

DATA SHEET

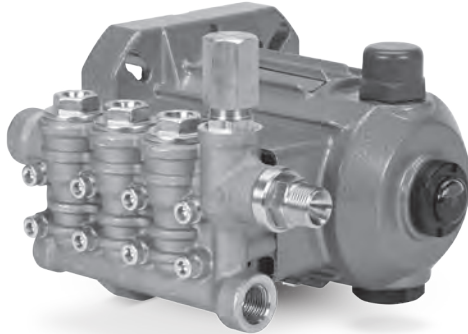
DIRECT DRIVE PLUNGER PUMPS



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 | 132605 | CM | Crankshaft, 1750 RPM, (8.1 mm) (Model 4SP21ELR, 4SP21ELU) | 1 | 161 | 547077 | S | Seat, Inlet | 3 | |
| | 133987 | 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 | 132606 | 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 | |
| | 133988 | 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.**

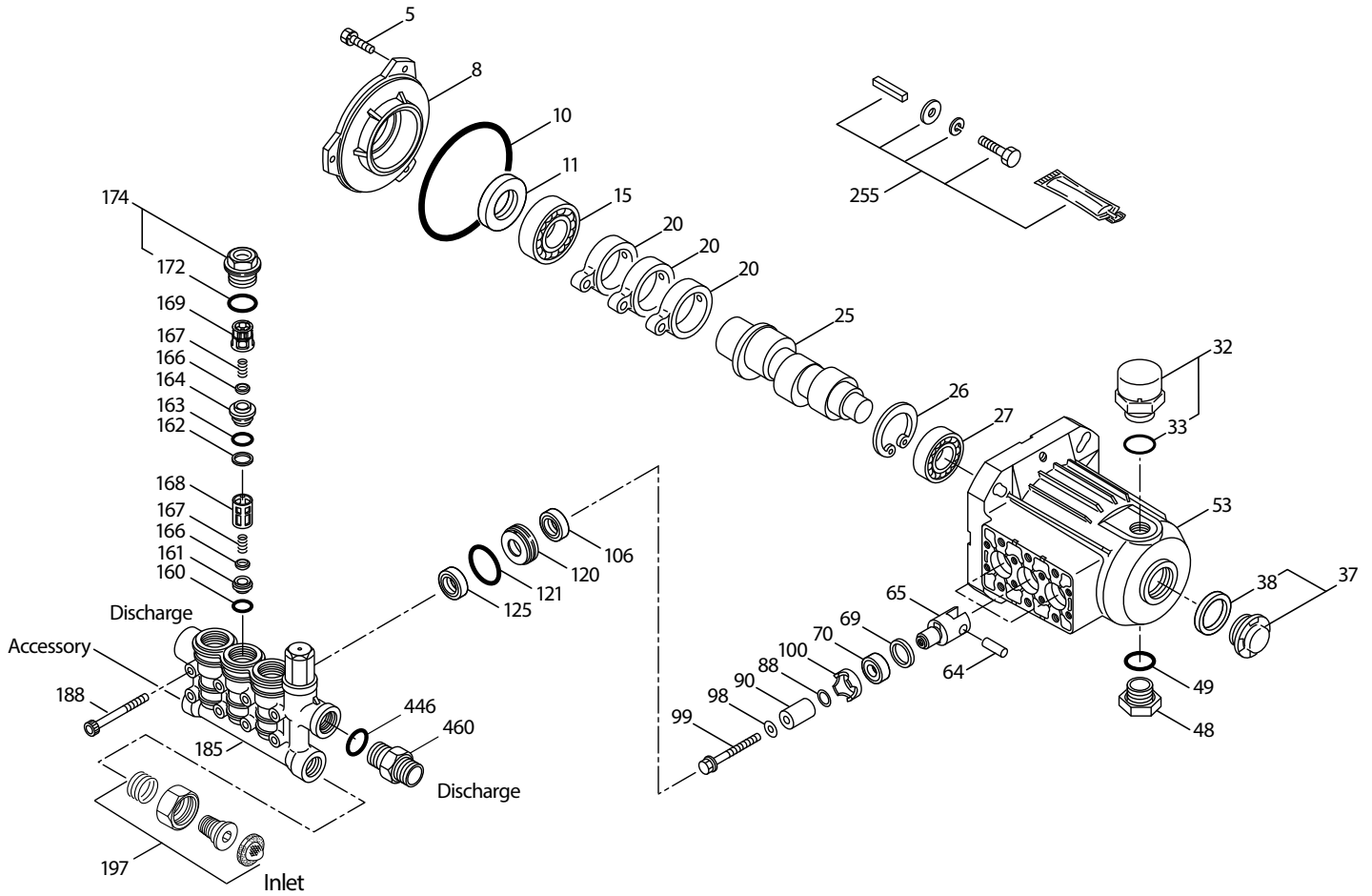
**Note: Pump is shipped with two black caps w/o-rings for shipping purposes.
Remove black cap w/o-ring on top of pump and replace with loose red cap w/o-ring as supplied in box.**

