



(Rails and Shaft Protector Sold Separately)

## 3 Frame Plunger Pump

**Stainless  
Steel  
Models**

**231,241,271**

**Nickel Aluminum  
Bronze  
Models**

**237,247,277**

### FEATURES

- Triplex design delivers high efficiency and a smooth, low-pulsation flow.
- Nickel Aluminum Bronze for added compatibility in intermittent duty sea water.
- 316 Stainless Steel for added strength and corrosion resistance with aggressive liquids and sea water.
- Installation flexibility with compact direct-drive or belt-drive.
- Optional FPM, EPDM, IPFE, PTFE seals and o-rings for liquid compatibility.

### COMMON SPECIFICATIONS

|  |  |                    |
|--|--|--------------------|
| Bore.....  | 0.709"                                   | (18 mm)            |
| Inlet Pressure Range .....   | Flooded to 60 psi                        | (Flooded to 4 bar) |
| Crankcase Capacity .....   | 15 oz.                                   | (.45 L)            |
| Maximum Liquid Temperature .....   | 160°F                                    | (71°C)             |
| Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations. |  |                    |
| Inlet Ports (2) .....  | 1/2" NPTF                                | (1/2" NPTF)        |
| Discharge Ports (2).....   | 3/8" NPTF                                | (3/8" NPTF)        |
| Pulley Mounting.....   | Either Side                              | (Either Side)      |
| Shaft Diameter.....  | 0.650"                                   | (16.5 mm)          |
| Weight .....   | 13.4 lbs.                                | (6.1 kg)           |
| Dimensions.....  | 10.24 x 8.78 x 5.35"(260 x 223 x 136 mm) |                    |

#### ⚠ CAUTIONS AND WARNINGS

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. 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 Data sheet. CAUTIONS and WARNINGS can also be viewed online at [www.catpumps.com/cautions-warnings](http://www.catpumps.com/cautions-warnings) or can be requested directly from CAT PUMPS.

#### WARRANTY

View the Limited Warranty on-line at [www.catpumps.com/warranty](http://www.catpumps.com/warranty).

### SPECIFICATIONS

U.S. Measure

Metric Measure

#### MODELS 231 AND 237

|                     |                 |                |
|---------------------|-----------------|----------------|
| Flow.....           | 2.3 gpm         | (8.7 l/m)      |
| Pressure Range..... | 100 to 1500 psi | (7 to 105 bar) |
| RPM.....            | 1725 rpm        | (1725 rpm)     |
| Stroke.....         | 0.276"          | (7 mm)         |

#### MODELS 241 AND 247

|                     |                 |               |
|---------------------|-----------------|---------------|
| Flow.....           | 3.6 gpm         | (13.6 l/m)    |
| Pressure Range..... | 100 to 1200 psi | (7 to 85 bar) |
| RPM.....            | 1725 rpm        | (1725 rpm)    |
| Stroke.....         | 0.433"          | (11 mm)       |

#### MODELS 271 AND 277

|                     |                 |                |
|---------------------|-----------------|----------------|
| Flow.....           | 3.5 gpm         | (13.2 l/m)     |
| Pressure Range..... | 100 to 1500 psi | (7 to 105 bar) |
| RPM.....            | 1420 rpm        | (1420 rpm)     |
| Stroke.....         | 0.500"          | (12.7 mm)      |

### ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL    | FLOW        |      | PRESSURE                 |                          |                           | MOTOR PULLEY SIZE<br>Using 1725 RPM Motor &<br>Std. 5.0" Pump Pulley O.D. |                |
|----------|-------------|------|--------------------------|--------------------------|---------------------------|---|----------------|
|          | U.S.<br>gpm | l/m  | psi<br>1000<br>bar<br>70 | psi<br>1200<br>bar<br>85 | psi<br>1500<br>bar<br>105 | rpm   | Pulley<br>O.D. |
| 271, 277 | 3.5         | 13.2 | 2.4                      | 2.9                      | 3.6                       | 1420  | 4.1            |
|          | 3.0         | 11.4 | 2.1                      | 2.5                      | 3.1                       | 1240  | 3.5            |
| 231, 237 | 2.3         | 8.7  | 1.6                      | 1.9                      | 2.4                       | 1725  | Direct Drive   |
| 241, 247 | 3.6         | 13.6 | 2.5                      | 3.0                      | N/A                       | 1725  | Direct Drive   |

