

# DATA SHEET

## 15 FRAME PLUNGER PUMPS

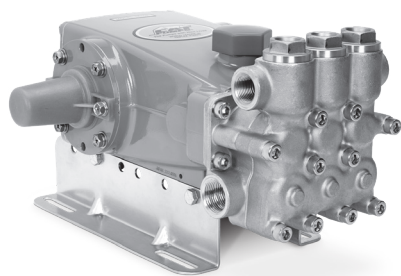


**Brass  
Model  
1540E**

**Flushed  
Model  
1540EC**

**Stainless Steel  
Model  
1541**

**Stainless Steel  
Flushed Model  
1541C**



Model 1540E Shown  
(Shaft protector included, mounting rails sold separately)

### FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- High and low-pressure seals are completely lubricated and cooled by pumped liquid, greatly increasing service life.
- Belt-driven option provides precision flow setting.
- Direct-drive option offers a compact footprint for electric motors with a NEMA or IEC frame, or SAE hydraulic motors with a bell housing/flexible coupler assembly.
- Models 1540EC and 1541C offers an external flush for high-temperature or low-lubricity fluids.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

| SPECIFICATIONS          | U.S. Measure      | Metric Measure     |
|-------------------------|-------------------|--------------------|
| Flow                    | 19.3 gpm          | 73 lpm             |
| Pressure Range          | 100–1200 psi      | 6.9–83 bar         |
| Pump RPM*               | 1180 rpm          | 1180 rpm           |
| Inlet Pressure Range    | Flooded to 70 psi | Flooded to 4.8 bar |
| Max. Liquid Temp. (NBR) | 140° F            | 60° C              |

#### Alternate seals available for higher temperatures up to 180° F

|                                    |                       |                    |
|------------------------------------|-----------------------|--------------------|
| Bore                               | 1.181"                | 30 mm              |
| Stroke                             | 1.181"                | 30 mm              |
| Crankcase Capacity                 | 42 oz                 | 1.26 l             |
| Inlet Ports (2)                    | 1" NPT(F)             | 1" NPT(F)          |
| Flush Ports (2)<br>(1540EC, 1541C) | 1/8" NPT(F)           | 1/8" NPT(F)        |
| Discharge Ports (2)                | 3/4" NPT(F)           | 3/4" NPT(F)        |
| Shaft Diameter                     | 1.181"                | 30 mm              |
| Pulley Mounting                    | Either Side           | Either Side        |
| Weight                             | 42.6 lbs              | 21 kg              |
| Dimensions                         | 14.57 x 12.99 x 7.40" | 370 x 330 x 188 mm |

\*Pump minimum is 100 RPM.

### ALTERNATIVE SEAL CONFIGURATION

| MATERIAL | SUFFIX CODE | MAXIMUM TEMPERATURE |
|----------|-------------|---------------------|
| NBR      | —           | 140° F (60° C)      |
| FPM      | .0110       | 180° F (82° C)      |
| EPDM     | .0220       | 160° F (71° C)      |

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

|                                          |                                                                                                   |
|------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>DETERMINING<br/>THE PUMP RPM</b>      | $\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{Desired gpm}}{\text{Desired rpm}}$       |
| <b>DETERMINING<br/>THE REQUIRED HP</b>   | $\text{hp (Electric Brake)} = \frac{\text{gpm} \times \text{psi}}{1460}$                          |
| <b>DETERMINING<br/>MOTOR PULLEY SIZE</b> | $\frac{\text{Motor Pulley OD}}{\text{Pump rpm}} = \frac{\text{Pump Pulley OD}}{\text{Motor rpm}}$ |

