

Gas engine must be purchased separately.

FEATURES

- Triplex plunger design provides a smooth liquid flow.
- Specially formulated V-Packings 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 or can be requested directly from CAT PUMPS.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.

Direct-Drive Plunger Pumps

Models

3DNX25GSI 3DNX27GSI

SPECIFICATIONS

MODEL 3DNX25GSI

| | 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 3DNX27GSI

| | | |
|---------------------------------|----------|------------|
| 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)..... | 1/4" NPTF | (1/4" NPTF) |
| Discharge Port (1)..... | M18 x 1.0 | (M18 x 1.0) |
| Chemical Discharge Port (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

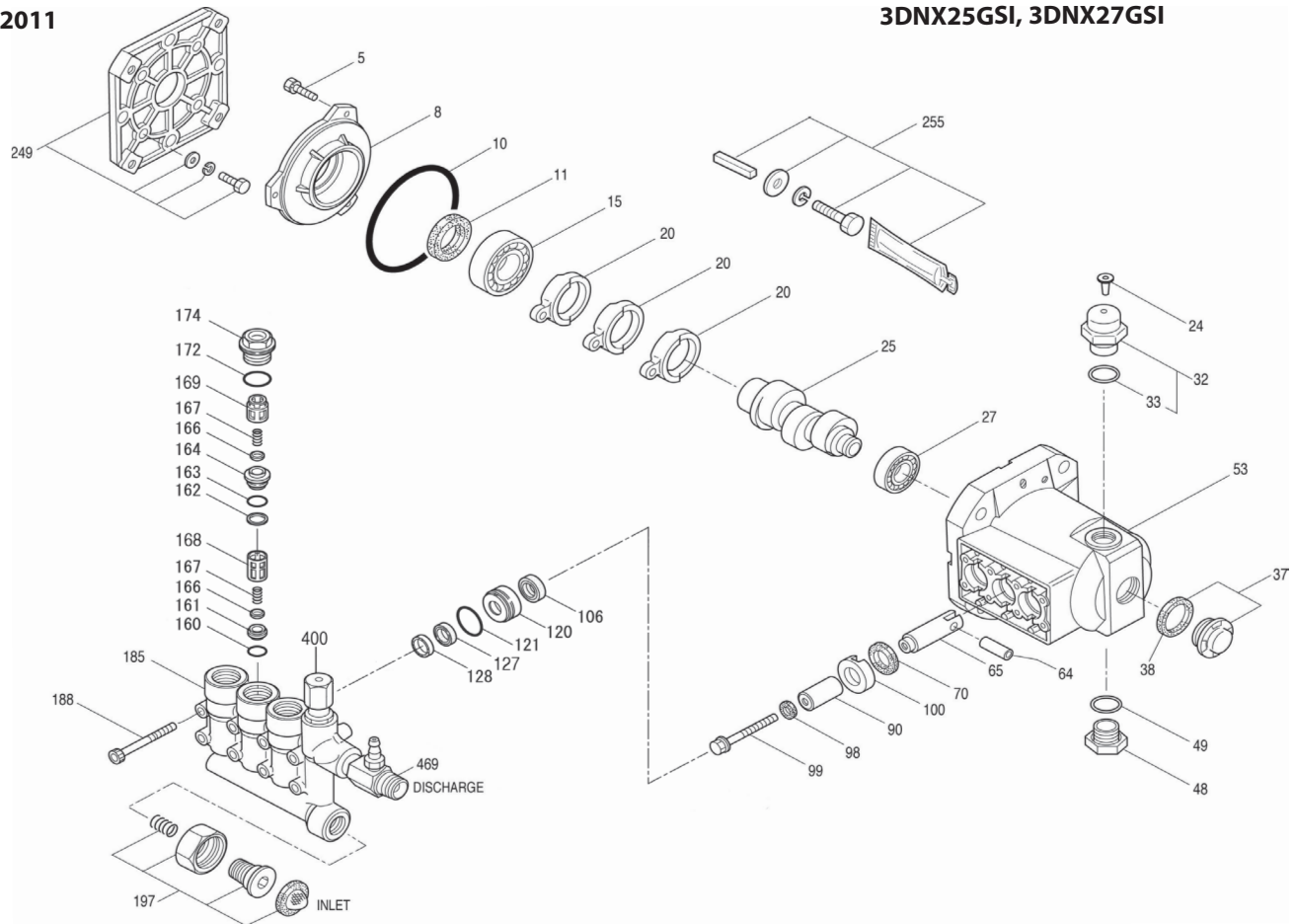
| MODELS | FLOW | | PRESSURE | | | | | RPM |
|------------------|-------------|------|-------------|-------------|-------------|-------------|-------------|------|
| | | | psi 1000 | psi 1200 | psi 1500 | psi 2000 | psi 2850 | |
| | U.S. gpm | lpm | bar 70 | bar 85 | bar 105 | bar 140 | bar 196 | |
| 3DNX25GSI | 2.5 | 9.5 | 1.7 | 2.0 | 2.6 | 3.4 | 4.9 | 3450 |
| 3DNX27GSI | 2.7 | 10.2 | 1.8 | 2.2 | 2.8 | 3.7 | 5.3 | 3450 |

