

DATA SHEET

35 FRAME PLUNGER PUMPS

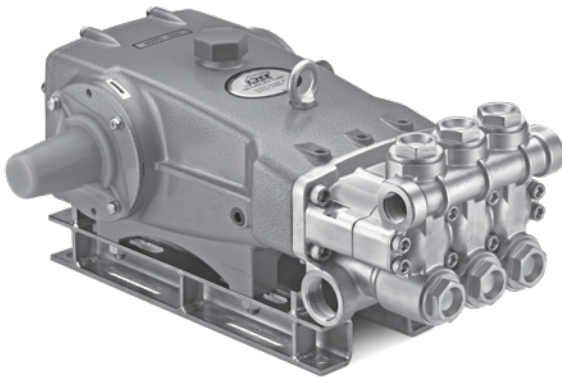


**Standard
Brass**
3535HS

**Stainless
Steel**
3531DHS

**Stainless Steel
Flushed**
3531CHS

**Nickel Aluminum
Bronze**
3537HS



Model 3535HS Shown
(Shaft protector included, mounting rails
sold separately)

FEATURES

- Triplex design delivers high efficiency and low pulsation.
- Durable dual V-Packings are lubricated and cooled by pumped liquid.
- Pre-set Lo-Pressure Seals provide secondary protection against external leaks and require no packing adjustments.
- Special flushed inlet manifold on Model 3531CHS permits an external flush for added cooling with high temperature liquids or lubrication with low lubricity liquids.
- Standard NBR seals with alternative options for temperature and chemical compatibility.

SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow*	40 gpm	151 lpm
Pressure Range*	100 to 2000 psi	6.9 to 138 bar
Pump RPM**	888 rpm	888 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 high temp up to 200° F

Bore	1.575"	40 mm
Stroke	1.890"	48 mm
Crankcase Capacity	4.2 Qts.	4 l
Inlet Ports (2)	1-1/2" NPT(F)	1-1/2" NPT(F)
Flush Ports (2)	1/4" NPT (F)	1/4" NPT (F)
Discharge Ports (2)	1" NPT(F)	1" NPT(F)
Shaft Diameter	1.378"	35 mm
Pulley Mounting	Either Side	Either Side
Weight	139lbs.	63 kg
Dimensions	24.33 x 18.11 x 9.72"	618 x 460 x 247 mm

* Intermittent Duty Only

**Pump minimum is 100 RPM.

Intermittent Duty Cycle Defined As:

Operating pump at stated flow and pressure for no more than 50% of time in any given hour.

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)
IPFE	.0770	200° F	(93° C)

See Reference Document 99REF017 for inlet conditions and RPM at high temperature.

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.	$\frac{\text{Hp}}{\text{(Electric Brake)}}$	=	$\frac{\text{gpm x psi}}{1460}$
DETERMINING MOTOR PULLEY SIZE	$\frac{\text{Motor Pulley O.D.}}{\text{Pump rpm}}$	=	$\frac{\text{Pump Pulley O.D.}}{\text{Motor rpm}}$

