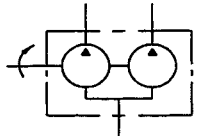


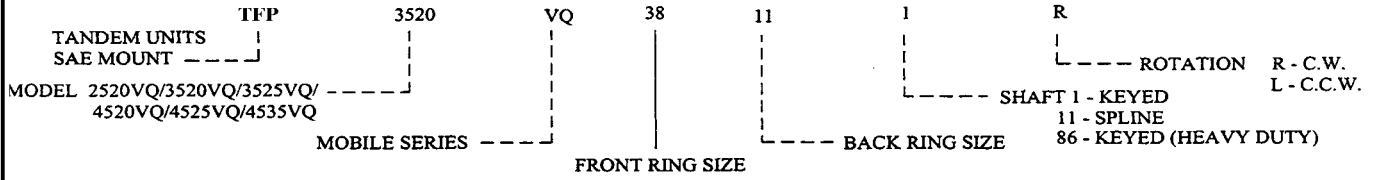
# TFP HIGH PERFORMANCE MOBILE TANDEM INTRA-VANE PUMPS



- \* Maximum 3000 PSI Operating Pressure
- \* High Operating Speeds
- \* Pressure Balanced Brass flex plates
- \* Versatile
- \* Compact
- \* Contaminant Tolerant



### ◆ Double Pump Ordering Specifications



Values based on using anti-wear type petroleum oil 150 SUS at 100°F and 0 PSI inlet pressure.

Series	GPM Shaft End Pump	Displacement Cubic Inches/Rev.	Max. RPM	Min. PSI	Typical Delivery GPM at Max. Speed & Pressure	Typical Input HP at Max. Speed & Pressure	GPM Shaft End Pump	Displacement Cubic Inches/Rev.	Max. RPM	Min. PSI	Typical Delivery GPM at Max. Speed & Pressure	Typical Input HP at Max. Speed & Pressure	Weight in Pounds
2520VQ	12	2.45	2700	3000	23.0	55.0	5	1.10	2700	3000	11.0	24.0	45
	14	2.76	2700	3000	27.0	62.5	8	1.67	2700	3000	17.0	35.0	
	17	3.37	2500	3000	31.0	69.5	11	2.22	2700	3000	23.0	47.5	
	19	3.72	2500	3000	38.0	76.0	12	2.41	2700	2300	25.5	38.0	
							14	2.80	2700	2000	30.0	39.0	
3520VQ	21	4.12	2500	3000	38.0	83.0	5	1.10	2500	3000	10.0	22.0	75
	25	4.98	2500	3000	45.0	101.0	8	1.67	2500	3000	16.0	32.5	
	30	5.96	2500	3000	55.0	117.5	11	2.22	2500	3000	21.0	44.0	
	35	6.88	2400	3000	60.0	132.0	12	2.41	2500	2300	23.5	35.0	
	38	7.42	2400	3000	65.0	140.0	14	2.80	2500	2000	27.5	36.0	
3525VQ	21	4.12	2500	3000	38.0	83.0	12	2.45	2500	3000	21.0	51.0	76
	25	4.98	2500	3000	45.0	101.0	14	2.76	2500	3000	24.0	58.0	
	30	5.96	2500	3000	55.0	117.5	17	3.37	2500	3000	31.0	69.0	
	35	6.88	2400	3000	60.0	132.0	21	4.12	2500	3000	38.0	83.0	
	38	7.42	2400	3000	65.0	140.0	21	4.12	2500	3000	38.0	83.0	
4520VQ	42	8.46	2200	2500	66.5	122.5	5	1.10	2200	3000	8.50	19.5	94
	47	9.54	2200	2500	71.0	131.0	8	1.67	2200	3000	13.5	28.5	
	50	9.90	2200	2500	79.0	141.0	11	2.22	2200	3000	18.0	38.5	
	57	11.20	2200	2500	92.0	160.0	12	2.41	2200	2300	20.5	31.0	
	60	11.80	2200	2500	96.0	170.0	14	2.80	2200	2000	24.0	32.0	
4525VQ	42	8.46	2200	2500	66.5	122.5	12	2.45	2200	3000	18.0	44.0	101
	47	9.54	2200	2500	71.0	131.0	14	2.76	2200	3000	21.0	51.0	
	50	9.90	2200	2500	79.0	141.0	17	3.37	2200	3000	26.5	61.0	
	57	11.20	2200	2500	92.0	160.0	21	4.12	2200	3000	33.0	73.0	
	60	11.80	2200	2500	96.0	170.0	21	4.12	2200	3000	33.0	73.0	
4535VQ	42	8.41	2200	2500	66.5	122.5	21	4.12	2200	3000	33.0	73.0	118
	47	9.54	2200	2500	71.0	131.0	25	4.98	2200	3000	38.5	89.0	
	50	9.85	2200	2500	79.0	141.0	30	5.96	2200	3000	47.0	104	
	57	11.20	2200	2500	92.0	160.0	35	6.88	2200	3000	55.0	120	
	60	11.75	2200	2500	96.0	170.0	38	7.42	2200	3000	59.0	130	

