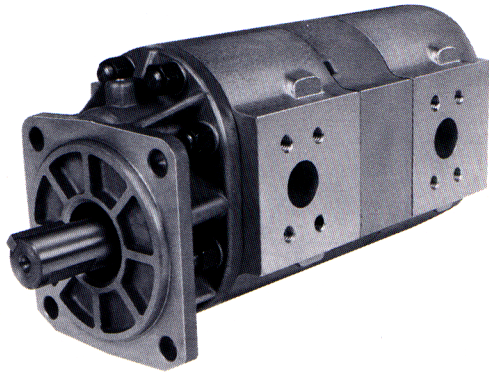


# Model TP20



Description . . . . . Gear Pumps (Two-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

PUMP MODEL	SECTION SIZE	DISPLACEMENT/REVOLUTION (Theoretical)					MAXIMUM PRESSURE		MAXIMUM SPEED
		US Gallons	Cubic Inches	Liters	Cubic Centimeters	Imperial Gallons	PSI	BAR	RPM
TP20	080	.0070	1.62	.0265	26.498	.0058	2500	172	2500
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

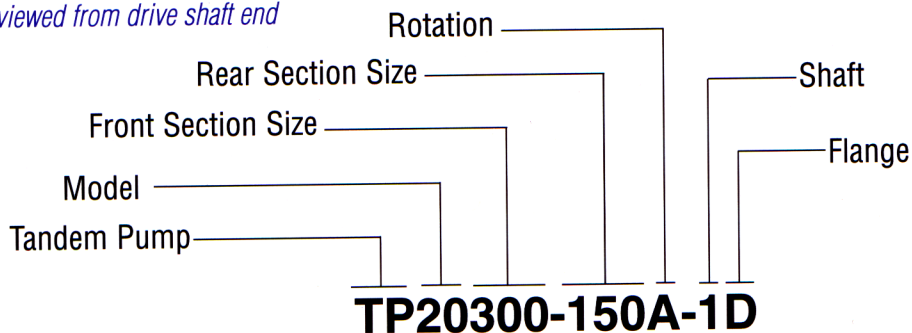
All data based on SAE 10W oil at 150°F. Available with Viton Seals for use with phosphate ester base fluids.  
 \*Some models and sizes are available for pressure up to 3500 PSI. Cast-iron not available on all models. Consult factory for availability.

**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.

When sizing pumps, refer to the performance charts in the back of the catalog to determine the volumetric efficiency and input horsepower requirements.

## How To Order

'A' denotes counterclockwise rotation  
 'C' denotes clockwise rotation  
 When viewed from drive shaft end



Note: Add prefix 'V' to pump model number (VTP20) when ordering pumps with Viton Seals for use with phosphate ester base fluids.  
 Add 'F' to pump model number (TFP20 or VTFP20) when ordering pumps with cast iron construction.

# Shafts Available

<p><b>1 SAE 'C' 1-1/4" 14-Tooth Spline Flat Root Side Fit</b> Torque limit 655 Lbs. Ft. (888, Nm) "Tandem" Pumps only</p> <p><b>Spline Data</b> Diametral Pitch ..... 12/24 Pressure Angle ..... 30° No. Of Teeth ..... 14</p>	<p><b>3 SAE 'C' 1-1/4" Straight Shaft</b> Torque limit 655 Lbs. Ft. (888, Nm) Available on all sizes</p>	<p><b>5 1-1/4" Straight Shaft</b> Torque limit 655 Lbs. Ft. (888, Nm) Available on all sizes</p>
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# Mounting Flanges Available

<p><b>D SAE 'C' 4-Bolt</b></p>	<p><b>E SAE 'B' 4-Bolt</b></p>
<p><b>F SAE 'C' 2-Bolt</b></p>	<p><b>M 'M' Pad Mount</b></p>

