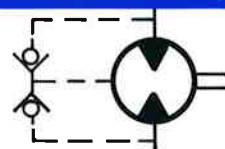




HYDRAULIC MOTORS

GEAR MOTORS 50 Series Specification Sheet



The Series 50 gear motors feature a Cross gear tooth design that provides more displacement within a given package design. Pressure balanced loading plates provide high volumetric and overall efficiency. Available in 7 sizes, with displacements from 1.52 to 5.20 cubic inches per revolution, the compact design permits locating up to a 100 horsepower unit in a space less than 6½" x 7" x 7½". Side or rear ports permit versatility for positioning the motor anywhere in the system design.

GENERAL SPECIFICATIONS

Displacement sizes:

1.52	1.95	2.32	2.74	3.30	3.80	5.20	cu.in./Rev.
24.9	32.0	38.0	44.9	54.1	62.3	85.2	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) up to 56 gpm (227 l/m)
Maximum speed (continuous) up to 3000 rpm
Maximum horsepower (at rated speed and pressure) up to 100 hp (74.6 Kw)
Mounting (any position) SAE "B" size 2-bolt
Weight Approx. 19 lbs. (8.6 Kg)

MATERIAL SPECIFICATIONS

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

STANDARD FEATURES

- Rotation: Bi-directional (dual rotation) • Internal Check Valves
(no external drain required if back pressure is below shaft seal rating)
- Ports: 1" SAE #16 (1⁵/₁₆ - 12) side location; inlet and outlet
- Shaft: 7/8" dia. Woodruff keyed • Shaft Seal: 250 psi (17 bar)

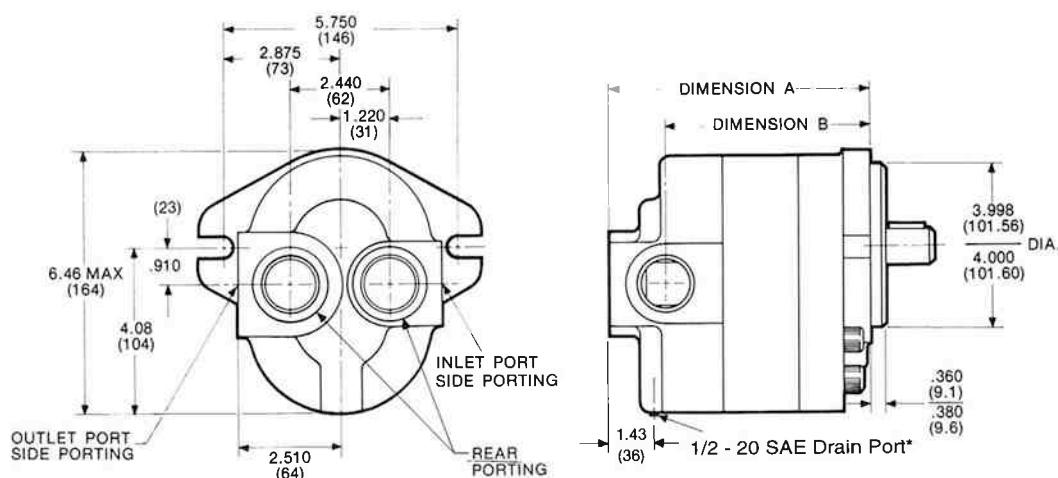
OPTIONAL FEATURES AVAILABLE

- Rotation: Right hand (clockwise); Left hand (counterclockwise)
- Ports: Rear inlet and outlet location
- Shafts: SAE 7/8" dia. splined (13 tooth); SAE 1" dia. splined (15 tooth)
7/8" dia. Woodruff keyed (long)

NOTE: Refer to CROSS pump and motor Technical Service Sheet for side and end load limitations, oil recommendations and other recommendations.



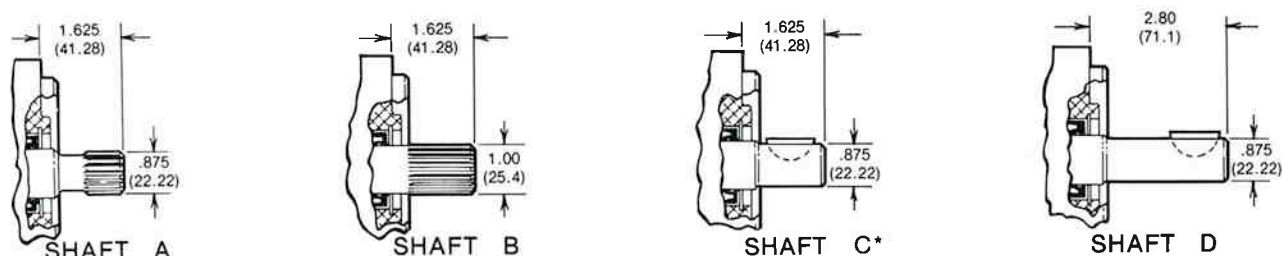
DIMENSIONAL DATA: in inches and (millimeters)



