

## 68 Frame Block-Style Stainless Steel Plunger Pump

**Standard  
Model**

**6821**

**Flushed  
Model**

**6821K**

### FEATURES

#### Superior Design

- Triplex plunger design provides smoother liquid flow.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- **Standard Models:** Lo-Pressure Seals and V-Packings are completely lubricated and cooled by the liquid being pumped.
- **Flushed K Models:** Special ported inlet manifold permits an external flush liquid providing cooling for hi-temp liquids and lubrication for low lubricity liquids.

#### Quality Materials

- Precision design 316 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- 316 SSL block-style manifolds for strength and corrosion resistance.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and extended seal life.
- Specially formulated, CAT PUMP exclusive, V-Packings offer unmatched performance and seal life.
- Die cast aluminum crankcase provides high strength, minimum weight and precision tolerance control.
- Optional Cast Iron crankcase for hazardous environments.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings mean longer bearing life.

#### Easy Maintenance

- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Preset packings mean no packing gland adjustment is necessary, reducing maintenance costs.

#### **⚠ WARNING**

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

### SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow.....	25.0 GPM	(95 L/M)
Pressure Range.....	100 to 3000 PSI	(7 to 210 BAR)
Inlet Pressure Range*.....	Flooded to 50 PSI	(Flooded to 3.5 BAR)
RPM.....	615 RPM	(615 RPM)
Bore.....	1.260"	(32 mm)
Stroke.....	2.579"	(65.5 mm)
Crankcase Capacity.....	10 Qts.	(9.46 L)
Maximum Liquid Temperature.....	140°F	(60°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2).....	1-1/2" NPTF	(1-1/2" NPTF)
Flushing Ports (2)*.....	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2).....	1" NPTF	(1" NPTF)
Shaft Diameter.....	1.772"	(45 mm)
Weight.....	355 lbs.	(161 kg)
Dimensions.....	29.5 x 24.33 x 11.98"	(750 x 618 x 305 mm)

\* Flushed K Models: Special ported inlet manifold permits an external flush liquid providing cooling for hi-temp liquids and lubrication for low lubricity liquids.

### ELECTRIC HORSEPOWER REQUIREMENTS

FLOW		PRESSURE				RPM
		PSI 1500	PSI 2000	PSI 2500	PSI 3000	
U.S. GPM	L/M	BAR 105	BAR 140	BAR 175	BAR 210	
25	95	25.7	34.3	42.8	51.4	615
20	76	20.5	27.4	34.3	41.1	492
15	57	15.4	20.5	25.7	30.9	369

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

Rated G.P.M. = "Desired" G.P.M.  
Rated R.P.M. "Desired" R.P.M.

**DETERMINING  
THE REQUIRED H.P.**

GPM x PSI = Electric Brake  
1460 H. P. Required

**DETERMINING  
MOTOR PULLEY SIZE**

Motor Pulley O.D. = Pump Pulley O.D.  
Pump R.P.M. Motor R.P.M.

