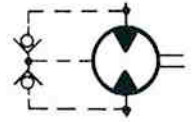




# HYDRAULIC MOTORS

## GEAR MOTORS 60 SERIES Specifications Sheet



The CROSS series 60 gear type motors feature advanced design concepts which produce long service life and high reliability when operated up to rated speeds and pressures. Improved gear tooth design and pressure-balanced loading plates provide for a high volumetric and overall efficiency, while operating at a low noise level.

### GENERAL SPECIFICATIONS

Displacement sizes

4.05	5.15	6.15	7.15	8.15	9.25	cu.in./Rev.
66.4	84.4	100.8	117.2	133.6	151.6	cc/Rev.

Rated working pressure (Max. relief valve setting at full flow) . . . . . 3000 psi (207 bar)  
Maximum shock and surge pressure . . . . . 3500 psi (242 bar)  
Maximum flow rate (input) . . . . . 108 gpm (409 l/m)  
Maximum speed (continuous) . . . . . up to 3,000 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)

### MATERIAL SPECIFICATIONS

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

### STANDARD FEATURES

- Rotation: Bi-directional (Dual Rotation) • Ports: 1 1/2" SAE #24, o-ring (1 7/8 - 12) side location • 1/4" NPTF drain port • Internal check valves (no external drain required if back pressure is below shaft seal rating) • Shaft: 1 1/4" dia. with straight key • Shaft seal: 250 psi (17 bar)

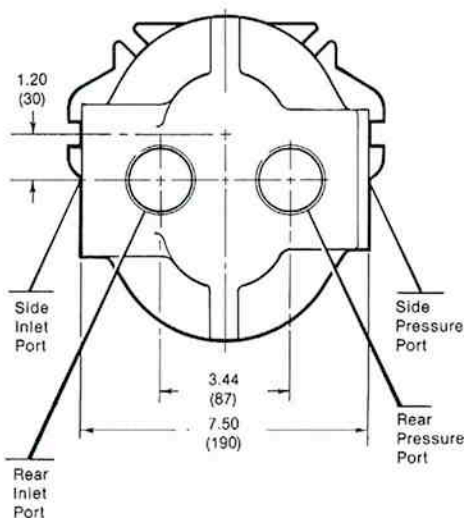
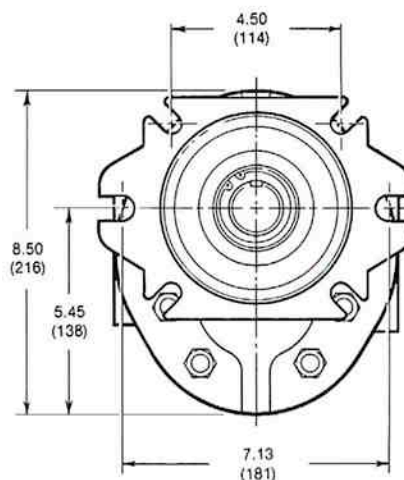
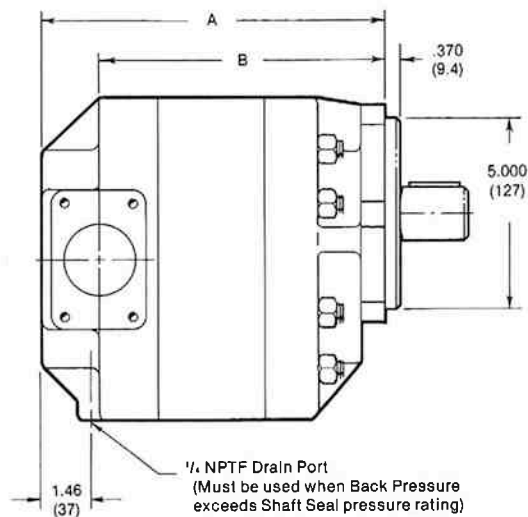
### OPTIONAL FEATURES AVAILABLE

- Rotation: Right hand (clockwise); Left hand (counterclockwise)
- Ports: Straight thread inlet and outlet, rear location; 1 1/4" and 1 1/2" split flange side ports, inlet and outlet
- Shaft: 1 1/4" splined (14 tooth, 12/24 pitch, 30° P.A. flat root side fit)

NOTE: Refer to CROSS pump and motor technical/service sheet for side and end load limitations, oil recommendations, start-up procedures, etc.



