

Gas engine must be purchased separately.

## FEATURES

- Triplex plunger design provides a smooth liquid flow.
- Specially formulated high pressure seals and concentric solid ceramic plungers assure true wear surface and extended seal life.
- Stacked valve design for ease in servicing.
- Ultra-compact, hollow-shafted pump for direct mounting to gas engine.
- Integral Pressure Unloader with built-in by-pass standard on all units to assure system pressure control and pump protection.
- Fixed chemical injector standard on all units offers cleaning flexibility.
- Swivel garden hose fitting for easy inlet connection.

### ⚠ 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).

## Direct-Drive Plunger Pumps

### Models

# 4DNX25GSI 4DNX27GSI

### SPECIFICATIONS

#### MODEL 4DNX25GSI

|                                 | U.S. Measure | Metric Measure |
|---------------------------------|--------------|----------------|
| Flow.....                       | 2.5 gpm      | (9.5 lpm)      |
| Maximum Discharge Pressure..... | 2850 psi     | (196 bar)      |
| Maximum RPM.....                | 3450 rpm     | (3450 rpm)     |
| Stroke.....                     | 0.268"       | (6.8 mm)       |

#### MODEL 4DNX27GSI

|                                 |          |            |
|---------------------------------|----------|------------|
| Flow.....                       | 2.7 gpm  | (10.2 lpm) |
| Maximum Discharge Pressure..... | 2850 psi | (196 bar)  |
| Maximum RPM.....                | 3450 rpm | (3450 rpm) |
| Stroke.....                     | 0.280"   | (7.2 mm)   |

### COMMON PUMP SPECIFICATIONS

|  |                     |                      |
|--|---------------------|----------------------|
| Inlet Pressure Range.....  | Flooded to 60 psi   | (Flooded to 4 bar)   |
| Bore.....  | 0.551"              | (14 mm)              |
| Crankcase Capacity.....  | 8.5 oz.             | (0.25 l)             |
| Maximum Liquid Temperature.....  | 140°F               | (60°C)               |
| Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations. |                     |                      |
| Inlet Ports (1).....   | 3/4" GHF            | (3/4" GHF)           |
| Accessory Port (1) (Inlet).....  | 1/4" NPTF           | (1/4" NPTF)          |
| Discharge Port w/Chemical Injector (1).....                                    | 3/8" NPTM           | (3/8" NPTM)          |
| Chemical Injection Hose Barb.....  | 1/4"                | (1/4")               |
| Shaft Diameter (Hollow).....   | 3/4"                | (19.0 mm)            |
| Weight.....  | 10.7 lbs.           | (4.9 kg)             |
| Dimensions.....  | 8.03 x 7.83 x 6.61" | (204 x 199 x 168 mm) |

### ELECTRIC HORSEPOWER REQUIREMENTS

| MODELS    | FLOW        |      | PRESSURE    |             |             |             |             | RPM  |
|-----------|-------------|------|-------------|-------------|-------------|-------------|-------------|------|
|           |             |      | psi<br>1000 | psi<br>1200 | psi<br>1500 | psi<br>2000 | psi<br>2850 |      |
|           | U.S.<br>gpm | lpm  | bar<br>70   | bar<br>85   | bar<br>105  | bar<br>140  | bar<br>196  |      |
| 4DNX25GSI | 2.5         | 9.5  | 1.7         | 2.0         | 2.6         | 3.4         | 4.9         | 3450 |
| 4DNX27GSI | 2.7         | 10.2 | 1.8         | 2.2         | 2.8         | 3.7         | 5.3         | 3450 |

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

$$\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{"Desired" gpm}}{\text{"Desired" rpm}}$$

