

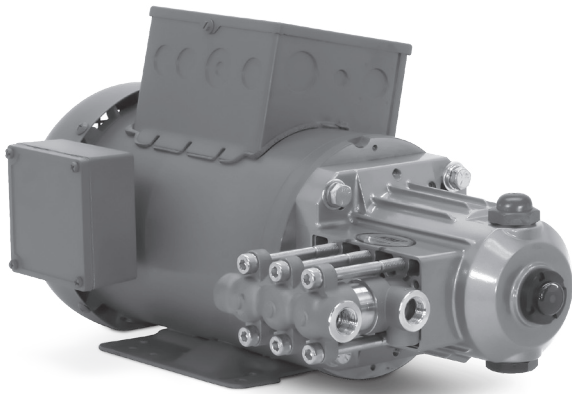
# DATA SHEET

## DIRECT DRIVE PLUNGER PUMPS



**Stainless Steel Models:**

**2SF05SEEL, 2SF10SEEL, 2SF15SEEL, 2SF22SEEL**



Motorized pump unit 2SF22SEELD Shown

### FEATURES

- Unique spring-loaded inlet valves and flow-through ceramic plungers provide a smooth, steady flow.
- Hollow shaft direct-drive configuration provides the smallest possible footprint for confined spaces.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

### COMMON SPECIFICATIONS

|   | U.S.              | Metric             |
|---|-------------------|--------------------|
| Pressure Range  | 100–1200 psi      | 6.9–83 bar         |
| Pump RPM  | 1725 rpm          | 1725 rpm           |
| Inlet Pressure Range  | Flooded to 60 psi | Flooded to 4.1 bar |
| Max. Liquid Temp. (NBR)   | 160° F            | 71° C              |
| <b>Alternative seals available for higher temperatures up to 180° F</b> |                   |                    |
| Bore  | 0.709"            | 18 mm              |
| Crankcase Capacity  | 10.1 oz           | 0.30 l             |
| Inlet Port  | 3/8" NPT(F)       | 3/8" NPT(F)        |
| Discharge Ports (2)   | 3/8" NPT(F)       | 3/8" NPT(F)        |
| Bypass Return Port  | 1/4" NPT(F)       | 1/4" NPT(F)        |
| Shaft Diameter  | 5/8"              | 15.9 mm            |
| Weight (Pump Only)  | 8.9 lbs           | 4 kg               |
| Dimensions (Pump Only)  | 6.8 x 8.7 x 5.2"  | 173 x 221 x 133 mm |

### SPECIFICATIONS

|                        | U.S. Measure | Metric Measure |
|------------------------|--------------|----------------|
| <b>Model 2SF05SEEL</b> |              |                |
| Flow                   | 0.5 gpm      | 1.9 lpm        |
| Stroke                 | 0.071"       | 1.8 mm         |
| <b>Model 2SF10SEEL</b> |              |                |
| Flow                   | 1.0 gpm      | 3.8 lpm        |
| Stroke                 | 0.122"       | 3.1 mm         |
| <b>Model 2SF15SEEL</b> |              |                |
| Flow                   | 1.5 gpm      | 5.7 lpm        |
| Stroke                 | 0.177"       | 4.5 mm         |
| <b>Model 2SF22SEEL</b> |              |                |
| Flow                   | 2.2 gpm      | 8.3 lpm        |
| Stroke                 | 0.248"       | 6.3 mm         |

### ALTERNATIVE SEAL CONFIGURATION

| MATERIAL | SUFFIX CODE | MAXIMUM TEMPERATURE |
|----------|-------------|---------------------|
| NBR      | —           | 160° F (71° C)      |
| FPM      | .0110       | 180° F (82° C)      |
| EPDM     | .0220       | 160° F (71° C)      |
| IPFE     | .0770       | 180° F (82° C)      |
| HT       | .3000       | 180° F (82° C)      |

See **Tech Bulletin 002** for inlet conditions and RPM at high temperature.

### DETERMINING THE PUMP RPM

$$\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{Desired gpm}}{\text{Desired rpm}}$$

### DETERMINING THE REQUIRED HP

$$\text{hp (Electric Brake)} = \frac{\text{gpm} \times \text{psi}}{1460}$$

Refer to pump **Service Manual** for repair procedure and additional technical information.