| | | | |
|--------------------------------------|-------------------|---|-------------------------------|
| DETERMINING THE PUMP R.P.M. | Rated gpm | = | "Desired" gpm |
| | Rated rpm | = | "Desired" rpm |
| DETERMINING THE REQUIRED H.P. | gpm x psi | = | Electric Brake H. P. Required |
| | 1460 | = | |
| DETERMINING MOTOR PULLEY SIZE | Motor Pulley O.D. | = | Pump Pulley O.D. |
| | Pump rpm | = | Motor rpm |

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

EXPLODED VIEW

April 2011



PLUNGER PUMP MODELS

3DNX25GSI, 3DNX27GSI

PARTS LIST

| ITEM | P/N | MATL | DESCRIPTION | QTY | ITEM | P/N | MATL | DESCRIPTION | QTY |
|------|---------------|-----------|------------------------------------|-----|------|--------|--------|---|-----|
| 5 | 549360 | STCP R | Screw, HH (M6x14) | 3 | 127 | 547082 | SNG | V-Packing | 3 |
| 8 | 547153 | AL | Cover, Bearing | 1 | 128 | 547083 | PVDF | Adapter, Male | 3 |
| 10 | 14041 | NBR | O-Ring, Bearing Cover - 70D | 1 | 160 | 17428 | NBR | O-Ring, Inlet Seat - 80D | 3 |
| 11 | 55337 | NBR | Seal, Oil - 70D | 1 | 161 | 547077 | S | Seat, Inlet | 3 |
| 15 | 14488 | STL | Bearing, Ball - Inner | 1 | 162 | 48361 | D | Back-up Ring, Discharge Seat | 3 |
| 20 | 547048 | TNM | Rod, Connecting | 3 | 163 | 43358 | NBR | O-Ring, Discharge Seat - 70D | 3 |
| 24 | 549608 | LDPE | Plug, Oil Cap | 1 | 164 | 547076 | S | Seat, Discharge | 3 |
| 25 | 549446 | CM | Crankshaft, 3450 RPM, 3/4", 6.8 mm | 1 | 166 | 547098 | S | Valve | 6 |
| | 548558 | CM | Crankshaft, 3450 RPM, 3/4", 7.2 mm | 1 | 167 | 46865 | S | Spring | 6 |
| 27 | 56084 | STL | Bearing, Ball | 1 | 168 | 543988 | 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, Oil Filler Cap - 70D | 1 | 172 | 142807 | NBR | O-Ring, Plug - 90D | 3 |
| 37 | 92241 | — | Gauge, Bubble Oil w/Gasket | 1 | 174 | 547078 | BB | Plug, Valve (M20x15) | 3 |
| 38 | 44428 | NBR | Gasket, Flat Flex, Oil Gauge - 80D | 1 | 185 | 548509 | BB | Head, Manifold w/Integral Regulator Body | 1 |
| 48 | 44842 | NY | Plug, Drain | 1 | 188 | 542406 | STZP | Screw, HSH (M6x60) | 8 |
| 49 | 14179 | NBR | O-Ring, Drain Plug - 70D | 1 | | 549357 | STCP R | Screw, HSH (M6x60) | 8 |
| 53 | 548062 | AL | Crankcase | 1 | 197 | 941516 | BB | Assy, GH, 3/8" | 1 |
| 64 | 46229 | STL | Pin, Crosshead | 3 | | — | — | Nut, Swivel (3/4"FGH) | 1 |
| 65 | 542402 | BB | Rod, Plunger | 3 | | — | — | Fitting, (3/8" NPTM) | 1 |
| 70 | 47215 | NBR | Seal, Oil - 70D | 3 | | — | — | Screen, Inlet | 1 |
| 90 | 547091 | CC | Plunger (M14x25.5) | 3 | | — | — | Spring | 1 |
| 98 | 46730 | NBR | Washer, Seal - 90D | 3 | 249 | 30520 | — | Assy, Adapter Mount | 1 |
| 99 | 542405 | S | Retainer, Plunger (M6x35) | 3 | 255 | 30516 | STZP R | Assy, Bolt Mount | 1 |
| 100 | 46233 | D | Retainer, Seal | 3 | 283 | 990394 | — | Kit, Oil Drain (Not Shown) | 1 |
| 106 | 45188 | NBR | Seal, LPS w/S-Spg | 3 | 300 | 31684 | NBR | Kit, Seal (Incls: 98,106,121,127,128) | 1 |
| 120 | 548559 | BB | Case, Seal | 3 | 310 | 31647 | NBR | Kit, Valve (Incls: 160,161,162,163,164,166,167,168,169,172) | 1 |
| 121 | 13976 | NBR | O-Ring, Seal Case - 70D | 3 | 400 | — | — | Unloader, Integral (See Individual Parts) | 1 |
| | | | | | 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 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) STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength