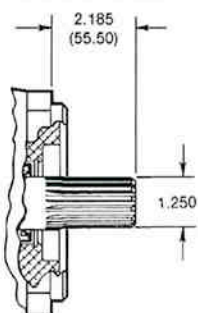
**DIMENSIONAL DATA in inches and (millimeters)**



Displacement		Dimension "A"		Dimension "B"	
cu.in./Rev.	cc/Rev.	inches	mm	inches	mm
4.05	(66.4)	7.75	(197)	6.24	(158)
5.15	(84.4)	8.00	(203)	6.50	(165)
6.15	(100.8)	8.27	(210)	6.77	(172)
7.15	(117.2)	8.52	(216)	7.02	(178)
8.15	(133.6)	8.77	(223)	7.27	(185)
9.25	(151.6)	9.05	(230)	7.55	(192)

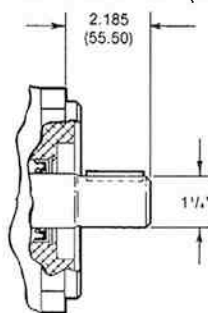
**OUTPUT SHAFT**

**SHAFT A**



Splined, 14 tooth,  
 12/24 pitch, 30°  
 pressure angle, flat root  
 side fit, Class 6.  
 Diameter 1.25"  
 (31.75)

**SHAFT C (Standard)**



Keyway for straight key  
 is .3120 inches wide,  
 and .160 inches deep.  
 Diameter 1.25"  
 (31.75)



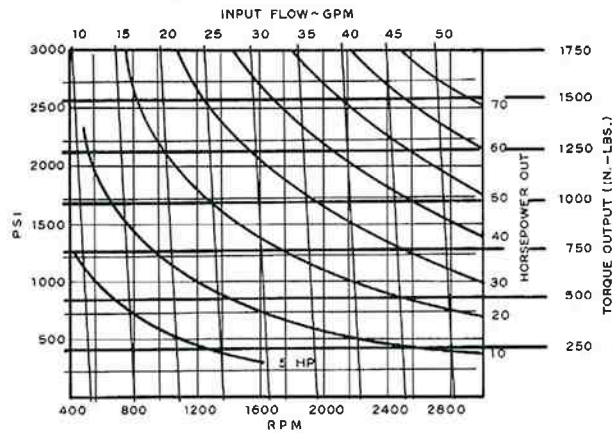
# HYDRAULIC MOTORS

## GEAR MOTORS 60 SERIES

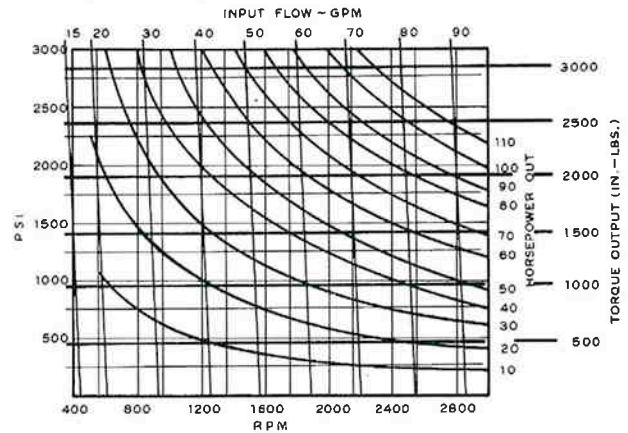
### TYPICAL PERFORMANCE DATA

(FOR SPECIFIC PERFORMANCE DATA,  
CONTACT CROSS ENGINEERING)

