

Gas engine must be purchased separately.

## PUMP FEATURES

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

### **⚠ 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.

## Direct-Drive Plunger Pumps

# Models 3DX30GSI

## SPECIFICATIONS

U.S. Measure

Metric Measure

### MODEL 3DX30GSI\*

Flow.....	3.0 GPM	(11.4 L/M)
Max. Discharge Pressure.....	2500 PSI	(175 BAR)
Inlet Pressure Range.....	Flooded to 60 PSI	(Flooded to 4 Bar)
RPM.....	3450 RPM	(3450 RPM)
Bore.....	0.630"	(16 mm)
Stroke.....	0.244"	(6.2 mm)
Max. Liquid Temperature.....	140°F	(60°C)
Crankcase Capacity.....	8.5 oz.	(0.25 L)
Inlet Port (1).....	3/4" GHF	(3/4" GHF)
Discharge Port (1).....	M18x1.0	(M18x1.0)
Chemical Discharge Port (1).....	3/8" NPTM	(3/8" NPTM)
Chemical Injection Barb.....	8/32" UNF	(8/32" UNF)
Shaft Diameter.....	3/4"	(19.0 mm)
Weight.....	10.7 lbs.	(4.9 kg)
Dimensions (Pump Only).....	7.99 x 7.75 x 6.29"	(203 x 197 x 160 mm)

\*Call CAT PUMPS for additional models.

## HORSEPOWER REQUIREMENTS

FLOW		PRESSURE					RPM
		PSI 1000	PSI 1200	PSI 1500	PSI 2000	PSI 2500	
U.S. GPM	L/M	BAR 70	BAR 85	BAR 105	BAR 140	BAR 175	
3.0	11.4	2.1	2.5	3.1	4.1	5.2	3450

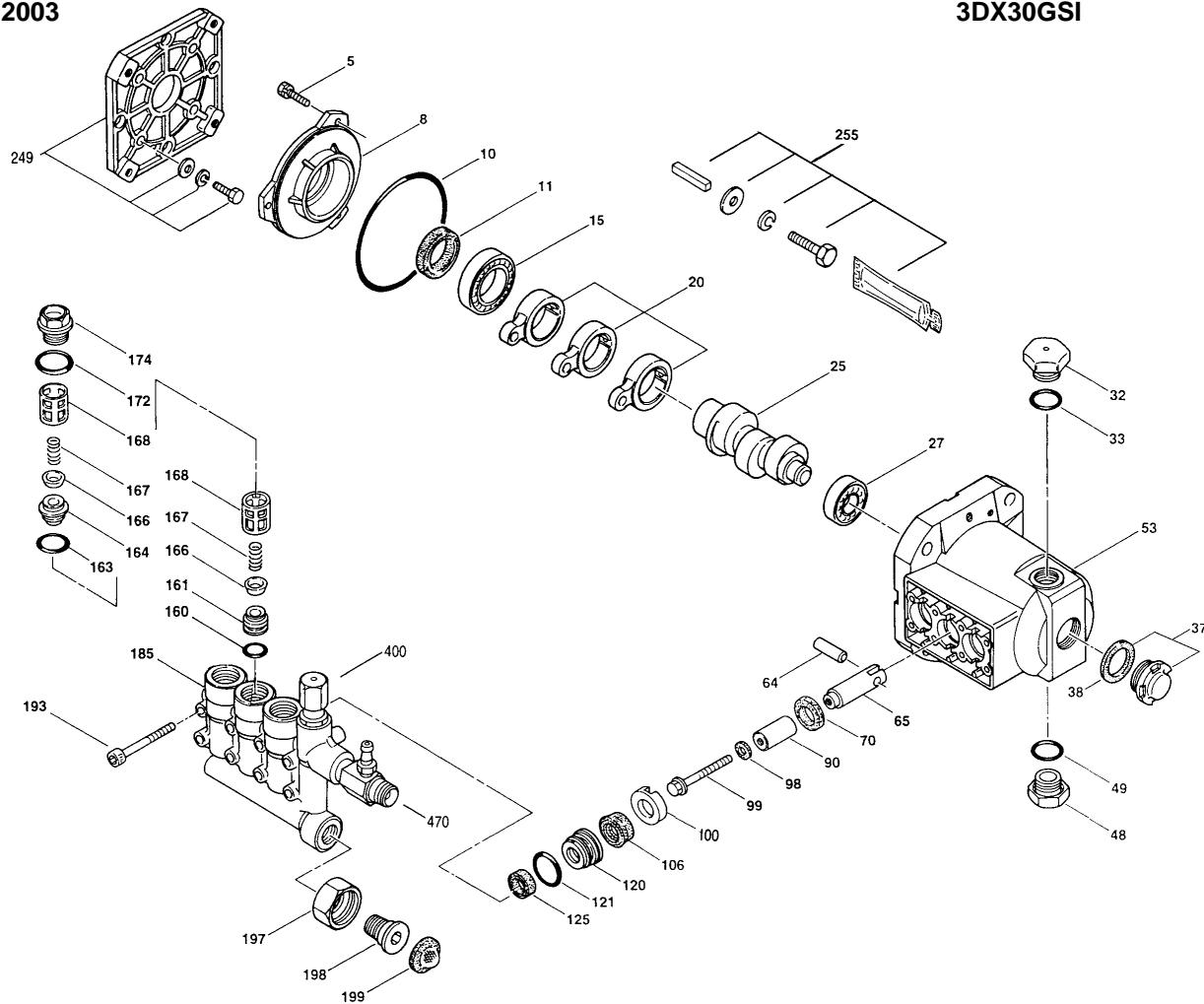
<b>DETERMINING THE PUMP R.P.M.</b>	<u>Rated G.P.M.</u>	=	<u>"Desired" G.P.M.</u>
	<u>Rated R.P.M.</u>		<u>"Desired" R.P.M.</u>
<b>DETERMINING THE REQUIRED H.P.</b>	<u>GPM x PSI</u>	=	Electric Brake
	1460		H. P. Required
<b>DETERMINING MOTOR PULLEY SIZE</b>	<u>Motor Pulley O.D.</u>	=	<u>Pump Pulley O.D.</u>
	<u>Pump R.P.M.</u>		<u>Motor R.P.M.</u>

