

DATA SHEET

35 FRAME PLUNGER PUMPS



Stainless Steel

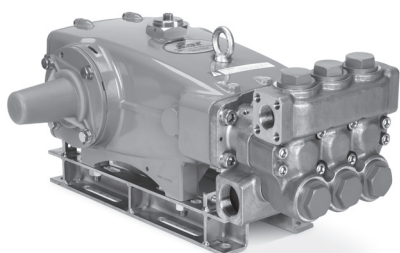
3521DHS

Flushed Stainless Steel

3521CHS

**Nickel Aluminum
Bronze**

3527HS



Model 3521DHS Shown
(Shaft protector included, mounting rails sold separately)

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- Advanced connecting rod and plunger rod materials optimize drive-end operation for continuous-duty applications.
- V-packings and low-pressure seals are completely lubricated and cooled by pumped liquid, greatly increasing service life.
- Model 3521C offers an external flush for high-temperature or low-lubricity liquids.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow	25 gpm	94.6 lpm
Pump Pressure Range	100–2000 psi	6.9–138 bar
Pump RPM*	870 rpm	870 rpm
Inlet Pressure Range	Flooded to 70 psi	Flooded to 4.8 bar
Max. Liquid Temp. (NBR)	160° F	71° C
Alternative seals available for higher temperatures up to 200° F		
Bore	1.260"	32 mm
Stroke	1.890"	48 mm
Crankcase Capacity	4.2 qts	4 l
Inlet Ports (2)	1½" NPT(F)	1½" NPT (F)
Flush Ports (2) "C"	¼" NPT (F)	¼" NPT (F)
Discharge Ports (2)	1" NPT (F)	1" NPT (F)
Shaft Diameter	1.378"	35 mm
Pulley Mounting	Either Side	Either Side
Weight	139 lbs	63 kg
Dimensions	24.33 x 18.11 x 9.72"	618 x 460 x 247 mm

*Pump minimum is 100 RPM.

ALTERNATIVE SEAL CONFIGURATION

MATERIAL	SUFFIX CODE	MAXIMUM TEMPERATURE	
NBR	—	160° F	(71° C)
FPM	.0110	180° F	(82° C)
EPDM	.0220	160° F	(71° C)
FFKM	.0770	200° F	(93° C)

See **Tech Bulletin 002** for inlet conditions and RPM at higher temperatures.

DETERMINING THE PUMP RPM

$$\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{Desired gpm}}{\text{Desired rpm}}$$

DETERMINING THE REQUIRED HP

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

DETERMINING MOTOR PULLEY SIZE

$$\frac{\text{Motor Pulley OD}}{\text{Pump rpm}} = \frac{\text{Pump Pulley OD}}{\text{Motor rpm}}$$

