

*Gas engine must be purchased separately.*

## FEATURES

- Triplex plunger design provides a smooth liquid flow.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and extended seal life.
- Built-in flange mount for easy, direct mounting to most gas engines. Eliminates the need for pulleys, belts, gearboxes.
- Integral Regulating Unloader with built-in by-pass is standard for safety and pressure setting.
- Stacked stainless steel valve design for long life and easy servicing.
- Fixed Chemical Injector is standard and mounts directly onto Unloader to provide cleaning flexibility.

### **⚠ 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.

## O.E.M. Direct-Drive Plunger Pump

**Gas Model**      **67DX39G11**

### SPECIFICATIONS

|  | U.S. Measure         | Metric Measure       |
|--|----------------------|----------------------|
| Flow .....   | 3.9 GPM              | (14.8 L/M)           |
| Pressure Range .....   | 100 to 4000 PSI      | (7 to 275 BAR)       |
| RPM .....  | 3450 RPM             | (3450 RPM)           |
| Inlet Pressure Range .....   | Flooded to 75 PSI    | (Flooded to 5.25BAR) |
| Bore .....   | 0.551 "              | (14 mm)              |
| Stroke .....   | 0.405 "              | (10.3 mm)            |
| Crankcase Capacity .....   | 13.5 oz.             | (0.4 L)              |
| Maximum Liquid Temperature .....   | 140°F                | (60°C)               |
| Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations. |                      |                      |
| Inlet Port (1) .....   | 1/2" NPTF            | (1/2" NPTF)          |
| Discharge Port (1) .....   | 3/8" NPTF            | (3/8" NPTF)          |
| Discharge Port w/Chemical Injector (1) .....                                   | 3/8" NPTM            | (3/8" NPTM)          |
| Inlet Auxiliary Port (1) .....   | 1/4" NPTF            | (1/4" NPTF)          |
| Shaft Diameter (Hollow) .....  | 1"                   | (25.4 mm)            |
| Weight .....   | 17 lbs.              | (7.7 kg)             |
| Dimensions .....   | 11.50 x 8.82 x 7.99" | (292 x 224 x 203 mm) |

### ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL            | FLOW     |      | PRESSURE |      |      | RPM  |
|------------------|----------|------|----------|------|------|------|
|                  |          |      | PSI      | PSI  | PSI  |      |
|                  | U.S. GPM | L/M  | 2500     | 3200 | 4000 |      |
|                  |          |      | BAR      | BAR  | BAR  |      |
| <b>67DX39G11</b> | 3.9      | 14.8 | 6.7      | 8.5  | 10.6 | 3450 |

|                                      |   |   |   |
|--------------------------------------|---|---|---|
| <b>DETERMINING THE PUMP R.P.M.</b>   | $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}}$     | = | $\frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$ |
| <b>DETERMINING THE REQUIRED H.P.</b> | $\frac{\text{GPM x PSI}}{1460}$                       | = | Electric Brake H. P. Required                             |
| <b>DETERMINING MOTOR PULLEY SIZE</b> | $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}}$ | = | $\frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$     |

Note: Consult engine manufacturer when using gas or diesel engine. Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

