



Model 1540E Shown

## 15 Frame Plunger Pump

**Standard Brass  
Model**

# 1540E

**Stainless Steel  
Model**

# 1541

### FEATURES

#### Superior Design

- Triplex plunger design provides smoother liquid flow.
- Special Epoxy painted crankcase, bearing covers and rear cover with liquid gasket seal provides added moisture protection (1540E only).
- Lo-Pressure and Hi-Pressure Seals are lubricated and cooled by the liquid being pumped.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.

#### Quality Materials

- Precision design 304 and 316 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Forged Brass or stainless steel manifolds are strong and corrosion resistant.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and extended seal life.
- Specially formulated, CAT PUMP exclusive, Hi-Pressure seals offer unmatched performance and seal life.
- Die cast aluminum crankcase provides high strength, minimum weight and precision tolerance control.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings with greater loading capacity mean longer bearing life.

#### Easy Maintenance

- Wet-end easily serviced without entering crankcase.
- Valve assemblies are accessible without disturbing piping.
- Interchangeable inlet and discharge valve assemblies.
- Preset seals require no packing adjustment.

#### **⚠ CAUTIONS AND WARNINGS**

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure safety relief device (i.e. pop-off valve, safety 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).

### SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow .....	18.0 GPM	(68 L/M)
Pressure Range.....	100 to 1200 PSI	(7 to 85 BAR)
RPM .....	1100 RPM	(1100 RPM)
Inlet Pressure Range .....	Flooded to 70 PSI	(Flooded to 4.9 BAR)
Bore.....	1.181"	(30 mm)
Stroke.....	1.181"	(30 mm)
Crankcase Capacity .....	42 oz.	(1.26 L)
Maximum Liquid Temperature .....	140°F	(60°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2) .....	1" NPTF	(1" NPTF)
Discharge Ports (2).....	3/4" NPTF	(3/4" NPTF)
Pulley Mounting .....	Either Side	(Either Side)
Shaft Diameter .....	1.181"	(30 mm)
Weight.....	42.6 lbs.	(21 kg)
Dimensions.....	14.57 x 13.0 x 7.20"	(370 x 330 x 183 mm)

### ELECTRIC HORSEPOWER REQUIREMENTS

FLOW		PRESSURE			RPM
		PSI 800	PSI 1000	PSI 1200	
U.S. GPM	L/M	BAR 55	BAR 70	BAR 85	
18	68	9.9	12.3	14.8	1100
15	57	8.2	10.3	12.3	917

**DETERMINING  
THE PUMP R.P.M.**

$\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}} = \frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$

**DETERMINING  
THE REQUIRED H.P.**

$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{Electric Brake H. P. Required}$

**DETERMINING  
MOTOR PULLEY SIZE**

$\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure and additional technical information.