Displacement cu.in./Rev. (cc/Rev.)	Dim. "A" Inches (mm)	Dim. "B" Inches (mm)
1.52 (24.9)	5.60 (142)	4.23 (107)
1.95 (32.0)	5.80 (147)	4.43 (113)
2.32 (38.0)	5.96 (151)	4.56 (116)
2.74 (44.9)	6.15 (156)	4.78 (121)
3.30 (54.1)	6.40 (163)	5.03 (128)
3.80 (62.3)	6.62 (168)	5.25 (133)
5.20 (85.2)	7.21 (183)	5.84 (148)

* Drain port must be used when back pressure exceeds shaft seal pressure rating.

OUTPUT SHAFT



Shaft "A"	13 Tooth, 16/32 pitch, 30° pressure angle, flat root side fit, Class I
"B"	15 Tooth, 16/32 pitch, 30° pressure angle, flat root side fit, Class I
*"C"	Woodruff key: 1" Dia. x 1/4"
"D"	Woodruff key: 1" Dia. x 1/4"

ORDERING DATA

Series	Type	Special Options	Size cu.in./Rev. x 10	Rotation	Mounting	Shaft Size & Type	Ports Location & Size	
							Inlet	Outlet
50	M Motor	H 250 psi Shaft Seal	15	D	B SAE "B" 2-Bolt	A	SC	1 5/16 1 5/16
			19	Dual		B		
			23			C		
			27	L		D	RF	1 5/16 1 5/16
			33	Left Hand		7/8" Dia. Keyed		
			38			7/8" Dia. Keyed (Long)		
			52	R				
				Right Hand				

EXAMPLE: 50MH15DBCSC is a 50 Series motor, 250 psi shaft seal, 1.52 displacement per rev., dual rotation, SAE "B" 2-bolt mounting, 7/8" dia. keyed shaft and 1 5/16" inlet and outlet side ports.



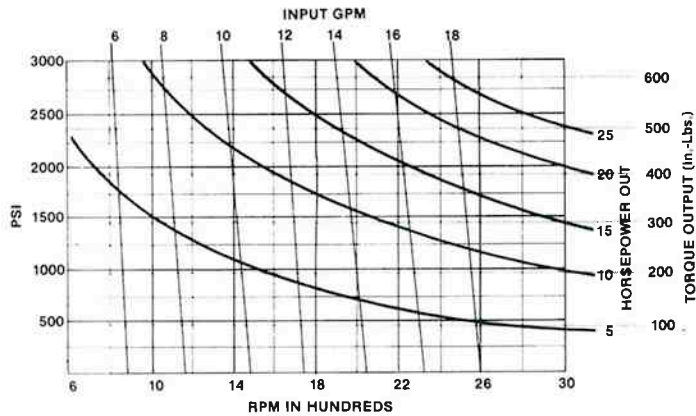
HYDRAULIC MOTORS

GEAR MOTORS 50 Series

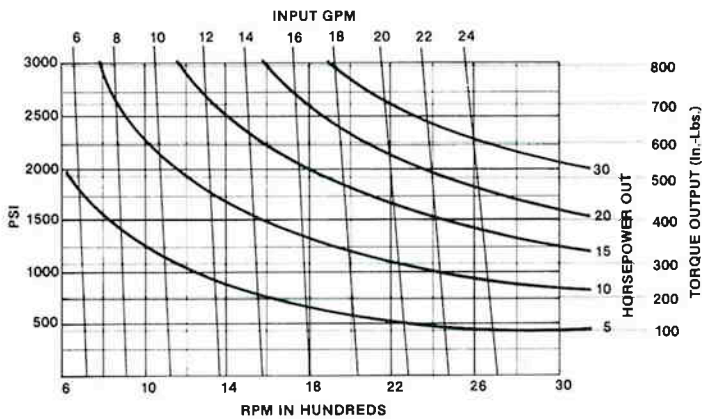
TYPICAL PERFORMANCE DATA

(FOR SPECIFIC PERFORMANCE DATA,
CONTACT CROSS ENGINEERING)

