



Model 820 shown

## FEATURES

- Triplex Uniflow design provides continuous forward liquid flow for smooth operation.
- Wetted cups and floating pistons are lubricated and cooled by pumped liquid for long cup life.
- Mechanically actuated inlet valves give strong lift and easy prime.
- Oil bath crankcase assures optimum lubrication.
- 100% wetted seal design allows pumped liquid to cool and lubricate for longer life.

## COMMON SPECIFICATIONS

|  |                       |                      |
|--|-----------------------|----------------------|
| Crankcase Capacity.....  | 40 oz.                | (1.2 l)              |
| Maximum Liquid Temperature.....  | 160°F                 | (71°C)               |
| Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations. |                       |                      |
| Inlet Pressure Range.....  | -8.5 to +40 psi       | (-0.6 to +2.8 bar)   |
| Inlet Ports (1).....   | 1" NPTF               | (1" NPTF)            |
| Discharge Ports (3).....   | 3/4" NPTF             | (3/4" NPTF)          |
| Shaft Diameter.....  | 0.984"                | (25 mm)              |
| Weight.....  | 34.6 lbs.             | (15.7 kg)            |
| Dimensions.....  | 17.28 x 11.42 x 6.30" | (439 x 290 x 160 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 Accessory 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).

## 10 Frame Piston Pump

**Standard Brass Models**      **623,820,1010**

**Stainless Steel Models**      **621,821,1011**

**Pulse Pump Manifold Models**      **625,825,1015**

## SPECIFICATIONS

U.S. Measure

Metric Measure

### MODEL 623, 621, 625

|                     |                 |               |
|---------------------|-----------------|---------------|
| Flow.....           | 6.0 gpm         | (23 lpm)      |
| Pressure Range..... | 100 to 1200 psi | (7 to 85 bar) |
| RPM.....            | 850 rpm         | (850 rpm)     |
| Bore.....           | 0.787"          | (20 mm)       |
| Stroke.....         | 1.122"          | (28.5 mm)     |

### MODEL 820, 821, 825

|                     |                 |               |
|---------------------|-----------------|---------------|
| Flow.....           | 10 gpm          | (38 lpm)      |
| Pressure Range..... | 100 to 1000 psi | (7 to 70 bar) |
| RPM.....            | 940 rpm         | (940 rpm)     |
| Bore.....           | 0.984"          | (25 mm)       |
| Stroke.....         | 1.102"          | (28 mm)       |

### MODEL 1010, 1011, 1015

|                     |                |               |
|---------------------|----------------|---------------|
| Flow.....           | 13 gpm         | (49 lpm)      |
| Pressure Range..... | 100 to 700 psi | (7 to 50 bar) |
| RPM.....            | 900 rpm        | (900 rpm)     |
| Bore.....           | 1.122"         | (28.5 mm)     |
| Stroke.....         | 1.102"         | (28 mm)       |

## ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL                 | FLOW        |     | PRESSURE   |            |             |             | MOTOR PULLEY SIZE<br>Using 1725 RPM Motor<br>& Std. 10.0" Pulley |                      |
|-----------------------|-------------|-----|------------|------------|-------------|-------------|--|----------------------|
|                       |             |     | psi<br>500 | psi<br>700 | psi<br>1000 | psi<br>1200 |  |                      |
|                       | U.S.<br>gpm | lpm | bar<br>35  | bar<br>50  | bar<br>70   | bar<br>85   | RPM  | MOTOR<br>Pulley O.D. |
| <b>623,621,625</b>    | 6.0         | 23  | 32.9       | 2.9        | 4.1         | 4.9         | 850  | 4.7                  |
|                       | 5.0         | 19  | 27.4       | 2.4        | 3.4         | 4.1         | 709  | 4.0                  |
|                       | 4.0         | 15  | 22.0       | 1.8        | 2.8         | 3.3         | 567  | 3.1                  |
| <b>820, 821, 825</b>  | 10.0        | 38  | 3.4        | 4.8        | 6.9         | N/A         | 940  | 5.3                  |
|                       | 9.0         | 34  | 3.1        | 4.3        | 6.2         | N/A         | 846  | 4.8                  |
|                       | 8.0         | 30  | 2.8        | 3.8        | 5.5         | N/A         | 752  | 4.3                  |
| <b>1010,1011,1015</b> | 13.0        | 49  | 4.5        | 6.2        | N/A         | N/A         | 900  | 5.0                  |
|                       | 10.0        | 38  | 3.4        | 4.8        | N/A         | N/A         | 692  | 4.3                  |
|                       | 8.0         | 30  | 2.8        | 3.8        | N/A         | N/A         | 554  | 3.4                  |