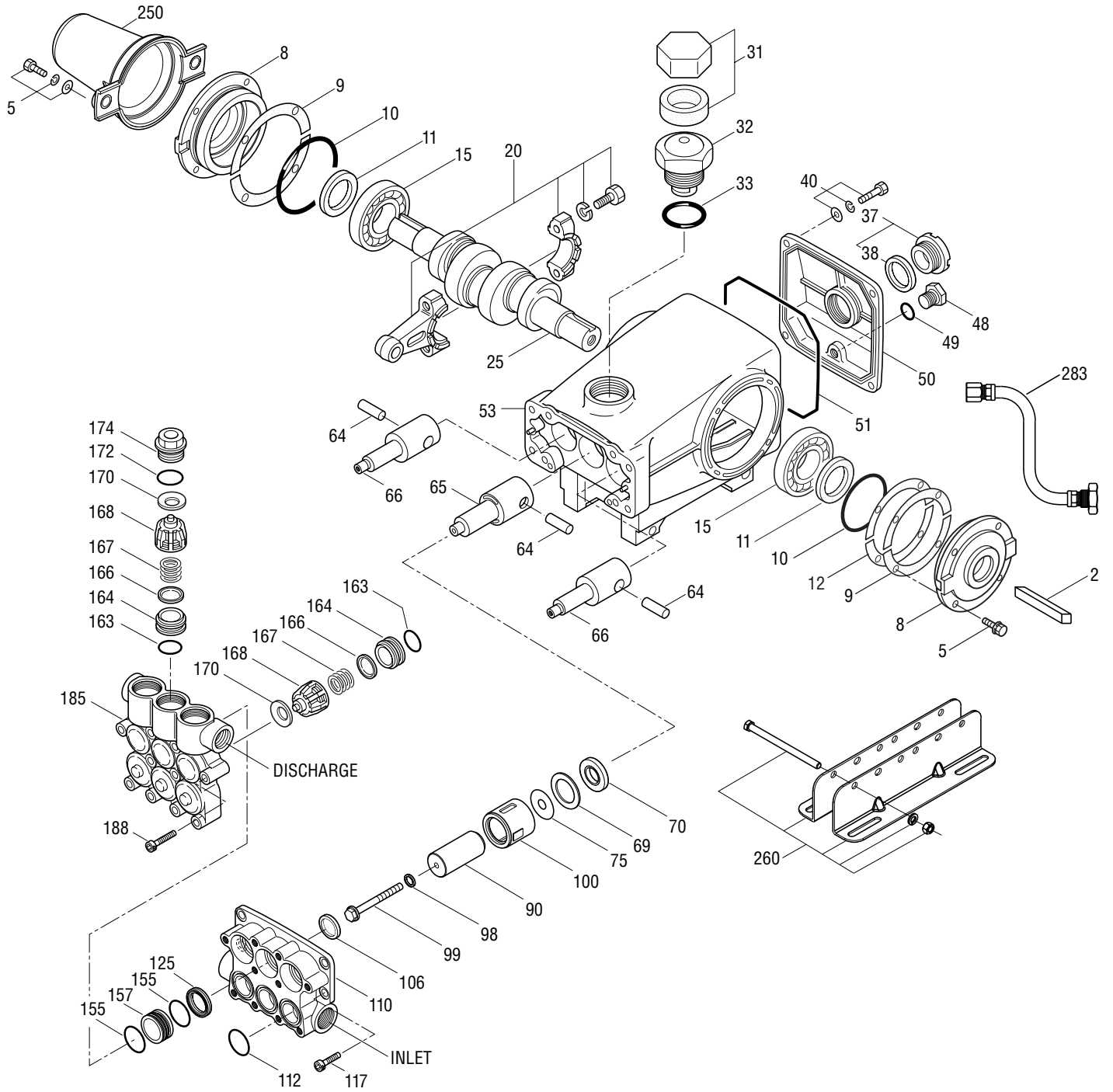
*"Customer confidence is our greatest asset"*

