

CLARK SOLUTIONS

B-Series, Models 1, 2, 3 & 4 Rotary Gear Pumps

Particle Tolerant, Pressure to 200 PSI, Flow to 26.8 GPM, Drive Speed to 900 RPM

DESCRIPTION

Models 1, 2, 3 & 4 pumps are general purpose positive displacement gear pumps and are a good choice for a variety of recirculating, mixing and transfer applications.

The pumps are available in cast iron, ductile iron, and bronze. They are designed to operate at speeds to 900 RPM, pressures to 200 PSI, and flow rates to 26.8 GPM. The standard seal is a packing gland and lubrication of the replaceable sleeve bearings is accomplished by the circulation of the pumped liquid. All models are available with foot or flange mounting and with integral relief valves.

These pumps have an outstanding record for reliable performance and long life. The machining of the gears, shafts and housing faces are held to exacting tolerances (within 0.0005") This results in a pump with better lift, reduced slippage and longer service life. Further, the pumps are designed to be particle tolerant and will pass particles to 25 micron in size. Standard pumps operate to 250°F and, with modifications, to 500°F. Typical applications include abrasive materials, solvents, resins, and petroleum.

SPECIFICATIONS

GENERAL

Design: Drive speeds to 900 RPM; discharge pressures to 200 PSI; flow rates to 26.8 GPM; foot or flange mounted; with or without integral relief valve.

Material: Cast Iron casings with precision machined, heat treated gears and case hardened shafts. Pumps are also available in Ductile Iron, Bronze and Carbon Steel.



Spur gears are rugged and accurately cut and are a favorite in machine hydraulic drives, lubrication and coolant applications as well as in many other industries, including textile, printing and plastic.

Gears: Models 1, 2 & 3, spur gears; model 4, helical gears

Bearings: Replaceable iron sleeve bearings. Also available with carbon graphite or bronze bearings.

Seal: Compression packing with adjustable gland.

Also available with self adjusting mechanical seal or lip seal. Mechanical seal and lip seals available with different elastomers.

Lubrication: Self-lubricating using the pumped liquid.

Also available for handling non-lubricating liquids.

Rotation: Pumps may be operated in either direction.

Discharge is always on the side of the pump toward which the top of the shaft rotates.

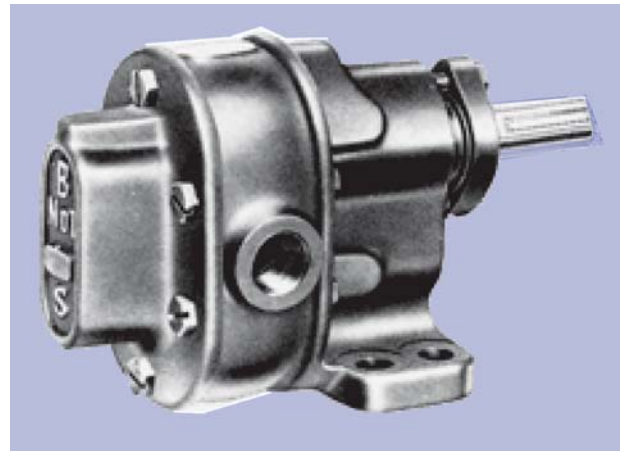
Liquid Viscosities: 32 ssu to 100,000 ssu. Adaptable for handling liquids from water soluble to molten lead.

Suction Lift: Up to 28" Hg / 31 feet depending on the type of liquid being pumped.

Duty: Light, medium & intermittent service

Drive Options: A-Drive (pump connected to C-face motor with adapter bracket and coupling); D-Drive (pump coupled to motor mounted on base plate); GR-Drive (pump coupled to gear reducer coupled to motor mounted on baseplate); B-Drive (pump and motor connected by V-belt and pulleys mounted on baseplate).

Accessories: Repair Kits, Gear Sets, Bearing Kits, and Seal Kits.



B Series Gear Pump



FEATURES

• PRECISION GROUND JOINTS

NO GASKETS- Perhaps the biggest advantage to these pumps. As gaskets are not used, original tolerances are maintained for consistent performance and the time once lost in halting operations to replace a worn gasket is saved.

