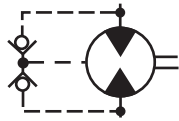
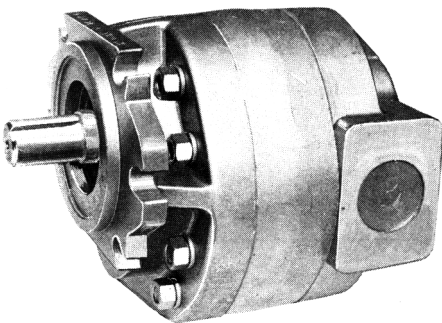


# 60 Series

Cross Gear Pumps/Motors



The **CROSS Series 60** gear pumps/motors feature a gear tooth design that provides more displacement within a given package size. The gear tooth design and pressure balanced loading plates provide for a high volumetric and overall efficiency while operating at a low noise level. Available in 6 sizes, with displacements from 4.05 to 9.25 cubic inches per revolution, this compact unit as a pump can deliver up to 100 US. gpm. in a space less than 8" x 8-1/2" x 9-1/4".

### MATERIAL SPECIFICATIONS

- End covers..... Die cast aluminium alloy
- Gears and shafts .....Hardened steel
- Bearings ..... Pressure lubricated, Teflon impregnated sleeve
- Seals..... Buna N
- Body ..... Permold aluminium alloy

### GENERAL SPECIFICATIONS

Displacement sizes

|      |      |       |       |       |       |                |
|------|------|-------|-------|-------|-------|----------------|
| 4.05 | 5.15 | 6.15  | 7.15  | 8.15  | 9.25  | cu.in./<br>Rev |
| 66.4 | 84.4 | 100.8 | 117.2 | 133.6 | 151.6 | cc/Rev         |

### HYDRAULIC PUMPS

- Rated working pressure (max. relief valve setting at full flow)..... 3000 psi (207 bar)
- Maximum shock & surge pressure ..... 3500 psi (242 bar)
- Maximum flow rate (delivery)..... 90 gpm (341 l/m)
- Maximum speed (continuous - see Inlet Vacuum Curves) .....Up to 3000 RPM
- Maximum horsepower (at rated speed and pressure)..... 175 hp (130 kw)
- Mounting (any position) .....SAE 'C' size, (2 and 4-Bolt)
- Weight..... Approx. 42 lbs (19 kg)

### HYDRAULIC MOTORS

- Rated working pressure (max. relief valve setting at full flow)..... 3000 psi (207 bar)
- Maximum shock & surge pressure ..... 3500 psi (242 bar)
- Maximum flow rate (input) ..... 108 gpm (409 l/m)
- Maximum speed (continuous) .....Up to 3000 RPM
- Maximum horsepower (at rated speed and pressure)..... 189 hp (148 kw)
- Mounting (any position) .....SAE 'C' size, (2 and 4-Bolt)
- Weight..... Approx. 42 lbs (19 kg)