# PARTS LIST

| ITEM | PART NUMBER   | MATL   | DESCRIPTION   | MODEL  | QTY |
|------|---------------|--------|---|--------|-----|
| 5    | 547445        | S      | Screw, HHC Sems (M6 x 14) (See Tech Bulletins 074, 092) | All    | 3   |
| 8    | 547153        | AL     | Cover, Bearing (See Tech Bulletin 092)                  | All    | 1   |
| 10   | 14041         | NBR    | O-Ring, Bearing Cover-70D (See Tech Bulletin 092)       | All    | 1   |
| 11   | 55337         | NBR    | Seal, Oil, Crankshaft (See Tech Bulletin 092)           | All    | 1   |
| 15   | 14488         | STL    | Bearing, Ball, Inner                                    | All    | 1   |
| 20   | 547046        | TNM    | Rod, Connecting   | All    | 3   |
| 25   | <b>831987</b> | CM     | Crankshaft (M1.8)                                       | 05SEEL | 1   |
|      | <b>46109</b>  | CM     | Crankshaft (M3.1)                                       | 10SEEL | 1   |
|      | <b>44931</b>  | CM     | Crankshaft (M4.5)                                       | 15SEEL | 1   |
|      | <b>45160</b>  | CM     | Crankshaft (M6.3)                                       | 22SEEL | 1   |
| 26   | 12385         | STL    | Ring, Retaining, Bearing                                | All    | 1   |
| 27   | 15710         | STL    | Bearing, Ball, Outer                                    | All    | 1   |
| 32   | 547961        | RTP    | Cap, Oil Filler with O-Ring                             | All    | 1   |
| 33   | 14179         | NBR    | O-Ring, Oil Filler Cap-70D                              | All    | 1   |
| 37   | 92241         | PC     | Gauge, Oil with Gasket-80D (See Tech Bulletin 074)      | All    | 1   |
| 38   | 44428         | NBR    | Gasket, Flat, Oil Gauge-80D                             | All    | 1   |
| 48   | 44842         | NY     | Plug, Drain   | All    | 1   |
| 49   | 14179         | NBR    | O-Ring, Drain Plug-70D                                  | All    | 1   |
| 53   | 547285        | AL     | Crankcase (See Tech Bulletin 092)                       | All    | 1   |
| 64   | 16948         | CM     | Pin, Crosshead  | All    | 3   |
| 65   | 834203        | SSTO   | Rod, Plunger (See Tech Bulletin 124)                    | All    | 3   |
| 69   | 126259        | STCP R | Washer, Oil Seal  | All    | 3   |
| 70   | 25461         | NBR    | Seal, Oil Crankcase                                     | All    | 3   |
| 90   | 544697        | CC     | Plunger, Ceramic (M18 x 18)                             | All    | 3   |
| 100  | 44869         | PVDF   | Retainer, Seal  | All    | 3   |
| 106  | 547683        | NBR    | Seal, Low-Pressure with SS-Spring                       | All    | 3   |
| 110  | 547704        | SS     | Manifold, Inlet   | All    | 1   |
| 125  | 44652         | SNG    | Seal, High-Pressure with SS-Support                     | All    | 3   |
| 134  | 543691        | SS     | Valve, Inlet (See Tech Bulletin 091)                    | All    | 3   |
| 135  | 543689        | SS     | Spacer  | All    | 3   |
| 136  | 543690        | SS     | Spring, Inlet Valve                                     | All    | 3   |
| 137  | 88575         | S      | Washer, Conical (M6)                                    | All    | 3   |
| 138  | 543692        | SS     | Nut (M6)  | All    | 3   |
| 152  | † 26089       | NBR    | O-Ring, Adapter Spacer, Inner-80D                       | All    | 3   |
| 157  | 544700        | SS     | Adapter, Valve  | All    | 3   |
| 159  | † 26089       | NBR    | O-Ring, Adapter Spacer, Outer-80D                       | All    | 3   |
| 164  | 544293        | SS     | Seat  | All    | 3   |
| 166  | 543669        | SS     | Valve   | All    | 3   |
| 167  | 543700        | SS     | Spring  | All    | 3   |
| 168  | 44565         | PVDF   | Retainer, Spring  | All    | 3   |
| 185  | 547705        | SS     | Manifold, Discharge                                     | All    | 1   |
| 188  | 544701        | S      | Screw, HSH (M8 x 80) (See Tech Bulletin 074)            | All    | 6   |
| 255  | 30517         | STZP R | Assembly, Bolt Mount                                    | All    | 1   |

**Bold print part numbers are unique to a particular pump model.** † Production parts are different than repair parts.

R Components comply with RoHS Directive. For additional technical information see [www.catpumps.com/literature/tech-bulletins](http://www.catpumps.com/literature/tech-bulletins).