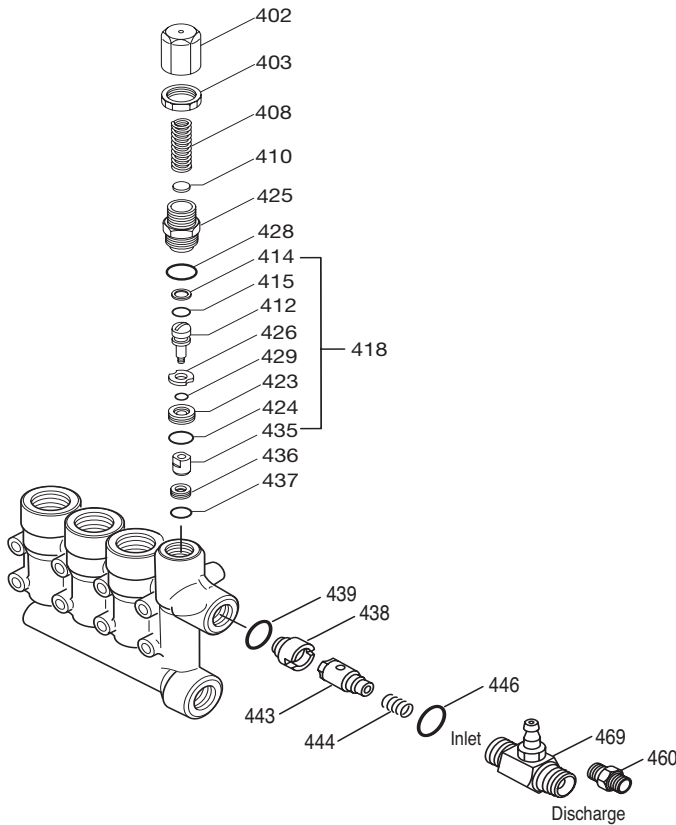
NOTE: Discard Key which may come standard with most motors and **use only the key included in this kit.**

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 | M18 x 1.0 | (M18 x 1.0) |



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 | 811528 | BB | Assy, Piston <i>(Incls: 412,414,415,423,424,426,429,435)</i> | 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 | 541060 | BB | Valve, Check w/O-Ring | 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 <i>(Incls:414,415,424,428,429,437,439,446)</i> | 1 |
| — | 31465 | NBR | Kit, Repair <i>(Incls:412,414,415,423,424,425,426,428,429,435)</i> | 1 |
| 469 | 7332 | BB | Injector, Chemical Fixed | 1 |

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

MATERIAL CODES (Not Part of Part Number):

BB=Brass NBR=Medium Nitrile (Buna-N) NY=Nylon

PTFE=Pure Polytetrafluoroethylene S=304SS STCP=Steel/Chrome Plated

STZP=Steel/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 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 3DNX Service Manual for start-up, servicing of seals and valves, torque requirements and diagnosis and maintenance chart.

