CPE SYSTEMS INC

APPROVED 3A APPROVED

C+216MD

TECHNICAL SPECIFICATIONS



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C+216



The C+216 is CPE's next generation centrifugal pump targeted at medium sized applications. This pump takes the popular C-216 pump and adds design improvements to increase capability and durability.

DESIGN

The C+216 is designed to offer high capacity without compromising reliability or durability. The C+ series maintains general compatibility with the C-216 line, while bringing new innovation in pump design. This includes a collar that clamps down on the drive shaft over the full 360° degrees removing the minor wobble that can occur from set screwed shafts and an impeller nut that secures the impeller. The C+ is equipped with a single mechanical external seal. Most parts are interchangeable with other C-216 pumps.

FEATURES

- 2" X 1.5" Tri-Clamp connections
- 316L stainless steel construction
- 304 stainless steel adapter
- External mechanical seal

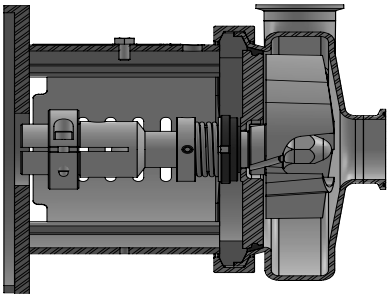
SEALS

There are three seal types available for the C+216:

- **D Seal:** Standard external mechanical seal.
- **DG Seal:** External mechanical seal with a silicon carbide stationary seat.
- **F Seal:** External mechanical seal with a water cascade.

HORSEPOWER

Horsepower	Max. Flow Rate	Shut Off Head
0.5 HP	40 GPM	18 ft
0.75 HP	75 GPM	30 ft
1 HP	85 GPM	35 ft
1.5 HP	110 GPM	35 ft
2 HP	130 GPM	40 ft
3 HP	100 GPM	110 ft
5 HP	170 GPM	150 ft
7.5 HP	210 GPM	160 ft
10 HP	240 GPM	160 ft
15 HP	270 GPM	160 ft



TECHNICAL SPECIFICATIONS

Materials	
Parts in Contact With Product:	316L Stainless Steel
Other Steel Parts:	304 Stainless Steel
Gaskets in Contact With Product:	EPDM
Weight Without Motor:	22 lbs
Mechanical Seal	
Rotary Seal:	Carbon
Stationary Seal:	Stainless Steel
External Surface Finish:	Bright Polish
Internal Surface Finish:	32 RA
Connection Type:	Tri-Clamp
Connection Size:	2" x 1.5"
Max. Impeller Diameter:	6"
Motor	
Type:	SS Washdown Motor TEFC Motor
Motor Frame Size:	NEMA 14T - 25T
Speeds:	1750 & 3450 RPM
Operating Limits	
Nominal Pressure:	8 bar (117 PSI)
Temperature Range:	14°F (-10°C) to 248°F (120°C)
Maximum Flow:	275 GPM (62.5 m³/h)
Maximum Differential Head:	160 ft (49 m)
Maximum Speed:	3500RPM (60 Hz)
Viscosity:	600 cP
Approvals	
Certification:	3A- Authorization #1537, 02-11 (centrifugal pumps) for CIP

Assemblies

The C+216 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+216 Pump Head
- SS Washdown or TEFC Motor
- LENZE VFD
- Stainless Steel Pump Cart
- Electrical cord and plug of choice

PUMP AND MOTOR COMPONENTS:

- C+216 Pump Head
- SS Washdown or TEFC Motor

Motors





STAINLESS STEEL WASHDOWN MOTOR:

- Totally Enclosed Fan Cooled (TEFC)
- Construction Material: Stainless Steel
- IP69K Enclosure Protection
- Factory Certified Class 1 Division 2 Groups A, B, C, D
- NEMA Premium Efficiency

TEFC MOTOR:

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

Portable Assembly Options

Horsepower	Available Motors	Cart	Available Voltages
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
5 HP	Stainless Steel Washdown Motor TEFC Motor	Medium Duty Cart	230 volt three phase 460 volt three phase 575 volt three phase
7.5 HP	Stainless Steel Washdown Motor TEFC Motor	Heavy Duty Cart	230 volt three phase 460 volt three phase 575 volt three phase
10 HP	Stainless Steel Washdown Motor TEFC Motor	Heavy Duty Cart	230 volt three phase 460 volt three phase 575 volt three phase
15 HP	Stainless Steel Washdown Motor TEFC Motor	Super Heavy Duty Cart	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 ½ HP to 20 HP range. They are available in 115, 230, 460, and 575 volt - 60 Hz with 1 phase and 3 phase input. 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, an optional 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 (optional).