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

PARTS LIST

ITEM	P/N	MATL	P/N	MATL	DESCRIPTION	QTY
	3521DHS, 3521CHS		3527DHS			
5	96049	S	96049	S	Screw, HHC Sems (M10 x 25) (See Tech Bulletins 074)	8
8	134604	ALE	134604	ALE	Cover, Bearing	2
9	815279	FBR	815279	FBR	Shim, Split, 2-Piece	2
10	12398	NBR	12398	NBR	O-Ring, Bearing Cover-70D	2
11	13296	NBR	13296	NBR	Seal, Oil, Crankshaft	2
12	855049	S	855049	S	Shim, Split, 2-Piece	0-2
15	29326	STL	29326	STL	Bearing, Roller	2
20	126725	BZ R	126725	BZ R	Rod, Connecting Assembly (Includes: 21, 22, 23) (See Tech Bulletin 074)	3
21	126749	STCP R	126749	STCP R	Washer, Locking	3
22	126593	STCP R	126593	STCP R	Washer, Flat (M10.5)	6
23	122045	STZP	122045	STZP	Screw, HH (M10 x 55)	6
25	29325	FCM	29325	FCM	Crankshaft, Dual End (M48)	1
31	828710	PE	828710	PE	Protector, Oil Cap with Foam Gasket	1
32	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap-70D	1
34	126743	STCP R	126743	STCP R	Bolt, Eye (M12 x 1.75) (For Lifting Pump Only)	1
37	92241	PC	92241	PC	Gauge, Oil, Bubble with Gasket-80D (See Tech Bulletin 074)	1
38	44428	NBR	44428	NBR	Gasket, Flat Oil Gauge-80D	1
40	125753	S	125753	S	Screw, HHC Sems (M8 x 25) (See Tech Bulletin 074)	8
48	25625	STCP	25625	STCP	Plug, Drain (1/4" x 19 BSP)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug-70D	1
50	45936	ALE	45936	ALE	Cover, Rear (See Tech Bulletin 118)	1
51	16612	NBR	16612	NBR	O-Ring, Cover-70D	1
53	134784	ALE	134784	ALE	Crankcase Assembly (Includes 54)	1
54	27488	S	27488	S	Pins, Guide	2
56	27790	POP	27790	POP	Pan, Oil	1
59	92538	S	92538	S	Screw, HHC Sems (M6 x 16)	2
64	43864	CM	43864	CM	Pin, Crosshead	3
65	49166	SSHB	49166	SSHB	Rod, Plunger	3
69	126587	STCP R	126587	STCP R	Washer, Oil Seal	3
70	100488	NBR	100488	NBR	Seal, Oil, Crankcase	3
75	43865	S	43865	S	Slinger, Barrier	3
88	45676	S	45676	S	Washer, Keyhole (M16)	3
90	43957	CC	43957	CC	Plunger (M32 x 145)	3
95	89778	SS	89778	SS	Stud, Plunger Retainer (M10 x 135)	3
96	20189	PTFE	20189	PTFE	Backup Ring, Plunger Retainer	3
97	11345	NBR	11345	NBR	O-Ring, Plunger Retainer-70D	3
98	44085	SS	44085	SS	Gasket, Retainer	3
99	44084	SS	44084	SS	Retainer, Plunger (M10) (See Tech Bulletin 074)	3
100	814279	PVDF	814279	PVDF	Retainer, Seal	3
101	44106	—	44106	—	Wick, Long Tab	3
104	43875	NBR	43875	NBR	O-Ring, Inlet Adapter-70D	3
105	45562	SS	45562	SS	Adapter, Inlet	3
106	44098	NBR	44098	NBR	Seal, Low-Pressure, with SS-Spring	3
107	44101	SS	44101	SS	Washer	3
110	45365	SS	45124	NAB	Manifold, Inlet	1
	125397	SS	—	—	Manifold, Inlet, Flushed	1
112	11379	NBR	11379	NBR	O-Ring, Inlet Manifold-70D	3
117	44585	S	44585	S	Screw, HSH (M14 x 40) (See Tech Bulletin 074)	4
122	49782	SS	49782	SS	Spacer (See Tech Bulletin 114)	3
123	12391	NBR	12391	NBR	O-Ring, V-Packing Cylinder-70D	3
124	49783	SS	49783	SS	Cylinder, V-Packing	3
126	48390	D	48390	D	Adapter, Female	3
127	44608	STG	44608	STG	V-Packing	6
128	45565	SS	45565	SS	Adapter, Male	3
141	49743	SS	49743	SS	Spring, Coil	3
158	48362	D	48362	D	Backup Ring, V-Packing Cylinder	3
159	48860	NBR	48860	NBR	O-Ring, V-Packing Cylinder-90D	3
162	48363	D	48363	D	Backup Ring, Valve Seat	6
163	26142	NBR	26142	NBR	O-Ring, Seat-80D	6
164	44612	SS	44612	SS	Seat, Stepped	6
166	44108	SS	44108	SS	Valve	6
167	44109	SS	44109	SS	Spring	6
168	44728	PVDF	44728	PVDF	Retainer, Spring	6
170	44729	SS	44729	PVDF	Washer, Spring Retainer	6
171	44644	SS	44644	SS	Coil Spring (70 kg), Valve Plug	6
172	89827	NBR	89827	NBR	O-Ring, Valve Plug-90D	6
173	48364	D	48364	D	Backup Ring, Valve Plug	6
174	49300	SSD	44643	NAB	Plug, Valve (See Tech Bulletins 074)	6
185	49299	SSD	49249	NAB	Manifold, Discharge	1
188	89981	S	89981	S	Screw, HSH (M12 x 70) (See Tech Bulletin 074)	8
250	855042	NY	855042	NY	Protector, Shaft with Two (2) Screws, Lockwashers and Washers	1

Bold print part numbers are unique to a particular pump model. *Italics are optional items.*

R Compoments comply with RoHS Directive. For additional technical information see www.catpumps.com/literature/tech-bulletins.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum ALE=Aluminum Epoxy BZ=Bronze CC=Ceramic CM=Chrome-Moly D=Acetal

EPDM=Ethylene Propylene Diene Monomer F=Cast Iron FBR=Fiber FCM=Forged Chrome-moly FFKM=Perfluoroelastomer FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N)