• BEARINGS

The heart of the pump. Sleeve and plain bearings are especially adapted to maintain even gear and shaft rotation for normal pump service. Anti-friction bearings minimize friction and provide higher load ratings for medium to high pressure service. Anti-friction and sleeve type bearings are replaceable.

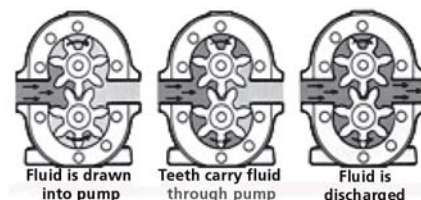
• SEALS

Compression packing provides an ample safeguard against liquid leakage and the entrance of air.

• PARTICLE TOLERANT

Low rotational speed and attention to gear tolerances allow particles to 25 microns to pass through pump.

PRINCIPLE OF OPERATION



OPERATING CHARACTERISTICS

SOLID LINE = GPM BROKEN LINE= HP

32 SSU LIQUID

300 SSU LIQUID

1,000 SSU LIQUID

5,000 SSU LIQUID

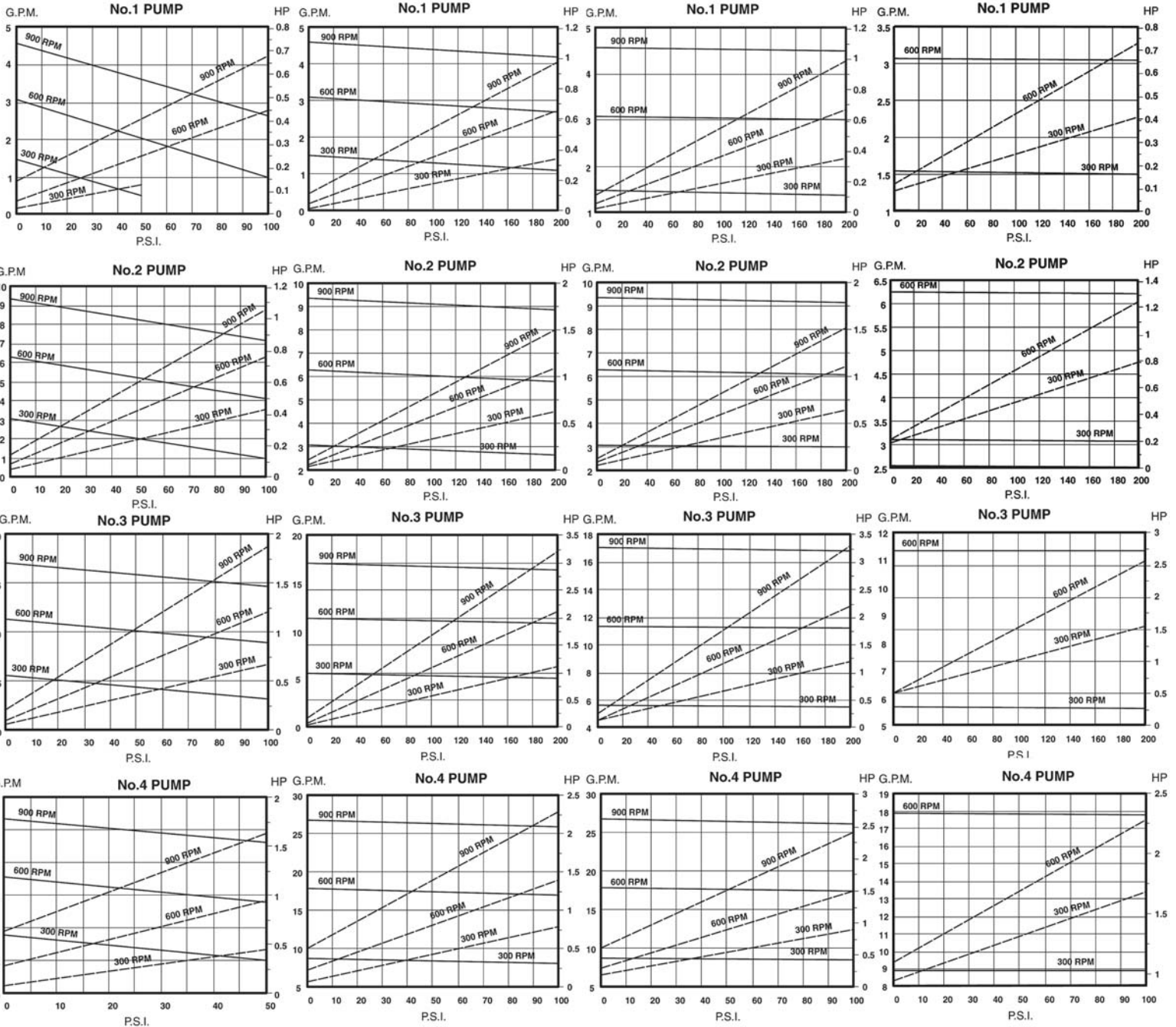
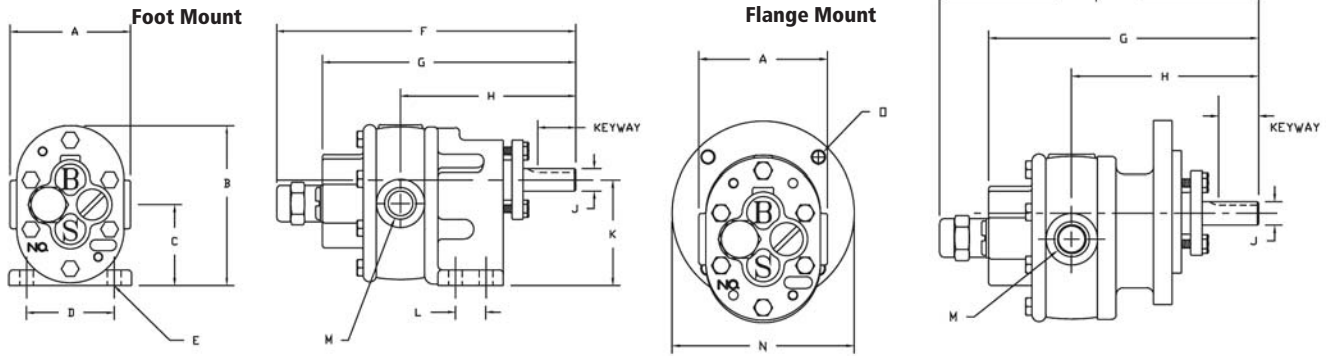


