

# DATA SHEET

## 5 FRAME PLUNGER PUMPS



### Stainless Steel Models

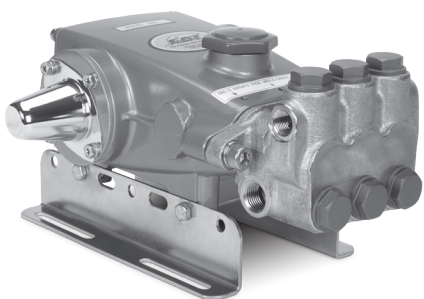
**311, 341, 351**

### Stainless Steel Flushed Models

**311C, 341C, 351C**

### Nickel Aluminum Bronze Models

**317, 347, 357**



Model 311 Shown  
(Shaft protector and mounting rails sold separately)

### FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- Durable high-pressure seals are lubricated and cooled by pumped liquid.
- Pre-set low-pressure seals provide secondary protection against external leaks and require no packing adjustment.
- Models 311C, 341C and 351C offer an external flush for high-temperature liquids or low-lubricity liquids.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

### COMMON

| SPECIFICATIONS                                                   | U.S.                  | Metric             |
|------------------------------------------------------------------|-----------------------|--------------------|
| Max. Liquid Temperature (NBR)                                    | 160° F                | 71° C              |
| Alternative seals available for higher temperatures up to 200° F |                       |                    |
| Bore                                                             | 0.787"                | 20 mm              |
| Crankcase Capacity                                               | 18 oz                 | 0.53 l             |
| Inlet Ports (2)                                                  | ½" NPT(F)             | ½" NPT(F)          |
| Flush Ports (2) (311C, 341C, 351C)                               | ⅛" NPT(F)             | ⅛" NPT(F)          |
| Discharge Ports (2)                                              | ¾" NPT(F)             | ¾" NPT(F)          |
| Shaft Diameter                                                   | 0.787"                | 20 mm              |
| Weight                                                           | 19.8 lbs              | 9 kg               |
| Dimensions                                                       | 11.81 x 10.00 x 5.24" | 300 x 254 x 133 mm |

### SPECIFICATIONS

### U.S. Measure

### Metric Measure

#### 311, 311C, 317

|                      |              |               |
|----------------------|--------------|---------------|
| Flow                 | 4.0 gpm      | 15 lpm        |
| Pressure Range       | 100–2200 psi | 6.9–152 bar   |
| Pump RPM*            | 950 rpm      | 950 rpm       |
| Inlet Pressure Range | -5–60 psi    | -0.35–4.1 bar |
| Stroke               | 0.709"       | 18 mm         |

#### ALTERNATIVE SPECIFICATIONS 311, 311C

|                |              |             |
|----------------|--------------|-------------|
| Flow           | 5.0 gpm      | 19 lpm      |
| Pressure Range | 100–1500 psi | 6.9–103 bar |
| Pump RPM*      | 1190 rpm     | 1190 rpm    |

#### ALTERNATIVE SPECIFICATIONS 317

|                |              |             |
|----------------|--------------|-------------|
| Flow           | 5.0 gpm      | 19 lpm      |
| Pressure Range | 100–2000 psi | 6.9–138 bar |
| Pump RPM*      | 1190 rpm     | 1190 rpm    |

#### 341, 341C, 347 Direct Drive

|                      |                   |                    |
|----------------------|-------------------|--------------------|
| Flow                 | 4.0 gpm           | 15 lpm             |
| Pressure Range       | 100–1800 psi      | 6.9–124 bar        |
| Pump RPM*            | 1725 rpm          | 1725 rpm           |
| Inlet Pressure Range | Flooded to 60 psi | Flooded to 4.1 bar |
| Stroke               | 0.394"            | 10 mm              |

#### 351, 351C, 357 Direct Drive

|                      |                   |                    |
|----------------------|-------------------|--------------------|
| Flow                 | 5.0 gpm           | 19 lpm             |
| Pressure Range       | 100–1500 psi      | 6.9–103 bar        |
| Pump RPM*            | 1725 rpm          | 1725 rpm           |
| Inlet Pressure Range | Flooded to 60 psi | Flooded to 4.1 bar |
| Stroke               | 0.472"            | 12 mm              |