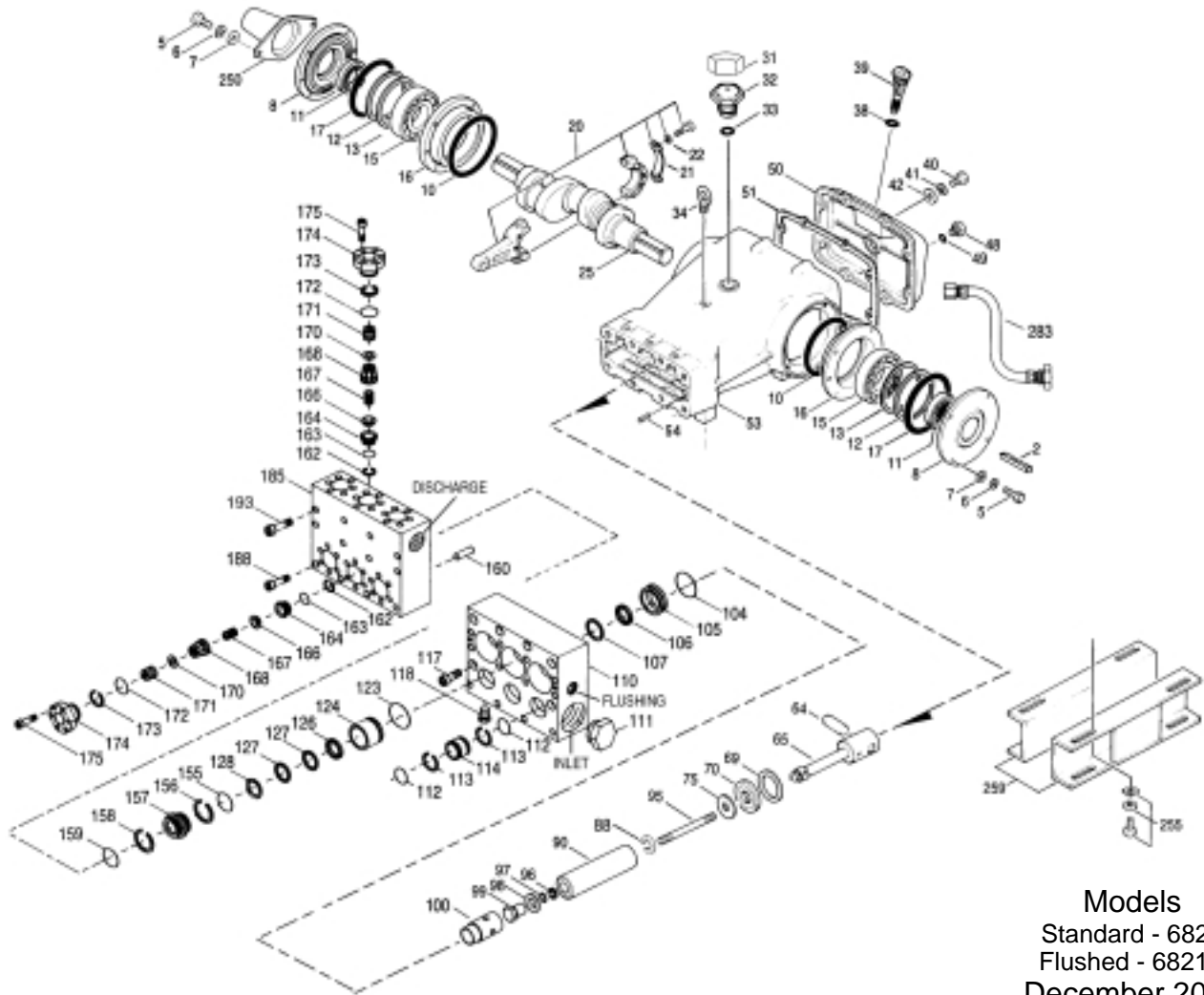
See complete Drive Packages [Includes: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	PART NUMBER		DESCRIPTION	QTY
	6821	MATL 6821K		
		MATL		
2	43048	STL	Key (M14x9x90)	1
5	89728	S	Screw, HH (M10x40)	8
6	15847	S	Lockwasher (M10)	8
7	19934	S	Washer, Flat (M10)	8
8	29443	AL	Cover, Bearing - Outer	2
10	29444	NBR	O-Ring, Bearing Cover - 70D	2
11	11443	NBR	Seal, Oil, Crankshaft - 70D	2
12	43642	STZP	Washer, Shim (M120x0.3)	0-2
	126594	STCP R	Washer, Shim (M120x0.3)	0-2
13	126595	STCP R	Washer, Shim (M120x0.5)	0-2
15	29441	STL	Bearing, Roller	2
16	29442	STL	Cover, Bearing - Inner	2
17	29444	NBR	O-Ring, Bearing Cover - 70D	2
20	126612	BBHS	Assembly, Connecting Rod (Incls: 21, 22)	3
21	126560	STCP R	Washer, Locking	3
22	126593	STCP R	Washer, Shim (M10.5x1.5)	6
25	29440	FCM	Crankshaft, Dual Shaft	1
31	828710	—	Protector, Oil Cap w/Foam Gasket	1
32	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	O-Ring, Filler Cap - 70D	1
34	126743	STCP R	Bolt, Eye (M12) (For Lifting Pump Only)	1
38	11338	NBR	O-Ring, Dip Stick - 70D	1
39	27769	ABS	Stick, Dip	1
40	89627	S	Screw, HH (M10x30)	8
41	15847	S	Lockwasher (M10)	8
42	19934	S	Washer, Flat (M10)	8
48	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	O-Ring, Drain Plug - 70D	1
50	29438	AL	Cover, Rear	1
51	29439	NBR	Gasket, Rear Cover	1
53	45303	AL	Crankcase (Incls: 34, 54)	1
54	43282	S	Pin, Guide	2
64	29481	CM	Pin, Crosshead	3
65	48735	SSZZ	Rod, Plunger	3
69	126588	STCP R	Washer, Oil Seal	3
70	29454	NBR	Seal, Oil Crankcase - 80D	3
75	43865	S	Slinger Barrier	3
88	45676	S	Washer, Keyhole (M16)	3
90	43957	CC	Plunger (M32x145)	3
95	89778	SS	Stud, Plunger Retainer (M10x135)	3
96	20189	PTFE	Back-up-Ring, Plunger Retainer	3
97	11345	NBR	O-Ring, Plunger Retainer - 70D	3
	11375	FPM	O-Ring, Plunger Retainer	3