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

## PARTS LIST

| ITEM | PART NUMBER   |        | PART NUMBER   |        | DESCRIPTION                                                      | QTY |
|------|---------------|--------|---------------|--------|------------------------------------------------------------------|-----|
|      | 1540E /1540EC | MATL   | 1541 /1541C   | MATL   |                                                                  |     |
| 5    | 49651         | S      | 49651         | S      | Screw, HHC Sems (M8 x 20) (See Tech Bulletins 074, 128)          | 8   |
| 8    | 134805        | ALE    | 134805        | ALE    | Cover, Bearing (See Tech Bulletins 118, 128)                     | 2   |
| 9    | 855043        | FBR    | 855043        | FBR    | Shim, Split 2-Piece (See Tech Bulletin 128)                      | 0-2 |
| 10   | 11340         | NBR    | 11340         | NBR    | O-Ring, Bearing Cover-70D                                        | 2   |
| 11   | 43495         | NBR    | 43495         | NBR    | Seal, Oil, Crankshaft                                            | 2   |
| 12   | 855044        | SS     | 855044        | SS     | Shim, Split, 2-Piece (See Tech Bulletin 128)                     | 0-2 |
| 15   | 39060         | STL    | 39060         | STL    | Bearing, Roller                                                  | 2   |
| 20   | 48600         | TNM    | 48600         | TNM    | Rod, Connecting Assembly (See Tech Bulletin 074)                 | 3   |
| 25   | 43494         | FCM    | 43494         | FCM    | Crankshaft, Dual-End (M30)                                       | 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-80D (See Tech Bulletin 074)       | 1   |
| 38   | 44428         | NBR    | 44428         | NBR    | Gasket, Flat, Oil Gauge-80D                                      | 1   |
| 40   | 92542         | S      | 92542         | S      | Screw, HHC Sems (M6 x 20) (See Tech Bulletin 074)                | 4   |
| 48   | 25625         | STCP   | 25625         | STCP   | Plug, Drain (1/4" x 19 BSP)                                      | 1   |
| 49   | 23170         | NBR    | 23170         | NBR    | O-Ring, Drain Plug-70D                                           | 1   |
| 50   | 133576        | ALE    | 133576        | ALE    | Cover, Rear (See Tech Bulletin 118)                              | 1   |
| 51   | 44834         | NBR    | 44834         | NBR    | O-Ring, Rear Cover-70D                                           | 1   |
| 53   | 134858        | ALE    | 134858        | ALE    | Crankcase, Assembly (Includes: 54) (See Tech Bulletins 118,128)  | 1   |
| 54   | 27488         | S      | 27488         | S      | Pin, Guide                                                       | 2   |
| 64   | 43507         | CM     | 43507         | CM     | Pin, Crosshead                                                   | 3   |
| 65   | <b>48933</b>  | SHS    | <b>49611</b>  | SS     | Rod, Plunger (Center)                                            | 1   |
| 66   | <b>48931</b>  | SHS    | <b>49609</b>  | SS     | Rod, Plunger (Outside)                                           | 2   |
| 69   | 126596        | STCP R | 126596        | STCP R | Washer, Oil Seal                                                 | 3   |
| 70   | 43500         | NBR    | 43500         | NBR    | Seal, Oil Crankcase                                              | 3   |
| 88   | 48937         | S      | 48937         | S      | Washer, Flat                                                     | 3   |
| 90   | 48938         | CC     | 48938         | CC     | Plunger, Ceramic (M30 x 65)                                      | 3   |
| 98   | 46730         | NBR    | 46730         | NBR    | Washer, Seal-90D                                                 | 3   |
| 99   | † 48201       | SS     | 48201         | SS     | Retainer, Plunger (See Tech Bulletin 074)                        | 3   |
| 100  | 48936         | PVDF   | 48936         | PVDF   | Retainer, Seal                                                   | 3   |
| 106  | <b>49067</b>  | NBR    | —             | —      | Seal, Low-Pressure with S-Spring                                 | 3   |
|      | —             | —      | <b>49616</b>  | NBR    | Seal, Low-Pressure with SS-Spring                                | 3   |
| 110  | <b>48940</b>  | FBB    | <b>49614</b>  | SS     | Manifold, Inlet                                                  | 1   |
|      | <b>49853</b>  | FBB    | <b>134147</b> | SS     | Manifold, Inlet Flushed (1/8" NPT[F] Port)                       | 1   |
| 112  | 123903        | NBR    | 123903        | NBR    | O-Ring, Inlet Manifold-90D                                       | 3   |
| 117  | 49044         | S      | 49044         | S      | Screw, HSH (M10 x 25) (See Tech Bulletin 074)                    | 4   |
| 125  | <b>48944</b>  | SNG    | —             | —      | Seal, High-Pressure with Stainless Steel                         | 3   |
|      | —             | —      | <b>49619</b>  | STG    | Seal, Assembly 2-Piece with SS-Support                           | 3   |
| 155  | 123903        | NBR    | 123903        | NBR    | O-Ring, Spacer-90D                                               | 6   |
| 157  | <b>48946</b>  | BB     | <b>49621</b>  | SS     | Spacer, High-Pressure Seal                                       | 3   |
| 163  | 26143         | NBR    | 26143         | NBR    | O-Ring, Seat-80D                                                 | 6   |
| 164  | <b>48951</b>  | S      | <b>49626</b>  | SS     | Seat                                                             | 6   |
| 166  | 670108        | SS     | 670108        | SS     | Valve                                                            | 6   |
| 167  | 48687         | SS     | 48687         | SS     | Spring                                                           | 6   |
| 168  | 48994         | PVDF   | 48994         | PVDF   | Retainer, Spring                                                 | 6   |
| 170  | <b>123764</b> | S      | <b>49627</b>  | SS     | Washer, Spring Retainer                                          | 6   |
| 172  | 17629         | NBR    | 17629         | NBR    | O-Ring, Valve Plug-80D                                           | 3   |
| 174  | <b>48952</b>  | FBB    | <b>49628</b>  | SS     | Plug, Valve (See Tech Bulletin 074)                              | 3   |
| 185  | <b>48948</b>  | FBB    | <b>49623</b>  | SS     | Manifold, Discharge                                              | 1   |
| 188  | 87952         | S      | 87952         | S      | Screw, HSH (M10 x 55) (See Tech Bulletin 074)                    | 10  |
| 250  | <b>855046</b> | NY     | —             | —      | Protector, Shaft with 2 Screws PN 126544 (See Tech Bulletin 128) | 1   |
|      | —             | —      | <b>855047</b> | NY     | Protector, Shaft with 2 Screws PN 125753 (See Tech Bulletin 128) | 1   |

