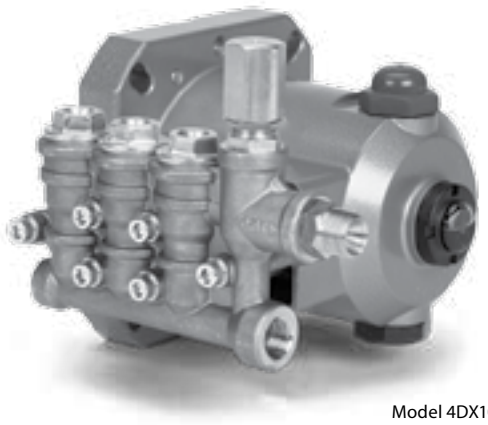
DATA SHEET
DIRECT-DRIVE PLUNGER PUMPS

The Pumps with Nine Lives

Electric Models: 4DX10ER, 4DX15ER, 4DX20ER, 4DX27ER, 4DX30ER

See page 4 for complete pump model number selection.



Model 4DX10ER Shown

SPECIFICATIONS	U.S. Measure	Metric Measure
4DX10ER		
Flow	1.0 gpm	3.8 lpm
RPM	3450 rpm	3450 rpm
Stroke	0.078"	2.0 mm
4DX15ER		
Flow	1.5 gpm	5.7 lpm
RPM	3450 rpm	3450 rpm
Stroke	0.118"	3.0 mm
4DX20ER		
Flow	2.0 gpm	7.6 lpm
RPM	3450 rpm	3450 rpm
Stroke	0.157"	4.0 mm
4DX27ER		
Flow	2.7 gpm	10.2 lpm
RPM	3450 rpm	3450 rpm
Stroke	0.220"	5.6 mm
4DX30ER		
Flow	3.0 gpm	11.4 lpm
RPM	3450 rpm	3450 rpm
Stroke	0.244"	6.2 mm

FEATURES

- Fits standard 56C face motors.
- 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.
- Stacked stainless steel valve design for long life and easy servicing.
- Compact, direct-drive unit for maximum portability.
- Integral pressure regulator or unloader with built-in by-pass standard on all units to assure system pressure control and pump protection.

COMMON SPECIFICATIONS	U.S.	Metric
Max. Discharge Pressure	2000 psi	140 bar
Shaft Diameter	5/8"	15.8 mm
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4 bar
Bore	0.630"	16 mm
Max Liquid Temperature	140° F	60° C
Above 130°F call Cat Pumps for inlet conditions and elastomer recommendations.		
Crankcase Capacity	8.5 oz.	0.25 l
Inlet Port (Standard)	3/8" NPT(F)	3/8" NPT(F)
Discharge Ports (1)	3/8" NPT(M)	3/8" NPT(M)
Accessory Inlet Port	1/4" NPT(F)	1/4" NPT(F)
Weight	10.7 lbs.	4.9 kg
Dimensions	7.99 x 7.75 x 6.29"	203 x 197 x 160 mm