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

Rated gpm  
Rated rpm

=  
"Desired" gpm  
"Desired" rpm

**DETERMINING  
THE REQUIRED H.P.**

gpm x psi  
1460

=  
Electric Brake  
H. P. Required

**DETERMINING  
MOTOR PULLEY SIZE**

Motor Pulley O.D.  
Pump rpm

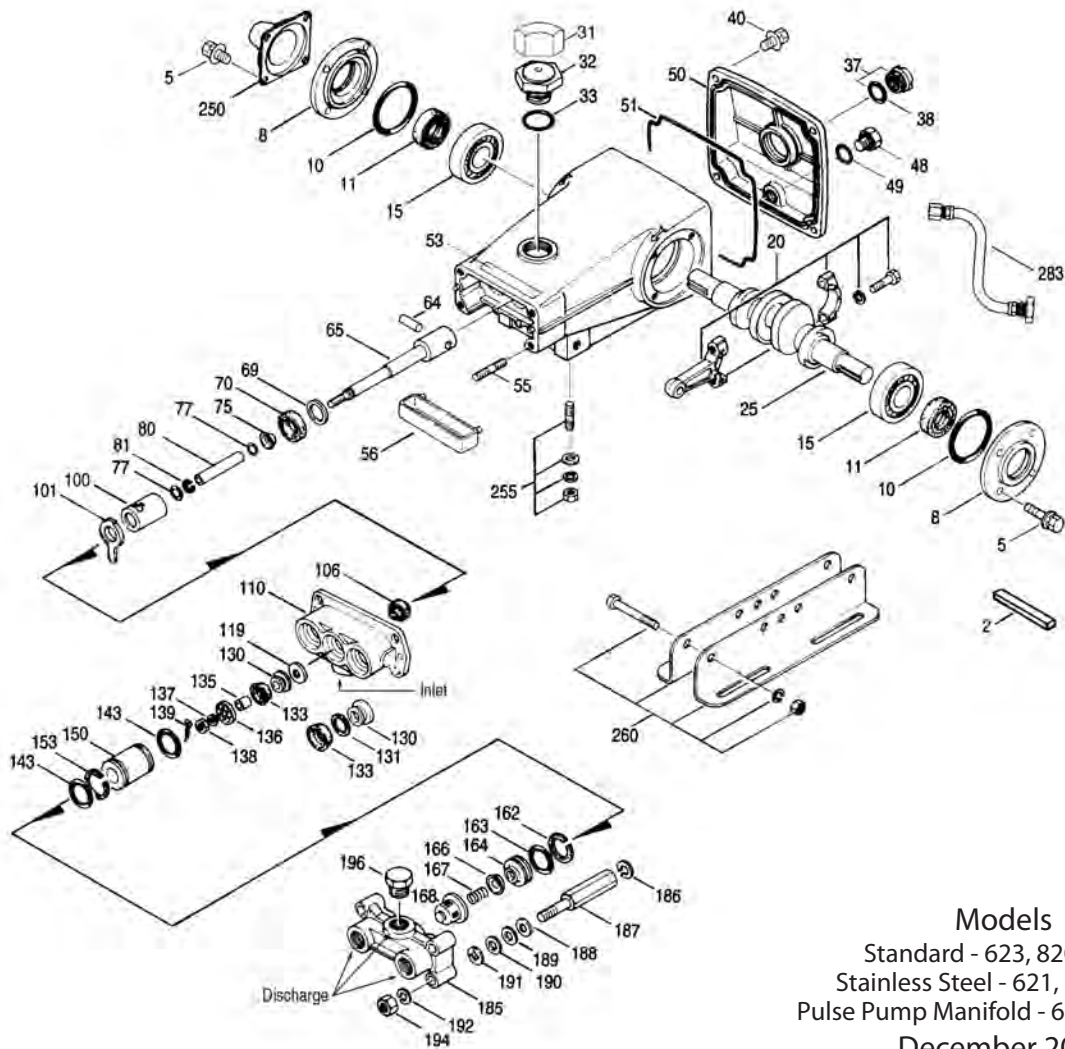
=  
Pump Pulley O.D.  
Motor rpm

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

# PARTS LIST

| ITEM | PART NUMBER            | DESCRIPTION            | QTY                     |  |     |
|------|------------------------|------------------------|-------------------------|--|-----|
|      | <b>623</b>             | <b>820</b>             | <b>1010</b> <b>MATL</b> |  |     |
|      | <b>621</b>             | <b>821</b>             | <b>1011</b>             |  |     |
|      | <b>625</b> <b>MATL</b> | <b>825</b> <b>MATL</b> | <b>1015</b> <b>MATL</b> |  |     |
| 2    | 50146 STL              | 50146 STL              | 50146 STL               | Key (M7x7x40)  | 1   |
| 5    | 92519 STZP             | 92519 STZP             | 92519 STZP              | Screw, HHC Sems (M6x16)                                | 8   |
|      | 125824 STCP R          | 125824 STCP R          | 125824 STCP R           | Screw, HHC Sems (M6x16)                                | 8   |
| 8    | 27331 AL               | 27331 AL               | 27331 AL                | Cover, Bearing   | 2   |
| 10   | 26965 NBR              | 26965 NBR              | 26965 NBR               | O-Ring, Bearing Cover - 70D                            | 2   |
| 11   | 27330 NBR              | 27330 NBR              | 27330 NBR               | Seal, Oil, Crankshaft - 80D                            | 2   |
| 15   | 47080 STL              | 47080 STL              | 47080 STL               | Bearing, Ball  | 2   |
| 20   | 48733 TNM              | 48733 TNM              | 48733 TNM               | Rod, Connecting, Assy [5/02]                           | 3   |
| 25   | 27329 FCM              | 27329 FCM              | 27329 FCM               | Crankshaft, Dual End                                   | 1   |
| 31   | 828710 —               | 828710 —               | 828710 —                | Protector, Oil Cap w/Foam Gasket                       | 1   |
| 32   | 43211 ABS              | 43211 ABS              | 43211 ABS               | Cap, Oil Filler  | 1   |
| 33   | 14177 NBR              | 14177 NBR              | 14177 NBR               | O-Ring, Oil Filler Cap - 70D                           | 1   |
| 37   | 92241 —                | 92241 —                | 92241 —                 | Gauge, Oil Bubble w/Gasket - 80D                       | 1   |
| 38   | 44428 NBR              | 44428 NBR              | 44428 NBR               | Gasket, Flat, Oil Gauge - 80D                          | 1   |
| 40   | 125824 STCP R          | 126541 STCP R          | 126541 STCP R           | Screw, HHC Sems (M6x20)                                | 4   |
| 48   | 25625 STCP             | 25625 STCP             | 25625 STCP              | Plug, Drain (1/4"x19BSP)                               | 1   |