TECHNICAL SPECIFICATIONS

Horsepower:	3 to 15 HP
1Ø/3Ø Input:	1Ø 230 VAC, 50/60 Hz 3Ø 230/460/575 VAC, 50/60 Hz
3Ø Output:	208-230/460/575 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, 1x relay output
Communication Networks:	CANopen, Modbus RTU, Modbus TCP, IO-Link, EtherCAT, EtherNet/IP, PROFINET
Approvals:	CE, UL, CSA, EAC, ROHS

Medium Duty Cart



Custom designed for the craft food and beverage industry, this is our mid-size 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 frames
Axle:	½" stainless steel rod axle
Wheels:	8" Duraflex rubber wheels

Heavy Duty Cart

Custom designed for the craft food and beverage industry, this is our Heavy Duty pump cart, built for pumps 7.5 to 10 HP. This cart is constructed of stainless steel and has foam filled tires. It is designed to be sturdy and reliable. 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
	Fits 213TC frames and larger
Axle:	1/2 ga stainless steel rod axle
Wheels:	8" Duraflex rubber wheels





Super Heavy Duty Cart

This 4-wheeled stainless steel pump cart is Canadian-made and designed for large-scale sanitary processors, including food and beverage manufacturing plants. This cart is designed for pumps between 10 and 20 HP. The wheels are set closer together, the base is larger, and the handle has been reimagined to allow for easy maneuverability of large pumps. The polished stainless steel pad is sized to fit 213TC and larger NEMA frame motors up to 15 HP and for larger pumps with gear motors.

Frame:	1½" 16 ga stainless steel tube frame
Handle:	16 ga stainless steel round tube
Platform:	Polished stainless steel
	Fits 213TC frames and larger, up to 15 HP (and larger pumps with gear motors)
Axle:	½" stainless steel rod axle
Wheels:	8" foam filled tires, non-rusting