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

PARTS LIST

ITEM	PART NUMBER		3531DHS		DESCRIPTION		QTY	
	3535HS	MATL	3531CHS	MATL	3537HS	MATL		
2	34021	STL	34021	STL	34021	STL	Key (M10x8x70)	1
5	96049	S	96049	S	96049	S	Screw, HHC Sems (M10x25) (See Tech Bulletin 125) (06/18)	8
8	134604	ALE	134604	ALE	134604	ALE	Cover, Bearing (See Tech Bulletin 118, 125) (06/18)	2
9	815279	FBR	815279	FBR	815279	FBR	Shim, Split 2-Pc (See Tech Bulletin 125) (06/18)	2
10	12398	NBR	12398	NBR	12398	NBR	O-Ring, Bearing Cover - 70D	2
11	13296	NBR	13296	NBR	13296	NBR	Seal, Oil, Crankshaft	2
15	29326	STL	29326	STL	29326	STL	Bearing, Roller	2
20	126725	BZ R	126725	BZ R	126725	BZ R	Rod, Connecting Assy (Incls: 21,22,23)	3
21	126749	STCP R	126749	STCP R	126749	STCP R	Locking Washer (M10)	3
22	126593	STCP R	126593	STCP R	126593	STCP R	Washer, Flat (M10.5)	6
23	122045	STZP	122045	STZP	122045	STZP	Screw, HH (M10x55)	6
25	29325	FCM	29325	FCM	29325	FCM	Crankshaft, Dual End	1
31	828710	PE	828710	PE	828710	PE	Protector, Oil Cap w/Foam Gasket	1
32	43211	ABS	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap - 70D	1
34	126743	STCP R	126743	STCP R	126743	STCP R	Bolt, Eye (M12x1.75) (For Lifting Pump Only)	1
37	92241	—	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket	1
38	44428	NBR	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	125753	S	125753	S	125753	S	Screw, HHC Sems (M8x25)	8
48	25625	STCP	25625	STCP	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	45936	AL	45936	AL	45936	AL	Cover, Rear (See Tech Bulletin 118)	1
51	16612	NBR	16612	NBR	16612	NBR	O-Ring, Crankcase Cover - 70D	1
53	134784	AL	134784	AL	134784	AL	Crankcase Assy (Incls: 34, 54) (See Tech Bulletin 118, 125) (06/18)	1
54	27488	S	27488	S	27488	S	Pins, Guide	2
56	27790	POP	27790	POP	27790	POP	Pan, Oil	1
59	92538	S	92538	S	92538	S	Screw, HHC Sems (M6x16)	2
64	43864	CM	43864	CM	43864	CM	Pin, Crosshead	3
65	49166	SSHB	49166	SSHB	49166	SSHB	Rod, Plunger	3
69	126587	STCP R	126587	STCP R	126587	STCP R	Washer, Oil Seal	3
70	100488	NBRS	100488	NBRS	100488	NBRS	Seal, Oil, Crankcase	3
	44739	FPM	44739	FPM	44739	FPM	Seal, Oil, Crankcase	3
75	43865	S	43865	S	43865	S	Slinger, Barrier	3
88	45676	S	45676	S	45676	S	Washer, Keyhole (M16)	3
90	43921	CC	43921	CC	43921	CC	Plunger (M40x145)	3
95	† 89778	SS	89778	SS	89778	SS	Stud, Plunger Retainer (M10x135)	3
96	20189	PTFE	20189	PTFE	20189	PTFE	Back-up-Ring, Plunger Retainer	3
97	11345	NBR	11345	NBR	11345	NBR	O-Ring, Plunger Retainer - 70D	3
98	44085	SS	44085	SS	44085	SS	Gasket, Retainer	3
99	† 44084	SS	44084	SS	44084	SS	Retainer, Plunger (M10)	3
100	814279	PVDF	814279	PVDF	814279	PVDF	Retainer, Seal, 2 Pc. (See Tech Bulletin 105)	3
101	44112	—	44112	—	44112	—	Wick, Long Tab	3
106	† 44113	NBR	44113	NBR	44113	NBR	Seal, LPS w/SS-Spg	3
107	—	—	45381	SS	44115	NAB	Spacer, Lo-Pressure Seal	3
110	49464	BBCP R	45365	SS	45124	NAB	Manifold, Inlet	1
	—	—	125397	SS	—	—	Manifold, Inlet, Flushed (1/4" Flush)	1
112	11379	NBR	11379	NBR	11379	NBR	O-Ring, Inlet Manifold - 70D	3
117	44585	S	44585	S	44585	S	Screw, HSH (M14x40)	4
126	46494	BB	48391	D	48391	D	Adapter, Female (See Tech Bulletin 087)	3
	—	—	45367	SS	45367	SS	Adapter Female	3
127	44609	STG	44609	STG	44609	STG	V-Packing	6
128	43928	BB	45368	SS	45368	SS	Adapter, Male	3
141	49519	SS	49519	SS	49519	SS	Spring, Large Coil (See Tech Bulletin 108)	3
155	48860	NBR	48860	NBR	48860	NBR	O-Ring, V-Packing Spacer - 90D	6
	48362	D	48362	D	48362	D	Back-up-Ring, V-Packing Spacer	6
157	49478	BB	49520	SS	49521	NAB	Spacer, V-Packing (See Tech Bulletin 108)	3
162	48363	D	48363	D	48363	D	Back-up-Ring, Valve Seat	6
163	26142	NBR	26142	NBR	26142	NBR	O-Ring, Seat - 80D	6
164	44727	S	44612	SS	44612	SS	Seat, Stepped	6
166	43932	S	44108	SS	44108	SS	Valve	6
167	44109	SS	44109	SS	44109	SS	Spring	6
168	44728	PVDF	44728	PVDF	44728	PVDF	Retainer, Spring	6
170	44729	SS	44729	SS	44729	SS	Washer, Spring Retainer	6
171	44644	SS	44644	SS	44644	SS	Coil Spring (70kg), Valve Plug	6
172	89827	NBR	89827	NBR	89827	NBR	O-Ring, Valve Plug - 90D	6
173	48364	D	48364	D	48364	D	Back-up-Ring, Valve Plug	6
174	46444	FBB	49300	SSD	44643	NAB	Plug, Valve	6
185	49465	BBCP R	49299	SSD	76335	NAB	Manifold, Discharge (See Tech Bulletin 099 and 109)	1
188	89981	S	89981	S	89981	S	Screw, HSH (M12x70)	8
250	855042	NY	855042	NY	855042	NY	Protector, Shaft w/2 Screws, Lockwashers and Washers (Included with pump) (06/18)	1