**DETERMINING  
THE PUMP R.P.M.**

Rated gpm

= "Desired" gpm

Rated rpm

"Desired" rpm

**DETERMINING  
THE REQUIRED H.P.**

gpm x psi

= Electric Brake

1460

H. P. Required

**DETERMINING  
MOTOR PULLEY SIZE**

Motor Pulley O.D.

= Pump Pulley O.D.

Pump rpm

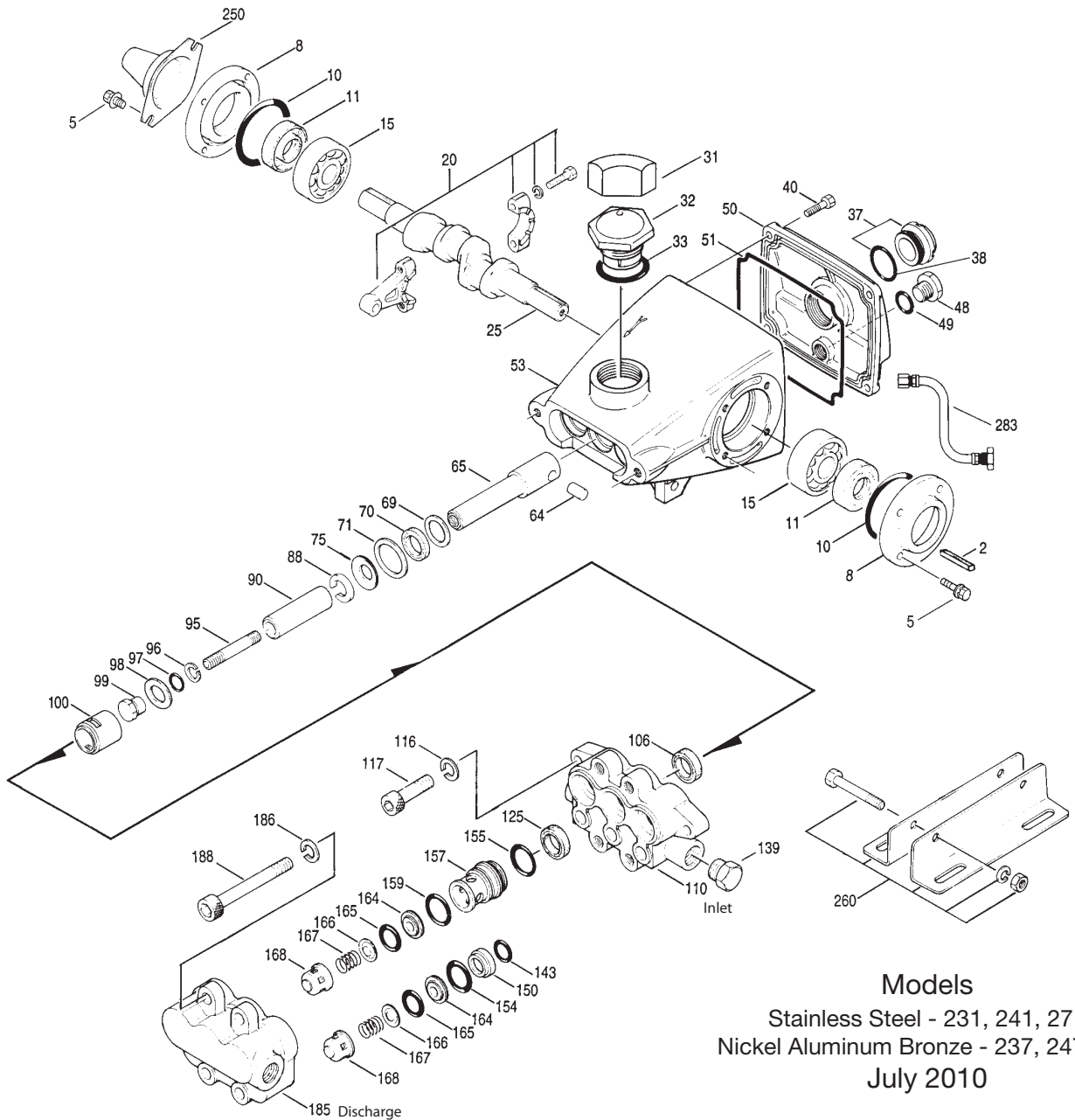
Motor rpm

See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure and additional technical information.

