



CPE SYSTEMS INC



C+114MD

TECHNICAL SPECIFICATIONS



The C+114 is CPE's next generation centrifugal pump targeted at small to medium applications. This pump takes the popular C114 pump and adds design improvements to increase capability and durability. It is attached to our efficient stainless steel washdown motor. The C+114 is designed to be a versatile pump in the food processing world.

DESIGN

The C+114MD is the original C-series centrifugal pump re-imagined. It has kept the original casing design and popular external mechanical seal options, however, it features a collar that clamps down on the drive shaft over a full 360 degrees removing the minor wobble that can occur from set screwed shafts. The impeller pin was also replaced with a threaded impeller nut that fully secures the impeller in place; there are two specialized gaskets to seal the shaft and to still allow a CIP procedure to clean behind the impeller. The collar and bolted impeller reduce rattling sounds at lower speeds.

SEALS

There are three seal types available for the C+114:

D Seal: Standard external mechanical seal.

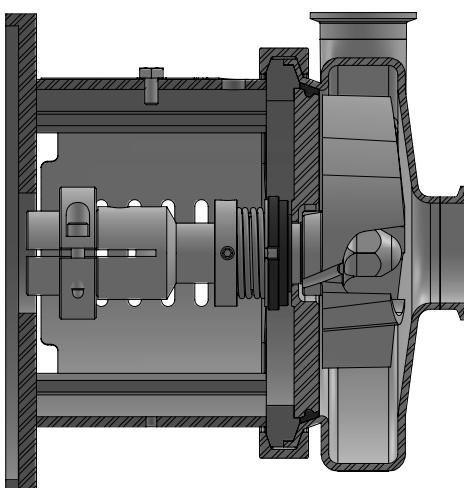
DG Seal: External mechanical seal with a ceramic stationary seat.

F Seal: External mechanical seal with a water cascade.

HORSEPOWER

Horserpower	*Max. Flow rate	*Shut Off Head
1 HP	75 GPM	65 ft
1.5 HP	100 GPM	75 ft
2 HP	125 GPM	75 ft
3 HP	150 GPM	75 ft

* For specific duties, contact CPE.



TECHNICAL SPECIFICATIONS

Materials

Parts in Contact With Product: 316L Stainless Steel

Other Steel Parts: 304 Stainless Steel

Gaskets in Contact With Product: EPDM (Buna & Viton optional)

Weight Without Motor: 12 lbs

Mechanical Seal

Rotary Seal: Carbon or Silicon Carbide

Stationary Seal: Stainless Steel or Ceramic/Silicon Carbide

External Surface Finish: Bright Polish

Internal Surface Finish: 32 RA

Connection Type: Tri-Clamp

Connection Size: 1.5" x 1.5"

Max. Impeller Diameter: 4"

Motor

Type: S.S Premium Efficiency or TEFC Motor

Motor Frame Size: NEMA 56C C-Face

Speeds: 1750 & 3450 RPM

Operating Limits

Nominal Pressure: 10 bar (145 PSI)

Temperature Range: 14°F (-10°C) - 248°F (120°C)

Maximum Flow: 150 GPM (90 m³/h)

Maximum Differential Head: 75 ft (23 m)

Maximum Speed: 3500RPM - 60Hz

Viscosity: 1200 cPs

Optimum Operating System

Flow: 150 GPM

Head: 75 ft

Approvals

Certification: 3A- Authorization #1537, 02-11 (centrifugal pumps) for CIP



Assemblies

The C+114 is available as a pump and motor or as a portable pump assembly. The portable pump assembly includes a VFD, cart, cord, and plug. The portable assembly comes fully programmed and has more voltage options than the pump and motor.

