



Model 820 shown

## FEATURES

- Triplex Uniflow design provides continuous forward liquid flow for smooth operation.
- Wetted cups and floating pistons are lubricated and cooled by pumped liquid for long cup life.
- Mechanically actuated inlet valves give strong lift and easy prime.
- Oil bath crankcase assures optimum lubrication.
- 100% wetted seal design allows pumped liquid to cool and lubricate for longer life.

## COMMON SPECIFICATIONS

Crankcase Capacity.....	40 oz.	(1.2 l)
Maximum Liquid Temperature.....	160°F	(71°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Pressure Range.....	-8.5 to +40 psi	(-0.6 to +2.8 bar)
Inlet Ports (1).....	1" NPTF	(1" NPTF)
Discharge Ports (3).....	3/4" NPTF	(3/4" NPTF)
Shaft Diameter.....	0.984"	(25 mm)
Weight.....	34.6 lbs.	(15.7 kg)
Dimensions.....	17.28 x 11.42 x 6.30"	(439 x 290 x 160 mm)

### ⚠ 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](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).

## 10 Frame Piston Pump

**Standard Brass Models** **623,820,1010**

**Stainless Steel Models** **621,821,1011**

**Pulse Pump Manifold Models** **625,825,1015**

## SPECIFICATIONS

U.S. Measure

Metric Measure

### MODEL 623, 621, 625

Flow.....	6.0 gpm	(23 lpm)
Pressure Range.....	100 to 1200 psi	(7 to 85 bar)
RPM.....	850 rpm	(850 rpm)
Bore.....	0.787"	(20 mm)
Stroke.....	1.122"	(28.5 mm)

### MODEL 820, 821, 825

Flow.....	10 gpm	(38 lpm)
Pressure Range.....	100 to 1000 psi	(7 to 70 bar)
RPM.....	940 rpm	(940 rpm)
Bore.....	0.984"	(25 mm)
Stroke.....	1.102"	(28 mm)

### MODEL 1010, 1011, 1015

Flow.....	13 gpm	(49 lpm)
Pressure Range.....	100 to 700 psi	(7 to 50 bar)
RPM.....	900 rpm	(900 rpm)
Bore.....	1.122"	(28.5 mm)
Stroke.....	1.102"	(28 mm)

## ELECTRIC HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE				MOTOR PULLEY SIZE Using 1725 RPM Motor & Std. 10.0" Pulley	
			psi 500	psi 700	psi 1000	psi 1200		
	U.S. gpm	lpm	bar 35	bar 50	bar 70	bar 85	RPM	MOTOR Pulley O.D.
<b>623,621,625</b>	6.0	23	32.9	2.9	4.1	4.9	850	4.7
	5.0	19	27.4	2.4	3.4	4.1	709	4.0
	4.0	15	22.0	1.8	2.8	3.3	567	3.1
<b>820, 821, 825</b>	10.0	38	3.4	4.8	6.9	N/A	940	5.3
	9.0	34	3.1	4.3	6.2	N/A	846	4.8
	8.0	30	2.8	3.8	5.5	N/A	752	4.3
<b>1010,1011,1015</b>	13.0	49	4.5	6.2	N/A	N/A	900	5.0
	10.0	38	3.4	4.8	N/A	N/A	692	4.3
	8.0	30	2.8	3.8	N/A	N/A	554	3.4