*"Customer confidence is our greatest asset"*

# PARTS LIST

| ITEM | PART NUMBER   |               | DESCRIPTION  | QTY |
|------|---------------|---------------|--|-----|
|      | <b>231</b>    | <b>237</b>    |  |     |
|      | <b>241</b>    | <b>247</b>    |  |     |
|      | <b>271</b>    | <b>277</b>    |  |     |
|      | <b>MATL</b>   | <b>MATL</b>   |  |     |
| 2    | 30047         | 30047         | Key (M5x5x24)  | 1   |
| 5    | 92538         | 92538         | Screw, Sems HHC (M6x16)                                    | 8   |
| 8    | 27950         | 27950         | Cover, Bearing   | 2   |
| 10   | 26536         | 26536         | O-Ring, Bearing Cover - 70D                                | 2   |
| 11   | 24159         | 24159         | Seal, Oil  | 2   |
| 15   | 14487         | 14487         | Bearing, Ball  | 2   |
| 20   | 48867         | 48867         | Rod, Connecting Assy                                       | 3   |
| 25   | <b>46946</b>  | <b>46946</b>  | Crankshaft, Dual End - 231, 237 (M7)                       | 1   |
|      | <b>46951</b>  | <b>46951</b>  | Crankshaft, Dual End - 241, 247 (M11)                      | 1   |
|      | <b>108062</b> | <b>108062</b> | Crankshaft, Dual End - 271, 277 (M12.7)                    | 1   |
| 31   | 828710        | 828710        | Protector, Oil Cap w/Foam Gasket                           | 1   |
| 32   | 43211         | 43211         | Cap, Oil Filler  | 1   |
| 33   | 14177         | 14177         | O-Ring, Oil Filler Cap - 70D                               | 1   |
| 37   | 92241         | 92241         | Gauge, Oil Bubble w/Gasket - 80D                           | 1   |
| 38   | 44428         | 44428         | Gasket, Flat, Oil Gauge - 80D                              | 1   |
| 40   | 92542         | 92542         | Screw, Sems HHC (M6x20)                                    | 6   |
| 48   | 25625         | 25625         | Plug, Drain (1/4"x19BSP)                                   | 1   |
| 49   | 23170         | 23170         | O-Ring, Drain Plug - 70D                                   | 1   |
| 50   | 48772         | 48772         | Cover, Rear [07/08] (See Tech Bulletin 104)                | 1   |
| 51   | 48773         | 48773         | O-Ring, Rear Cover [07/08] (See Tech Bulletin 104)         | 1   |
| 53   | 128354        | 128354        | Crankcase [07/08] (See Tech Bulletin 104)                  | 1   |
| 64   | 16948         | 16948         | Pin, Crosshead   | 3   |
| 65   | 45114         | 45114         | Rod, Plunger   | 3   |
| 69   | 126259        | 126259        | Washer, Oil (M24)  | 3   |
| 70   | 25301         | 25301         | Seal, Oil - 80D  | 3   |
| 71   | 126189        | 126189        | Washer, Oil Seal   | 3   |
| 75   | 43900         | 43900         | Slinger, Barrier   | 3   |
| 88   | 45697         | 45697         | Washer, Keyhole (M18)                                      | 3   |
| 90   | 43901         | 43901         | Plunger (M18x43)   | 3   |
| 95   | 126550        | 126550        | Stud, Plunger Retainer (M6x43)                             | 3   |
| 96   | 43235         | 43235         | Back-up-Ring, Plunger Retainer                             | 3   |
| 97   | 17399         | 17399         | O-Ring, Plunger Retainer - 80D                             | 3   |
|      | 14160         | 14160         | O-Ring, Plunger Retainer - 80D                             | 3   |
|      | ◆ 46204       | ◆ 46204       | O-Ring, Plunger Retainer - 70D                             | 3   |
|      | 701715        | 701715        | O-Ring, Plunger Retainer                                   | 3   |
| 98   | 44041         | 44041         | Gasket, Plunger Retainer (M12.5)                           | 3   |
| 99   | 44031         | 44031         | Retainer, Plunger (M6)                                     | 3   |
| 100  | 28597         | 28597         | Retainer, Seal   | 3   |
| 106  | 44053         | 44053         | Seal, LPS w/SS-Spg   | 3   |
|      | 44926         | 44926         | Seal, LPS w/SS-Spg   | 3   |
|      | ◆ 46651       | ◆ 46651       | Seal, LPS w/SS-Spg   | 3   |
|      | 702390        | 702390        | Seal, LPS w/SS-Spg   | 3   |