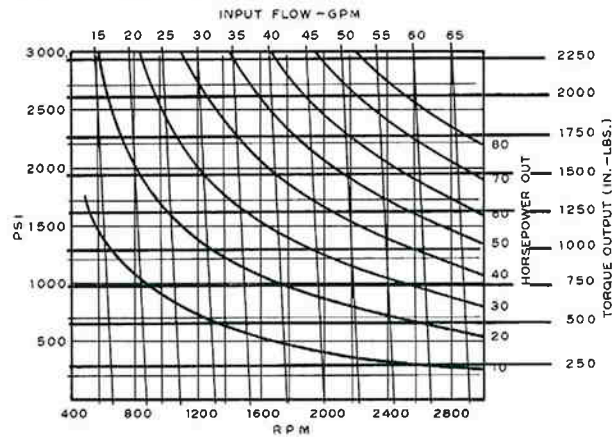
#### MODEL 60M040



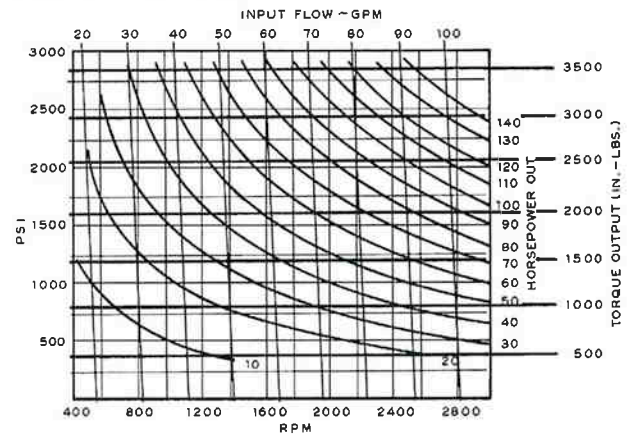
#### MODEL 60M071



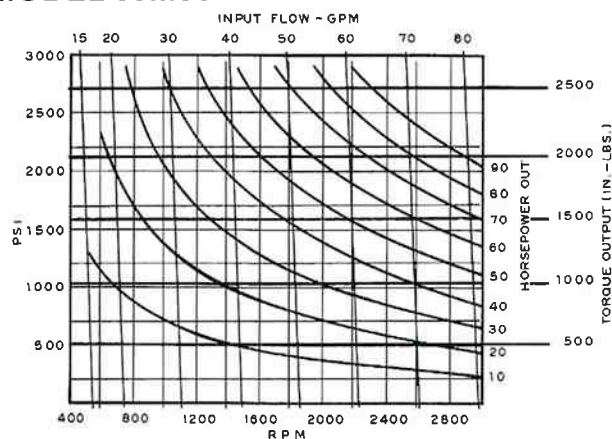
#### MODEL 60M051



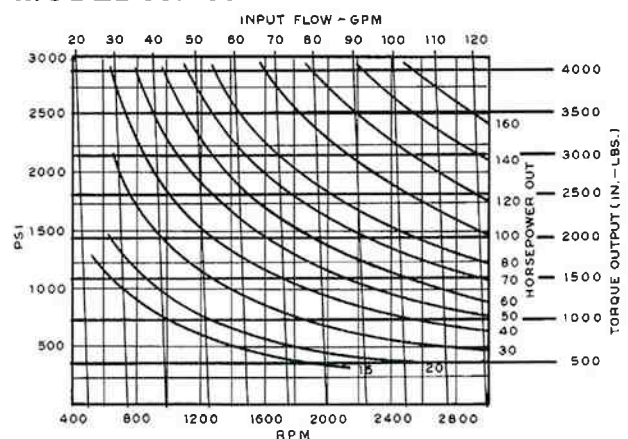
#### MODEL 60M081



#### MODEL 60M061



#### MODEL 60M092

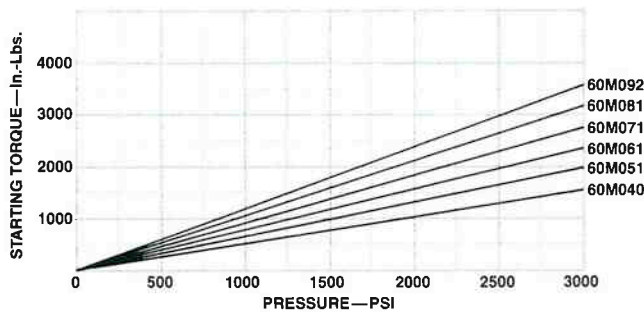




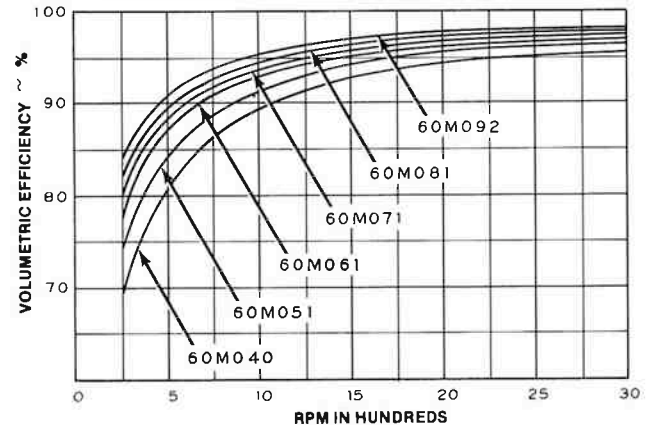
**TYPICAL PERFORMANCE DATA**

(FOR SPECIFIC PERFORMANCE DATA,  
CONTACT CROSS ENGINEERING)

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



**VOLUMETRIC EFFICIENCY vs RPM at 120° F**



**ORDERING DATA**

Series	Type	Special Options	Size cu.in./ Rev. x 10	Rotation	Mounting	Shaft Size & Type	Port Location, Size & Type Inlet and Outlet	
60	M motor	H 250 psi Shaft Seal	40	D dual	C SAE 2 & 4 bolt combin- ation	A 1 1/4 dia. splined  C 1 1/4 dia. straight keyway	SF 1 7/8 - 12 SAE #24 SH 1 1/2" spl. flg.	SIDE PORTS
			51	L left				
			61	R right				
			71					
			81					
			92				RK 1 7/8 - 12 SAE #24	REAR PORTS