PORTABLE ASSEMBLY COMPONENTS:

- C+114/214 Pump Head
- TEFC or SS Washdown Motor
- LENZE VFD
- Stainless Steel Pump Cart
- Electrical cord and plug of choice

PUMP AND MOTOR COMPONENTS:

- C+114/214 Pump Head
- TEFC or SS Washdown Motor

Motors



STAINLESS STEEL WASHDOWN MOTOR:

- Totally Enclosed Fan Cooled (TEFC)
- Construction Material: Stainless Steel
- NEMA Premium Efficiency
- Factory Certified Class 1 Division 2 Groups A, B, C, D

TEFC MOTOR:

- Totally Enclosed Fan Cooled (TEFC)
- Construction Material: Enhanced Performance Cast Aluminum
- IP55 Enclosure Protection
- CSA Certified

Assembly Options

Horserpower	Available Motors	RPM	Cart	Available Voltages
1 HP	Stainless Steel Washdown Motor TEFC Motor	1800	Knockdown Cart	115 volt single phase 230 volt single phase 230 volt three phase 460 volt three phase 575 volt three phase
1 ½ HP	Stainless Steel Washdown Motor TEFC Motor	1800	Knockdown Cart	115 volt single phase 230 volt single phase 230 volt three phase 460 volt three phase 575 volt three phase
2 HP	Stainless Steel Washdown Motor TEFC Motor	1800	Knockdown Cart	115 volt single phase 230 volt single phase 230 volt three phase 460 volt three phase 575 volt three phase
3 HP	Stainless Steel Washdown Motor TEFC Motor	1800	Medium Duty Cart	230 volt single phase 230 volt three phase 460 volt three phase 575 volt three phase



LENZE Variable Frequency Drive

The Lenze i550 Protec is our new inverter series in the $\frac{1}{2}$ HP to 20 HP range. The slim and sleek casing is also extremely durable, featuring both impact resistance and IP66 washdown protection. A micro USB interface is provided for more efficient programming. This user-friendly VFD is programmable and has scalable functionality. This trustworthy and powerful VFD can be implemented into your operations with ease. The i550 can be controlled by the keypad, a potentiometer, or a remote control (the remote control is available at additional cost). Our portable pump assemblies feature this VFD to achieve optimal efficiency.

FEATURES

- IP66 (NEMA 4X) approved; it is both dust and water resistant.
- Equipped with a micro USB interface for programming and diagnostics.
- Full onboard PID programming for interfacing with flow meters, level controls, pressure sensors, and can/bottle fillers.
- The i550 Protec has a sensorless vector control for synchronous motors.
- Equipped with multiple digital and analog inputs for remote control and safety interlocks.
- Compatible with our wireless remote controls, pressure switches, and run dry protection.
- Equipped with a potentiometer.

TECHNICAL SPECIFICATIONS

Horserpower:	1 - 3 HP
1Ø/3Ø Input:	1Ø 115/230 VAC ; 3Ø 230/460 VAC
3Ø Output:	208-230/460 VAC
Ambient Temperature:	-22°F - 131°F (-30°C - 55°C)
Standard IO:	5x digital input, 1x digital output, 2x analog input, 1x analog output
Communication Networks: (optional)	CANopen, Modbus RTU, Modbus TCP, IO-Link, EtherCAT, EtherNet/IP, PROFINET
Approvals:	CE, UL, CSA, EAC, RoHS

Knockdown Pump Cart

Custom designed for the craft food and beverage industry, this is our smallest pump cart, built for pumps up to 2 HP. This cart is aerodynamic, tilt draining, maneuverable, and has a small footprint. The knockdown cart handle is removable, creating a compact cart that can be easily stored or wheeled into tight spaces. All parts are hand welded in Canada for quality assurance and durability.

Frame:	16 ga stainless steel square tube with foot
Handle:	16 ga stainless steel square tube
Platform:	14 ga Stainless steel AISI 304
	Pre-drilled to fit 56 and 143 NEMA frame
Axle:	1/2 ga Stainless steel rod axle
Wheels:	2" x 5" non marking neoprene wheels



Medium Duty Cart



Custom designed for the craft food and beverage industry, this is our smallest pump cart, built for pumps 3 to 5 HP. This cart is aerodynamic, tilt draining, maneuverable, and has a small footprint. All parts are hand welded in Canada for quality assurance and durability. Motors 7.5 HP and higher are mounted on a 4-wheel heavy duty cart.