\*Pump minimum is 100 RPM

### 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) |
| FFKM     | .0770       | 200° F              | (93° C) |
| HT       | .3000       | 180° F              | (82° C) |
| STHT     | .3400       | 190° F              | (88° 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

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

#### DETERMINING MOTOR PULLEY SIZE

$$\frac{\text{Motor Pulley OD}}{\text{Pump rpm}} = \frac{\text{Pump Pulley OD}}{\text{Motor rpm}}$$

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

## PARTS LIST

| ITEM | PART<br>NUMBER                             | MATL | PART<br>NUMBER       | MATL | DESCRIPTION                                                                  | QTY |
|------|--------------------------------------------|------|----------------------|------|------------------------------------------------------------------------------|-----|
|      | <b>311, 311C, 341,<br/>341C, 351, 351C</b> |      | <b>317, 347, 357</b> |      |                                                                              |     |
| 5    | 92538                                      | S    | 92538                | S    | Screw, Sems HHC (M6x16) (See Tech Bulletin 074)                              | 8   |
| 8    | 43344                                      | AL   | 43344                | AL   | Cover, Bearing                                                               | 1/2 |
| 10   | 43343                                      | NBR  | 43343                | NBR  | O-Ring, Bearing Cover–70D                                                    | 2   |
| 11   | 43222                                      | NBR  | 43222                | NBR  | Seal, Oil, Crankshaft (Models 311, 311C, 317, 341, 341C, 347 351, 351C, 357) | 2/1 |
| 15   | 14480                                      | STL  | 14480                | STL  | Bearing, Ball                                                                | 2   |
| 20   | 45883                                      | HS   | 45883                | HS   | Rod, Connecting Assembly (See Tech Bulletin 074)                             | 3   |
| 25   | <b>43342</b>                               | FCM  | <b>43342</b>         | FCM  | Crankshaft, Dual End (M18) (Models 311, 311C, 317)                           | 1   |
|      | <b>44945</b>                               | FCM  | <b>44945</b>         | FCM  | Crankshaft, Single End (M10) (Models 341, 341C, 347)                         | 1   |
|      | <b>43838</b>                               | FCM  | <b>43838</b>         | FCM  | Crankshaft, Dual End (M12) (Models 351C, 357)                                | 1   |
| 30   | <b>44949</b>                               | AL   | <b>44949</b>         | AL   | Cover, Blind Shaft (Models 341, 341C)                                        | 1   |
| 32   | 43211                                      | ABS  | 43211                | ABS  | Cap, Oil Filler                                                              | 1   |
| 33   | 14177                                      | NBR  | 14177                | NBR  | O-Ring, Filler Cap–70D                                                       | 1   |
| 37   | 92241                                      | PC   | 92241                | PC   | Gauge, Oil, Bubble with Gasket (See Tech Bulletin 074)                       | 1   |
| 38   | 44428                                      | NBR  | 44428                | NBR  | Gasket, Flat, Oil Gauge–80D                                                  | 1   |
| 40   | 92542                                      | S    | 92542                | S    | Screw, Sems HHC (M6 x 20) (See Tech Bulletin 074)                            | 4   |
| 48   | 25625                                      | STCP | 25625                | STCP | Plug, Drain (¼" x 19 BSP)                                                    | 1   |
| 49   | 23170                                      | NBR  | 23170                | NBR  | O-Ring, Drain Plug–70D                                                       | 1   |
| 50   | 48772                                      | AL   | 48772                | AL   | Cover, Rear                                                                  | 1   |
| 51   | 48773                                      | NBR  | 48773                | NBR  | O-Ring, Rear Cover                                                           | 1   |
| 53   | 48769                                      | AL   | 48769                | AL   | Crankcase                                                                    | 1   |
| 56   | 43355                                      | POP  | 43355                | POP  | Pan, Oil                                                                     | 1   |
| 64   | 43351                                      | CM   | 43351                | CM   | Pin, Crosshead                                                               | 3   |
| 65   | 45256                                      | SSZZ | 45256                | SSZZ | Rod, Plunger                                                                 | 3   |