TFP offers a complete line of high performance double intra-vane pumps for mobile equipment. A large number of SAE mounts, shafts, and displacements, along with their high pressure and speed capabilities, provide the combination best suited for mobile applications. The cartridge assemblies are designed with two flex plates in hydrostatic balance which seal against the rotor to provide optimum running clearances for minimum internal leakage and friction. The bronze face of the flex plates provides excellent wear and cold-start characteristics. The availability of our factory tested cartridge offers fast and efficient field serviceability, and the replacement pump cartridge reduces down time to increase productivity. Units can operate on a large variety of fluids.

Contact the local representative with your requirements.

# TFP DOUBLE VANE PUMPS



Performance Data - Typical Flows at 120° F, 10 W oil (128SUS), 0 PSI inlet Flow in Gallons Per Minute (GPM).

Pump Model	Displacement (in <sup>3</sup> /rev.)	R.P.M.	100 P.S.I. (INPUT H.P.)	1500 P.S.I. (INPUT H.P.)	3000 P.S.I. (INPUT H.P.)
** 20 VQ	5 (1.10)	1200	5.0 (0.4)	4.3 (5.0)	4.0 (10.0)
		1800	7.5 (1.5)	7.0 (8.5)	7.0 (16.5)
		2400	10.0 (2.0)	10.2 (12.0)	9.5 (22.0)
	8 (1.67)	1200	8.0 (1.0)	7.0 (8.0)	6.5 (16.5)
		1800	12.0 (1.7)	11.5 (12.0)	10.5 (23.0)
		2400	16.0 (2.8)	16.0 (17.0)	14.9 (32.0)
	11 (2.22)	1200	11.0 (1.2)	9.8 (11.0)	8.5 (21.5)
		1800	16.5 (2.8)	15.4 (18.0)	14.2 (31.0)
		2400	22.0 (3.0)	21.0 (22.0)	20.0 (42.0)
	12 (2.41)	1200	12.0 (1.5)	11.0 (12.5)	9.8 (22.0)
		1800	18.0 (3.0)	17.2 (19.0)	16.0 (34.0)
		2400	24.0 (3.0)	23.4 (23.5)	22.2 (45.0)
14 (2.80)	1200	14.0 (2.0)	12.9 (13.5)	12.0 (27.5)	
	1800	21.0 (3.0)	18.5 (20.0)	19.0 (39.5)	
	2400	28.0 (3.5)	27.0 (27.0)	26.4 (52.5)	

