



CPE SYSTEMS INC



C114MD

TECHNICAL SPECIFICATIONS



C-series (close coupled) centrifugal pumps are the most common pumps used in craft industries. Our C-series pumps are made in North America, are 3A approved, and provide high capacity at a low price. They feature heavy duty stainless steel construction with a stainless steel washdown motor that makes cleaning easier. If well maintained, these pumps will last a lifetime and give you years of excellent service. When needed, parts are easy to replace and interchangeable with most major brands of C-series pumps.

DESIGN

The CPE C114 Pump features a simple open impeller design and an external mechanical seal. There are three different seal types to choose from: DG, D, and F seal. The external seal can be easily cleaned with CIP methods or manually. This pump is reliable, while remaining both easy to clean and to maintain.

SEALS

There are three seal types available for the C114:

D Seal: Standard external mechanical seal.

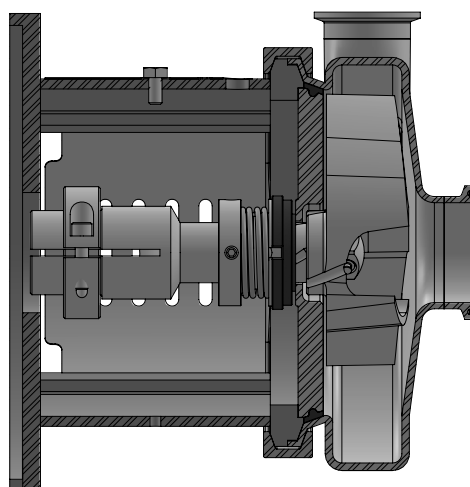
DG Seal: External mechanical seal with a ceramic stationary seat.

F Seal: External mechanical seal with a water cascade.

HORSEPOWER

Horsepower	*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 (standard) Buna or Viton (special order)

Weight Without Motor:	12 lbs
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Mechanical Seal

Rotary Seal:	Carbon (standard) Silicon Carbide (special order)
Stationary Seal:	Stainless Steel (standard) Ceramic/Silicon Carbide (special order)

External Surface Finish:	Bright Polish
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Internal Surface Finish:	32 RA
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Connection Type:	Tri-Clamp
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Connection Size:	1.5" x 1.5"
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Max. Impeller Diameter:	4"
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Motor

Type:	S.S Premium Efficiency or TEFC Motor
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Motor Frame Size:	NEMA ** C-Face
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Speeds:	1750 & 3450 RPM
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Operating Limits

Nominal Pressure:	10 bar (145 PSI)
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Temperature Range:	14°F (-10°C) - 248°F (120°C)
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Maximum Flow:	150 GPM (90 m³/h)
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Maximum Differential Head:	75 ft (23 m)
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Maximum Speed:	3500RPM - 60Hz
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Viscosity:	1200 cPs
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Optimum Operating System

Flow:	150 GPM
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Head:	75 ft
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Approvals

Certification:	3A- Authorization #1537, 02-11 (centrifugal pumps) for CIP
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The C114 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:

- C114 Pump Head
- TEFC or SS Washdown Motor
- LENZE VFD
- Stainless Steel Pump Cart
- Electrical cord and plug of choice

PUMP AND MOTOR COMPONENTS:

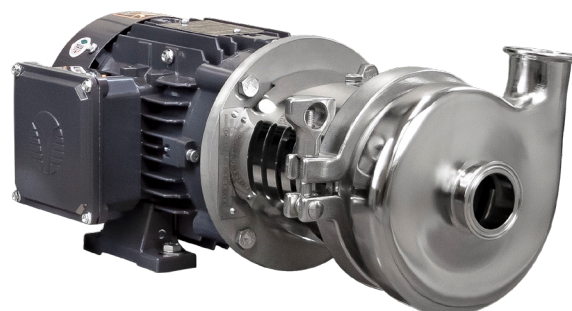
- C114 Pump Head
- TEFC or SS Washdown Motor