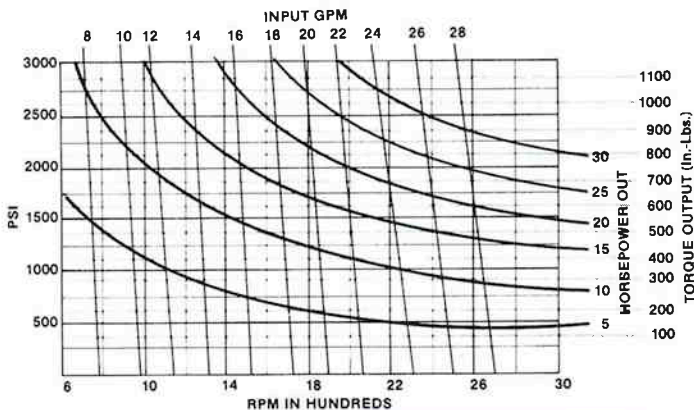
MODEL 50M015



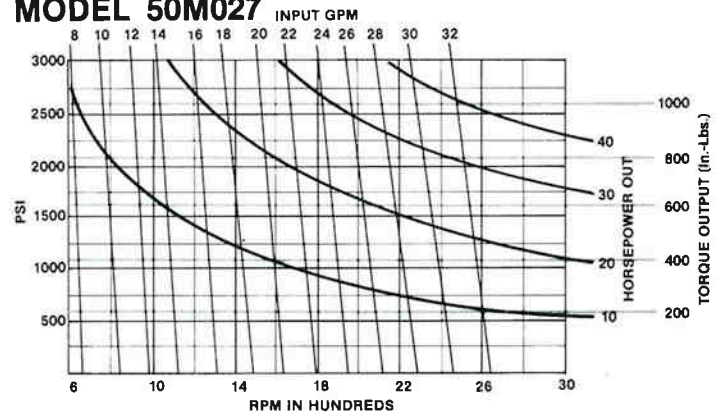
MODEL 50M019



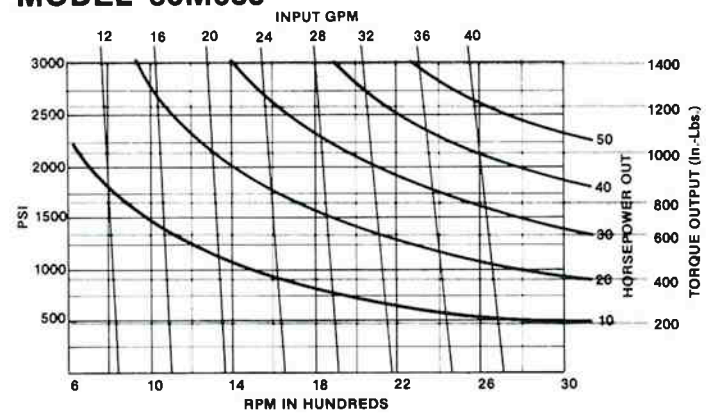
MODEL 50M023



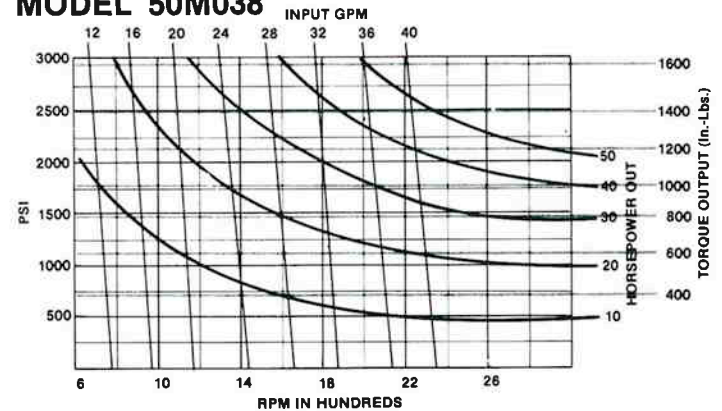
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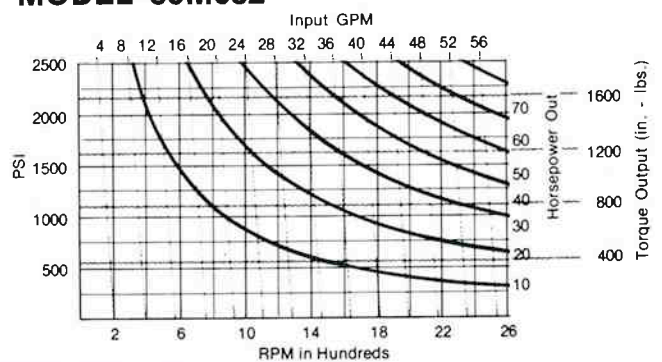
MODEL 50M033



