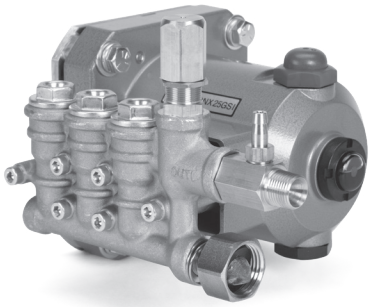
DATA SHEET
DIRECT DRIVE PLUNGER PUMPS

CAT PUMPS®
The Pumps with Nine Lives

Brass Models: 4DNX25GSI, 4DNX27GSI



Model 4DNX25GSI Shown

SPECIFICATIONS	U.S. Measure	Metric Measure
4DNX25GSI		
Flow	2.5 gpm	9.5 lpm
Max. Discharge Pressure	3000 psi	207 bar
Maximum RPM	3450 rpm	3450 rpm
Stroke	0.268"	6.8 mm
4DNX27GSI		
Flow	2.7 gpm	10.2 lpm
Max. Discharge Pressure	3000 psi	207 bar
Maximum RPM	3450 rpm	3450 rpm
Stroke	0.280"	7.2 mm

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- Compact flange mount permits easy, direct mounting to most gas engines*
- Integral regulating unloader with built-in bypass ensures system pressure control and pump protection.
- Stacked stainless steel valve design promotes long-life and easy servicing.
- Fixed chemical injector aids in cleaning flexibility.
- Swivel garden hose fitting provides easy inlet connection.
- Includes crankcase oil.

*Gas Mounting Flange: SAE J609, Flange A, Extension 3 (¾" Ø), Shaft Length = 2.296", Pilot Ø = 1⅝", BC. Ø = 3⅝", Thread ⅝" - 24 UNC TAP

COMMON SPECIFICATIONS	U.S.	Metric
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4.1 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 Port	¾" GHF	¾" GHF
Accessory Port (Inlet)	¼" NPT(F)	¼" NPT(F)
Discharge Port with Chemical Injector	⅜" NPT(M)	⅜" NPT(M)
Chemical Injection Hose Barb	¼"	¼"
Shaft Diameter (Hollow)	¾"	19.0 mm
Weight	10.7 lbs	4.9 kg
Dimensions	8.03 x 7.73 x 6.51"	204 x 196 x 165 mm

TORQUE AND HORSEPOWER REQUIREMENTS

MODELS	FLOW		PRESSURE						PUMP RPM
	GPM	LPM	PSI	BAR	PSI	BAR	PSI	BAR	
			2000	138	2500	172	3000	207	
Torque									
4DNX25GSI	2.5	9.5	5.2 ft-lbs		6.5 ft-lbs		7.8 ft-lbs		3450
4DNX27GSI	2.7	10.2	5.6 ft-lbs		7.0 ft-lbs		8.5 ft-lbs		3450
Horsepower*									
4DNX25GSI	2.5	9.5	4.4 hp		5.5 hp		6.6 hp		3450
4DNX27GSI	2.7	10.2	4.7 hp		5.9 hp		7.1 hp		3450

*HP is for estimate only. Torque values of the engine at given rpm should be used to determine correct size of engine.
Consult engine manufacture for actual torque available at required speed.

DETERMINING THE PROPER TORQUE

$$\text{Torque (ft-lbs)} = 3.6 \times \frac{\text{gpm} \times \text{psi}}{\text{rpm}}$$

