

# DATA SHEET

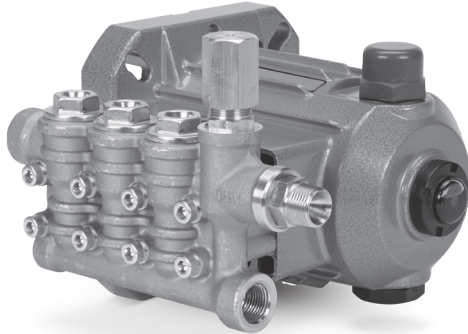
## DIRECT DRIVE PLUNGER PUMPS



### Brass Electric Models:

### 4SP21ELR, 4SP29ELR

See page 4 for complete model number selection



Model 4SP21ELR Shown

#### FEATURES

- Triplex plunger design provides a smooth liquid flow.
- Specially formulated high pressure seals and concentric, polished ceramic plungers assure maximum seal life.
- Compact, direct mounting to NEMA 56C motor with 5/8" shaft.
- Stacked valve design for ease in servicing.
- Integral pressure control with built-in by-pass.
- Can be configured as a pressure regulator, pressure regulating unloader or safety relief valve.
- Includes crankcase oil.

#### COMMON SPECIFICATIONS

	U.S.	Metric
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4.1 bar
Std. Liquid Temperature*	140°F	60°C
Max. Liquid Temperature**	180°F	82°C
Crankcase Capacity	10.1 oz.	0.30 l
Inlet Port (1)	3/8" NPT(F)	3/8" NPT(F)
Accessory Port (1)	1/4" NPT(F)	1/4" NPT(F)
Discharge Port (1)	3/8" NPT(M)	3/8" NPT(M)
Discharge Port (1)	3/8" NPT(F)	3/8" NPT(F)
Shaft Diameter (Hollow - Electric)	5/8"	15.9 mm
Weight	11.7 lbs.	5.3 kg
Dimensions	7.5 x 7.7 x 6.3"	190 x 195 x 160 mm

\*Seals and O-Rings are special blend and medium Nitrile Buna-N material.  
 \*\*Requires alternative Seal and O-Ring option. Contact Cat Pumps.

#### SPECIFICATIONS

#### U.S. Measure

#### Metric Measure

##### 4SP21ELR, 4SP21ELU

Flow	2.1 gpm	7.9 lpm
Pressure Range	100 - 2000 psi	6.9 - 138 bar
Pump RPM	1750 rpm	1750 rpm
Bore	0.630"	16 mm
Stroke	0.319"	8.1 mm

##### 4SP29ELR, 4SP29ELU

Flow	2.85 gpm	10.8 lpm
Pressure Range	100 - 1200 psi	6.9 - 83 bar
Pump RPM	1725 rpm	1725 rpm
Bore	0.708"	18 mm
Stroke	0.335"	8.5 mm

#### ELECTRIC HORSEPOWER REQUIREMENTS

MODELS	FLOW		PRESSURE			RPM
			psi 800	psi 1000	psi 1200	
	gpm	lpm	bar 55	bar 69	bar 83	
4SP21ELR/ELU	2.1	7.9	1.2	1.4	1.7	1750
4SP29ELR/ELU	2.85	10.8	1.6	1.9	2.3	1725