Frame:	16 ga stainless steel round tube with foot
Handle:	16 ga stainless steel round tube
Platform:	11 ga Stainless steel AISI 304
	Pre-drilled to fit 184 and 213 NEMA frame
Axle:	1/2 " Stainless steel rod axle
Wheels:	8" Duraflex rubber wheels



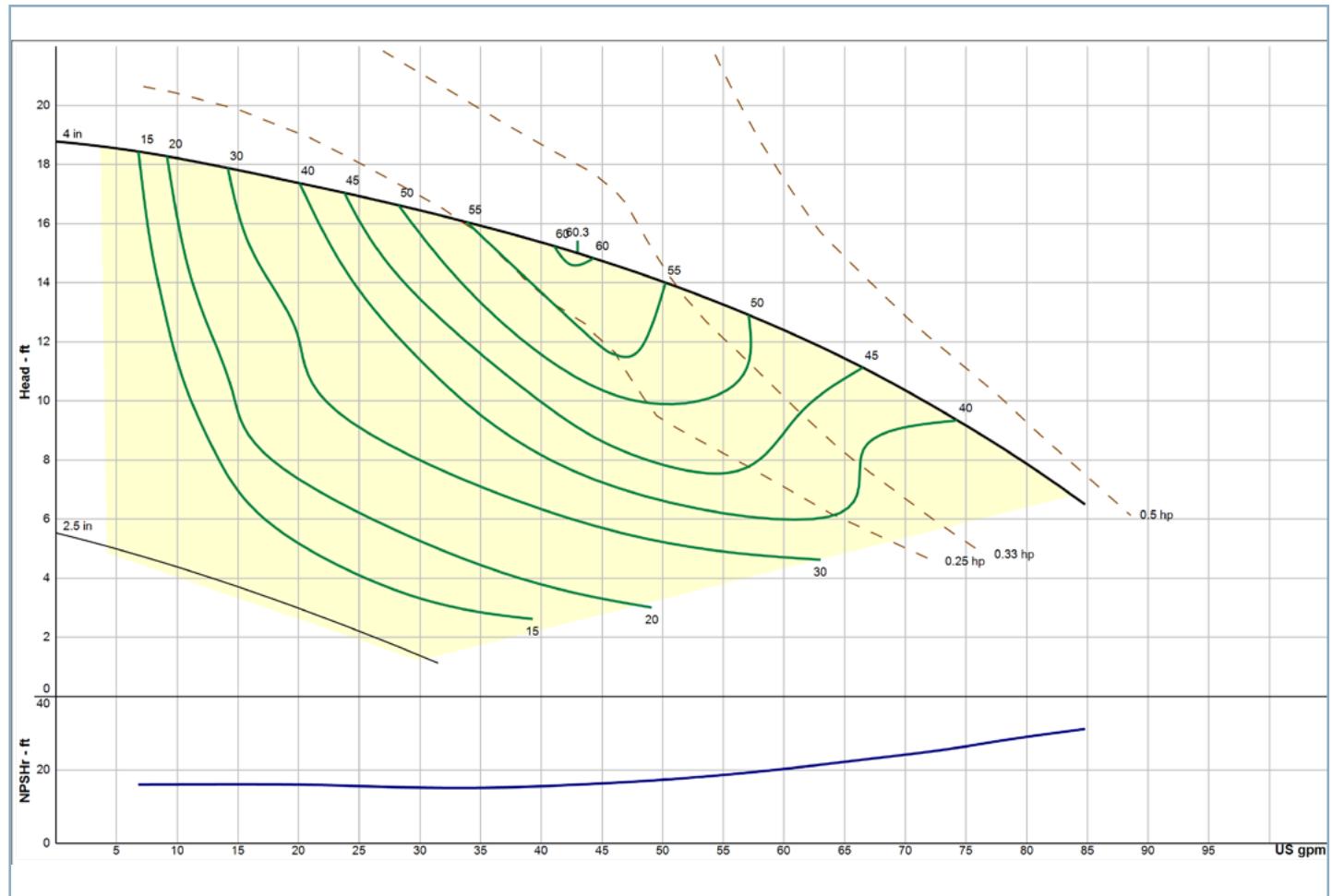
Capacity Curves

MODEL: C+114

Frequency: 60hz

RPM: 1750

Size: 1.5" x 1.5" x 4"