Motors



STAINLESS STEEL WASHDOWN MOTOR:

- Totally Enclosed Fan Cooled (TEFC)
- Construction Material: Stainless Steel
- NEMA C-Face / 56C Frame
- NEMA Design B
- Factory Certified Class I, Division 2, Groups A, B, C, and D



TEFC MOTOR:

- Totally Enclosed Fan Cooled (TEFC)
- Construction Material: Painted Aluminum
- IP55 Enclosure Protection
- Class I, Division II, Groups A, B, C, and D Compliant

Portable Assembly Options

Horsepower	Available Motors	Cart	Available Voltages
1 HP	Stainless Steel Washdown Motor TEFC Motor	Stainless Steel 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	Stainless Steel 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	Stainless Steel 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	Medium Duty Cart	230 volt single phase 230 volt three phase 460 volt three phase 575 volt three phase



LENZE Variable Frequency Drive



The Lenz i550 Protec is our new inverter series in the ½ 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

Horsepower:	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.

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



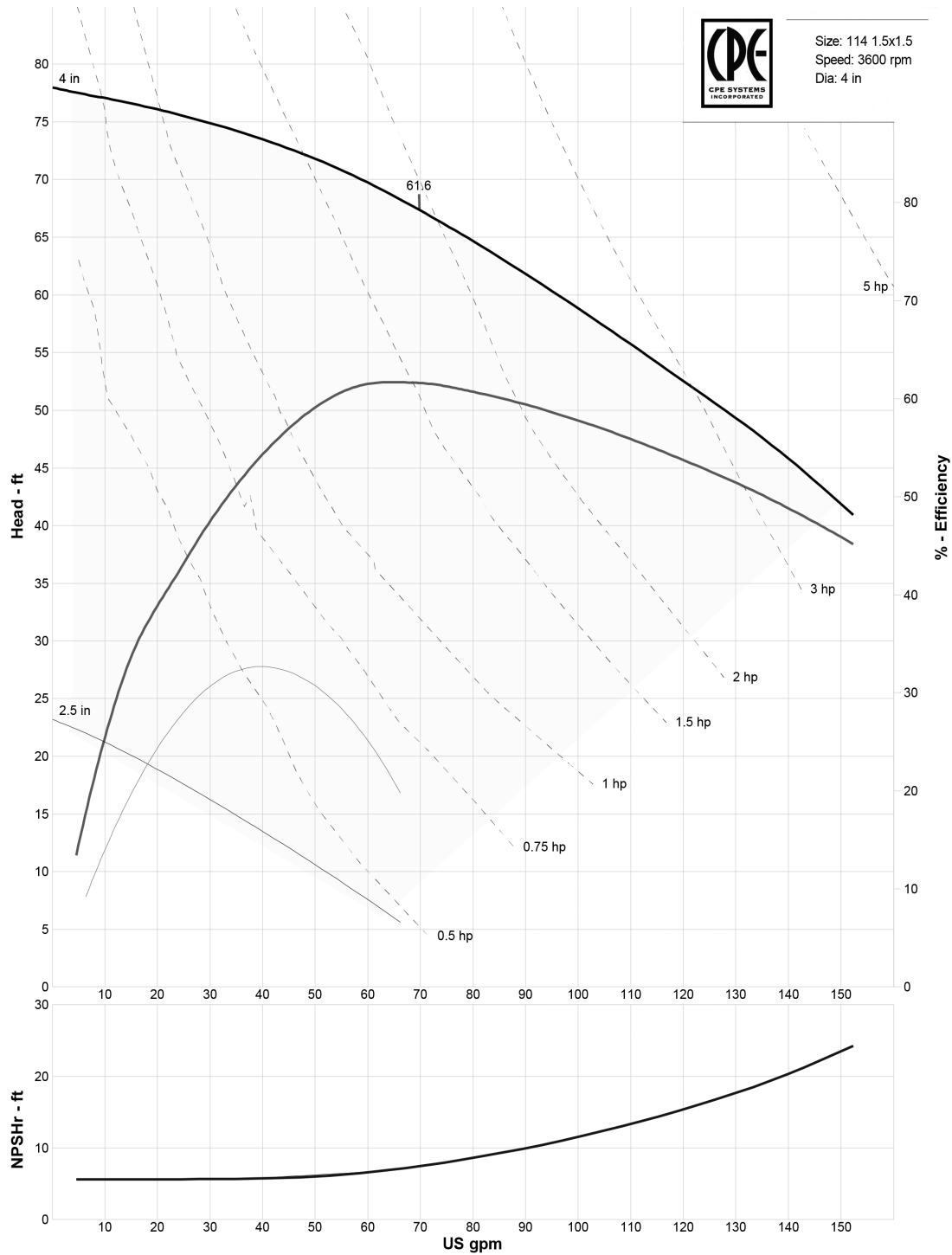
Capacity Curves

MODEL: C114

Frequency: 60hz

RPM: 3600

Size: 1.5" x 1.5" x 4"