Table 1

Model	Gallons per Revolution	Slip GPM/PSI	Drive Speed RPM	0 PSI		50 PSI		75 PSI		100 PSI		200 PSI	
				GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
1	0.00515	0.0022	300	1.5	0.02	1.4	0.10	1.38	0.14	1.3	0.18	1.1	0.34
			600	3.1	0.05	3.0	0.20	2.93	0.28	2.9	0.36	2.7	0.66
			900	4.6	0.11	4.5	0.33	4.47	0.35	4.4	0.54	4.2	0.98
2	0.01043	0.0023	300	3.1	0.04	3.0	0.19	2.95	0.26	2.9	0.34	2.7	0.64
			600	6.3	0.07	6.1	0.34	6.1	0.47	6.0	0.61	5.8	1.1
			900	9.4	0.11	9.3	0.48	9.2	0.66	9.1	0.85	8.9	1.5
3	0.01896	0.0025	300	5.7	0.05	5.6	0.28	5.5	0.41	5.4	0.54	5.2	1.1
			600	11.4	0.06	11.3	0.47	11.2	0.71	11.1	0.97	10.9	2.1
			900	17.1	0.17	17.0	0.83	16.8	1.2	16.8	1.5	16.5	3.2
4	0.02980	0.0080	300	8.9	0.07	8.5	0.37	8.3	0.57	8.1	0.80	-	-
			600	17.9	0.22	17.5	0.77	17.3	1.1	17.1	1.4	-	-
			900	26.8	0.50	26.4	1.3	26.2	1.7	26.0	2.3	-	-

Delivery and horsepower are based on liquid viscosity if 300 SSU at speed and pressures shown.