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

Rated gpm

= "Desired" gpm

Rated rpm

"Desired" rpm

**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 rpm

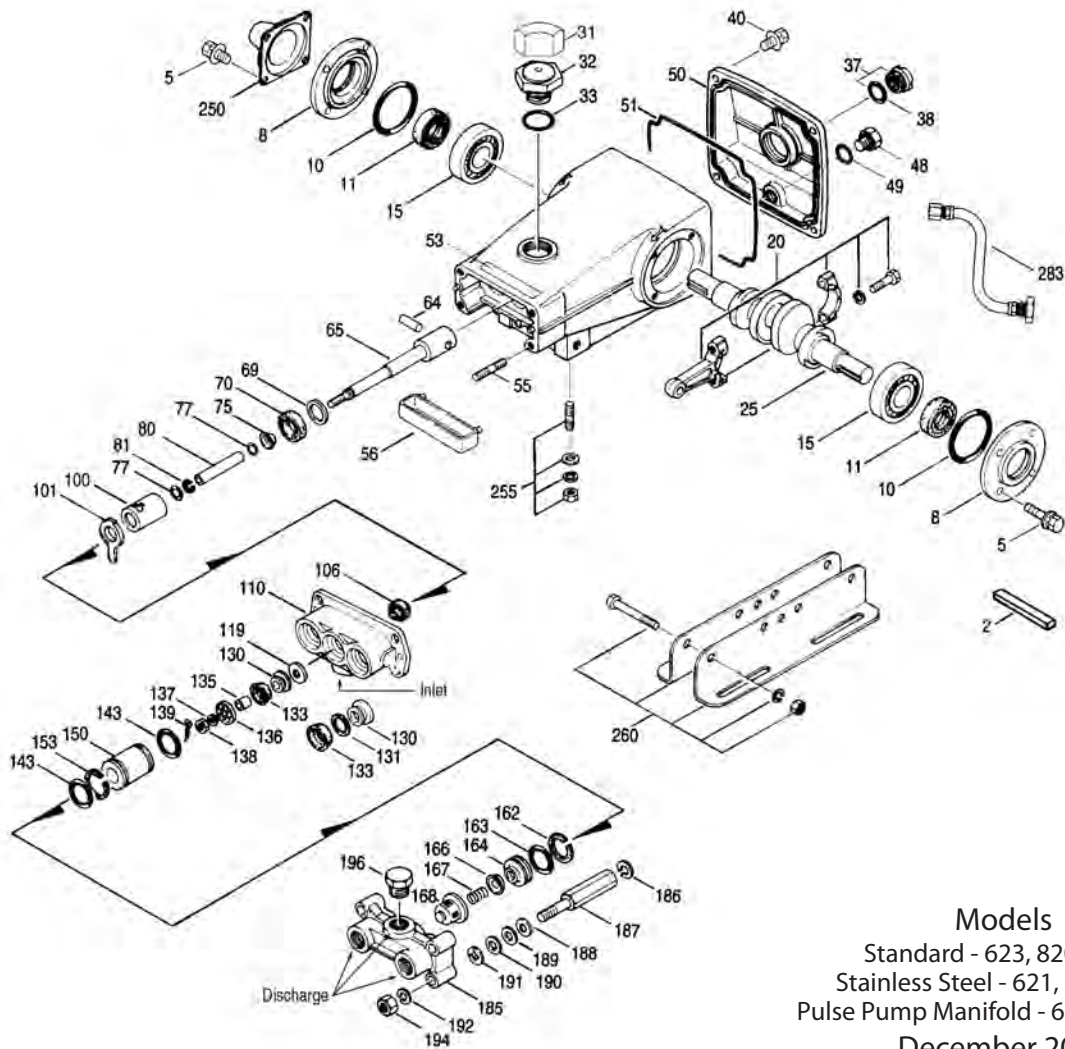
Motor rpm

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

# PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY		
	<b>623</b>	<b>820</b>	<b>1010</b> <b>MATL</b>		
	<b>621</b>	<b>821</b>	<b>1011</b>		
	<b>625</b> <b>MATL</b>	<b>825</b> <b>MATL</b>	<b>1015</b> <b>MATL</b>		
2	50146 STL	50146 STL	50146 STL	Key (M7x7x40)	1
5	92519 STZP	92519 STZP	92519 STZP	Screw, HHC Sems (M6x16)	8
	125824 STCP R	125824 STCP R	125824 STCP R	Screw, HHC Sems (M6x16)	8
8	27331 AL	27331 AL	27331 AL	Cover, Bearing	2
10	26965 NBR	26965 NBR	26965 NBR	O-Ring, Bearing Cover - 70D	2
11	27330 NBR	27330 NBR	27330 NBR	Seal, Oil, Crankshaft - 80D	2
15	47080 STL	47080 STL	47080 STL	Bearing, Ball	2
20	48733 TNM	48733 TNM	48733 TNM	Rod, Connecting, Assy [5/02]	3
25	27329 FCM	27329 FCM	27329 FCM	Crankshaft, Dual End	1
31	828710 —	828710 —	828710 —	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
37	92241 —	92241 —	92241 —	Gauge, Oil Bubble w/Gasket - 80D	1
38	44428 NBR	44428 NBR	44428 NBR	Gasket, Flat, Oil Gauge - 80D	1
40	125824 STCP R	126541 STCP R	126541 STCP R	Screw, HHC Sems (M6x20)	4
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	49712 AL	49712 AL	49712 AL	Cover, Rear (Tech Bulletin 111)	1
51	14070 NBR	14070 NBR	14070 NBR	O-Ring, Cover (Tech Bulletin 111)	1
53	49710 AL	49710 AL	49710 AL	Crankcase w/Guide Pins (Tech Bulletin 111)	1
55	126545 STCP R	126545 STCP R	126545 STCP R	Stud (M10x45)	4
56	27911 POP	27911 POP	27911 POP	Pan, Oil (use with items 100,101,106)	1
64	20251 CM	20251 CM	20251 CM	Pin, Crosshead	3
65	27337 SZZ	27337 SZZ	27337 SZZ	Rod, Piston	3
69	126585 STCP R	126585 STCP R	126585 STCP R	Washer, Oil Seal	3
70	27339 NBR	27339 NBR	27339 NBR	Seal, Oil, Crankcase - 80D	3
75	25327 S	25327 S	25327 S	Slinger, Barrier	3
77	25392 NBR	25392 NBR	25392 NBR	O-Ring, Sleeve - 70D	6
	28771 FPM	28771 FPM	28771 FPM	O-Ring, Sleeve	6
80	27340 SCP	27340 SCP	27340 SCP	Sleeve	3
	28782 S	28782 S	28782 S	Sleeve (Unchromed)	3
81	29003 PTFE	29003 PTFE	29003 PTFE	Back-up-Ring, Sleeve	3
100	27341 PVDF	27341 PVDF	27341 PVDF	Retainer, Seal	3
101	27910 —	27910 —	27910 —	Wick, Long Tab (use with items 56,100,106)	3
106	30315 NBR	30315 NBR	30315 NBR	Seal, LPS, Prrrrm-A-Lube (greased)	3
	30325 FPM	30325 FPM	30325 FPM	Seal, LPS, Prrrrm-A-Lube (greased)	3
	25153 NBR	25153 NBR	25153 NBR	Seal, Blue-Dot (ungreased) (use with items 56,100,101)	3
	100015 FPM	100015 FPM	100015 FPM	Seal, Blue-Dot (ungreased) (use with items 56,100,101)	3
110	27344 BBCP	27344 BBCP	27344 BBCP	Manifold, Inlet (623, 820, 1010)	1
