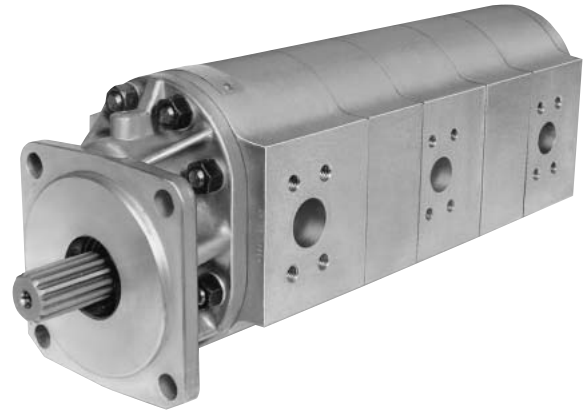


**Specifications  
 for TP20 Series**

Description ..... Gear Pump (Three-place)  
 Flow Range ..... To 98 GPM Per Section (370.9 LTR.)  
 Displacements ..... To 9.10 C.I.R. Per Section (149.12 CC's/REV.)  
 Maximum Pressure to ..... 2500 PSI (172 BAR)  
 Maximum Speed to ..... 2500 RPM  
 Rotation ..... A or C  
 Bearing ..... Journal  
 Construction ..... Aluminum or Cast Iron\*



**Performance Data Per Section**

Pump Model	Section Size	Displacement/Revolution (Theoretical)					Maximum Pressure		Maximum Speed
		US Gallons	Cubic Inches	Liters	Cubic Centimeters	Imperial Gallons	PSI	BAR	RPM
TP20	100**	.0087	2.01	.0330	32.938	.0072	2500	172	2500
TP20	150	.0131	3.02	.0496	49.498	.0108	2500	172	2500
TP20	200	.0175	4.04	.0662	66.204	.0146	2500	172	2500
TP20	250	.0219	5.06	.0829	82.919	.0182	2500	172	2500
TP20	300	.0262	6.05	.0992	99.142	.0218	2500	172	2500
TP20	350	.0306	7.07	.1158	115.857	.0255	2500	172	2500
TP20	400	.0350	8.08	.1325	132.408	.0292	2500	172	2500
TP20	450	.0394	9.10	.1491	149.123	.0328	2500	172	2500

All data based on SAE 10W oil at 150°F.  
 Available with Viton® Seals.

\*Some models and sizes are available for pressure up to 3500 PSI. Cast-iron not available on all models. Consult factory for availability.



**CAUTION:** "Inlet vacuum" should not exceed 5" Hg at normal operating speed and temperature. Operation of pumps in excess of 5" Hg requires factory approval.

\*\*100 Sizes Available for Rear Sections Only.

**Dimensional Data**

Front Section Suction & Discharge Ports						
Front Section	Hole Dia.	Suction	Hole Dia.	Disc.	E	F
20150	31.7 (1.25)	1-1/4"	19.0 (.75)	3/4"	91.4 (3.60)	123.6 (4.87)
20200	31.7 (1.25)	1-1/4"	25.4 (1.00)	1"	95.2 (3.75)	147.5 (5.81)
20250	38.1 (1.50)	1-1/2"	30.2 (1.19)	1-1/4"	101.6 (4.00)	154.6 (6.09)
20300	38.1 (1.50)	1-1/2"	30.2 (1.19)	1-1/4"	105.1 (4.14)	161.7 (6.37)
20350	38.1 (1.50)	1-1/2"	30.2 (1.19)	1-1/4"	110.4 (4.35)	169.1 (6.66)
20400	50.8 (2.00)	2"	34.7 (1.37)	1-1/2"	110.4 (4.35)	176.2 (6.94)
20450	50.8 (2.00)	2"	34.7 (1.37)	1-1/2"	118.3 (4.66)	183.6 (7.23)

