



## 3 Frame Plunger Pump

**Stainless  
Steel  
Models**

**231, 241, 271**

**Nickel Aluminum  
Bronze  
Models**

**237, 247, 277**

### FEATURES

#### Superior Design

- Triplex plunger design gives smoother liquid flow.
- Hi-Pressure Seals are completely lubricated and cooled by the liquid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Lubricated Lo-Pressure Seals provides double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- Optional Belt Drive or Motorized versions offer system flexibility.

#### Quality Materials

- Precision design 316 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- 316 Stainless Steel or Nickel Aluminum Bronze manifolds are strong and corrosion resistant.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and extended seal life.
- Specially formulated, CAT PUMP exclusive, Hi-Pressure Seals offer unmatched performance and seal life.
- Die cast aluminum crankcase provides high strength, minimum weight and precision tolerance control.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings with greater capacity mean longer bearing life.

#### Easy Maintenance

- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- Preset packings mean no packing gland adjustment is necessary, reducing maintenance costs.

#### **⚠ WARNING**

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

### 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 .....	1450 RPM	(1450 RPM)
Stroke .....	0.500"	(12.7 mm)

#### 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)

### ELECTRIC HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE			MOTOR PULLEY SIZE	
	U.S. GPM	L/M	PSI	PSI	PSI	Using 1725 RPM Motor & Std. 5.0" Pump Pulley O.D.	
			1000	1200	1500	RPM	Pulley O.D.
			BAR	BAR	BAR		
271, 277	3.5	13.2	2.4	2.9	3.6	1450	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.**  $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}}$  = "Desired" G.P.M. / "Desired" R.P.M.

**DETERMINING THE REQUIRED H.P.**  $\frac{\text{GPM} \times \text{PSI}}{1460}$  = Electric Brake / H. P. Required

**DETERMINING MOTOR PULLEY SIZE**  $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}}$  =  $\frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

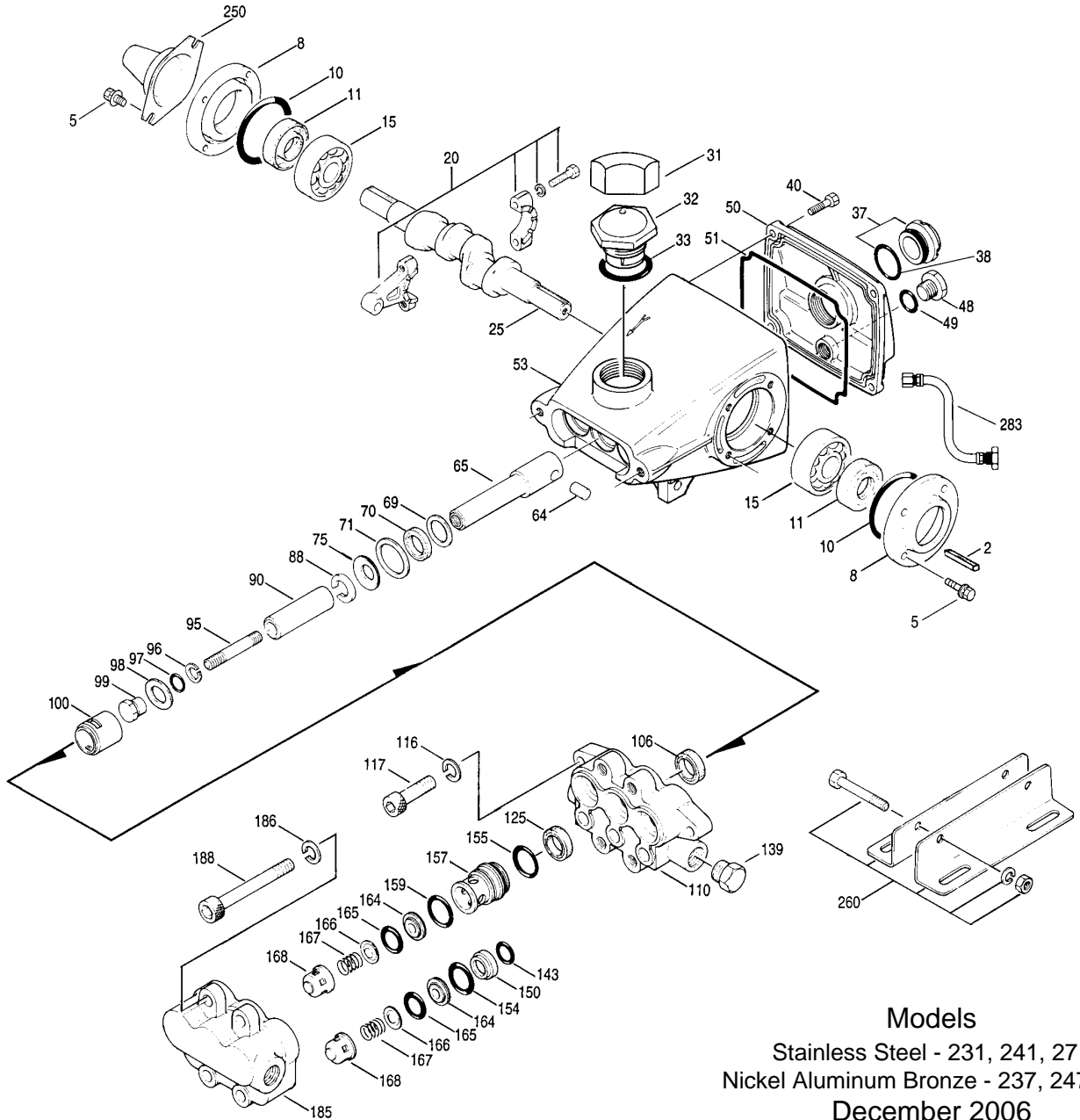
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