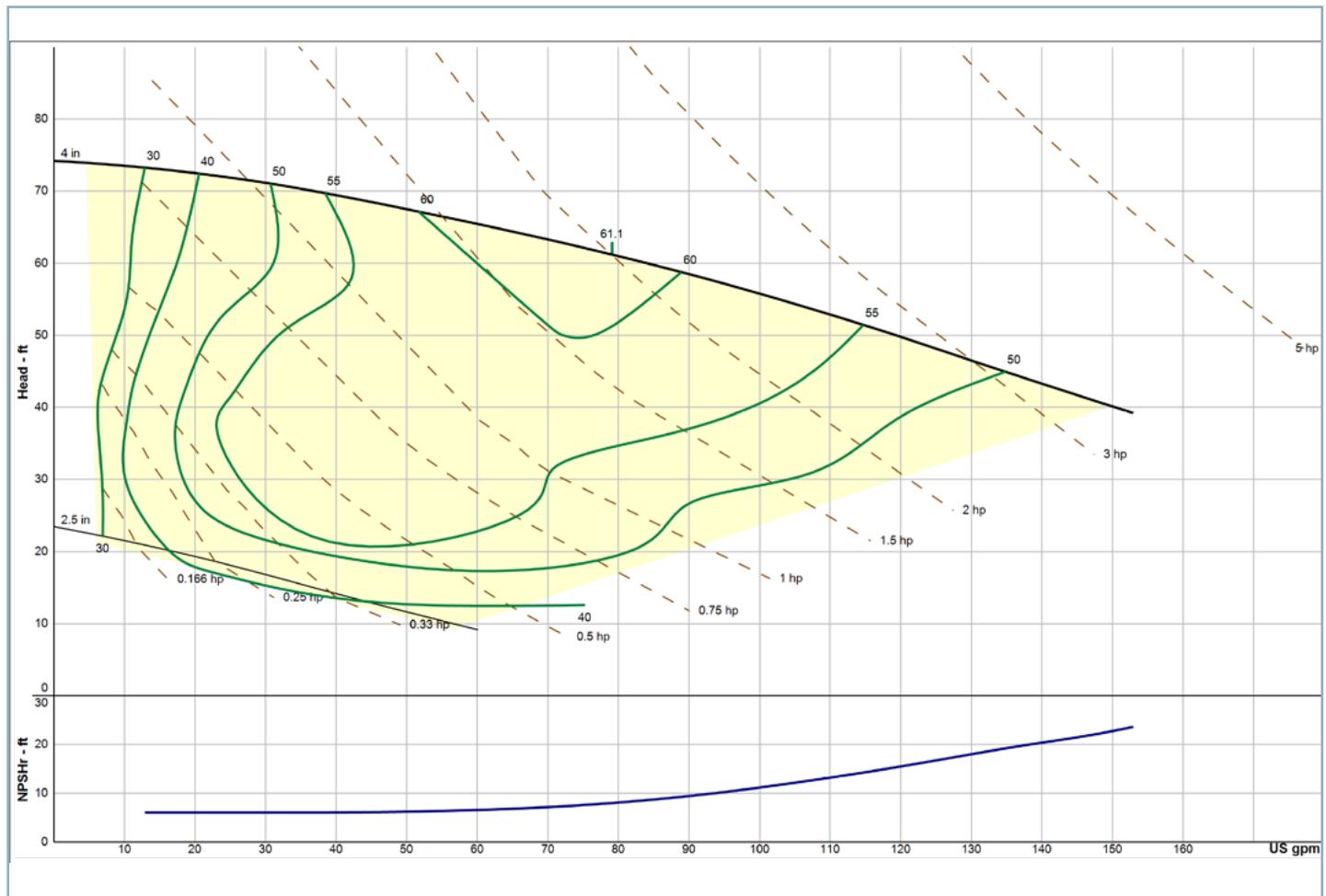
Capacity Curves

MODEL: C+114

Frequency: 60hz

RPM: 3500

Size: 1.5" x 1.5" x 4"