	30247 SS	30247 SS	30247 SS	Manifold, Inlet (621, 821, 1011)	1
119	<b>27347 S</b>	<b>27497 S</b>	<b>27813 S</b>	Valve, Inlet	3
130	<b>30543 S</b>	<b>27820 S</b>	<b>27814 S</b>	Piston	3
131	<b>30544 PTFE</b>	—	—	Ring, Bac-Cup	3
133	<b>43172 FPM</b>	<b>27821 FPM</b>	<b>27815 FPM</b>	Cup, Piston	3
133	<b>43474 FPM</b>	—	—	Bac-Cup Assy (43172,30543,30544) (Tech Bulletin 016)	3
133	<b>30340 NBR</b>	—	—	Cup, Piston, Machined	3
133	<b>29089 SNG</b>	<b>29091 SNG</b>	<b>29092 SNG</b>	Cup, V-Hot (1000 PSI Max.)	3
133	<b>76515 ST4</b>	<b>76333 ST4</b>	<b>76189 ST4</b>	Piston-Cup Assy (1000 PSI Max.)	3
135	<b>27348 S</b>	<b>27499 S</b>	<b>27499 S</b>	Spacer, Piston	3
136	<b>27002 S</b>	<b>27500 S</b>	<b>20324 S</b>	Retainer, Piston	3
137	27006 S	27006 S	27006 S	Washer, Conical (M6)	3
138	27000 S	27000 S	27000 S	Nut, Slotted (M6)	3
139	14158 S	14158 S	14158 S	Cotterpin (M1.6x10)	3
143	26969 NBR	26969 NBR	26969 NBR	O-Ring, Cylinder - 70D	6
	28459 FPM	28459 FPM	28459 FPM	O-Ring, Cylinder	6
150	<b>28342 SCP</b>	<b>28340 SCP</b>	<b>28341 SCP</b>	Cylinder (M50)	3
	<b>28776 S</b>	<b>28778 S</b>	<b>28780 S</b>	Cylinder (M50) (Unchromed)	3
153	<b>28204 PTFE</b>	<b>28204 PTFE</b>	—	Back-up-Ring, Cylinder	3
162	43062 PTFE	43062 PTFE	43062 PTFE	Back-up-Ring, Seat	3
163	26966 NBR	26966 NBR	26966 NBR	O-Ring, Seat - 70D	3
	28458 FPM	28458 FPM	28458 FPM	O-Ring, Seat - 70D	3
164	43428 S	43428 S	43428 S	Seat, Quiet Valve	3
	43063 S	43063 S	43063 S	Seat, Flat Valve	3
166	43721 S	43721 S	43721 S	Valve, Quiet Valve	3
	20262 S	20262 S	20262 S	Valve, Flat Valve	3
167	43251 S	43251 S	43251 S	Spring, Quiet Valve	3
	20265 S	20265 S	20265 S	Spring, Flat Valve	3
168	43429 S	43429 S	43429 S	Retainer, Spring, Quiet Valve	3
	43135 S	43135 S	43135 S	Retainer, Spring, Flat Valve	3
185	43046 BBCP	43046 BBCP	43046 BBCP	Manifold, Discharge (623, 820, 1010)	1
	30248 SS	30248 SS	30248 SS	Manifold, Discharge (621, 821, 1011)	1
	6410 BB	6410 BB	6410 BB	Manifold, Pulse Pump (1000 PSI Max.) (625,825,1015)	1
186	126593 STCP R	126593 STCP R	126593 STCP R	Washer, Shim (M10.5x1.5)	4/8
187	43047 STCP	43047 STCP	43047 STCP	Stud, Hex, Manifold "B"	4
188	126582 STCP R	126582 STCP R	126582 STCP R	Washer, Shim (M10.5x1.0)	4/8
189	126583 STCP R	126583 STCP R	126583 STCP R	Washer, Shim (M10x0.5)	4/8
190	126584 STCP R	126584 STCP R	126584 STCP R	Washer, Shim (M10x0.3)	4/8
191	27357 STZP	27357 STZP	27357 STZP	Lockwasher (M10)	4
192	126231 STCP R	126231 STCP R	126231 STCP R	Lockwasher (M10)	4
194	126522 STCP R	126522 STCP R	126522 STCP R	Nut, Hex (M10x1.5)	4
196	20326 BBCP	20326 BBCP	20326 BBCP	Plug, Discharge Manifold (3/4" NPT)	1
250	43139 STCP	43139 STCP	43139 STCP	Protector, Shaft	1