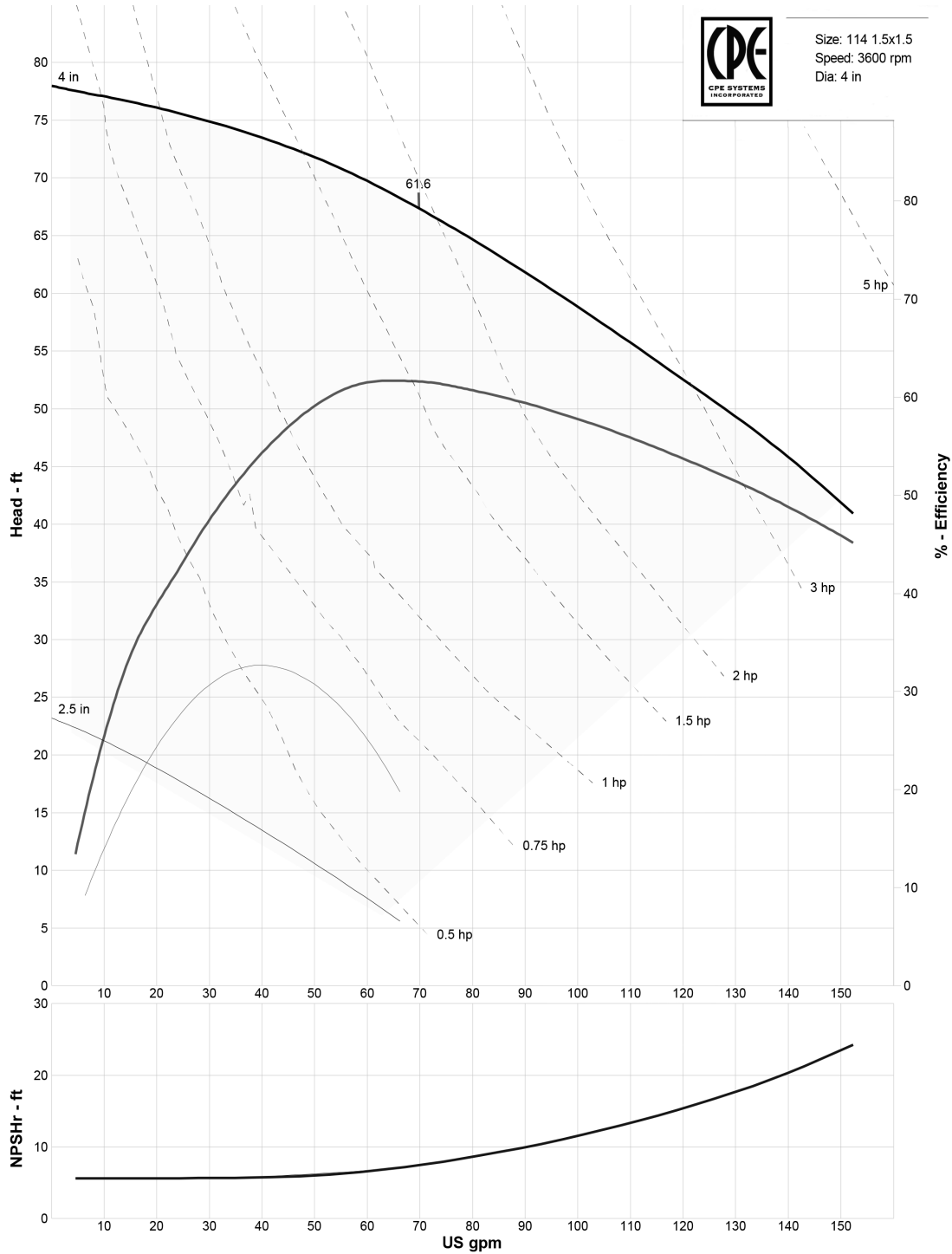
Capacity Curves

MODEL: C114

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RPM: 3600

Size: 1.5" x 1.5" x 4"