| 70   | 43228                                      | NBR  | 43228                | NBR  | Seal, Oil, Crankcase                                                         | 3   |
| 75   | 43328                                      | S    | 43328                | S    | Slinger, Barrier                                                             | 3   |
| 88   | 45697                                      | S    | 45697                | S    | Washer, Keyhole (M18 x 10)                                                   | 3   |
| 90   | 43367                                      | CC   | 43367                | CC   | Plunger (M20 x 72)                                                           | 3   |
| 95   | 89653                                      | SS   | 89653                | SS   | Stud, Plunger Retainer (M6 x 58)                                             | 3   |
| 96   | 43235                                      | PTFE | 43235                | PTFE | Backup Ring, Plunger Retainer                                                | 3   |
| 97   | 17399                                      | NBR  | 17399                | NBR  | O-Ring, Plunger Retainer–80D                                                 | 3   |
| 98   | 44041                                      | SS   | 44041                | SS   | Gasket                                                                       | 3   |
| 99   | 44031                                      | SS   | 44031                | SS   | Retainer, Plunger (See Tech Bulletin 074)                                    | 3   |
| 100  | 45688                                      | PVDF | 45688                | PVDF | Retainer, Seal 2-Piece                                                       | 3   |
| 101  | 43302                                      | —    | 43302                | —    | Wick, Long Tab                                                               | 3   |
| 106  | 44127                                      | NBR  | 44127                | NBR  | Seal, Low-Pressure with SS-Spring                                            | 3   |
| 120  | 45680                                      | SS   | 45680                | SS   | Case, Seal                                                                   | 3   |
| 121  | 14200                                      | NBR  | 14200                | NBR  | O-Ring, Seal Case–70D                                                        | 3   |
| 125  | 44649                                      | SNG  | 44649                | SNG  | Seal, High-Pressure with SS-Support                                          | 3   |
| 139  | <b>45156</b>                               | SS   | <b>44563</b>         | NAB  | Plug, Inlet (½" NPT[M])                                                      | 1   |
| 162  | 48361                                      | D    | 48361                | D    | Backup Ring, Seat                                                            | 6   |
| 163  | 43358                                      | NBR  | 43358                | NBR  | O-Ring, Seat–70D                                                             | 6   |
| 164  | 44128                                      | SS   | 44128                | SS   | Seat                                                                         | 6   |
| 166  | 44057                                      | SS   | 44057                | SS   | Valve                                                                        | 6   |
| 167  | 44056                                      | SS   | 44056                | SS   | Spring, Valve                                                                | 6   |
| 168  | 44565                                      | PVDF | 44565                | PVDF | Retainer, Valve Spring                                                       | 6   |
| 171  | 44832                                      | S    | 44832                | S    | Spring, Coil                                                                 | 6   |
| 172  | 17615                                      | NBR  | 17615                | NBR  | O-Ring, Valve Plug–75D                                                       | 6   |
| 174  | <b>49296</b>                               | SS   | <b>44833</b>         | NAB  | Plug, Valve (See Tech Bulletin 074)                                          | 6   |
| 185  | <b>45151</b>                               | SS   | <b>44124</b>         | NAB  | Manifold Head                                                                | 1   |
|      | <b>49583</b>                               | SS   | —                    | —    | Manifold Head-Flushed (Models 311C, 341C, 351C)                              | 1   |
| 186  | 15847                                      | S    | 15847                | S    | Lockwasher (M10)                                                             | 2   |
| 188  | 87950                                      | S    | 87950                | S    | Screw HSH (M10 x 35) (See Tech Bulletin 074)                                 | 2   |