MODEL 50M038

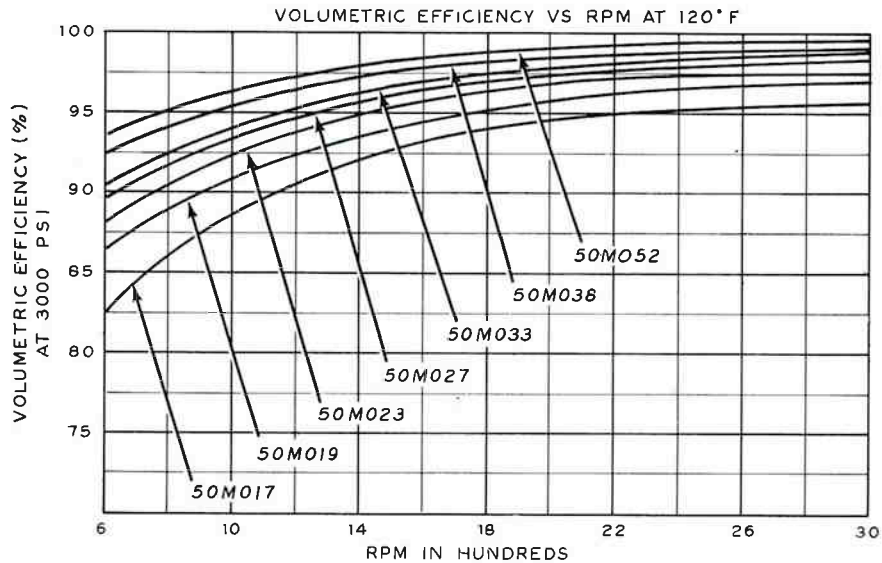


MODEL 50M052

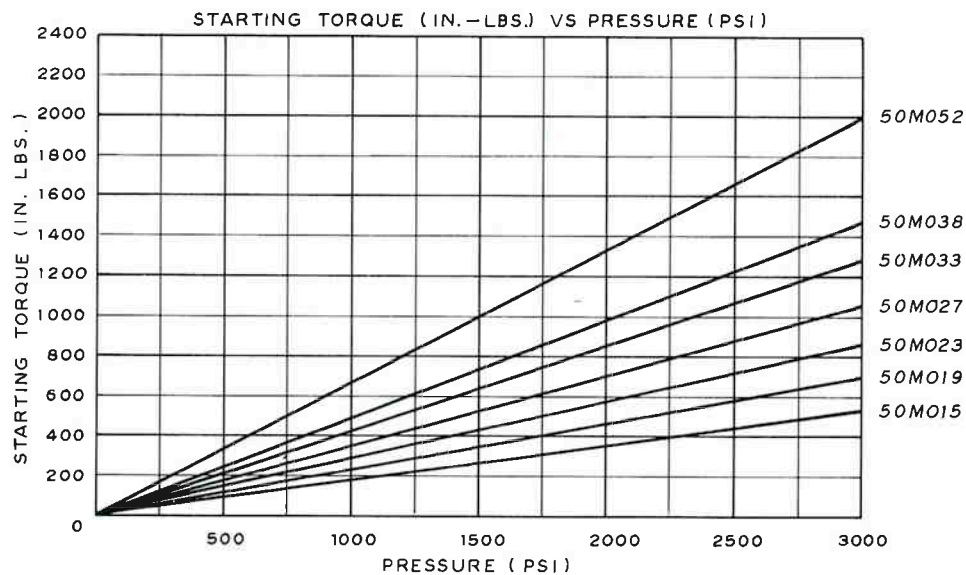




TYPICAL PERFORMANCE



VOLUMETRIC EFFICIENCY



STARTING TORQUE

(FOR SPECIFIC PERFORMANCE DATA
CONTACT CROSS ENGINEERING)

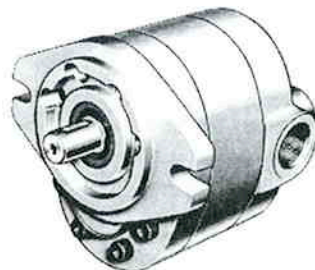
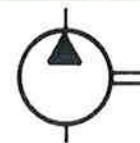