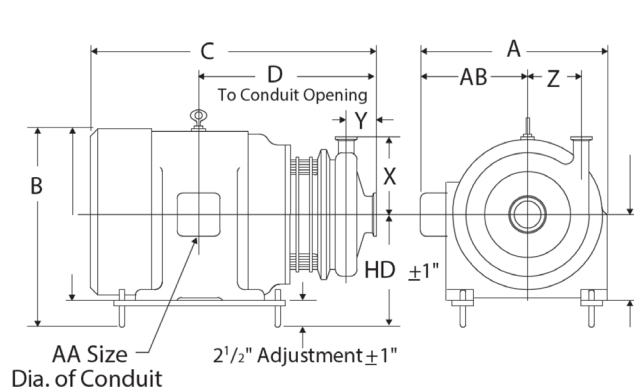




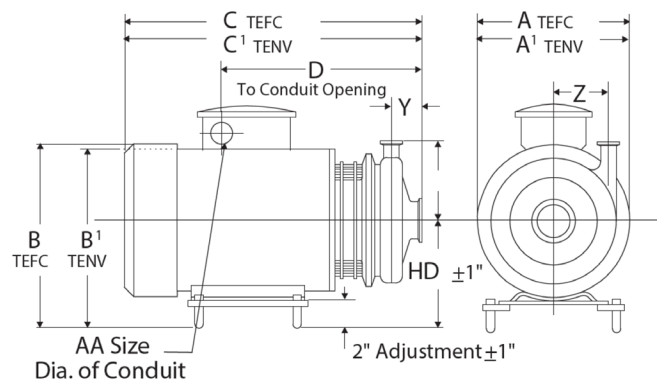
Viscosity and Specific Gravity Table

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



180 TO 360 FRAME MOTORS



56 TO 140 FRAME MOTORS

Pump Model	Frame	A	A ¹	B	B ¹	C*	C ^{1*}	C**	C ^{1**}	D*	D**	HD	AA	AB
C114	FF56C	7 7/32	6 1/2	9 1/8	8 3/4	21 1/4	20 7/16	21 1/2	20 13/16	17 3/16	17 3/16	5 1/2	1/2	-
	184TC	11 7/8		11 11/16		21 1/8		21 3/8		13 3/16	14 1/16	7	3/4	7 3/16
C216	FF56C	7 7/32	6 1/2	9 1/8	8 3/4	21 3/8	20 3/4	21 5/8	21	17 5/16	17 7/16	5 1/2	1/2	-
	184TC	11 7/8		11 11/16		21 7/8		21 1/8		14 9/16	14 13/16	7	3/4	7 3/16
	215TC	14 1/2		13 3/16		25 1/16		25 13/16		16 11/16	16 15/16	7 3/4	1	9 1/16
	256TC	16 7/16		15 1/4		29 15/16		30 3/16		18 11/16	18 15/16	8 3/4	1 1/4	10
C218	FF140TC	7 7/32	6 1/2	9 1/8	8 3/4	22	21	22 1/4	21 1/4	17 19/32	17 27/32	5 1/2	1/2	-
	184TC	11 7/8		11 11/16		22 1/4		22 1/2		14 5/16	15 3/16	7	3/4	7 3/16
	215TC	14 1/2		13 3/16		25 13/16		26 1/16		16 15/16	17 3/16	7 3/4	1	9 1/16
	256TC	16 7/16		15 1/4		31 1/16		31 5/16		19 13/16	20 1/16	8 3/4	1 1/4	10
	284TC	19 5/16		16 3/4		32		32 1/4		20 3/16	20 7/16	9 1/2	1 1/2	12 1/16
C328	FF140TC	7 7/32	6 1/2	9 1/8	8 3/4	22 5/8	21 5/8	23 1/8	22 1/8	18 7/32	18 23/32	5 1/2	1/2	-
	184TC	11 7/8		11 11/16		22 3/4		23 1/4		15 7/16	15 15/16	7	3/4	7 3/16
	215TC	14 1/2		13 3/16		26 5/16		26 13/16		17 7/16	17 15/16	17 3/4	1	9 1/16
	256TC	16 7/16		15 1/4		31 11/16		32 3/16		20 7/16	20 15/16	8 3/4	1 1/4	10
	284TC	19 5/16		16 3/4		32 5/8		33 1/8		20 13/16	21 5/16	9 1/2	1 1/2	12 1/16
	286TC	19 5/16		16 3/4		34 3/8		34 7/8		21 13/16	22 5/16	9 1/2	1 1/2	12 1/16

