designed for safe and reliable operation when properly used and maintained in accordance with instructions contained in both manuals. A pump is a pressure containing device with rotating parts that can be hazardous. Operators and maintenance personnel must realize this and follow safety measures. Griswold Pump Company shall not be liable for physical injury, damage or delays caused by a failure to observe the instructions in the 811 ANSI Series and 811SP Series manuals.

Throughout the 811 ANSI Series manual, the words **WARNING**, **CAUTION**, and **NOTE** are used to indicate procedures or situations, which require special operator attention.

For full details, see the Griswold 811 ANSI Series IOM, available on our website: https://www.psgdover.com/docs/default-source/griswold-docs/ioms/811_iom.pdf

General Safety

- Do not allow pump, piping or other components containing water to freeze.

Freezing may damage the components, leading to possible injury or flooding

- Periodically inspect pump and associated components
- Wear safety glasses when working on pumps
- Keep work area clean, uncluttered and with adequate lighting
- Ensure pump and components cannot roll or fall over, possibly causing bodily injury or property damage
- Allow all system and pump components to cool before handling
- Disconnect and lock out power before servicing the pump
- Check explosion risk before spark inducing work, such as welding, using electric power tools, grinders, etc.

Product Description

The Griswold 811SP Series pump is a centrifugal single-stage self-priming pump which has all back-pull-out components in common with the Griswold 811 ANSI Series product line. The product line maintains consistent footprints and hold-down bolt patterns with the Griswold 811 ANSI Series. The pump has a back-pull-out design, meaning that it is possible to remove the pump back-end without disturbing the case and piping, which can facilitate easier maintenance of the pump. Each case is designed with an integral priming chamber that supplies liquid to the impeller during pump priming, which allows the pump to draw a vacuum in the suction line, drawing liquid up the suction pipe and ultimately into the pump resulting in full prime.

Since the 811SP Series utilizes the full back-end of the Griswold 811 ANSI Series pumps, the only components unique to the Griswold 811SP Series are the case and, if applicable, spacers to adjust for a larger pump centerline height.

See Figure 1 – 811SP Series Case Part Features for more details on page 4.

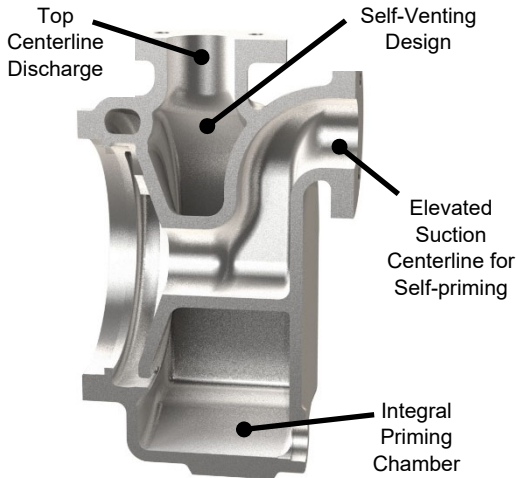


Figure 1 – 811SP Series Case Part Features

INSTALLATION

For installation instructions, including baseplate installation, grouting and shaft alignment procedures, see the Griswold 811 ANSI Series IOM: https://www.psgdover.com/docs/default-source/griswold-docs/ioms/811_iom.pdf, pages 6-15.

OPERATION

For pump operation instructions, including setting the impeller clearance, proper lubrication, starting the pump and troubleshooting, see the Griswold 811 ANSI Series IOM, pages 16-19.

When setting the impeller clearance of an 811SP Series pump, Table B in the Appendix of this document is to be used to determine the target assembled impeller clearance. With this value, the Impeller Clearance Adjustment procedure found in the Appendix of the Griswold 811 ANSI Series IOM should be used.

The following section on priming the pump is unique to the 811SP Series and replaces the “Priming” section of the Griswold 811 ANSI Series IOM.