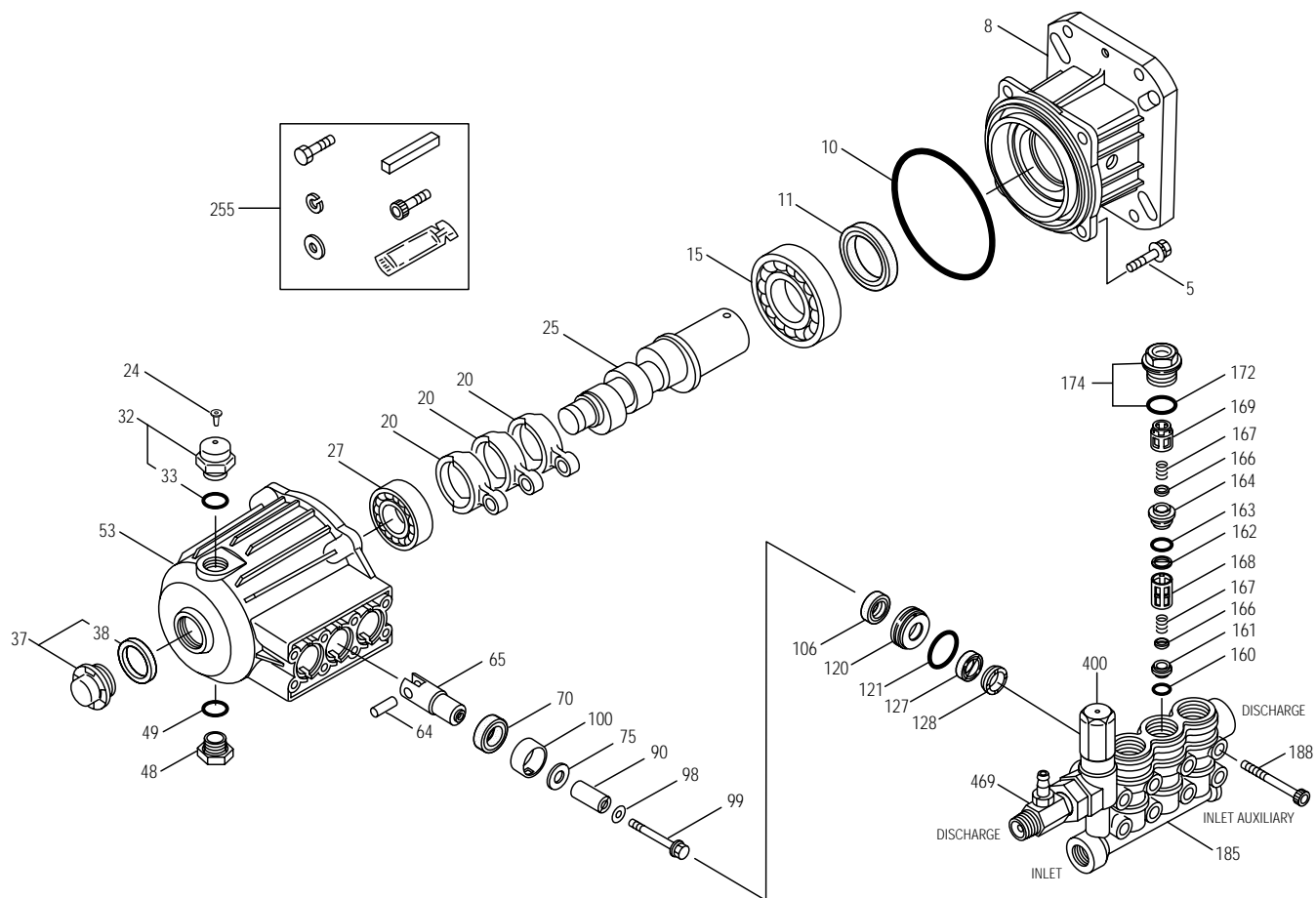
*"Customer confidence is our greatest asset"*