PUMP DIMENSIONS (INCHES)



Note: Unit is dimensioned with optional integral relief valve (F dimension). The purpose of the relief valve is to relieve pressure in the pump when the discharge line is closed or otherwise obstructed. This is accomplished internally by routing the discharge back to the suction side of the pump when discharge pressure exceeds the set value. The relief valve is designed as a safety device and is not intended as a directional control valve nor is it intended for use under conditions calling for extended periods of by-pass. The relief valve should always be positioned on the discharge side of the pump. Placement on the suction side of the pump will render the pump inoperable.

Table 2

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	O	Keyway
1	3.00	3.69	1.78	2.00	0.39	7.50	6.25	4.56	0.56	2.38	0.75	3/8" NPT	4 7/8	3/8-16	1/8 x 1/16
2	3.44	4.53	2.31	2.50	0.39	8.47	7.22	5.00	0.63	3.00	0.88	1/2" NPT	4 7/8	3/8-16	3/16 x 3/32
3	4.44	5.72	2.88	3.00	0.45	10.50	8.88	6.19	0.75	3.88	1.25	3/4" NPT	4 7/8	3/8-16	3/16 x 3/32
4	4.44	5.81	2.88	3.00	0.45	11.50	9.88	6.69	0.75	3.88	1.25	1 1/4" NPT	4 7/8	3/8-16	3/16 x 3/32

PUMP DIMENSIONS (INCHES) DIRECT COUPLED TO STANDARD C-FACE MOTOR

B-Series pumps are available direct coupled to a NEMA C-Face foot mounted motor. This assembly, referred to as an A-Drive, ensures accurate alignment and requires less space and is less costly than a pump and motor mounted on a baseplate.