Priming the Pump

The Griswold 811SP Series pumps are self-priming and do not require a foot valve or a manual priming procedure prior to startup, aside

from the initial charge of liquid for the case priming chamber. During the priming stage, the self-priming pump transfers air from the suction side to the discharge side of the pump, drawing a vacuum on the suction side and lifting the liquid up the suction pipe. An accumulation of air in the discharge piping hinders this process and can stall priming progress. Therefore, in some installations an air vent or permanent bypass line from the discharge piping is required to vent the accumulating air pressure.

See Figure 2 – 811SP Series Priming with By-Pass Line.

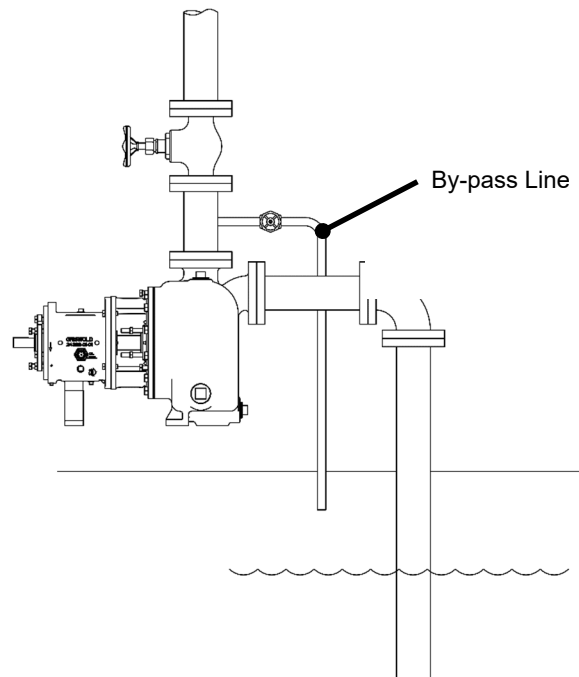


Figure 2 – 811SP Series Priming with By-Pass Line

Steps to Prime the 811SP Series Pump:

1. Re-check motor to ensure that the connections are correct. Check that thermal overload relays are properly sized and set for operation
2. Verify that the coupling guard and all other safety-related devices and instrumentation are in place and in working order
3. Initially fill the pump with enough liquid to fill the priming chamber (see Table A)
4. Check that any suction isolation valves are completely open. Never use the suction

valve to control flow as this can/will lead to “starving” the pump, causing cavitation and vibration that can result in damage to the pump

5. Ensure that all flushing and cooling lines, as applicable, are attached and operational.
6. Open vent / by-pass line valve (if applicable)
7. Depending on the system design, either adjust the discharge valve to be “cracked” open or keep it fully closed during priming
8. Start the driver
9. Listen for any unexpected noise and check for any significant vibration or indications of binding. If any of these are observed, the pump should be stopped immediately, and a thorough check of the installation should be made to determine the cause. Correct any fault(s) prior to re-starting the pump.
10. Depending on the quantity of air that needs to be evacuated from the suction piping and the suction lift height, it can take up to several minutes to achieve full prime of the suction piping and pump. Contact either Griswold Pump Company or your local authorized Griswold representative for additional information in estimating suction system priming times.
11. Monitor the gauges on the pump to determine when full prime has been achieved. Gradually adjust the discharge valve to allow the system to fill and stabilize at the pump’s operating capacity and head.

air is leaking into the suction line, otherwise the pump will not achieve prime.

REPAIR, ROUTINE MAINTENANCE, SPARE PARTS

For instructions on pump repair, routine maintenance, and spare parts, see the Griswold 811 ANSI Series IOM:
https://www.psgdover.com/docs/default-source/griswold-docs/ioms/811_iom.pdf, pages 21-37.

Model	Initial Charge Volume (in³)
811SP 1.5x1-6	310
811SP 1.5x1.5-8	390
811SP 2x2-10	1100
811SP 3x3-10	1160
811SP 4x4-10	1550
811SP 3x3-13	1330
811SP 4x4-13	1410
811SP 6x6-13	2980

Table A – 811SP Series
 Minimum Initial Charge Volumes

NOTE: During the priming process the suction liquid level is drawn up into the pump as the pump evacuates the air out of the suction line. Therefore, care must be taken to ensure that no

APPENDIX

Impeller Clearance Chart

The following table, Table B, of impeller clearances is to be used when setting the impeller clearance of an 811SP Series pump.