	701490	EPDM	O-Ring, Plunger Retainer	3
98	44085	SS	Gasket, Plunger Retainer	3
99	44084	SS	Retainer, Plunger (M10)	3
100	703084	D	Retainer, Seal	3
104	43875	NBR	O-Ring, Adapter, Inlet - 70D	3
	44826	FPM	O-Ring, Adapter, Inlet - 70D	3
	701656	EPDM	O-Ring, Adapter, Inlet - 70D	3
105	45562	SS	Adapter, Inlet, LPS	3
106	44098	NBR	Seal, LPS, w/SS-Spg	3
	44827	FPM	Seal, LPS, w/SS-Spg	3
	48244	EPDM	Seal, LPS, w/SS-Spg	3
107	44101	SS	Washer, LPS	3
110	701321	SSL	Manifold Inlet, Block-Style	1
	—	—	Manifold Inlet, Block-Style, Flushed	1
111	701116	SS	Plug, Inlet Manifold (1-1/2" NPTM)	1
112	701632	NBR	O-Ring, Spacer	6
	701328	FPM	O-Ring, Spacer	6
	701973	EPDM	O-Ring, Spacer	6
113	701329	PTFE	Back-up-Ring, Spacer	6
114	701327	SS	Spacer, Inlet	3
117	89694	S	Screw, HSH (M16x110)	8
118	701077	SS	Plug (1/4" NPTM)	3
123	12391	NBR	O-Ring, V-Packing Cylinder - 70D	3
	13266	FPM	O-Ring, V-Packing Cylinder - 70D	3
	701657	EPDM	O-Ring, V-Packing Cylinder - 70D	3
124	701330	SSL	Cylinder, V-Packing	3
126	45564	SS	Adapter, Female	3
	48390	D	Adapter, Female	3
127	44608	STG*	V-Packing	6
128	45565	SS	Adapter, Male	3
155	48861	NBR	O-Ring, V-Packing Spacer, Inner - 90D	3
	11748	FPM	O-Ring, V-Packing Spacer, Inner - 70D	3
	701749	EPDM	O-Ring, V-Packing Spacer, Inner - 70D	3
156	48371	D	Back-up-Ring, Spacer, Inner	3
157	45674	SS	Spacer, V-Packing	3
158	48362	D	Back-up-Ring, Spacer, Outer	3
159	48860	NBR	O-Ring, V-Packing Spacer, Outer - 90D	3
	20137	FPM	O-Ring, V-Packing Spacer, Outer - 70D	3
	701492	EPDM	O-Ring, V-Packing Spacer, Outer	3
160	44756	S	Pin, Guide	2
162	21985	PTFE	Back-up-Ring, Seat	12/6
163	26089	NBR	O-Ring, Seat - 80D	12/6
	11377	FPM	O-Ring, Seat - 80D	12/6
	46647	EPDM	O-Ring, Seat - 80D	12/6
164	44080	SS	Seat	6
166	44081	SS	Valve	6
167	44082	SS	Spring	6
168	44735	PVDF	Retainer, Spring	6