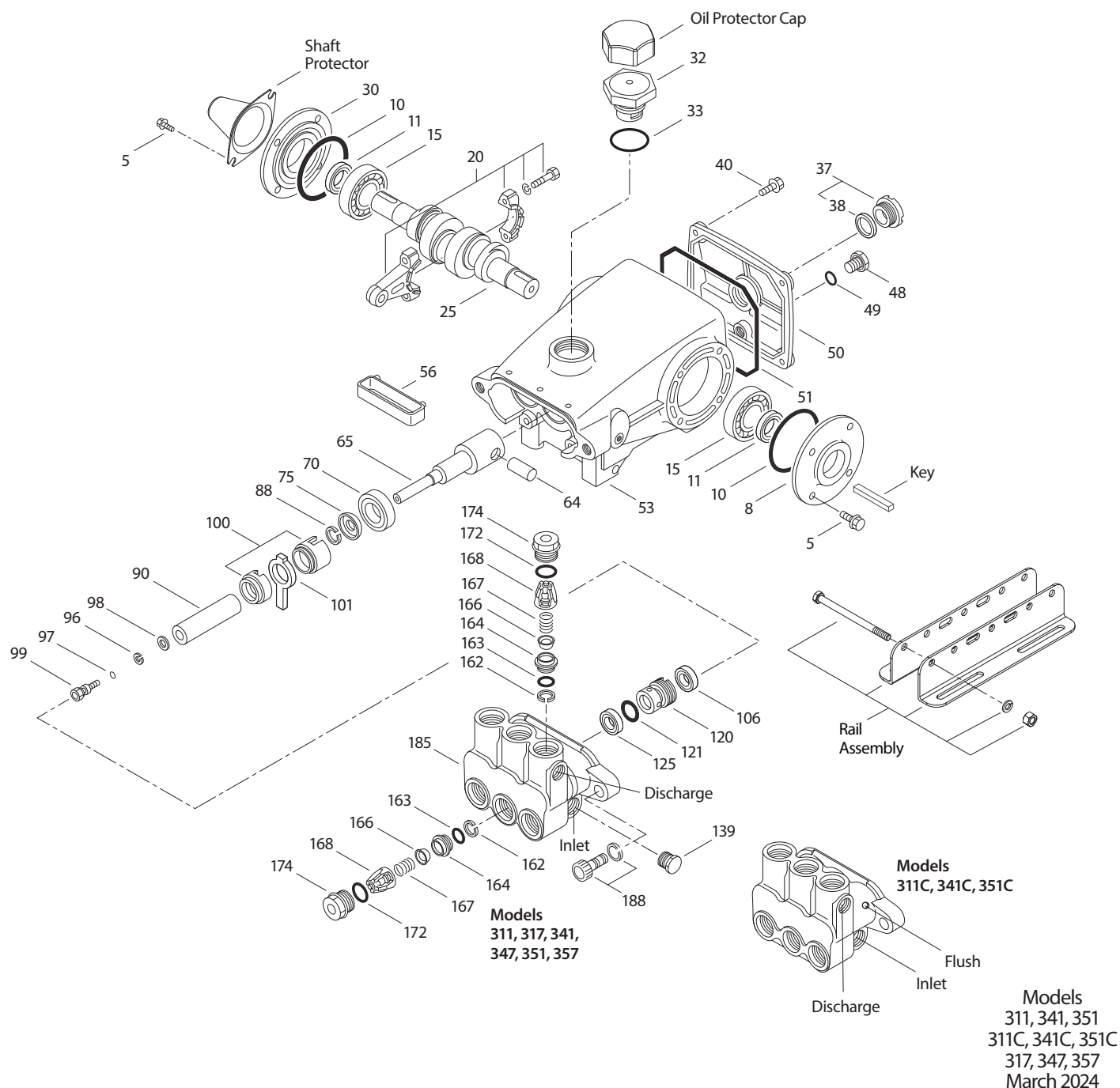
**Bold print part numbers are unique to a particular pump model.**