Pumpage Temperature	Pump Frame Size	
	811SP Small Frame	811SP Medium Frame, 811SP Large Frame
-20°F to 200°F	0.010"	0.016"
Up to 250°F	0.011"	0.017"
Up to 300°F	0.012"	0.018"
Up to 350°F	0.014"	0.020"
Up to 400°F	0.015"	0.021"
Up to 450°F	0.016"	0.022"
Up to 500°F	0.017"	0.023"

Table B – 811SP Series Impeller Clearances at Ambient for Various Service Temperatures

Pressure-Temperature Ratings

Chart A specifies the maximum allowable working pressure for 811SP Series pumps given the pump material of construction and the pumping temperature.

The maximum allowable working temperature for 811SP Series pumps is 500°F.

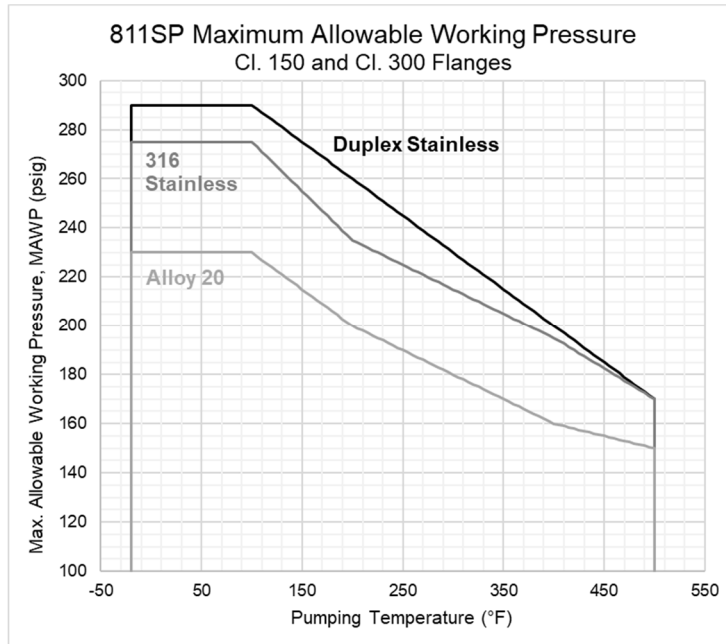
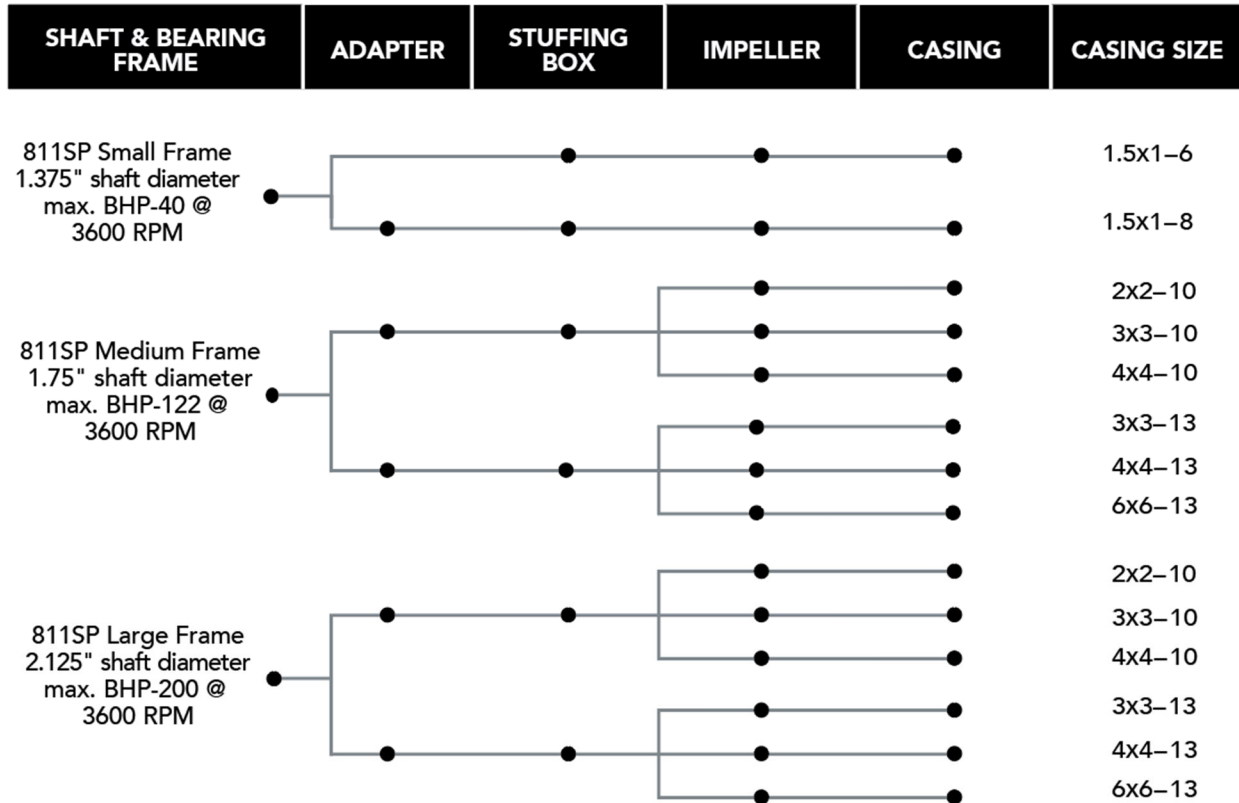