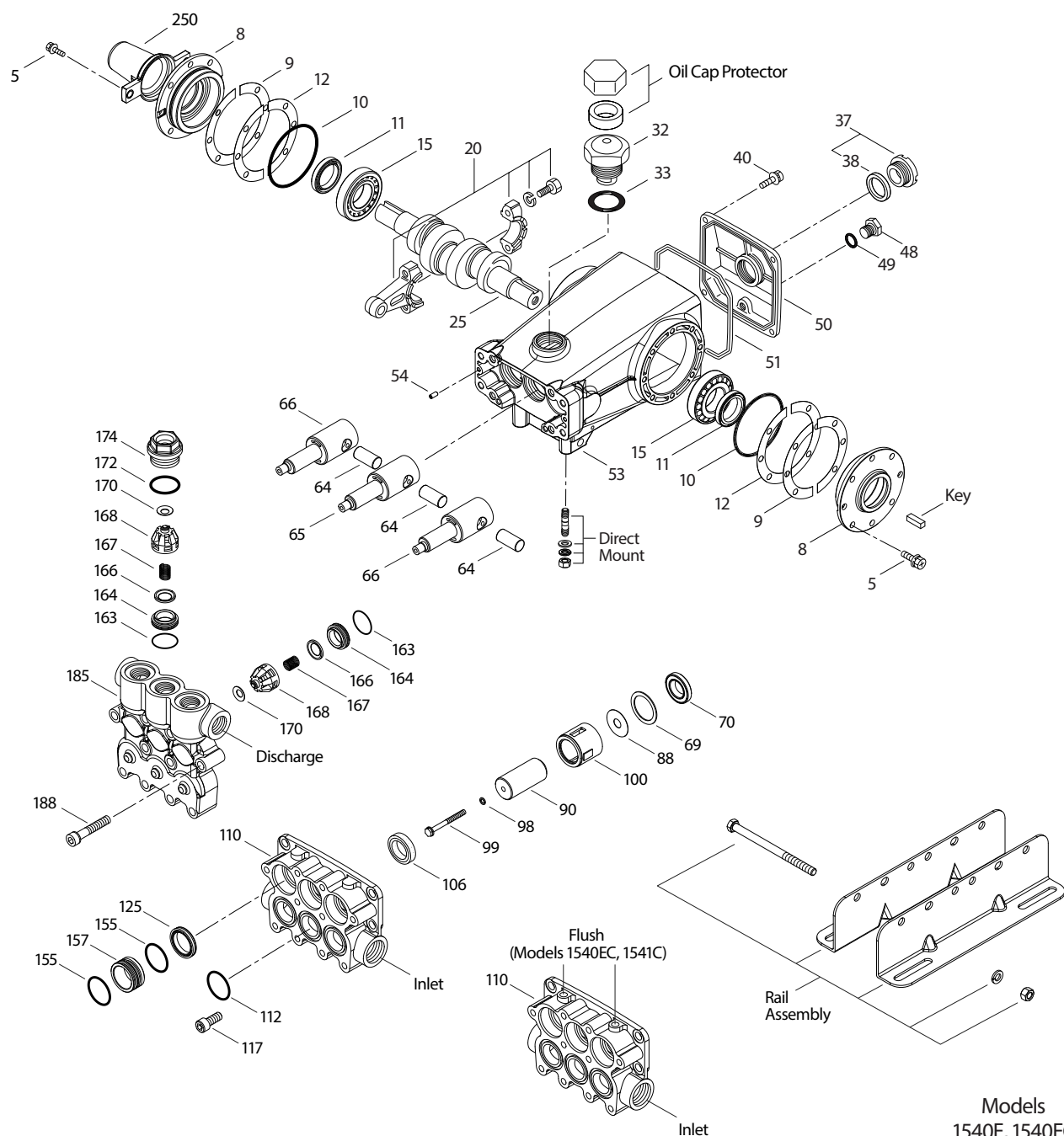
**Bold part numbers are unique to a particular pump model.**