*Italics are optional items.* \*Review individual parts in each kit for material code information.

For additional technical information see [www.catpumps.com/literature/tech-bulletins](http://www.catpumps.com/literature/tech-bulletins) MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum  
 CC=Ceramic CM=Chrome-moly D=Acetal EPDM=Ethylene Propylene Diene MonomerFCM=Forged Chrome-moly FFKM=Perfluoroelastomer FPM=Fluorocarbon  
 HS=High Strength HT=High Temp (EPDM Alternative) NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) PC=Poly Carbonate POP=Polypropylene  
 PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SFTA=Special Blend PTFE Tan SNG=Special Blend (Buna) SS=316SS  
 SSZZ=316SS/Zamak STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated

**Optional Parts and Accessories and Service Parts listed on page 3. Standard and optional Seal and Valve Kits listed on page 4.**

## EXPLODED VIEW

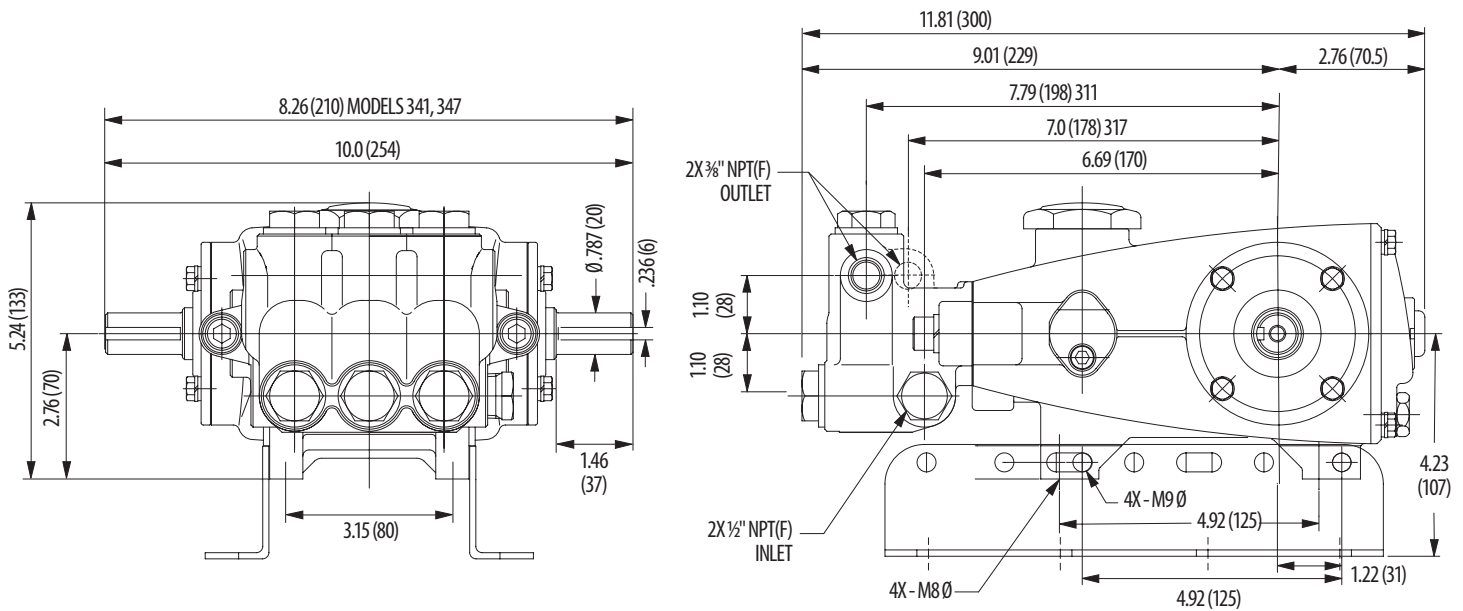


## OPTIONAL PARTS AND ACCESSORIES

| PART   | DESCRIPTION                             | QTY |
|--------|-----------------------------------------|-----|
| 30057  | Key (M6 x 6 x 25)                       | 1   |
| 30659  | Kit, Complete Mounting                  | 1   |
| 30611  | Mount, Rail Assembly (Belt Drive Only)  | 1   |
| 30243  | Mount, Direct (Belt Drive Only)         | 1   |
| 118672 | Protector, Shaft                        | 1   |
| 828710 | Protector, Oil Cap                      | 1   |
| 30633  | Assembly, Pulley & Key (Not Shown)      | 1   |
| 30944  | Assembly, Hub & Key (Not Shown)         | 1   |
| 34334  | Kit, Oil Drain (3/8" x 24") (Not Shown) | 1   |

## SERVICE PARTS

| PART          | DESCRIPTION                                                                  | QTY |
|---------------|------------------------------------------------------------------------------|-----|
| <b>34153</b>  | Kit, Seal – Standard NBR                                                     | 1   |
| <b>31152</b>  | Kit, Valve – Standard NBR                                                    | 2   |
| 6107          | Oil, Bottle (21 oz) (Fill to Specified Crankcase Capacity Prior to Start-up) | 1   |
| 6139          | Lubricant, Anti-Seize (8 oz) (See Tech Bulletin 095)                         | 1   |
| 30696         | Reverse Pliers (Not Shown)                                                   | 1   |
| 33004         | Socket, Seal Case (½" Drive) (Not Shown)                                     | 1   |
| <b>812207</b> | Head, Complete with NBR Seals and O-Rings (Models 311, 341, 351)             | 1   |
| <b>818444</b> | Head, Complete with NBR Seals and O-Rings (Models 311C, 341C, 351C)          | 1   |
| <b>814559</b> | Head, Complete with NBR Seals and O-Rings (Models 317, 347, 357)             | 1   |