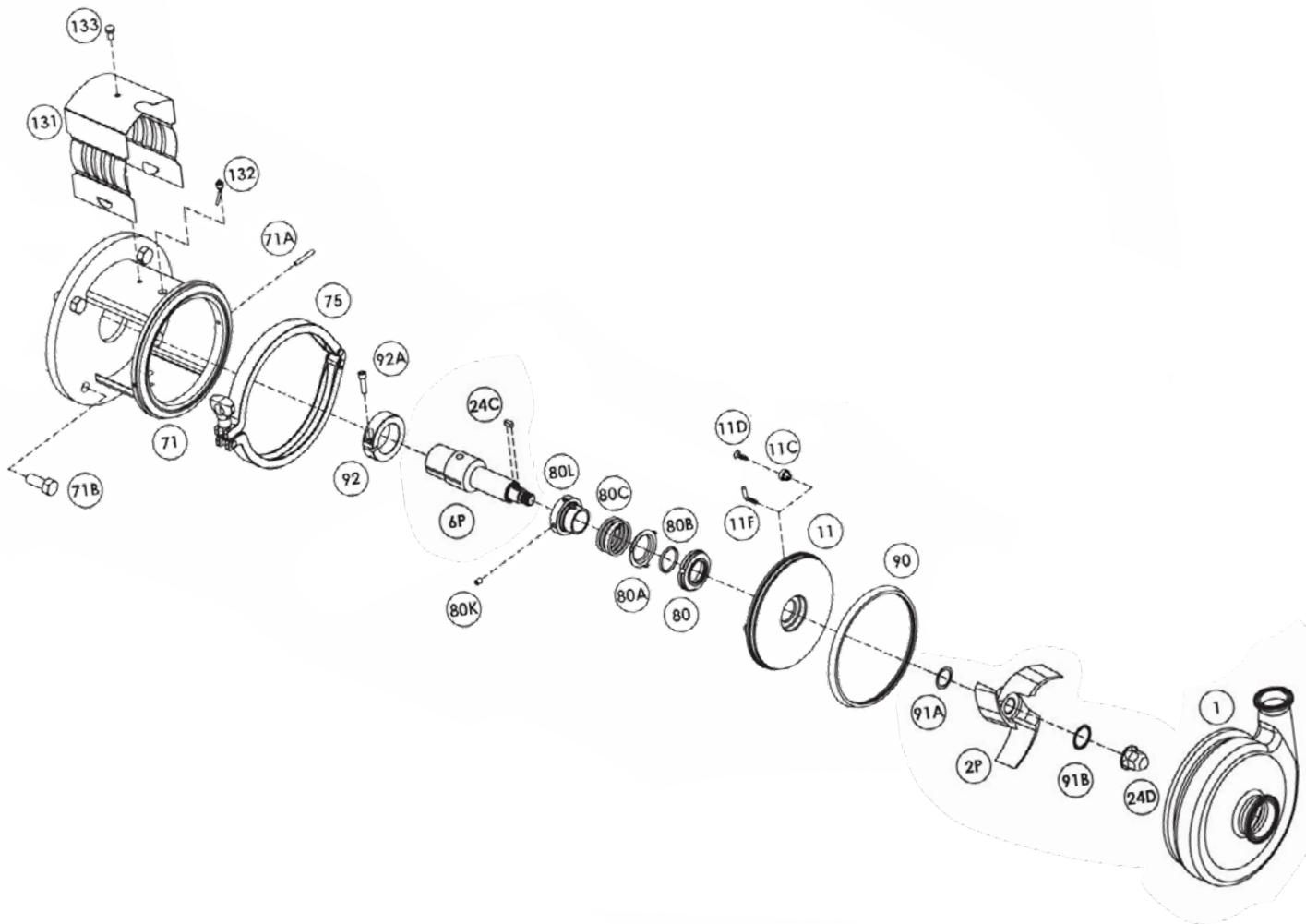
Viscosity and Specific Gravity Table

Product	Specific Gravity	Viscosity
Acetic Acid		
5%	1.01	
10%	1.01	31.7 SSU @ 59°F
50%	1.06	33.0 SSU @ 59°F
80%	1.08	35.0 SSU @ 59°F
Animal Fat	0.9	130 SSU @ 115°F 50 SSU @ 200°F
Barbecue Sauce	1.05	11,500 SSU @ 40-75°F
Beer	1.02	32 SSU @ 68°F
Blood - Animal	0.93-0.98	15,000 SSU @ 55°F
Butter	0.93-0.98	15,000 SSU @ 55°F 440 SSU @ 90°F 220 SSU @ 115°F
Coconut Oil	0.92	125 SSU @ 106°F
Corn Oil	0.92	135 SSU @ 130°F 54 SSU @ 212°F
Corn Starch Solutions		
22 Baume	1.18	150 SSU @ 70°F 130 SSU @ 100°F
24 Baume	1.2	600 SSU @ 70°F 440 SSU @ 100°F
25 Baume	1.21	1400 SSU @ 70°F 800 SSU @ 100°F
Cottage Cheese	1.02	4,300 SSU
Cream (sweet)	1	73 SSU
	0.99	140 SSU
	0.99	215 SSU
Egg Yolk	1.12	21,500 @ 35°F
Gelatin	1.01	1,380-2,580 SSU @ 160°F
Glucose	1.35 - 1.44	35M-100M SSU @ 100°F 4M-11M @ 150°F
Honey	1.3	1250-1425 SSU @ 100°F
Ice Cream Mix	1.15	1050 SSU @ 46°F
Lard	0.96	287 SSU @ 100°F
Linseed Oil	0.92 - 0.94	143 SSU @ 100°F 93 SSU @ 130°F
Malt Syrup	1.41	85,400 SSU @ 77°F