**EXAMPLE: 60MH40DCCSF**

Describes a Series 60 Gear Motor with 250 psi shaft deal; displacement of 4.0 cu. in. per revolution; bi-directional rotation; combination SAE two and four bolt "C" mount; 1 1/4" dia. shaft with straight keyway and 1 7/8 - 12 side ports.



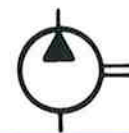
**CROSS MANUFACTURING, INC.**  
100 James H. Cross Blvd.  
Lewis, Kansas 67552  
Phone 620/324-5525; FAX 620/324-5737; e-mail: [info@crossmfg.com](mailto:info@crossmfg.com)





# HYDRAULIC PUMPS

## GEAR PUMPS 60 Series Specification Sheet



The CROSS Series 60 gear pumps, with a maximum of 175 hp., feature a gear tooth design that provides more displacement within a given package design. Displacements from 4.05 to 9.25 cu. in./rev. are offered in 6 sizes with the largest delivering 100 gpm in a space less than 8" x 8½" x 9¼". Gear tooth design and pressure-balanced loading plates provide high volumetric and overall efficiency while operating at a low noise level.

### GENERAL SPECIFICATIONS

Displacement sizes:

4.05	5.15	6.15	7.15	8.15	9.25	cu.in./Rev.
66.4	84.4	100.8	117.2	133.6	151.6	cc/Rev.