*Italics are optional items.* † Production parts are different than replacement 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).

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic ALE=Aluminum Epoxy BB=Brass CC=Ceramic CM=Chrome-moly EPDM=Ethylene Propylene Diene Monomer  
F=Cast Iron FBB=Forged Brass FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PE=Polyethylene  
PVDF=Polyvinylidene Fluoride S=304SS SHS=304SS/High Strength SS=316SS SNG=Special Blend (Buna) STG=Special Blend PTFE White  
ST4=Special PTFE 4 STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

## EXPLODED VIEW



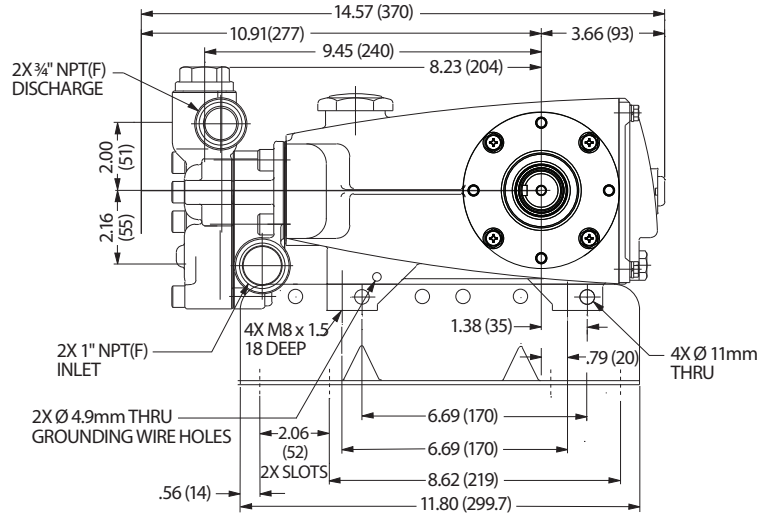
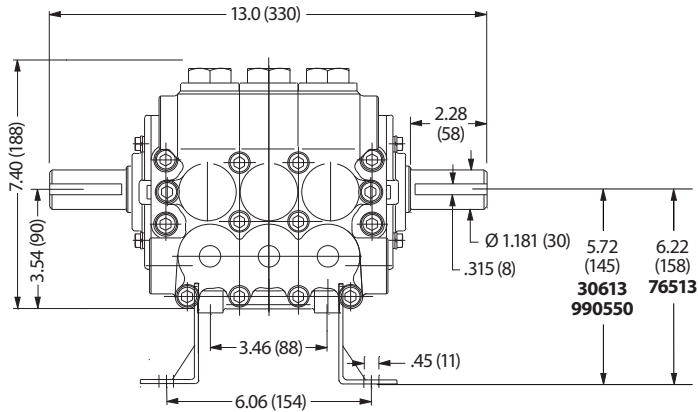
Models  
1540E, 1540EC  
1541, 1541C  
June 2023

