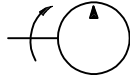


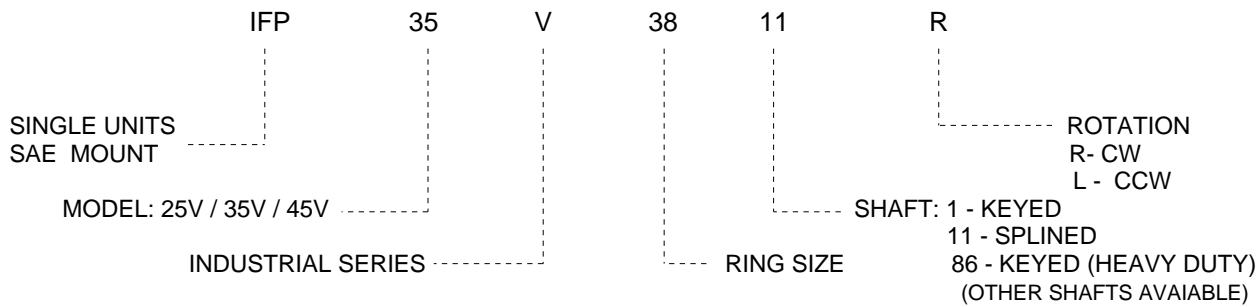
IFP HIGH PERFORMANCE INDUSTRIAL SINGLE INTRA-VANE PUMPS



- * High Volumetric Efficiency
- * Maximum 3000 PSI operating pressure
- * Twelve Vane Design for quiet operation
- * Hydraulic Balanced for external life
- * Versatile
- * Compact



◆ Single Pump Ordering Specifications



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

Model Series	Flow in GPM @ 1200 RPM & 100 PSI	Displacement in3/rev	Maximum Speed (RPM)	Maximum Pressure (PSI)	Typical Delivery GPM @ max. speed & pressure	Typical Input Power (HP) @ max. speed & pressure	Weight (lbs)
20V	5	1.10	1800	3000	7.5	15.00	26
	8	1.67	1800	3000	12	22.78	
	11	2.22	1800	3000	15	30.28	
	12	2.47	1800	3000	16.4	33.69	
	14	2.78	1800	3000	18.4	37.91	
25V	12	2.47	1800	2500	16.4	30.75	32
	14	2.78	1800	2500	18.4	34.50	
	17	3.39	1800	2500	22.8	40.00	
	21	4.13	1800	2500	28	45.60	
35V	21	4.13	1800	2500	28	45.60	50
	25	4.94	1800	2500	33	61.00	
	30	5.91	1800	2500	40.8	73.00	
	35	6.83	1800	2500	48	82.40	
45V	38	7.37	1800	2500	51.2	88.30	75
	42	8.41	1800	2500	55	101.00	
	50	9.85	1800	2500	67	117.00	
50V	60	11.75	1800	2500	82	139.00	138
	72	13.90	1800	1700	97	95.00	
	85	16.40	1800	1700	128	126.00	
	100	19.25	1800	1700	142	140.00	
	109	20.99	1800	1700	153	150.00	

IFP offers a complete line of high performance (12 vane) single intra-vane pumps for industrial applications. Units are available with large selection of SAE mounts and shafts. The high pressure capacity and multiple displacements, combined with the low flow pulsation and quiet operating characteristics of this 12 - vane design, makes them ideal for industrial applications. Factory tested cartridge kits are readily available, providing efficient field serviceability, avoiding costly down time and increased productivity. These units can operate on a wide variety of fluids.

Contact the local representative with your requirements.

