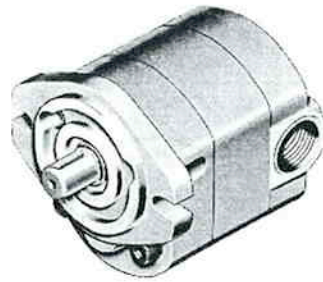




# HYDRAULIC PUMPS

## GEAR PUMPS 40 SERIES Specification Sheet



The CROSS Series 40 gear pumps feature a gear tooth design that provides more displacement within a given package size. Available in 6 sizes, with displacements from .50 to 1.80 cubic inches per revolution, this compact pump can deliver up to 17.5 gpm in a space less than 5" x 5 1/4" x 5 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:	0.50	0.75	1.00	1.25	1.50	1.80	cu.in./Rev.
	8.2	12.3	16.4	20.5	24.6	29.5	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)	17.5 gpm (66 l/m)
Maximum speed (continuous - see Inlet Vacuum Curves)	3600 RPM
Maximum horsepower (at rated speed and pressure)	41 hp (30.5 kw)
Mounting (any position)	SAE "A" size, 2-Bolt
Weight	Approx. 7 lbs. (3.2 kg)

### MATERIAL SPECIFICATIONS

Body and end covers	Die cast aluminum alloy
Gears	Sintered metal
Shafts	Hardened steel
Seals	Buna N
Bearings	Pressure lubricated, Teflon impregnated sleeve

### STANDARD FEATURES

- Rotation: Right hand (clockwise)
- O-ring ports: 1" SAE #16 (1 5/16 - 12) inlet, 3/4" SAE #12 (1 1/16 - 12) outlet
- Shaft: 5/8" diameter, Woodruff keyed • Shaft Seal: 20 psi (1.4 bar)\*

### OPTIONAL FEATURES AVAILABLE

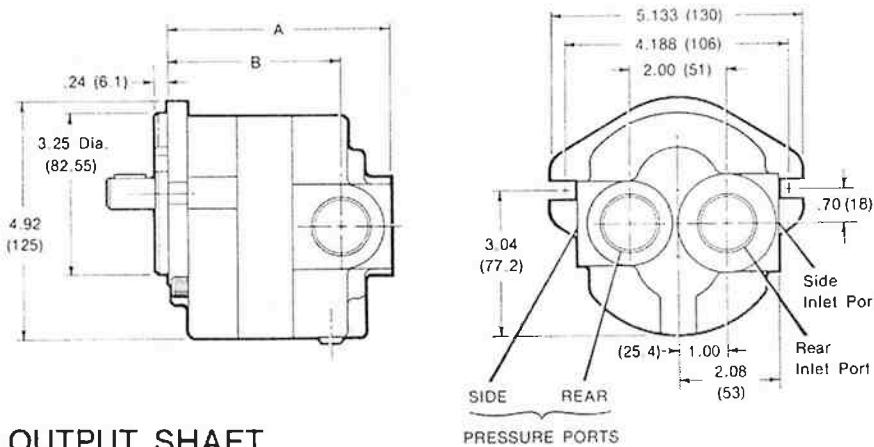
- Rotation: Left hand (counterclockwise); Bi-directional (Dual Rotation)
- Ports: SAE #12 (3/4") o-ring inlet (1 1/16 - 12); rear inlet and outlet location
- Shafts: 5/8" Dia. SAE splined (9 tooth, 16/32 pitch, 30° P.A. flat root side fit Class I); 5/8" Dia. with Woodruff key (long); 3/4" Dia. with Woodruff key (short); 3/4" Dia. with Woodruff key (long)
- 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 250 psi shaft seals.

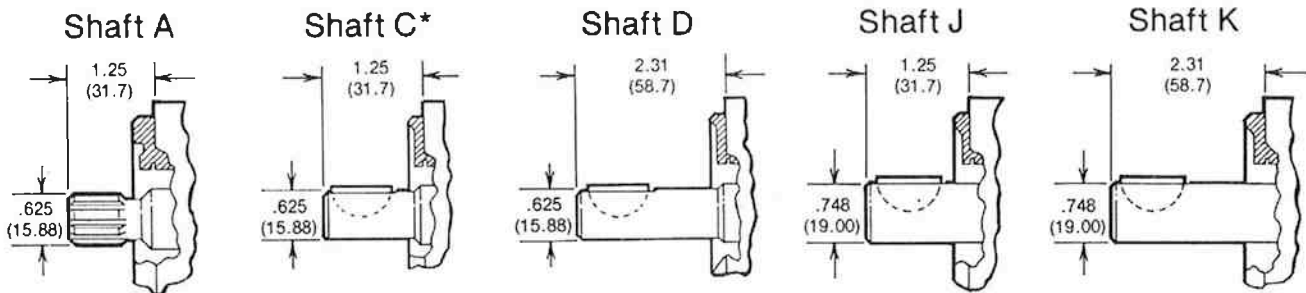


**DIMENSIONAL DATA** in inches and (millimeters)



Displacement cu.in./Rev. (cc/Rev.)	Dim. "A" inches (mm)	Dim. "B" inches (mm)
.50 (8.2)	4.25 (108)	3.23 (82)
.75 (12.3)	4.44 (113)	3.42 (87)
1.00 (16.4)	4.62 (117)	3.60 (91)
1.25 (20.5)	4.81 (112)	3.79 (96)
1.50 (24.6)	4.99 (127)	3.97 (101)
1.80 (29.5)	5.22 (133)	4.20 (107)

**OUTPUT SHAFT**



Shaft "A": 9 Tooth, 16/32 pitch, 30° pressure angle, flat root side fit, Class I.  
 Shaft "C" and "D": Woodruff key - 3/4" dia. x 5/32.  
 Shaft "J" and "K": Woodruff key - 3/4" dia. x 5/32.

**ORDERING DATA**

Series	Type	Special Options	Size cu.in./R x 10	Rotation	Mounting	Shaft Size & Type	Ports Location and Size			
							Inlet	Outlet		
40	P pump	O 20 psi Pump Seal	5	D Dual	A SAE "A" 2-Bolt	A 5/8" spline	SA	1 5/16	1 1/16	Side
			7			C* 5/8" Dia. Keyed				
		10	D 5/8" Dia. Keyed	RB		1 5/16	1 1/16			
		12	J* 3/4" Dia. Keyed					RD	1 1/16	
15	H 250 psi Shaft Seal	R Right	K 3/4" Dia. Keyed (Long)			Rear				
18	(Standard for dual rotation)									

\* Not available in 40 P007 model.

EXAMPLE: 40P05RACSA is a standard Series 40 pump with a 20 psi shaft seal, 0.50 cu./in./Rev. displacement, right rotation, SAE "A" 2-bolt mounting, 5/8" dia. keyed shaft and side ports with 1 5/16" inlet and 1 1/16" outlet.

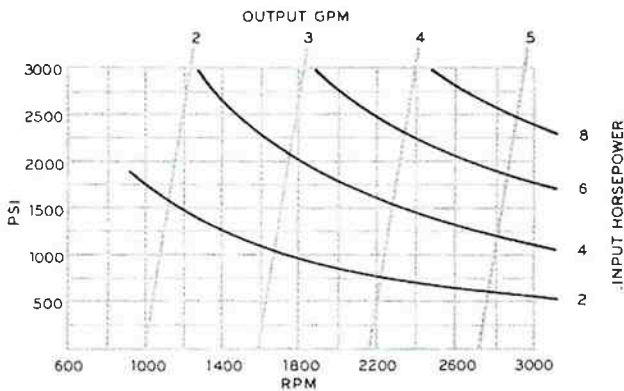


# HYDRAULIC PUMPS

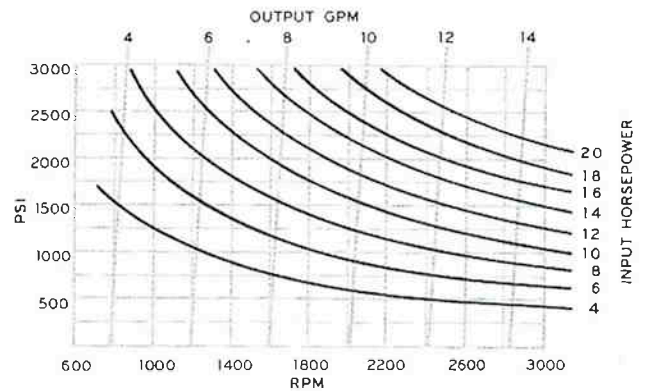
## GEAR PUMPS 40 SERIES Specification Sheet