| 49   | 23170 NBR              | 23170 NBR              | 23170 NBR               | O-Ring, Drain Plug - 70D                               | 1   |
| 50   | 49712 AL               | 49712 AL               | 49712 AL                | Cover, Rear (Tech Bulletin 111)                        | 1   |
| 51   | 14070 NBR              | 14070 NBR              | 14070 NBR               | O-Ring, Cover (Tech Bulletin 111)                      | 1   |
| 53   | 49710 AL               | 49710 AL               | 49710 AL                | Crankcase w/Guide Pins (Tech Bulletin 111)             | 1   |
| 55   | 126545 STCP R          | 126545 STCP R          | 126545 STCP R           | Stud (M10x45)  | 4   |
| 56   | 27911 POP              | 27911 POP              | 27911 POP               | Pan, Oil (use with items 100,101,106)                  | 1   |
| 64   | 20251 CM               | 20251 CM               | 20251 CM                | Pin, Crosshead   | 3   |
| 65   | 27337 SZZ              | 27337 SZZ              | 27337 SZZ               | Rod, Piston  | 3   |
| 69   | 126585 STCP R          | 126585 STCP R          | 126585 STCP R           | Washer, Oil Seal                                       | 3   |
| 70   | 27339 NBR              | 27339 NBR              | 27339 NBR               | Seal, Oil, Crankcase - 80D                             | 3   |
| 75   | 25327 S                | 25327 S                | 25327 S                 | Slinger, Barrier                                       | 3   |
| 77   | 25392 NBR              | 25392 NBR              | 25392 NBR               | O-Ring, Sleeve - 70D                                   | 6   |
|      | 28771 FPM              | 28771 FPM              | 28771 FPM               | O-Ring, Sleeve   | 6   |
| 80   | 27340 SCP              | 27340 SCP              | 27340 SCP               | Sleeve   | 3   |
|      | 28782 S                | 28782 S                | 28782 S                 | Sleeve (Unchromed)                                     | 3   |
| 81   | 29003 PTFE             | 29003 PTFE             | 29003 PTFE              | Back-up-Ring, Sleeve                                   | 3   |
| 100  | 27341 PVDF             | 27341 PVDF             | 27341 PVDF              | Retainer, Seal   | 3   |
| 101  | 27910 —                | 27910 —                | 27910 —                 | Wick, Long Tab (use with items 56,100,106)             | 3   |
| 106  | 30315 NBR              | 30315 NBR              | 30315 NBR               | Seal, LPS, Prrrrm-A-Lube (greased)                     | 3   |
|      | 30325 FPM              | 30325 FPM              | 30325 FPM               | Seal, LPS, Prrrrm-A-Lube (greased)                     | 3   |
|      | 25153 NBR              | 25153 NBR              | 25153 NBR               | Seal, Blue-Dot (ungreased) (use with items 56,100,101) | 3   |
|      | 100015 FPM             | 100015 FPM             | 100015 FPM              | Seal, Blue-Dot (ungreased) (use with items 56,100,101) | 3   |
| 110  | 27344 BBCP             | 27344 BBCP             | 27344 BBCP              | Manifold, Inlet (623, 820, 1010)                       | 1   |