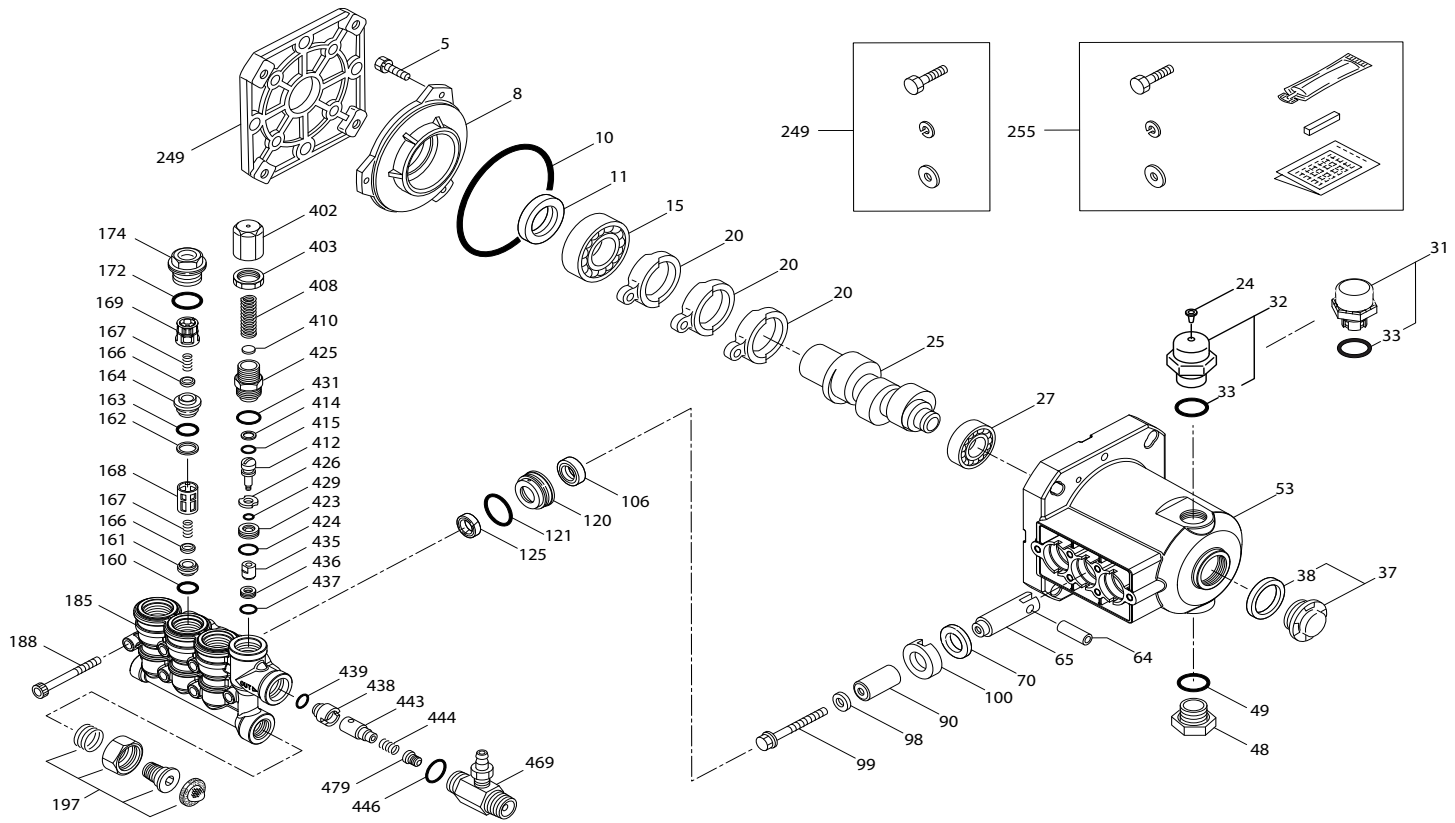
**DETERMINING  
THE REQUIRED H.P.**

$$\frac{\text{gpm} \times \text{psi}}{1460} = \text{Electric Brake H. P. Required}$$