### TYPICAL PERFORMANCE DATA

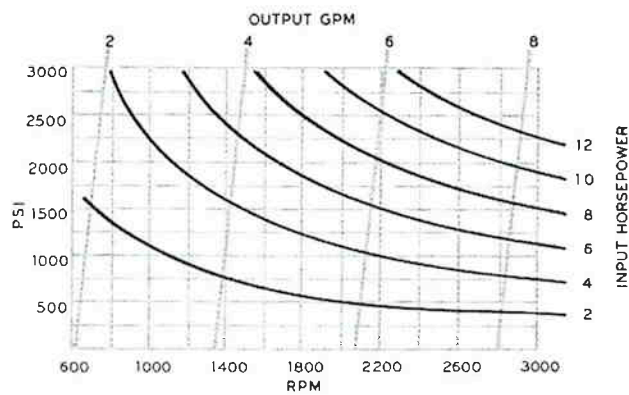
#### MODEL 40P005



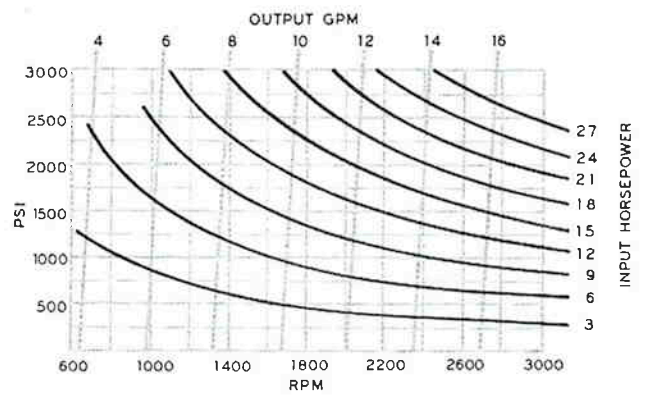
#### MODEL 40P012



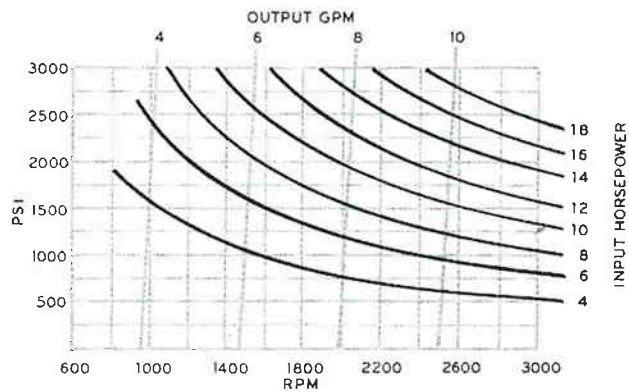
#### MODEL 40P007



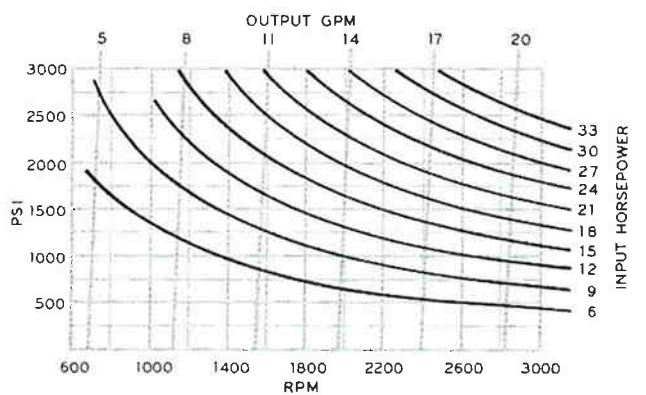
#### MODEL 40P015



#### MODEL 40P010



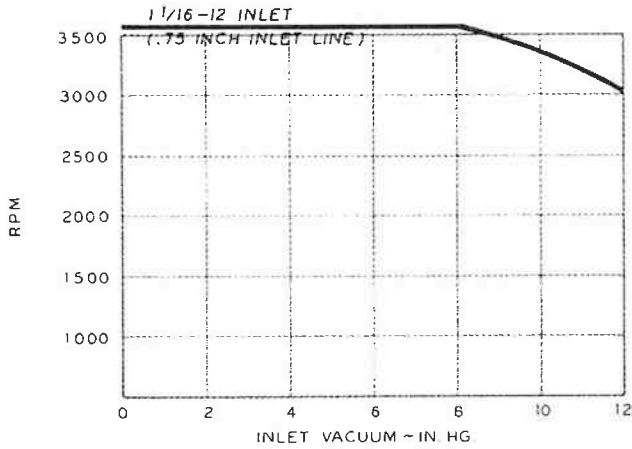
#### MODEL 40P018



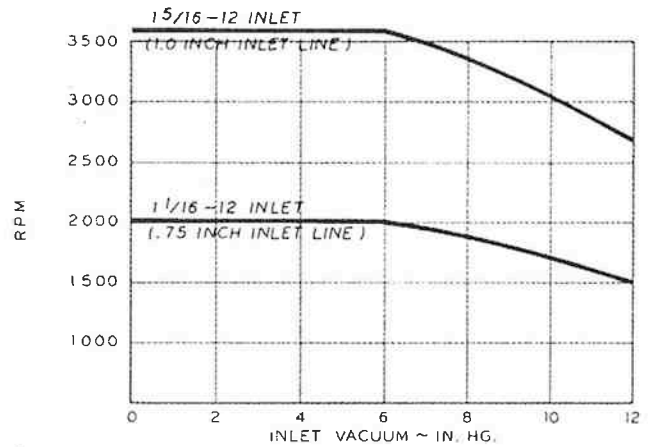


**TYPICAL PERFORMANCE DATA**

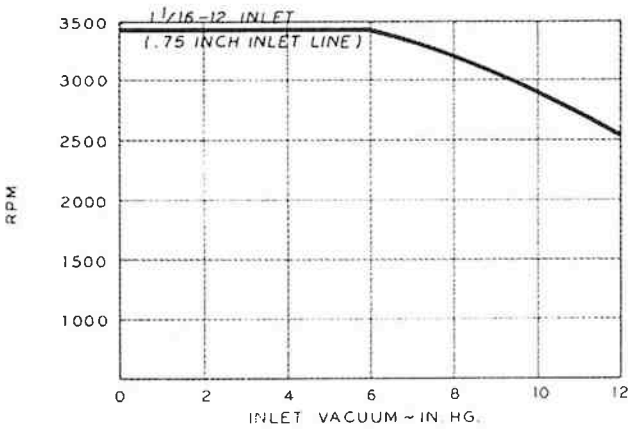
**MODEL 40P005**



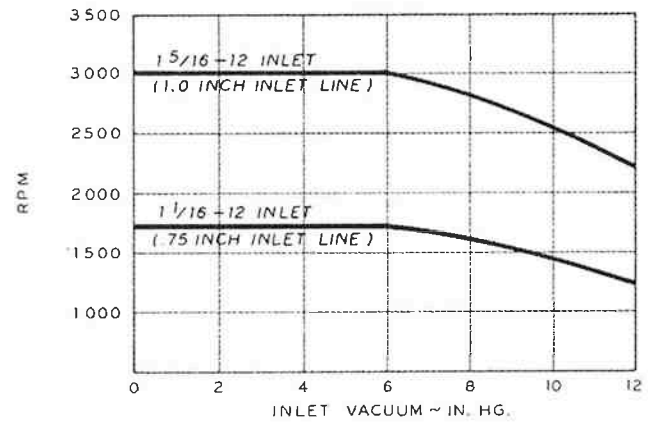
**MODEL 40P012**



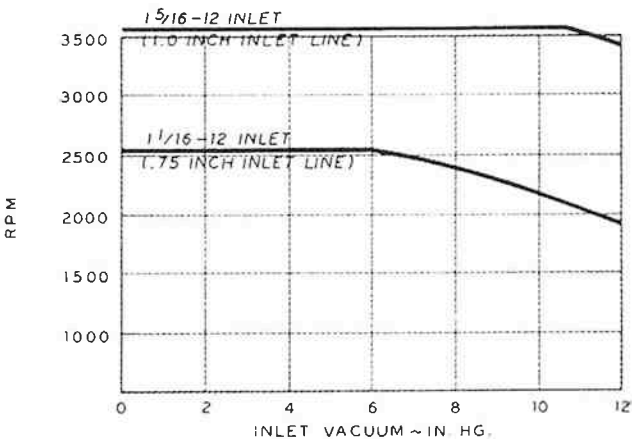
**MODEL 40P007**



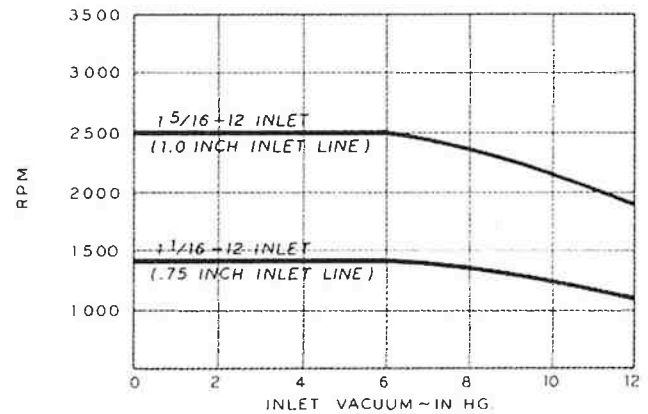
**MODEL 40P015**



**MODEL 40P010**



**MODEL 40P018**



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

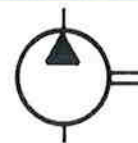


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# HYDRAULIC PUMPS

## 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 1/2" x 5 3/4" x 7 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

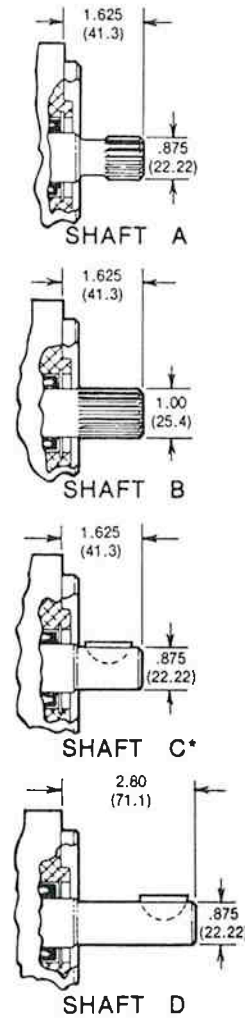
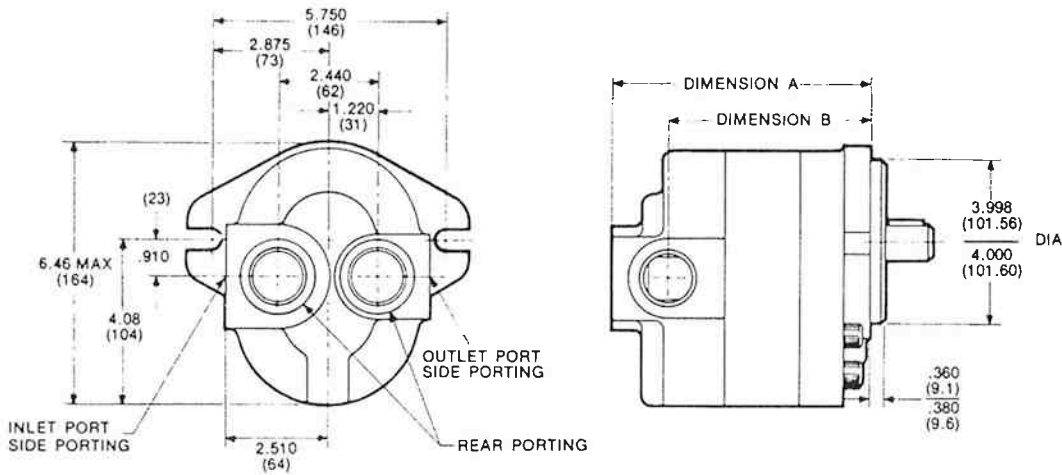
- Left rotation (counterclockwise) • Bi-rotational (dual rotation) • Rear inlet and outlet port location • SAE #16 (1) o-ring inlet port (1 5/16 - 12) • SAE #20 (1 1/4) o-ring inlet port (1 5/8 - 12) • SAE #24 (1 1/2) o-ring inlet port (1 7/8 - 12)
- Splined shaft, SAE 7/8" dia. (13 tooth 16/32 pitch, 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**

<b>SHAFT "A"</b> 13 Tooth, 16/32 pitch; 30° pressure angle; Flat root side fit; Class I.	<b>SHAFT "B"</b> 15 Tooth, 16/32 pitch; 30° pressure angle; Flat root side fit; Class I.	<b>SHAFT "C"*</b> Woodruff Key: 1" Diameter x 1/4" wide.	<b>SHAFT "D"</b> Woodruff Key: 1" Diameter x 1/4" wide.
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**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	L Left Hand	B 1" Dia. Spline	SC	1 5/16	1 5/16	REAR PORTS	
			27			RD	1 7/8	1 5/16		
			33	R Right Hand	C 7/8" Dia. Keyed	RE	1 5/8	1 5/16		
			38			RF	1 5/16	1 5/16		
52	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.