MAX. PSI  
2300

MAX. PSI  
2200

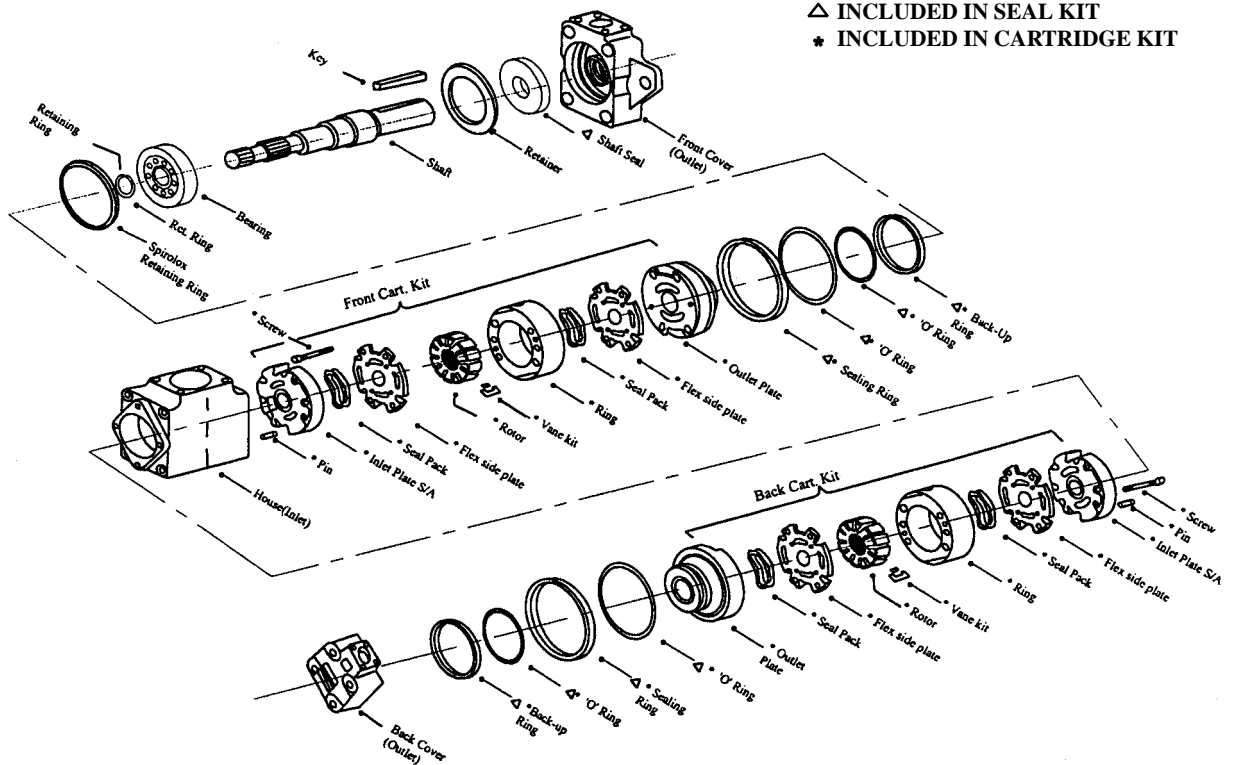
25 VQ ** 25 VQ	12 (2.47)	1200	12.0 (1.0)	9.5 (12.0)	7.5 (24.0)
		1800	18.0 (2.5)	16.0 (17.0)	13.5 (35.0)
		2400	24.0 (3.0)	22.5 (24.0)	20.0 (46.0)
	14 (2.77)	1200	14.0 (2.0)	11.5 (13.5)	9.5 (26.5)
		1800	21.0 (3.0)	18.0 (20.0)	16.0 (39.0)
		2400	28.0 (3.5)	25.0 (25.0)	23.0 (52.0)
	17 (3.37)	1200	17.0 (2.0)	14.0 (16.5)	12.0 (32.0)
		1800	25.5 (3.0)	22.0 (24.0)	20.0 (47.0)
		2400	34.0 (3.5)	31.0 (32.0)	29.0 (62.0)
	19 (3.72)	1200	19.0 (3.0)	17.0 (20.0)	15.0 (39.0)
		1800	28.5 (3.5)	25.5 (28.0)	24.0 (58.0)
		2400	38.0 (4.5)	35.0 (36.0)	32.0 (70.0)
21 (4.12)	1200	21.0 (2.0)	17.5 (20.0)	15.5 (39.0)	
	1800	31.5 (3.8)	28.0 (29.0)	25.5 (59.0)	
	2400	42.0 (4.5)	39.0 (39.0)	36.5 (76.0)	

35 VQ ** 35 VQ	21 (4.12)	1200	21.0 (2.0)	17.5 (20.0)	15.5 (39.0)
		1800	31.5 (3.8)	28.0 (29.0)	25.5 (59.0)
		2400	42.0 (4.5)	39.0 (39.0)	36.5 (76.0)
	25 (4.94)	1200	25.0 (2.5)	20.5 (23.0)	17.5 (46.0)
		1800	37.0 (4.0)	33.5 (36.0)	30.0 (69.0)
		2400	50.0 (4.5)	42.0 (46.5)	42.5 (92.0)
	30 (5.96)	1200	30.0 (4.0)	25.0 (28.5)	25.5 (56.0)
		1800	45.0 (5.0)	40.0 (43.0)	37.0 (82.0)
		2400	60.0 (6.0)	55.0 (56.0)	52.5 (110.0)
	35 (6.88)	1200	35.0 (4.0)	29.0 (33.0)	25.0 (67.0)
		1800	52.5 (5.0)	46.0 (51.0)	42.0 (95.0)
		2400	70.0 (5.5)	62.5 (64.0)	60.0 (125.0)
38 (7.42)	1200	38.0 (4.5)	32.0 (35.5)	29.0 (69.0)	
	1800	57.0 (5.5)	50.5 (52.0)	47.0 (102.0)	
	2400	76.5 (6.0)	68.0 (69.0)	65.0 (136.0)	