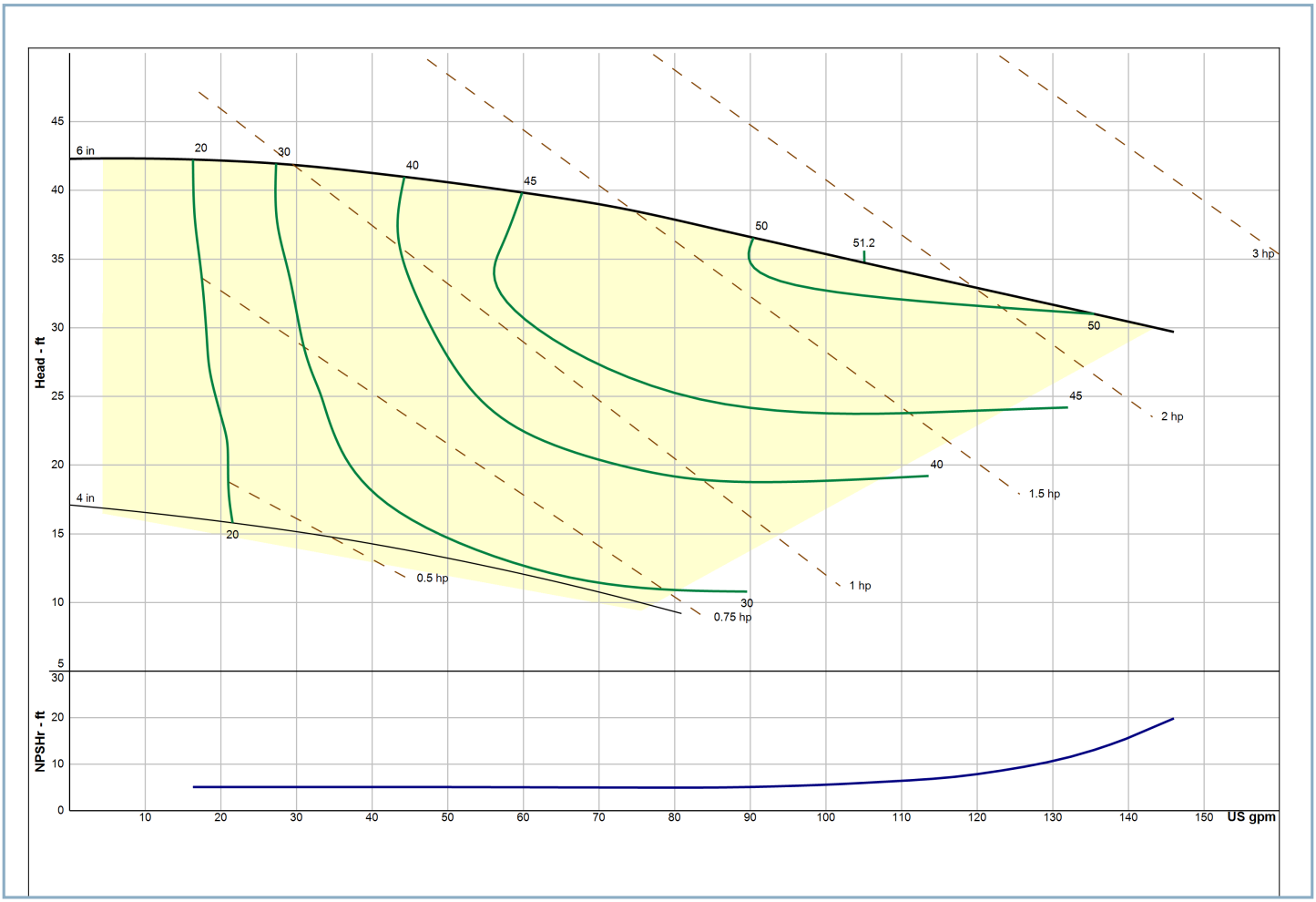
Capacity Curves

MODEL: C+216

Frequency: 60 Hz

RPM: 1750

Size: 2” x 1.5” x 6”