ELECTRIC HORSEPOWER REQUIREMENTS

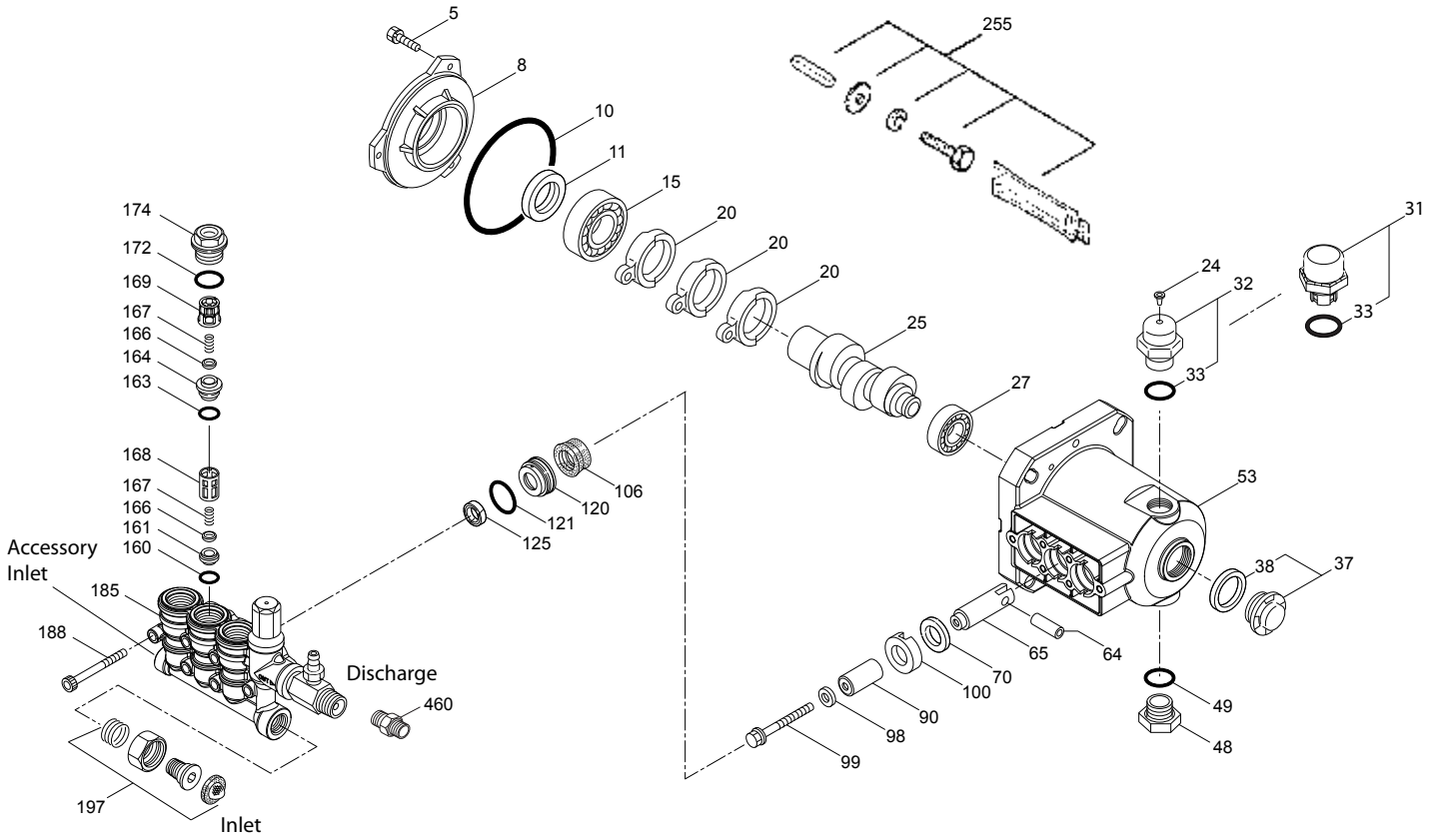
MODELS	FLOW		PRESSURE				RPM
			psi 1000	psi 1200	psi 1500	psi 2000	
	U.S. gpm	lpm	bar 70	bar 85	bar 105	bar 140	
4DX10ER	1.0	3.8	0.68	0.82	1.03	1.37	3450
4DX15ER	1.5	5.7	1.03	1.23	1.54	2.05	3450
4DX20ER	2.0	7.6	1.37	1.64	2.05	2.74	3450
4DX27ER	2.7	10.2	1.85	2.22	2.77	3.70	3450
4DX30ER	3.0	11.4	2.05	2.47	3.08	4.11	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. $\frac{\text{gpm x psi}}{1460} = \frac{\text{Electric Brake}}{\text{H. P. Required}}$

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 (M6x14)	3
8	547153	AL	Cover, Bearing	1
10	14041	NBR	O-Ring, Bearing Cover - 70D	1
11	55337	NBR	Seal, Oil - 70D	1
15	14488	STL	Bearing, Ball - Inner	1
20	547048	TNM	Rod, Connecting	3
24	549608	LDPE	Plug, Oil Cap (Remove Before Startup)	1
25	***132183***	**CM**	Crankshaft, 3450 RPM, 5/8", 2.0 mm, 4DX10ER	1
	132185	**CM**	Crankshaft, 3450 RPM, 5/8", 3.0 mm, 4DX15ER	1
	132186	**CM**	Crankshaft, 3450 RPM, 5/8", 4.0 mm, 4DX20ER	1
	132187	**CM**	Crankshaft, 3450 RPM, 5/8", 5.6 mm, 4DX27ER	1
	132188	**CM**	Crankshaft, 3450 RPM, 5/8", 6.2 mm, 4DX30ER	1
27	15710	STL	Bearing, Ball - Outer	1
31	*549726*	—	*Cap, Vented w/O-Ring (Rain Cap)*	*1*
32	547961	RTP	Cap, Oil Filler w/O-Ring	1
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1
37	92241	—	Gauge, Bubble Oil w/Gasket	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	3
65	132190	BB	Rod, Plunger	3
70	47215	NBR	Seal, Oil - 70D	3
90	542403	CC	Plunger (M16x27)	3
98	46730	NBR	Washer, Seal - 90D	3
99	542405	S	Retainer, Plunger (M6x35)	3
100	46233	D	Retainer, Seal	3
106	† 48222	NBR	Seal, LPS w/S-Spg - 85D	3
120	547357	BB	Case, Seal	3
121	13976	NBR	O-Ring, Seal Case - 70D	3
125	46240	NBR	Seal, HPS w/S	3
160	13965	NBR	O-Ring, Seat, Inlet - 70D	3
161	545177	S	Seat, Inlet	3
163	19285	NBR	O-Ring, Seat, Discharge - 70D	3
164	545178	S	Seat, Discharge	3
166	46764	S	Valve	6
167	46865	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 (M20x1.5)	3
185	132191	FBB	Head, Manifold w/Integral Regulator/Unloader Body	1
188	549357	STCP R	Screw, HSH (M6x60)	6
197	*941516*	*BB*	*Assy, GH, 3/8" FNPT*	*1*
255	30516	STZP R	Assy, Bolt Mount	1
300	*33053*	*NBR*	*Kit, Seal (Incld: 98, 106, 121, 125)*	*1*
310	*76978*	*NBR*	*Kit, Valve (Incld:160,161,163,164,166,167,168,169,172)*	*1*
400	—	—	*Regulator/Unloader, Integral (See Individual Parts)*	*1*
460	*107681*	*BB*	*Fitting, Discharge*	*1*
469	7231	BB	Injector, Chemical, Fixed	1