| 110  | <b>46425</b>  | <b>44052</b>  | Manifold, Inlet  | 1   |
| 116  | 15847         | 15847         | Lockwasher (M10)   | 2   |
| 117  | 87950         | 87950         | Screw, HSH (M10x35)  | 2   |
| 125  | 44652         | 44652         | Seal, HPS w/SS   | 3   |
|      | 44925         | 44925         | Seal, HPS w/SS   | 3   |
|      | 46652         | 46652         | Seal, HPS w/SS, 2-Pc w/S - support                         | 3   |
|      | 701382        | 701382        | Seal, HPS w/SS   | 3   |
| 139  | <b>45156</b>  | <b>44563</b>  | Plug, Inlet (1/2" NPT)                                     | 1   |
| 143  | 17547         | 17547         | O-Ring, Inlet Valve Adapter, Rear - 85D                    | 3   |
|      | 11685         | 11685         | O-Ring, Inlet Valve Adapter, Rear - 85D                    | 3   |
|      | ◆ 46648       | ◆ 46648       | O-Ring, Inlet Valve Adapter, Rear - 70D                    | 3   |
|      | 703308        | 703308        | O-Ring, Inlet Valve Adapter, Rear - 85D                    | 3   |
| 150  | 44060         | 44060         | Adapter, Inlet Valve                                       | 3   |
| 154  | 43893         | 43893         | O-Ring, Inlet Valve Adapter, Front - 80D                   | 3   |
|      | 44927         | 44927         | O-Ring, Inlet Valve Adapter, Front                         | 3   |
|      | ◆ 46649       | ◆ 46649       | O-Ring, Inlet Valve Adapter, Front - 80D                   | 3   |
|      | 703307        | 703307        | O-Ring, Inlet Valve Adapter, Front - 80D                   | 3   |
| 155  | 26089         | 26089         | O-Ring, Discharge Valve Adapter, Rear - 80D                | 3   |
|      | 11377         | 11377         | O-Ring, Discharge Valve Adapter, Rear - 80D                | 3   |
|      | ◆ 46647       | ◆ 46647       | O-Ring, Discharge Valve Adapter, Rear - 80D                | 3   |
|      | 703244        | 703244        | O-Ring, Discharge Valve Adapter, Rear - 80D                | 3   |
| 157  | 44059         | 44059         | Adapter, Discharge Valve                                   | 3   |
| 159  | 26089         | 26089         | O-Ring, Discharge Valve Adapter, Front - 80D               | 3   |
|      | 11377         | 11377         | O-Ring, Discharge Valve Adapter, Front - 80D               | 3   |
|      | ◆ 46647       | ◆ 46647       | O-Ring, Discharge Valve Adapter, Front - 80D               | 3   |
|      | 703244        | 703244        | O-Ring, Discharge Valve Adapter, Front - 80D               | 3   |
| 164  | 44058         | 44058         | Seat   | 6   |
| 165  | 44001         | 44001         | O-Ring, Seat - 80D   | 6   |
|      | 44928         | 44928         | O-Ring, Seat - 80D   | 6   |
|      | ◆ 46650       | ◆ 46650       | O-Ring, Seat - 80D   | 6   |
|      | 703309        | 703309        | O-Ring, Seat - 80D   | 6   |
| 166  | 44057         | 44057         | Valve  | 6   |
| 167  | 44056         | 44056         | Spring   | 6   |
| 168  | 44055         | 44055         | Retainer, Spring   | 6   |
| 185  | <b>46427</b>  | <b>44054</b>  | Manifold, Discharge  | 1   |
| 186  | 15847         | 15847         | Lockwasher (M10)   | 4   |
| 188  | 87952         | 87952         | Screw, HSH (M10x55)  | 4   |
| 250  | 25130         | 25130         | Protector, Shaft   | 1   |
| 260  | 30612         | 30612         | Rail, Angle Assy   | 1   |
| 265  | 30651         | 30651         | Mount, Assy (30612,30246,25130)                            | 1   |
| 270  | 30246         | 30246         | Pulley & Key Assy (Incls: 30032,30047) [Tech Bulletin 003] | 1   |
| 277  | 34121         | 34121         | Bell Housing Assy (56C, 2.0 Hp)                            | 1   |
|      | 34126         | 34126         | Bell Housing Assy (182TC-184TC, 3.0 Hp)                    | 1   |
| 278  | 8215          | 8215          | Flexible Coupling Assy (M16.5 to 5/8")                     | 1   |
|      | 8220          | 8220          | Flexible Coupling Assy (M16.5 to 1-1/8")                   | 1   |
| 283  | 34334         | 34334         | Kit, Oil Drain (3/8"x24") (See Tech Bulletin 077)          | 1   |