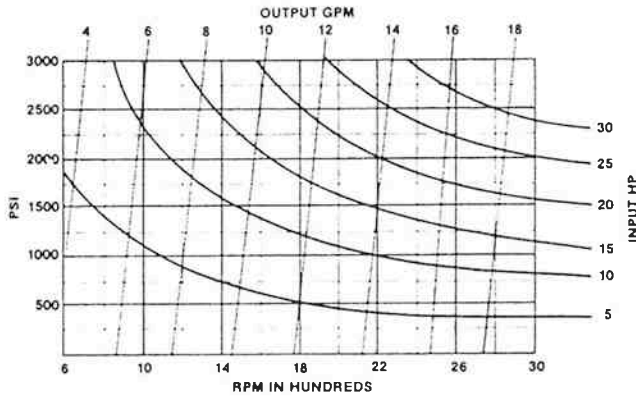


# HYDRAULIC PUMPS

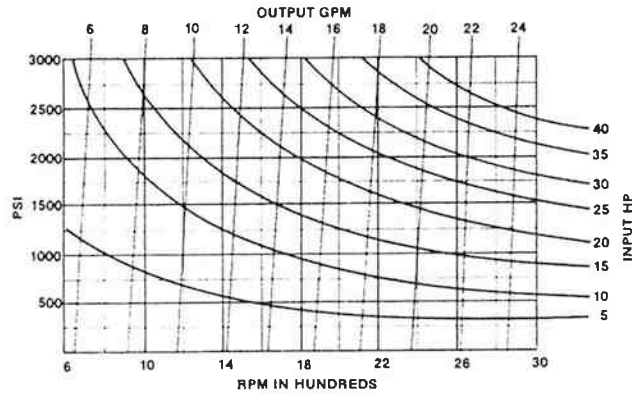
## GEAR PUMP 50 SERIES Specification Sheet

### TYPICAL PERFORMANCE DATA

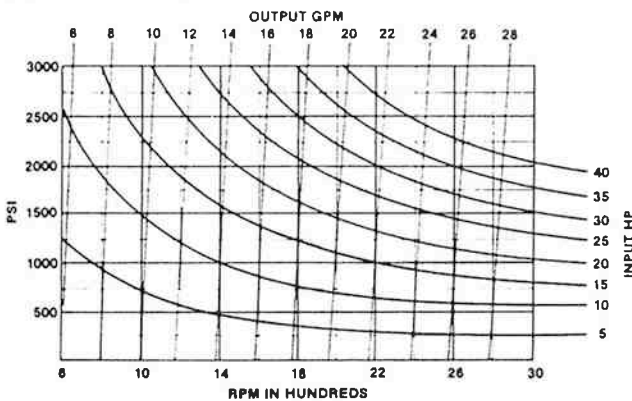
#### MODEL 50P015



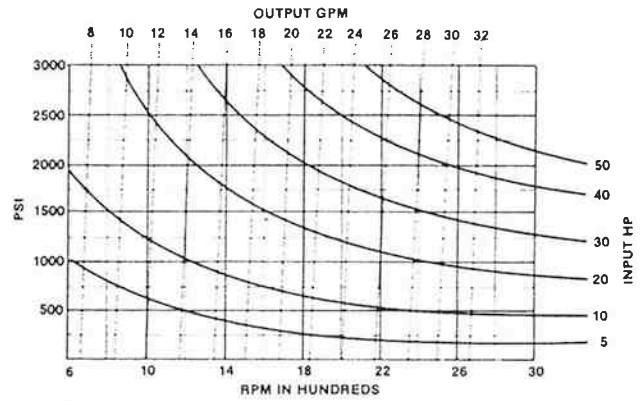
#### MODEL 50P019



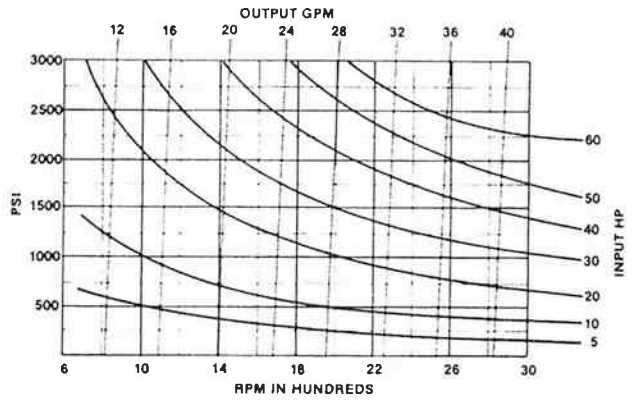
#### MODEL 50P023



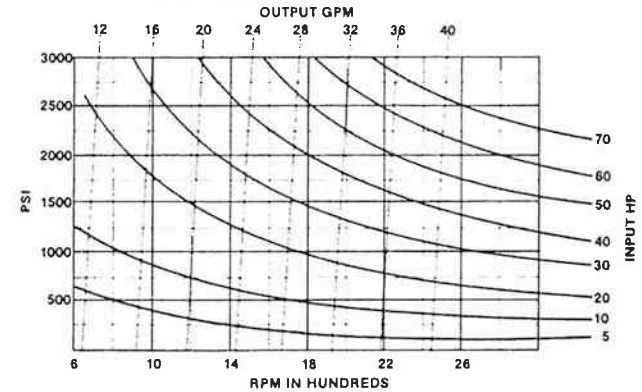
#### MODEL 50P027



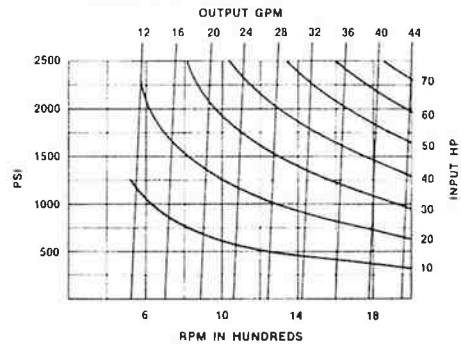
#### MODEL 50P033



#### MODEL 50P038



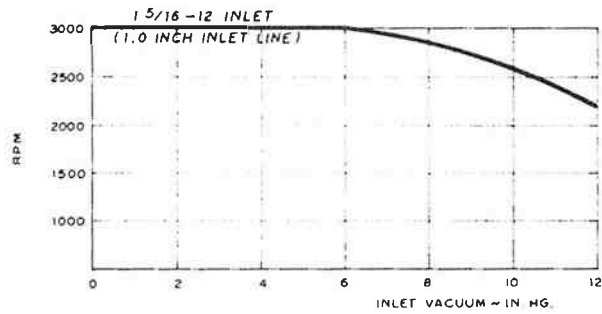
#### MODEL 50P052



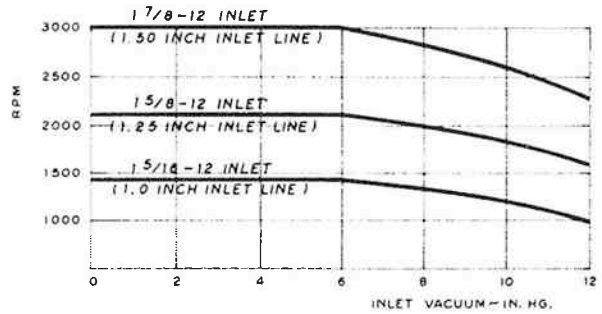


**TYPICAL PERFORMANCE DATA**

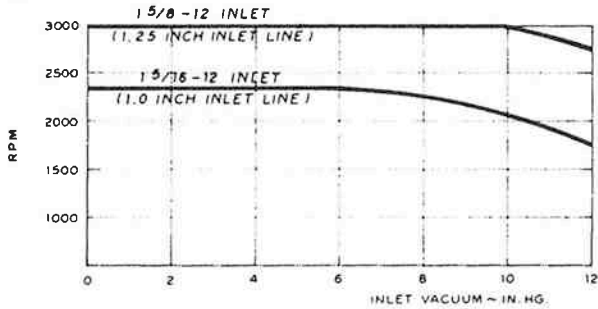
**MODEL 50P015**



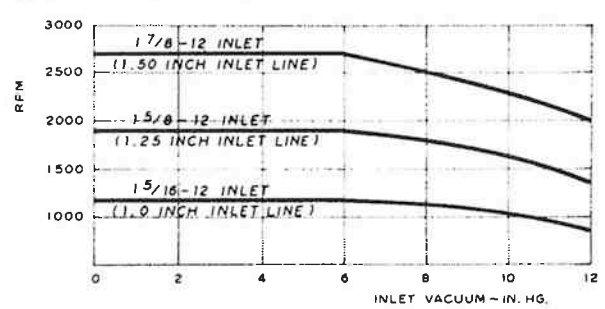
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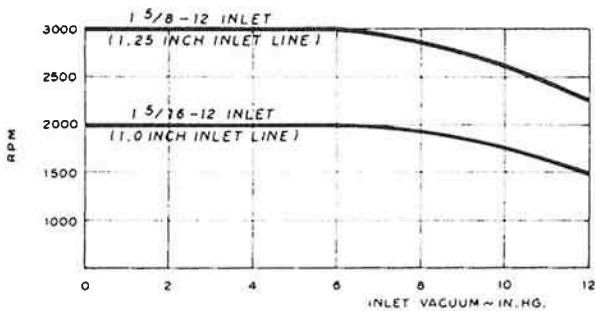
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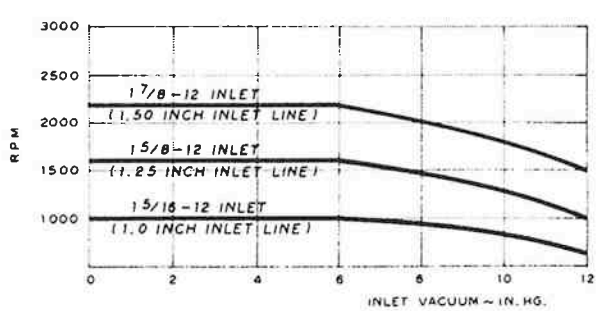
**MODEL 50P038**