#### 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.

$$\text{Hp (Electric Brake)} = \frac{\text{gpm} \times \text{psi}}{1460}$$

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

## PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY	ITEM	P/N	MATL	DESCRIPTION	QTY	
5	549360	STCP R	Screw, HHC Sems (M6x14)	3	100	133989	PVDF	Retainer, Seal	3	
8	547153	AL	Cover, Bearing	1	106	43243	NBR	Seal, LPS w/S-SPG	3	
10	14041	NBR	O-Ring, Bearing Cover - 70D	1	120	133990	BB	Case, Seal	3	
11	55337	NBR	Seal, Oil	1	121	13978	NBR	O-Ring, Seal Case - 70D	3	
15	14488	STL	Bearing, Ball, Inner	1	125	43245	SNG	Seal, HPS	3	
20	547020	TNM	Rod, Connecting Assy	3	160	17428	NBR	O-Ring, Inlet Seat - 80D	3	
25	<b>132605</b>	CM	Crankshaft, 1750 RPM, (8.1 mm) (Model 4SP21ELR, 4SP21ELU)	1	161	547077	S	Seat, Inlet	3	
	<b>133987</b>	CM	Crankshaft, 1725 RPM, (8.5 mm) (Model 4SP29ELR, 4SP29ELU)	1	162	48361	D	Back-up-Ring, Discharge Seat	3	
26	12385	STL	Ring, Retaining	1	163	43358	NBR	O-Ring, Discharge Seat - 70D	3	
27	15710	STL	Bearing, Ball, Outer	1	164	547076	S	Seat, Discharge	3	
32	549726	—	Cap, Vented w/O-Ring	1	166	547098	S	Valve	6	
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	1	167	46865	S	Spring	6	
37	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1	168	543988	PVDF	Retainer, Spring, Inlet	3	
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1	169	49764	PVDF	Retainer, Spring, Discharge	3	
48	44842	NY	Plug, Drain	1	172	142807	NBR	O-Ring, Valve Plug - 90D	3	
49	14179	NBR	O-Ring, Drain Plug - 70D	1	174	547104	BB	Plug, Valve (M20)	3	
53	547099	AL	Crankcase	1	185	133991	FBB	Head, Manifold	1	
64	16948	CM	Pin, Crosshead	3	188	549357	STCP R	Screw, HSH (M6x60)	8	
65	49982	BB	Rod, Plunger	3	197	941516	BB	Assembly, GH 3/8"	1	
69	126259	STCP R	Washer, Oil Seal	3	255	30516	STZP R	Mount, Bolt Assy.	1	
70	25301	NBR	Seal, Oil - 80D	3	300	76968	NBR	Kit, Seal (Incls: 98,106,121,125) (Model 4SP21ELR, 4SP21ELU)	1	
88	132607	S	Washer	3		76295	NBR	Kit, Seal (Incls: 98,106,121,125) (Model 4SP29ELR, 4SP29ELU)	1	
90	<b>132606</b>	CC	Plunger (M16x24.6) (Model 4SP21ELR, 4SP21ELU)	3	310	76976	NBR	Kit, Valve (Incls: 160,161,162,163,164,166,167,168,169,172)	1	
	<b>133988</b>	CC	Plunger (M18x24.6) (Model 4SP29ELR, 4SP29ELU)	3		—	6107	—	Oil, Bottle (21 oz.) ISO 68 Hydraulic (Fill to specific crankcase capacity prior to start up)	1
98	46730	NBR	Washer, Seal - 90D	3						
99	542405	S	Retainer, Plunger (M6x35)	3						

*Italics are optional items.* [ ] Date of latest production change. 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 CC=Ceramic CM=Chrome-Moly  
D=Acetal FBB=Forged Brass NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride S=304SS SNG=Special Blend (Buna) 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.**

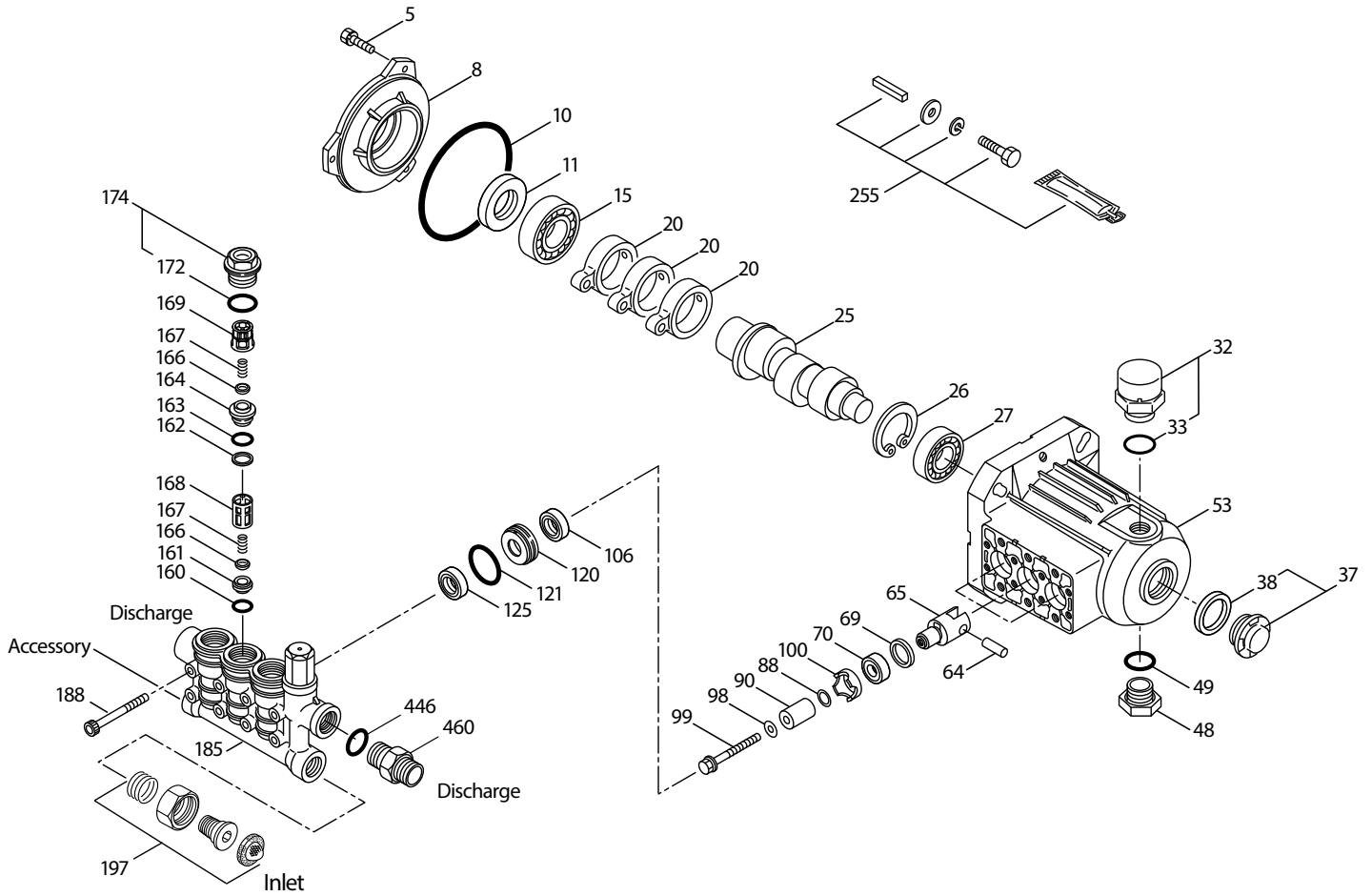
**Note: Pump is shipped with two black caps w/o-rings for shipping purposes.  
Remove black cap w/o-ring on top of pump and replace with loose red cap w/o-ring as supplied in box.**