# EXPLODED VIEW

March 2008

# 67DX39G1I PLUNGER PUMP

With Integral Unloader and Injector



## PARTS LIST

| ITEM | P/N    | MATL   | DESCRIPTION                      | QTY | ITEM   | P/N    | MATL                      | DESCRIPTION   | QTY |
|------|--------|--------|----------------------------------|-----|--------|--------|---------------------------|---|-----|
| 5    | 127285 | STCP R | Screw, HH, Sems (M8x25)          | 4   | 128    | 48757  | NY                        | Adapter, Male   | 3   |
| 8    | 49361  | AL     | Cover, Adapter Bearing           | 1   | 160    | 26129  | NBR                       | O-Ring, Inlet Valve Seat - 70D  | 3   |
| 10   | 14043  | NBR    | O-Ring, Bearing Cover - 70D      | 1   | 161    | 49378  | S                         | Seat, Inlet   | 3   |
| 11   | 125351 | NBR    | Seal, Oil Crankshaft - 70D       | 1   | 162    | 48361  | D                         | Back-up-Ring, Discharge Seat  | 3   |
| 15   | 126962 | STL    | Bearing, Ball - Inner            | 1   | 163    | 43358  | NBR                       | O-Ring, Discharge Seat - 70D  | 3   |
| 20   | 49364  | TNM    | Rod, Connecting                  | 3   | 164    | 49376  | S                         | Seat, Discharge   | 3   |
| 24   | 76045  | LDPE   | Plug, Oil Cap                    | 1   | 166    | 547098 | S                         | Valve   | 6   |
| 25   | 49391  | CM     | Crankshaft (10.3mm)              | 1   | 167    | 49354  | S                         | Spring  | 6   |
| 27   | 49363  | STL    | Bearing, Ball - Outer            | 1   | 168    | 49377  | PVDF                      | Retainer, Spring, Inlet   | 3   |
| 32   | 547961 | RTP    | Cap, Oil Filler w/O-Ring         | 1   | 169    | 547441 | PVDF                      | Retainer, Spring, Discharge   | 3   |
| 33   | 14179  | NBR    | O-Ring, Filler Cap - 70D         | 1   | 172    | 49382  | NBR                       | O-Ring, Valve Plug - 90D  | 3   |
| 37   | 92241  | —      | Gauge, Oil Bubble w/Gasket - 80D | 1   | 174    | 49380  | BB                        | Plug, Valve w/O-Ring  | 3   |
| 38   | 44428  | NBR    | Gasket, Flat, Oil Gauge - 80D    | 1   | 185    | 49372  | BB                        | Head, Manifold  | 1   |
| 48   | 44842  | NY     | Plug, Drain                      | 1   | 188    | 126512 | STCP R                    | Screw, HSH (M8x65)  | 8   |
| 49   | 14179  | NBR    | O-Ring, Drain Plug - 70D         | 1   | 255    | 31445  | STZP                      | Assy, Bolt Mount, Gas   | 1   |
| 53   | 49352  | AL     | Crankcase                        | 1   | 127023 | STCP R | Screw, HH (3/8x16x1-3/8") | 4   |     |
| 64   | 49366  | CM     | Pin, Crosshead                   | 3   | 127025 | STZP R | Lockwasher (3/8")         | 4   |     |
| 65   | 49368  | BB     | Rod, Plunger                     | 3   | 127024 | STZP R | Washer, Flat (3/8")       | 4   |     |
| 70   | 47215  | NBR    | Seal, Oil Crankcase - 70D        | 3   | 6106   | —      | Antiseize Lubricant       | 1   |     |
| 75   | 49370  | S      | Slinger, Barrier                 | 3   | 49411  | STL    | Key (1/4"x1/4"x59mm)      | 1   |     |
| 90   | 49367  | CC     | Plunger (M14x28)                 | 3   | 126761 | STCP R | Screw, Set (M5x8)         | 1   |     |
| 98   | 46730  | NBR    | Washer, Seal - 90D               | 3   | 300    | 76262  | NBR                       | Kit, Seal (Incls: 98, 106, 121, 127, 128)                               | 1   |
| 99   | 49369  | S      | Retainer, Plunger                | 3   | 310    | 76260  | NBR                       | Kit, Valve<br>(Incls: 160, 161, 162, 163, 164, 166, 167, 168, 169, 172) | 1   |
| 100  | 49371  | NY     | Retainer, Seal                   | 3   | 400    | —      | —                         | Unloader, Integral (See individual parts)                               | 1   |
| 106  | 45188  | NBR    | Seal, LPS w/S-Spg                | 3   | 469    | 7367   | BB                        | Injector, Chemical Fixed  | 1   |
| 120  | 49374  | BB     | Case, Seal                       | 3   |        |        |                           |   |     |
| 121  | 13977  | NBR    | O-Ring, Seal Case - 70D          | 3   |        |        |                           |   |     |
| 127  | 48758  | SNG    | V-Packing                        | 3   |        |        |                           |   |     |

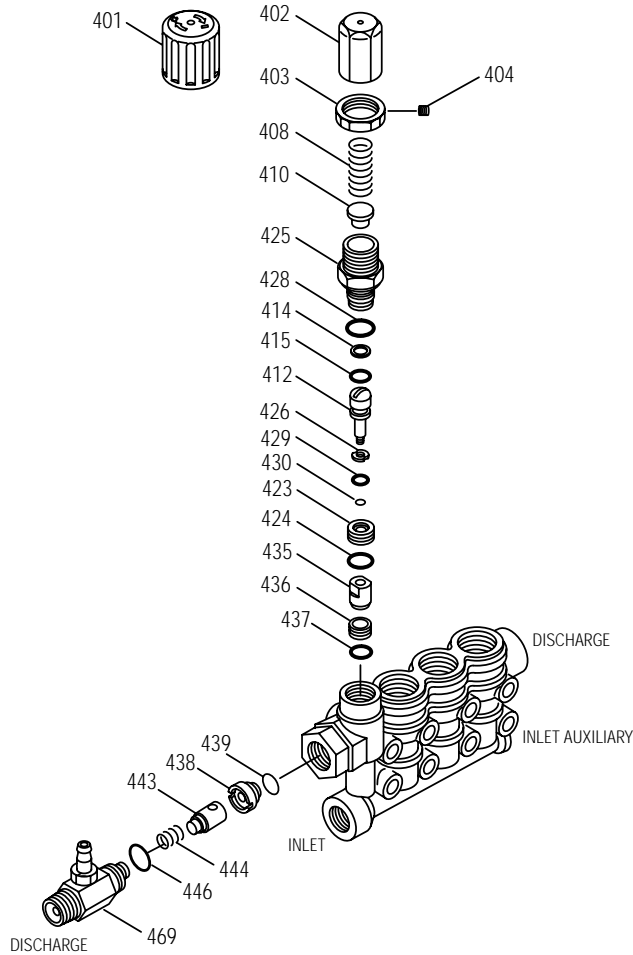
*Italics are optional items.* R Components comply with RoHS Directive.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-moly D=Acetal LDPE=Low Density Polyethylene  
 NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS SNG=Special Blend (Buna)  
 STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