# 60 Series



## Cross Gear Pumps/Motors

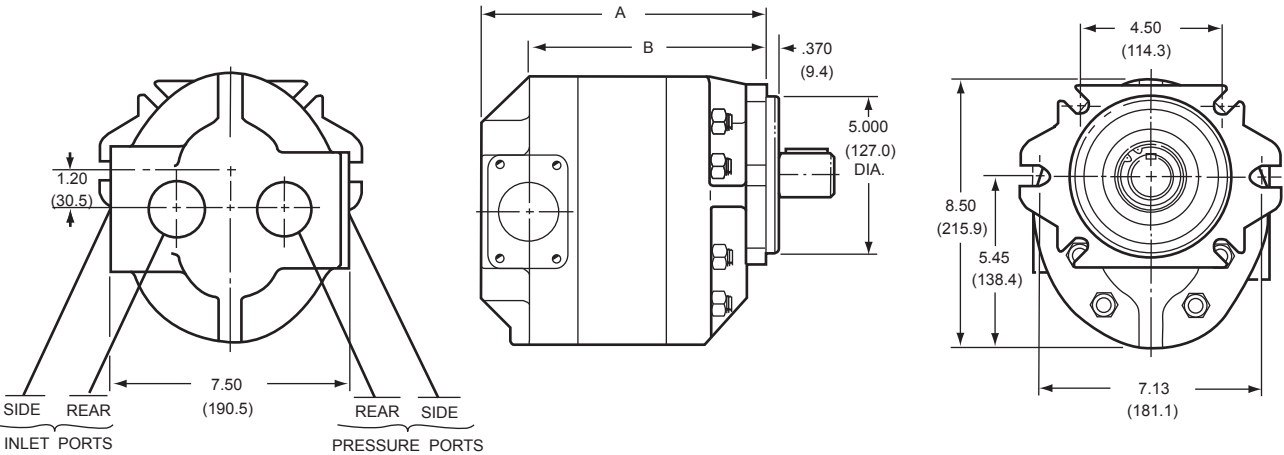
### STANDARD FEATURES

- Rotation: Bi-directional (Dual Rotation)
- Ports: Side, SAE #24 (1-7/8" - 12) U.N. O'Ring thread
- Internal check valves (no external drain required if back pressure is below shaft seal rating)
- Shaft: 1-1/4" Dia Parallel keyed
- Shaft Seal: 250 psi. (17 bar)

### OPTIONAL FEATURES AVAILABLE

- Ports: Rear inlet and outlet location (See 'How to Order' for port size options)
- Shaft: 1-1/4" Dia SAE splined (14 tooth)

### DIMENSIONAL DATA - in inches and (millimeters)

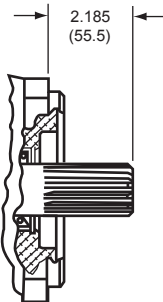


|                                            |                 |                 |                 |                 |                 |                 |
|--------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| DISPLACEMENTS<br>(Cu.In./Rev.)<br>(cc/rev) | 4.05<br>(66.4)  | 5.15<br>(84.4)  | 6.15<br>(100.8) | 7.15<br>(117.2) | 8.15<br>(133.6) | 9.25<br>(151.6) |
| 'A' Dimension<br>(Inches)<br>(mm)          | 7.75<br>(197.0) | 8.00<br>(203.2) | 8.27<br>(210.1) | 8.52<br>(216.4) | 8.77<br>(222.8) | 9.05<br>(229.9) |
| 'B' Dimensions<br>(Inches)<br>(mm)         | 6.24<br>(158.5) | 6.50<br>(164.1) | 6.77<br>(172.0) | 7.02<br>(178.3) | 7.27<br>(184.7) | 7.55<br>(191.8) |

### OUTPUT SHAFT

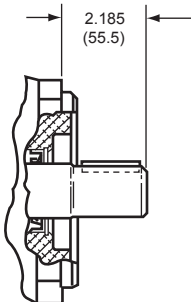
#### SHAFT 'A'

Splined, 14 tooth, 12/24 pitch, 30°  
Pressure angle, Flat root side fit  
Class 6. Diameter 1.250 (31.75)



#### SHAFT 'C'

Keyway for straight key is .3120  
inches wide and .160 inches deep.  
Diameter .250 (31.75)



| Port Location, Size and Type |                  |                  |      |
|------------------------------|------------------|------------------|------|
|                              | Inlet            | Outlet           |      |
| SA                           | 1-1/2" (SAE#24)  | 1-1/4" (SAE#20)  | SIDE |
| SB                           | 1-1/2" Spl. Flg. | 1-1/4" Spl. Flg. |      |
| SC*                          | 2" Spl. Flg.     | 1-1/4" Spl. Flg. |      |
| SF                           | 1-1/2" (SAE#24)  | 1-1/2" (SAE#24)  |      |
| SH                           | 1-1/2" Spl. Flg. | 1-1/2" Spl. Flg. |      |
| RK                           | 1-1/2" (SAE#24)  | 1-1/2" (SAE#24)  | REAR |