NOTE: Discard Key that may come standard with most motors and engines and use only the key included in Bolt kit. MATERIAL CODES (Not Part of Part Number):

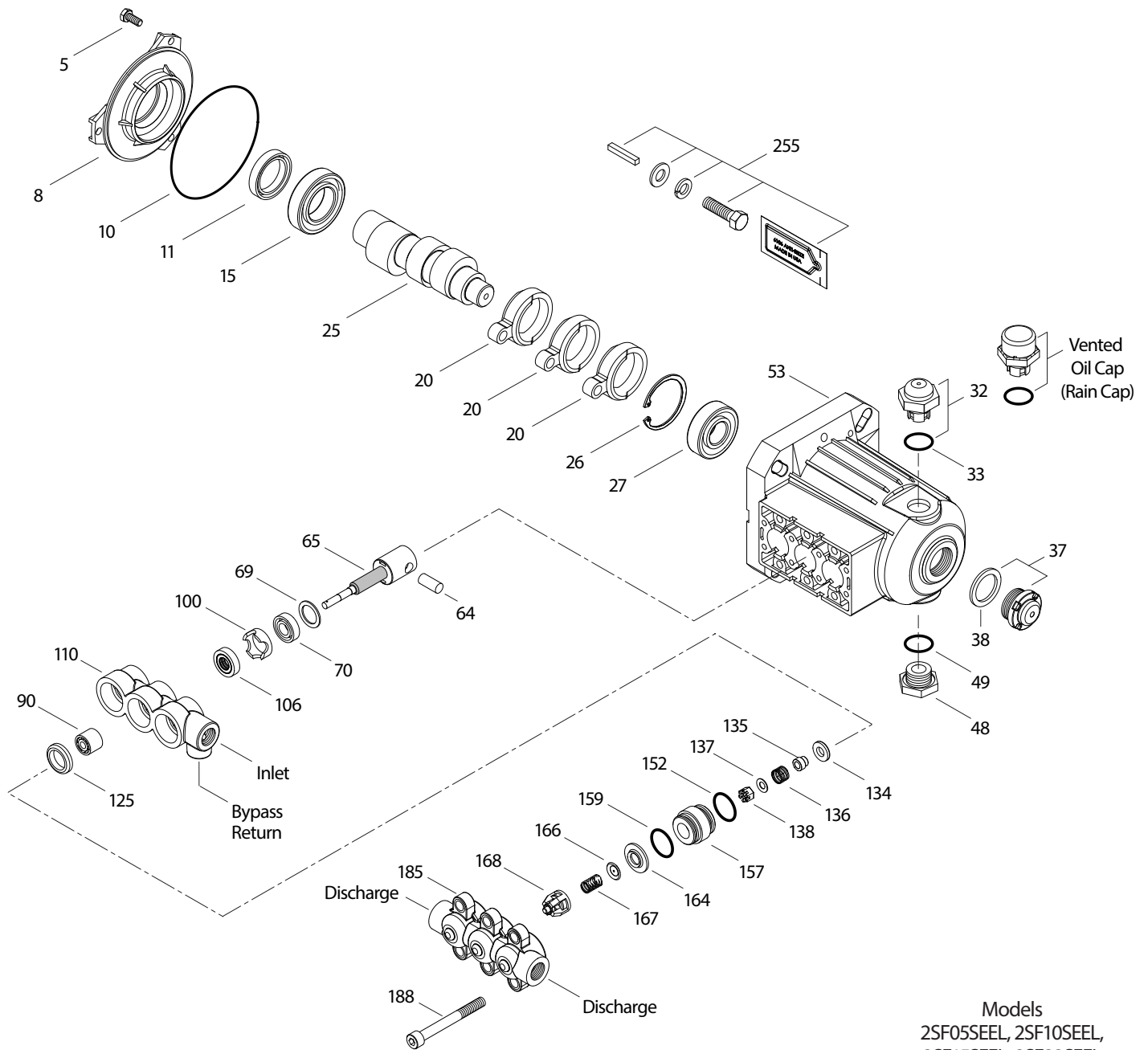
AL=Aluminum CC=Ceramic CM=Chrome-Moly D=Acetal EPDM=Ethylene Propylene Diene Monomer FPM=Fluorocarbon