# Dimensional Data

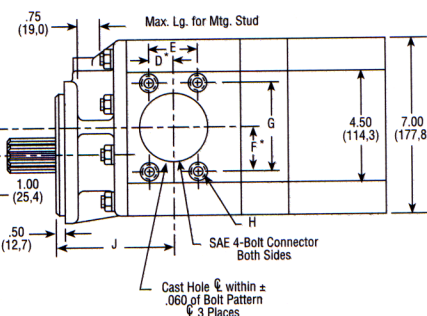
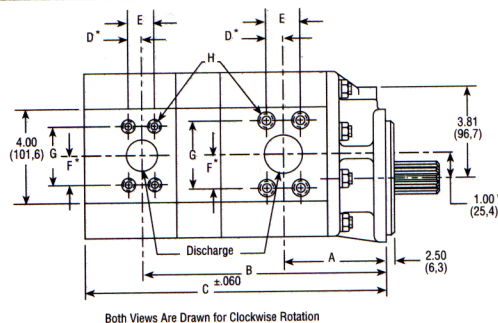
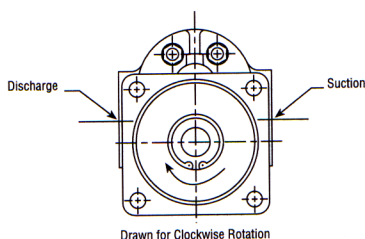
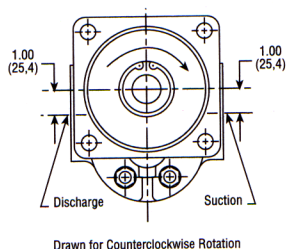
## Mounting Dimensions

Pump Sizes	Port Sizes						Mounting Dimensions			
	Common Suction		Discharge Front		Discharge Rear		A	B	C	D
	Hole Dia.	Conn. Size	Hole Dia.	Conn. Size	Hole Dia.	Conn. Size				
TP20150-080	1.50 (38,1)	1 1/2	.75 (19,0)	3/4	.75 (19,0)	3/4	3.60 (91,4)	7.83 (198,8)	9.44 (239,7)	3.75 (95,2)
TP20150-100	1.50 (38,1)	1 1/2	.75 (19,0)	3/4	.75 (19,0)	3/4	3.60 (91,4)	7.93 (201,4)	9.56 (242,8)	3.75 (95,2)
TP20150-150	1.50 (38,1)	1 1/2	.75 (19,0)	3/4	.75 (19,0)	3/4	3.60 (91,4)	7.93 (201,4)	9.85 (250,1)	3.75 (95,2)
TP20200-080	1.50 (38,1)	1 1/2	1.00 (25,4)	1	.75 (19,0)	3/4	3.75 (95,2)	8.76 (222,5)	10.38 (263,6)	3.86 (98,0)
TP20200-100	1.50 (38,1)	1 1/2	1.00 (25,4)	1	.75 (19,0)	3/4	3.75 (95,2)	8.86 (225,0)	10.50 (266,7)	3.86 (98,0)
TP20200-150	2.00 (50,8)	2	1.00 (25,4)	1	.75 (19,0)	3/4	3.75 (95,2)	8.86 (225,0)	10.79 (274,0)	3.86 (98,0)
TP20200-200	2.00 (50,8)	2	1.00 (25,4)	1	1.00 (25,4)	1	3.75 (95,2)	9.50 (241,3)	12.12 (307,8)	3.86 (98,0)
TP20250-080	2.00 (50,8)	2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.00 (101,6)	9.05 (229,8)	10.67 (271,0)	4.00 (101,6)
TP20250-100	2.00 (50,8)	2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.00 (101,6)	9.15 (232,4)	10.79 (274,0)	4.00 (101,6)
TP20250-150	2.00 (50,8)	2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.00 (101,6)	9.15 (232,4)	11.07 (281,1)	4.00 (101,6)
TP20250-200	2.00 (50,8)	2	1.19 (30,2)	1 1/4	1.00 (25,4)	1	4.00 (101,6)	9.79 (248,6)	12.41 (315,2)	4.00 (101,6)
TP20250-250	2.00 (50,8)	2	1.19 (30,2)	1 1/4	1.25 (34,7)	1 1/4	4.00 (101,6)	10.04 (255,0)	12.80 (325,1)	4.00 (101,6)
TP20300-080	2.00 (50,8)	2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.14 (105,1)	9.32 (236,7)	10.95 (278,1)	4.14 (105,1)
TP20300-100	2.00 (50,8)	2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.14 (105,1)	9.42 (239,2)	11.07 (281,1)	4.14 (105,1)
TP20300-150	2.00 (50,8)	2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.14 (105,1)	9.42 (239,2)	11.34 (288,0)	4.14 (105,1)
TP20300-200	2.00 (50,8)	2	1.19 (30,2)	1 1/4	1.00 (25,4)	1	4.14 (105,1)	10.07 (255,7)	12.69 (322,3)	4.14 (105,1)
TP20300-250	2.00 (50,8)	2	1.19 (30,2)	1 1/4	1.25 (34,7)	1 1/4	4.14 (105,1)	10.32 (262,1)	13.09 (332,4)	4.14 (105,1)
TP20300-300	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	1.19 (30,2)	1 1/4	4.14 (105,1)	10.32 (262,1)	13.37 (339,5)	4.14 (105,1)
TP20350-080	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.35 (110,4)	9.62 (244,3)	11.24 (285,4)	4.34 (110,2)
TP20350-100	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.35 (110,4)	9.72 (246,8)	11.36 (288,5)	4.34 (110,2)
TP20350-150	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	.75 (19,0)	3/4	4.35 (110,4)	9.72 (246,8)	11.64 (295,6)	4.34 (110,2)
TP20350-200	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	1.00 (25,4)	1	4.35 (110,4)	10.35 (263,8)	12.98 (329,6)	4.34 (110,2)
TP20350-250	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	1.25 (34,7)	1 1/4	4.35 (110,4)	10.60 (269,2)	13.37 (339,5)	4.34 (110,2)
TP20350-300	2.50 (63,5)	2 1/2	1.19 (30,2)	1 1/4	1.19 (30,2)	1 1/4	4.35 (110,4)	10.60 (269,2)	13.66 (346,9)	4.34 (110,2)
TP20400-080	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	.75 (19,0)	3/4	4.35 (110,4)	9.90 (251,4)	11.52 (292,6)	4.34 (110,2)
TP20400-100	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	.75 (19,0)	3/4	4.35 (110,4)	10.00 (254,0)	11.64 (295,6)	4.34 (110,2)
TP20400-150	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	.75 (19,0)	3/4	4.35 (110,4)	10.00 (254,0)	11.92 (302,7)	4.34 (110,2)
TP20400-200	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	1.00 (25,4)	1	4.35 (110,4)	10.64 (270,2)	13.26 (336,8)	4.34 (110,2)
TP20400-250	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	1.25 (34,7)	1 1/4	4.35 (110,4)	10.89 (276,6)	13.66 (346,9)	4.34 (110,2)
TP20400-300	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	1.19 (30,2)	1 1/4	4.35 (110,4)	10.89 (276,6)	13.94 (354,0)	4.34 (110,2)
TP20450-080	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	.75 (19,0)	3/4	4.66 (118,3)	10.18 (258,5)	11.80 (299,7)	4.34 (110,2)
TP20450-100	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	.75 (19,0)	3/4	4.66 (118,3)	10.28 (261,1)	11.92 (302,7)	4.34 (110,2)
TP20450-150	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	.75 (19,0)	3/4	4.66 (118,3)	10.28 (261,1)	12.20 (309,8)	4.34 (110,2)
TP20450-200	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	1.00 (25,4)	1	4.66 (118,3)	10.92 (277,3)	13.54 (343,9)	4.34 (110,2)
TP20450-250	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	1.25 (34,7)	1 1/4	4.66 (118,3)	11.17 (283,7)	13.94 (354,0)	4.34 (110,2)
TP20450-300	2.43 (61,7)	2 1/2	1.37 (34,7)	1 1/2	1.19 (30,2)	1 1/4	4.66 (118,3)	11.17 (283,7)	14.22 (361,1)	4.34 (110,2)

