

Electric Motor-Driven Positive Displacement Pumps — Gear and Flexible Impeller Pump Application Information

TYPICAL GEAR PUMP INSTALLATION

(Note: Pump & motor turned vertical for illustration purpose only.)

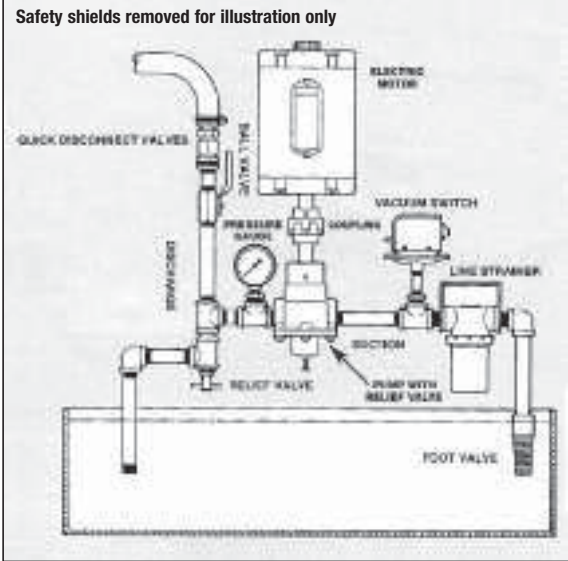


Figure 1

PEDESTAL GEAR PUMP DRIVE OPTIONS

Safety shields removed for illustration only

PEDESTAL GEAR PUMP LONG COUPLED WITH MOTOR

PEDESTAL GEAR PUMP DRIVEN BY PULLEY, BELT AND MOTOR

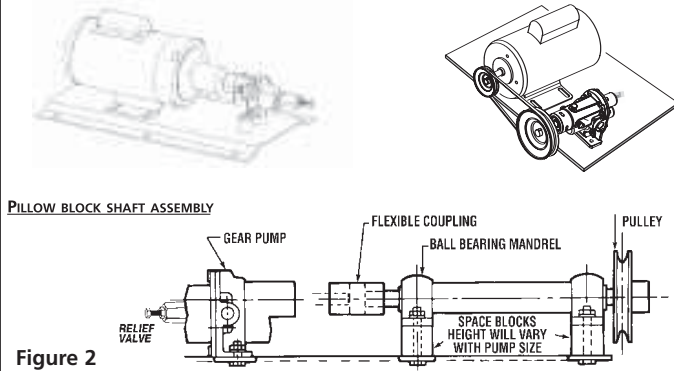


Figure 2

CLOSE-COUPLED GEAR PUMP WITH MOTOR AND RELIEF VALVE

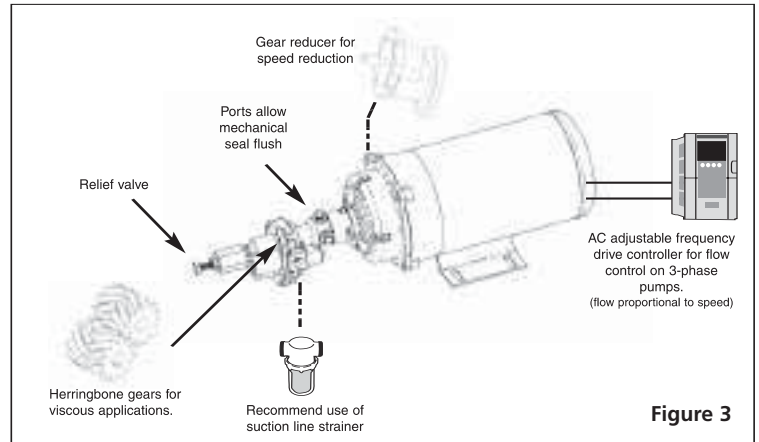
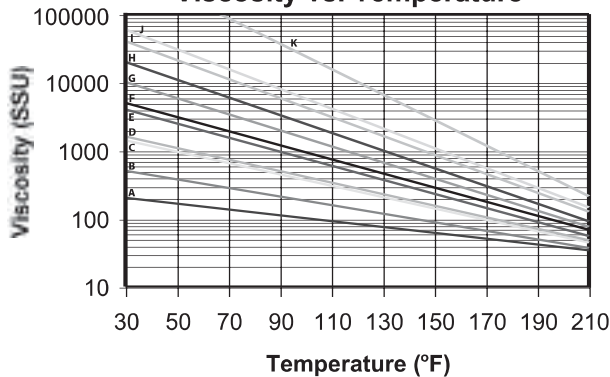