# INTEGRAL UNLOADER

## SPECIFICATIONS

|                      | U.S. Measure | Metric Measure |
|----------------------|--------------|----------------|
| Flow .....           | 3.9 GPM      | (14.7 L/M)     |
| PSI Range .....      | 100-4000 PSI | (7-275 BAR)    |
| Inlet Port .....     | 1/2" NPTF    | (1/2" NPTF)    |
| Discharge Port ..... | M18 x 1.0    | (M18 x 1.0)    |



## PARTS LIST

| ITEM | P/N    | MATL | DESCRIPTION   | QTY. |
|------|--------|------|---|------|
| 401  | 49100  | NY   | Handle, Adjusting (Black)   | 1    |
| 402  | 49099  | BB   | Cap, Adjusting  | 1    |
| 403  | 125521 | BB   | Nut, Locking (M25x1)  | 1    |
| 404  | 88953  | S    | Screw, Set (M4x4)   | 1    |
| 408  | 45198  | ZP R | Spring, Pressure  | 1    |
| 410  | 49101  | STZP | Retainer, Spring  | 1    |
| 412  | 49103  | S    | Stem, Piston  | 1    |
| 414  | 20889  | PTFE | Back-up-Ring, Piston Stem   | 1    |
| 415  | 49104  | NBR  | O-Ring, Piston Stem - 90D   | 1    |
| 423  | 49105  | BB   | Retainer, Valve   | 1    |
| 424  | 49106  | NBR  | O-Ring, Valve Retainer - 70D  | 1    |
| 425  | 49102  | BB   | Retainer, Piston  | 1    |
| 426  | 49107  | S    | Washer  | 1    |
| 428  | 26133  | NBR  | O-Ring, Piston Retainer - 80D                                       | 1    |
| 429  | 22056  | NBR  | O-Ring, Valve Retainer - 70D  | 1    |
| 430  | 49123  | D    | Back-up-Ring, Valve Retainer  | 1    |
| 435  | 49383  | S    | Valve/Ball Assembly   | 1    |
| 436  | 49384  | S    | Seat  | 1    |
| 437  | 13965  | NBR  | O-Ring, Seat - 70D  | 1    |
| 438  | 49386  | D    | Seat, Check Valve   | 1    |
| 439  | 13963  | NBR  | O-Ring, Check Valve Seat - 70D                                      | 1    |
| 443  | 49245  | BB   | Valve, Check w/NBR O-Ring   | 1    |
| 444  | 117275 | S    | Spring, Check Valve   | 1    |
| 446  | 26133  | NBR  | O-Ring, Body - 80D  | 1    |
| 468  | 76708  | NBR  | Kit, O-Ring<br>(Incls: 414, 415, 424, 428, 429, 430, 437, 439, 446) | 1    |
| 469  | 7367   | BB   | Injector, Chemical Fixed  | 1    |

*Italics are optional items.* R Components comply with RoHS Directive.  
 MATERIAL CODES (Not Part of Part Number): BB=Brass D=Acetal  
 NBR=Medium Nitrile (Buna-N) NY=Nylon PTFE=Pure Polytetrafluoroethylene  
 S=304SS STL=Steel STZP=Steel/Zinc Plated ZP=Zinc Plated

# UNLOADER TYPE

An integral unloader with built-in by-pass is part of the discharge manifold to provide system pressure regulation and pump protection. This pump also includes a fixed chemical injector for chemical application.

