CPE SYSTEMS INC

C+218/318

TECHNICAL SPECIFICATIONS



SALES@CPESYSTEMS.COM | WWW.CPESYSTEMS.COM | +1 (800) 668-2268

C+218/318



The C+218/318 is a high-capacity C+ series centrifugal pump built for sanitary processors in the beverage, winery, dairy, and food processing industries, handling large-scale transfer applications. The C+218 offers a standard inlet for everyday transfers, while the C+318 adds an enlarged inlet that moves higher volumes and performs better where suction conditions are limited. Both comply with 3-A sanitary standards and feature heavy-duty stainless steel construction. Each pump is mounted on a stainless steel washdown motor, which makes cleaning easier and reduces issues caused by spillage.

DESIGN

The C+218/318 builds on the C-series centrifugal pump, keeping the same casing design and external mechanical seal options (D, DG, and F). It mounts to the drive shaft with a collar that clamps over a full 360°, and the impeller is held in place with a threaded impeller nut. Two specialized gaskets seal the shaft while allowing a CIP procedure to clean behind the impeller.

FEATURES

- 2” x 1-1/2” Tri-Clamp connections (C+218)
- 3” x 1-1/2” Tri-Clamp connections (C+318)
- 316L stainless steel construction
- 304 stainless steel adapter
- External mechanical seal
- 360° clamping shaft collar
- Threaded impeller nut
- CIP-capable shaft gaskets

SEALS

There are three seal types available for the C+218/318:

- **D Seal:** Single mechanical external seal
- **DG Seal:** Single external seal with replaceable silicon carbide seat
- **F Seal:** Single mechanical external seal with water cascade

HORSEPOWER

Horsepower	Max. Flow Rate	Shut off Head
7.5 HP	170 GPM	55 ft
10 HP	225 GPM	150 ft
15 HP	250 GPM	175 ft

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 FPM (special order)
Weight Without Motor:	22 lbs
Mechanical Seal	
Rotary Seal:	Carbon
Stationary Seal:	Stainless Steel or Silicon Carbide (standard) Ceramic or Tungsten Carbide (special order)
External Surface Finish:	Bright Polish
Internal Surface Finish:	32 RA
Connection Type:	Tri-Clamp
Connection Size:	2” x 1.5” (C+218) 3” x 1.5” (C+318)
Max. Impeller Diameter:	8”
Motor	
Type:	SS Washdown Motor TEFC Motor
Motor Frame Size:	NEMA 18T - 21T
Speeds:	1750 & 3500 RPM
Operating Limits	
Nominal Pressure:	8 bar (117 PSI)
Temperature Range:	14°F (-10°C) to 248°F (120°C)
Maximum Flow:	250 GPM (57 m^3/h)
Maximum Differential Head:	175 ft (53 m)
Maximum Speed:	3500 RPM (60Hz)
Viscosity:	600 cP
Approvals	
Certification:	3-A Authorization #1537, 02-10 (centrifugal pumps) for CIP

Assemblies

The C+218/318 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.

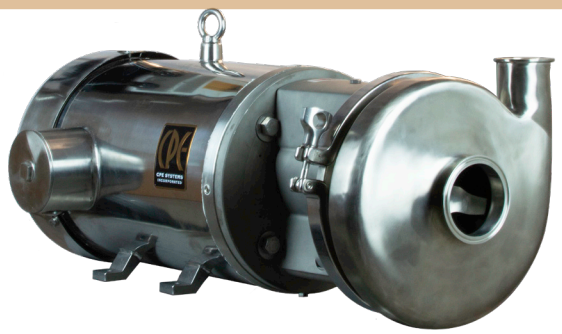
PORTABLE ASSEMBLY COMPONENTS:

- C+218 or C+318 Pump Head
- SS Washdown or TEFC Motor
- LENZE VFD
- Stainless Steel Pump Cart
- Electrical Cord and Plug of Choice

PUMP AND MOTOR COMPONENTS:

- C+218 or C+318 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
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. 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.

TECHNICAL SPECIFICATIONS

Horsepower:	7.5 to 15 HP
3Ø Input:	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

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).