Bold Part Numbers are unique to a particular pump model. Italics are optional items. [] Date of latest production change.

◆ Silicone oil/grease required. * Review individual parts in each kit for material identification. R Components comply with RoHS Directive

View Tech Bulletins 024, 035, 036, 040, 041, 043, 050, 052, 053, 069, 074, 083, 095, 099, 105, 108, 109, 118, 125 and 127 for additional information. See Service Bulletin 001

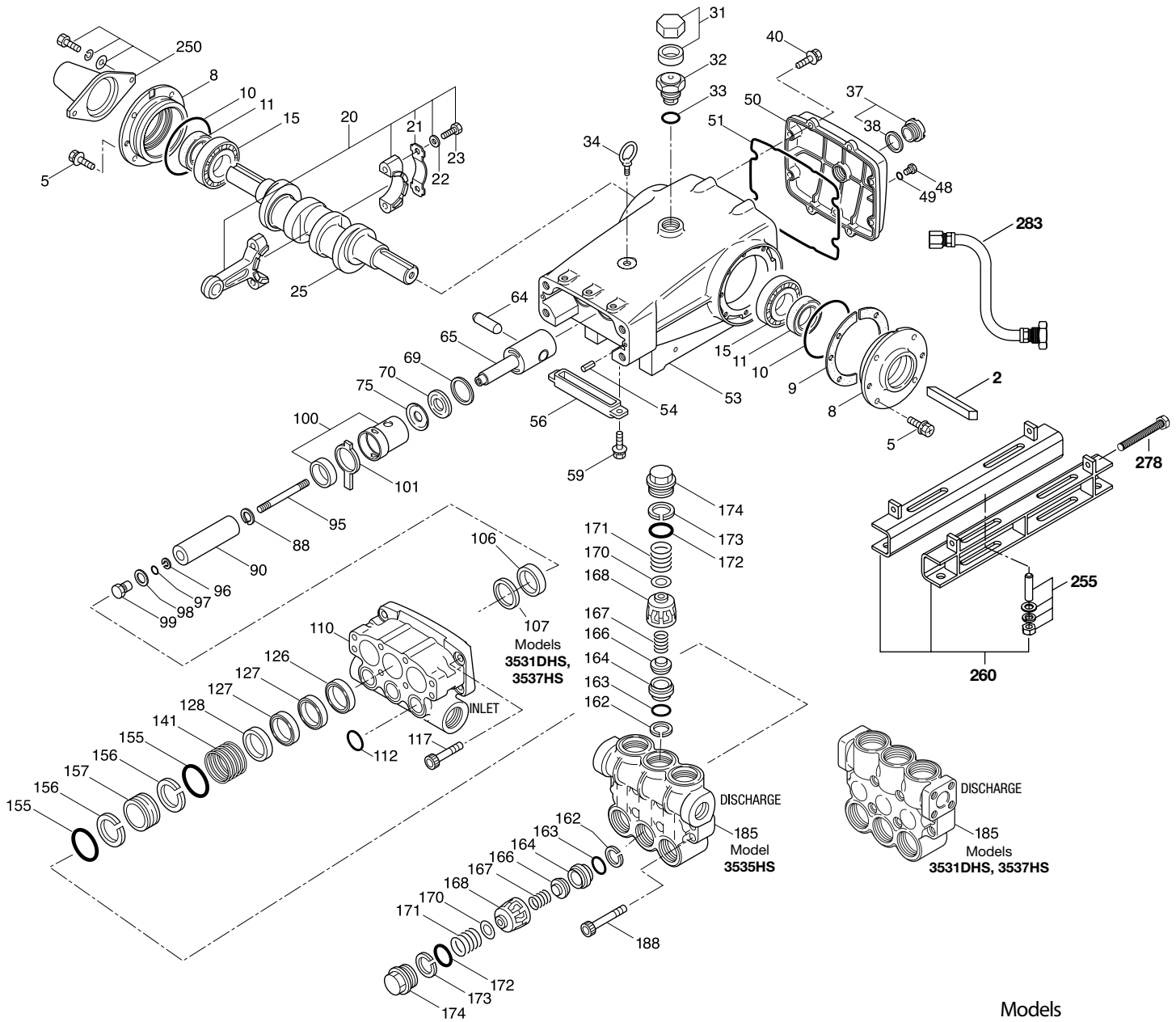
MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum ALE=Aluminum Epoxy BB=Brass BBCP=Brass/Chrome Plated BZ=Bronze CC=Ceramic CM=Chrome-Moly D=Acetal