HT=Hi-Temp (EPDM Alternative) IPFE=I-Perfluoroelastomer NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PVDF=Polyvinylidene Fluoride

RTP=Reinforced Composite S=304SS SNG=Special Blend (Buna) SS=316SS SSTO=316SS/Titanium Oxide ST=Special PTFE ST4=Special PTFE 4

STL=Steel STCP=Steel/Chrome Plated STZP=Steel/ZincPlated TNM=Special High Strength

# EXPLODED VIEW



Models  
2SF05SEEL, 2SF10SEEL,  
2SF15SEEL, 2SF22SEEL  
June 2022

## OPTIONAL PARTS AND ACCESSORIES

| PART     | DESCRIPTION  | QTY |
|----------|--|-----|
| 549726   | Cap, Vented with O-Ring (Rain Cap)                             | 1   |
| 80228    | Screw, HH (M8 – 1.25 x 80 Full Thread) (See Tech Bulletin 055) | 2   |
| 7501     | Unloader, 3/8" Ports, 316 SS (Not Shown)                       | 1   |
| 7501.100 | Regulator, 3/8" Ports, 316 SS (Not Shown)                      | 1   |
| 9960     | Valve, Pop-Off, 1/4" Port, 316 SS (Not Shown)                  | 1   |
| 990394   | Kit, Oil Drain (Not Shown)                                     | 1   |

## SERVICE PARTS

| PART  | DESCRIPTION  | QTY |
|-------|--|-----|
| 34973 | Seal Kit – Standard NBR  | 1   |
| 34972 | Discharge Valve Kit – Standard NBR   | 1   |
| 39668 | Inlet Valve Kit – Standard NBR   | 1   |
| 6107  | Oil, Bottle (21 oz) ISO 68 Hydraulic<br>(Fill to Specified Crankcase Capacity Prior to Start-up) | 1   |
| 6139  | Lubricant, Anti-Seize (8 oz) (See Tech Bulletin 095)   | 1   |

## SEAL KITS One (1) seal kit required per pump

| PUMP MODELS                                   | NBR (STD)    | FPM (.0110)  | EPDM (.0220) ◆ | IPFE (.0770) | HT (.3000)   |
|---|--------------|--------------|----------------|--------------|--------------|
| 2SF05SEEL, 2SF10SEEL,<br>2SF15SEEL, 2SF22SEEL | <b>34973</b> | <b>33453</b> | <b>30536*</b>  | <b>76969</b> | <b>32210</b> |

| ITEM (Included in Seal Kits) |        |        |        |        |        | DESCRIPTION                       | QTY |
|------------------------------|--------|--------|--------|--------|--------|-----------------------------------|-----|
| 106                          | 547683 | 545192 | 546507 | 76443  | 547683 | Seal, Low-Pressure with SS-Spring | 3   |
| 125                          | 44652  | 46652  | 46652  | 76052  | 46652  | Seal, High-Pressure               | 3   |
| 152                          | 26089  | 11377  | 46647  | 703244 | 26089  | O-Ring, Adapter Spacer, Inner     | 3   |
| 159                          | 26089  | 11377  | 46647  | 703244 | 26089  | O-Ring, Adapter Spacer, Outer     | 3   |

◆ Silicone oil/grease required \*Review material codes for individual items (SNG, HT, ST4 generally may be used as an alternative)