*"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>MATL</b>	<b>277</b> <b>MATL</b>		
2	30047 <b>STL</b>	30047 <b>STL</b>	Key (M5x5x24)	1
5	92538 <b>S</b>	92538 <b>S</b>	Screw, Sems HHC (M6x16)	8
8	27950 <b>AL</b>	27950 <b>AL</b>	Cover, Bearing	2
10	26536 <b>NBR</b>	26536 <b>NBR</b>	O-Ring, Bearing Cover - 70D	2
11	24159 <b>NBR</b>	24159 <b>NBR</b>	Seal, Oil	2
15	14487 <b>STL</b>	14487 <b>STL</b>	Bearing, Ball	2
20	48867 <b>TNM</b>	48867 <b>TNM</b>	Rod, Connecting Assy	3
25	46946 <b>FCM</b>	46946 <b>FCM</b>	Crankshaft, Dual End - 231, 237 (M7)	1
	46951 <b>FCM</b>	46951 <b>FCM</b>	Crankshaft, Dual End - 241, 247 (M11)	1
	108062 <b>FCM</b>	108062 <b>FCM</b>	Crankshaft, Dual End - 271, 277 (M12.7)	1
31	828710 <b>—</b>	828710 <b>—</b>	Protector, Oil Cap w/Foam Gasket	1
32	43211 <b>ABS</b>	43211 <b>ABS</b>	Cap, Oil Filler	1
33	14177 <b>NBR</b>	14177 <b>NBR</b>	O-Ring, Oil Filler Cap - 70D	1
37	92241 <b>—</b>	92241 <b>—</b>	Gauge, Oil Bubble w/Gasket - 80D	1
38	44428 <b>NBR</b>	44428 <b>NBR</b>	Gasket, Flat, Oil Gauge - 80D	1
40	92542 <b>S</b>	92542 <b>S</b>	Screw, Sems HHC (M6x20)	6
48	25625 <b>STCP</b>	25625 <b>STCP</b>	Plug, Drain (1/4"x19BSP)	1
49	23170 <b>NBR</b>	23170 <b>NBR</b>	O-Ring, Drain Plug - 70D	1
50	43339 <b>AL</b>	43339 <b>AL</b>	Cover, Rear	1
51	43340 <b>NBR</b>	43340 <b>NBR</b>	O-Ring, Rear Cover	1
53	44789 <b>AL</b>	44789 <b>AL</b>	Crankcase, [07/05]	1
64	16948 <b>CM</b>	16948 <b>CM</b>	Pin, Crosshead	3
65	45114 <b>SSZZ</b>	45114 <b>SSZZ</b>	Rod, Plunger	3
69	20017 <b>STZP</b>	20017 <b>STZP</b>	Washer, Oil Seal	3
	126259 <b>STCP R</b>	126259 <b>STCP R</b>	Washer, Oil (M24)	3
70	25301 <b>NBR</b>	25301 <b>NBR</b>	Seal, Oil - 80D	3
71	26854 <b>STZP</b>	26854 <b>STZP</b>	Washer, Oil Seal	3
	126189 <b>STCP R</b>	126189 <b>STCP R</b>	Washer, Oil Seal	3
75	43900 <b>S</b>	43900 <b>S</b>	Slinger, Barrier	3
88	45697 <b>S</b>	45697 <b>S</b>	Washer, Keyhole (M18)	3
90	43901 <b>CC</b>	43901 <b>CC</b>	Plunger (M18x43)	3
95	126550 <b>STCP R</b>	126550 <b>STCP R</b>	Stud, Plunger Retainer (M6x43)	3
96	43235 <b>PTFE</b>	43235 <b>PTFE</b>	Back-up-Ring, Plunger Retainer	3
97	17399 <b>NBR</b>	17399 <b>NBR</b>	O-Ring, Plunger Retainer - 80D	3
	14160 <b>FPM</b>	14160 <b>FPM</b>	O-Ring, Plunger Retainer - 70D	3
	◆ 46204 <b>EPDM</b>	◆ 46204 <b>EPDM</b>	O-Ring, Plunger Retainer - 70D	3
98	44041 <b>SS</b>	44041 <b>SS</b>	Gasket, Plunger Retainer (M12.5)	3
99	44031 <b>SS</b>	44031 <b>SS</b>	Retainer, Plunger (M6)	3
100	28597 <b>PVDF</b>	28597 <b>PVDF</b>	Retainer, Seal	3
106	44053 <b>NBR</b>	44053 <b>NBR</b>	Seal, LPS w/SS-Spg	3
	44926 <b>FPM</b>	44926 <b>FPM</b>	Seal, LPS w/SS-Spg	3
	◆ 46651 <b>EPDM</b>	◆ 46651 <b>EPDM</b>	Seal, LPS w/SS-Spg	3
110	◆ 46425 <b>SS</b>	◆ 44052 <b>NAB</b>	Manifold, Inlet	1