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

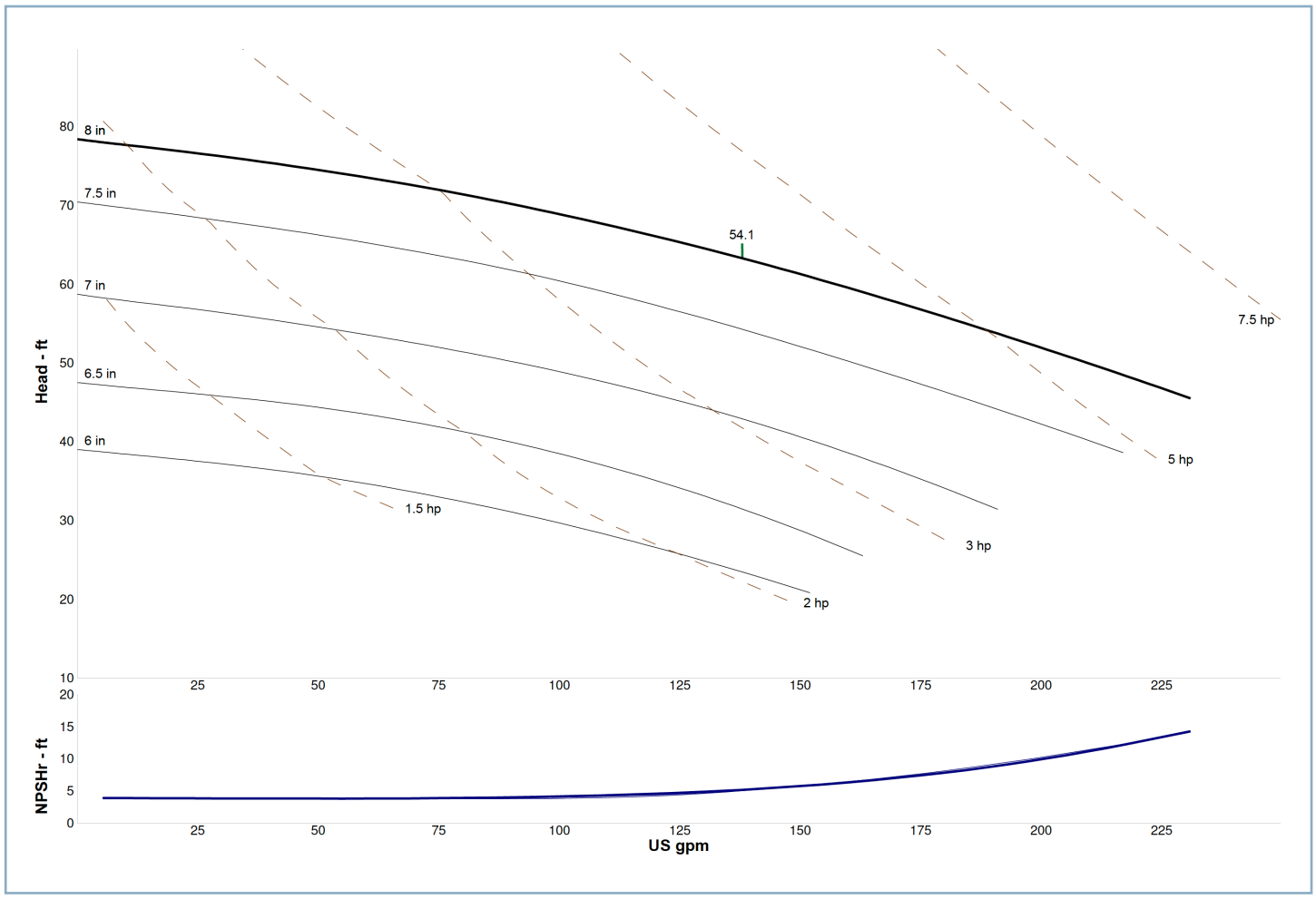
Capacity Curves

MODEL: C+218

Frequency: 60 Hz

RPM: 1750

Size: 2” x 1.5” x 8”