# PARTS LIST

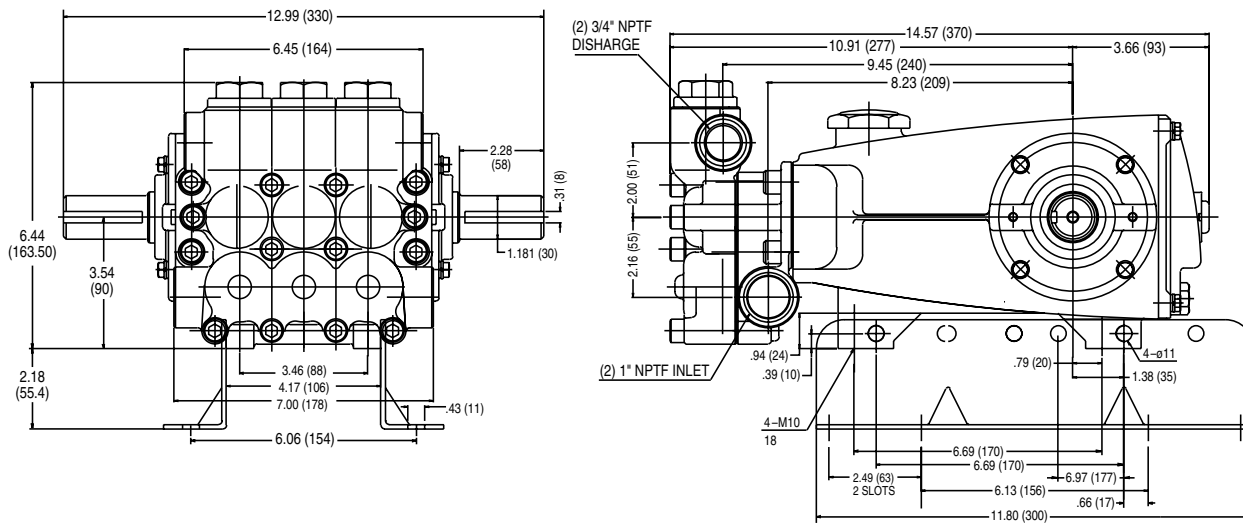
ITEM	PART NUMBER		DESCRIPTION		QTY	
2	<b>1540E</b>	<b>MATL</b>	<b>1541</b>	<b>MATL</b>		
2	990036	STL	990036	STL	Key (M8x7x40) Use w/30059 and 990012	1
—	30067	STL	30067	STL	Key (M8x7.5x25) Use w/30059 "H" Hub	1
5	92538	S	92538	S	Screw, HHC Sems (M6x16)	8
8	<b>49279</b>	<b>ALE</b>	<b>43496</b>	<b>AL</b>	Cover, Bearing	2
9	815281	FBR	815281	FBR	Shim, Split 2-Pc	3
10	11340	NBR	11340	NBR	O-Ring, Bearing Cover - 70D	2
11	43495	NBR	43495	NBR	Seal, Oil, Crankshaft - 70D	2
12	814800	S	814800	S	Shim, Split, 2-Pc	2
15	39060	STL	39060	STL	Bearing, Roller	2
20	48600	TNM	48600	TNM	Rod, Connecting Assembly	3
25	43494	FCM	43494	FCM	Crankshaft, Dual-End (M30)	1
31	828710	—	828710	—	Protector, Oil Cap w/Foam Gasket	1
32	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	O-Ring, Filler Cap - 70D	1
37	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	92542	S	92542	S	Screw, HHC Sems (M6x20)	4
48	25625	STCP	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	<b>49276</b>	<b>ALE</b>	<b>43491</b>	<b>AL</b>	Cover, Rear	1
51	44834	NBR	44834	NBR	O-Ring, Rear Cover - 70D	1
53	<b>49273</b>	<b>ALE</b>	<b>48925</b>	<b>AL</b>	Crankcase (Includes Guidepin)	1
64	43507	CM	43507	CM	Pin, Crosshead	3
65	<b>48933</b>	<b>SHS</b>	<b>49611</b>	<b>SS</b>	Rod, Plunger (Center)	1
66	<b>48931</b>	<b>SHS</b>	<b>49609</b>	<b>SS</b>	Rod, Plunger (Outside)	2
69	126596	STCP R	126596	STCP R	Washer, Oil Seal	3
70	43500	NBR	43500	NBR	Seal, Oil Crankcase - 80D	3
75	48937	S	48937	S	Slinger, Barrier	3
90	48938	CC	48938	CC	Plunger, Ceramic (M30x65)	3
98	46730	NBR	46730	NBR	Washer, Seal - 90D	3
99	† 48201	SS	† 48201	SS	Retainer, Plunger	3
100	48936	PVDF	48936	PVDF	Retainer, Seal	3
106	<b>49067</b>	<b>SNG</b>	—	—	Seal, LPS w/S-Spg	3
	—	—	<b>49616</b>	<b>SNG</b>	Seal, LPS w/SS-Spg	3
110	<b>48940</b>	<b>FBB</b>	<b>49614</b>	<b>SS</b>	Manifold, Inlet	1
112	123903	NBR	123903	NBR	O-Ring, Inlet Manifold - 90D	3
117	49044	S	49044	S	Screw, HSH (M10x25)	4
125	<b>48944</b>	<b>SNG</b>	—	—	Seal, HPS w/S	3
	<b>49472</b>	<b>STG</b>	—	—	Seal, HPS w/S	3
	—	—	<b>49619</b>	<b>STG</b>	Seal, HPS w/SS	3
155	123903	NBR	123903	NBR	O-Ring, Spacer - 90D	6
157	<b>48946</b>	<b>BB</b>	<b>49621</b>	<b>SS</b>	Spacer, HPS	3
163	26143	NBR	26143	NBR	O-Ring, Seat - 80D	6
164	<b>48951</b>	<b>S</b>	<b>49626</b>	<b>SS</b>	Seat	6
166	48686	SS	48686	SS	Valve	6
167	48687	SS	48687	SS	Spring, Valve	6
168	48994	PVDF	48994	PVDF	Retainer, Spring	6
170	<b>123764</b>	<b>S</b>	<b>49627</b>	<b>SS</b>	Washer, Spring Retainer	6
172	17629	NBR	17629	NBR	O-Ring, Valve Plug - 80D	3
174	<b>48952</b>	<b>FBB</b>	<b>49628</b>	<b>SS</b>	Plug, Valve	3
185	<b>48948</b>	<b>FBB</b>	<b>49623</b>	<b>SS</b>	Manifold, Discharge	1
188	87952	S	87952	S	Screw, HSH (M10x55)	10
250	<b>30764</b>	<b>NY R</b>	—	—	Protector, Shaft w/2 Screws PN 125824	1
	—	—	<b>30764S</b>	<b>NY</b>	Protector, Shaft w/2 Screws PN 92538	1
260	30613	STZP	30613	STZP	Mounting, Angle Rail	1
269	30206	F	30206	F	Pulley (10") <b>[See Drive Packages, Tech Bulletin 003]</b>	1
270	30059	STL	30059	STL	Hub, "H", M30 (Keyway M8) <b>[See Drive Packages, Tech Bulletin 003]</b>	1
	990012	STL	990012	STL	Hub, "B", M30 (Keyway M8) <b>[See Drive Packages, Tech Bulletin 003]</b>	1
283	34334	—	34334	—	Kit, Oil Drain (3/8" x 24") (See Tech Bulletin 083)	1
290	6124	—	6124	—	Sealant, Hylomar (3 oz.)	1
299	<b>816863</b>	<b>FBB</b>	<b>818443</b>	<b>SS</b>	Head, Complete	1
300	<b>31770</b>	<b>NBR</b>	<b>31430</b>	<b>NBR</b>	Kit, Seal (Incls: 98,106,112,125,155)	1
310	<b>31775</b>	<b>NBR</b>	<b>31450</b>	<b>NBR</b>	Kit, Valve (Incls: 163,164,166,167,168,170,172)	2
—	6100	—	6100	—	Oil, Case (12 Bottles) ISO-68 Hydraulic (Fill to specified crankcase capacity prior to start-up)	1
—	—	—	<b>6119</b>	—	Lubricant, Antiseize (1 oz.)	1
—	<b>701931</b>	—	—	—	Sealant, Silicone (See Tech Bulletin 100)	1