Rated working pressure (Max. relief setting at full flow) . . . . . 3000 psi (207 bar)  
Maximum shock and 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)

### MATERIAL SPECIFICATIONS

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

### STANDARD FEATURES

- Rotation: Left hand (counterclockwise), right hand (clockwise) or bi-directional (dual)
- O-ring ports: 1½" SAE #24 (1⅞ - 11) side location
- Shaft: 1¼" dia. with straight key • Shaft seal: 20 psi (1.4 bar)\*

### OPTIONAL FEATURES AVAILABLE

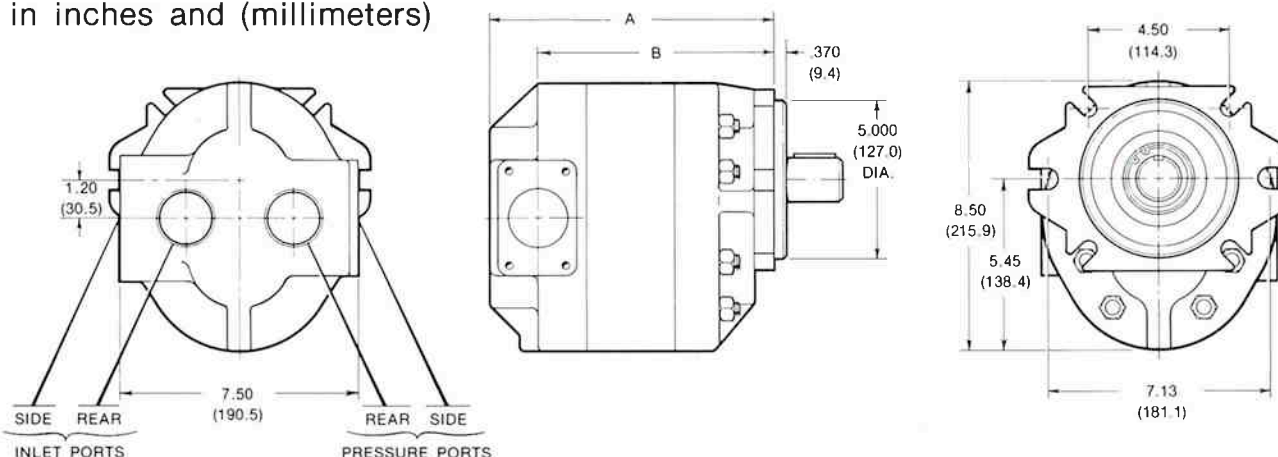
- Ports, straight thread inlet and outlet, rear port location, 1½" and 2" split flange side ports, inlet and outlet • Shaft: 1¼" splined (14 tooth, 12/24 pitch, 30° P.A. flat root, side fit) • Shaft seal: high pressure, 250 psi (17.2 bar)\*

NOTE: Refer to Cross pump and motor technical/service sheet for side and end load limitations, oil recommendations, start-up procedures, etc.

\* Dual rotation pumps are provided with 100 psi shaft seal.



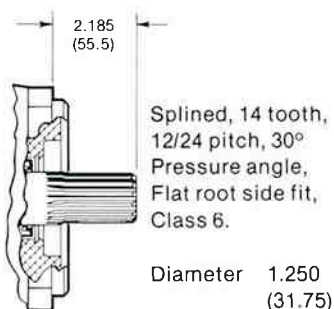
**DIMENSION DATA**  
in inches and (millimeters)



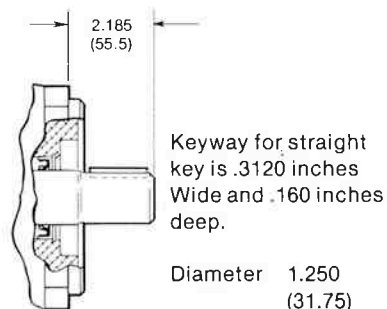
Displacement	4.05 (66.4)	5.15 (84.4)	6.15 (100.8)	7.15 (117.2)	8.15 (133.6)	9.25 (151.6)	cu.in./Rev. cc/Rev.
Dimension "A"	7.75 (197.0)	8.00 (203.2)	8.27 (210.1)	8.52 (216.4)	8.77 (222.8)	9.05 (229.9)	inches mm
Dimension "B"	6.24 (158.5)	6.50 (164.1)	6.77 (172.0)	7.02 (178.3)	7.27 (184.7)	7.55 (191.8)	inches mm