## SAE 4-Bolt Connector Ports

Size	D	E	F	G	H
3/4"	.43 (10,9)	.875 (22,2)	.93 (23,6)	1.875 (47,6)	3/8-16NC
1"	.51 (12,9)	1.031 (26,1)	1.03 (26,1)	2.062 (52,3)	3/8-16NC
1-1/4"	.59 (14,9)	1.188 (30,1)	1.15 (29,2)	2.313 (58,7)	7/16-14NC
1-1/2"	.70 (17,9)	1.406 (35,7)	1.37 (34,7)	2.750 (69,8)	1/2-13NC
2"	.84 (21,3)	1.688 (42,8)	1.53 (38,8)	3.062 (77,7)	1/2-13NC
2-1/2"	1.00 (25,4)	2.000 (50,8)	1.75 (44,4)	3.500 (88,9)	1/2-13NC

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



\* These dimensions locate  $\phi$  of bolt pattern only

## Dimensional Data

### PD Factors

Drive Shaft	Factors
#1-1/4	187
#3-1/4	187
#5-1/4	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.

A. Drive Shaft:

$$PD = (2500) (.0394) + (2500) (.0394) = 197 \text{ vs. } 187.$$

Capability of drive shaft is not OK.

B. Coupling between front and rear sections:

$$PD = (2500) (.0394) = 98.5 \text{ vs. } 110.$$

Capability of coupling is OK.

**NOTE:** If the rear section of this tandem pump was limited to 2000 PSI, the combination of both sections would be acceptable:

$$PD = (2500) (.0394) + (2000) (.0394) = 177.3 \text{ vs. } 187.$$

Capability of drive shaft is OK.