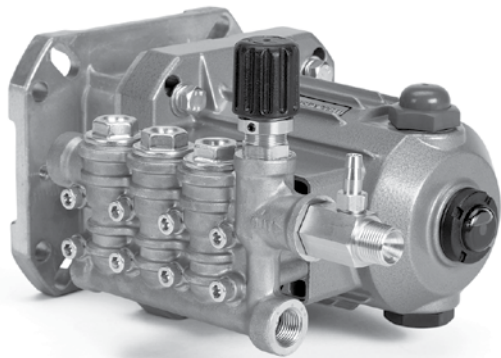


DATA SHEET

DIRECT DRIVE PLUNGER PUMPS



Brass Model: 4SPX32G11



SPECIFICATIONS	U.S. Measure	Metric Measure
Flow	3.2 gpm	12.1 lpm
Pressure Range	100 to 3000 psi	6.9 to 207 bar
Pump RPM	3450 rpm	3450 rpm
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4 bar
Max. Liquid Temperature	140° F	60° C
Bore	0.551"	14 mm
Stroke	0.327"	8.3 mm
Crankcase Capacity	10.15 oz.	0.30 l
Inlet Port (1)	3/8" NPT(F)	3/8" NPT(F)
Discharge Port (1)	3/8" NPT(M)	3/8" NPT(M)
Accessory/Discharge Port (1)	3/8" NPT(F)	3/8" NPT(F)
Accessory Inlet Port (1)	1/4" NPT(F)	1/4" NPT(F)
Shaft Diameter (Hollow - Gas)	1"	25.4 mm
Weight	13.9 lbs.	6.3 kg
Dimensions (Pump Only)	10.98 x 7.81 x 7.11"	279 x 198 x 180 mm

Mounting Flange: SAE J609, Flange B, Extension 4 (1"Ø), Shaft Length = 3 1/4"
Pilot Ø = 5 3/4", B.C. Ø = 6 1/2", Thread = 3/8"-16 UNC TAP

FEATURES

- Triplex plunger design provides a smooth liquid flow.
- Specially formulated high pressure seals and concentric, polished ceramic plungers assure maximum seal life.
- Compact, hollow shafted pump for direct mounting to 1" gas shaft. Eliminates the need for pulleys, belts or gearboxes.
- Integral regulating unloader with built-in by-pass standard on all units to assure system pressure control and pump protection.
- Stacked valve design for ease in servicing.
- Fixed chemical injector for cleaning flexibility.