**OUTPUT SHAFT**

**Shaft A**



**Shaft C\***



Port Location, Size and Type			
Inlet		Outlet	
SA	1½ (SAE #24)	1¼ (SAE #20)	SIDE
SB	1½" Spl. Flg.	1¼" Spl. Flg.	
SC*	2" Spl. Flg.	1¼" Spl. Flg.	
SF	1½ (SAE #24)	1½ (SAE #24)	
SH	1½" Spl. Flg.	1½" Spl. Flg.	
RK	1½ (SAE #24)	1½ (SAE #24)	REAR

**ORDERING DATA**

Series	Type	Special Options	Size cu.in./Rev. x 10	Rotation	Mounting	Shaft size and type
60	P pump	O 20 psi Shaft Seal B 100 psi Shaft Seal (Std. for dual rotation) H 250 psi Shaft Seal	40 51 61 71 81 92	D dual L Left R Right	C SAE "C" 2 & 4 Bolt combi- nation	A 1 1/4" dia. splined C 1 1/4" dia. straight keyway

EXAMPLE: 60P040RCCSC is a 60 series pump with 20 psi shaft seal, 4.05 cu. in. displacement per rev., right hand rotation, SAE "C" 2 and 4 bolt combination mounting with 2" split flange side inlet and 1 1/4" split flange side outlet.