DETERMINING THE REQUIRED HP

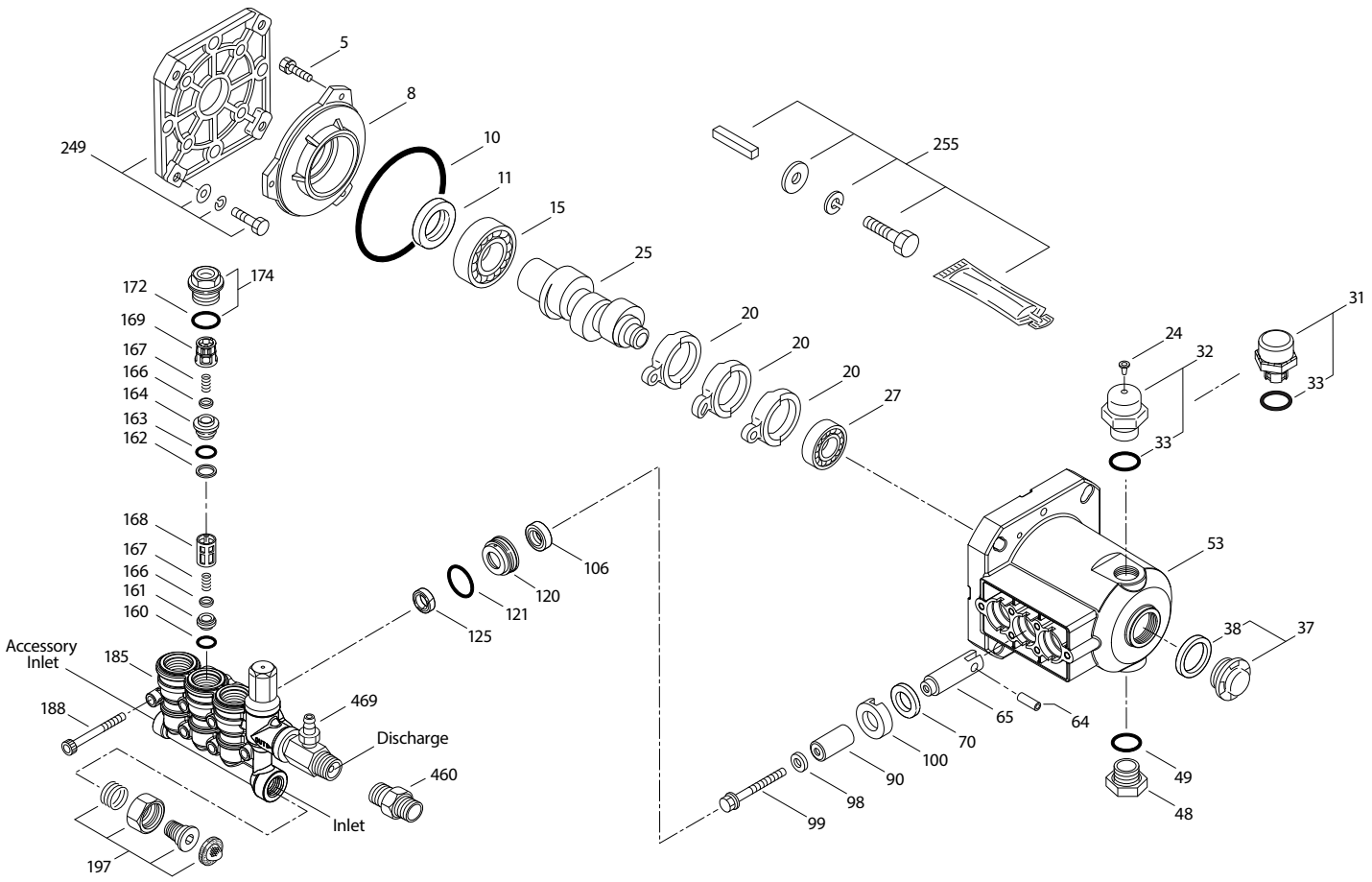
$$\text{Engine hp (Estimated)} = \frac{\text{gpm} \times \text{psi}}{1140}$$