**Models**  
 Stainless Steel - 231, 241, 271  
 Nickel Aluminum Bronze - 237, 247, 277  
 July 2010

|     | <b>231</b>    |             | <b>237</b>    |             |   |  |   |
|-----|---------------|-------------|---------------|-------------|---|--|---|
|     | <b>241</b>    |             | <b>247</b>    |             |   |  |   |
|     | <b>271</b>    | <b>MATL</b> | <b>277</b>    | <b>MATL</b> |   |  |   |
| 290 | 6124          | —           | 6124          | —           | <i>Liquid Gasket (3 oz.)</i>  |  | 1 |
| 299 | <b>814823</b> | <b>SS</b>   | <b>815262</b> | <b>NAB</b>  | <i>Head, Complete</i>   |  | 1 |
| 300 | 30983         | NBR         | 30983         | NBR         | <i>Kit, Seal (Incls: 97,106,125,143,154,155, 159,165)</i>                         |  | 1 |
|     | 33609         | FPM         | 33609         | FPM         | <i>Kit, Seal (Incls: 97,106,125,143,154,155,159,165)</i>                          |  | 1 |
|     | ◆ 33914       | EPDM*       | ◆ 33914       | EPDM*       | <i>Kit, Seal (Incls: 97,106,125,143,154,155,159,165)</i>                          |  | 1 |
|     | 33915         | HT          | 33915         | HT          | <i>Kit, Seal, Hi Temp (Incls: 97,106,125,143,154,155,159,165)</i>                 |  | 1 |
|     | 76660         | IPFE        | 76660         | IPFE        | <i>Kit, Seal (Incls: 97,106,125,143,154,155,159,165)</i>                          |  | 1 |
| 310 | 30982         | NBR         | 30982         | NBR         | <i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>                        |  | 1 |
|     | 31216         | FPM         | 31216         | FPM         | <i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>                        |  | 1 |
|     | ◆ 31217       | EPDM        | ◆ 31217       | EPDM        | <i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>                        |  | 1 |
|     | 76690         | IPFE        | 76690         | IPFE        | <i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>                        |  | 1 |
| 350 | 30696         | STZP        | 30696         | STZP        | <i>Pliers, Reverse</i>  |  | 1 |
| 390 | 711500        | —           | 711500        | —           | <i>C.A.T. (Inlet pressure stabilizer for R.O. and boosted inlet Applications)</i> |  | 1 |
| 391 | 711502        | —           | 711502        | —           | <i>Adapter (2 per C.A.T.) (See Data Sheet for complete selection)</i>             |  | 2 |
| 392 | 701818        | SS          | 701818        | SS          | <i>Elbow Assy used with adapter Assy 711502</i>                                   |  | 1 |
| —   | 6575          | —           | 6575          | —           | <i>Plunger Pump Service DVD</i>   |  | 1 |
| —   | 6107          | —           | 6107          | —           | <i>Oil, Bottle (21 oz.) ISO 68 Hydraulic</i>                                      |  | 1 |
|     |               |             |               |             | <i>(Fill to specified crankcase capacity prior to start-up)</i>                   |  |   |