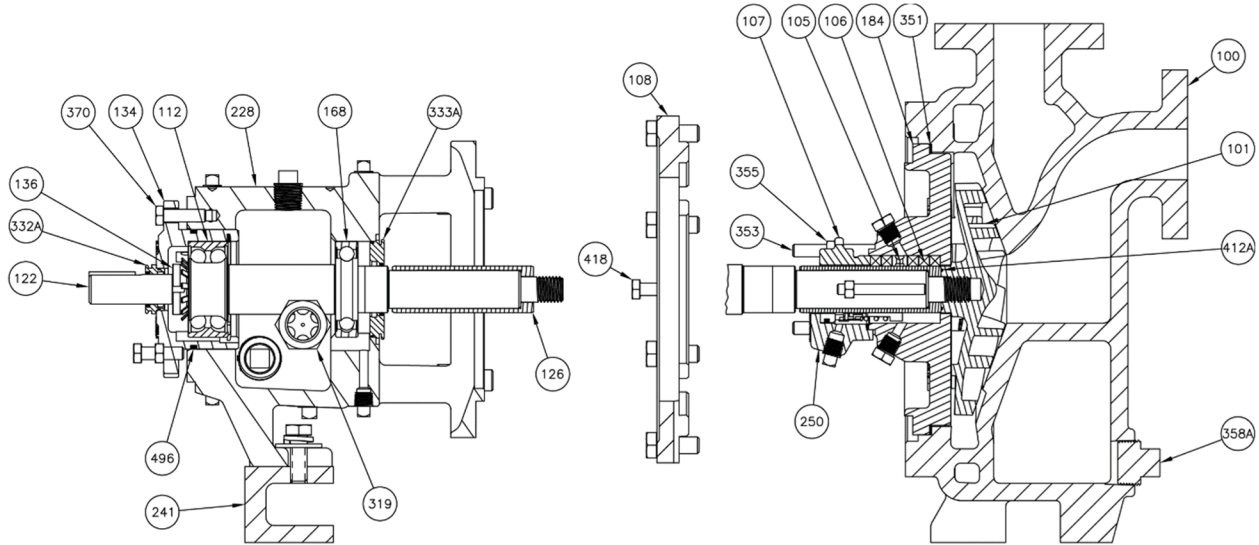
Chart A – 811SP Series Maximum Allowable Working Pressure vs. Temperature

Interchangeability

Griswold 811SP Series pumps are designed to be easy to maintain and repair. Many of the pump components can be interchanged between the models in order to maximize interchangeability with the portfolio to help simplify inventory and reduce costs.