# EXPLODED VIEW



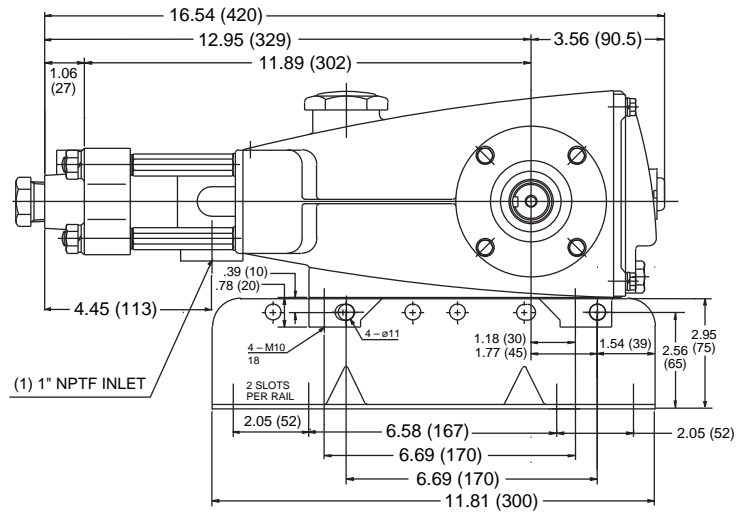
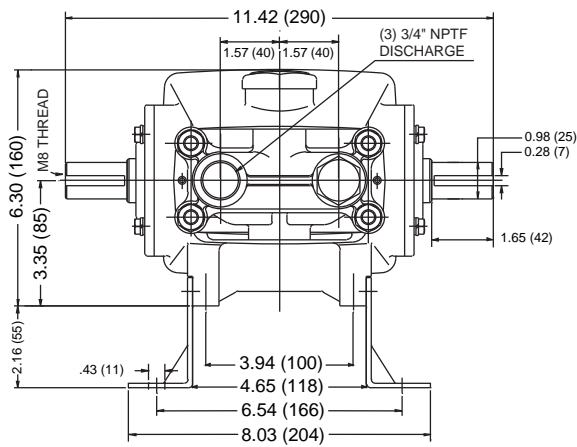
Models  
 Standard - 623, 820, 1010  
 Stainless Steel - 621, 821, 1011  
 Pulse Pump Manifold - 625, 825, 1015  
 December 2012