Figure 3

Figure 4

Viscosity vs. Temperature



- A #2 Fuel Oil
- B #4 Fuel Oil
- C Light Hydraulic Oil
- D SAE #10 Oil
- E SAE #20 Oil
- F SAE #30 Oil
- G SAE #40 Oil
- H SAE #50 Oil
- I SAE #60 Oil
- J SAE #70 Oil
- K #6 Fuel Oil

Source: Owner's Manual L-4082 (1/06)

How to Select Rotary Gear Pumps

(NOTE: Can be used as a guide for flexible impeller roller pumps.)

STEP 1

Determine total pump discharge pressure required. Add suction lift (in feet) to the discharge elevation (in feet); divide total by 2.31. To this figure, add the discharge pressure required, in psi. This sum is the total pump pressure needed.

STEP 2

Select pump and motor HP combination that delivers the flow (in GPM) required at, or above, the total pump pressure calculated in step 1.

STEP 3

Consider fluid viscosity. The viscosity/temperature of the liquid pumped will affect the pump speed (RPM). Where the viscosity/temperature SSU (Saybolt Seconds Universal) is greater than 500 SSU:

A) Pump speed (RPM) must be reduced to prevent cavitation. Use Table No. 1 as a guide.

B) Suction/discharge lines must be increased by at least 1 (or better 2) pipe size over the size of the pump ports.

C) The motor's horsepower must be increased over the power required to pump water under the same pressure and flow. Use Table No. 2 to find the percentage increase in horsepower required for various pressures and viscosities.

Note: An oil viscosity vs. temperature chart is included for reference (See Figure 4).

STEP 4

Consider the specific gravity of the fluid to be pumped and how it will affect horsepower requirements. If the specific gravity of the fluid is below 1.0 (specific gravity of water), consult the pump's performance table for recommended motor horsepower. If the specific gravity of the fluid is greater than 1.0, multiply the recommended horsepower in the pump's performance table by this figure. The result is the required motor horsepower.

STEP 5

Consider liquid compatibility with pump material. Liquids being pumped must be compatible with pump construction. See individual listings of pumps for specific materials used in the wet-end construction of the pump and refer to appropriate Chemical Compatibility Charts. The number one failure of pumps is misapplications, which includes chemical compatibility. The lack of testing for chemical compatibility is not covered under warranty.

PUMP ACCESSORIES

The line of positive displacement pumps may be used with many accessories to protect, maintain and control speed (flow). These include vacuum switches, strainers, adjustable pressure relief valves, gauges, gear reducers, adjustable frequency drives for electric motors, high viscosity gear kits, pulleys, motor couplers, drive motors, and repair seals.

REFERENCE

Table 1 - Speed vs. Viscosity

Viscosity SSU	Speed (RPM)
50 to 500	1,725
1,200	1,500
2,000	1,300
7,000	1,000
20,000	600
50,000	400
100,000	200

Table 2 - HP vs. Viscosity

Pressure P.S.I.	%INCREASE IN HORSEPOWER						
	Viscosity in SSU						
	30	500	1000	5000	10,000	50,000	100,000
2	–	10	20	40	80	120	150
20	–	12	25	50	90	150	200
40	–	15	30	60	105	180	250
60	–	20	40	80	120	220	300
80	–	25	50	100	160	260	350
100	–	30	60	120	200	300	400

Source: Owner's Manual L-4082 (1/06)

Shertech Pump Cross Reference Guide

Centrifugal Pumps

Hypro Industrial Products Group has added numerous new centrifugal models. In doing so, model codes changed to differentiate each model series. Most models have upgraded seals as well, so seal and impeller seal area are different from prior models.

Examples:

CMBN34T is now a COMBN33 ("C" is now a CO = centrifugal semi-open impeller type series).

CHMBN34 is a new pump series with high head impellers (CH = centrifugal high-head impeller series).

CMNP34T is now a CHMNA34T ("C" is now a CH = centrifugal high-head impeller series, and the "P" Polypropylene Seal is now an "A" = Noryl-Encased making for a complete Noryl Wet-End Pump). The Noryl Series is available only as a complete Noryl wet-end (a Noryl chemical duty seal – "A" code) with TEFC-type motors. The Polypropylene Series is available only with a standard type Buna-N Seal (not chemical duty – "B" code) with ODP-type motors.