|      | 30247 SS               | 30247 SS               | 30247 SS                | Manifold, Inlet (621, 821, 1011)                       | 1   |
| 119  | <b>27347 S</b>         | <b>27497 S</b>         | <b>27813 S</b>          | Valve, Inlet   | 3   |
| 130  | <b>30543 S</b>         | <b>27820 S</b>         | <b>27814 S</b>          | Piston   | 3   |
| 131  | <b>30544 PTFE</b>      | —                      | —                       | Ring, Bac-Cup  | 3   |
| 133  | <b>43172 FPM</b>       | <b>27821 FPM</b>       | <b>27815 FPM</b>        | Cup, Piston  | 3   |
| 133  | <b>43474 FPM</b>       | —                      | —                       | Bac-Cup Assy (43172,30543,30544) (Tech Bulletin 016)   | 3   |
| 133  | <b>30340 NBR</b>       | —                      | —                       | Cup, Piston, Machined                                  | 3   |
| 133  | <b>29089 SNG</b>       | <b>29091 SNG</b>       | <b>29092 SNG</b>        | Cup, V-Hot (1000 PSI Max.)                             | 3   |
| 133  | <b>76515 ST4</b>       | <b>76333 ST4</b>       | <b>76189 ST4</b>        | Piston-Cup Assy (1000 PSI Max.)                        | 3   |
| 135  | <b>27348 S</b>         | <b>27499 S</b>         | <b>27499 S</b>          | Spacer, Piston   | 3   |
| 136  | <b>27002 S</b>         | <b>27500 S</b>         | <b>20324 S</b>          | Retainer, Piston                                       | 3   |
| 137  | 27006 S                | 27006 S                | 27006 S                 | Washer, Conical (M6)                                   | 3   |
| 138  | 27000 S                | 27000 S                | 27000 S                 | Nut, Slotted (M6)                                      | 3   |
| 139  | 14158 S                | 14158 S                | 14158 S                 | Cotterpin (M1.6x10)                                    | 3   |
| 143  | 26969 NBR              | 26969 NBR              | 26969 NBR               | O-Ring, Cylinder - 70D                                 | 6   |
|      | 28459 FPM              | 28459 FPM              | 28459 FPM               | O-Ring, Cylinder                                       | 6   |
| 150  | <b>28342 SCP</b>       | <b>28340 SCP</b>       | <b>28341 SCP</b>        | Cylinder (M50)   | 3   |
|      | <b>28776 S</b>         | <b>28778 S</b>         | <b>28780 S</b>          | Cylinder (M50) (Unchromed)                             | 3   |
| 153  | <b>28204 PTFE</b>      | <b>28204 PTFE</b>      | —                       | Back-up-Ring, Cylinder                                 | 3   |
| 162  | 43062 PTFE             | 43062 PTFE             | 43062 PTFE              | Back-up-Ring, Seat                                     | 3   |
| 163  | 26966 NBR              | 26966 NBR              | 26966 NBR               | O-Ring, Seat - 70D                                     | 3   |
|      | 28458 FPM              | 28458 FPM              | 28458 FPM               | O-Ring, Seat - 70D                                     | 3   |