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

*"Customer confidence is our greatest asset"*

# EXPLODED VIEW

June 2003



# 3DX PLUNGER PUMP MODEL

3DX30GSI

## PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY	ITEM	PN	MATL	DESCRIPTION	QTY
5	817003	STZP	Screw, HHC w/Seal Washer (M6x12)	3	163	19285	NBR	O-Ring, Seat	3
8	46225	AL	Cover, Bearing	1	164	545178	S	Seat, Discharge	3
10	14041	NBR	O-Ring, Bearing Cover - 70D	1	166	46764	S	Valve	6
11	55337	NBR	Seal, Oil	1	167	46865	S	Spring	6
15	14488	STL	Bearing, Ball	1	168	543988	PVDF	Retainer, Spring	6
20	547048	TNM	Rod, Connecting	3	172	142807	NBR	O-Ring, Plug - 90D	3
25	543295	CM	Crankshaft, 3450 RPM, 3/4", 6.2 mm	1	174	46759	BB	Plug, Valve	6
27	13832	STL	Bearing, Ball	1	185	542973	FBB	Head, Manifold w/Modular Unloader Body	1
32	45690	RTP	Cap, Oil Filler	1	193	542406	STZP	Screw, HSH (M6x60)	8
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1	197	46488	BB	Nut, Swivel (3/4" FGHIF)	1
37	92241	—	Gauge, Bubble Oil w/Gasket	1	198	46487	BB	Fitting, (3/8" NPT)	1
38	44428	NBR	Gasket, Flat Flex, Oil Gauge - 80D	1	199	46489	—	Screen, Inlet	1
48	44842	NY	Plug, Drain	1	249	30520	—	Assy, Adapter Mount, Standard, GAS	1
49	14179	NBR	O-Ring, Drain Plug - 70D	1	46271	AL	Flange	1	
53	542407	AL	Crankcase	1	44843	STZP	Screw, HH (5/16"-24UNFx20)	4	
64	46229	CM	Pin, Crosshead	3	15845	STZP	Lockwasher (M8)	4	
65	542402	BBCP	Rod, Plunger	3	12489	STZP	Washer, Flat (M8)	4	
70	47215	NBR	Seal, Oil	3	255	30516	STZP	Assy, Bolt Mount, GAS	1
90	542403	CC	Plunger (M16x27)	3	34100	STZP	Screw, HH (3/8"-16UNCx1-3/8")	4	
98	46730	NBR	Washer, Seal	3	30980	STZP	Washer, Flat (3/8")	4	
99	542405	S	Retainer, Plunger (M6x35)	3	30921	STZP	Lockwasher (3/8")	4	
100	46233	NY	Retainer, Seal	3	6106	—	Lubricant, Antiseize	1	
106	48222	NBR	Seal, LPS w/S-Spg	3	34050	STL	Key (3/16x3/16x27 HD)	1	
120	547357	BB	Case, Seal	3	300	30530	NBR	Kit, Seal (Incls: 98,106,121,125)	1
121	13976	NBR	O-Ring, Seal Case	3	310	33057	NBR	Kit, Valve	1
125	547157	SNG	Seal, HPS w/S	3				(Incls: 160,161,163,164,166,167,168,172)	
160	13965	NBR	O-Ring, Inlet Valve Seat	3	400	—	—	Unloader, Modular (See Individual Parts)	1
161	545177	S	Seat, Inlet	3	470	7232	—	Injector, Chemical	1