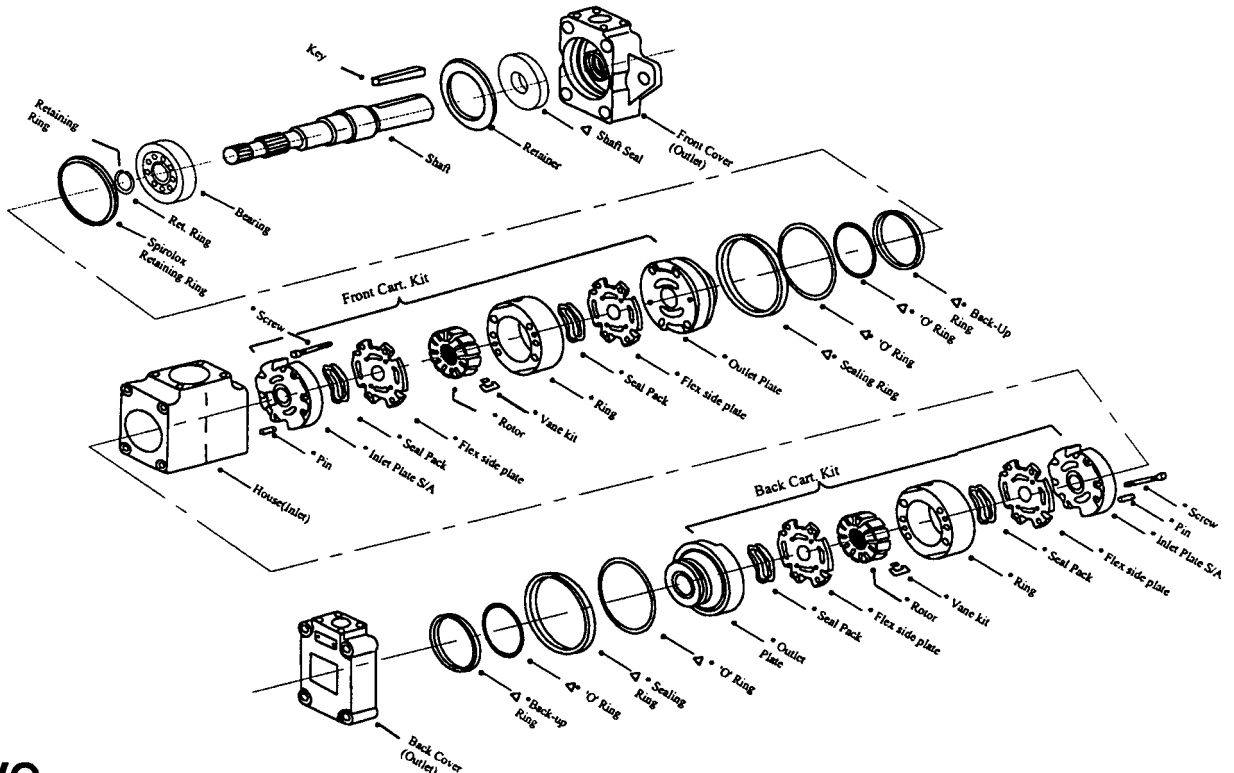
45 VQ ** 45 VQ	42 (8.46)	1200	42.0 (4.0)	34.5 (39.5)	30.0 (68.0)
		1800	63.0 (60.0)	56.5 (58.0)	52.0 (104.0)
		2400	77.0 (7.0)	70.5 (72.0)	66.5 (123.0)
	47 (9.45)	1200	47.0 (4.0)	39.0 (22.0)	34.0 (46.0)
		1800	70.0 (5.0)	64.0 (33.0)	60.5 (71.0)
		2400	94.0 (9.0)	86.0 (47.0)	80.5 (95.0)
	50 (9.90)	1200	50.0 (4.0)	42.0 (48.0)	38.5 (78.0)
		1800	75.0 (6.0)	65.5 (70.0)	62.0 (116.0)
		2400	91.5 (8.0)	81.5 (86.0)	79.0 (141.0)
	57 (11.20)	1200	57.0 (5.0)	49.0 (22.0)	45.5 (92.0)
		1800	85.5 (7.5)	76.5 (33.0)	71.5 (125.0)
		2400	104.5 (8.0)	94.5 (47.0)	89.5 (160.0)
60 (11.80)	1200	60.0 (5.5)	51.0 (55.0)	47.0 (94.0)	
	1800	90.0 (7.0)	80.0 (82.0)	75.5 (138.0)	
	2400	110.0 (8.5)	99.0 (101.0)	96.0 (170.0)	