### Integral Regulator/Unloader

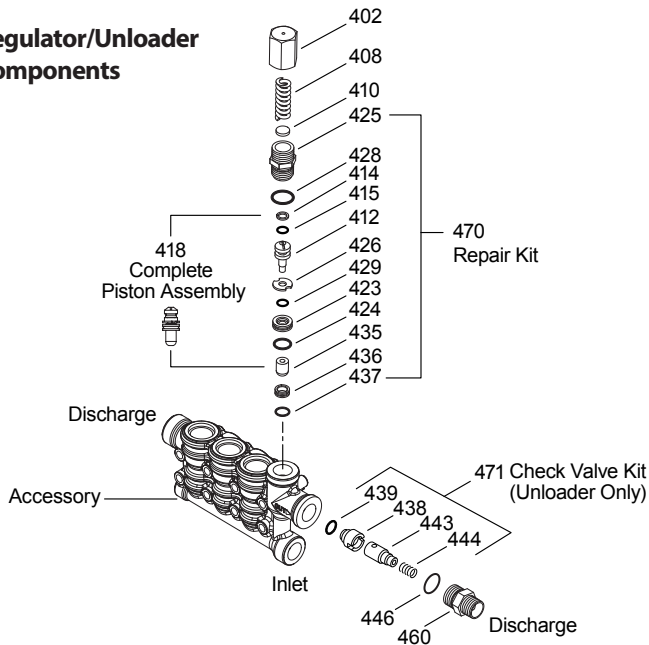
ITEM	P/N	MATL	DESCRIPTION	QTY	ITEM	P/N	MATL	DESCRIPTION	QTY
401	32088	NY	Handle, Adjustable (Not Shown)	1	429	17399	NBR	O-Ring, Valve Retainer (inner) - 80D	1
402	46570	BB	Cap, Adjusting	1	435	548193	S	Valve	1
408	33394	STZP R	Spring, Pressure	1	436	46253	S	Seat	1
410	549352	STCP R	Retainer, Spring	1	437	13963	NBR	O-Ring, Seat - 70D	1
412	46251	BB	Stem, Piston	1	438	46254	NY	Seat, Check Valve	1
414	28338	PTFE	Backup-Ring, Piston Stem	1	439	13963	NBR	O-Ring, Seat, Check Valve - 70D	1
415	22056	NBR	O-Ring, Piston Stem - 70D	1	443	541060	BB	Valve, Check w/O-Ring	1
418	—	—	Assy, Piston (included in Repair Kit)	1	444	45924	S	Spring	1
423	46249	BB	Retainer, Valve	1	446	26133	NBR	O-Ring, Discharge Fitting - 80D	1
424	13966	NBR	O-Ring, Valve Retainer (outer) - 70D	1	460	107681	BB	Fitting, Discharge (3/8" NPT(M))	1
425	46248	BB	Retainer, Piston	1	468	76754	NBR	Kit, O-Ring (Incls: 414, 415, 424, 428, 429, 437)	1
426	46250	S	Washer	1	470	76031	NBR	Kit, Repair (Incls: 418, 425, 428, 436, 437)	1
428	26133	NBR	O-Ring, Piston Retainer - 80D	1	471	† 76146	NBR	Kit, Check Valve (Incls: 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