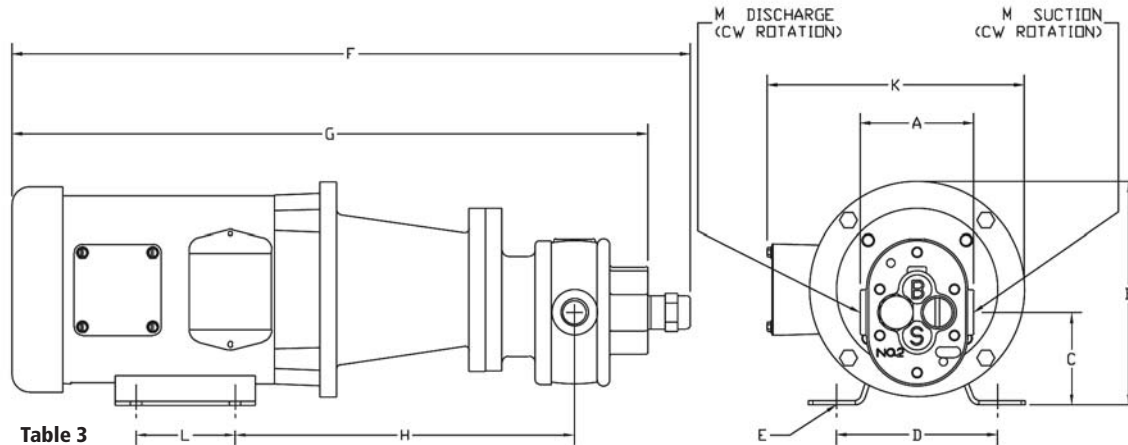


Table 3

Model	Motor Frame	A	B	C	D	E	F	G	H	K	L	M
1A	56C	3.00	6.88	2.91	4.88	0.34	19.81	18.56	9.81	8.31	3.00	3/8
	145TC	3.00	6.88	2.91	5.50	0.34	21.53	20.28	10.12	8.56	5.00	3/8
	182TC	3.00	8.69	3.91	7.50	0.41	23.12	21.87	11.75	9.81	4.50	3/8
2A	56C	3.44	6.88	2.81	4.88	0.34	20.78	19.53	10.25	8.31	3.00	1/2
	145TC	3.44	6.88	2.81	5.50	0.34	22.50	21.25	10.56	8.56	5.00	1/2
	182TC	3.44	8.69	3.81	7.50	0.41	24.09	22.84	12.19	9.81	4.50	1/2
	184TC	3.44	8.69	3.81	7.50	0.41	25.09	23.84	12.19	9.81	5.50	1/2
3A	56C	4.44	6.88	2.50	4.88	0.34	22.82	21.19	11.43	8.31	3.00	3/4
	145TC	4.44	6.88	2.50	5.50	0.34	24.54	22.91	11.75	8.56	5.00	3/4
	182TC	4.44	8.69	3.50	7.50	0.41	26.13	24.50	13.37	9.81	4.50	3/4
	184TC	4.44	8.69	3.50	7.50	0.41	27.13	25.50	13.37	9.81	5.50	3/4
	213TC	4.44	10.25	4.25	8.50	0.41	29.04	27.41	14.25	12.16	5.50	3/4
	215TC	4.44	10.25	4.25	8.50	0.41	30.54	28.91	14.25	12.16	7.00	3/4
4A	145TC	4.44	6.88	2.50	5.50	0.34	25.54	23.91	12.25	8.56	5.00	1 1/4
	182TC	4.44	8.69	3.50	7.50	0.41	27.13	25.50	13.87	9.81	4.50	1 1/4
	184TC	4.44	8.69	3.50	7.50	0.41	28.13	26.50	13.87	9.81	5.50	1 1/4
	213TC	4.44	10.25	4.25	8.50	0.41	30.04	28.41	14.75	12.16	5.50	1 1/4
	215TC	4.44	10.25	4.25	8.50	0.41	31.54	29.91	14.75	12.16	7.00	1 1/4

PUMP DIMENSIONS (INCHES) BASE MOUNTED TO STANDARD FOOT MOUNTED MOTOR

B-Series pumps are available as base mounted pump and motor assemblies. This assembly, referred to as a D-Drive includes the base, flexible coupling, coupling guard, riser blocks (if required), lifting eye-bolts, and mounting hardware. The fabricated steel or channel steel bases are available with optional features such as drip-lip construction, drain plugs, mounting lugs, casters, etc..