# 60 Series

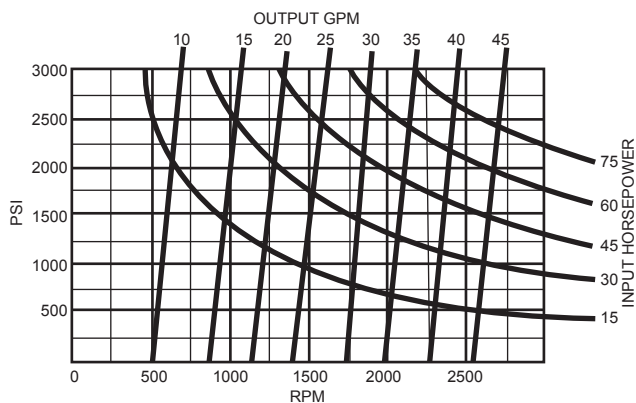
Cross Gear Pumps/Motors



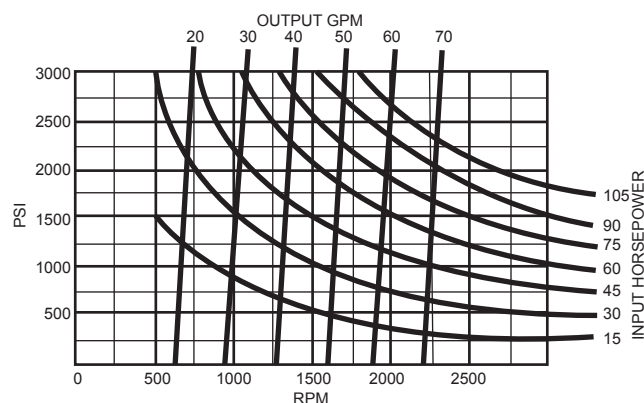
## GEAR PUMP - DELIVERY CHARACTERISTICS

TYPICAL PERFORMANCE DATA

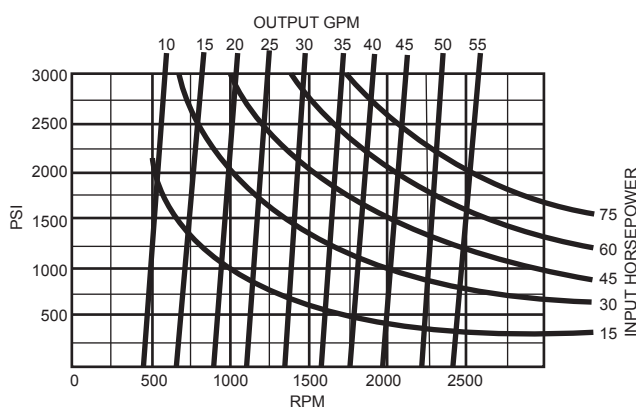
**Model 60P040**



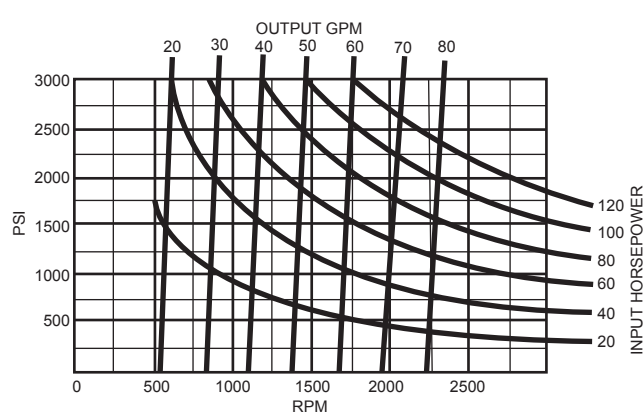
**Model 60P071**



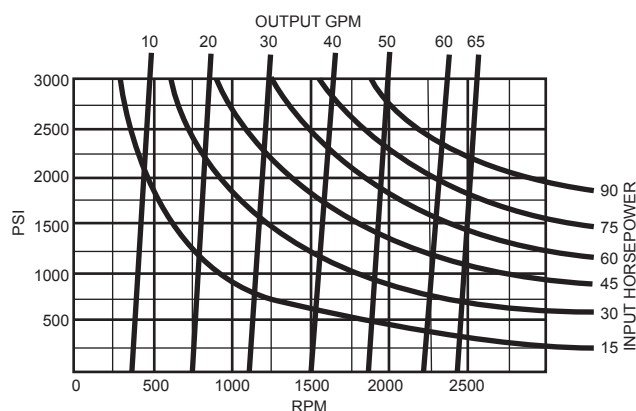
**Model 60P051**



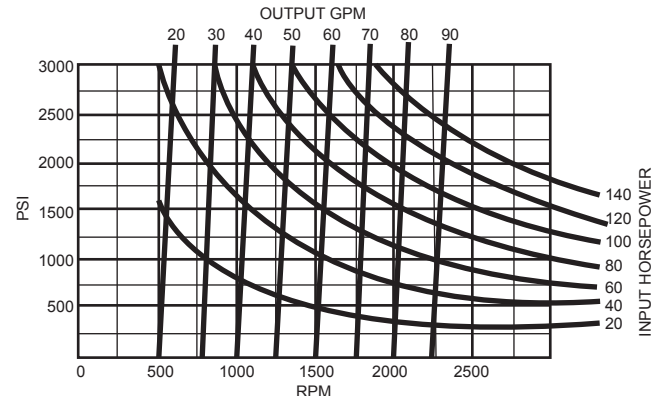
**Model 60P081**



**Model 60P061**



**Model 60P092**

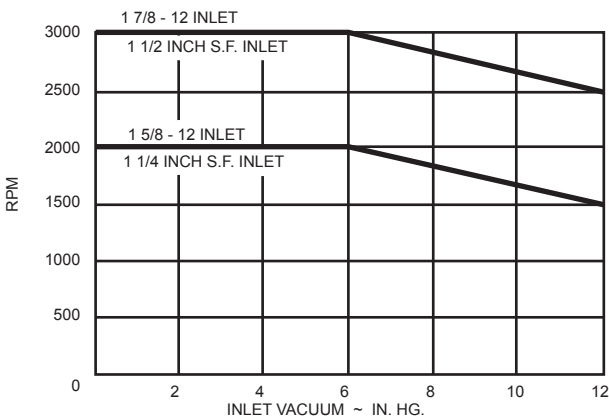




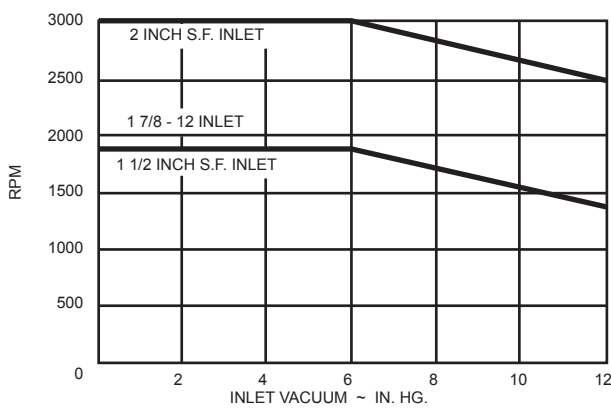
GEAR PUMP - SUCTION CHARACTERISTICS

TYPICAL PERFORMANCE DATA

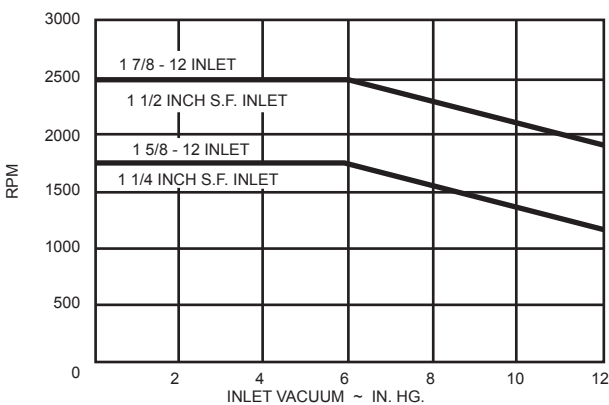
MODEL 60P040



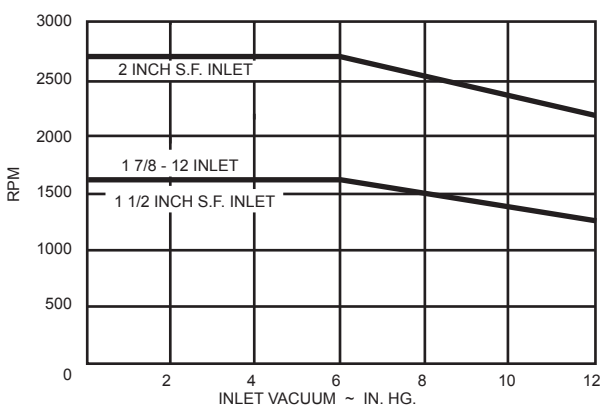
MODEL 60P071



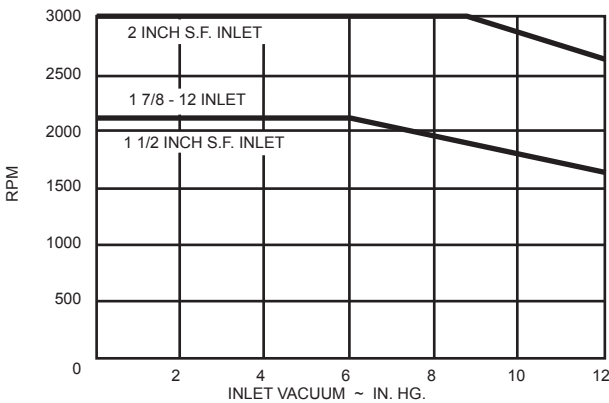
MODEL 60P051



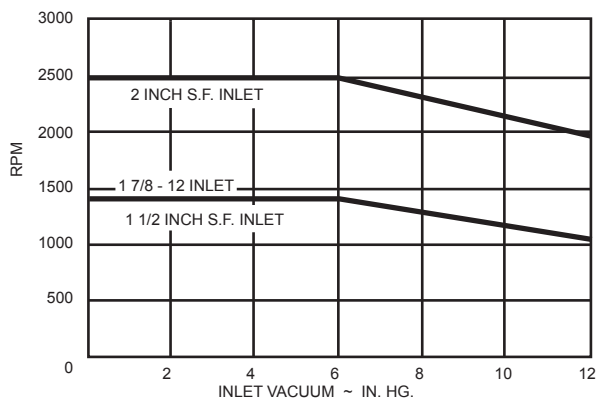
MODEL 60P081



MODEL 60P061



MODEL 60P092



# 60 Series

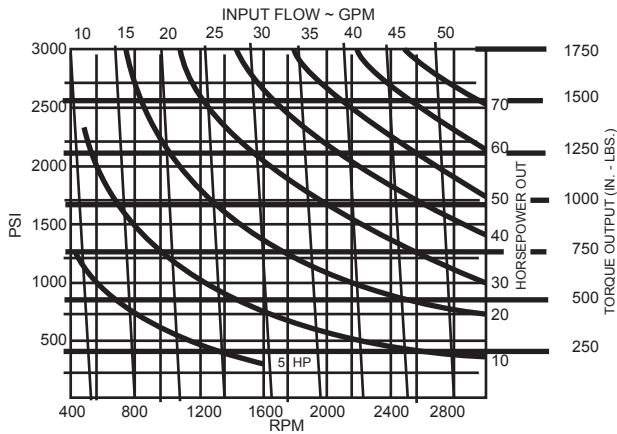
Cross Gear Pumps/Motors



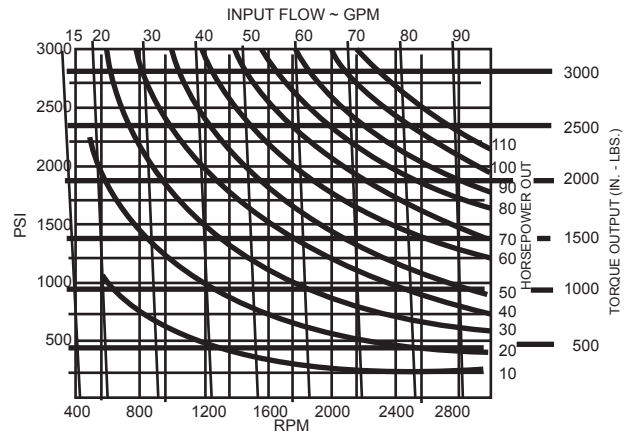
## GEAR MOTORS

### TYPICAL PERFORMANCE DATA

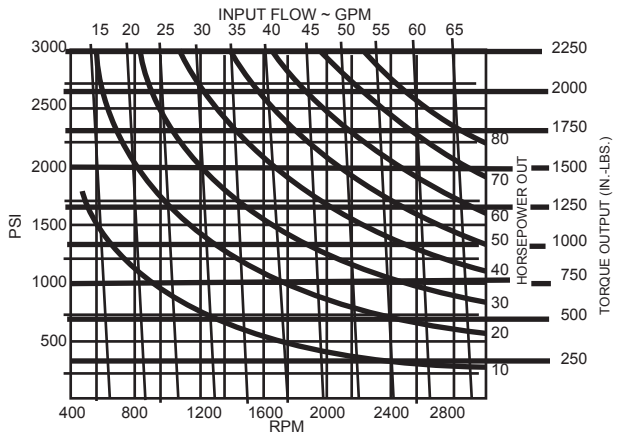
**MODEL 60M040**



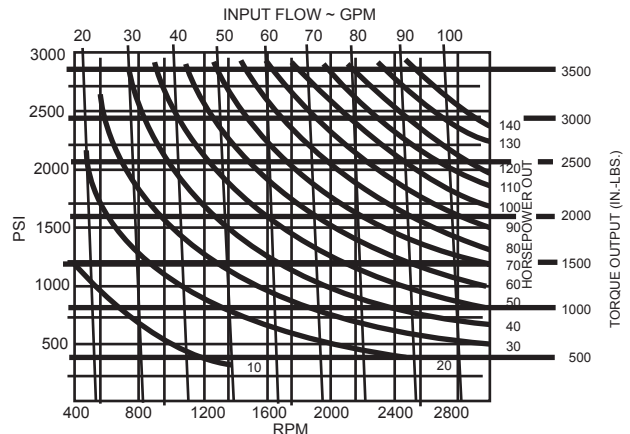
**MODEL 60M071**



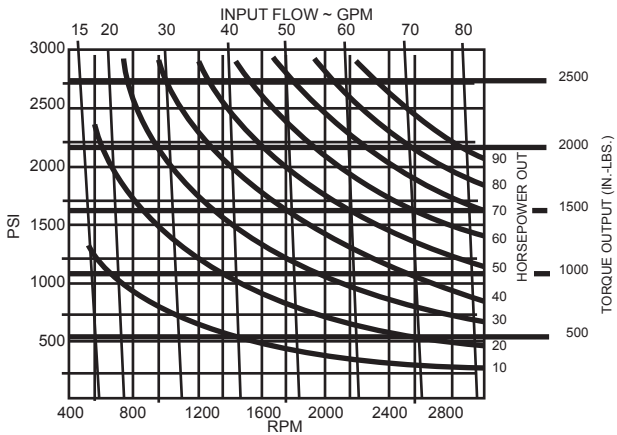