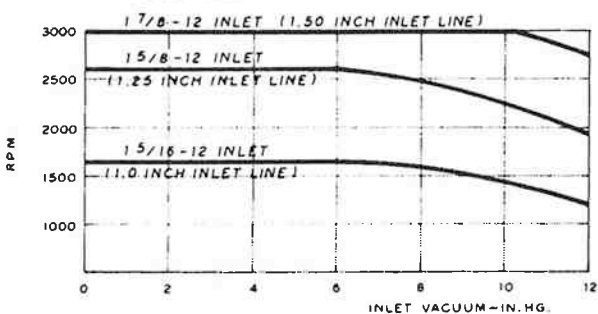
**MODEL 50P023**



**MODEL 50P052**



**MODEL 50P027**



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



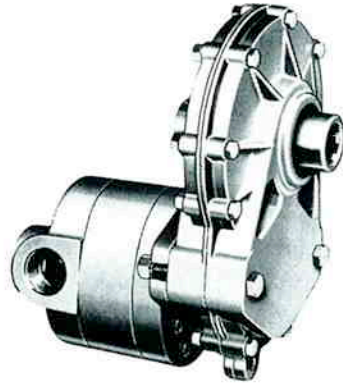
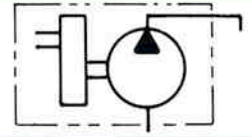
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# HYDRAULIC PUMPS

## GEAR PUMPS 50T SERIES Specification Sheet



The CROSS Series 50T hydraulic pumps are designed to be driven by a 540 or 1000 rpm PTO and provide a 3:1 speed increase. The thru-type internal spline permits the use of a stub shaft PTO driven accessory while simultaneously driving the pump.

### GENERAL SPECIFICATIONS

Effective displacement sizes. . . . .	4.6	5.6	7.0	8.2	9.9	11.4	15.6	cu. in/rev.
	75	96	114	135	162	187	256	cc/rev.

Rated working pressure (max. relief valve setting at full flow) 3000 psi (207 bar)  
*except as noted*

540 rpm option: 50T038 - 2700 psi(186 bar); 50T052 - 2000 psi (138 bar)

1000 rpm option: 50T023 - 2650 psi (182 bar); 50T027 - 2300 psi (158 bar); 50T033 - 1850 psi (127 bar)

Maximum shock and surge pressure. . . . . 3500 psi (242 Bar)

Maximum input speed (continuous). . . . . Up to 1000 rpm

Maximum flow rate (delivery) at 540 rpm. . . . . 32.8 gpm (124 l/m)

Maximum flow rate (delivery) at 1000 rpm. . . . . 38.6 gpm(146 l/m)

Maximum input horsepower . . . . . 42 hp(31 Kw)

Mounting. . . . . PTO, torque arm

Weight. . . . . Approx. 38 lbs. (17 Kg)

### MATERIAL SPECIFICATIONS:

Pump body and end covers, speed increaser housing. . . . die cast aluminum alloy

Pump gears and shafts . . . . . hardened steel

Increaser gears and shafts. . . . . hardened steel

Seals . . . . . Buna N

### STANDARD FEATURES:

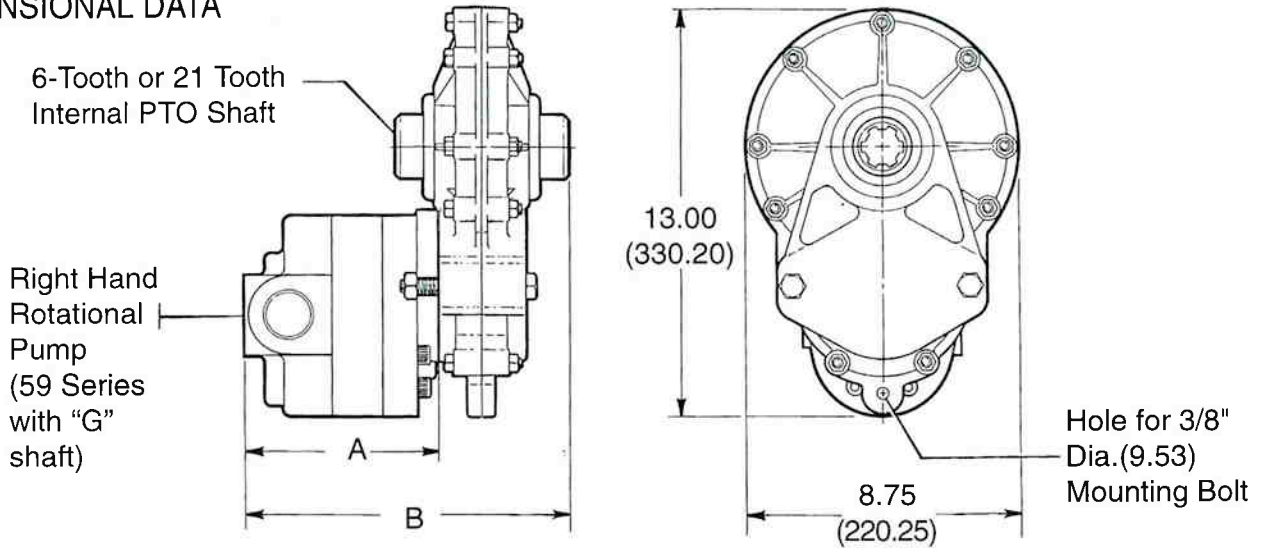
- Left hand rotation - right hand pump required (gear box reverses direction)
- Side port location
- Hole for 3/8" dia. bolt for torque arm attachment
- SAE #20 (1 1/4") o-ring (1 5/8"-12) or SAE #24(1 1/2") o-ring (1 7/8-12) inlet port
- SAE #16 (1") o-ring outlet port (1 5/16-12)

### OPTIONAL FEATURES AVAILABLE: • Rear port location

**Notes:** PTO torque arm must be attached to keep unit from rotating. The speed increaser case is lubricated through the pump. The 50T unit uses a special pump configuration. Refer to CROSS pump and motor technical service sheet for special instructions, start-up procedures, filter and oil recommendations, etc.



**DIMENSIONAL DATA**



Model No.	50T015	50T019	50T023	50T027	50T033	50T038	50T052	
Dimension "A"	5.60 (142.2)	5.80 (147.3)	5.96 (151.4)	6.15 (156.2)	6.40 (162.6)	6.62 (168.1)	7.21 (183.1)	in. mm
Dimension "B"	9.72 (247.0)	9.92 (252.1)	10.08 (256.2)	10.28 (261.0)	10.52 (267.3)	10.74 (272.9)	11.34 (287.9)	in. mm
Flow at 540 rpm	9.6 (36)	12.3 (47)	14.6 (55)	17.3 (65)	20.8 (79)	24.0 (91)	32.8 (124)	gpm l/m
Flow at 1000 rpm	17.8 (67)	22.8 (86)	27.1 (103)	32.0 (121)	38.6 (146)			gpm l/m

**ORDERING DATA**

Series	Type	Special Options	Size cu.in/R x 10	Rotation	Mounting	Shaft Size & Type	Ports Location & Size			
							In	Out		
50	T	O	15 19 23 27 33 38 52	L Left Hand	T PTO	A* 6 tooth PTO Spline  S 21 tooth PTO Spline	SA	1 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	Side Ports
							SB*	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	
							RD	1 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	Rear Ports
							RE	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	

For Typical Performance Refer to 50 Series Literature (Form P501) \* Standard for Full Line Distributor program

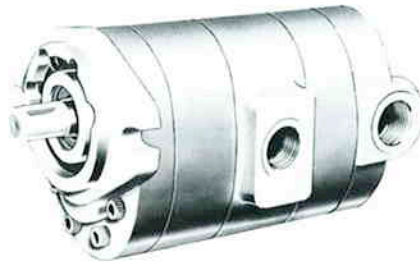
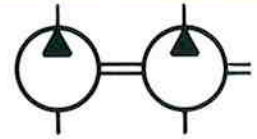


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# HYDRAULIC PUMPS

## GEAR PUMPS 53 SERIES Specification Sheet



The CROSS Series 53 tandem gear pumps provide two sections for operating separate systems with independent flow requirements or combining the flow from two sections into a compact space less than 6" x 6½" x 12". The Cross gear tooth design and pressure-balanced loading plates provide high volumetric and overall efficiency.