# EXPLODED VIEWS



## Regulator/Unloader Components



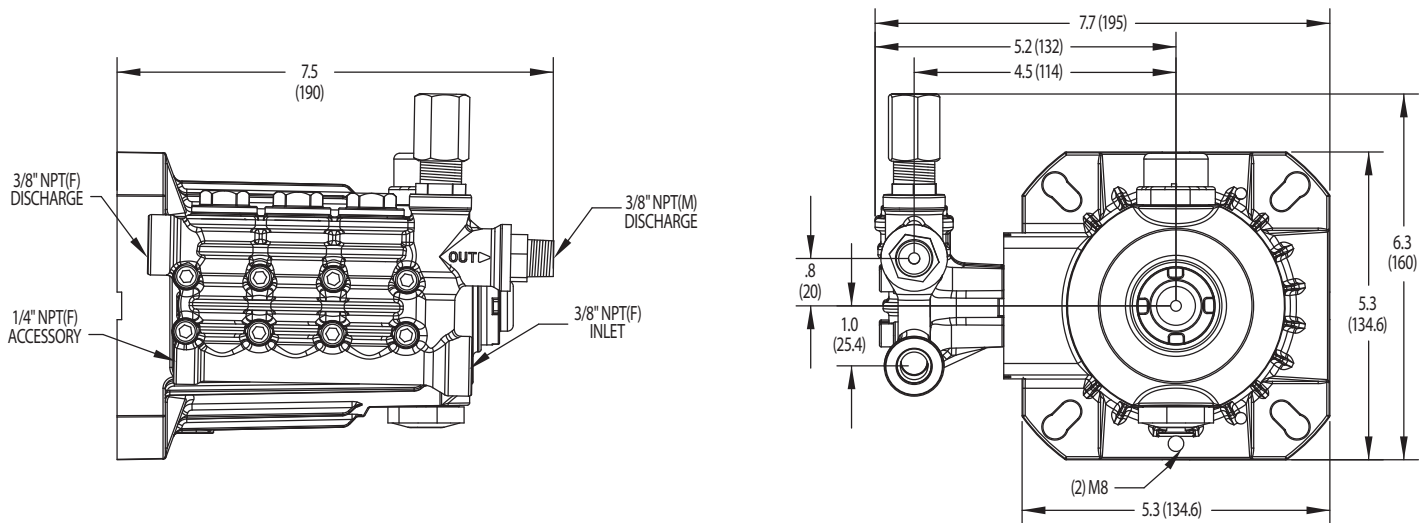
## SPECIFICATIONS

### U.S. Measure

### Metric Measure

#### Integral Regulator/Unloader

	U.S. Measure	Metric Measure
Flow	2.85 gpm	10.8 lpm
Pressure Range	100 - 2000 psi	6.9 - 138 bar
Inlet Port	3/8" NPT(F)	3/8" NPT(F)
Accessory Port	1/4" NPT(F)	1/4" NPT(F)
Discharge Port	3/8" NPT(M)	3/8" NPT(M)
Discharge Port	3/8" NPT(F)	3/8" NPT(F)



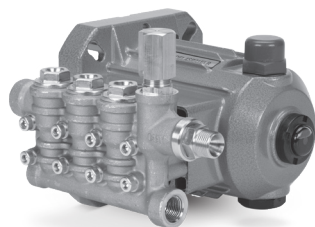
Base Models 4SP21ELR, 4SP29ELR

### 4SP Pump Series Selection Chart

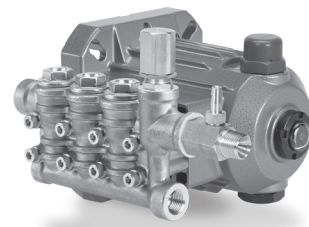
Pump Series								Pump Flow/RPM	
4	S	P						gpm	rpm
			2	1				2.1	1750
			2	9				2.85	1725
					E	L		Electric, 5/8" Hollow Shaft	
							R	Regulating Device = Regulator	
							U	Regulating Device = Unloader	
							I	Fixed Chemical Injector	
							F	Garden Hose Fitting	

**Examples:**

4SP21ELR = 2.1 gpm (1750 rpm), Regulator, Standard Inlet - 3/8" NPT(F)  
 4SP29EUIF = 2.9 gpm (1725 rpm), Unloader, Chemical Injector, Garden Hose Inlet Fitting



Model 4SP21ELR



Model 4SP21ELUI

**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](http://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](http://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](mailto:techsupport@catpumps.com)  
[www.catpumps.com](http://www.catpumps.com)