Center and Rear Section Suction Ports						
Section Ctr-Rear	Hole Dia.	Common Suction	A	B	C	D
100-100	31.7 (1.25)	1-1/4"	77.4 (3.05)	181.1 (7.13)	222.7 (8.77)	77.4 (3.05)
150-100	38.1 (1.50)	1-1/2"	77.4 (3.05)	187.1 (7.37)	228.8 (9.01)	81.2 (3.20)
150-150	38.1 (1.50)	1-1/2"	77.4 (3.05)	187.1 (7.37)	235.9 (9.29)	81.2 (3.20)
200-100	38.1 (1.50)	1-1/2"	93.7 (3.69)	223.5 (8.80)	265.1 (10.44)	96.5 (3.80)
200-150	50.8 (2.00)	2"	93.7 (3.69)	223.5 (8.80)	272.2 (10.72)	96.5 (3.80)
200-200	50.8 (2.00)	2"	93.7 (3.69)	239.7 (9.44)	306.3 (12.06)	96.5 (3.80)
250-100	50.8 (2.00)	2"	100.0 (3.94)	230.6 (9.08)	272.2 (10.72)	100.0 (3.94)
250-150	50.8 (2.00)	2"	100.0 (3.94)	230.6 (9.08)	279.4 (11.00)	100.0 (3.94)
250-200	50.8 (2.00)	2"	100.0 (3.94)	246.8 (9.72)	313.4 (12.34)	100.0 (3.94)
250-250	50.8 (2.00)	2"	100.0 (3.94)	253.2 (9.97)	323.5 (12.74)	100.0 (3.94)
300-100	50.8 (2.00)	2"	103.6 (4.08)	237.9 (9.37)	279.4 (11.00)	103.6 (4.08)
300-150	50.8 (2.00)	2"	103.6 (4.08)	237.9 (9.37)	286.7 (11.29)	103.6 (4.08)
300-200	50.8 (2.00)	2"	103.6 (4.08)	254.2 (10.01)	320.8 (12.63)	103.6 (4.08)
300-250	50.8 (2.00)	2"	103.6 (4.08)	260.6 (10.26)	330.9 (13.03)	103.6 (4.08)
300-300	63.5 (2.50)	2-1/2"	103.6 (4.08)	260.6 (10.26)	338.013.31 ( )	103.6 (4.08)

Center & Rear Discharge Ports		
Section Size	Discharge Port for Center & Rear Section	Hole Diameter
100	3/4"	19.0 (.75)
150	3/4"	19.0 (.75)
200	1"	25.4 (1.00)
250	1-1/4"	30.2 (1.19)
300	1-1/4"	30.2 (1.19)

**Dimensional Data**

SAE 4-Bolt Connector Ports					
Size	G	H	J	K	L
3/4"	10.9 (.43)	22.2 (.875)	23.6 (.93)	47.6 (1.875)	3/8-16NC
1"	12.9 (.51)	26.1 (1.031)	26.1 (1.03)	52.3 (2.062)	3/8-16NC
1-1/4"	14.9 (.59)	30.1 (1.188)	29.2 (1.15)	58.7 (2.313)	7/16-14NC
1-1/2"	17.9 (.70)	35.7 (1.406)	34.7 (1.37)	69.8 (2.750)	1/2-13NC
2"	21.3 (.84)	42.8 (1.688)	38.8 (1.53)	77.7 (3.062)	1/2-13NC
2-1/2"	25.4 (1.00)	50.8 (2.000)	44.4 (1.75)	88.9 (3.500)	1/2-13NC

SAE 4-Bolt NPT Connectors are available. See Accessory Section

**PD Factors**

Drive Shaft	Factors
#1 - 1 1/4 Spline	187
#3 - 1 1/4 Keyed	187
#5 - 1 1/4 Keyed	187
Coupling	110

The maximum size and number of sections of a tandem pump for a given application is limited to the torque capability of the input drive shaft and the spline coupling between the sections. To determine this capability, a "PD Factor" is used:

- P = PSI (The relief setting of each individual section).
- D = Displacement (In U.S. gallon per revolution of each section).

*Example:* Assume a double pump TP20450-450A-3D with front and rear sections on pressure at the same time at 2500 PSI and with the rear section on pressure at 1500 PSI but not at the same time as the front and center sections.

- A. Drive Shaft:  
 $PD = (2500) (.0394) + (2000) (.0394) = 216.7$   
 Capability is **not** OK.

The "PD" factor for a no. 3 shaft is 187; therefore, to operate all three sections at once (to relieve valve pressure) would exceed the torque capability of the drive shaft.

- B. Coupling between front and center sections:  
 $PD = (2000) (.0394) = 137.9$  vs. 110.  
 Capability is **not** OK.

The "PD" factor for the coupling is 110. If the center and rear sections are on pressure at the same time. The coupling between the front and center sections must transmit the torque for the center and rear sections.

Inch equivalents for millimeter dimensions are shown in (\*\*).