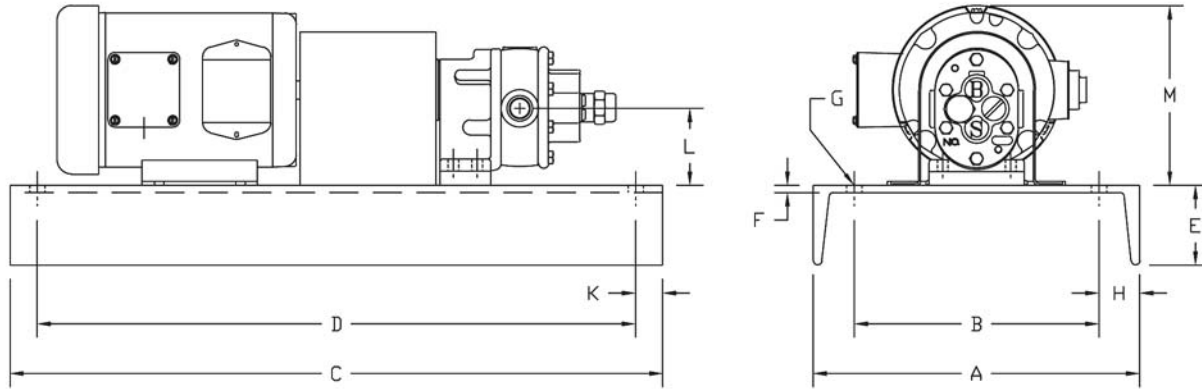


Table 4

Model	Motor Frame	A	B	C	D	E	F	G	H	K	L	M
1D	56C	12.00	9.00	24.00	22.00	2.94	0.28	0.56	1.50	1.00	2.91	6.88
	145TC	12.00	9.00	26.00	24.00	2.94	0.28	0.56	1.50	1.00	2.91	6.88
	182TC	12.00	9.00	30.00	28.00	2.94	0.28	0.56	1.50	1.00	3.91	8.69
2D	56C	12.00	9.00	24.00	22.00	2.94	0.28	0.56	1.50	1.00	2.81	6.88
	145TC	12.00	9.00	26.00	24.00	2.94	0.28	0.56	1.50	1.00	2.81	6.88
	182TC	12.00	9.00	30.00	28.00	2.94	0.28	0.56	1.50	1.00	3.81	8.69
	184TC	15.00	12.00	32.00	30.00	3.41	0.41	0.56	1.50	1.00	3.81	8.69
3D	56C	12.00	9.00	24.00	22.00	2.94	0.28	0.56	1.50	1.00	2.50	6.88
	145TC	12.00	9.00	26.00	24.00	2.94	0.28	0.56	1.50	1.00	2.50	6.88
	182TC	12.00	9.00	30.00	28.00	2.94	0.28	0.56	1.50	1.00	3.50	8.69
	184TC	15.00	12.00	32.00	30.00	3.41	0.41	0.56	1.50	1.00	3.50	8.69
	213TC	15.00	12.00	34.00	32.00	3.41	0.41	0.56	1.50	1.00	4.25	10.25
4D	215TC	15.00	12.00	36.00	34.00	3.41	0.41	0.56	1.50	1.00	4.25	10.25
	145TC	12.00	9.00	26.00	24.00	2.94	0.28	0.56	1.50	1.00	2.50	6.88
	182TC	12.00	9.00	30.00	28.00	2.94	0.28	0.56	1.50	1.00	3.50	8.69
	184TC	15.00	12.00	32.00	30.00	3.41	0.41	0.56	1.50	1.00	3.50	8.69
	213TC	15.00	12.00	34.00	32.00	3.41	0.41	0.56	1.50	1.00	4.25	10.25
	215TC	15.00	12.00	36.00	34.00	3.41	0.41	0.56	1.50	1.00	4.25	10.25

ORDERING INFORMATION

ORDER PUMP ONLY 713-A-B

ORDER PUMP & DRIVE 713-A-B-C

ORDER PUMP, DRIVE & MOTOR 713-A-B-C-D-E

Pump		Drive	Motor
A		C	D
Pump Model Select Flange or Foot Mount		Pump/Motor Drive Assemblies	*Standard C Frame Motors
Flange Mount 901= Model 1 pump 902= Model 2 pump 903= Model 3 pump 904= Model 4 pump	Foot Mount 1= 1 2= 2 3= 3 4= 4	1) Select Model & Motor Frame From Tables 3 or 4 2) Choose Factory or Field Assembly. --Field A=Factory Example: 2A-56CA	For "A" Drive Pumps A1= 860 RPM, 0.5 HP, 230/460 VAC, 3PH/ 60 Hz, 56C, TEFC A2= 860 RPM, 0.75 HP, 230/460 VAC, 3PH/ 60 Hz, 145TC, TEFC A3= 860 RPM, 1.00 HP, 230/460 VAC, 3PH/ 60 Hz, 182TC, TEFC A4= 860 RPM, 1.50 HP, 230/460 VAC, 3PH/ 60 Hz, 184TC, TEFC A5= 860 RPM, 2.0 HP, 230/460 VAC, 3PH/ 60 Hz, 213TC, TEFC A6= 860 RPM, 3.00 HP, 230/460 VAC, 3PH/ 60 Hz, 215TC, TEFC For "D" Drive Pumps B1= 850 RPM, 0.5 HP, 230/460 VAC, 3PH/ 60 Hz, 56C, TEFC B2= 850 RPM, 0.75 HP, 230/460 VAC, 3PH/ 60 Hz, 184, TEFC B3= 850 RPM, 1.00 HP, 230/460 VAC, 3PH/ 60 Hz, 182T, TEFC B4= 850 RPM, 1.50 HP, 230/460 VAC, 3PH/ 60 Hz, 184T, TEFC B5= 850 RPM, 2.00 HP, 230/460 VAC, 3PH/ 60 Hz, 213T, TEFC B6= 850 RPM, 3.00 HP, 230/460 VAC, 3PH/ 60 Hz, 215T, TEFC *Call us with your motor requirements, many other electrics, enclosures & drives are available

E- Options

Opt 1= Ductile Iron Casing	Opt 4=Mechanical Seal
Opt 2= Carbon Steel Casing	Opt 5= Teflon Compression Packing
*Opt 3= Bronze Casing	Opt 6= Carbon Graphite Bearings
*Reduced suction lift, 15" Hg/17 feet depending on type of liquid being pumped	