116	15847 <b>S</b>	15847 <b>S</b>	Lockwasher (M10)	2
117	87950 <b>S</b>	87950 <b>S</b>	Screw, HSH (M10x35)	2
125	44652 <b>SNG</b>	44652 <b>SNG</b>	Seal, HPS w/SS	3
	44925 <b>FPM</b>	44925 <b>FPM</b>	Seal, HPS w/SS	3
	46652 <b>HT*</b>	46652 <b>HT*</b>	Seal, HPS w/SS,2-Pc w/S - support	3
139	◆ 45156 <b>SS</b>	◆ 44563 <b>NAB</b>	Plug, Inlet (1/2" NPT)	1
143	17547 <b>NBR</b>	17547 <b>NBR</b>	O-Ring, Inlet Valve Adapter, Rear - 85D	3
	11685 <b>FPM</b>	11685 <b>FPM</b>	O-Ring, Inlet Valve Adapter, Rear - 85D	3
	◆ 46648 <b>EPDM</b>	◆ 46648 <b>EPDM</b>	O-Ring, Inlet Valve Adapter, Rear - 70D	3
150	44060 <b>SS</b>	44060 <b>SS</b>	Adapter, Inlet Valve	3
154	43893 <b>NBR</b>	43893 <b>NBR</b>	O-Ring, Inlet Valve Adapter, Front - 80D	3
	44927 <b>FPM</b>	44927 <b>FPM</b>	O-Ring, Inlet Valve Adapter, Front	3
	◆ 46649 <b>EPDM</b>	◆ 46649 <b>EPDM</b>	O-Ring, Inlet Valve Adapter, Front - 80D	3
155	26089 <b>NBR</b>	26089 <b>NBR</b>	O-Ring, Discharge Valve Adapter, Rear - 80D	3
	11377 <b>FPM</b>	11377 <b>FPM</b>	O-Ring, Discharge Valve Adapter, Rear - 80D	3
	◆ 46647 <b>EPDM</b>	◆ 46647 <b>EPDM</b>	O-Ring, Discharge Valve Adapter, Rear - 80D	3
157	44059 <b>SS</b>	44059 <b>SS</b>	Adapter, Discharge Valve	3
159	26089 <b>NBR</b>	26089 <b>NBR</b>	O-Ring, Discharge Valve Adapter, Front - 80D	3
	11377 <b>FPM</b>	11377 <b>FPM</b>	O-Ring, Discharge Valve Adapter, Front - 80D	3
	◆ 46647 <b>EPDM</b>	◆ 46647 <b>EPDM</b>	O-Ring, Discharge Valve Adapter, Front - 80D	3
164	44058 <b>SS</b>	44058 <b>SS</b>	Seat	6
165	44001 <b>NBR</b>	44001 <b>NBR</b>	O-Ring, Seat - 80D	6
	44928 <b>FPM</b>	44928 <b>FPM</b>	O-Ring, Seat - 80D	6
	◆ 46650 <b>EPDM</b>	◆ 46650 <b>EPDM</b>	O-Ring, Seat - 80D	6
166	44057 <b>SS</b>	44057 <b>SS</b>	Valve	6
167	44056 <b>SS</b>	44056 <b>SS</b>	Spring	6
168	44055 <b>SS</b>	44055 <b>SS</b>	Retainer, Spring	6
185	◆ 46427 <b>SS</b>	◆ 44054 <b>NAB</b>	Manifold, Discharge	1
186	15847 <b>S</b>	15847 <b>S</b>	Lockwasher (M10)	4
188	87952 <b>S</b>	87952 <b>S</b>	Screw, HSH (M10x55)	4
250	25130 <b>STCP</b>	25130 <b>STCP</b>	Protector, Shaft	1
260	30612 <b>STZP</b>	30612 <b>STZP</b>	Rail, Angle Assy (Incls: 26246,30901,30910,30920)	1
265	30651 <b>—</b>	30651 <b>—</b>	Kit, Complete Mounting (30612,30246,25130)	1
270	30246 <b>STL</b>	30246 <b>STL</b>	Pulley & Key Assy (Incls: 30032,30047) [See Drive Packages, Tech Bulletin 003]	1
277	34121 <b>AL</b>	34121 <b>AL</b>	Bell Housing Assy (56C, 2.0 Hp)	1
	34126 <b>AL</b>	34126 <b>AL</b>	Bell Housing Assy (182TC-184TC, 3.0 Hp)	1
278	8215 <b>AL</b>	8215 <b>AL</b>	Flexible Coupling Assy (M16.5 to 5/8")	1
	8220 <b>AL</b>	8220 <b>AL</b>	Flexible Coupling Assy (M16.5 to 1-1/8")	1
283	34334 <b>—</b>	34334 <b>—</b>	Kit, Oil Drain	1