MAX. PSI  
2500

# TFP MOBILE DOUBLE VANE PUMP SERVICE PARTS INFORMATION



**2520VQ/3520VQ/4520VQ/3525VQ/4525VQ**



**4535VQ**

# TFP MOBILE DOUBLE VANE PUMP SERVICE PARTS INFORMATION



## CARTRIDGE CHART

PUMP SE	FRONT C. KIT	ROTOR	VANE	RING	FLEX PLATE	BACK C. KIT	ROTOR	VANE	RING	FLEX PLATE	SHAFTS		
2520VQ	12 416439N	270597N	922710N	326984N	923956N	2 417052N	402690N	922741N	388683N	923955N	1 254964N		
	14 416440N			326985N		5 417053N			333624N		11 254848N		
	17 416441N			326986N		8 417054N			333625N		25 293360N		
	19 421232N			326987N		9 423096N			374799N				
	21 416442N			326988N		11 416427N			403539N		922743N	333626N	
						12 416428N						353901N	
		14 416429N			353902N								
3520VQ	21 413420N	262154N	922700N	394961N	923953N	2 417052N	402690N	922741N	388683N	923955N	1 258249N		
	25 413421N			319396N		5 417053N			333624N		11 254848N		
	30 413422N			319397N		8 417054N			333625N		86 394517N		
	35 413418N			319398N		9 423096N			374799N		113 413022N		
	38 413419N			319399N		11 416427N			403539N		922743N	333626N	114 413434N
						12 416428N						353901N	
		14 416429N			353902N								
3525VQ	21 413420N	262154N	922700N	394961N	923953N	12 421244N	270597N	922710N	326984N	923956N	1 243448N		
	25 413421N			319396N		14 421235N			326985N		11 243449N		
	30 413422N			319397N		17 421236N			326986N		19 247019N		
	35 413418N			319398N									
	38 413419N			319399N									
						111 413023N							
4520VQ	42 416435N	283871N	922701N	297510N	923954N	2 417052N	402690N	922741N	388683N	923955N	1 255533N		
	47 421234N			297718N		5 417053N			333624N		11 255536N		
	50 416436N			297502N		8 417054N			333625N		86 361761N		
	57 421233N			306772N		9 423096N			374799N		114 413436N		
	60 416437N			297503N		11 416427N			403539N		922743N	333626N	
						12 416428N						353901N	
		14 416429N			353902N								
4525VQ	42 416435N	283871N	922701N	297510N	923954N	12 421244N	270597N	922710N	326984N	923956N	1 233524N		
	47 421234N			297718N		14 421235N			326985N		11 233527N		
	50 416436N			297502N		17 421236N			326986N		86 361762N		
	57 421233N			306772N		21 421238N			326988N		114 413024N		
	60 416437N			297503N									
4535VQ	42 416435N	238871N	922701N	297510N	923954N	21 421239N	262154N	922700N	394961N	923953N	1 289083N		
	47 421234N			297718N		25 421240N			319396N		11 289084N		
	50 416436N			297502N		30 421241N			319397N		86 361763N		
	57 421233N			306772N		35 421242N			319398N		114 413027N		
	60 416437N			297503N		38 421243N			319399N				