### GENERAL SPECIFICATIONS

Displacement sizes (Front & Rear Sections)--	1.52	1.95	2.32	2.74	3.30	3.80	cu.in./rev.
	24.9	32.0	38.0	44.9	54.1	62.3	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 speed (continuous)..see Fill Curves for 50P (Form P501) ..... Up to 3000 rpm
- Maximum flow rate (per section) ..... up to 40 gpm (151 l/m)
- Maximum (required) horsepower (combined)..... 130 hp (97 Kw)
- Mounting (any position) ..... SAE "B" size 2-Bolt
- Weight..... Approx. 38 lbs. (17 Kg)

### MATERIAL SPECIFICATIONS

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

### STANDARD FEATURES:

- 20 psi (1.4 bar) Shaft Seal standard on all units

### OPTIONAL FEATURES AVAILABLE

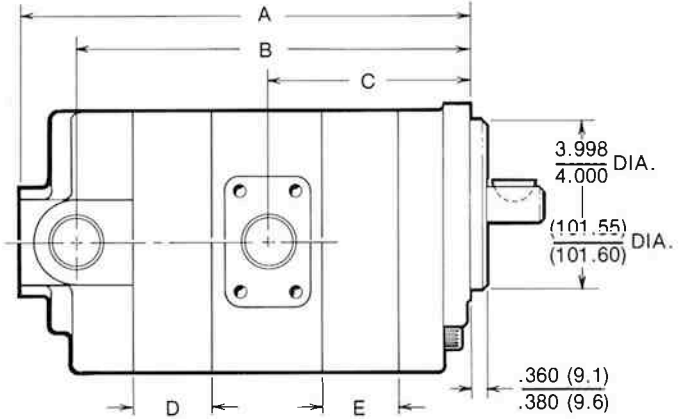
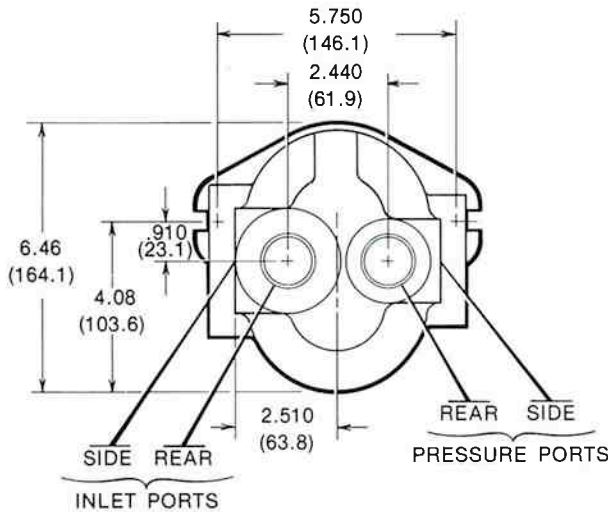
- Left hand (counterclockwise) or right hand (clockwise) rotation available.
- 7/8" diameter Woodruff keyed standard or long length, straight shaft.
- SAE 7/8" splined shaft (13 tooth, 16/32 pitch, 30° P.A. flat root side fit Class I)
- SAE #20 (1 1/4") o-ring inlet port (1 5/8 - 12). SAE #24 (1 1/2") o-ring inlet port (1 7/8-12)
- Common inlet and outlet ports(middle). Common mid-inlet, separate outlet ports.
- Separate inlet, common mid-outlet ports; Separate inlet, separate outlet ports.
- Rear inlet and outlet ports locations (rear section)

NOTE: The first pump section (nearest shaft) should be the largest (highest hp) section. If total displacement exceeds 3.8 cu.in./rev. (62.3 cc/rev.), separate inlet ports should be used. Consult Cross Sales Dept. if pressure (psi) times TOTAL displacement (cu.in./rev.) exceeds 20,000, or if displacement times pressure of the rear pump section exceeds 10,000.

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 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)
DIMENSION D inches (mm)	1.08 (27.4)	1.28 (32.5)	1.44 (36.6)	1.63 (41.4)	1.88 (47.8)	2.10 (53.3)
DIMENSION E inches (mm)	1.08 (27.4)	1.28 (32.5)	1.44 (36.6)	1.63 (41.4)	1.88 (47.8)	2.10 (53.3)

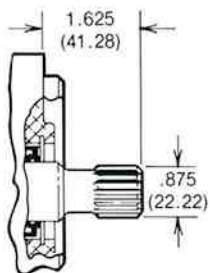
DIMENSION A = 7.21 + D + E

DIMENSION B = 5.83 + D + E

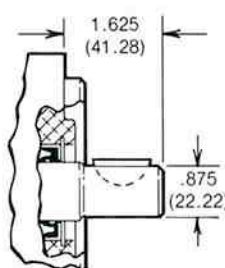
DIMENSION C = 3.08 + E

**OUTPUT SHAFT**

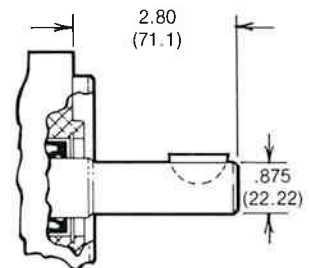
SHAFT A



SHAFT C



SHAFT D

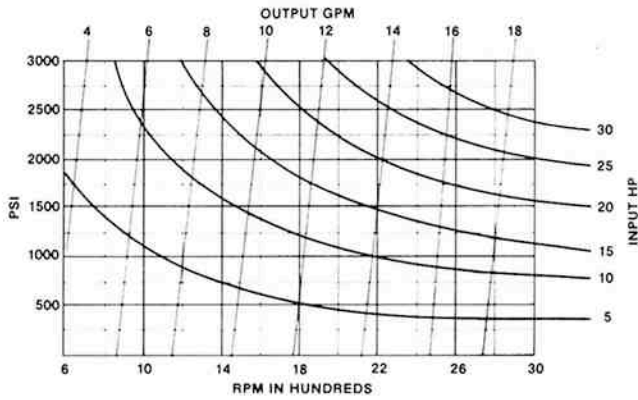


Shaft Type	DESCRIPTION
"A"	7/8" spline, 13 tooth, 16/32 Pitch, 30° Pressure Angle, Flat root side fit, Class 1
"C"	7/8" Diameter, with Woodruff key
"D"	7/8" Diameter, Long, with Woodruff key

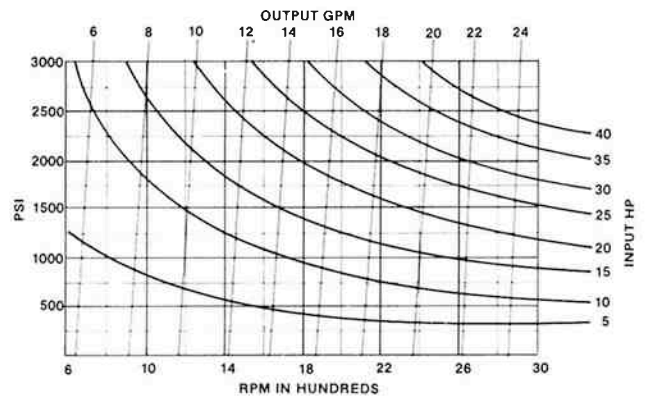


### TYPICAL PERFORMANCE DATA

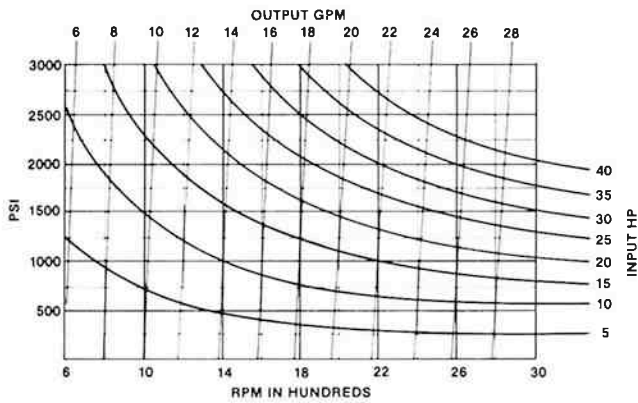
#### MODEL 53P015



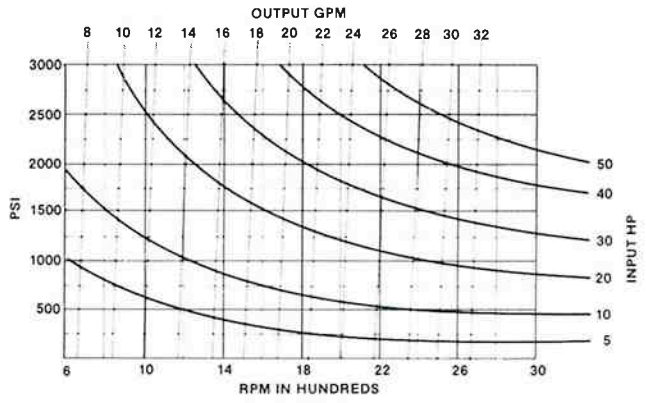
#### MODEL 53P019



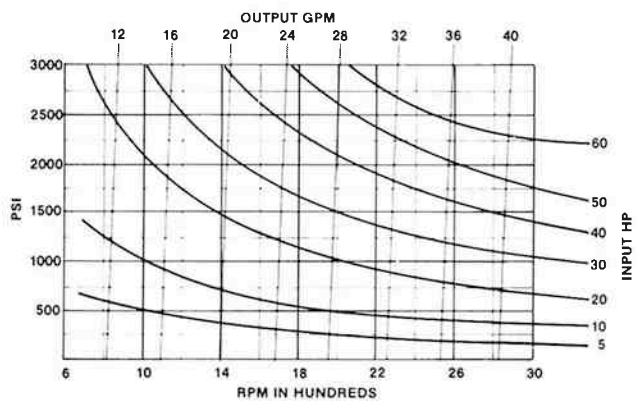
#### MODEL 53P023



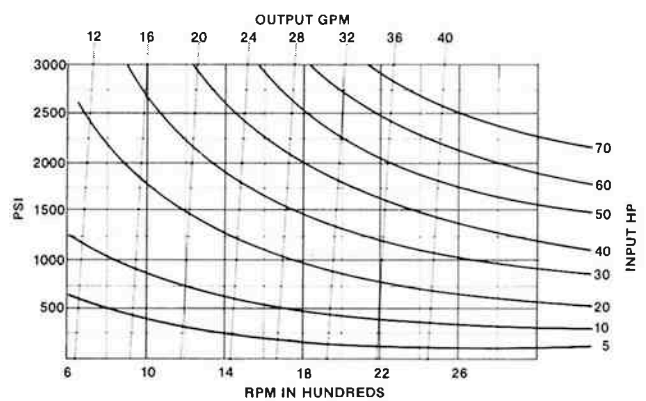
#### MODEL 53P027



#### MODEL 53P033



#### MODEL 53P038



Refer to CROSS 50 series pump literature (Form P501) for inlet vacuum/rpm limitations.