Maple Syrup	1.37	2,000 SSU @ 68°F

Margarine	0.93	13,900 SSU @ 84°F
Milk	1.02 - 1.05	31.5 SSU @ 68°F
Molasses		
A. First	1.4 - 1.46	1,300 - 23,500 SSU @ 100°F 700 - 8,160 SSU @ 130°F
B. Second	1.43 - 1.48	6,536 - 61,180 SSU @ 100°F 3058 - 15,294 SSU @ 130°F
C. Blackstrap	1.46 - 1.49	12,190 - 23,500 SSU @ 100°F
Mustard	1	17,000 SSU @ 85°F
Olive Oil	0.91 - 0.92	200 SSU @ 100°F
Peanut Butter	1.2	77,400 SSU @ 110-140°F
Sesame Seed Oil	0.92	184 SSU @ 100°F 110 SSU @ 130°F
Soy Bean Oil	0.91	500 SSU @ 44°F
Tomato Paste	1.14	60M-80M SSU 21M SSU Approx.
Water	1	31 SSU @ 68°F



Figure 5: Expanded View



Part #	Part Name
1.	Casing
2P.	Impeller
6P.	Stub Shaft
11.	Backplate
11F.	Backplate Pin
24D.	Impeller Nut
91B.	Impeller Nut Gasket
91A.	Impeller Back Gasket
92.	Shaft Collar
24C.	Impeller Key
71.	Adaptor
71A.	Adaptor Pin

Part #	Part Name
71B.	Adapter Mounting Screws
75.	Tri-Clamp
80.	Carbon Seal
80A.	Cup
80B.	Seal O-ring
80C.	Spring
80K.	Set Screw Drive Collar
80L.	Drive Collar
90.	Casing Gasket
131.	Seal Guard Assembly