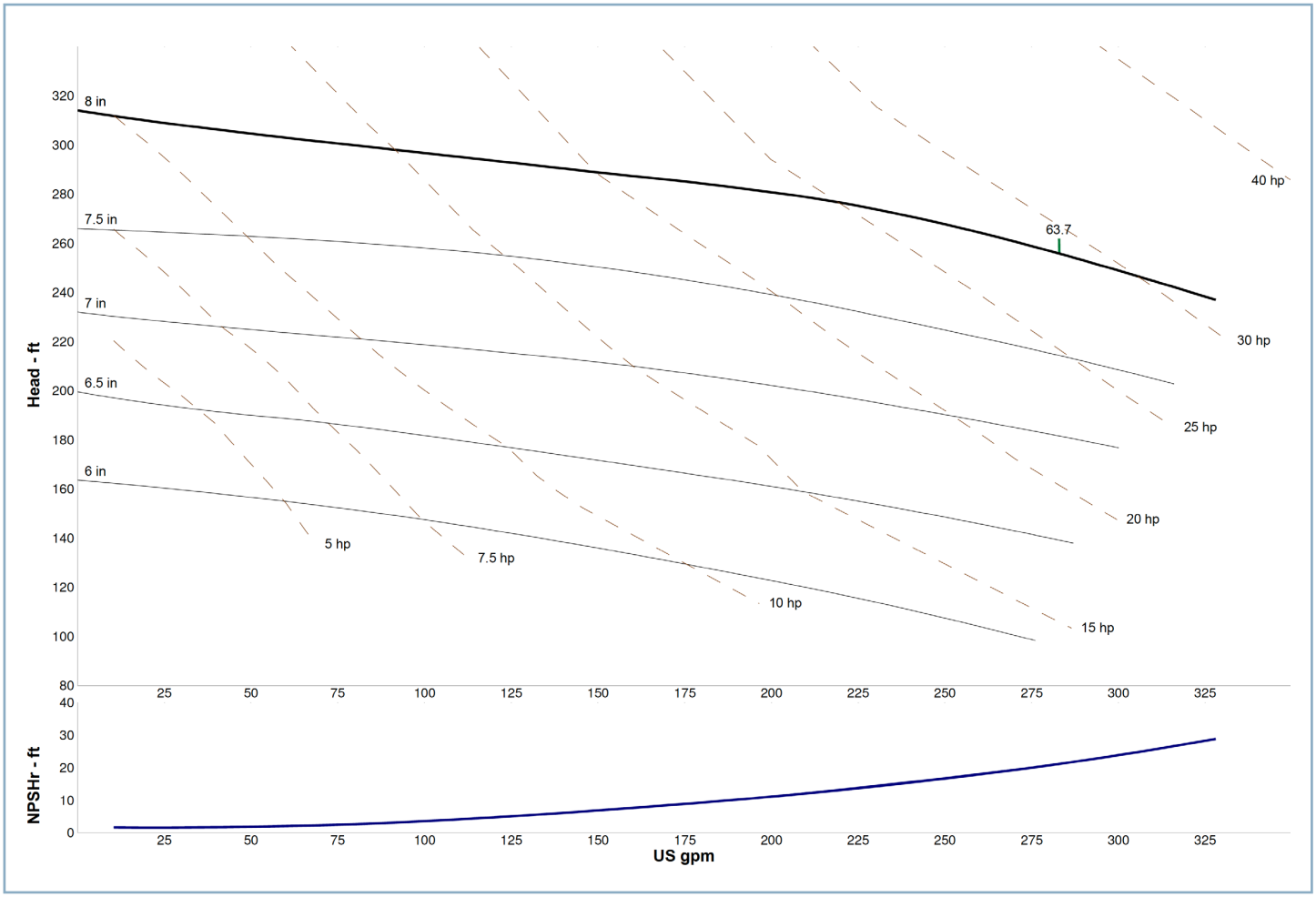
Capacity Curves

MODEL: C+218

Frequency: 60 Hz

RPM: 3500

Size: 2” x 1.5” x 8”