**MODEL 60M051**



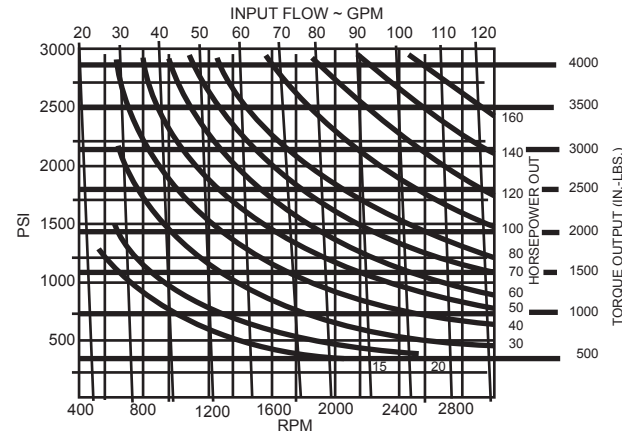
**MODEL 60M081**



**MODEL 60M061**



**MODEL 60M092**

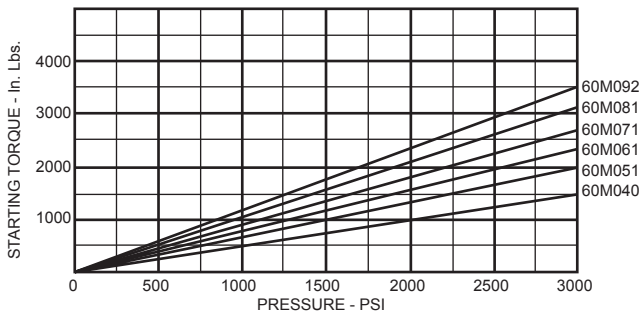




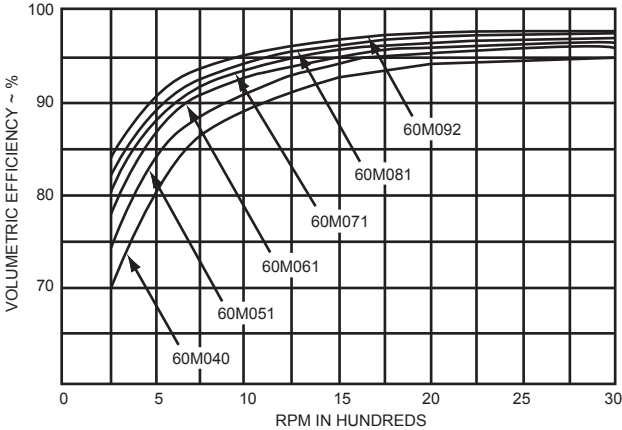
GEAR MOTORS

TYPICAL PERFORMANCE DATA

STARTING TORQUE (in.-lbs) vs. PRESSURE (PSI)



VOLUMETRIC EFFICIENCY vs RPM at 120°F



HOW TO ORDER

| Series | Type                         | Special Options                             | Size<br>cu.in./<br>rev x<br>0.1 | Rotation                              | Mounting                                              | Shaft<br>Size & Type                            | Ports            |                           |                           |      |
|--------|------------------------------|---------------------------------------------|---------------------------------|---------------------------------------|-------------------------------------------------------|-------------------------------------------------|------------------|---------------------------|---------------------------|------|