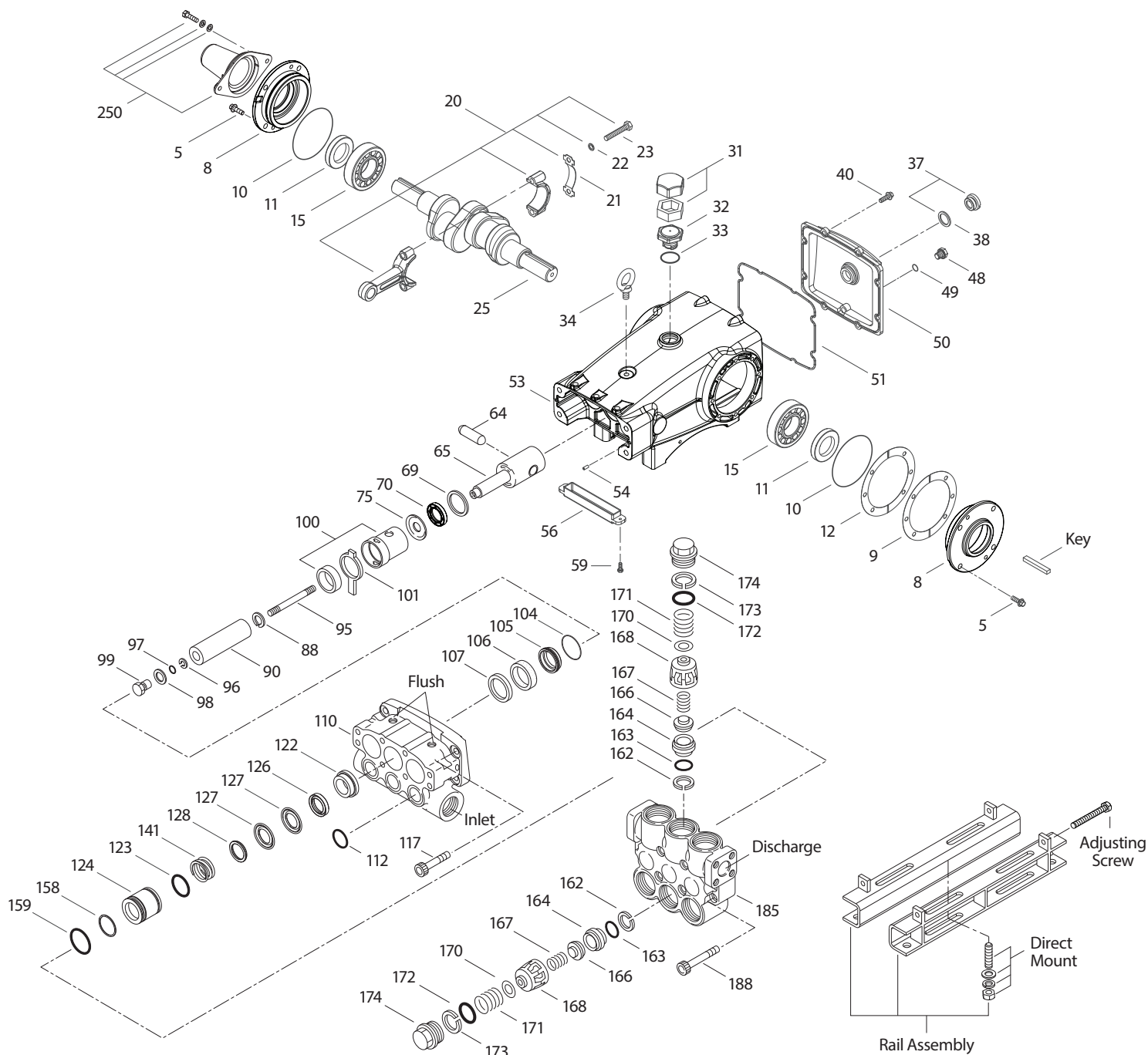
NBRs=Buna, Silicone Free NY=Nylon PC=Poly Carbonate PE=Polyethylene POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS

SS=316SS SSD=Duplex Stainless Steel SFG=Special Blend FPM PPG=Glass Filled Polypropylene ST 2=Special PTFE 2 STG=Special Blend PTFE White STCP=Steel/Chrome Plated

STL=Steel STZP=Steel/Zinc Plated SSHB=316SS/High Strength Brass SSZZ=316SS/Zamak TNM=Special High Strength

Optional Parts and Accessories and Service Parts listed on page 3. Standard and optional Seal Kits and Valve Kits listed on page 4.