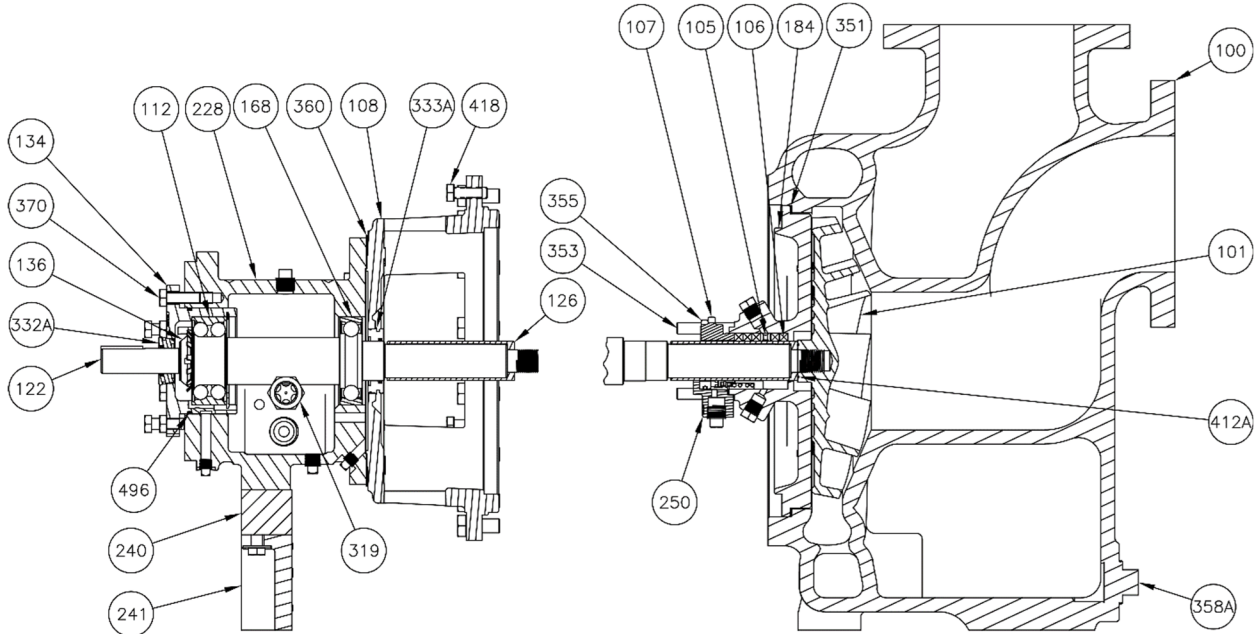


811SP Series Small Frame Group Pump Cross-Sectional



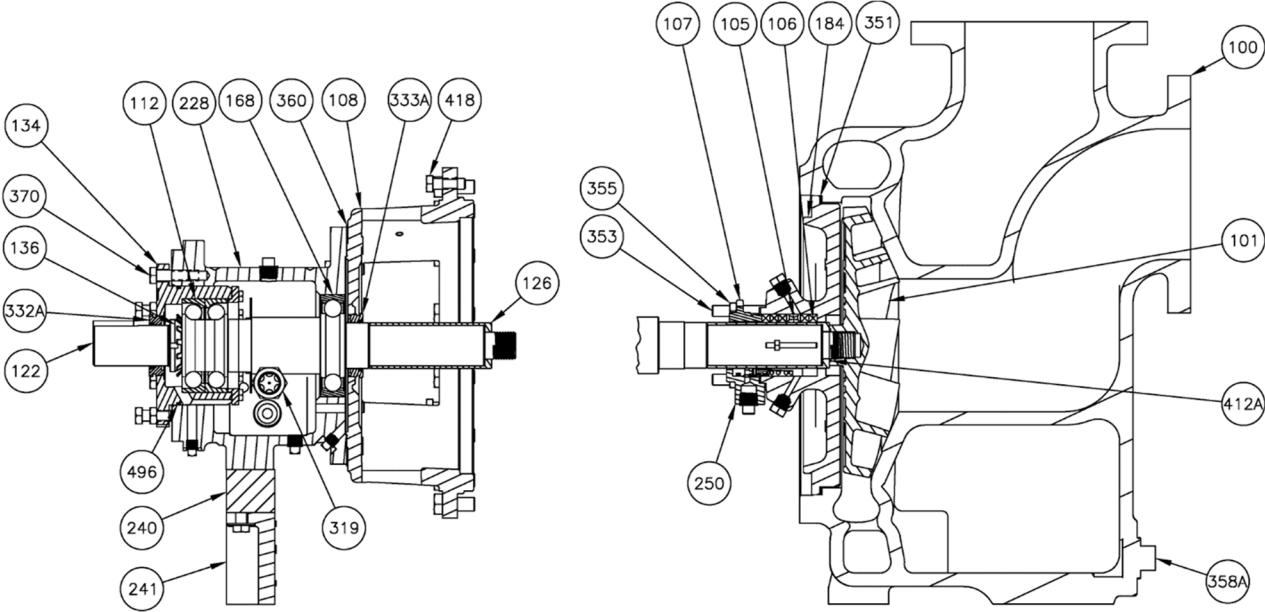
LG1901 Rev A

811SP Series Medium Frame Group Pump Cross-Sectional



LG1902 Rev A

811SP Series Large Frame Group Pump Cross-Sectional



LG1903 Rev A

Parts and Material Composition

Item No	Qty	Part Name	ALL CD4MCuN	ALL 316 SS	ALL Alloy 20
100	1	Casing	CD4MCuN	316 SS	Alloy 20
101	1	Impeller	CD4MCuN	316 SS	Alloy 20
105	1	Lantern Ring	Glass-Filled TFE		
106	1	Packing	TFE	SIL C-8201 Acid Rest.	TFE
107	1	Packing Gland	Alloy 20	316 SS	Alloy 20
108	1	Frame Adapter	Ductile Iron		
112	1	Outboard (Thrust) Bearing	Double-Row Angular Contact*		
122	1	Shaft – Less Sleeve (Optional – Not Shown)	Alloy 20	316 SS	Alloy 20
	1	Shaft, Sleeved	SAE4140		
126	1	Shaft Sleeve	Alloy 20	316 SS	Alloy 20
134	1	Bearing Housing	Cast Iron		
136	1	Lock Nut / Lock Washer	Steel		
168	1	Inboard (Radial) Bearing	Single-Row Deep Groove		
184	1	Stuffing Box	CD4MCuN	316 SS	Alloy 20