| 164  | 43428 S                | 43428 S                | 43428 S                 | Seat, Quiet Valve                                      | 3   |
|      | 43063 S                | 43063 S                | 43063 S                 | Seat, Flat Valve                                       | 3   |
| 166  | 43721 S                | 43721 S                | 43721 S                 | Valve, Quiet Valve                                     | 3   |
|      | 20262 S                | 20262 S                | 20262 S                 | Valve, Flat Valve                                      | 3   |
| 167  | 43251 S                | 43251 S                | 43251 S                 | Spring, Quiet Valve                                    | 3   |
|      | 20265 S                | 20265 S                | 20265 S                 | Spring, Flat Valve                                     | 3   |
| 168  | 43429 S                | 43429 S                | 43429 S                 | Retainer, Spring, Quiet Valve                          | 3   |
|      | 43135 S                | 43135 S                | 43135 S                 | Retainer, Spring, Flat Valve                           | 3   |
| 185  | 43046 BBCP             | 43046 BBCP             | 43046 BBCP              | Manifold, Discharge (623, 820, 1010)                   | 1   |
|      | 30248 SS               | 30248 SS               | 30248 SS                | Manifold, Discharge (621, 821, 1011)                   | 1   |
|      | 6410 BB                | 6410 BB                | 6410 BB                 | Manifold, Pulse Pump (1000 PSI Max.) (625,825,1015)    | 1   |
| 186  | 126593 STCP R          | 126593 STCP R          | 126593 STCP R           | Washer, Shim (M10.5x1.5)                               | 4/8 |
| 187  | 43047 STCP             | 43047 STCP             | 43047 STCP              | Stud, Hex, Manifold "B"                                | 4   |
| 188  | 126582 STCP R          | 126582 STCP R          | 126582 STCP R           | Washer, Shim (M10.5x1.0)                               | 4/8 |
| 189  | 126583 STCP R          | 126583 STCP R          | 126583 STCP R           | Washer, Shim (M10x0.5)                                 | 4/8 |
| 190  | 126584 STCP R          | 126584 STCP R          | 126584 STCP R           | Washer, Shim (M10x0.3)                                 | 4/8 |
| 191  | 27357 STZP             | 27357 STZP             | 27357 STZP              | Lockwasher (M10)                                       | 4   |
| 192  | 126231 STCP R          | 126231 STCP R          | 126231 STCP R           | Lockwasher (M10)                                       | 4   |
| 194  | 126522 STCP R          | 126522 STCP R          | 126522 STCP R           | Nut, Hex (M10x1.5)                                     | 4   |
| 196  | 20326 BBCP             | 20326 BBCP             | 20326 BBCP              | Plug, Discharge Manifold (3/4" NPT)                    | 1   |
| 250  | 43139 STCP             | 43139 STCP             | 43139 STCP              | Protector, Shaft                                       | 1   |