- All Cartridge assemblies are factory tested before shipping -

PUMP SE	BUNA SEAL KIT	VITON SEAL KIT	BUNA SHAFT SEAL	VITON SHAFT SEAL	SECONDARY SHAFT SEAL	BEARING	FRONT COVER	MIDDLE COVER	BACK COVER
2520VQ	920040N	920042N	394976N	429286N	429283N	001705N	942353N	251263N	250824N
3520VQ	920048N	920050N	394973N	429284N	429281N	038441N	942355N	250818N	250824N
3525VQ	920056N	920058N	394973N	429284N	429281N	038441N	942355N	230189N	231532N
4520VQ	920060N	920062N	394974N	429285N	429282N	131812N	942356N	252283N	250824N
4525VQ	920068N	920070N	394974N	429285N	429282N	131812N	942356N	370071N	231532N
4535VQ	920072N	920074N	394974N	429285N	429282N	131812N	942356N	270640N	270679N

## BOLT TORQUES

	2520VQ	3520VQ	3525VQ	4520VQ	4525VQ	4535VQ
FRONT HOUSING FT. LB.	75	150	150	275	275	275
REAR COVER FT. LB.	50	50	75	50	75	75
FRONT C. KIT IN. LB.	45	100	100	105	105	105
BACK C. KIT IN. LB.	30	30	45	30	45	100