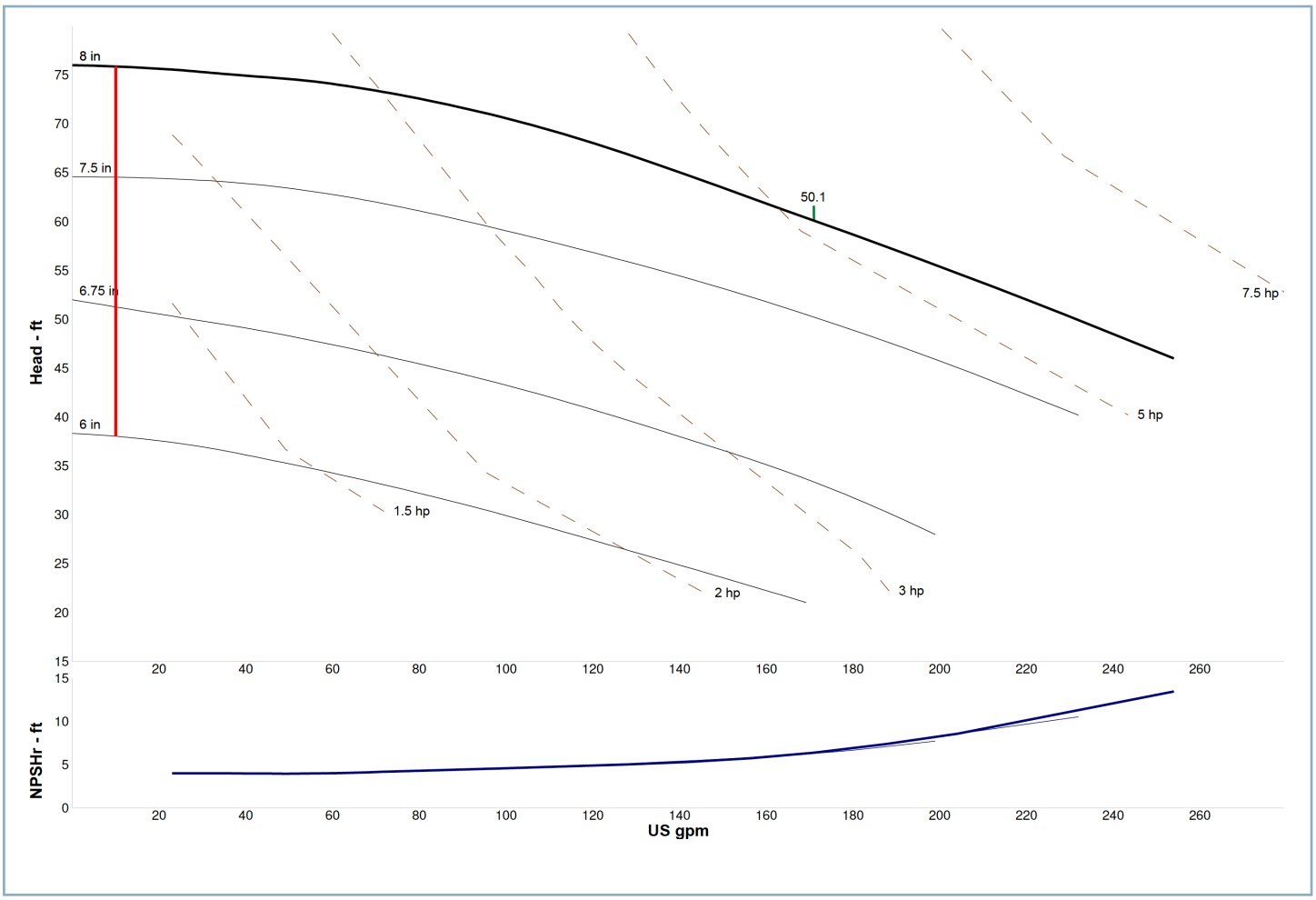
Capacity Curves

MODEL: C+318

Frequency: 60 Hz

RPM: 1750

Size: 3” x 1.5” x 8”