# EXPLODED VIEW



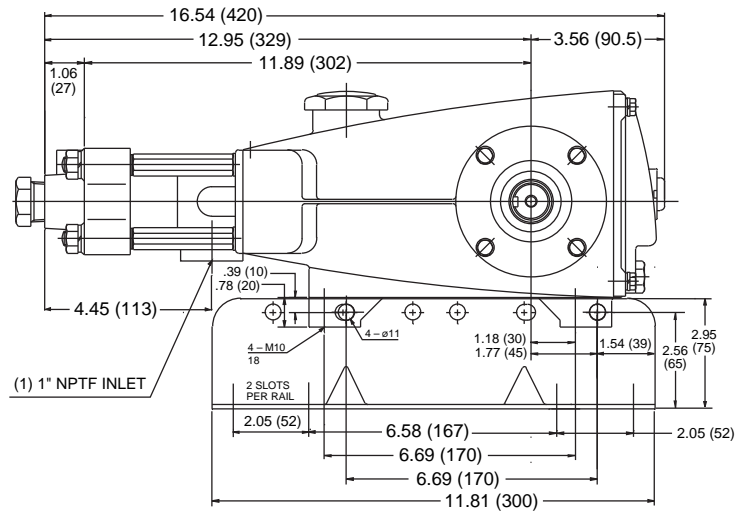
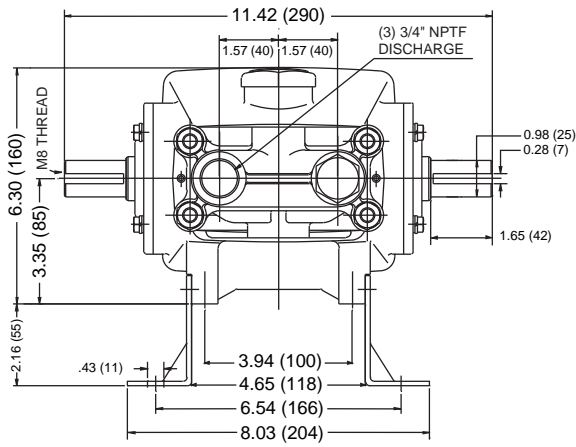
Models  
 Standard - 623, 820, 1010  
 Stainless Steel - 621, 821, 1011  
 Pulse Pump Manifold - 625, 825, 1015  
 December 2012