DETERMINING THE PUMP RPM

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

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

EXPLODED VIEW



PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY
5	549360	STCP R	Screw, HH (M6 x 14) (See Tech Bulletin 074)	3
8	547153	AL	Cover, Bearing	1
10	14041	NBR	O-Ring, Bearing Cover–70D	1
11	55337	NBR	Seal, Oil	1
15	14488	STL	Bearing, Ball, Inner	1
20	547048	TNM	Rod, Connecting	3
24	549608	LDPE	Plug, Oil Cap	1
25	**49883**	CM	Crankshaft, ¾", (6.8 mm) (Model 4DNX25GSI)	1
	49882	CM	Crankshaft, ¾", (7.2 mm) (Model 4DNX27GSI)	1
27	15710	STL	Bearing, Ball, Outer	1
31	549726	—	Cap, Vented with O-Ring (Rain Cap)	1
32	547961	RTP	Cap, Oil Filler with O-Ring	1
33	14179	NBR	O-Ring, Oil Filler Cap–70D	1
37	92241	PC	Gauge, Bubble Oil with Gasket (See Tech Bulletin 074)	1
38	44428	NBR	Gasket, Flat Flex, Oil Gauge–80D	1
48	44842	NY	Plug, Drain	1
49	14179	NBR	O-Ring, Drain Plug–70D	1
53	49801	AL	Crankcase	1
64	46229	CM	Pin, Crosshead	1
65	542402	BB	Rod, Plunger	3
70	47215	NBR	Seal, Oil	3
90	547091	CC	Plunger (M14 x 25.5)	3
98	46730	NBR	Washer, Seal–90D	3
99	542405	S	Retainer, Plunger (M6 x 35) (See Tech Bulletin 074)	3
100	46233	D	Retainer, Seal	3
106	49816	NBR	Seal, Low-Pressure	3

ITEM	P/N	MATL	DESCRIPTION	QTY
120	49804	BB	Case, Seal	3
121	13976	NBR	O-Ring, Seal Case–70D	3
125	49824	BP	Seal, High-Pressure	3
160	17428	NBR	O-Ring, Inlet Seat–80D	3
161	547077	S	Seat, Inlet	3
162	48361	D	Backup Ring, Discharge Seat	3
163	670085	NBR	O-Ring, Discharge Seat–90D	3
164	547076	S	Seat, Discharge	3
166	547098	S	Valve	6
167	134579	S	Spring	6
168	543988	PVDF	Retainer, Spring, Inlet	3
169	49764	PVDF	Retainer, Spring, Discharge	3
172	142807	NBR	O-Ring, Plug–90D	3
174	547104	BB	Plug, Valve with O-Ring (M20 x 1.5) (See Tech Bulletin 074)	3
185	49763	BB	Head, Manifold with Integral Unloader Body	1
188	549357	STCP R	Screw, HSH (M6 x 60) (See Tech Bulletin 074)	6
197	941516	BB	Assembly, Garden Hose (⅜" NPT[M] x ¾" GH[F])	1
249	30520	—	Assembly, Adapter Mount	1
255	30516	STZP R	Assembly, Bolt Mount	1
283	*990394*	—	*Kit, Oil Drain (Not Shown)*	*1*
300	*76975*	*NBR*	*Kit, Seal (Includes: 98, 106, 121, 125)*	*1*
310	*76976*	*NBR*	*Kit, Valve (Includes: 160–164, 166–169, 172)*	*1*
400	—	—	*Unloader, Integral (See Individual Parts)*	*1*
460	*107681*	*BB*	*Fitting, Discharge (⅜" NPT[M])*	*1*
469	7332	BB	Injector, Chemical Fixed	1

Bold Part Numbers are unique to a particular pump model. *Italics are optional items.*

R Components comply with RoHS Directive. For additional technical information see www.catpumps.com/literature/tech-bulletins.