ELECTRIC HORSEPOWER REQUIREMENTS

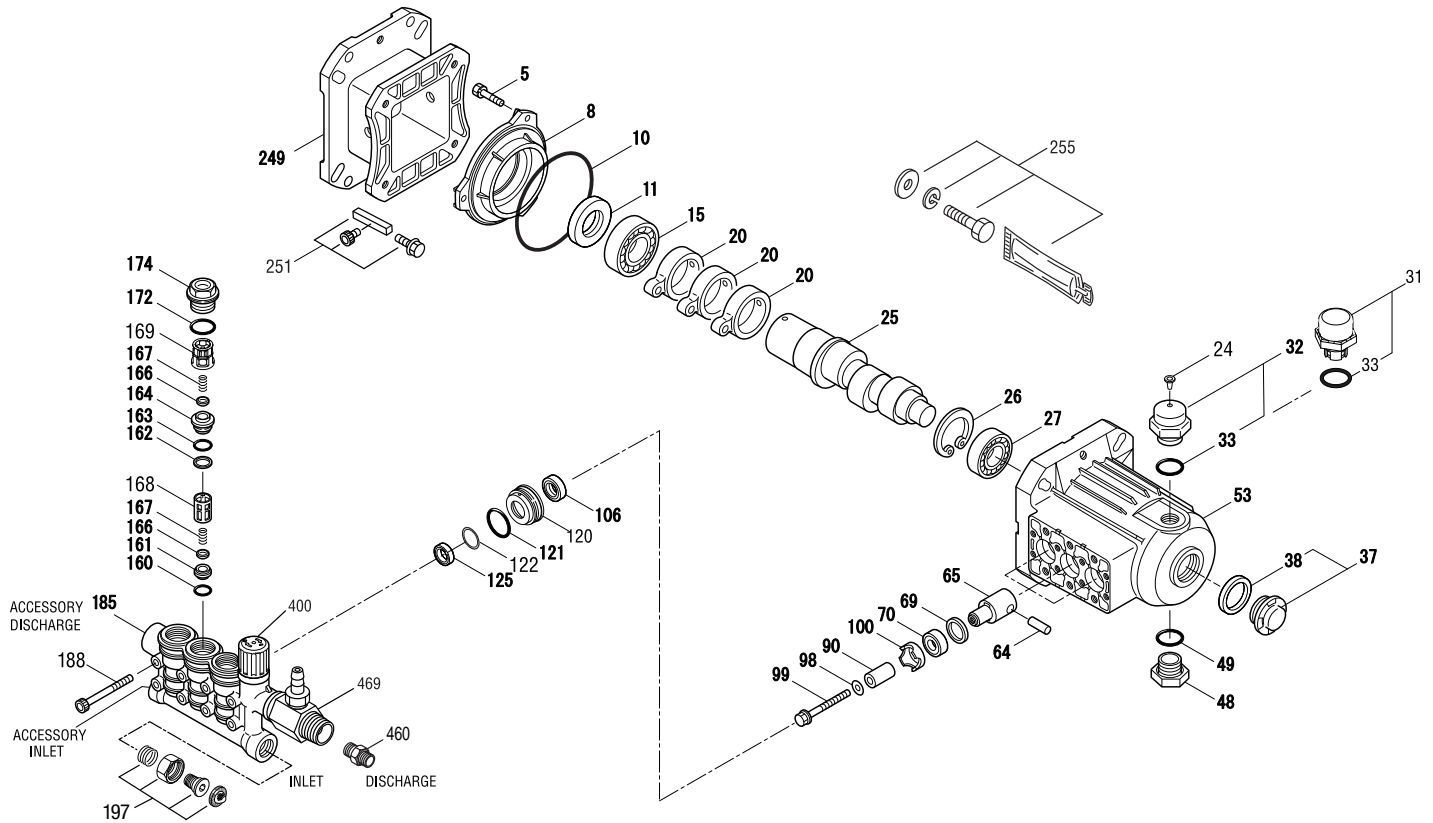
FLOW		PRESSURE			RPM
		psi 2000	psi 2500	psi 3000	
U.S. gpm	lpm	bar 138	bar 172	bar 207	3450
3.2	12.1	4.4	5.5	6.6	

$$\text{DETERMINING THE PUMP R.P.M.} \quad \frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{"Desired" gpm}}{\text{"Desired" rpm}}$$

$$\text{DETERMINING THE REQUIRED H.P.} \quad \text{Hp (Electric Brake)} = \frac{\text{gpm} \times \text{psi}}{1460}$$