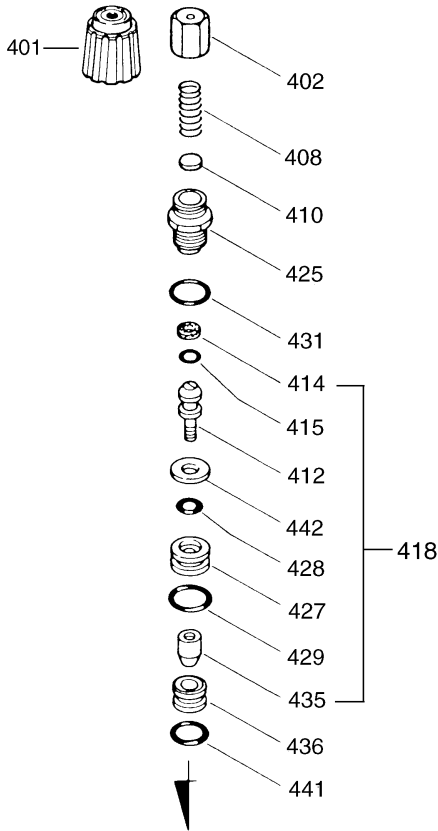
*Italics are optional items.* See Tech Bulletins 02, 024, 036, 043, 055, 074 and 083 for additional information.  
 MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM-Chrome-moly  
 FBB=Forged Brass NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS  
 SNG=Special Blend (Buna) STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength  
 NOTE: Discard Key which may come standard with most engines 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.

## MODULAR UNLOADER

### SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow.....	3.0 GPM	(11.4 L/M)
PSI Range.....	100-2500 PSI	(7-175 BAR)
Inlet Port .....	3/4" GHF	(3/4" GHF)
Discharge Port .....	M18x1.0	(M18x1.0)



### PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY.
401	32088	NY	Handle, Adjustable	1
402	46570	BB	Cap, Adjusting	1
408	33394	STZP	Spring, Coil	1
410	45862	BB	Retainer, Spring	1
412	46251	BB	Stem, Piston	1
414	28338	PTFE	Back-up-Ring, Piston Stem	1
415	22056	NBR	O-Ring, Piston Stem	1
418	545869	BB	Assy, Piston <i>(Incls: 412,414,415,427,428,429,435,442)</i>	1
425	46248	BB	Retainer, Piston	1
427	46249	BB	Retainer, Valve	1
428	17399	NBR	O-Ring, Valve Retainer (Inner) - 80D	1
429	13966	NBR	O-Ring, Valve Retainer (Outer)	1
431	13969	NBR	O-Ring, Piston Retainer - 70D	1
435	46733	S	Valve	1
436	547071	S	Seat	1
441	13963	NBR	O-Ring, Seat	1
442	46250	SS	Washer	1
468	33099	NBR	Kit, O-Ring <i>(Incls: 414,415,428,429,431,441)</i>	1
—	30378	NBR	Kit, Repair <i>(Incls: 418,431,436,441)</i>	1

*Italics are optional items.*

MATERIAL CODES (Not Part of Part Number): BB=Brass

NBR=Medium Nitrile (Buna-N) NY=Nylon PTFE=Pure Polytetrafluoroethylene  
S=304SS SS=316SS STZP=Steel/Zinc Plated