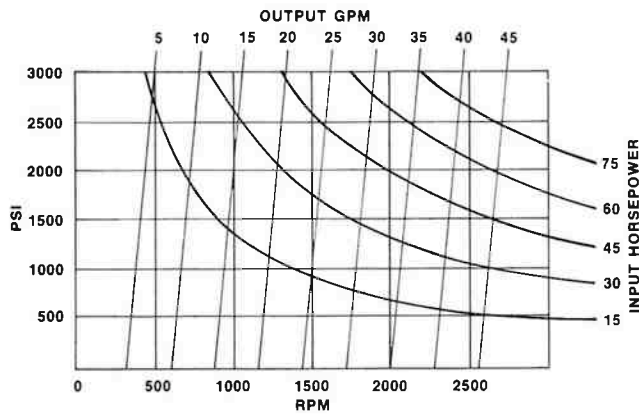


# HYDRAULIC PUMPS

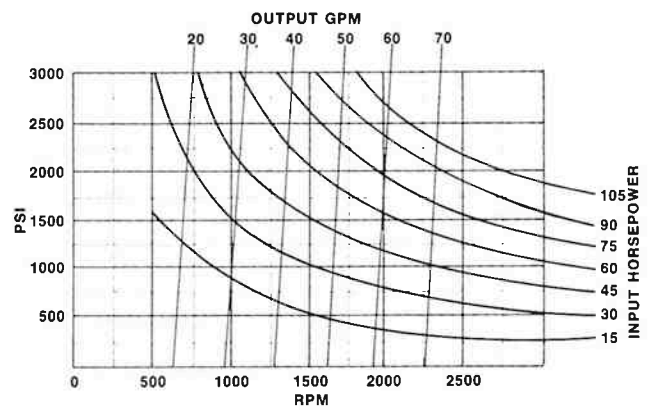
## GEAR PUMPS 60 Series

### TYPICAL PERFORMANCE DATA

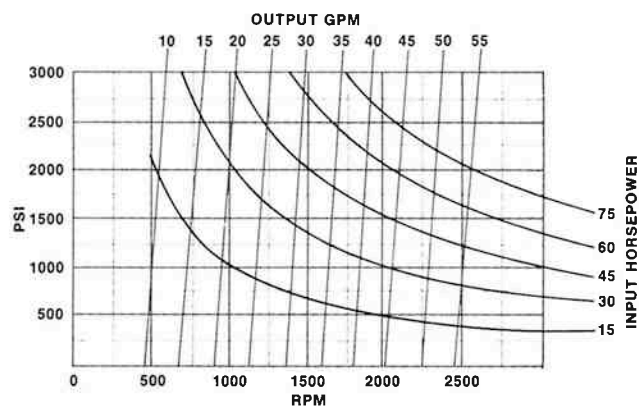
**MODEL 60P040**



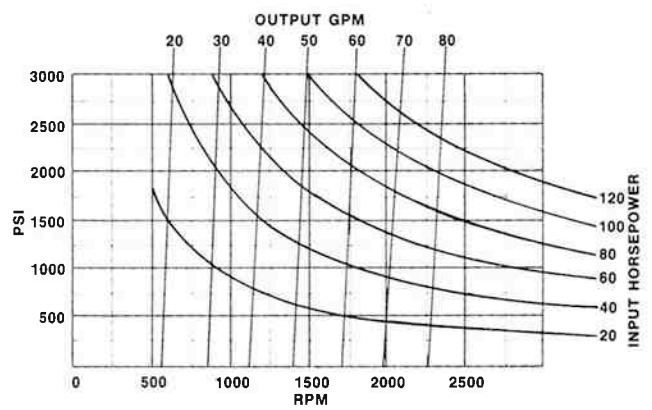
**MODEL 60P071**



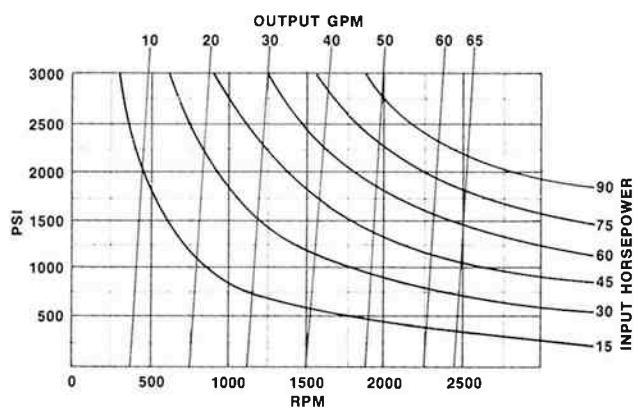
**MODEL 60P051**



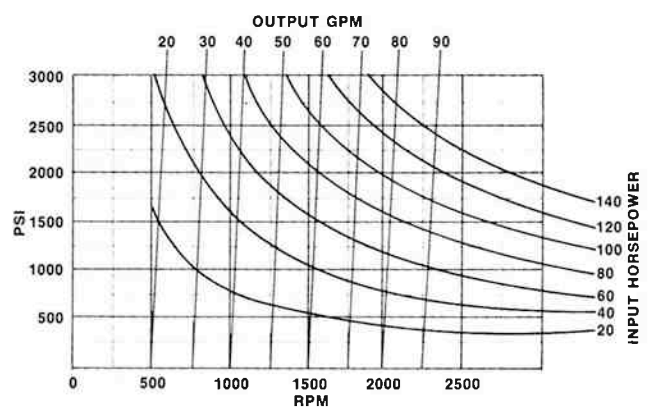
**MODEL 60P081**



**MODEL 60P061**

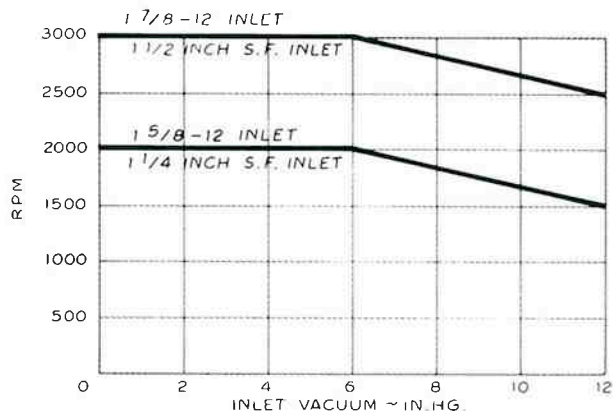