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

# EXPLODED VIEW

December 2012



# PLUNGER PUMP MODELS

4DNX25GSI, 4DNX27GSI

## PARTS LIST

| ITEM | P/N          | MATL      | DESCRIPTION                                 | QTY | ITEM | P/N    | MATL   | DESCRIPTION   | QTY |
|------|--------------|-----------|---|-----|------|--------|--------|---|-----|
| 5    | 549360       | STCP R    | Screw, HH (M6x14)                           | 3   | 106  | 49816  | NBR    | Seal, LPS   | 3   |
| 8    | 547153       | AL        | Cover, Bearing                              | 1   | 120  | 49804  | BB     | Case, Seal  | 3   |
| 10   | 14041        | NBR       | O Ring, Bearing Cover 70D                   | 1   | 121  | 13976  | NBR    | O Ring, Seal Case 70D                                       | 3   |
| 11   | 55337        | NBR       | Seal, Oil 70D                               | 1   | 125  | 49824  | BP     | Seal, HPS   | 3   |
| 15   | 14488        | STL       | Bearing, Ball Inner                         | 1   | 160  | 17428  | NBR    | O Ring, Inlet Seat 80D                                      | 3   |
| 20   | 547048       | TNM       | Rod, Connecting                             | 3   | 161  | 547077 | S      | Seat, Inlet   | 3   |
| 24   | 549608       | LDPE      | Plug, Oil Cap                               | 1   | 162  | 48361  | D      | Back up Ring, Discharge Seat                                | 3   |
| 25   | <b>49883</b> | <b>CM</b> | Crankshaft, 3450 RPM, 3/4", 6.8 mm (4DNX25) | 1   | 163  | 43358  | NBR    | O Ring, Discharge Seat 70D                                  | 3   |
|      | <b>49882</b> | <b>CM</b> | Crankshaft, 3450 RPM, 3/4", 7.2 mm (4DNX27) | 1   | 164  | 547076 | S      | Seat, Discharge   | 3   |
| 27   | 15710        | STL       | Bearing, Ball                               | 1   | 166  | 547098 | S      | Valve   | 6   |
| 31   | 549726       |           | Cap, Vented w/O Ring (Rain Cap)             | 1   | 167  | 46865  | S      | Spring  | 6   |
| 32   | 547961       | RTP       | Cap, Oil Filler w/O Ring                    | 1   | 168  | 543988 | PVDF   | Retainer, Spring, Inlet                                     | 3   |
| 33   | 14179        | NBR       | O Ring, Oil Filler Cap 70D                  | 1   | 169  | 49764  | PVDF   | Retainer, Spring, Discharge                                 | 3   |
| 37   | 92241        |           | Gauge, Bubble Oil w/Gasket                  | 1   | 172  | 142807 | NBR    | O Ring, Plug 90D  | 3   |
| 38   | 44428        | NBR       | Gasket, Flat Flex, Oil Gauge 80D            | 1   | 174  | 547104 | BB     | Plug, Valve w/O Ring (M20x1.5)                              | 3   |
| 48   | 44842        | NY        | Plug, Drain                                 | 1   | 185  | 49763  | BB     | Head, Manifold w/Integral Unloader Body                     | 1   |
| 49   | 14179        | NBR       | O Ring, Drain Plug 70D                      | 1   | 188  | 549357 | STCP R | Screw, HSH (M6x60)  | 6   |
| 53   | 49801        | AL        | Crankcase                                   | 1   | 197  | 941516 | BB     | Assy, GH, 3/8"  | 1   |
| 64   | 46229        | STL       | Pin, Crosshead                              | 3   | 249  | 30520  |        | Assy, Adapter Mount   | 1   |
| 65   | 542402       | BB        | Rod, Plunger                                | 3   | 255  | 30516  | STZP R | Assy, Bolt Mount  | 1   |
| 70   | 47215        | NBR       | Seal, Oil 70D                               | 3   | 283  | 990394 |        | Kit, Oil Drain (Not Shown)                                  | 1   |
| 90   | 547091       | CC        | Plunger (M14x25.5)                          | 3   | 300  | 76975  | NBR    | Kit, Seal (Incls: 98,106,121,125)                           | 1   |
| 98   | 46730        | NBR       | Washer, Seal 90D                            | 3   | 310  | 76976  | NBR    | Kit, Valve (Incls: 160,161,162,163,164,166,167,168,169,172) | 1   |
| 99   | 542405       | S         | Retainer, Plunger (M6x35)                   | 3   | 400  |        |        | Unloader, Integral (See Individual Parts)                   | 1   |
| 100  | 46233        | D         | Retainer, Seal                              | 3   | 469  | 7332   | BB     | Injector, Chemical Fixed                                    | 1   |

**Bold Part Numbers are unique to a particular pump model. Italics are optional items.** [ ] Date of latest production change. R Components comply with RoHS Directive.

View Tech Bulletins 002, 024, 036, 043, 055, 074 and 083 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BP=Special Poly Blend 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 STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength

NOTE: Discard Key which may come standard with most motors and **use only the key included in this kit.**

Center raised pilot guide on the **Adapter Plate** assures proper alignment of pump and engine. Before mounting pump onto engine inspect engine for **recessed seal and bearing guide** to permit adapter to completely seat into recess and four bosses to be flush with engine face.

# INTEGRAL UNLOADER

## SPECIFICATIONS

|  | U.S. Measure | Metric Measure |
|--|--------------|----------------|
| Flow .....                               | 3.0 gpm      | (11.4 lpm)     |
| PSI Range.....                           | 100 2850 psi | (7 196 bar)    |
| Inlet Port .....                         | 3/4" GHF     | (3/4" GHF)     |
| Discharge Port w/Chemical Injector ..... | 3/8" NPTM    | (3/8" NPTM)    |

# 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 operation. Liquid must flow through the pump without discharge restriction to assure full system pressure is reached.