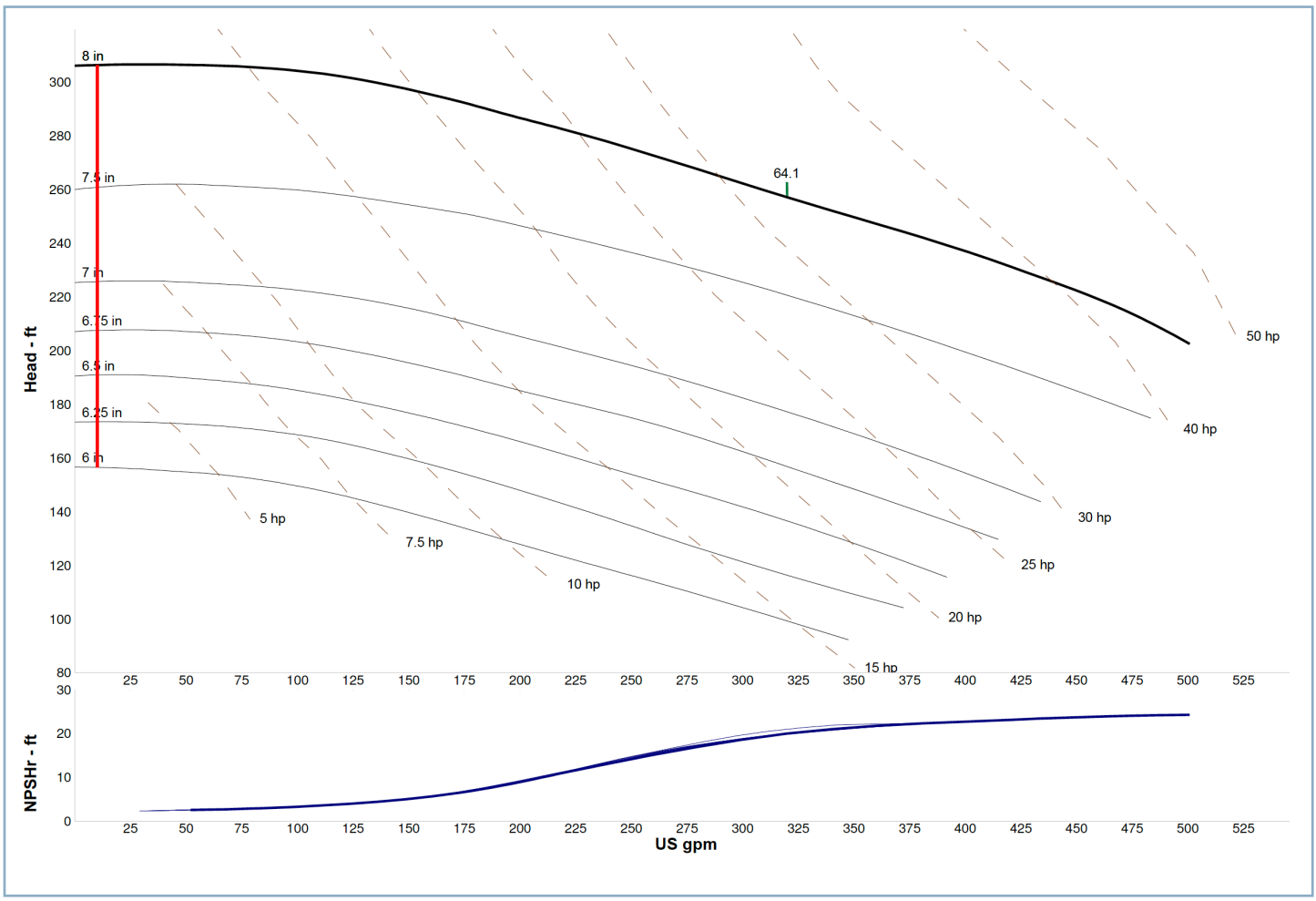
Capacity Curves

MODEL: C+318

Frequency: 60 Hz

RPM: 3500

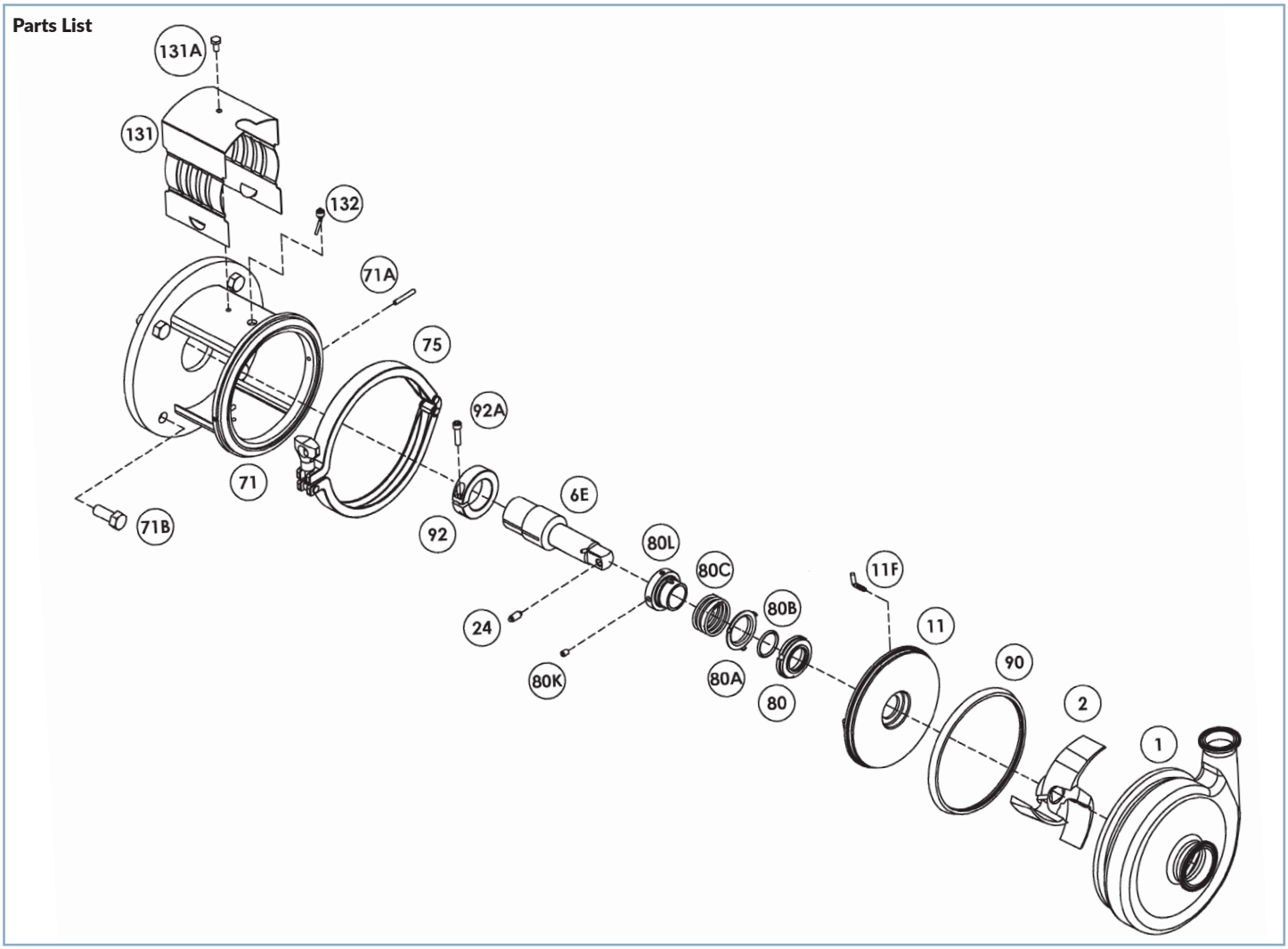
Size: 3” x 1.5” x 8”



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 SSU @ 35°F
Gelatin	1.01	1,380-2,580 SSU @ 160°F
Glucose	1.35 - 1.44	35M-100M SSU @ 100°F
		4M-11M SSU @ 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
2.	Impeller
90.	Casing gasket
11.	Backplate
11F.	Backplate pin
80.	Carbon seal
80A.	Cup
80B.	O-ring seal
80C.	Spring
80K.	Drive collar screw
80L.	Drive collar

Part #	Part Name
24.	Impeller retainer
6E.	Shaft
92.	Shaft collar
92A.	Shaft collar screw
75.	Tri-Clamp
71.	Adapter
71A.	Adapter pin
71B.	Adapter mounting screws
132.	Water cascade assembly
131.	Seal guard assembly
131A.	Set screw