	<b>623</b>	<b>820</b>	<b>1010</b>	<b>MATL</b>		
	<b>621</b>	<b>821</b>	<b>1011</b>	<b>MATL</b>		
	<b>625</b>	<b>825</b>	<b>1015</b>	<b>MATL</b>		
255	30264	30264	30264	STZP	Kit, Direct Mount	1
260	30613	30613	30613	STZP	Mount, Rail, Assy	1
265	30653	30653	30653	—	Kit, Mounting (Incls: 30613,30206,30284,43139)	1
270	30206	30206	30206	F	Pulley (10") [See Drive Packages, Tech Bulletin 003]	1
274	30234	30234	30234	STL	Hub, "H" M25 (Keyway M7) [See Drive Packages, Tech Bulletin 003]	1
275	30284	30284	30284	STL	Hub & Key Assy [See Drive Packages, Tech Bulletin 003]	1
283	34334	34334	34334	—	Kit, Oil Drain	1
295	6300	6300	6300	BBSS	Pump, Pulse (1 Qt.) 1000 PSI (See individual data sheet)	1
	6305	6305	6305	BBSS	Pump, Pulse (1 Gal.) 1000 PSI (See individual data sheet)	1
300	<b>30220</b>	<b>30222</b>	<b>30224</b>	<b>NBR</b>	Kit, Cup (Incls: 133,139,143,153) (355 for 820 & 1010)	1
301	<b>30822</b>	—	—	—	Kit, Bac-Cup (Incls: 133,139,143,355)	1
302	<b>30219</b>	<b>30221</b>	<b>30223</b>	<b>NBR</b>	Kit, Piston (Incls: 119,130,133,135-139,143,153 (355 for 820 & 1010))	1
	<b>30843</b>	—	—	—	Kit, Bac-Cup Piston (Incls: 119,133,139,143,153,355)	1
304	76238	30437	30300	NBR	Kit, Hot Cup (Incls: 133, 139, 143, 153)	1
305	30397	30397	30397	NBR	Kit, Sleeve and Prrrrrm-A-Lube Seal (Incls: 75,77,80,106,139)	1
	30227	30227	30227	NBR	Kit, Sleeve and Blue-Dot Seal (Incls: 75,77,80,101,106,139)	1
306	30305	30305	30305	NBR	Kit, Prrrrrm-A-Lube Seal (Incls: 106,139)	1
	30226	30226	30226	NBR	Kit, Blue-Dot Seal (Incls: 101,106,139)	1
310	30687	30687	30687	NBR	Kit, Valve, Quiet Valve (Incls: 143,153,162-168)	1
	30449	30449	30449	NBR	Kit, Valve, Flat Valve (Incls: 143,153,162-168)	1
355	<b>22130</b>	<b>16981</b>	<b>15770</b>	<b>NY</b>	Insertor, Cup	1
352	44050	44050	44050	STZP	Tool, Oil Gauge Removal	1
360	25082	25082	25082	STZP	T-Wrench (M10)	1
	25083	25083	25083	STZP	T-Wrench (M17)	1
—	6107	6107	6107	—	Oil, Bottle (21 oz.) ISO 68 Hydraulic (Fill to specified crankcase capacity prior to start-up)	2