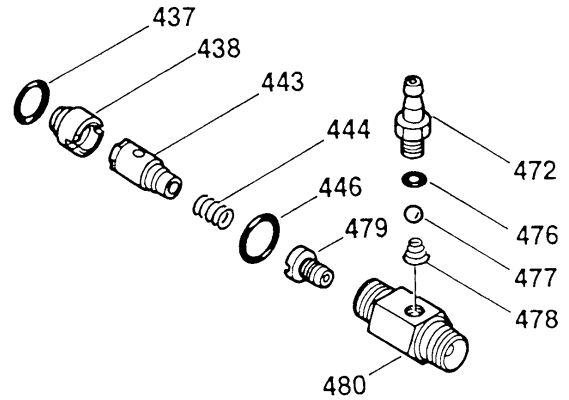
The modular Regulating Unloader with built-in by-pass is part of the discharge manifold and is very easily serviced from the top. Remove Hex Adjusting Cap and lift parts from body.

If unit is INFREQUENTLY USED OR PERIODICALLY STORED, O-Rings may become dry. System should be PURGED OF AIR BEFORE OPERATION (system liquid must flow through the pump without discharge restriction) to assure full system pressure is reached.

## FIXED CHEMICAL INJECTOR

### SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow.....	3.0 GPM	(11.4 L/M)
Nozzle Orifice.....	2.1 mm	(2.1 mm)
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)



### PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY.
437	13963	NBR	O-Ring, Seat	1
438	46254	NY	Seat	1
443	541060	BB	Valve, Check w/O-Ring	1
444	45924	S	Spring	1
446	13969	NBR	O-Ring, Adapter - 70D	1
472	46630	BB	Barb, Tapped	1
476	14187	NBR	O-Ring, Barb	1
477	46259	S	Ball, Seat	1
478	46260	S	Spring, Injector Valve	1
479	46531	BB	Orifice (2.1 mm)	1
	46257	BB	Orifice (1.8 mm)	1
480	—	BB	Body	1

MATERIAL CODES (Not Part of Part Number):

BB=Brass NBR=Medium Nitrile (Buna-N) NY=Nylon S=304SS

### CHEMICAL INJECTOR PERFORMANCE CHART

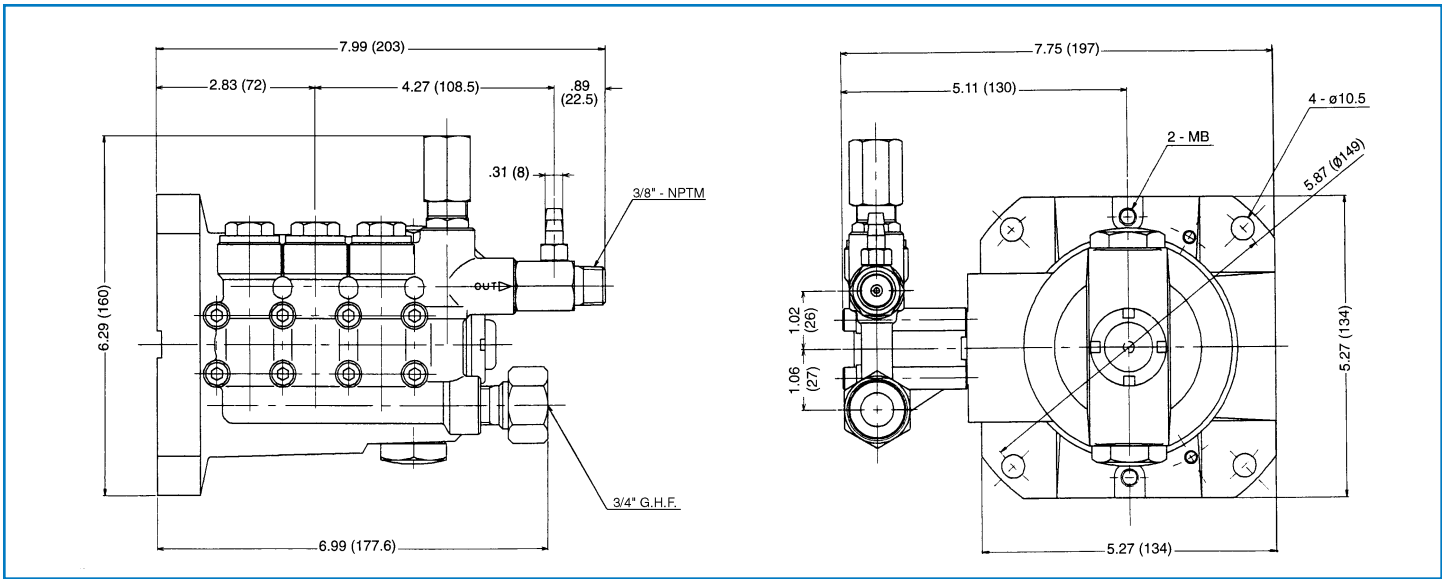
Desired Pump Flow	Orifice Size	Injector Model	Maximum Injecting Pressure	Maximum Chemical Draw	Pressure Drop Across Injector At System Pressure (2500 PSI)
3.0	2.1 mm	7232	250 PSI	37.2 oz/min	141 PSI