# EXPLODED VIEW



**Models**  
 Stainless Steel - 231, 241, 271  
 Nickel Aluminum Bronze - 237, 247, 277  
 December 2006

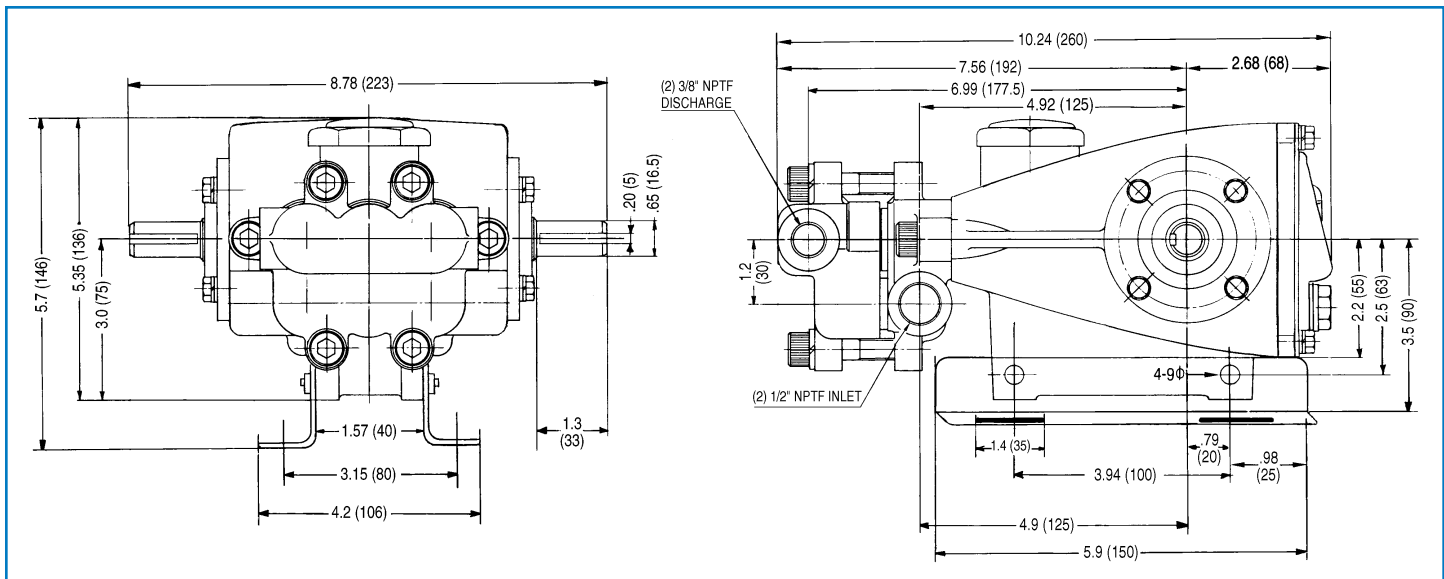
	<b>231</b>		<b>237</b>			
	<b>241</b>		<b>247</b>			
	<b>271</b>	<b>MATL</b>	<b>277</b>	<b>MATL</b>		
290	6124	—	6124	—	<i>Liquid Gasket (3 oz.)</i>	1
299	<b>814823</b>	<b>SS</b>	<b>815262</b>	<b>NAB</b>	<i>Head, Complete</i>	1
300	30983	<i>NBR</i>	30983	<i>NBR</i>	<i>Kit, Seal (Incls: 97,106,125,143,154,155,159,165)</i>	1
	33609	<i>FPM</i>	33609	<i>FPM</i>	<i>Kit, Seal (Incls: 97,106,125,143,154,155,159,165)</i>	1
	◆ 33914	<i>EPDM*</i>	◆ 33914	<i>EPDM*</i>	<i>Kit, Seal (Incls: 97,106,125,143,154,155,159,165)</i>	1
	33915	<i>HT</i>	33915	<i>HT</i>	<i>Kit, Seal, Hi Temp (Incls: 97,106,125,143,154,155,159,165)</i>	1
310	30982	<i>NBR</i>	30982	<i>NBR</i>	<i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>	1
	31216	<i>FPM</i>	31216	<i>FPM</i>	<i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>	1
	◆ 31217	<i>EPDM</i>	◆ 31217	<i>EPDM</i>	<i>Kit, Valve (Incls: 143,154,155,164,165,166,167,168)</i>	1
350	30696	<i>STZP</i>	30696	<i>STZP</i>	<i>Pliers, Reverse</i>	1
390	711500	—	711500	—	<i>C.A.T. (For R.O. or Industrial Applications)</i>	1
391	711502	—	711502	—	<i>Adapter (2 per C.A.T.) (See Data Sheet for complete selection)</i>	2
—	6575	—	6575	—	<i>Plunger Pump Service DVD</i>	1
—	6107	—	6107	—	<i>Oil, Bottle (21 oz.) ISO 68 Multi-viscosity 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.**