### OPTIONAL PARTS AND ACCESSORIES

| PART   | DESCRIPTION                                            | QTY |
|--------|--------------------------------------------------------|-----|
| 30067  | Key (M8 x 7.5 x 25)                                    | 1   |
| 990036 | Key (M8 x 7 x 40)                                      | 1   |
| 30613  | Assembly, Rail (5.72" See Dimensional Drawing)         | 1   |
| 76513  | Assembly, Rail (6.22" See Dimensional Drawing)         | 1   |
| 990550 | Assembly, Rail, Diesel (5.72" See Dimensional Drawing) | 1   |
| 30264  | Mount, Direct                                          | 1   |
| 828710 | Protector, Oil Cap                                     | 1   |
| 34334  | Kit, Oil Drain (Not Shown)                             | 1   |
| 30206  | Pulley, 10", 2 Groove H (Not Shown)                    | 1   |
| 30059  | Hub, H, 30mm (Not Shown)                               | 1   |
| 990012 | Hub, B, 30mm (Not Shown)                               | 1   |

### SERVICE PARTS

| PART          | DESCRIPTION                                                                     | QTY |
|---------------|---------------------------------------------------------------------------------|-----|
| <b>31770</b>  | Kit, Seal (Models 1540E, 1540EC)                                                | 1   |
| <b>31430</b>  | Kit, Seal (Models 1541, 1541C)                                                  | 1   |
| <b>31775</b>  | Kit, Valve (Models 1540E, 1540EC)                                               | 2   |
| <b>31450</b>  | Kit, Valve (Models 1541, 1541C)                                                 | 2   |
| 6107          | Oil, Bottle (21 oz)<br>(Fill to Specified Crankcase Capacity Prior to Start-up) | 2   |
| 6124          | Gasket, Liquid (3 oz)                                                           | 1   |
| <b>6139</b>   | Lubricant, Anti-Seize (8 oz) (Model 1541, 1541C)                                | 1   |
| 701931        | Sealant, Silicone (3 oz) (See Tech Bulletin 100) (Model 1540E)                  | 1   |
| <b>816863</b> | Head, Complete with NBR Seals and O-Rings (Model 1540E)                         | 1   |
| <b>818443</b> | Head, Complete with NBR Seals and O-Rings (Model 1541)                          | 1   |



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

| PUMP MODELS    | NBR (STD)     | FPM (.0110)  | EPDM (.0220) ♦ |
|----------------|---------------|--------------|----------------|
| 1540E, 1540EC, | <b>31770</b>  | <b>76430</b> | —              |
| 1541, 1541C    | <b>31430*</b> | <b>76430</b> | <b>77321*</b>  |

| ITEM (Included in Seal Kits) | DESCRIPTION                                                 | QTY |
|------------------------------|-------------------------------------------------------------|-----|
| 98                           | O-Ring, Plunger Retainer                                    | 3   |
| 106                          | Seal, Low-Pressure with S-Spring (Models 1540E, 1540EC)     | 3   |
|                              | Seal, Low-Pressure with NIH-Spring (Models 1540E, 1540EC)   | 3   |
|                              | Seal, Low-Pressure with SS-Spring (Models 1541, 1541C)      | 3   |
| 112                          | O-Ring, Inlet Manifold                                      | 3   |
| 125                          | Seal, High-Pressure (Models 1540E, 1540EC)                  | 3   |
|                              | Assembly, Seal 2-Piece with SS Support (Models 1541, 1541C) | 3   |
| 155                          | O-Ring, Spacer                                              | 6   |

♦ Silicone oil/grease required \* Review material codes for individual items (STG generally maybe used as an alternative)

## VALVE KITS Two (2) valve kits required per pump

| PUMP MODELS    | NBR (STD)    | FPM (.0110)  | EPDM (.0220) ♦ |
|----------------|--------------|--------------|----------------|
| 1540E, 1540EC, | <b>31775</b> | <b>76775</b> | —              |
| 1541, 1541C    | <b>31450</b> | <b>76450</b> | <b>77331</b>   |

| ITEM (Included in Valve Kits) | DESCRIPTION                                    | QTY |
|-------------------------------|------------------------------------------------|-----|
| 163                           | O-Ring, Valve Seat                             | 3   |
| 164                           | Seat (Models 1540E, 1540EC)                    | 3   |
|                               | Seat (Models 1541, 1541C)                      | 3   |
| 166                           | Valve                                          | 3   |
| 167                           | Spring                                         | 3   |
| 168                           | Retainer, Spring                               | 3   |
| 170                           | Washer, Spring Retainer (Models 1540E, 1540EC) | 3   |
|                               | Washer, Spring Retainer (Models 1541, 1541C)   | 3   |
| 172                           | 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)