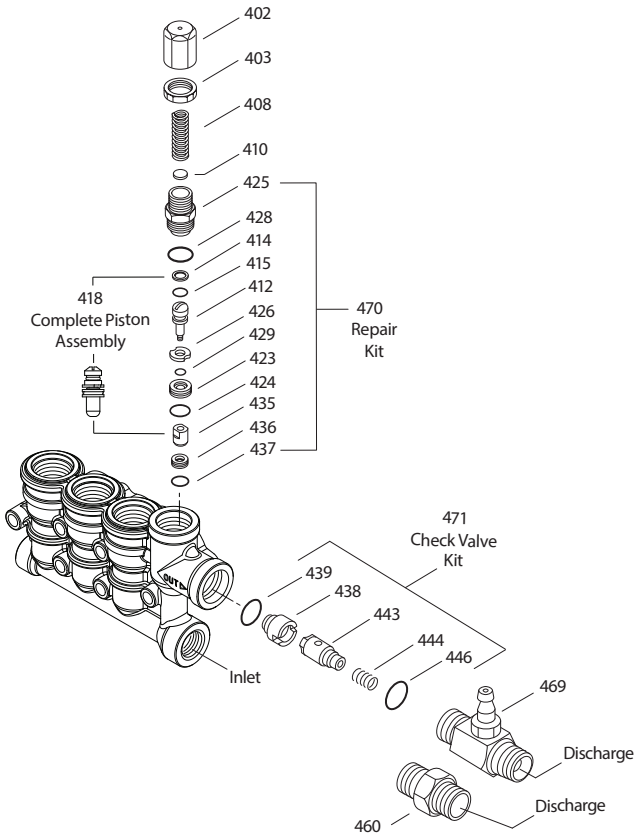
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BP=Special Poly-Blend CC=Ceramic CM-Chrome-moly D=Acetal LDPE=Low Density Polyethylene NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS STL=Steel STCP=Steel/Chrome Plated 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** ensures 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.	Metric
Flow	3.0 gpm	11.4 lpm
PSI Range	100–3000 psi	6.9–207 bar
Inlet Port	¾" GHF	¾" GHF
Discharge Port	⅜" NPT(M)	⅜" NPT(M)



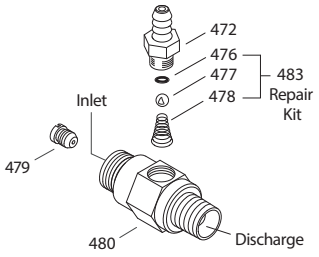
PARTS LIST

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 (M5)	1
414	20184	PTFE	Backup Ring, Piston Stem	1
415	14190	NBR	O-Ring, Piston Stem–70D	1
418	—	*BB*	*Assembly, 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/Ball Assembly	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 (⅜" NPT[M])*	*1*
468	*31767*	*NBR*	*Kit, O-Ring (Includes: 414, 415, 424, 428, 429, 437, 439, 446)*	*1*
469	7332	BB	Injector, Chemical Fixed	1
470	*76179*	*NBR*	*Kit, Repair (Includes: 418, 425, 428, 436, 437)*	
471	*† 76146*	*NBR*	*Kit, Check Valve (Includes: 438, 439, 443, 444, 446)*	*1*

Italics are optional items. R Components comply with RoHS Directive.
† Product parts are different than repair parts. 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

MODEL 7332 FIXED CHEMICAL INJECTOR

SPECIFICATIONS	U.S.	Metric
Flow	3.0 gpm	11.4 lpm
Nozzle Orifice	2.1 mm	2.1 mm
Hose Barb	¼"	¼"
Inlet Port	M18 x 1.0	M18 x 1.0
Discharge Port	⅜" NPT(M)	⅜" NPT(M)
Weight	5.3 oz	0.15 kg
Dimensions	2 x 1 x 1.75"	52 x 25 x 45 mm



PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY
472	49132	BB	Barb, Fix	1
476	—	NBR	O-Ring, Barb–70D	1
477	—	S	Ball	1
478	—	S	Spring	1
479	—	S	Orifice	1
480	—	BB	Body	1
483	*76176*	*NBR*	*Kit, Repair (Includes: 476, 477, 478)*	*1*