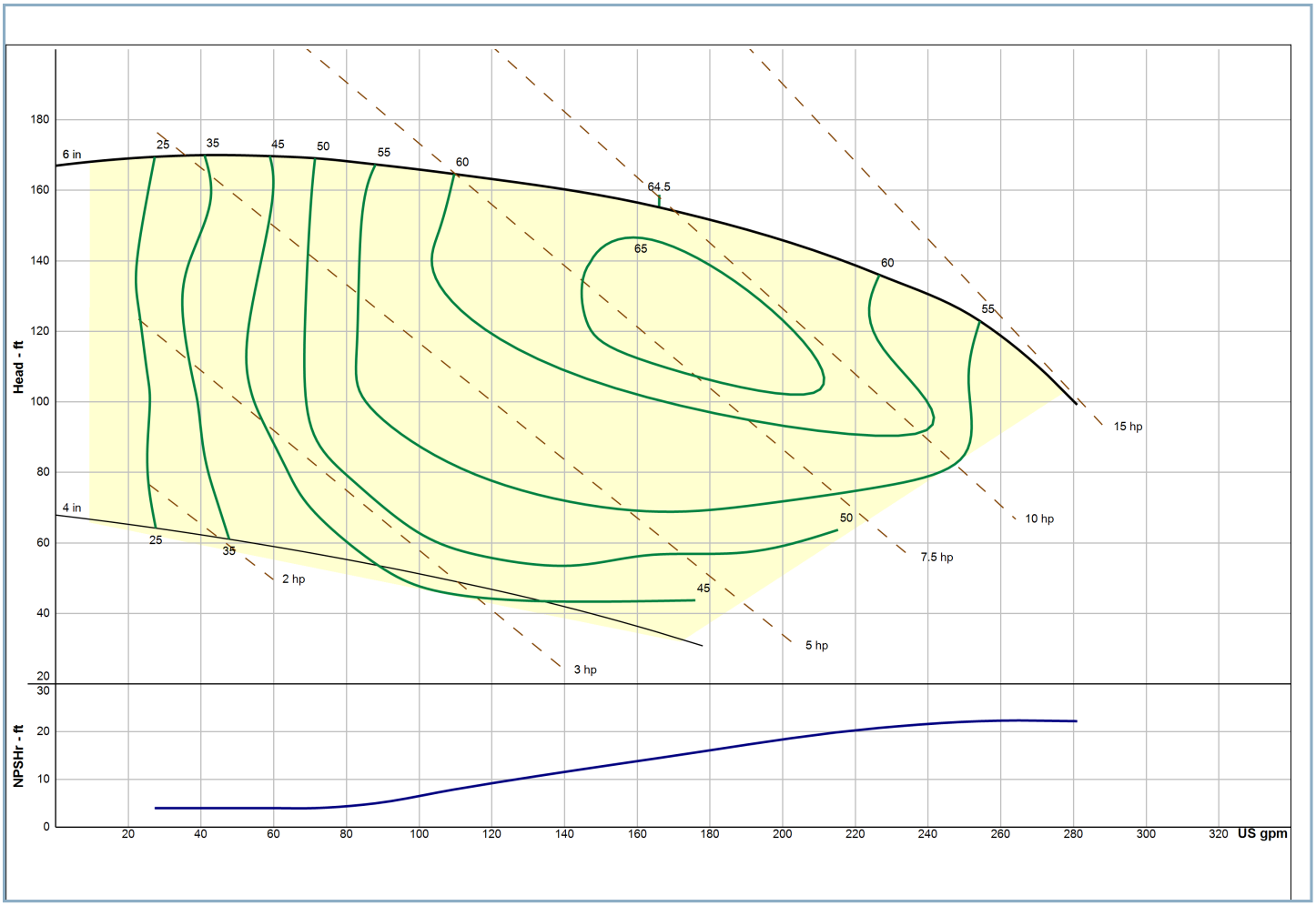
Capacity Curves

MODEL: C+216

Frequency: 60 Hz

RPM: 3500

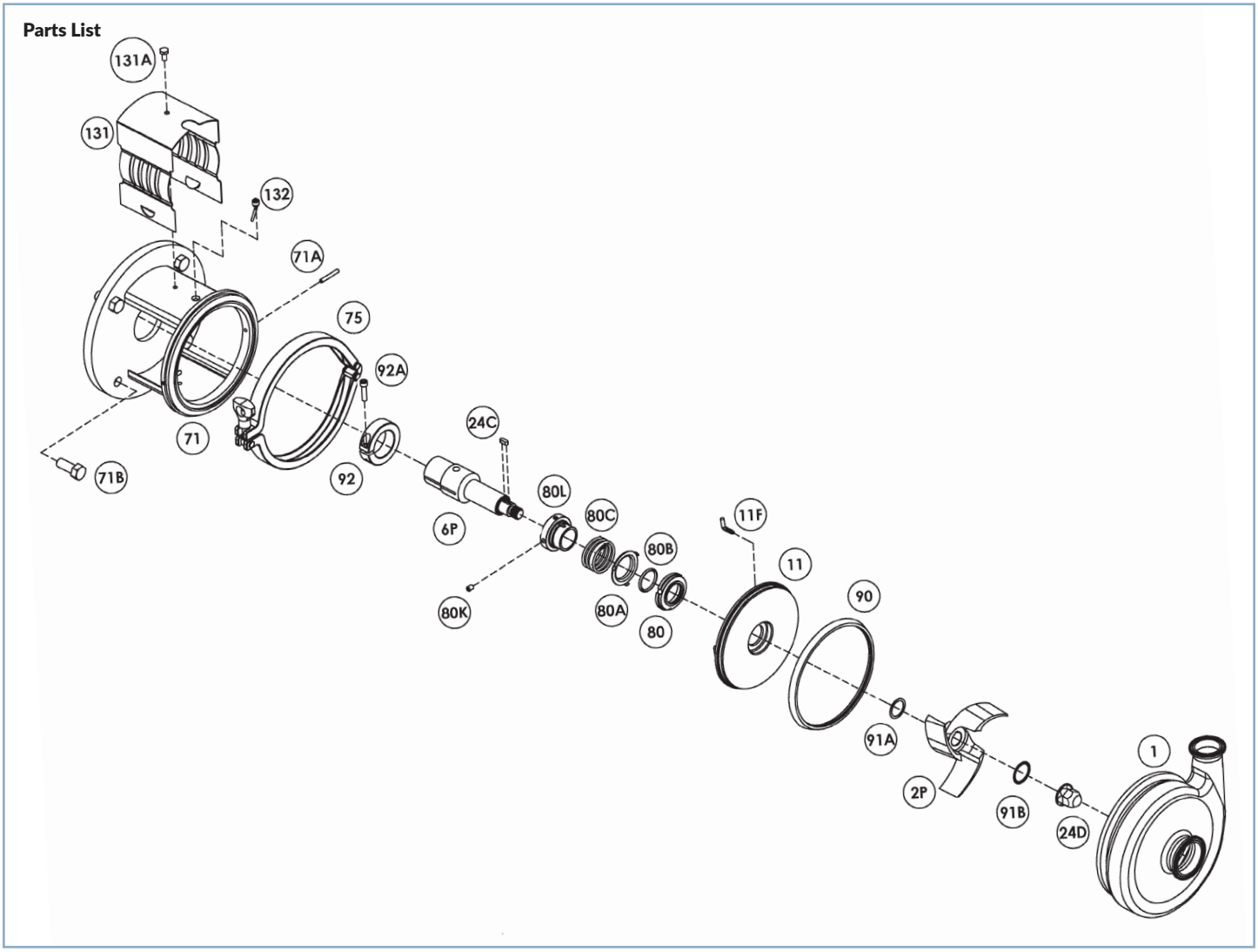
Size: 2” x 1.5” x 6”



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

Parts List



Part #	Part Name
1.	Casing
2P.	Impeller
6P.	Stub shaft
11.	Backplate
11F.	Backplate pin
24C.	Impeller key
71.	Adapter
71A.	Adapter pin
71B.	Adapter mounting screws
75.	Tri-Clamp
80.	Carbon seal

Part #	Part Name
80A.	Cup
80B.	Seal O-ring
80C.	Spring
80K.	Set screw drive collar
80L.	Drive collar
90.	Casing gasket
91A.	Impeller back gasket
91B.	Impeller nut gasket
92.	Shaft collar
92A.	Bolt drive collar
131.	Seal guard assembly

Part #	Part Name
131A.	Set screw
132.	Water cascade assembly