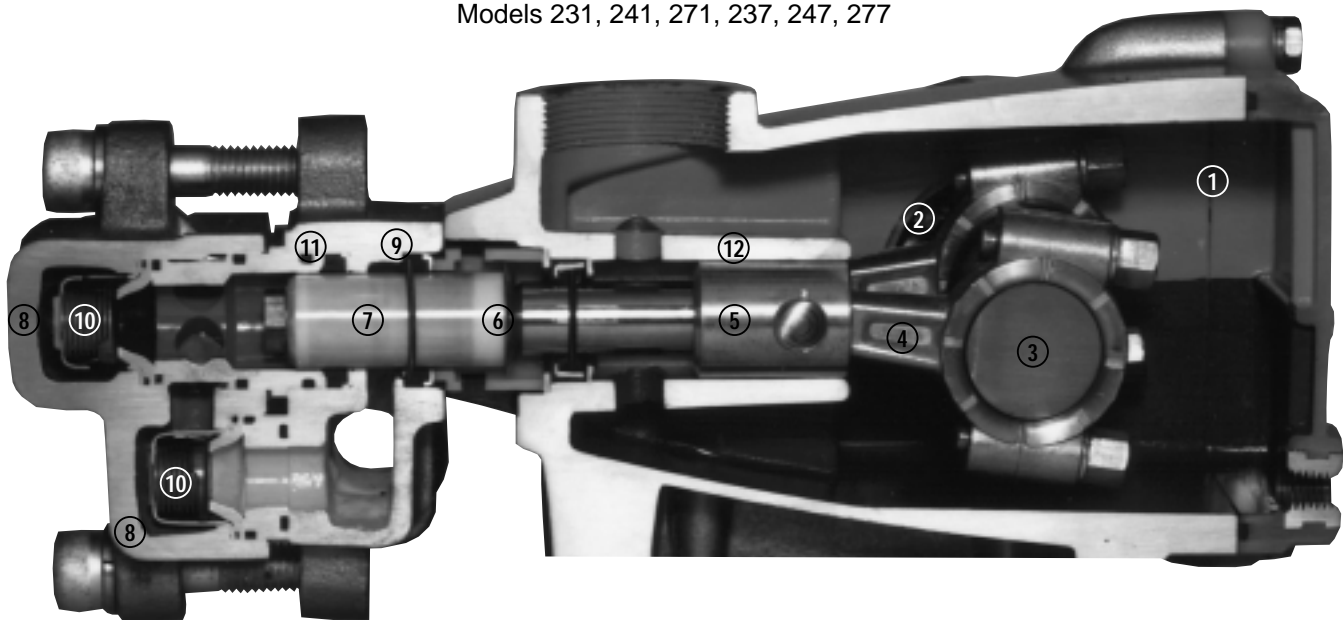
R components comply with RoHS Directive. \*Review material codes for individual items (HT generally may be used as alternate). See Tech Bulletins 002, 003, 008, 024, 033, 034, 036, 043, 047, 049, 052, 053, 067, 073, 074, 077 and 083 for additional information.

**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 (EPDM Alternative) NAB=Nickel Aluminum Bronze  
 NBR=Medium Nitrile (Buna-N) PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS 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



- |  |  |   |
|--|--|---|
| <p><b>1</b> Die cast aluminum <b>crankcase</b> means high strength, lightweight, and excellent tolerance control.</p> <p><b>2</b> Oversized crankshaft <b>bearings</b> provide extended bearing life and pump performance.</p> <p><b>3</b> Chrome-moly <b>crankshaft</b> provides unmatched strength and surface hardness for long life.</p> <p><b>4</b> Matched oversized TNM <b>connecting rods</b> noted for superior tensile strength and bearing quality.</p> | <p><b>5</b> The <b>plunger rods</b> are high tensile strength stainless steel with Zamak crossheads.</p> <p><b>6</b> The stainless steel <b>slinger</b> provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.</p> <p><b>7</b> Special concentric, high density, polished, solid ceramic <b>plungers</b> provide a true wear surface and extended seal life</p> <p><b>8</b> <b>Manifolds</b> are a high tensile strength 316 stainless steel or nickel aluminum bronze for long term, continuous duty.</p> | <p><b>9</b> 100% wet <b>seal</b> design adds to service life by allowing pumped liquids to cool and lubricate on both sides.</p> <p><b>10</b> Stainless steel <b>valves, seats and springs</b> provide corrosion-resistance, ultimate seating and extended life.</p> <p><b>11</b> Specially formulated, CAT PUMP exclusive, <b>Hi-Pressure Seals</b> offer unmatched performance and seal life.</p> <p><b>12</b> <b>Crossheads</b> are 360° supported for uncompromising alignment.</p> |
|--|--|---|

Products described hereon are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

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