**MODEL 60P092**

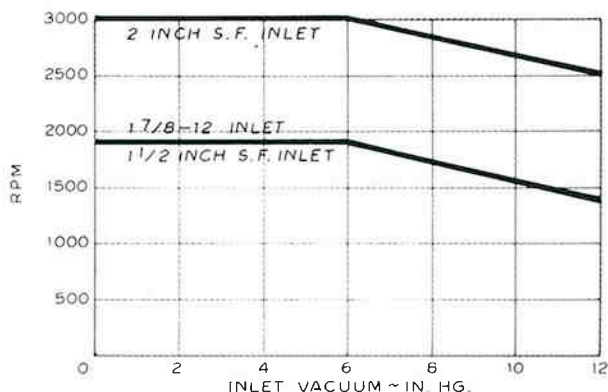


TYPICAL PERFORMANCE DATA

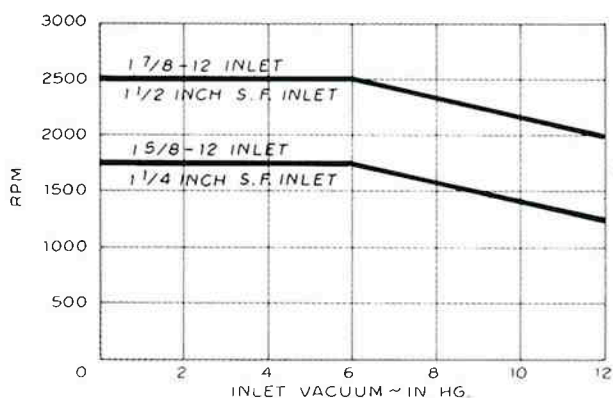
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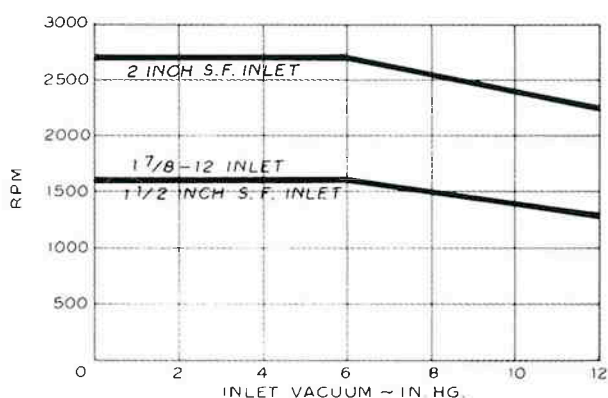
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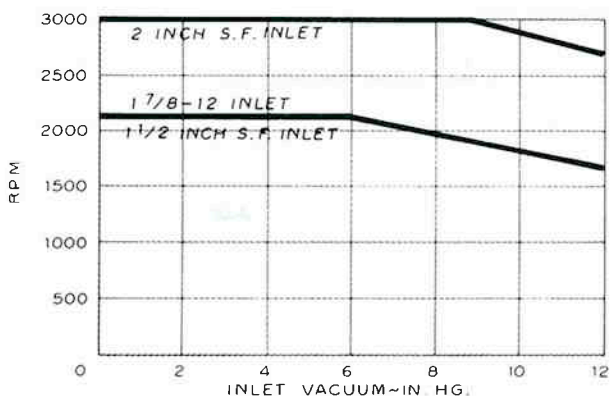
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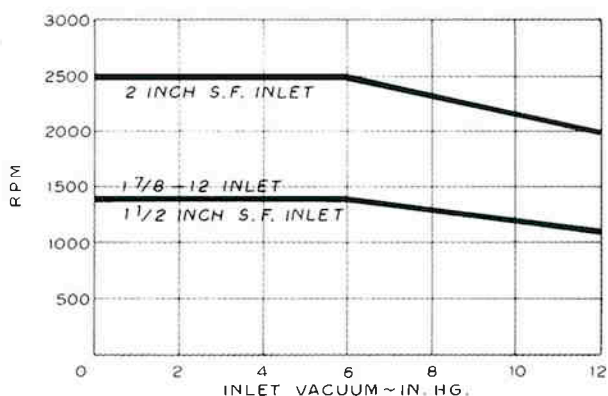
**MODEL 60P081**



**MODEL 60P061**



**MODEL 60P092**



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