EPDM=Ethylene Propylene Diene Monomer FBB=Forged Brass FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon NAB=Nickel Aluminum Bronze

NBR=Medium Nitrile (Buna-N) NBRS=Buna, Silicone Free NY=Nylon POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS

SSHB=316SS/High Strength Brass STCP=Steel/Chrome Plated SFG=Special Blend (FPM) STG=Special Blend (PTFE) White SSD=Duplex Stainless Steel STL=Steel STZP=Steel/Zinc Plated ZP=Zinc Plated

EXPLODED VIEW



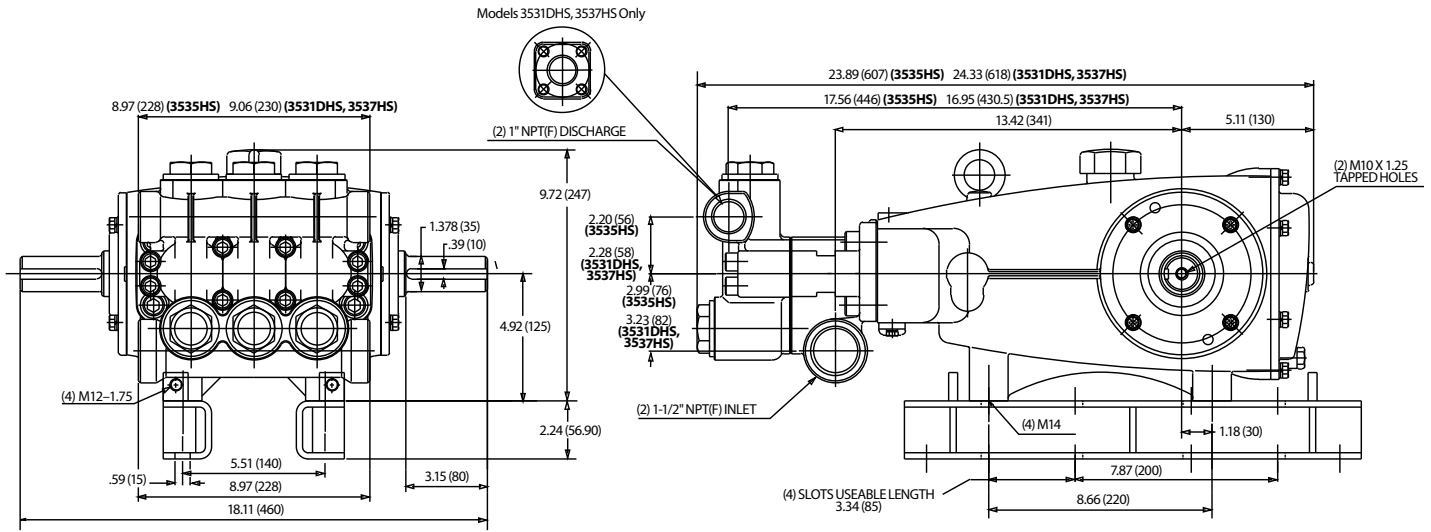
Models
 Brass 3535HS
 Stainless Steel 3531DHS, 3531CHS
 Nickel Aluminum Bronze 3537HS
 October 2018

OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
31040	Kit, Seal - Standard NBR	1
34235	Kit, Valve (3535HS,3535CHS) - Standard NBR	2
34017	Kit, Valve (3531DHS,3531CHS,3537HS) - Standard NBR	2
92674	Mount, Rail Assembly (STZP R)	1
76514	Mount, Rail Assembly (S)	1
34018	Mount, Direct (STZP R)	1
34039	Mount, Direct (S)	1
990013	Hub, "B", 35 mm (STL)	1
80540	Screw, Adjusting M12 x 100	1
30278	Oiler (1 oz) (Not Shown)	3
34314	Kit, Oil Drain	1
30696	Plier, Reverse	1

SERVICE PARTS

PART	DESCRIPTION	QTY
6100	Oil, Case (12 - 21 oz. bottle)	1
34021	Key, M10 x 8 x 70	1
6119	Lubricant, Anti-Seize (2 oz) (3531DHS, 3531CHS)	1
6124	Gasket, Liquid (3 oz)	1
818427	Head, Complete - 3535HS w/NBR Seals and O-Rings	1
818372	Head, Complete - 3531DHS w/NBR Seals and O-Rings	1
814522	Head, Complete - 3527HS w/NBR Seals and O-Rings	1
819000	Assy, Crankcase, Cast Iron Conversion	1



SEAL KITS One (1) seal kit required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220)◆
3535HS, 3531DHS, 3531CHS, 3537HS	31040 *	33055	33262 *

ITEM (Included in Seal Kits)	DESCRIPTION			QTY	
97	11345	11375	701490	O-Ring, Plunger Retainer	3
106	44113	44740	46955	Seal, LPS w/SS-Spg	3
112	11379	14183	701491	O-Ring, Inlet Manifold	3
127	44609	44741	44609	V-Packing	6
155	48860	20137	701492	O-Ring, V-Packing Spacer	6
156	48362	48362	48362	Backup-Ring, V-Packing Spacer	6

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

VALVE KITS Two (2) valve kits required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220)◆
3535HS	34235	31955	31952
3531DHS, 3531CHS, 3537HS	34017	31955	31952

ITEM (Included in Valve Kits)	DESCRIPTION			QTY	
162	48363	48363	48363	Backup-Ring, Valve Seat	3
163	26142	14330	701493	O-Ring, Valve Seat	3
164	44727			Seat (3535HS, 3535CHS)	3
		44612	44612	Seat (3531DHS, 3531CHS, 3537HS)	3
166	43932			Valve (3535HS, 3535CHS)	3
		44108	44108	Valve (3531DHS, 3531CHS, 3537HS)	3
167	44109	44109	44109	Spring	3
168	44728	44728	44728	Retainer, Spring	3
170	44729	44729	44729	Washer, Spring Retainer	3
172	89827	11747	701494	O-Ring, Valve Plug	3
173	48364	48364	48364	Backup-Ring, Valve Plug	3

◆ Silicone oil/grease required

⚠ 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.