**Bold print part numbers are unique to a particular pump model. Italics are optional items. ◆ Silicone oil/grease required.**

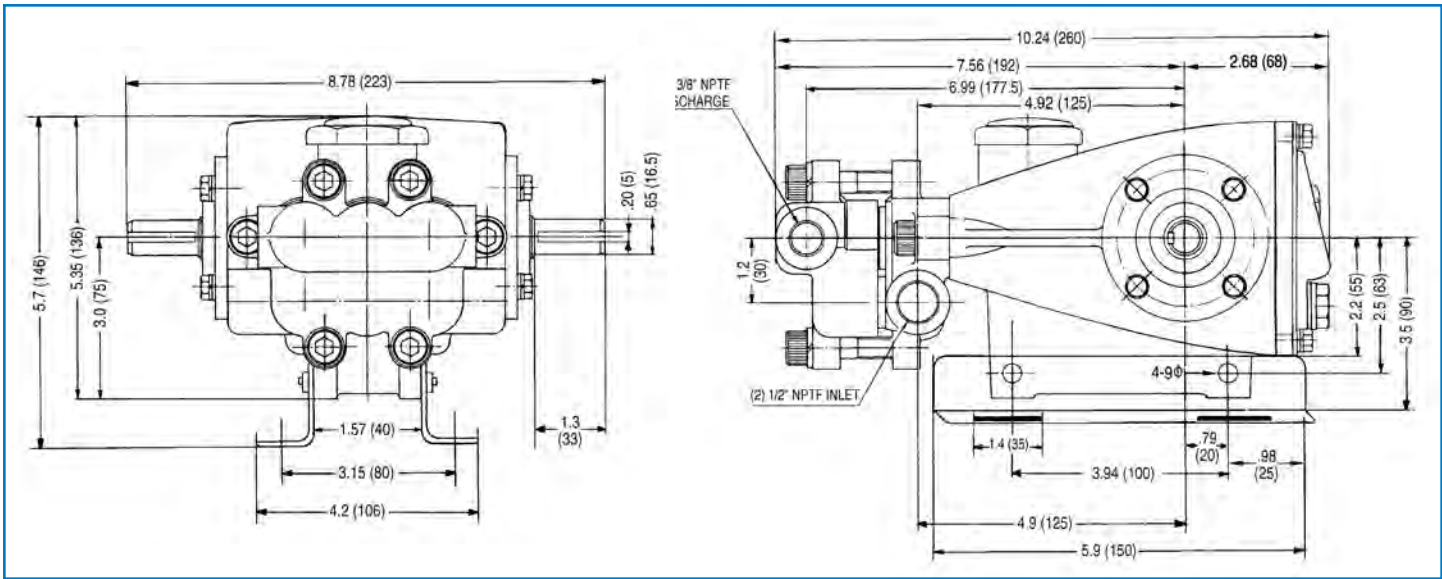
R components comply with RoHS Directive. \*Review individual parts in each kit for material code identification.