* With Tri-Clamp connections

** With threaded bevel seat connections

¹ Dimensions for sinfle phase #140 frame motors

Figure 4: C114 with Set Screw

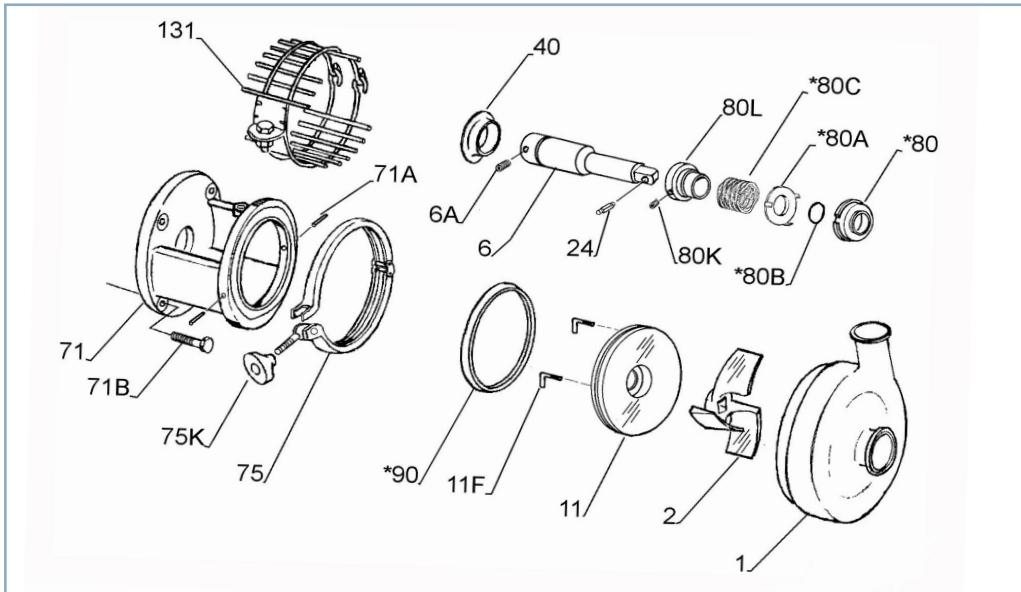
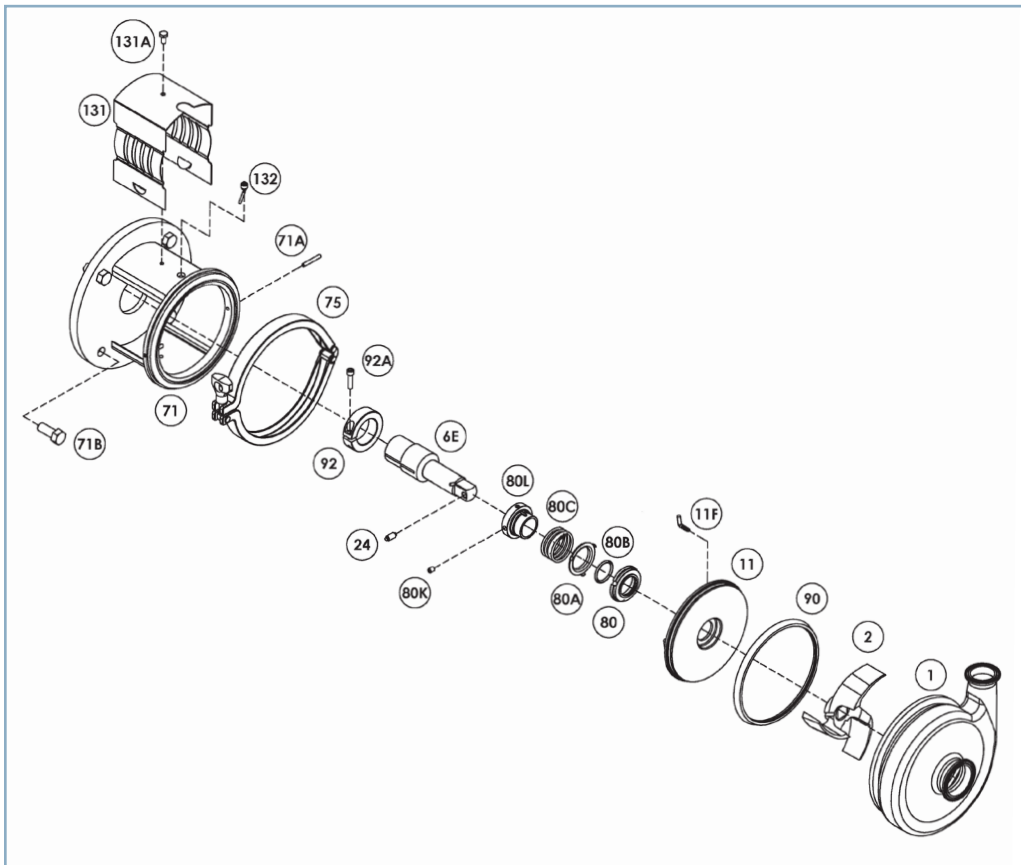


Figure 5: C114 with Shaft Collar



Part #	Part Name
1.	Casing
2.	Impeller
11.	Backplate
11F.	Backplate Pin
*90.	Casing Gasket
75.	Tri-Clamp
75K.	Wingnut
71B.	Adapter Mounting Screws
71.	Adapter
*80.	Carbon Seal
*80A.	Cup
*80B.	O-ring Seal
*80C.	Spring
80K.	Drive Collar Screw
80L.	Drive Collar
24.	Impeller Retainer
6.	Shaft
6E.	Shaft
6A.	Set Screw
40.	Deflector
92.	Shaft Collar
92A.	Shaft Collar Screw
131.	Seal Guard Assembly

* These items are included in the CPE Ultimate Seal Kit