## OPERATION:

Pump should be purged of air before commencing with operation. Liquid must flow through the pump without discharge restriction to assure full system pressure is reached.

Install a pressure gauge close to the manifold head of the pump to assist in setting system pressure and to periodically monitor system pressure.

Setting and adjusting the unloader pressure must be done with the system turned on. Start the system with the unloader backed off to the lowest pressure setting (counterclockwise direction). Squeeze the trigger and read the pressure on the gauge at the pump. Do not read pressure at the gun or nozzle. If more pressure is desired, release the trigger, turn adjusting cap one quarter turn in a clockwise direction. Squeeze the trigger and read the pressure. Repeat this process until the desired system pressure is reached. Thread locking nut up to adjusting cap and tighten set screw. All high pressure systems should have a secondary relief valve. Set secondary relief valve 200-300 psi above the unloader setting.

**NOTE:** Pressure is not set at the factory.

## SERVICE:

The unloader should be serviced on the same schedule as the seals in the pump. Refer to 67DX Service Manual for start-up, servicing of seals and valves, torque requirements and Diagnosis/Maintenance chart.

# FIXED CHEMICAL INJECTOR

## SPECIFICATIONS

|                      | U.S. Measure | Metric Measure |
|----------------------|--------------|----------------|
| <b>Model 7367</b>    |              |                |
| GPM .....            | 3.9 GPM      | (14.7 L/M)     |
| Nozzle Orifice ..... | 2.1 mm       | (2.1 mm)       |

## Common Specifications

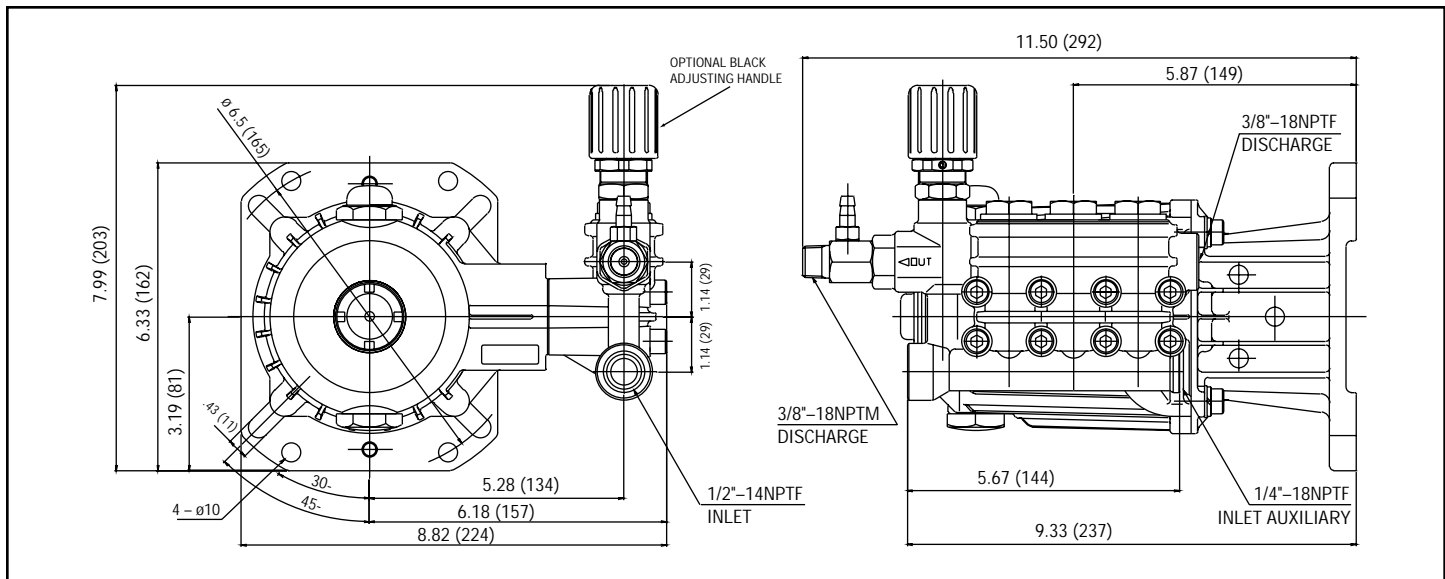
|                      |               |                   |
|----------------------|---------------|-------------------|
| Hose Barb .....      | 1/4"          | (1/4")            |
| Tapped Barb .....    | 8/32" UNF     | (8/32" UNF)       |
| Inlet Port .....     | M18x1.0       | (M18x1.0)         |
| Discharge Port ..... | 3/8" NPTM     | (3/8" NPTM)       |
| Weight .....         | 5.3 oz.       | (0.15 kg)         |
| Dimensions.....      | 2 x 1 x 1.75" | (52 x 25 x 45 mm) |