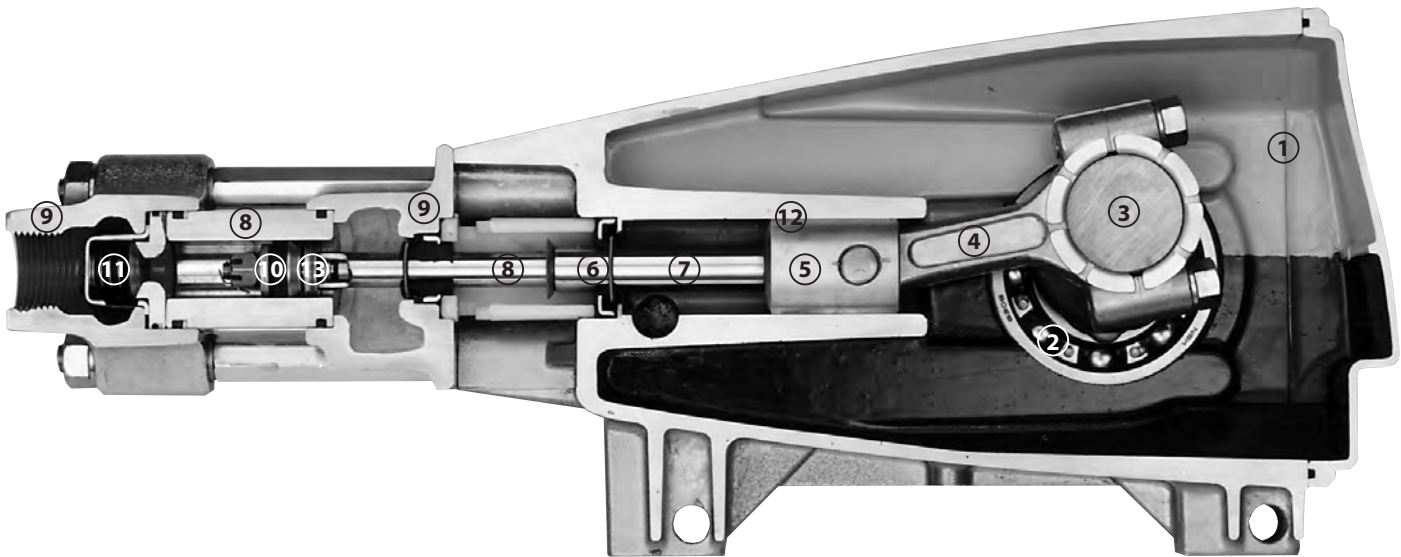
**Bold print part numbers are unique to a particular pump model. Italics are optional items.** [ ] Date of latest production change. R Components comply with RoHS Directive. See Tech Bulletins 001, 002, 003, 005, 016, 017, 020, 024, 026, 034, 036, 037, 038, 042, 074, 077, 083 and 111 for additional information.

When replacing Prrrrrm-A-Lube Seals with Blue-Dot Seals, wick must be installed.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BB=Brass BCBP=Brass/Chrome Plated CM=Chrome-Moly F=Cast Iron FCM=Forged Chrome-moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) NY=Nylon POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SCP=304SS/Chrome Plated SNG=Special Blend (Buna) SS=316SS STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated SZZ=304SS/Zamak ST4=Special PTFE 4 TNM=Special High Strength



Models 623, 621, 625, 820, 821, 825, 1010, 1011, 1015



- 1 Die cast aluminum **crankcase** means high strength, lightweight, 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** for superior tensile strength and bearing quality.
- 5 The **piston rods** are high tensile strength stainless steel with Zamak crossheads.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 The **patented stepped piston rod** with hard chrome plated stainless steel **sleeve** provides a durable wear surface and easy wet-end servicing.
- 8 The **cylinder and sleeve** wear surfaces are hard chrome plated 304 stainless steel for longer service life.
- 9 **Manifolds** are of high tensile strength chrome plated brass or 316 stainless steel for special corrosion resistance.
- 10 100% wet **cup/seal** design adds to service life by allowing pumped liquids to cool and lubricate the elastomers on both sides.
- 11 304 stainless steel **valves, seats, and springs** provide corrosion-resistance, ultimate seating and extended life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.
- 13 Mechanically actuated **inlet valves** provide strong lift and easy prime.



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