Models 311, 317, 351, 357

## SEAL KITS

One (1) seal kit required per pump

| PUMP MODELS                                        | NBR (STD) | FPM (.0110) | EPDM (.0220) ♦ | FFKM (.0770) | HT (.3000) | STHT (.3400) |
|----------------------------------------------------|-----------|-------------|----------------|--------------|------------|--------------|
| 311, 341, 351<br>311C, 341C, 351C<br>317, 347, 357 | 34153     | 34155       | 31163*         | 76623*       | 33623      | 77031        |

| ITEM (Included in Seal Kits) |       |       |       |        |       |       | DESCRIPTION                              | QTY |
|------------------------------|-------|-------|-------|--------|-------|-------|------------------------------------------|-----|
| 97                           | 17399 | 14160 | 46204 | 701715 | 17399 | 17399 | O-Ring, Plunger Retainer                 | 3   |
| 101                          | 43302 | 43302 | 43302 | 43302  | 43302 | 43302 | Wick, Long Tab                           | 3   |
| 106                          | —     | —     | —     | —      | —     | 76305 | Seal, Low-Pressure with S-Spring         | 3   |
|                              | 44127 | 45153 | 48429 | —      | 43305 | —     | Seal, Low-Pressure with SS-Spring        | 3   |
|                              | —     | —     | —     | 701763 | —     | —     | Seal, Low-Pressure with NIH - Spring     | 3   |
| 121                          | 14200 | 11719 | 48907 | 701716 | 14200 | 14200 | O-Ring, Seal Case                        | 3   |
| 125                          | 44649 | —     | —     | —      | —     | —     | Seal, High-Pressure with S-Support       | 3   |
|                              | —     | 44936 | —     | —      | —     | —     | Seal, High-Pressure with SS-Support      | 3   |
|                              | —     | —     | 46667 | —      | 46667 | 46667 | Seal, High-Pressure with 2-Piece Support | 3   |
| 125                          | —     | —     | —     | 701764 | —     | —     | Seal, High-Pressure with NIH - Spring    | 3   |

♦ Silicone oil/grease required \*Review material code for individual items (HT may be used as an alternative)

## VALVE KITS

Two (2) valve kits required per pump

| PUMP MODELS                                        | NBR (STD) | FPM (.0110) | EPDM (.0220) | FFKM (.0770) | HT (.3000) | STHT (.3400) |
|----------------------------------------------------|-----------|-------------|--------------|--------------|------------|--------------|
| 311, 341, 351<br>311C, 341C, 351C<br>317, 347, 357 | 31152     | 34152       | 76148        | 76821        | 31152      | 31152        |

| ITEM (Included in Valve Kits) |       |       |       |        |       |       | DESCRIPTION        | QTY |
|-------------------------------|-------|-------|-------|--------|-------|-------|--------------------|-----|
| 162                           | 48361 | 48361 | 48361 | 48361  | 48361 | 48361 | Backup Ring, Seat  | 3   |
| 163                           | 43358 | 44938 | 48908 | 701717 | 43358 | 43358 | O-Ring, Seat       | 3   |
| 164                           | 44128 | 44128 | 44128 | 44128  | 44128 | 44128 | Seat               | 3   |
| 166                           | 44057 | 44057 | 44057 | 44057  | 44057 | 44057 | Valve              | 3   |
| 167                           | 44056 | 44056 | 44056 | 44056  | 44056 | 44056 | Spring             | 3   |
| 168                           | 44565 | 44565 | 44565 | 44565  | 44565 | 44565 | Retainer, Spring   | 3   |
| 171                           | 44832 | 44832 | 44832 | 44832  | 44832 | 44832 | Spring, Coil       | 3   |
| 172                           | 17615 | 15855 | 48431 | 701718 | 17615 | 17615 | O-Ring, Valve Plug | 3   |

♦ Silicone oil/grease required

### ⚠ 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)