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HYDRAULIC PUMPS

GEAR PUMP 50 SERIES Specification Sheet



The CROSS Series 50 gear pumps feature a gear tooth design that provides more displacement within a given package size. Available in 7 sizes, with displacements from 1.52 to 5.20 cubic inches per revolution, this compact pump can deliver up to 45 gallons per minute in a space less than 6 $\frac{1}{2}$ " x 5 $\frac{3}{4}$ " x 7 $\frac{1}{4}$ ". 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:

1.52	1.95	2.32	2.74	3.30	3.80	5.20	cu.in./rev.
24.9	32.0	38.0	44.9	54.1	62.3	85.2	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 (delivery) 45 gpm (170 l/m)
Maximum speed (continuous - see inlet vacuum curves) Up to 3000 rpm
Maximum horsepower (at rated speed and pressure) 78 hp (58 kw)
Mounting (any position) SAE "B" size 2-bolt
Weight Approx. 19 lbs. (8.6 kg)

MATERIAL SPECIFICATIONS

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

STANDARD FEATURES

- Rotation: Right (clockwise)
- Side location ports: #20 (1 1/4") o-ring inlet (1 5/8 - 12) • #16 (1") o-ring outlet (1 5/16 - 12) • Shaft: 7/8" diameter, woodruff keyed • 20 psi (1.4 bar) shaft seal*

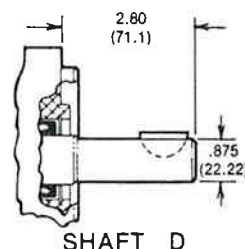
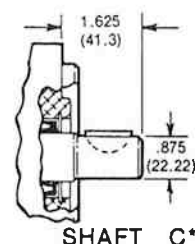
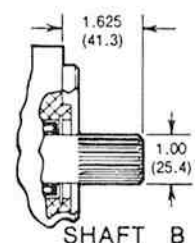
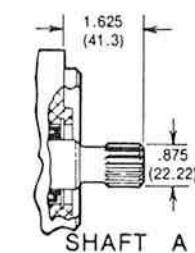
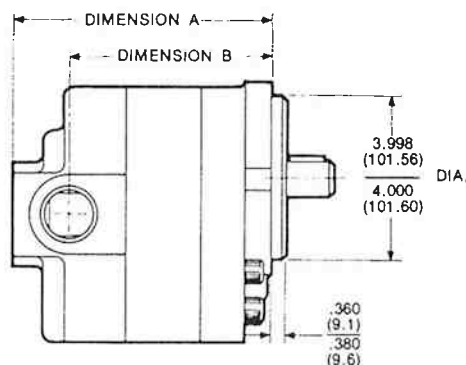
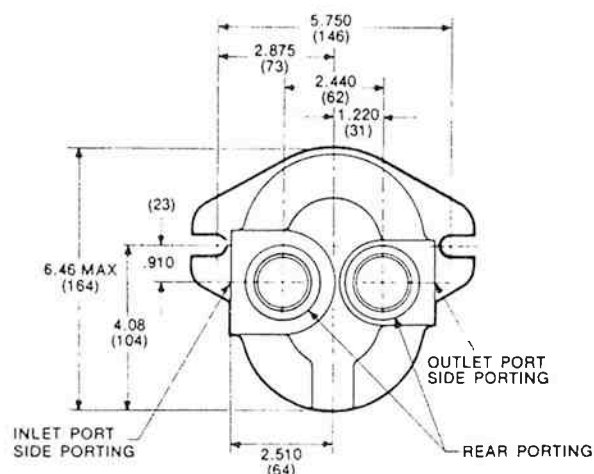
OPTIONAL FEATURES AVAILABLE

- Left rotation (counterclockwise) • Bi-rotational (dual rotation) • Rear inlet and outlet port location • SAE #16 (1) o-ring inlet port (1 5/16 - 12) • SAE #20 (1 1/4) o-ring inlet port (1 5/8 - 12) • SAE #24 (1 1/2) o-ring inlet port (1 7/8 - 12)
- Splined shaft, SAE 7/8" dia. (13 tooth 16/32 pitch, 30° PA, flat root side fit, Class I) • Splined shaft, SAE 1" dia. (15 tooth 16/32 pitch, 30° PA, flat root side fit, Class I) • Shaft 7/8" diameter, long (keyed) • Shaft seal, high pressure, 250 psi (17 bar)*

NOTE: Refer to CROSS pump and motor Technical/Service Sheet for side and end load limitations, oil recommendations and other recommendations.