**ORDERING DATA**

Series No.	Type	Special Options	Size Displ. (cu.in./rev. x 10)		Rotation	Mtg.	Shaft Size & Type	Port Location and Size **	
			Front Sect.	Rear Sect.					
53	P Pump	O 20 PSI Shaft Seal	15	—	15	L Left Hand	B (SAE "B" 2-Bolt)	A 7/8 - 13 tooth spline	<b>A</b> 1 7/8 Common Inlet 1 5/16 Separate outlets side ports
			19	—	19				<b>B</b> 1 7/8 Common Inlet 1 5/16 Common Outlet side ports
			23	—	23				<b>C</b> 1 5/8 Common Inlet 1 5/16 Separate Outlets side ports
			27	—	27				<b>D</b> 1 7/8 Common Inlet 1 5/16 Front Outlet 1 5/16 Rear Outlet
			33	—	33				<b>E</b> 1 5/8 Common Inlet 1 5/16 Front Outlet 1 5/16 Rear Outlet
			38	—	38				<b>F</b> 1 7/8 Separate Inlets 1 5/16 Separate Outlets side ports

EXAMPLE: 53PO15-15RBCA is a standard 53 Series pump, 20 psi shaft seal, with 1.52 cu.in./rev. displacement both front and rear sections, right hand rotation, SAE "B" 2 bolt mounting, 7/8" keyed shaft with 1 7/8" common inlet and 1 5/16" separate outlet side ports.



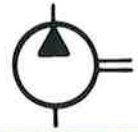
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Phone: 620-324-5525

\*\*If Total Displacement is over 3.8 cu.in./rev. two inlets must be used.



# 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

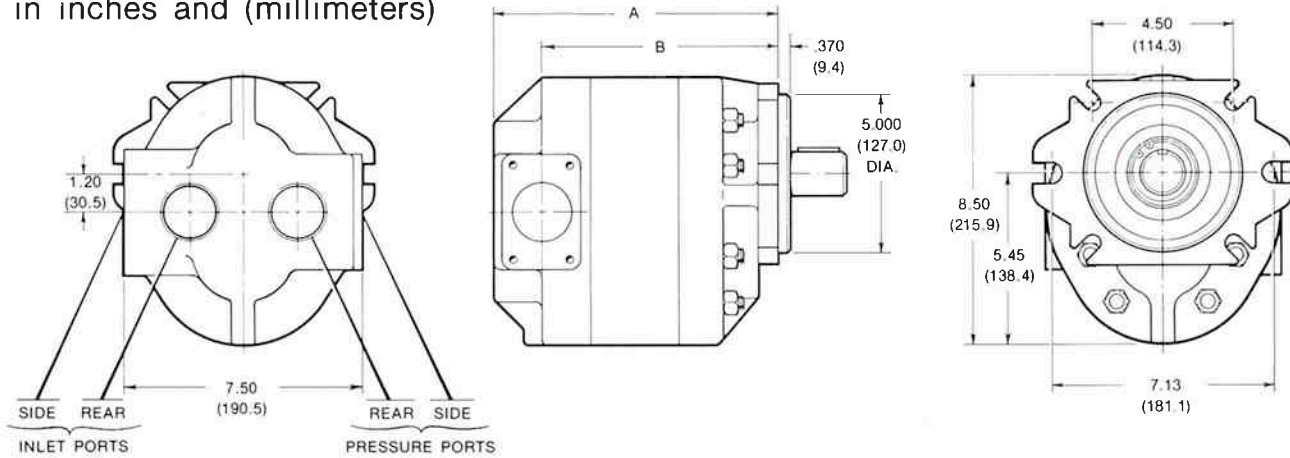
- Ports, straight thread inlet and outlet, rear port location, 1½" and 2" split flange side ports, inlet and outlet • Shaft: 1¼" splined (14 tooth, 12/24 pitch, 30° P.A. flat root, side fit) • Shaft seal: high pressure, 250 psi (17.2 bar)\*

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.



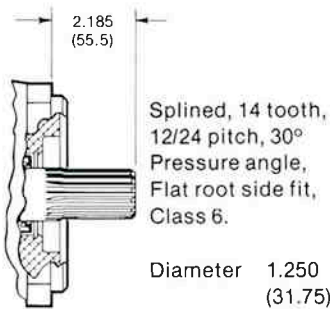
**DIMENSION DATA**  
in inches and (millimeters)



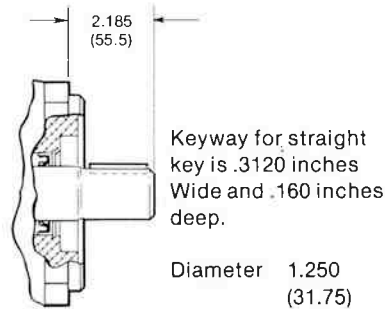
Displacement	4.05 (66.4)	5.15 (84.4)	6.15 (100.8)	7.15 (117.2)	8.15 (133.6)	9.25 (151.6)	cu.in./Rev. cc/Rev.
Dimension "A"	7.75 (197.0)	8.00 (203.2)	8.27 (210.1)	8.52 (216.4)	8.77 (222.8)	9.05 (229.9)	inches mm
Dimension "B"	6.24 (158.5)	6.50 (164.1)	6.77 (172.0)	7.02 (178.3)	7.27 (184.7)	7.55 (191.8)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

**OUTPUT SHAFT**

**Shaft A**



**Shaft C\***



Port Location, Size and Type			
Inlet	Outlet		
SA	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

**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: 60P040RCSC 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