Integral Regulator/Unloader

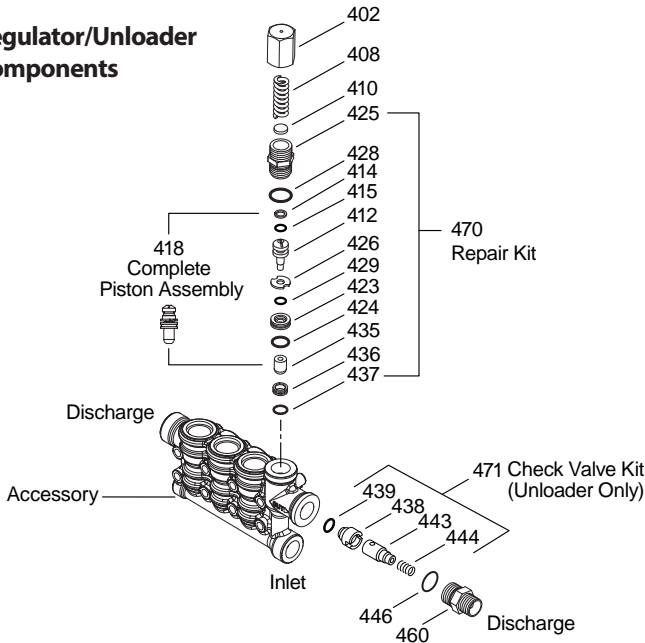
| ITEM | P/N | MATL | DESCRIPTION | QTY | ITEM | P/N | MATL | DESCRIPTION | QTY |
|------|--------|--------|---------------------------------------|-----|------|---------|------|---|-----|
| 401 | 32088 | NY | Handle, Adjustable (Not Shown) | 1 | 429 | 17399 | NBR | O-Ring, Valve Retainer (inner) - 80D | 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



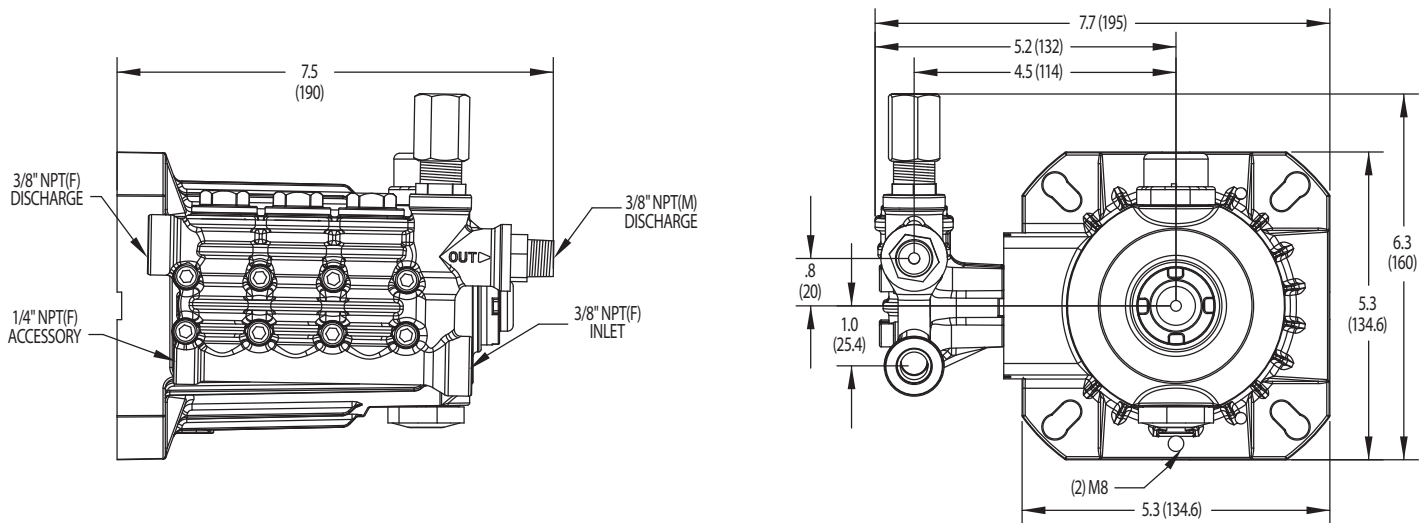
SPECIFICATIONS

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

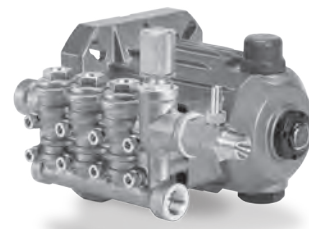
| Pump Series | | | | | | | | Pump Flow/RPM | |
|-------------|---|---|---|---|---|---|---|-------------------------------|------|
| 4 | S | P | | | | | | gpm | rpm |
| | | | 2 | 1 | | | | 2.1 | 1750 |
| | | | 2 | 9 | | | | 2.85 | 1725 |
| | | | | | E | L | | Electric, 5/8" Hollow Shaft | |
| | | | | | | | 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 or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.



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