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

EXPLODED VIEW



PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY	ITEM	P/N	MATL	DESCRIPTION	QTY
5	549360	STCP R	Screw, HHC Sems (M6x14)	3	121	13977	NBR	O-Ring, Seal Case - 70D	3
8	547084	AL	Cover, Bearing	1	122	49943	PE	Ring, Support	3
10	14041	NBR	O-Ring, Bearing Cover - 70D	1	125	49824	BP	Seal, HPS	3
11	125351	NBR	Seal, Oil	1	160	17428	NBR	O-Ring, Inlet Seat - 80D	3
15	56110	STL	Bearing, Ball, Inner	1	161	547077	S	Seat, Inlet	3
20	547020	TNM	Rod, Connecting Assy	3	162	48361	D	Back-up-Ring, Discharge Seat	3
24	549608	LDPE	Plug, Oil Cap	1	163	43358	NBR	O-Ring, Discharge Seat - 70D	3
25	831680	FCM	Crankshaft, 3450 RPM, 1", 8.3 mm	1	164	547076	S	Seat, Discharge	3
26	12385	STL	Ring, Retaining	1	166	547098	S	Valve	6
27	15710	STL	Bearing, Ball, Outer	1	167	46865	S	Spring	6
31	549726	—	Cap, Vented w/O-Ring	1	168	543988	PVDF	Retainer, Spring, Inlet	3
32	547961	RTP	Cap, Oil Filler w/O-Ring	1	169	49764	PVDF	Retainer, Spring, Discharge	3
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1	172	142807	NBR	O-Ring, Valve Plug - 90D	3
37	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1	174	547104	BB	Plug, Valve	3
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1	185	49862	FBB	Head, Manifold w/Integral Unloader Body	1
48	44842	NY	Plug, Drain	1	188	549357	STCP R	Screw, HSH (M6x60)	8
49	14179	NBR	O-Ring, Drain Plug - 70D	1	197	941516	BB	Assy, GH, 3/8"	1
53	547099	AL	Crankcase	1	249	—	AL	Flange, Adapter	1
64	16948	CM	Pin, Crosshead	3	251	31643	—	Mount, Adapter, Assy. (Does not included #249)	1
65	49982	BB	Rod, Plunger	3	255	30514	STZP	Mount, Bolt Assy.	1
69	126259	STCP R	Washer, Oil Seal	3	283	990394	—	Kit, Oil Drain (Not Shown)	1
70	25301	NBR	Seal, Oil - 80D	3	300	76977	NBR	Kit, Seal (Incls: 98,106,121,125)	1
90	547091	CC	Plunger (M14x25.5)	3	310	76976	NBR	Kit, Valve	1
98	46730	NBR	Washer, Seal - 90D	3				(Incls: 160,161,162,163,164,166,167,168, 169,172)	
99	542405	S	Retainer, Plunger (M6x35)	3	400	—	—	Unloader, Integral (See Individual Parts)	1
100	44869	PVDF	Retainer, Seal	3	460	107681	BB	Fitting, Discharge [3/8" NPT(M)]	1
106	45188	NBR	Seal, LPS w/S-SPG	3	469	7332	—	Injector, Chemical Fixed	1
120	49942	BB	Case, Seal	3					

Italics are optional items. [] Date of latest production change. R Components comply with RoHS Directive.

R Components comply with RoHS Directive. See 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

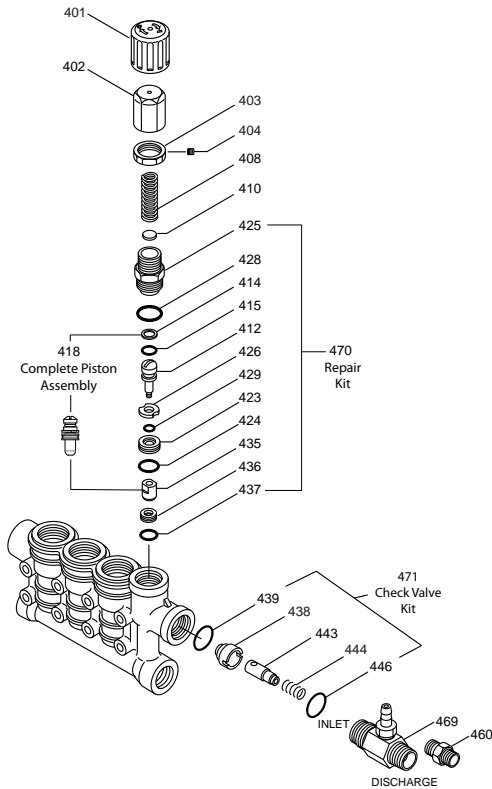
FBB=Forged Brass FCM=Forged Chrome-Moly LDPE=Low Density Polyethylene NBR=Medium Nitrile (Buna-N) NY=Nylon PE=Polyethylene

PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength

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

INTEGRAL UNLOADER

SPECIFICATIONS	U.S.	Metric
Flow	3.2 gpm	12.1 lpm
Pressure Range	100 - 3450 psi	6.9 - 238 bar
Discharge Port	M18 x 1.0	M18 x 1.0