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. Consult CAT PUMPS for assistance with other options.**

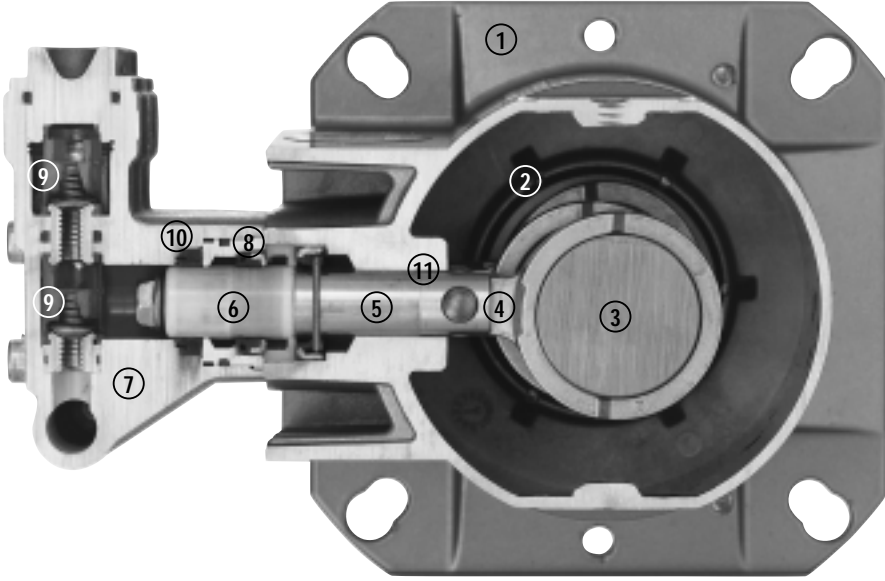
**CAUTION:** Deduct the pressure drop shown in the performance chart from your desired system pressure to arrive at the maximum high pressure nozzle rating. This is essential to avoid over-pressurizing the pump.

The Chemical Injector is mounted directly to the discharge of the unloader. **Chemical draw occurs under low pressure.** Select the *Change Over Nozzle* (32149), *Adjustable Nozzle* (32151), or *Vari-Nozzle* (7930-7945) to permit the adjustment from low to high pressure

For correct nozzle selection, **read system pressure at the pump. DO NOT READ SYSTEM PRESSURE AT THE HIGH PRESSURE GUN.** Incorrect pressure reading may result in: pump operation at excessive pressures, inconsistent chemical draw or possible damage to the pump or unloader.



Model 3DX30GSI



- 1 Die cast flange-style aluminum **crankcase** means high strength, lightweight, and excellent tolerance control.
- 2 Heavy-duty dual crankshaft **bearings** provide extended drive-end life.
- 3 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 4 High strength **connecting rods** assure durability and bearing quality.
- 5 Strong chrome plated brass **plunger rods** with chrom-moly crosshead pins.
- 6 Special, concentric, high-density, polished solid ceramic **plungers** are abrasion resistant and offer enhanced seal life.
- 7 High tensile strength, forged brass **manifold head** with built-in modular unloader and eight mounting screws for exceptional strength.
- 8 100% wet **seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
- 9 Stainless steel **valves, seats and springs** provide corrosion-resistance, positive seating and long life.
- 10 Unique design and specially formulated **Hi-Pressure Seals** offer unmatched performance and seal life.
- 11 **Crossheads** are 360° supported for uncompromising alignment.

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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