MATERIAL CODES (Not Part of Part Number):
BB=Brass NBR=Medium Nitrile (Buna-N) S=304SS

PERFORMANCE CHART

Orifice Size	Maximum Injecting Pressure	Minimum Chemical Draw	Pressure Drop Across Orifice
1.8 mm	100 psi	52 oz/min	100 psi

NOTE: Optimum performance of Chemical Injector occurs with a 35 ft. high-pressure hose with a minimum ⅜" ID. The type of hose, extended lengths, reduced ID and fittings may create additional backpressure above the maximum injecting pressure rating of the injector and prevent it from drawing chemicals.

UNLOADER TYPE

An integral unloader with built-in bypass 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.

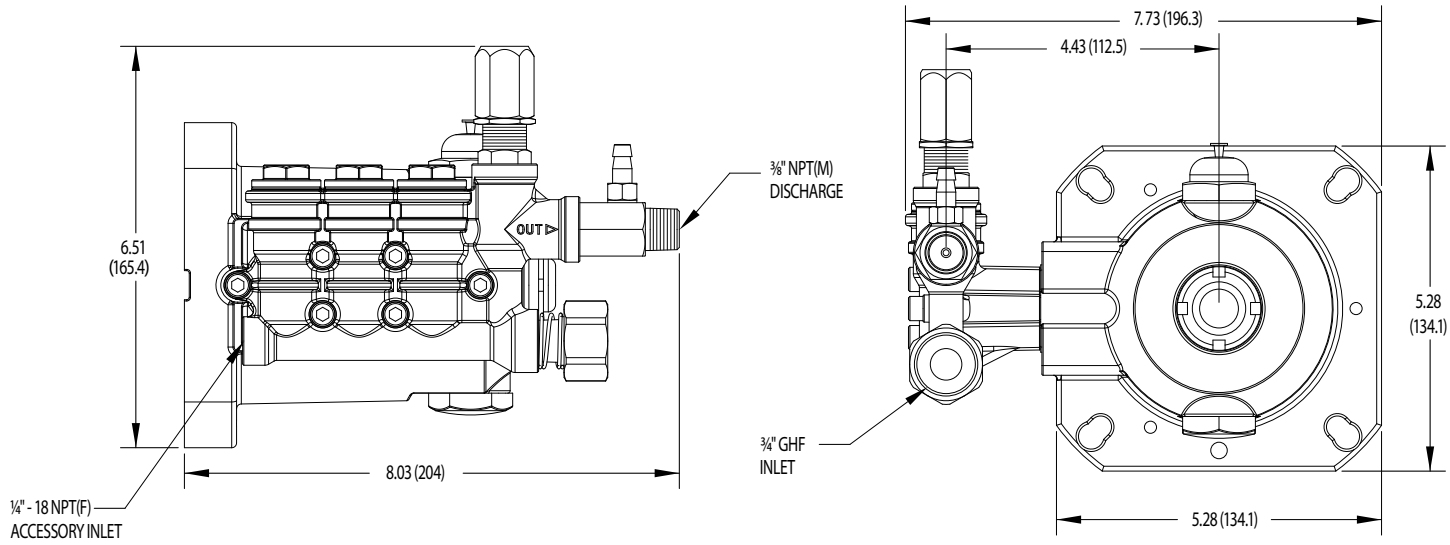
OPERATION:

Pump should be purged of air before commencing operation. Liquid must flow through the pump without discharge restriction to ensure 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 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 lock 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, 4DX, 4SPX Service Manual for start-up, servicing of seals and valves, torque requirements and diagnosis and maintenance chart.



⚠ CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (e.g. regulator, unloader) and a secondary pressure relief device (e.g. 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/dynamic-literature/cautions-and-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty online at www.catpumps.com/literature/cat-pumps-limited-warranty

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