|     | <b>623</b>   | <b>820</b>   | <b>1010</b>  | <b>MATL</b> |   |   |
|-----|--------------|--------------|--------------|-------------|---|---|
|     | <b>621</b>   | <b>821</b>   | <b>1011</b>  | <b>MATL</b> |   |   |
|     | <b>625</b>   | <b>825</b>   | <b>1015</b>  | <b>MATL</b> |   |   |
| 255 | 30264        | 30264        | 30264        | STZP        | Kit, Direct Mount   | 1 |
| 260 | 30613        | 30613        | 30613        | STZP        | Mount, Rail, Assy   | 1 |
| 265 | 30653        | 30653        | 30653        | —           | Kit, Mounting (Incls: 30613,30206,30284,43139)  | 1 |
| 270 | 30206        | 30206        | 30206        | F           | Pulley (10") [See Drive Packages, Tech Bulletin 003]  | 1 |
| 274 | 30234        | 30234        | 30234        | STL         | Hub, "H" M25 (Keyway M7) [See Drive Packages, Tech Bulletin 003]                                  | 1 |
| 275 | 30284        | 30284        | 30284        | STL         | Hub & Key Assy [See Drive Packages, Tech Bulletin 003]  | 1 |
| 283 | 34334        | 34334        | 34334        | —           | Kit, Oil Drain  | 1 |
| 295 | 6300         | 6300         | 6300         | BBSS        | Pump, Pulse (1 Qt.) 1000 PSI (See individual data sheet)  | 1 |
|     | 6305         | 6305         | 6305         | BBSS        | Pump, Pulse (1 Gal.) 1000 PSI (See individual data sheet)   | 1 |
| 300 | <b>30220</b> | <b>30222</b> | <b>30224</b> | <b>NBR</b>  | Kit, Cup (Incls: 133,139,143,153) (355 for 820 & 1010)  | 1 |
| 301 | <b>30822</b> | —            | —            | <b>NBR</b>  | Kit, Bac-Cup (Incls: 133,139,143,355)   | 1 |
| 302 | <b>30219</b> | <b>30221</b> | <b>30223</b> | <b>NBR</b>  | Kit, Piston (Incls: 119,130,133,135-139,143,153 (355 for 820 & 1010))                             | 1 |
|     | <b>30843</b> | —            | —            | <b>NBR</b>  | Kit, Bac-Cup Piston (Incls: 119,133,139,143,153,355)  | 1 |
| 304 | 76238        | 30437        | 30300        | NBR         | Kit, Hot Cup (Incls: 133, 139, 143, 153)  | 1 |
| 305 | 30397        | 30397        | 30397        | NBR         | Kit, Sleeve and Prrrrrm-A-Lube Seal (Incls: 75,77,80,106,139)                                     | 1 |
|     | 30227        | 30227        | 30227        | NBR         | Kit, Sleeve and Blue-Dot Seal (Incls: 75,77,80,101,106,139)                                       | 1 |
| 306 | 30305        | 30305        | 30305        | NBR         | Kit, Prrrrrm-A-Lube Seal (Incls: 106,139)   | 1 |
|     | 30226        | 30226        | 30226        | NBR         | Kit, Blue-Dot Seal (Incls: 101,106,139)   | 1 |
| 310 | 30687        | 30687        | 30687        | NBR         | Kit, Valve, Quiet Valve (Incls: 143,153,162-168)  | 1 |
|     | 30449        | 30449        | 30449        | NBR         | Kit, Valve, Flat Valve (Incls: 143,153,162-168)   | 1 |
| 355 | <b>22130</b> | <b>16981</b> | <b>15770</b> | <b>NY</b>   | Insert, Cup   | 1 |
| 352 | 44050        | 44050        | 44050        | STZP        | Tool, Oil Gauge Removal   | 1 |
| 360 | 25082        | 25082        | 25082        | STZP        | T-Wrench (M10)  | 1 |
|     | 25083        | 25083        | 25083        | STZP        | T-Wrench (M17)  | 1 |
| —   | 6107         | 6107         | 6107         | —           | Oil, Bottle (21 oz.) ISO 68 Hydraulic<br>(Fill to specified crankcase capacity prior to start-up) | 2 |