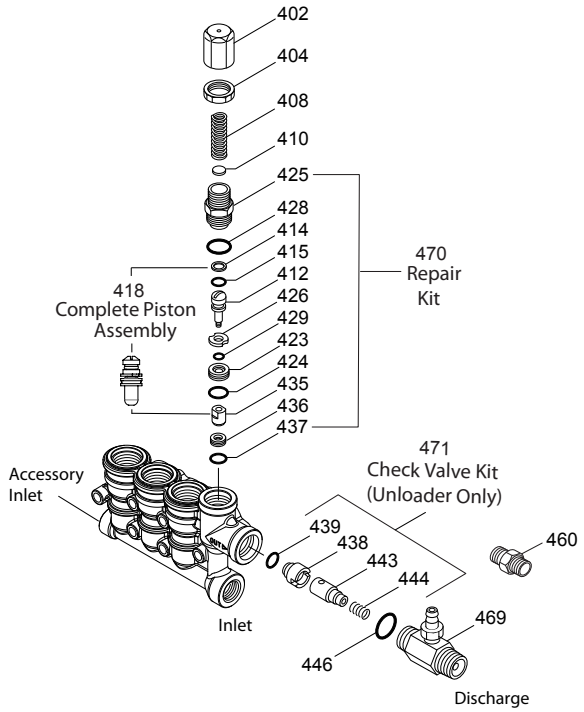
Bold part numbers are unique to a particular pump model. *Italics are optional items.*
[ ] Date of latest production change. R Components comply with RoHS Directive. † Production parts are different than repair parts.
See Tech Bulletins 002, 024, 036, 043, 055, 074, 083, 086 and 094 for additional information.
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM-Chrome-moly
D=Acetal FBB=Forged Brass 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 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.

INTEGRAL REGULATOR/UNLOADER

SPECIFICATIONS	U.S.	Metric
Flow	3.1 gpm	11.7 lpm
PSI Range	100-2000 psi	7-140 bar
Inlet Port	3/8" NPT(F)	3/8" NPT(F)
Discharge Port	3/8" NPT(M)	3/8" NPT(M)



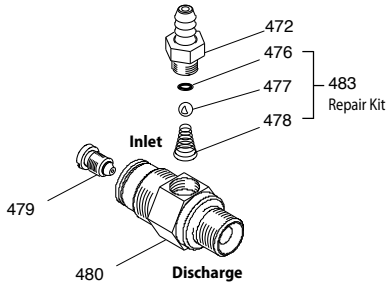
PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY
401	*32088*	*NY*	*Handle, Adjustable (Not Shown)*	*1*
402	46570	BB	Cap, Adjusting	1
408	33394	STZP R	Spring, Pressure	1
410	549352	STCP	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 - 70D	1
418	—	—	*Assy, Piston Included In Repair Kit*	*1*
423	46249	BB	Retainer, Valve	1
424	13966	NBR	O-Ring, Valve Retainer (Outer) - 70D	1
425	46248	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	548193	S	Valve	1
436	46253	S	Seat	1
437	13963	NBR	O-Ring, Seat - 70D	1
438	46254	NY	Seat, Check Valve	1
439	13963	NBR	O-Ring, Seat, Check Valve - 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" NPT(M)*	*1*
468	*76754*	*NBR*	*Kit, O-Ring (Incld: 414,415,424,428,429,437)*	*1*
469	7231	BB	Injector, Chemical Fixed	1
470	*76031*	*NBR*	*Kit, Repair (Incld: 418,425,428,436,437)*	*1*
471	† 76146	NBR	Kit, Check Valve (Incld: 438,439,443,444,446)	1

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

MODEL 7231 FIXED CHEMICAL INJECTOR

SPECIFICATIONS	U.S.	Metric
GPM	2.0 gpm	7.6 lpm
Nozzle Orifice	1.8 mm	1.8 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	52 x 25 x 45 mm



PARTS LIST

ITEM	PN	MATL	DESCRIPTION	QTY
472	46630	BB	Barb	1
476	—	NBR	O-Ring, Barb - 70D	1
477	—	S	Ball	1
478	—	S	Spring	1
479	46257	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
Optional Special Ported Chemical Injector for Unloader Mounting

Orifice Size	Maximum Injecting Pressure	Minimum Chemical Draw	Pressure Drop Across Injector at System Pressure
1.8 mm	100 psi	52 oz/min	100 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. **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.