228	1	Frame	Cast Iron		
240	1	Spacer, Frame Foot Spacer**	Steel		
241	1	Frame Foot, Small Frame	Steel		
	1	Frame Foot, Medium\Large Frame	Cast Iron		
250	1	Mechanical Seal Gland	Alloy 20	316 SS	Alloy 20
319	1	Sight-Oil Gauge	Cadium Plated		
332A	1	Labyrinth Oil Seal (Outboard)	Bronze (Optional Carbon-Filled PTFE)		
333A	1	Labyrinth Oil Seal (Inboard)	Bronze (Optional Carbon-Filled PTFE)		
351	1	Casing Gasket	Aramid Fiber with EPDM Rubber		
353	4	Gland Stud	316 SS		
355	4	Gland Nut	304 SS		
358A	1	Casing Drain Plug	316 SS	316 SS	Alloy 20
360	1	Gasket, Medium\Large Frame-to-Adapter	Vellumoid		
370	6	Bearing Housing Hex Bolt	Steel		
412A	1	Impeller O-Ring	Glass-Filled TFE		
418	3	Casing Jacket Screw	Steel		
469B	2	Dowel Pin, Medium\Large Frame (Not Shown)	Steel		
496	1	Bearing Housing O-Ring	Buna Rubber		

LG1904 Rev A

*811SP Large Frame features Duplex Angular Contact
 **Frame Foot spacer only used on 6x6-13



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