## DISCHARGE VALVE KITS One (1) valve kit required per pump

| PUMP MODELS                                   | NBR (STD)    | FPM (.0110)  | EPDM (.0220) ◆ | IPFE (.0770) | HT (.3000)   |
|---|--------------|--------------|----------------|--------------|--------------|
| 2SF05SEEL, 2SF10SEEL,<br>2SF15SEEL, 2SF22SEEL | <b>34972</b> | <b>33454</b> | <b>30546</b>   | <b>76596</b> | <b>34972</b> |

| ITEM (Included in Valve Kits) |        |        |        |        |        | DESCRIPTION                   | QTY |
|-------------------------------|--------|--------|--------|--------|--------|-------------------------------|-----|
| 152                           | 26089  | 11377  | 46647  | 703244 | 26089  | O-Ring, Adapter Spacer, Inner | 3   |
| 159                           | 26089  | 11377  | 46647  | 703244 | 26089  | O-Ring, Adapter Spacer, Outer | 3   |
| 164                           | 544293 | 544293 | 544293 | 544293 | 544293 | Seat                          | 3   |
| 166                           | 543669 | 543669 | 543669 | 543669 | 543669 | Valve                         | 3   |
| 167                           | 543700 | 543700 | 543700 | 543700 | 543700 | Spring                        | 3   |
| 168                           | 44565  | 44565  | 44565  | 44565  | 44565  | Retainer, Spring              | 3   |

◆ Silicone oil/grease required

## INLET VALVE KITS One (1) valve kit required per pump

| PUMP MODELS                                   | NBR (STD)    | FPM (.0110)  | EPDM (.0220) ◆ | IPFE (.0770) | HT (.3000)   |
|---|--------------|--------------|----------------|--------------|--------------|
| 2SF05SEEL, 2SF10SEEL,<br>2SF15SEEL, 2SF22SEEL | <b>39668</b> | <b>33460</b> | <b>30556</b>   | <b>76586</b> | <b>39668</b> |

| ITEM (Included in Valve Kits) |                     |                    |                     |                     |                     | DESCRIPTION                   | QTY |
|-------------------------------|---------------------|--------------------|---------------------|---------------------|---------------------|-------------------------------|-----|
| 134                           | 543691 <sup>1</sup> | 33873 <sup>2</sup> | 543691 <sup>1</sup> | 543691 <sup>1</sup> | 543691 <sup>1</sup> | Valve, Inlet                  | 3   |
| 135                           | 543689              | 543689             | 543689              | 543689              | 543689              | Spacer                        | 3   |
| 136                           | 543690              | 543690             | 543690              | 543690              | 543690              | Spring                        | 3   |
| 137                           | 88575               | 88575              | 88575               | 88575               | 88575               | Washer, Conical               | 3   |
| 138                           | 543692              | 543692             | 543692              | 543692              | 543692              | Nut                           | 3   |
| 152                           | 26089               | 11377              | 46647               | 703244              | 26089               | O-Ring, Adapter Spacer, Inner | 3   |
| 159                           | 26089               | 11377              | 46647               | 703244              | 26089               | O-Ring, Adapter Spacer, Outer | 3   |