## CHEMICAL INJECTOR PERFORMANCE CHART

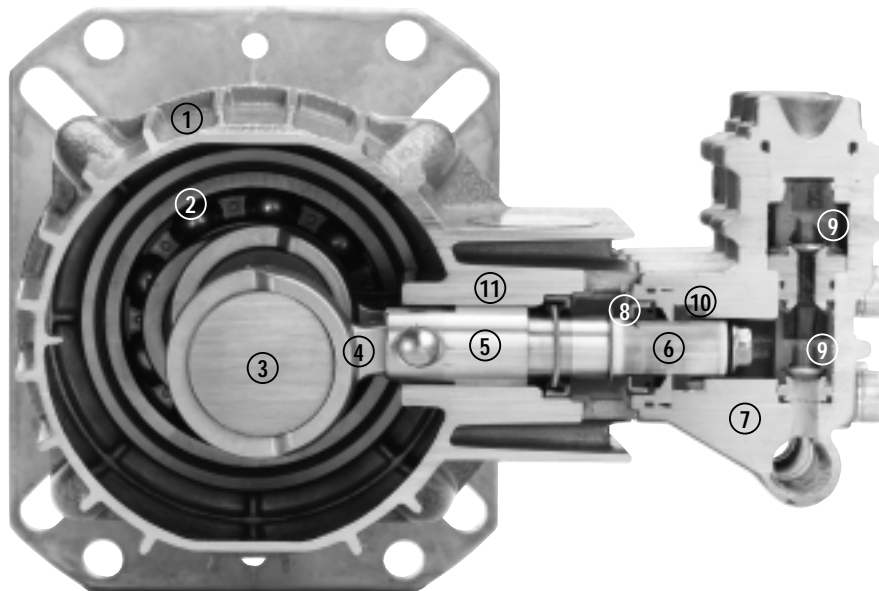
| Orifice Size | Injector Model | Maximum Injecting Pressure | Maximum Chemical Draw | Pressure Drop Across Injector At System Pressure (4000 PSI) |
|--------------|----------------|----------------------------|-----------------------|---|
| 2.1 mm       | 7367           | 358 PSI                    | 76.8 oz/min           | 288 PSI   |

Optimum performance of chemical injector occurs with a 35 ft. high pressure hose and a minimum 3/8" I.D. The type of hose, extended lengths, reduced I.D. and fittings may create back pressures in excess of the low pressure nozzle rating and prevent the injector from drawing chemical. See Hose Friction Loss Chart in Service Manual. **Deduct hose friction loss from above low PSI Nozzle. Contact CAT PUMPS for assistance with other options.**

**CAUTION:** Deduct the pressure drop shown in the performance chart from your desired system pressure to arrive at the maximum high pressure nozzle rating. This is essential to avoid over-pressurizing the pump.



Model 67DX39G11



- |   |   |   |
|---|---|---|
| <p><b>1</b> Die cast flange-style aluminum <b>crankcase</b> provides high strength, lightweight, and excellent tolerance control.</p> <p><b>2</b> Heavy-duty dual crankshaft <b>bearings</b> provide extended drive-end life.</p> <p><b>3</b> Chrome-moly <b>crankshaft</b> provides unmatched strength and surface hardness for long life.</p> <p><b>4</b> High strength <b>connecting rods</b> assure durability and bearing quality.</p> | <p><b>5</b> Brass <b>plunger rods</b> with chrome-moly crosshead pins for strength and wear resistance.</p> <p><b>6</b> Special concentric, high-density, polished, solid ceramic <b>plungers</b> provide a true wear surface and extended seal life.</p> <p><b>7</b> High tensile strength, forged brass <b>manifold head</b> with built-in integral unloader and eight mounting screws for exceptional strength.</p> <p><b>8</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>9</b> Stacked <b>valve assemblies</b> include stainless steel valves, seats and springs to provide corrosion-resistance, ultimate seating and extended life.</p> <p><b>10</b> Unique design and specially formulated <b>V-Packings</b> offer unmatched performance and seal life.</p> <p><b>11</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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