REGULATING DEVICE

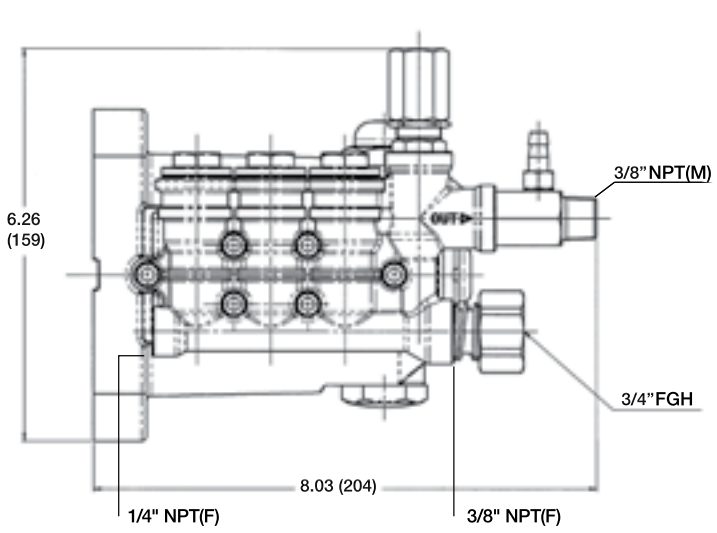
An integral regulator or unloader with built-in by-pass is part of the discharge manifold to provide system pressure regulation and pump protection. This pump also includes a fixed chemical injector for chemical application. (See back page for proper model identifications)

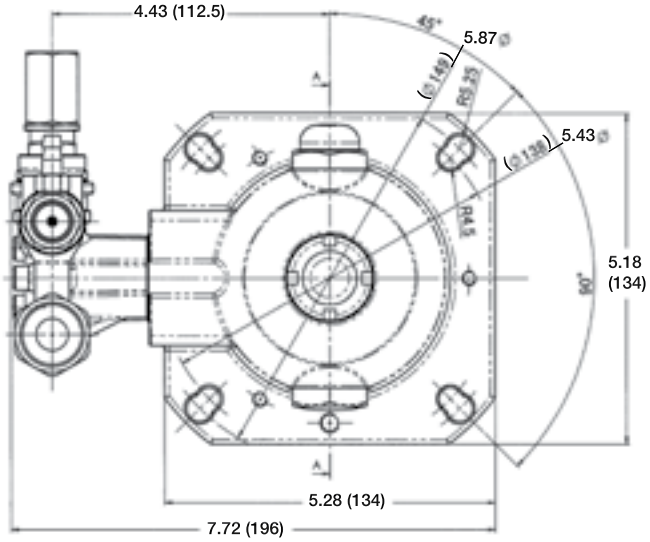
OPERATION:

Pump should be purged of air before commencing with 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 or unloader pressure must be done with the system turned on. Start the system with the regulator or 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. **NOTE:** Pressure is not set at the factory.

SERVICE:

The regulator or unloader should be serviced on the same schedule as the seals in the pump. Refer to 4DX Service Manual for start-up, servicing of seals and valves, torque requirements and diagnosis and maintenance chart.





Base Models 4DX10ER, 4DX15ER, 4DX20ER, 4DX27ER, 4DX30ER

4DX Pump Series Selection Chart

Pump Series									Pump Flow/RPM			
4	D	X							gpm	rpm	Alt. gpm	Alt. rpm
			1	0					1.0	3450	0.5	1750
			1	5					1.5	3450	0.75	1750
			2	0					2.0	3450	1.0	1750
			2	7					2.7	3450	1.35	1750
			3	0					3.0	3450	1.5	1750
					E				Electric, 5/8" Hollow Shaft			
						R			Regulating Device = Regulator			
						U			Regulating Device = Unloader			
							I		Fixed Chemical Injector			
								F	Garden Hose Fitting			

Examples:

4DX10ER = 1 gpm (3450 rpm), Regulator, Standard Inlet - 3/8" NPT(F)

4DX15EUIF = 1.5 gpm (3450 rpm), Unloader, Chemical Injector, Garden Hose Inlet Fitting



Model 4DX10ER



Model 4DX15EUIF

⚠ 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.

The Pumps with Nine Lives

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