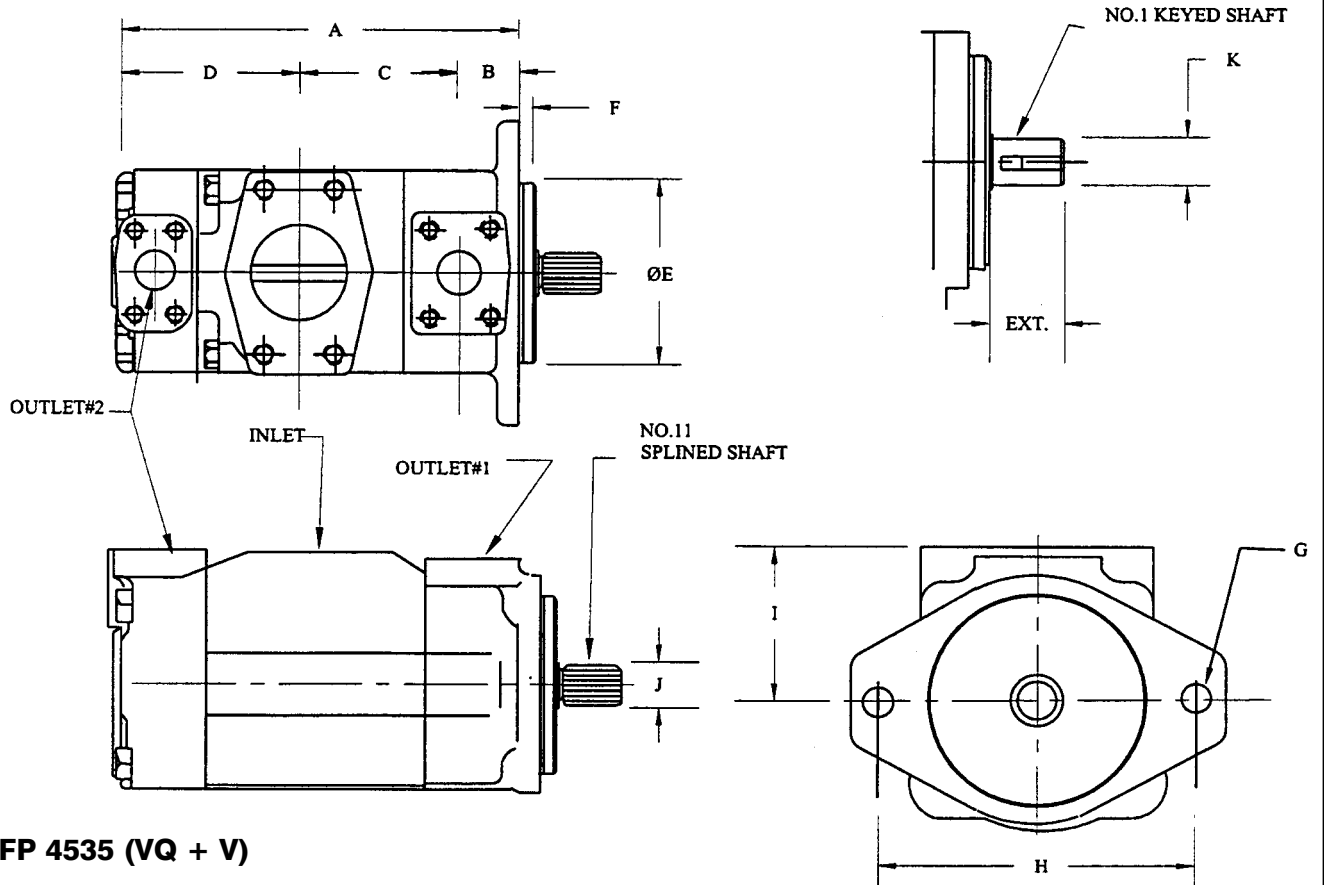
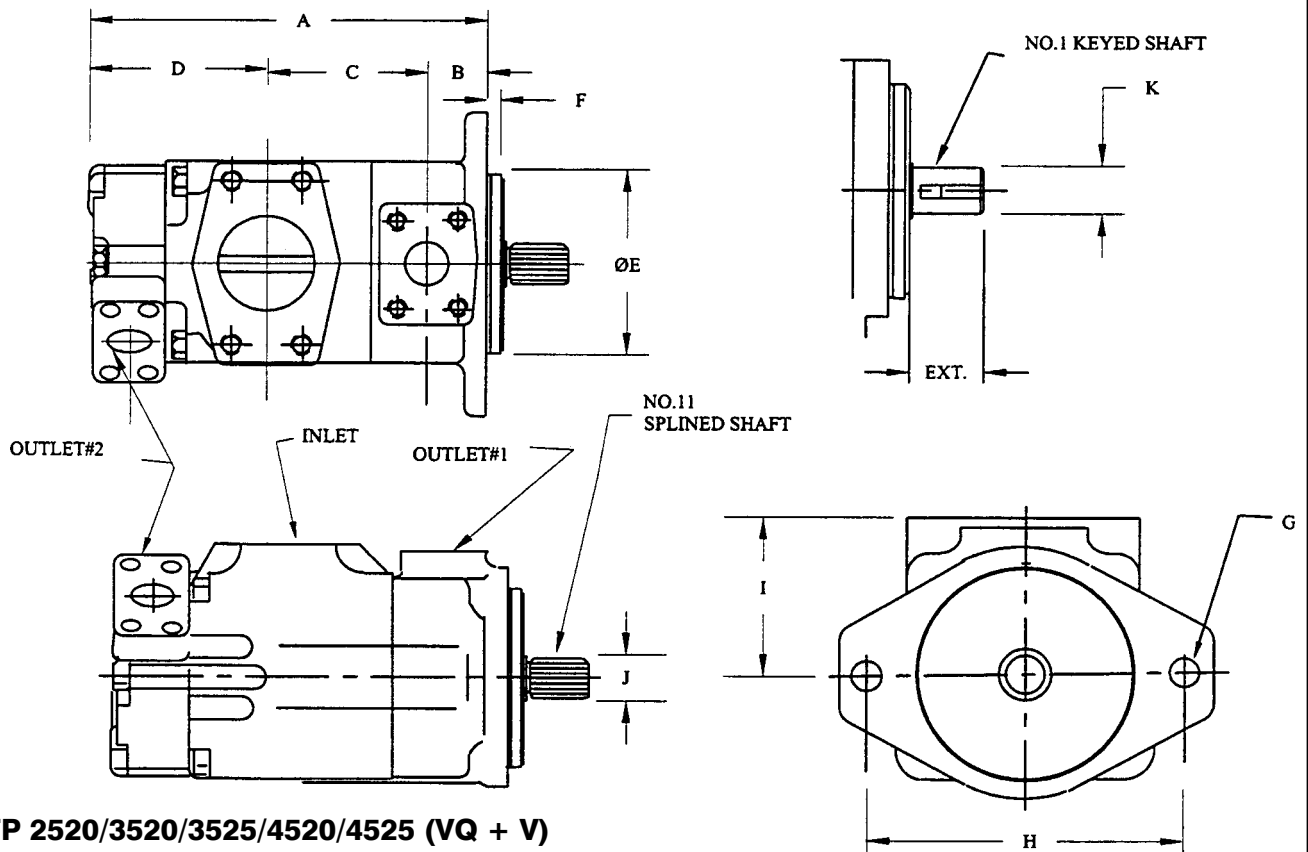
## Cartridge Kit Rotation

To change Cartridge Kit rotation, reverse the location of the inlet and the outlet support plates. Hand tighten the cartridge screws and use pump cover to align all the parts. Remove the cover and tighten the cartridge screws to the designated value. Sharp edge of vanes must lead in direction of rotation.