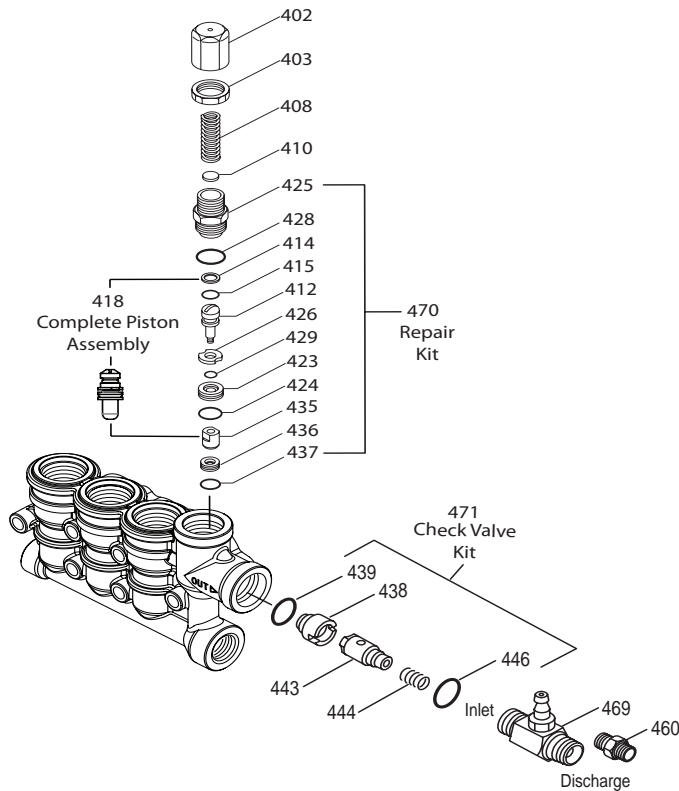
Install a pressure gauge close to the manifold head of the pump to assist in setting system pressure and to periodically monitor system pressure.

Setting and adjusting the regulator 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, 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.

**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 4DNX Service Manual for start-up, servicing of seals and valves, torque requirements and diagnosis and maintenance chart.



## PARTS LIST

| ITEM | PN     | MATL   | DESCRIPTION   | QTY |
|------|--------|--------|---|-----|
| 402  | 547798 | BB     | Cap, Adjusting  | 1   |
| 403  | 45070  | BB     | Nut, Lock (M18 x 1)   | 1   |
| 408  | 32094  | STZP R | Spring, Pressure  | 1   |
| 410  | 549352 | STCP R | Retainer, Spring  | 1   |
| 412  | 45694  | S      | Stem, Piston  | 1   |
| 414  | 20184  | PTFE   | Back up Ring, Piston Stem   | 1   |
| 415  | 14190  | NBR    | O Ring, Piston Stem 70D   | 1   |
| 418  |        | BB     | Assy, Piston Included In Repair Kit                                 | 1   |
| 423  | 46249  | BB     | Retainer, Valve   | 1   |
| 424  | 13966  | NBR    | O Ring, Valve Retainer (Outer) 70D                                  | 1   |
| 425  | 547799 | BB     | Retainer, Piston  | 1   |
| 426  | 46250  | S      | Washer  | 1   |
| 428  | 26133  | NBR    | O Ring, Piston Retainer 80D   | 1   |
| 429  | 17399  | NBR    | O Ring, Valve Retainer (Inner) 80D                                  | 1   |
| 435  | 547800 | S      | Valve   | 1   |
| 436  | 49664  | S      | Seat  | 1   |
| 437  | 13963  | NBR    | O Ring, Seat 70D  | 1   |
| 438  | 46254  | NY     | Seat, Check Valve   | 1   |
| 439  | 13963  | NBR    | O Ring, Check Valve Seat 70D  | 1   |
| 443  | 49765  | D      | Valve, Check  | 1   |
| 444  | 45924  | S      | Spring  | 1   |
| 446  | 26133  | NBR    | O Ring, Body 80D  | 1   |
| 460  | 107681 | BB     | Fitting, Discharge (3/8" NPTM)                                      | 1   |
| 468  | 31767  | NBR    | Kit, O Ring (Incls:414,415,424,428,429,437,439,446)                 | 1   |
| 469  | 7332   | BB     | Injector, Chemical Fixed  | 1   |
| 470  | 76179  | NBR    | Kit, Repair (Incls:412,414,415,423,424,425,426,428,429,435,436,437) | 1   |
| 471  | 76146  | NBR    | Kit, Check Valve (Incls:438,439,443,444,446)                        | 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 STCP=Steel/Chrome Plated  
STZP=Steel/Zinc Plated