EXPLODED VIEW



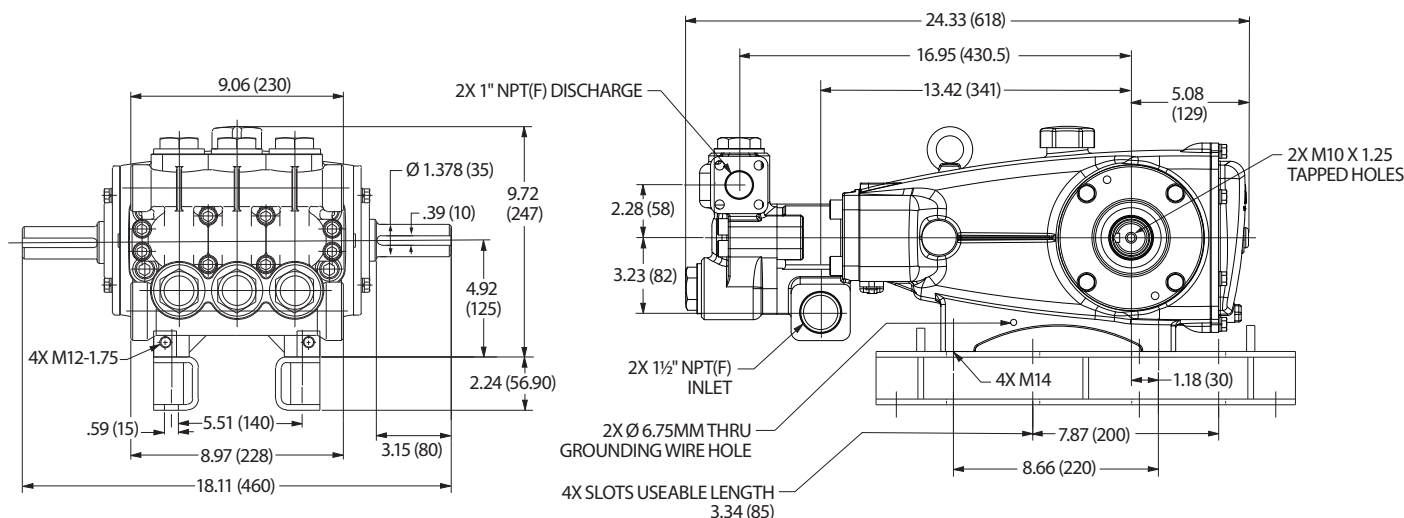
Models
3521DHS, 3521CHS,
3527HS
September 2023

OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
34021	Key (M10 x 8 x 70)	1
92674	Mount, Rail Assembly (STZP R) (Includes: 34018)	1
34018	Mount, Direct (STZP R)	1
76514	Mount, Rail Assembly (S) (Includes: 34039)	1
34039	Mount, Direct (S)	1
990013	Hub, "B", 35 mm (STL) (Not Shown)	1
80540	Screwing, Adjusting (M12 x 100)	2
30278	Oiler (1 oz) (Not Shown)	3
34314	Kit, Oil Drain (3/8" x 48") (Not Shown)	1
819000	Assembly, Crankcase, Cast Iron Conversion (Not Shown)	1

SERVICE PARTS

PART	DESCRIPTION	QTY
76841	Seal Kit – Standard NBR	1
34017	Valve Kit – Standard NBR	2
6100	Oil, Case (12–21 oz bottles) (Fill to Specified Crankcase Capacity Prior to Start-up)	1
6124	Gasket, Liquid (3 oz)	1
6139	Lubricant, Anti-Seize (8 oz) (See Tech Bulletin 095)	1
32273	Crankcase Oil Seal Removal and Installation Kit (Not Shown) (Includes: Oil Seals, Guide Tool, Screws, Washers, Driver)	1
30696	Reverse Pliers (Not Shown)	1
818373	Head, Complete with NBR Seals and O-Rings (Model 3521DHS)	1
815438	Head, Complete with NBR Seals and O-Rings (Model 3527HS)	1



Models 3521DHS, 3521CHS, 3527HS

SEAL KITS One (1) seal kit required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220) ♦	FFKM (.0770)
3521DHS, 3521CHS, 3527HS	76841*	76842	76843 *	76844 *

ITEM (Included in Seal Kits)	DESCRIPTION	QTY
97	O-Ring, Plunger Retainer	3
104	O-Ring, Inlet Adapter	3
106	Seal, Low-Pressure, with SS-Spring	3
112	O-Ring, Inlet Manifold	3
123	O-Ring, V-Packing Cylinder	3
127	V-Packing	6
158	Backup Ring, V-Packing Cylinder	3
159	O-Ring, V-Packing Cylinder	3

♦ Silicone oil/grease required *Review material codes for individual items (STG generally may be used as alternative)

VALVE KITS Two (2) valve kits required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220) ♦	FFKM (.0770)
3521DHS, 3521CHS, 3527HS	34017	31955	31952	76617

ITEM (Included in Valve Kits)	DESCRIPTION	QTY
162	Backup Ring, Valve Seat	3
163	O-Ring, Valve Seat	3
164	Seat, Stepped	3
166	Valve	3
167	Spring	3
168	Retainer, Spring	3
170	Washer, Spring Retainer	3
172	O-Ring, Valve Plug	3
173	Backup Ring, Valve Plug	3

♦ Silicone oil/grease required

⚠ CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (e.g. regulator, unloader) and a secondary pressure relief device (e.g. 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/dynamic-literature/cautions-and-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty online at www.catpumps.com/literature/cat-pumps-limited-warranty