View Tech Bulletins 002, 003, 008, 024, 033, 034, 036, 043, 047, 049, 052, 053, 067, 073, 074, 077, 083 and 104 for additional information.

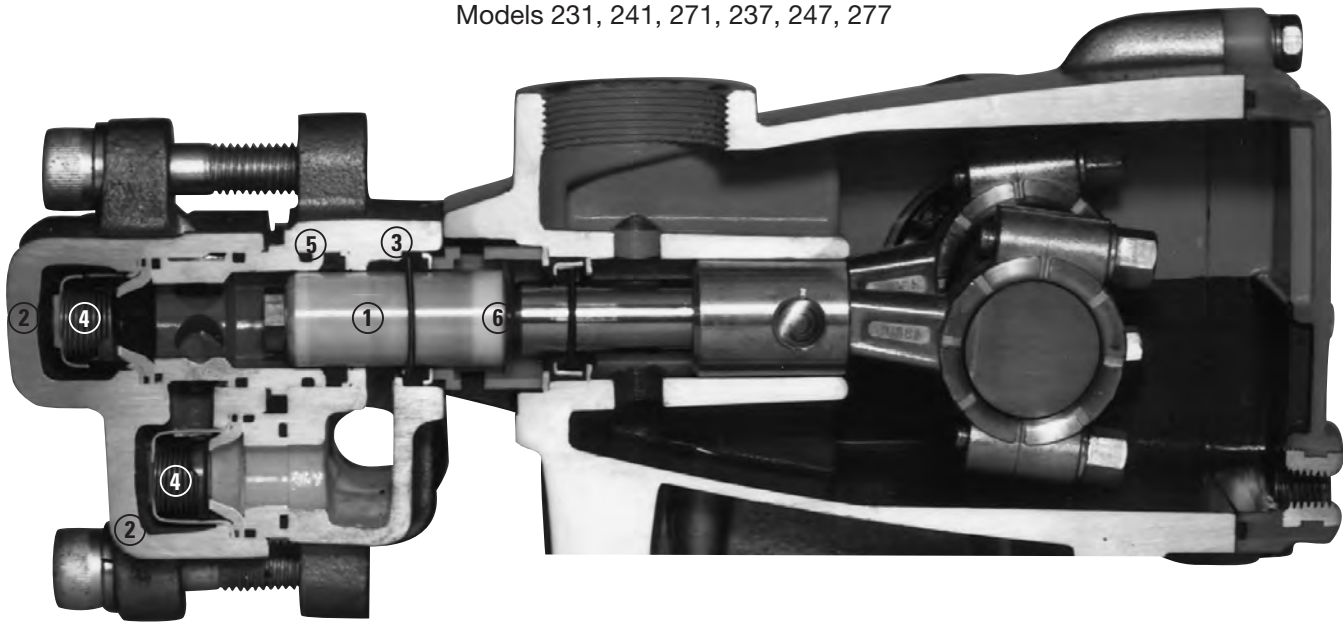
**C.A.T. highly recommended for pressurized inlet, R.O. and Industrial applications.**

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum CC=Ceramic CM=Chrome-Moly

EPDM=Ethylene Propylene Diene Monomer FCM=Forged Chrome-moly FPM=Fluorocarbon HT=Hi-Temp Special IPFE= I-Perfluoroelastomer PTFE (EPDM Alternative)  
 NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS SFTA=Special Blend PTFE SNG=Special Blend (Buna) SSZZ=316SS/Zamak STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM= Special High-Strength



Models 231, 241, 271, 237, 247, 277



- 1 Special concentric, high density, polished, solid ceramic **plungers** provide a true wear surface and extended seal life
- 2 **Manifolds** are a high tensile strength nickel aluminum bronze or 316 stainless steel for long term, continuous duty.
- 3 100% wet **seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
- 4 Stainless steel **valves, seats and springs** provide corrosion-resistance, ultimate seating and extended life.
- 5 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.

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*The Pumps with Nine Lives*

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