* Dual rotation pumps are provided with 250 psi shaft seals.

DIMENSIONAL DATA: in inches and (millimeters)



DISPLACEMENT (Cu. In./rev.) (cc/rev.)	1.52 24.9	1.95 32.0	2.32 38.0	2.74 44.9	3.30 54.1	3.80 62.3	5.20 85.2
"A" Dimension (Inches) (mm)	5.60 142.2	5.80 147.3	5.96 151.3	6.15 156.2	6.40 162.6	6.62 168.1	7.21 183.1
"B" Dimension (Inches) (mm)	4.23 107.4	4.43 112.5	4.56 115.8	4.78 121.4	5.03 127.8	5.25 133.3	5.84 148.3

OUTPUT SHAFT

SHAFT "A"	SHAFT "B"	SHAFT "C"*	SHAFT "D"
13 Tooth, 16/32 pitch; 30° pressure angle; Flat root side fit; Class I.	15 Tooth, 16/32 pitch; 30° pressure angle; Flat root side fit; Class I.	Woodruff Key: 1" Diameter x 1/4" wide.	Woodruff Key: 1" Diameter x 1/4" wide.

ORDERING DATA

Series	Type	Special Options	Size cu.in/R X10	Rotation	Mounting	Shaft Size & Type	Ports Location & Size				
							Inlet	Outlet			
50	P Pump	O None 20 psi Pump Seal H 250 psi Shaft Seal (Standard for dual rotation)	15	D Dual	B SAE "B" 2-Bolt	A 7/8" Dia. Spline	SA	1 7/8	1 5/16	SIDE PORTS	
			19				SB	1 5/8	1 5/16		
			23				SC	1 5/16	1 5/16		
			27	L Left Hand		B 1" Dia. Spline	RD	1 7/8	1 5/16		REAR PORTS
			33				RE	1 5/8	1 5/16		
			38				RF	1 5/16	1 5/16		
		52	R Right Hand	C 7/8" Dia. Keyed D 7/8" Dia. Long Keyed							

EXAMPLE: 50P015RBCSB is a Series 50 pump with a 20 psi shaft seal, 1.52 cu./in./rev. displacement, right hand rotation, SAE "B" 2-bolt mounting, 7/8" keyed shaft and side ports with 1 7/8" inlet and 1 5/16" outlet.