PARTS LIST

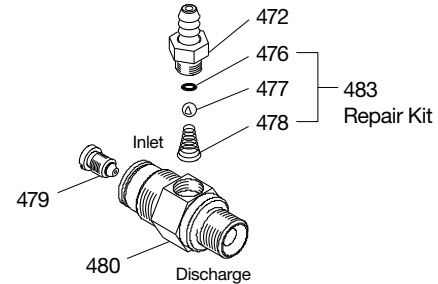
ITEM	PN	MATL	DESCRIPTION	QTY
401	547797	NY	Handle, Adjusting	1
402	547798	BB	Cap, Adjusting	1
403	548671	BB	Nut, Lock (M18x1)	1
404	548675	STL	Screw, Set (M4x1)	1
408	32094	STZP R	Spring, Pressure	1
410	549352	STCP R	Retainer, Spring	1
412	45694	S	Stem, Piston (M5)	1
414	20184	PTFE	Back-up-Ring, Piston 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/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, Check Valve	1
446	26133	NBR	O-Ring, Body - 80D	1
460	107681	BB	Fitting, Discharge [M18 x 3/8" NPT(M)]	1
468	31767	NBR	Kit, O-Ring (Incls: 414, 415, 424, 428, 429, 437, 439, 446)	1
469	7332	BB	Injector, Fixed Chemical	1
470	76179	NBR	Kit, Repair (Incls: 418, 425, 428, 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 STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated

7332 FIXED CHEMICAL INJECTOR

SPECIFICATIONS	U.S.	Metric
Flow	3.2 gpm	12.1 lpm
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" NPT(M)	3/8" NPT(M)
Weight	5.3 oz.	0.15 kg
Dimensions	2 x 1 x 1.75"	50.8 x 25.4 x 45 mm



PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY
472	49132	BB	Barb	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

CHEMICAL INJECTOR PERFORMANCE CHART

Orifice Size	Maximum Injecting Pressure	Maximum Chemical Draw	Pressure Drop Across Injector At System Pressure (3000 psi)
2.1 mm	163 psi	35.5 oz/min	200 psi
<p>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. Deduct hose friction loss from above low psi nozzle. Contact Cat Pumps for assistance with other options.</p> <p>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.</p>			

REGULATING DEVICE

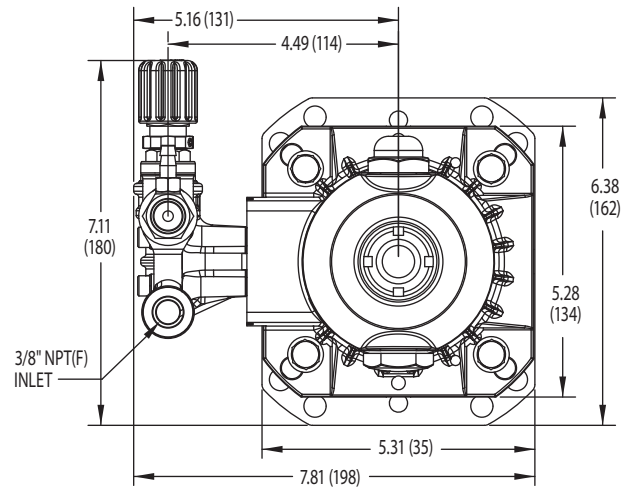
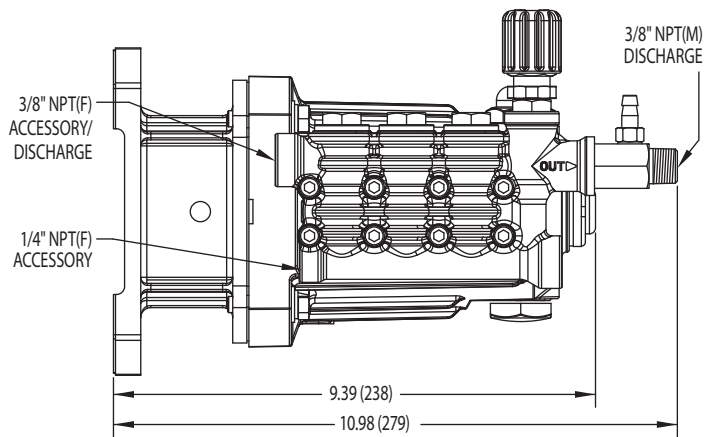
An integral unloader with built-in by-pass is part of the discharge manifold to provide system pressure regulation and pump protection. This pump also includes a fixed chemical injector for chemical application.

OPERATION:

Pump should be purged of air before commencing with operation. Liquid must flow through the pump only 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 lock nut up to adjusting cap and tighten set screw. **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 servicing of seals and valves, torque requirements and diagnosis and maintenance chart.



Model 4SPX32G11

⚠ 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.



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