CSMSV63T is a new self-priming pump series with semi-open impellers (CS = centrifugal self-priming series).

Aqua-Tiger DC Series is now Shertech Brand. The AT120 is now a COMBL012D (CO = centrifugal semi-open impeller type series).

Turbine Pumps

Turbine models are back. New models look like = TXMBB123T.

(An "X" was added to differentiate new from old; new models have an upgraded seal.)

Gear Pumps

Most models now include a "G" in the model code, designating G = Gear Pump.

Relief valve models are now standard.

Cast iron gear pumps are now standard with Viton seals.

Roller Pumps

These did not change.

Flexible Impeller Pumps

These did not change.

Motor Model Numbers

These have changed including an S = Shertech or H = Hypro at the end of the model code.

Seal Kits

These have changed including an S = Shertech.

Repair Flex Impellers

These have changed including an S = Shertech.

Owner's Manual Reference List

The owner's manuals contain: Performance, Installation, Operation, Dimensions, Standard Models, Repair, Parts & Maintenance Information.

Note: The publications below can be found at www.shertech.com.

CENTRIFUGAL PUMPS

- Motor Manual	L-4077
- Close-Coupled Centrifugal Pumps; 316 Stainless Steel, Bronze and Cast Iron Models.....	L-4073
- Pedestal-Mount Centrifugal Pumps; 316 Stainless Steel, Bronze and Cast Iron Models	L-4075
- High Head Close-Coupled Centrifugal Pumps; 316 Stainless Steel, Bronze and Cast Iron Models	L-4067
- High Head Pedestal-Mount Centrifugal Pumps; 316 Stainless Steel, Bronze and Cast Iron Models	L-4076
- Corrosion-Resistant Close-Coupled Centrifugal Pumps; Noryl® Series and Polypropylene Series	L-4072
- Corrosion-Resistant Pedestal Centrifugal Pumps; Noryl® Series and Polypropylene Series	L-4074
- Self-Priming Close-Coupled Centrifugal Pumps; 316 Stainless Steel, Bronze and Cast Iron Models	L-4068
- Small Close-Coupled Centrifugal Pumps; 316 Stainless Steel and Bronze Models	L-4096
- Close-Coupled Turbine Pumps; Bronze and Cast Iron Models	L-4069

GEAR AND ROLLER PUMPS

- Motor Manual	L-4082
- 316 Stainless Steel Rotary Close-Coupled External Gear Pumps	L-4089
- 316 Stainless Steel Rotary Pedestal External Gear Pumps	L-4088
- Heavy-Duty Cast Iron and Bronze Rotary External Gear Pumps (Close-Coupled).....	L-4087
- Heavy-Duty Cast Iron and Bronze Pedestal Rotary External Gear Pumps	L-4086
- Carbonator-Mount Rotary External Gear Pumps (Close-Coupled).....	L-4083
- Bronze Plate-Mount Rotary External Gear Pumps (Close-Coupled).....	L-4084
- Light-Duty Pedestal Rotary External Gear Pumps	L-4085
- NSF Commercial-Duty Filter and Rendering Roller Pumps	L-4091
- Commercial-Duty Filter and Rendering Oil Rotary External Gear Pumps	L-4092
- Carbonator-Mount Hot Oil NSF Rotary Gear Pumps (Light-Duty)	L-4090

FLEXIBLE IMPELLER PUMPS

- Motor Manual	L-4082
- 316 Stainless Steel Self-Priming Flexible Impeller Pumps (Close-Coupled)	L-4093
- Bronze Self-Priming Flexible Impeller Pumps (Close-Coupled)	L-4094
- Bronze Pedestal Self-Priming Flexible Impeller Pumps.....	L-4095

ACCESSORIES

- Optional C-Flanged Pump Speed Gear Reducers	L-4087
- Optional 56 J-Frame Pedestal Pump Mount Part Number 24479	L-4068
- Centrifugal and Turbine Pump Seals	L-4071
- Heavy-Duty Gear Pump Seals	TBD

PARTS AND ACCESSORIES AND PRICING

- The products parts and price list is available as an electronic document found at www.shertech.com.
Part numbers can be identified from the owner's manual and pricing can be found by part number in the electronic document.
- Parts and pricing subject to change without notice.

REFERENCE

- Gear and Flexible Impeller Pump Application Information	L-4082
- How to Select Rotary Gear Pumps	L-4082

WARRANTY

- See warranty in your owner's manual.