# EXPLODED VIEW



Models  
Standard - 6821  
Flushed - 6821K  
December 2008

	<b>6821</b>	<b>MATL</b>	<b>6821K</b>	<b>MATL</b>		
170	44794	SS	44794	SS	Washer, Retainer	6
171	44793	SS	44793	SS	Spring, Coil	6
172	15853	NBR	15853	NBR	O-Ring, Valve Plug - 70D	6
	11720	FPM	11720	FPM	O-Ring, Valve Plug - 70D	6
	◆ 701481	EPDM	◆ 701481	EPDM	O-Ring, Valve Plug - 70D	6
173	20224	PTFE	20224	PTFE	Back-up-Ring, Valve Plug	6
174	701260	SS	701260	SS	Plug, Valve	6
175	87951	S	87951	S	Screw, HSH (M10x30)	36
185	701320	SSL	701320	SSL	Manifold, Discharge, Block-Style	1
188	701279	S	701279	S	Screw, HSH (M12x100), Lower	4
193	89694	S	89694	S	Screw, HSH (M16x110), Upper	8
250	29445	AL	29445	AL	Protector, Shaft	1
255	33243	STZP	33243	STZP	Kit, Mount (Included w/Pump)	2
259	29477	STZP	29477	STZP	Rail, Box (Included w/Pump)	2
275	990014	STL	990014	STL	Hub, "B"; M45 w/Keyway [See Drive Packages Tech Bulletin 003]	1
283	34314	—	34314	—	Kit, Oil Drain	1
290	6124	—	6124	—	Gasket, Liquid (3 oz.) (Seal-Valve Service)	1
299	910001	SSL	—	—	Head, Complete, Block-Style	1
	—	—	910002	SSL	Head, Complete, Block-Style, Flushed	1
300	701649	NBR*	701649	NBR*	Kit, Seal (Incls: 97,104,106,112,113,123,127,155,156,158,159)	1
	33720	FPM*	33720	FPM*	Kit, Seal (Incls: 97,104,106,112,113,123,127,155,156,158,159)	1
	◆ 702352	EPDM	◆ 702352	EPDM	Kit, Seal (Incls: 97,104,106,112,113,123,127,155,156,158,159)	1
310	34151	NBR	34151	NBR	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
	701798	FPM	701798	FPM	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
	◆ 701799	EPDM	◆ 701799	EPDM	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
—	819010	F	819010	F	Assy, Crankcase, Cast Iron Conversion	1
370	—	—	990663	—	Assembly, Flushing, 5 gal., 115V, 1.1 Amp, 1/2" NPT	1
—	714500	SS	714500	SS	C.A.T. (Inlet pressure stabilizer for RO and boosted applications)	1
—	714506	SS	714506	SS	Adapter (2 per C.A.T.) (See Data Sheet for complete selection)	2
—	6575	—	6575	—	Plunger Pump Service DVD	1
—	6105	—	6105	—	Oil, Twin Pack (Two-2.5 Gal) ISO-68 Hydraulic	1
—	—	—	—	—	(Fill to specified crankcase capacity prior to start-up)	
—	6119	—	6119	—	Lubricant, Antiseize (1 oz.)	1

**Bold print part numbers are unique to a particular pump model. Italics are optional items.** ◆ Silicone oil/grease required. R Components comply with RoHS Directive.

\* Review material codes for individual items (STG generally may be used as alternate).

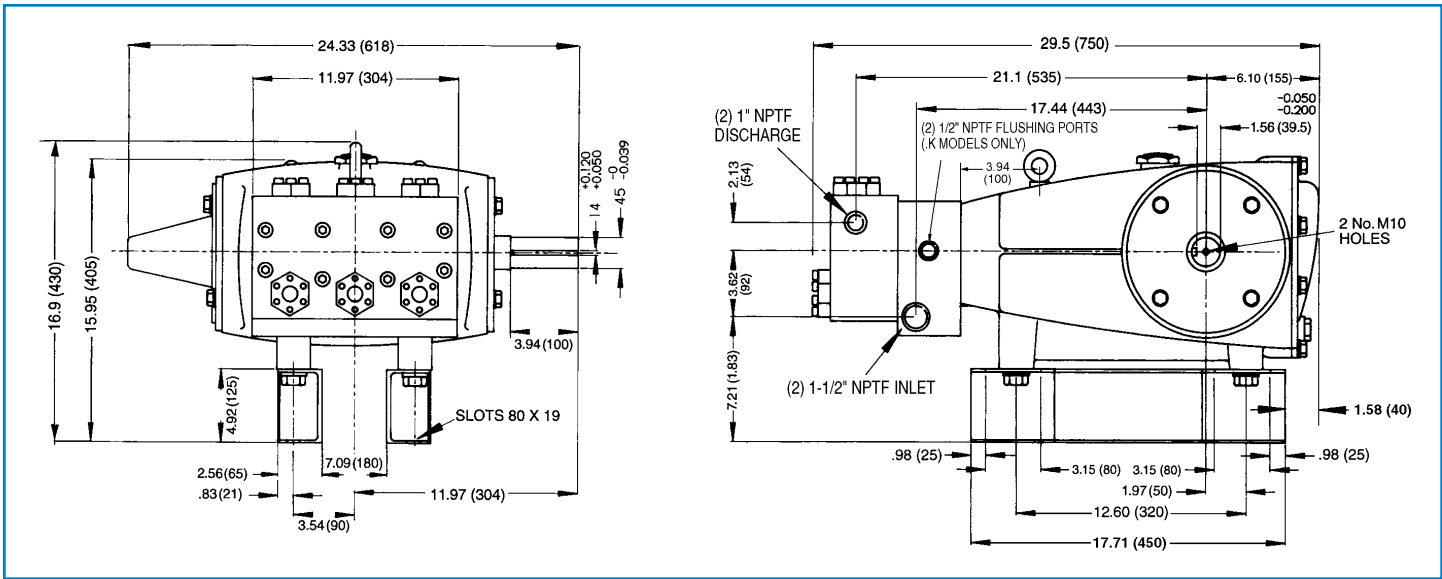
See Tech Bulletins 003, 024, 036, 074, 077, 083, 084, 087, 095 and 105 for additional information. **C.A.T. highly recommended for pressurized inlet, R.O. and Industrial applications.**