|        |                              |                                             |                                 |                                       |                                                       |                                                 | Location<br>Code | Size                      |                           |      |
|        |                              |                                             |                                 |                                       |                                                       |                                                 |                  | Inlet                     | Outlet                    |      |
| 60     | P*<br>(Pump)<br>M<br>(Motor) | O<br>None<br>H*<br>250 psi<br>Shaft<br>Seal | 40                              | D*<br>Dual<br>R<br>Right<br>L<br>Left | C*<br>SAE 'C'<br>2-Bolt<br>&<br>4-Bolt<br>Combination | A<br>1-1/4" Spline<br>C*<br>1-1/4" Dia<br>Keyed | SA               | 1-7/8"<br>UN<br>O'Ring    | 1-5/8"<br>UN<br>O'Ring    | Side |
|        |                              |                                             | 51                              |                                       |                                                       |                                                 | SB               | 1-1/2"<br>Split<br>Flange | 1-1/4"<br>Split<br>Flange |      |
|        |                              |                                             | 61                              |                                       |                                                       |                                                 | SC               | 2"<br>Split<br>Flange     | 1-1/4"<br>Split<br>Flange |      |
|        |                              |                                             | 71                              |                                       |                                                       |                                                 | SF*              | 1-7/8"<br>UN<br>O'Ring    | 1-7/8"<br>UN<br>O'Ring    | Rear |
|        |                              |                                             | 81                              |                                       |                                                       |                                                 | SH               | 1-5/8"<br>UN<br>O'Ring    | 1-5/16"<br>UN<br>O'Ring   |      |
|        |                              |                                             | 92                              |                                       |                                                       |                                                 | RK               | 1-7/8"<br>UN<br>O'Ring    | 1-7/8"<br>UN<br>O'Ring    |      |
|        |                              |                                             |                                 |                                       |                                                       |                                                 |                  |                           |                           |      |

\* Standard

EXAMPLE: 60PH81DCCSF

Describes a Series 60 Gear Pump/Motor fitted with a high pressure shaft seal; a displacement of 8.15 cu.in./rev; Bi-directional rotation; SAE 'C' 2/4-Bolt Mount, 1-1/4" Dia keyed shaft and 1-7/8" UN O'Ring side Inlet & Outlet Ports.

**NOTE:** Series 60 Pumps only are stocked. Because of the high pressure shaft seal and the dual rotation feature they can be substituted where required for use as motors. When used as a motor a case drain connection is only required when the outlet/return pressure is likely to exceed 250 psi.