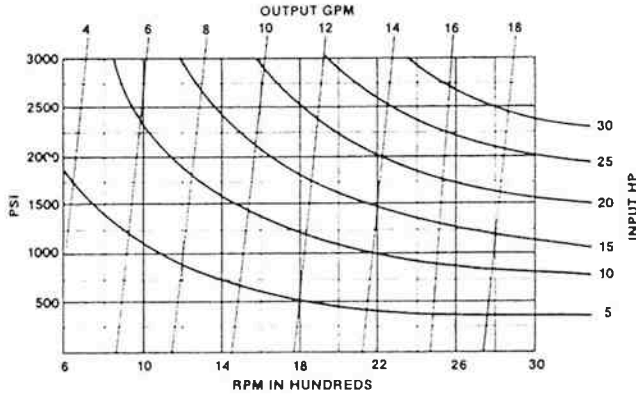


HYDRAULIC PUMPS

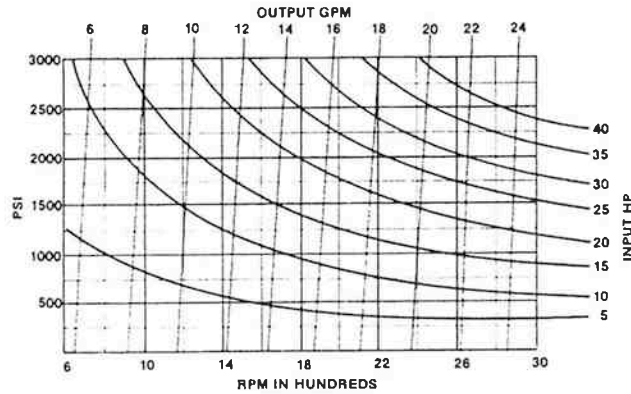
GEAR PUMP 50 SERIES Specification Sheet

TYPICAL PERFORMANCE DATA

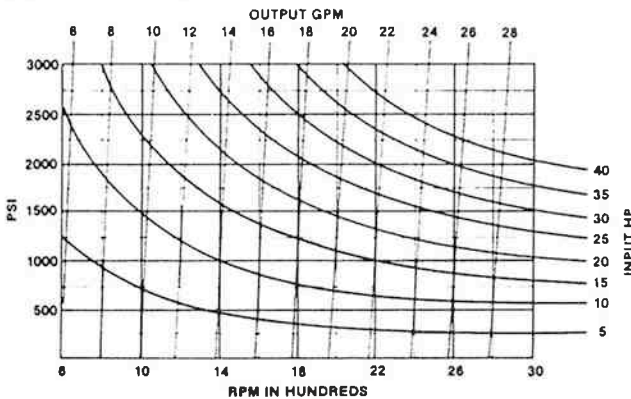
MODEL 50P015



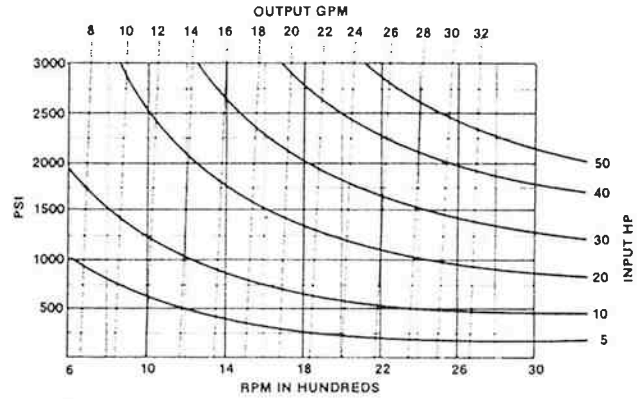
MODEL 50P019



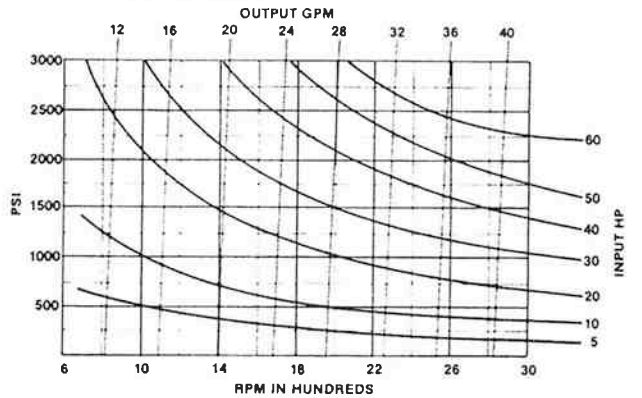
MODEL 50P023



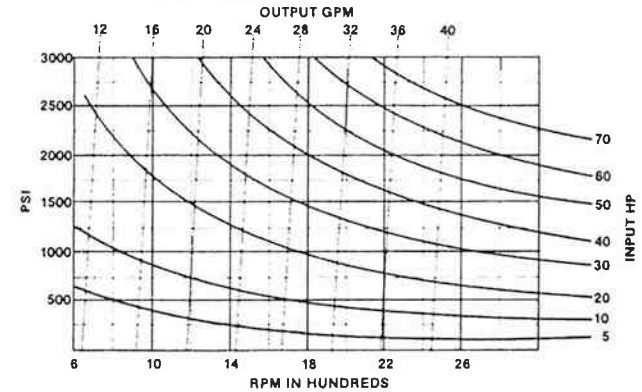
MODEL 50P027



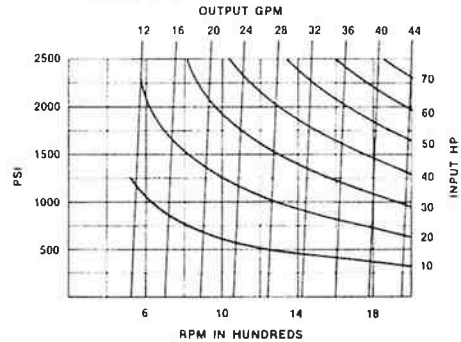
MODEL 50P033



MODEL 50P038



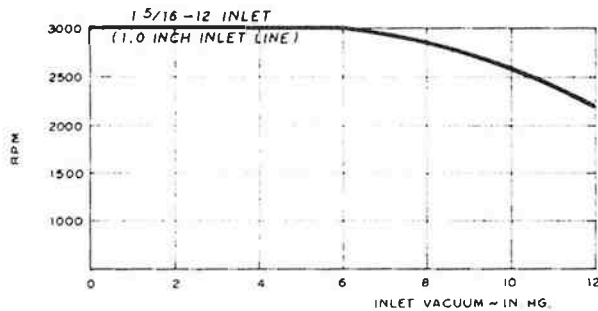
MODEL 50P052



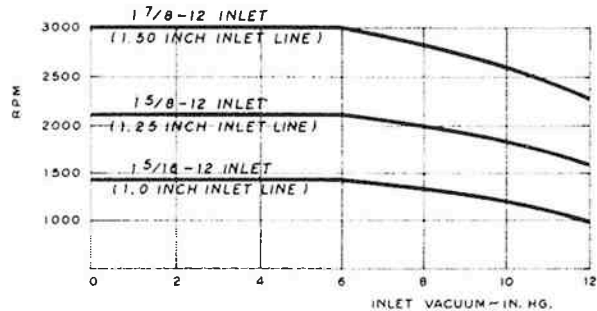


TYPICAL PERFORMANCE DATA