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BBHS=Brass/High Strength CC=Ceramic CM=Chrome-Moly

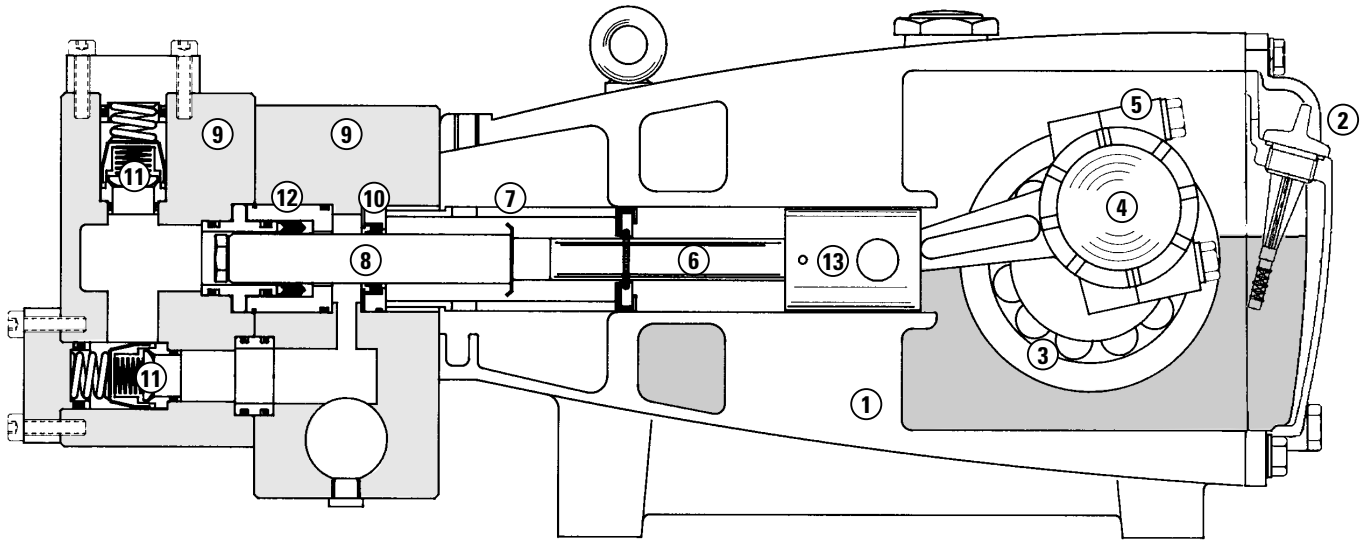
D=Acetal EPDM=Ethylene Propylene Diene Monomer FCM=Forged Chrome-Moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N)

PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS SSL=316SS/Low Carbon SSZZ=316SS/Zamak

STCP=Steel/Chrome Plated STG=Special Blend PTFE White STL=Steel STZP=Steel/Zinc Plated



Models 6821, 6821K



- 1 Die cast aluminum **crankcase** means high strength, lightweight, and excellent tolerance control.
- 2 **Dipstick** offers top access for easy oil level check.
- 3 Oversized crankshaft **bearings** provide extended bearing life and pump performance.
- 4 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 5 Matched oversized high strength **connecting rods** are noted for superior tensile strength and bearing quality.
- 6 Special stainless steel high strength **plunger rods** for high load bearing and longevity.
- 7 The stainless steel **barrier slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 8 Special concentric, high-density, polished, solid ceramic **plungers** provide a true wear surface and extended seal life.
- 9 **Manifolds** are 316 SSL block-style for long-term, continuous-duty and corrosion resistance.
- 10 **Standard Models:** Lo-Pressure Seals and V-Packings are completely lubricated and cooled by the liquids being pumped.
- 10 Optional special ported **Flushed Inlet Manifold** permits external flush for lubricating and cooling seals when pumping liquids such as DI water, Hi-Temp or low lubricity.
- 11 316 stainless steel **valves, seats and springs** provide corrosion-resistance, ultimate seating and extended life.
- 12 Specially formulated, CAT PUMP exclusive, **V-Packings** offer unmatched performance and seal life.
- 13 **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



**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.**  
 Heiveldekens 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