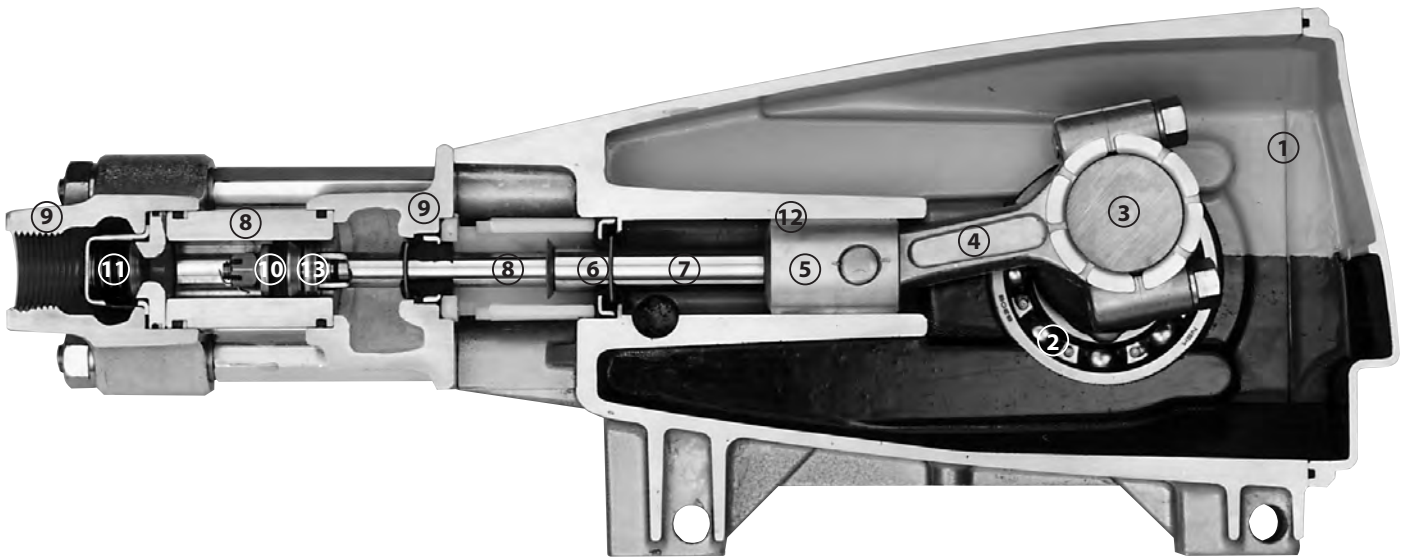
**Bold print part numbers are unique to a particular pump model. Italics are optional items.** [ ] Date of latest production change. R Components comply with RoHS Directive. See Tech Bulletins 001, 002, 003, 005, 016, 017, 020, 024, 026, 034, 036, 037, 038, 042, 074, 077, 083 and 111 for additional information.

When replacing Prrrrrm-A-Lube Seals with Blue-Dot Seals, wick must be installed.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BB=Brass BCBP=Brass/Chrome Plated CM=Chrome-Moly F=Cast Iron FCM=Forged Chrome-moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) NY=Nylon POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SCP=304SS/Chrome Plated SNG=Special Blend (Buna) SS=316SS STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated SZZ=304SS/Zamak ST4=Special PTFE 4 TNM=Special High Strength



Models 623, 621, 625, 820, 821, 825, 1010, 1011, 1015



- 1 Die cast aluminum **crankcase** means high strength, lightweight, and excellent tolerance control.
- 2 Oversized crankshaft **bearings** provide extended bearing life and pump performance.
- 3 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 4 Matched oversized TNM **connecting rods** for superior tensile strength and bearing quality.
- 5 The **piston rods** are high tensile strength stainless steel with Zamak crossheads.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 The **patented stepped piston rod** with hard chrome plated stainless steel **sleeve** provides a durable wear surface and easy wet-end servicing.
- 8 The **cylinder and sleeve** wear surfaces are hard chrome plated 304 stainless steel for longer service life.
- 9 **Manifolds** are of high tensile strength chrome plated brass or 316 stainless steel for special corrosion resistance.
- 10 100% wet **cup/seal** design adds to service life by allowing pumped liquids to cool and lubricate the elastomers on both sides.
- 11 304 stainless steel **valves, seats, and springs** provide corrosion-resistance, ultimate seating and extended life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.
- 13 Mechanically actuated **inlet valves** provide strong lift and easy prime.



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