**Bold part numbers are unique to a particular pump model. Italics are optional items.** †Production parts are different than replacement parts.  
 R Components comply with RoHS Directive. See Tech Bulletins 002, 003, 024, 035, 036, 043, 053, 074, 077, 083 and 100 for additional information.  
 MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic ALE=Aluminum Epoxy BB=Brass CC=Ceramic CM=Chrome-moly F=Cast Iron  
 FBB=Forged Brass FCM=Forged Chrome-moly NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride S=304SS  
 SHS=304SS/High Strength SS=316SS SNG=Special Blend (Buna) STG=Special Blend PTFE White STCP=Steel/Chrome Plated STL=Steel  
 STZP=Steel/Zinc Plated TNM=Special High Strength

# EXPLODED VIEW



Model  
Brass - 1540E  
Stainless Steel - 1541



Models 1540E, 1541



- 1 Die cast aluminum **crankcase** means high strength, light weight, and excellent tolerance control.
- 2 Oversized crankshaft **bearings** provide extended bearing life and pump performance.
- 3 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 4 Matched oversized TNM **connecting rods** noted for superior tensile strength and bearing quality.
- 5 Special **plunger rods** with high strength crossheads for high load bearing and longevity.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 Special concentric, high-density, polished, solid ceramic **plungers** provide a true wear surface and extended seal life.
- 8 **Manifolds** are a high strength forged brass or stainless steel for long-term, continuous duty.
- 9 100% **wet seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides of seals.
- 10 Stainless steel **valves, seats and springs** provide corrosion-resistance, ultimate seating and extended life.
- 11 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.

### World Headquarters

CAT PUMPS

1681 - 94th Lane N.E. Minneapolis, MN 55449-4324

Phone (763) 780-5440 — FAX (763) 780-2958

e-mail: techsupport@catpumps.com

www.catpumps.com

### International Inquiries

FAX (763) 785-4329

e-mail: intlsales@catpumps.com



The Pumps with Nine Lives

### CAT PUMPS (U.K.) LTD.

1 Fleet Business Park, Sandy Lane, Church Crookham

FLEET, Hampshire, GU52 8BF, England

Phone Fleet 44 1252-622031 — Fax 44 1252-626655

e-mail: sales@catpumps.co.uk www.catpumps.co.uk

### N.V. CAT PUMPS INTERNATIONAL S.A.

Heiveldkens 6A, B-2550 Kontich, Belgium

Phone 32-3-450.71.50 — Fax 32-3-450.71.51

e-mail: cpi@catpumps.be www.catpumps.be

### CAT PUMPS DEUTSCHLAND GmbH

Buchwiese 2, D-65510 Idstein, Germany

Phone 49 6126-9303 0 — Fax 49 6126-9303 33

e-mail: catpumps@t-online.de www.catpumps.de