# 7332 FIXED CHEMICAL INJECTOR

## SPECIFICATIONS

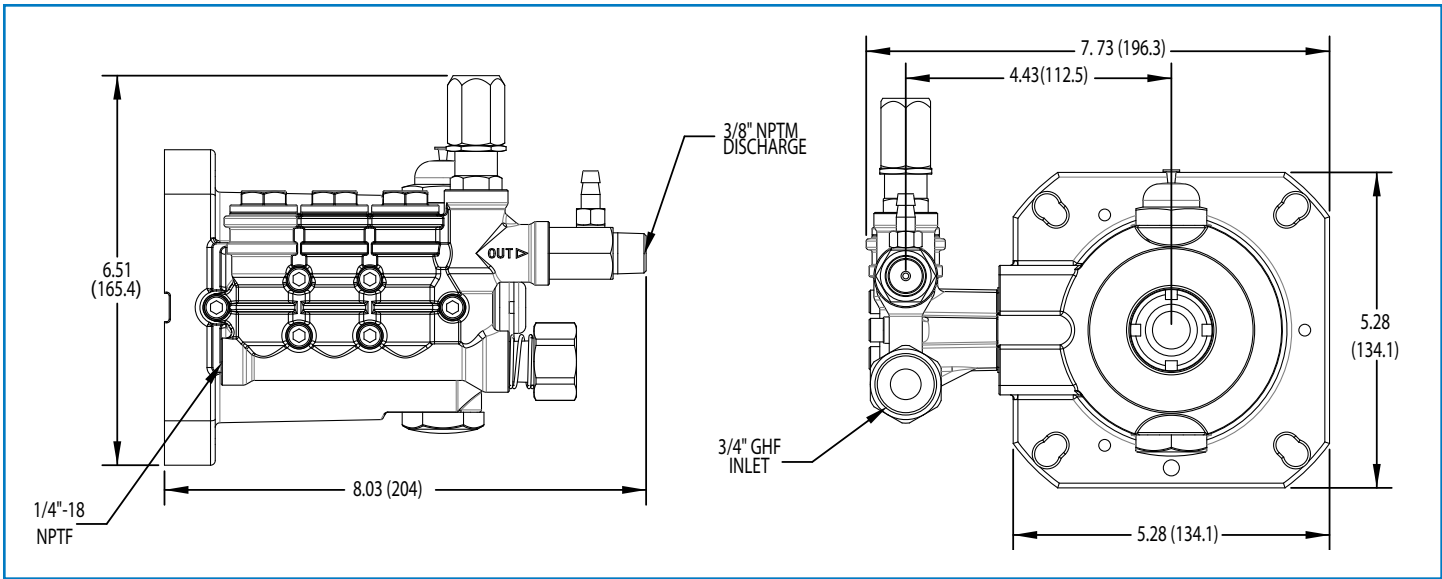
|                      | U.S. Measure  | Metric Measure    |
|----------------------|---------------|-------------------|
| Flow .....           | 3.0 gpm       | (11.4 lpm)        |
| Nozzle Orifice.....  | 2.1 mm        | (2.1 mm)          |
| Hose Barb .....      | 1/4"          | (1/4")            |
| Inlet Port .....     | M18 x 1.0     | (M18 x 1.0)       |
| Discharge Port ..... | 3/8" NPTM     | (3/8" NPTM)       |
| Weight .....         | 5.3 oz.       | (0.15kg)          |
| Dimensions .....     | 2 x 1 x 1.75" | (52 x 25 x 45 mm) |

## CHEMICAL INJECTOR PERFORMANCE CHART

| Orifice Size | Maximum Injecting Pressure | Maximum Chemical Draw | Pressure Drop Across Injector At System Pressure (2850 psi) |
|--------------|----------------------------|-----------------------|---|
| 2.1 mm       | 250 psi                    | 37.2 oz/min           | 141 psi   |

Optimum performance of chemical injector occurs with 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 pressure 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.



Models 4DNX25GSI, 4DNX27GSI



**CAT PUMPS**  
 1681 - 94TH LANE N.E. MINNEAPOLIS, MN 55449-4324  
 PHONE (763) 780-5440 — FAX (763) 780-2958  
 e-mail: techsupport@catpumps.com  
 www.catpumps.com