7332 FIXED CHEMICAL INJECTOR

SPECIFICATIONS

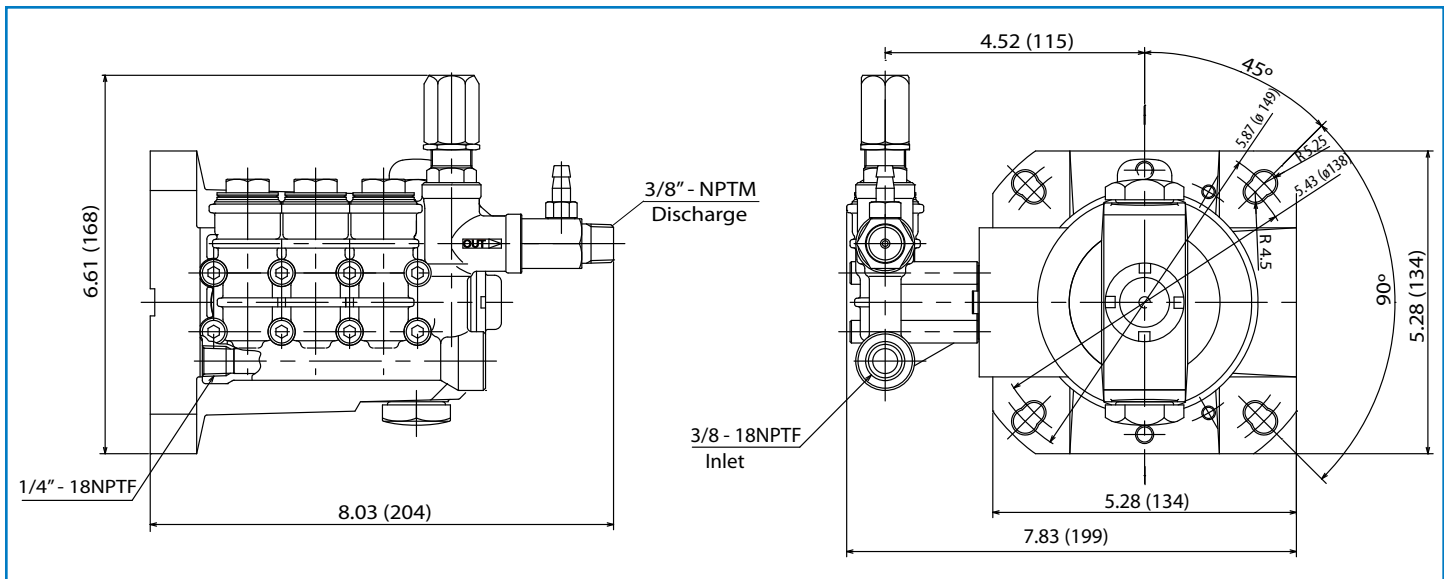
| | U.S. Measure | Metric Measure |
|----------------------|---------------|-------------------|
| Flow..... | 3.0 gpm | (11.4 lpm) |
| Nozzle Orifice..... | 2.1 mm | (2.1 mm) |
| Hose Barb | 1/4" | (1/4") |
| Inlet Port | M18 x 1.0 | (M18 x 1.0) |
| Discharge Port | 3/8" NPTM | (3/8" NPTM) |
| Weight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

CHEMICAL INJECTOR PERFORMANCE CHART

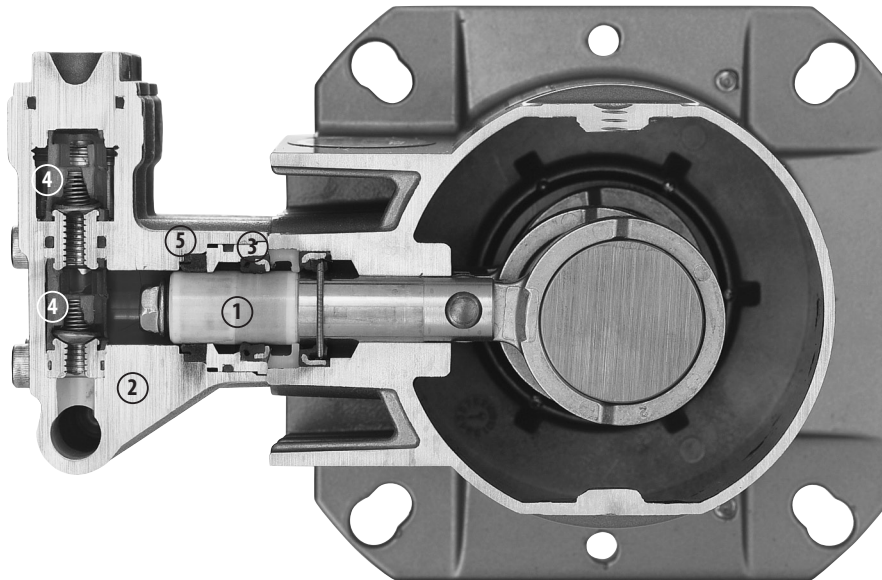
| Orifice Size | Maximum Injecting Pressure | Maximum Chemical Draw | Pressure Drop Across Injector At System Pressure (2850 psi) |
|--------------|----------------------------|-----------------------|---|
| 2.1 mm | 250 psi | 37.2 oz/min | 141 psi |

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 3DNX25GSI, 3DNX27GSI



- 1 Special, concentric, high-density, polished solid ceramic **plungers** provide a true wear surface and extended seal life.
- 2 High tensile strength, forged brass **manifold head** with built-in integral unloader and eight mounting screws for exceptional strength.
- 3 100% wet **seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
- 4 Stacked **Valve assemblies** include stainless steel valves, seats and springs to provide corrosion-resistance, ultimate seating and extended life.
- 5 Unique design and specially formulated **V-Packings** offer unmatched performance and seal life.



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