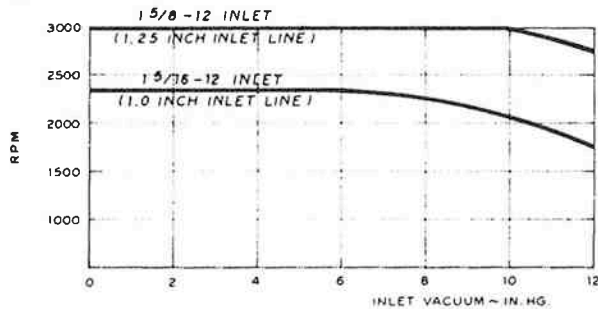
MODEL 50P015



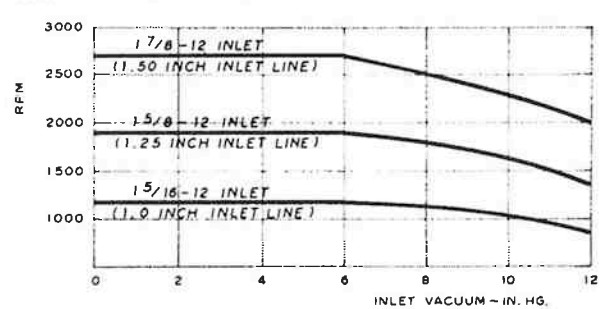
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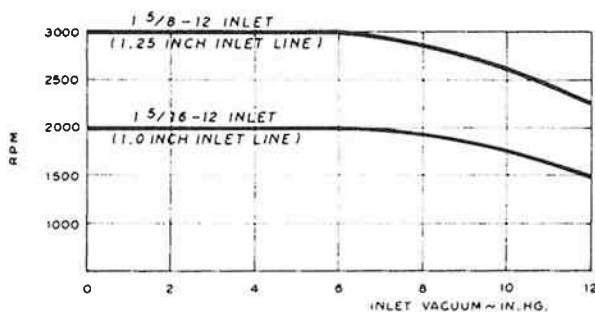
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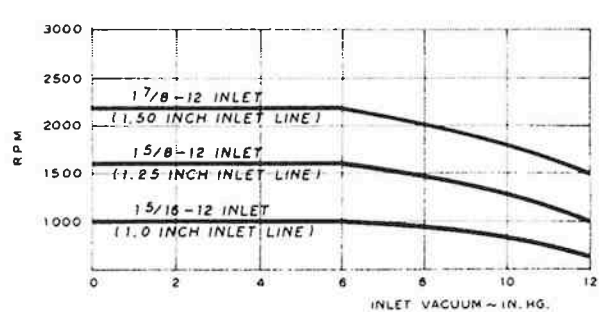
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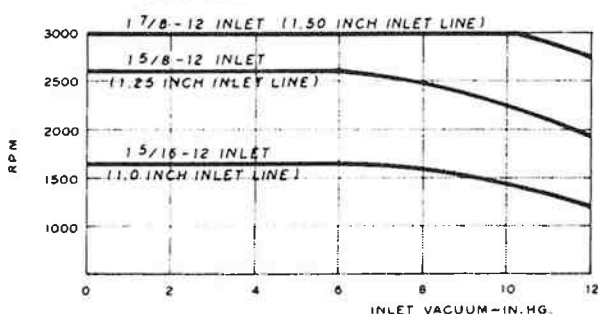
MODEL 50P023



MODEL 50P052



MODEL 50P027



DO NOT operate above the RPM-inlet vacuum curve or 8 in. Hg. for specific inlet sizes shown.



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