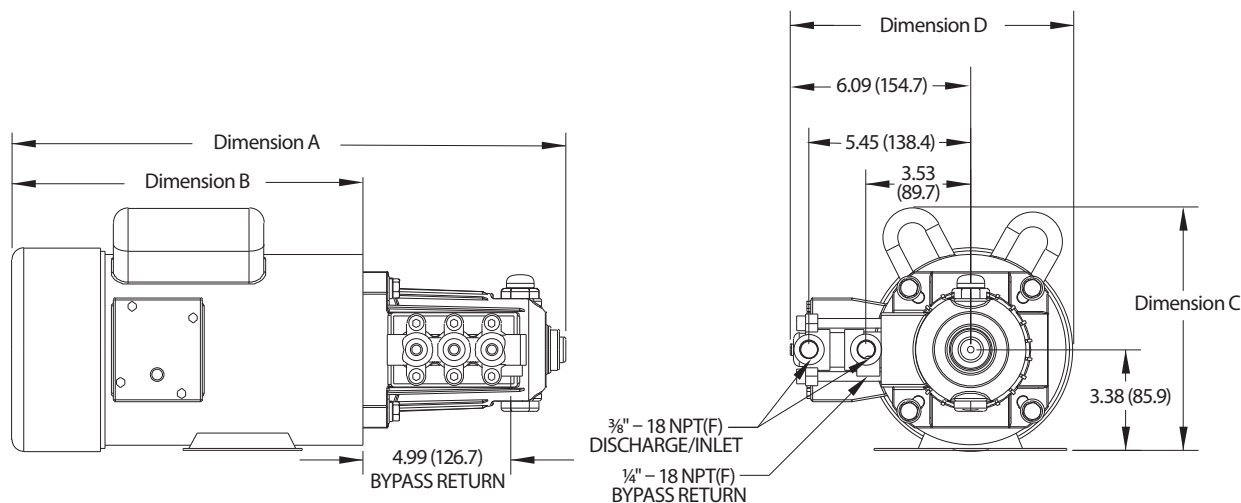
◆ Silicone oil/grease required

1= 316SS Material

2= Acetal Material

## DIMENSION SPECIFICATIONS

| MODEL       | 8105 | 8175 | 8110 | 8115 | 8120 | 8125/8125W |
|-------------|------|------|------|------|------|------------|
| Dimension A | 15.9 | 15.9 | 17.1 | 19.3 | 19.3 | 19.3       |
| Dimension B | 9.0  | 9.0  | 10.2 | 12.4 | 12.4 | 12.4       |
| Dimension C | 8.2  | 8.2  | 8.2  | 9.7  | 9.7  | 9.7        |
| Dimension D | 9.1  | 9.1  | 9.1  | 9.7  | 9.7  | 9.7        |



Models 2SF05SEEL, 2SF10SEEL, 2SF15SEEL, 2SF22SEEL

## MOTOR SPECIFICATIONS

| MODEL                            | 8105        | 8175         | 8110        | 8115           | 8120           | 8125/8125W  |
|----------------------------------|-------------|--------------|-------------|----------------|----------------|-------------|
| HorsePower                       | 0.5         | 0.75         | 1.0         | 1.5            | 2.0            | 2.5         |
| Phase                            | Single      | Single       | Single      | Single         | Single         | Single      |
| RPM                              | 1750        | 1745         | 1750        | 1750           | 1750           | 1750        |
| Frame Size                       | 56C TEFC    | 56C TEFC     | 56C TEFC    | 56HC TEFC      | 56HC TEFC      | 56HC TEFC   |
| Shaft Diameter (inches)          | 5/8         | 5/8          | 5/8         | 5/8            | 5/8            | 5/8         |
| Maximum Volts                    | 115/208-230 | 115/208-230  | 115/208-230 | 115/208-230    | 115/208-230    | 115/208-230 |
| Full Load Amps                   | 7.4/3.6-3.7 | 10.6/5.2-5.3 | 14/6.8-7.0  | 13.8/7.63-6.90 | 17.2/9.53-8.62 | 20.8/10.4   |
| Hertz                            | 60          | 60           | 60          | 60/50          | 60/50          | 60/50       |
| Service Factor                   | 1.15        | 1.15         | 1.15        | 1.85           | 1.4            | 1.15        |
| Maximum Ambient Temperature (°F) | 104         | 104          | 104         | 104            | 104            | 104         |
| Capacitor Start                  | Yes         | Yes          | Yes         | Yes            | Yes            | Yes         |
| Thermal Overload-Manual Reset    | No          | Yes          | No          | No             | No             | No          |
| Weight (lbs)                     | 25          | 28           | 34          | 53.8           | 53.8           | 53.8        |

### NOTES:

1. Motor start-up Amps may vary, then settle within Full Load Amps rating after initial run time.
2. Refer to Tech Bulletin 136 for complete specifications for 50 Hz versions of Models 8115 and 8120.
3. Before mounting pump on motor, apply an antiseize lubricant (or PN 6106) to pump shaft.
4. Refer to Tech Bulletin 055 for instructions on removing pump from electric motor.
5. For electric motor warranty consideration, contact motor manufacturer's local Authorized Service Center.

### CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (e.g. regulator, unloader) and a secondary pressure relief device (e.g. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high-pressure system. Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system. The CAUTIONS and WARNINGS are included in each Service Manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at [www.catpumps.com/dynamic-literature/cautions-and-warnings](http://www.catpumps.com/dynamic-literature/cautions-and-warnings) or can be requested directly from Cat Pumps.

### WARRANTY

View the Limited Warranty online at [www.catpumps.com/literature/cat-pumps-limited-warranty](http://www.catpumps.com/literature/cat-pumps-limited-warranty)