## Filtration

For satisfactory service life, use full flow filtration to provide fluid which meets ISO cleanliness code 16/13 or better.

# TFP MOBILE & INDUSTRIAL TANDEM PUMP INSTALLATION DIMENSIONS



# TFP MOBILE & INDUSTRIAL TANDEM PUMP INSTALLATION DIMENSIONS



## DIMENSION CHART

	2520	3520	3525	4520	4525	4535
A	9.84	10.79	11.30	11.97	13.8	13.9
B	1.50	1.50	1.50	1.69	1.69	1.69
C	4.00	4.50	4.50	4.70	4.70	5.25
D	3.47	3.92	4.312	4.70	5.35	5.84
E	4"Ø SAE'B'	5"Ø SAE'C'	5"Ø SAE'C'	5"Ø SAE'C'	5"Ø SAE'C'	5"Ø SAE'C'
F	.375	.375	.375	.500	.500	.500
G	.56	.688	.688	.688	.688	.688
H	5.75	7.125	7.125	7.125	7.125	7.125
I	3.38	3.50	3.50	4.03	4.03	4.03
J	.873Ø 13 TH. 1.75 EXT.	1.248Ø 14 TH. 2.13 EXT.	1.248Ø 14 TH. 2.13 EXT.	1.248Ø 14 TH. 2.44 EXT.	1.248Ø 14 TH. 2.44 EXT.	1.248Ø 14 TH. 2.44 EXT.
K	7/8" KEYED 2.13 EXT.	1-1/4" KEYED 2.88 EXT.	1-1/4" KEYED 2.88 EXT.	1-1/4" KEYED 2.88 EXT.	1-1/4" KEYED 2.44 EXT.	1-1/4" KEYED 2.44 EXT.
Key	.187	.3125	.3125	.3125	.3125	.3125
Weight	45 lbs.	75 lbs.	76 lbs.	94 lbs.	101 lbs.	118 lbs.
Inlet	2-1/2" FL.	3" FL.	3" FL.	3-1/2" FL.	3-1/2" FL.	4" FL.
Outlet1	1" FL.	1-1/4" FL.	1-1/4" FL.	1-1/2" FL.	1-1/2" FL.	1-1/2" FL.
Outlet2	3/4" FL.	3/4" FL.	1" FL.	3/4" FL.	1" FL.	1-1/4" FL.

## SHAFT DESCRIPTION & CODES

Pump Style	Code	Description	Major Dia.	Ext.
2520	1	3/16 Keyed	0.875	2.310
	11	13T 16/32 Splined	0.873	1.750
	25	14T 12/24 X-Long Splined	1.250	3.060
	123	13T 16/32 Splined	0.873	1.750
3520	1	5/16 Square Keyed	1.250	2.880
	11	14T 12/24 Splined	1.248	2.310
	19	14T 12/24 X-Long Splined	1.248	3.040
	86	5/16 Heavy Duty Sq. Keyed	1.374	3.370
	114	14T 12/24 Splined	1.229	2.270
3525	1	5/16 Square Keyed	1.250	2.880
	11	14T 12/24 Splined	1.248	2.310
	19	14T 12/24 X-Long Splined	1.248	3.040
	86	5/16 Heavy-Duty Sq. Keyed	1.374	3.370
	111	14T 12/24 Splined	1.229	2.880

Pump Style	Code	Description	Major Dia.	Ext.
4520	1	5/16 Square Keyed	1.250	2.440
	11	14T 12/24 Splined	1.248	2.440
	86	3/8 Heavy Duty Sq. Keyed	1.500	3.440
	114	14T 12/24 Splined	1.229	3.060
4525	1	5/16 Square Keyed	1.250	2.440
	11	14T 12/24 Splined	1.250	2.440
	19	14T 12/24 X-Long Splined	1.250	3.060
	86	3/8 Heavy Duty Sq. Keyed	1.500	3.440
	114	14T 12/24 Splined	1.230	3.060
4535	1	5/16 Square Keyed	1.250	2.440
	11	14T 12/24 Splined	1.248	2.440
	19	14T 12/24 X-Long Splined	1.248	3.060
	86	3/8 Heavy-Duty Sq. Keyed	1.500	3.440
	114	14T 12/24 Splined	1.229	3.060

- Many other shafts available on request -