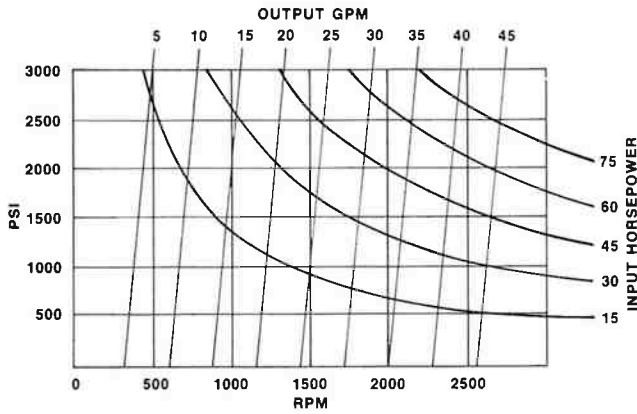


# HYDRAULIC PUMPS

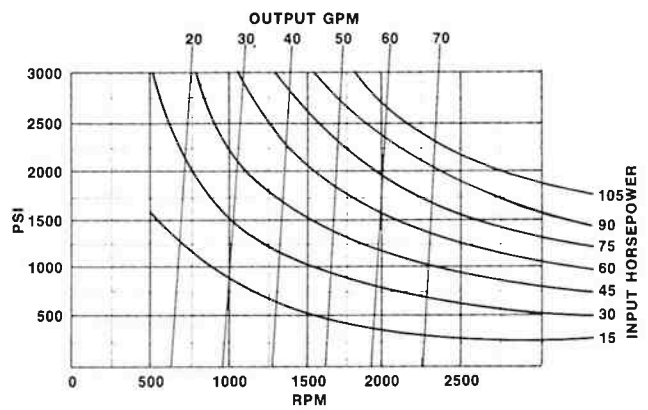
## GEAR PUMPS 60 Series

### TYPICAL PERFORMANCE DATA

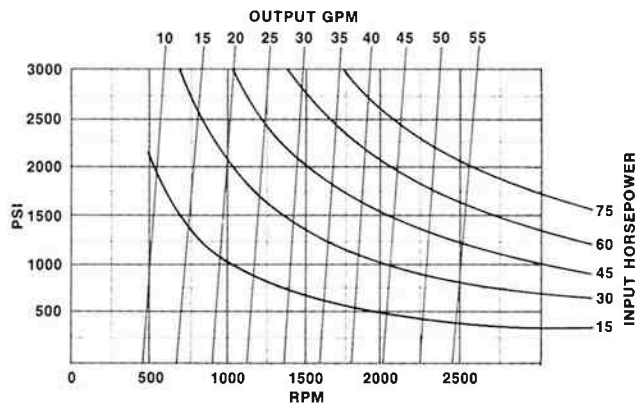
#### MODEL 60P040



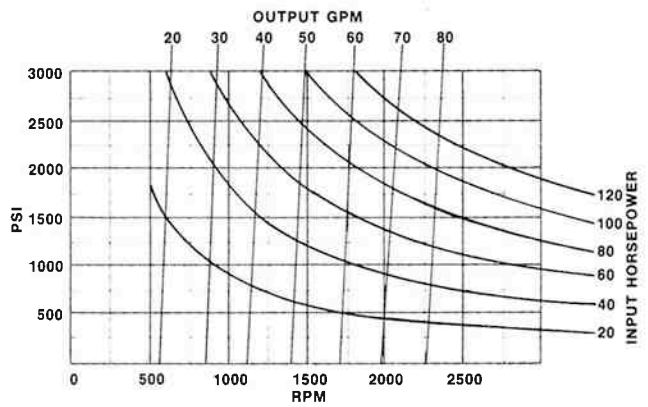
#### MODEL 60P071



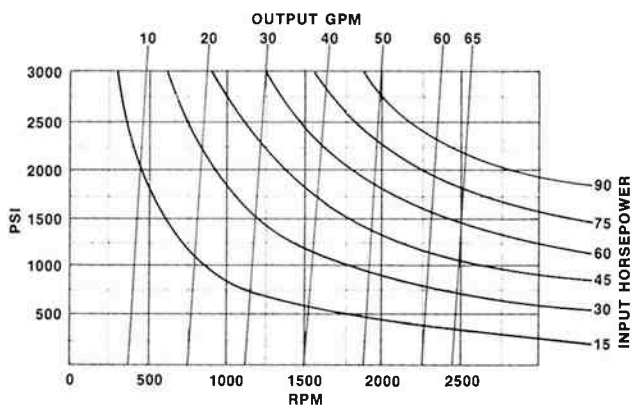
#### MODEL 60P051



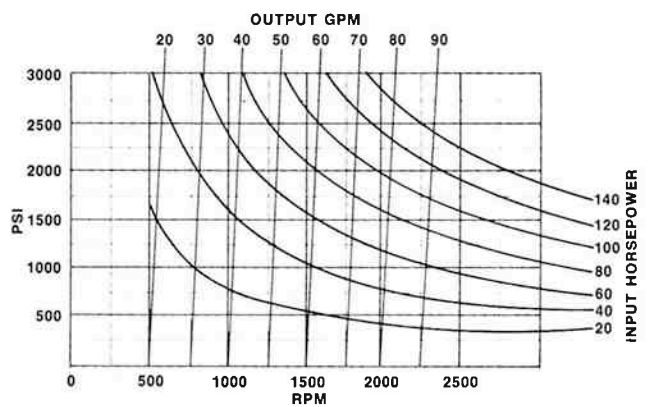
#### MODEL 60P081



#### MODEL 60P061



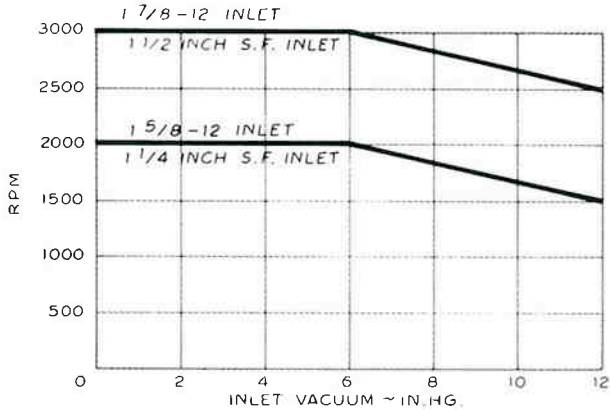
#### MODEL 60P092



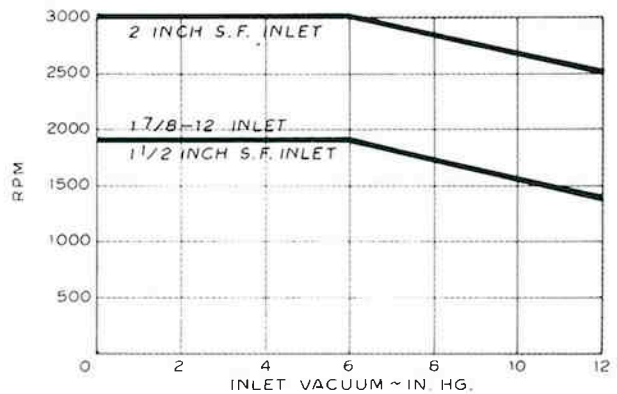


TYPICAL PERFORMANCE DATA

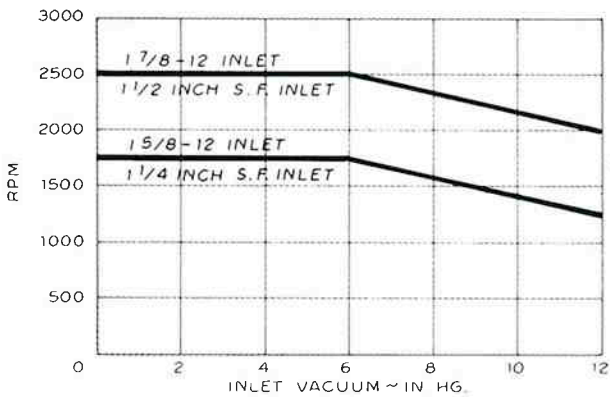
**MODEL 60P040**



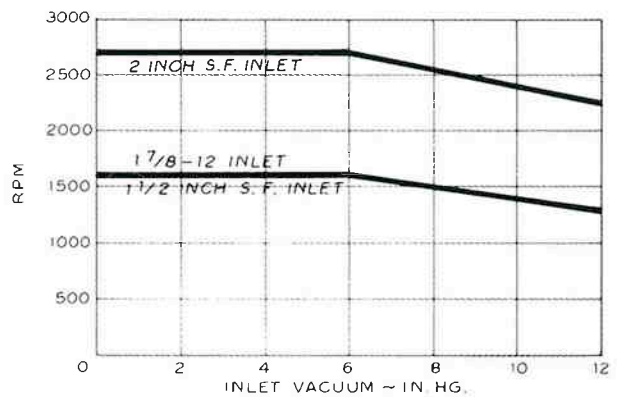
**MODEL 60P071**



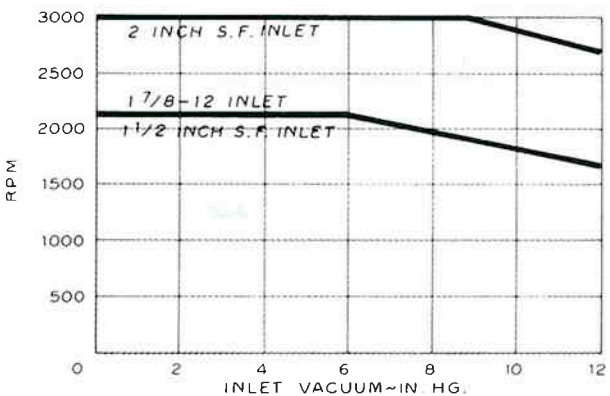
**MODEL 60P051**



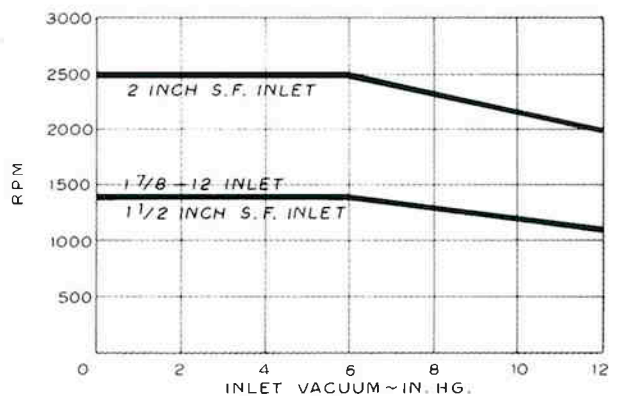
**MODEL 60P081**



**MODEL 60P061**



**MODEL 60P092**

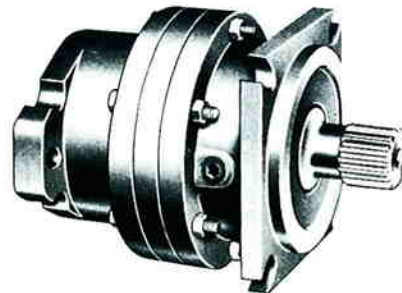
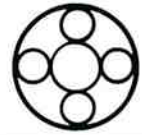


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Phone: 620-324-5525



# OTHER PRODUCTS

## REDUCER/INCREASER 50 PGR Series Specification Sheet



The CROSS Series 50 PGR gear reducer is a high torque, low speed unit with a peak output of 10,000 in. lbs. and a maximum continuous output torque of 8,000 in. lbs. This 5.33 to 1 planetary reducer also provides a radial load capacity almost double that of competitive units. Designed for use with the Cross 50 Series hydraulic motors, or other equivalent motors, they may be used for many general mechanical speed reduction or increase applications.

### GENERAL SPECIFICATIONS:

Reduction ratio . . . . .	5.33 to 1 / increaser ratio . . . . .	1 to 5.33
Efficiency (average) . . . . .		96%
Maximum output speed . . . . .		750 RPM
Maximum output torque (continuous) . . . . .	8,000 in. lbs. (92 KG-M)	
Peak output torque (intermittent - 2% duty cycle) . . . . .	10,000 in. lbs. (115 KG-M)	
Maximum horsepower (at rated speed and torque) . . . . .	95 hp (71 Kw)	
Input mounting . . . . .	SAE "B" 2-bolt	
Input shaft (female) . . . . .	7/8" spline, 13 tooth, 16/32 pitch, 30° P.A. flat root side fit	
Output mounting . . . . .	SAE "C" 4-bolt	
Output shaft . . . . .	SEE Standard SHAFT CHART on BACK	
Weight . . . . .	21 pounds	

### MATERIAL SPECIFICATIONS:

Housing . . . . .	sandcast aluminum alloy
Gears . . . . .	hardened steel cut
Shaft . . . . .	ductile iron

### STANDARD FEATURES:

Tapered roller bearings for end load and side thrust

### OPTIONAL FEATURES:

Output shafts - 1 1/2" spline - 17 tooth, 1 1/4" spline - 14 tooth; 1 1/2" and 1 1/4" Keyed

### APPLICATION INFORMATION:

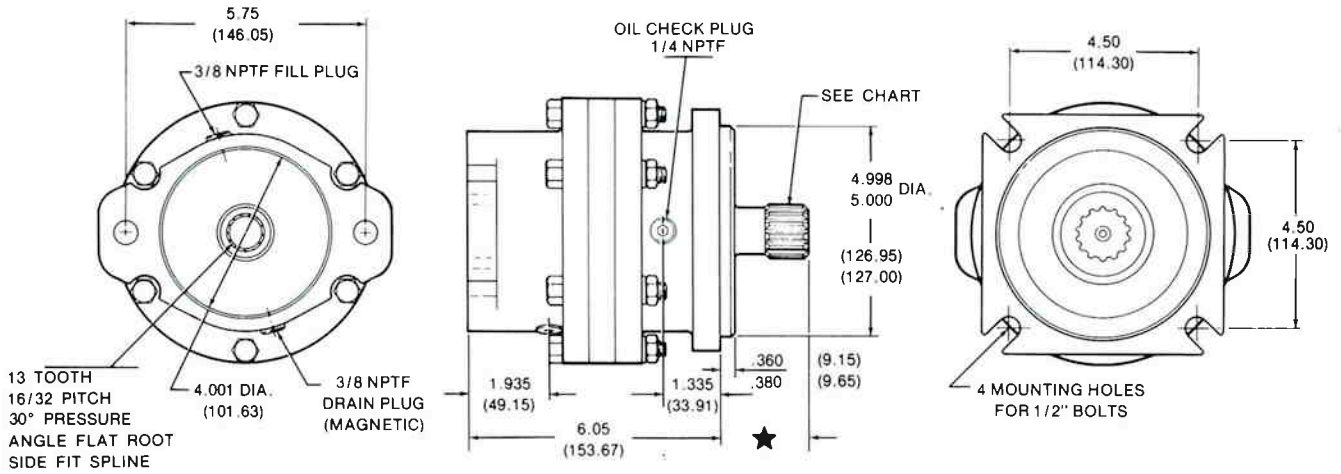
Can be mounted in any position, maximum input speed-4000 RPM, maximum input torque 1500 in. lbs. (17KG-M) continuous, 1875 in. lbs. (22KG-M) intermittent.

### LUBRICATION REQUIREMENTS:

Use EP 90 wt. gear lubricant. Change after first 50 hours of use and periodically thereafter as indicated by inspection for contamination. Capacity 150-160 CC.



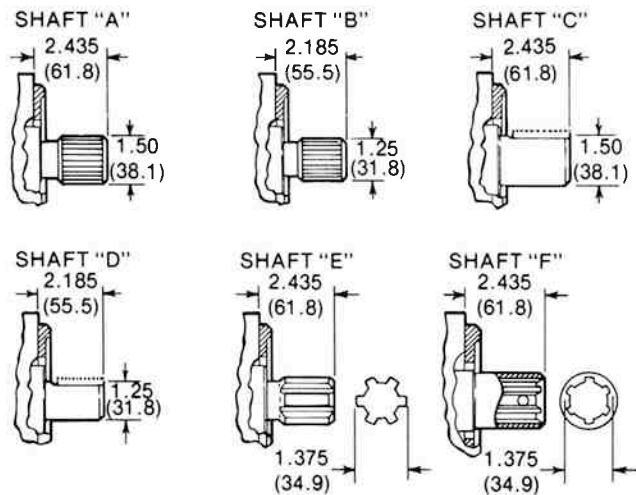
**DIMENSIONAL DATA: in inches and (millimeters)**



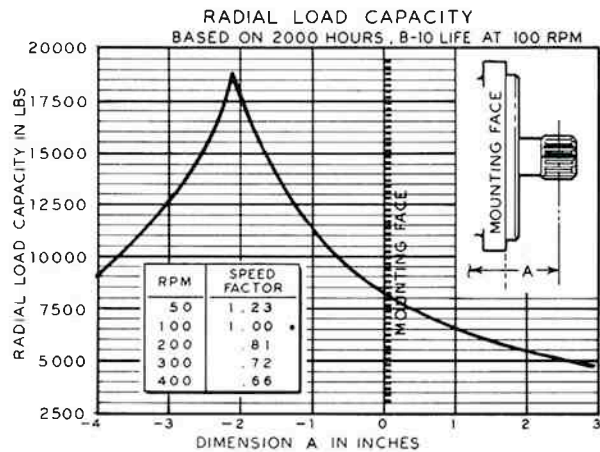
★ This Dimension is 2.185 for the 1/4" Shaft; 2.435 for the 1/2" Shaft.  
(55.50) (61.85)

**OUTPUT SHAFT:**

Shaft Type:	DESCRIPTION
A	1 1/2" spline, 17 tooth, 12/24 pitch, 30° pressure angle, flat root side fit
B	1 1/4" spline, 14 tooth, 12/24 pitch, 30° pressure angle, flat root side fit
C	1 1/2" dia. with keyway for 3/8" key
D	1 1/4" dia. with keyway for 5/16" key



**TYPICAL PERFORMANCE DATA**



**ORDERING INFORMATION**

5P0020-066 For A Type Shaft	5P0020-071 For C Type Shaft	5P0020-071 For C Type Shaft
5P0020-069 For B Type Shaft	5P0020-073 For D Type Shaft	5P0020-073 For D Type Shaft

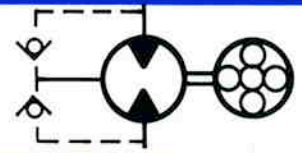
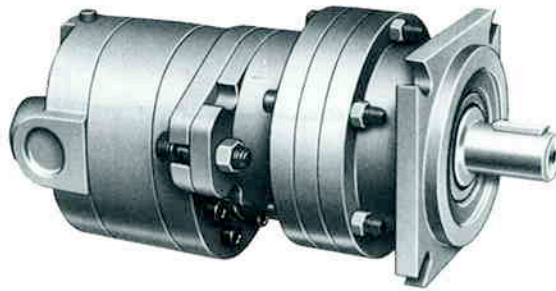


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# HYDRAULIC MOTORS

## GEAR MOTORS 50G Series Specification Sheet



The CROSS series 50G high torque hydraulic motors feature the standard series 50 gear type motors combined with a highly efficient 5.33:1 planetary gear reduction unit. These units provide high torque at low speed with excellent starting and running torque characteristics. Motors and reduction units may be purchased separately. (Refer to Series 50 motor and Series PGR literature for additional information).

### GENERAL SPECIFICATIONS

- 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) . . . . . 56 gpm (212 l/m)
- Maximum output speed (continuous). . . . . 500 rpm
- Maximum running torque (continuous output) . . . . . 8000 in. lbs. (92 Kg-M)
- Peak output torque (intermittent - 2% duty cycle) . . . . . 10,000 in. lbs. (115 Kg-M)
- Maximum horsepower (at rated speed and pressure) . . . . . 64 hp (48 Kw)

Available displacement sizes	8.1	10.4	12.4	14.6	17.6	20.3	27.7	cu.in./R
	132.7	170.4	203.2	239.3	288.4	332.6	453.9	cc/R

- Mounting (any position) . . . . . SAE "C" size, 4-Bolt
- Weight . . . . . Approx. 40 lbs. (18 Kg)

### MATERIAL SPECIFICATIONS

- End covers, pump . . . . . Die cast aluminum alloy
- Gears and shaft. . . . . Hardened steel
- Seals . . . . . Buna N
- Pump body . . . . . Permold aluminum alloy
- Reducer housing . . . . . Sand cast aluminum alloy

### STANDARD FEATURES

- Tapered roller bearings • Two pressure balanced loading plates
- External drain, motor (1/4 NPTF) for case pressure over .100 psi • Dual Rotation
- Ports: inlet and outlet (side location 1" SAE #16 (1 5/16-12)
- Shaft: 1 1/2" spline (17 tooth, 12/24 pitch, 30° P.A. flat root, Class I)
- Shaft seal: high pressure, 250 psi (17.2 bar)

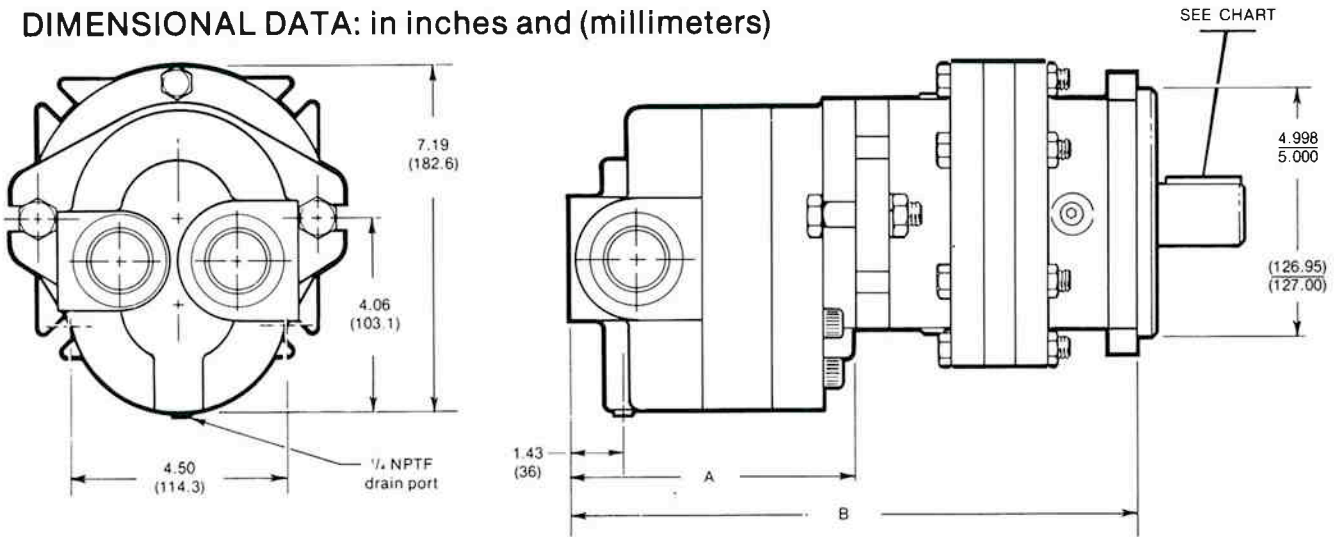
### OPTIONAL FEATURES

- Ports: 1 1/4" SAE#20 (1 5/8-12); 1 1/2" SAE#24 (1 7/8-12) inlets only
- Rear port location • Shafts: 1 1/4" spline (14 tooth); 1 1/4" and 1 1/2" keyed shaft

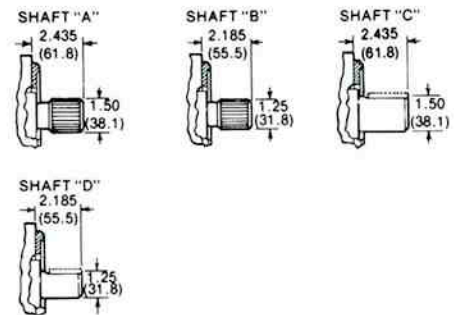
NOTE: Refer to Cross pump and motor technical/service sheet for side load and end load limitations and lubrication requirements.



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



DISPL.	8.1	10.4	12.4	14.6	17.6	20.3	27.7	
Dimension "A"	5.60 (142.2)	5.80 (147.3)	5.96 (151.4)	6.15 (156.2)	6.40 (162.6)	6.62 (168.1)	7.21 (183.1)	Inches (mm)
Dimension "B"	11.65 (295.87)	11.85 (300.97)	12.01 (305.07)	12.20 (309.87)	12.45 (316.27)	12.67 (321.77)	13.26 (336.77)	inches (mm)



**OUTPUT SHAFT**

Shaft Type:	DESCRIPTION
A	1 1/2" spline, 17 tooth, 12/24 pitch, 30° pressure angle, flat root side fit
B	1 1/4" spline, 14 tooth, 12/24 pitch, 30° pressure angle, flat root side fit
C	1 1/2" dia. with 3/8 square key
D	1 1/4" dia. with 5/16 square key

**ORDERING DATA**

Series	Type	Special Options	Size Cu.in./Rev. x 10	Rotation	Mtg.	Shaft Size & Type	Ports Location & Size				
							Inlet	Outlet			
50	G	O None	81	D Dual	C SAE "C" Size 4-Bolt	A 1 1/2" Spline	SC	1 <sup>5</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	Side Ports	
			104			B 1 1/4" Spline					
			124			C 1 1/2" Keyed					
			146			D 1 1/4" Keyed	RF	1 <sup>5</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>		Rear Ports
			176								
			203								
277											

EXAMPLE: 50G081DCASC is a 50G Series motor, no special options, 8.1 cu. in. displacement per rev., dual rotation, SAE "C" size 4-bolt mounting, 1 1/2" spline shaft with 1 5/16" inlet and outlet side ports.



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