IFP HIGH PERFORMANCE INDUSTRIAL SINGLE INTRA-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 ³ /rev.)	R.P.M.	100 P.S.I. (INPUT H.P.)	1500 P.S.I. (INPUT H.P.)	2500 P.S.I. (INPUT H.P.)
20 V	5 (1.10)	1200	5.0 (0.4)	4.5 (5.0)	4.2 (6.0)
		1500	6.9 (1.0)	6.4 (7.0)	6.0 (8.0)
		1800	8.5 (1.5)	7.7 (8.5)	7.5 (12.0)
	8 (1.67)	1200	8.0 (1.0)	7.4 (8.0)	7.1 (14.0)
		1500	10.5 (1.2)	9.5 (10.5)	9.1 (17.0)
		1800	13.7 (1.7)	11.9 (12.0)	11.2 (20.5)
	11 (2.22)	1200	11.0 (1.2)	10.2 (11.0)	9.9 (16.0)
		1500	14.2 (1.5)	13.5 (14.5)	12.5 (23.0)
		1800	17.1 (2.8)	16.5 (18.0)	15.5 (28.5)
	12 (2.47)	1200	12.0 (1.3)	11.6 (12.5)	11.2 (19.0)
		1500	15.0 (1.5)	14.8 (15.5)	14.0 (25.0)
		1800	18.6 (3.0)	17.8 (19.0)	16.4 (30.0)
	14 (2.78)	1200	14.0 (1.5)	12.2 (13.5)	11.2 (23.0)
		1500	17.5 (3.0)	16.1 (17.0)	14.5 (29.0)
		1800	21.0 (3.5)	18.4 (20.0)	18.0 (34.0)
25 V	12 (2.47)	1200	12.0 (1.0)	10.8 (12.0)	10.2(21.0)
		1500	15.0 (1.5)	13.8 (14.5)	13.5 (25.0)
		1800	18.0 (2.5)	16.4 (17.0)	16.4(30.0)
	14 (2.78)	1200	14.0 (2.0)	12.4 (13.5)	11.5 (23.0)
		1500	17.5 (2.0)	16.8 (17.0)	14.8 (29.0)
		1800	21.0 (3.0)	18.6 (20.0)	18.4 (34.5)
	17 (3.39)	1200	17.0 (2.0)	15.5 (16.5)	15.0 (28.0)
		1500	21.0 (2.0)	20.0 (20.0)	18.3 (34.0)
		1800	25.5 (3.0)	23.2 (24.0)	22.8 (40.0)
	21 (4.13)	1200	21.0 (2.0)	19.5 (20.0)	18.5 (33.0)
		1500	26.0 (3.6)	24.0 (24.5)	23.5 (42.0)
		1800	31.5 (3.8)	29.2 (29.0)	28.0 (46.0)
35 V	21 (4.13)	1200	21.0 (2.0)	19.5 (20.0)	18.5 (31.0)
		1500	26.0 (3.6)	24.0 (24.5)	23.5 (41.0)
		1800	31.5 (3.8)	29.2 (29.0)	28.0 (45.0)
	25 (4.94)	1200	25.0 (2.5)	22.5 (23.0)	21.0 (41.0)
		1500	31.0 (3.0)	29.0 (30.0)	27.0 (50.0)
		1800	37.8 (4.0)	35.5 (36.0)	33.0 (61.0)
	30 (5.91)	1200	30.0 (4.0)	28.0 (28.5)	25.5 (49.0)
		1500	37.0 (5.0)	35.0 (35.5)	33.0 (61.0)
		1800	44.8 (6.0)	42.0 (43.0)	40.5 (73.0)
	35 (6.83)	1200	35.0 (4.0)	32.0 (33.0)	30.5 (54.0)
		1500	43.0 (5.0)	41.0 (42.5)	39.0 (68.0)
		1800	52.0 (6.5)	50.0 (51.5)	47.5 (82.0)
	38 (7.37)	1200	38.0 (4.5)	35.0 (35.5)	32.0 (58.0)
		1500	46.5(6.0)	43.0 (44.0)	41.5 (73.0)
		1800	56.5 (7.0)	53.5 (55.0)	51.0 (88.0)
45 V	42 (8.41)	1200	42.0 (4.0)	36.0 (38.0)	33.0 (68.0)
		1500	53.0 (6.0)	48.0 (49.0)	44.0 (79.0)
		1800	64.0 (7.0)	59.0 (60.0)	55.0 (101.0)
	50 (9.85)	1200	50.0 (4.0)	45.0 (46.0)	42.5 (75.0)
		1500	62.0 (8.0)	57.5 (59.0)	55.0 (97.0)
		1800	74.0 (8.0)	69.0 (71.0)	67.0 (117.0)
	60 (11.75)	1200	60.0 (6.0)	55.0 (57.0)	52.0 (93.0)
		1500	75.0 (7.0)	69.0 (72.0)	66.0 (116.0)
		1800	91.0 (9.0)	86.0 (88.0)	82.0 (139.0)

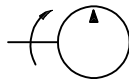
MAX. PSI
2300

MAX. PSI
2000

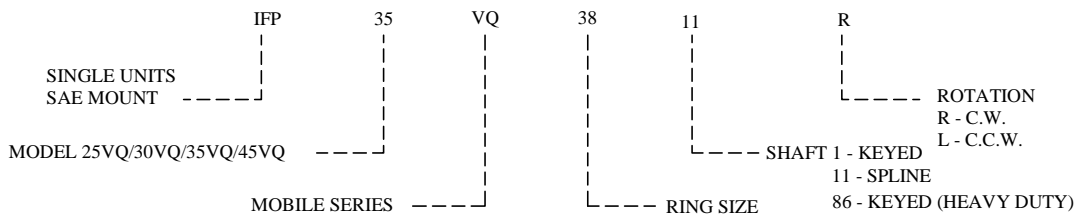
IFP HIGH PERFORMANCE MOBILE SINGLE INTRA-VANE PUMPS



- * 3000 PSI Maximum Operating Pressure
- * High Operating Speeds
- * Pressure Balanced Brass Flex Plates
- * Versatile
- * Compact
- * Contaminant Tolerant



◆ Single Pump Ordering Specifications



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

MODEL SERIES	FLOW IN GPM @ 1200 RPM & 100 PSI	DISPL. in ³ r	MAXIMUM SPEED (RPM)	MAXIMUM PRESSURE (PSI)	TYPICAL DELIVERY GPM @ max. speed & pressure	TYPICAL INPUT POWER (HP) @ max. speed & pressure	WEIGHT (lbs.)
20VQ	5	1.10	2700	3000	11.0	24.0	26
	8	1.67	2700	3000	17.0	35.0	
	11	2.22	2700	3000	23.0	47.5	
	12	2.41	2700	2300	22.5	38.0	
	14	2.80	2700	2000	30.0	39.0	
25VQ	12	2.45	2700	3000	23.0	55.0	32
	14	2.77	2700	3000	27.0	62.5	
	17	3.37	2500	3000	31.0	69.5	
	19	3.72	2500	3000	35.0	76.0	
	21	4.12	2500	3000	38.0	83.0	
30VQ	24	4.70	2700	3000	23.0	55.0	36
	28	5.50	2500	3000	31.0	69.5	
35VQ	21	4.12	2500	3000	38.0	83.0	50
	25	4.98	2500	3000	45.0	101.0	
	30	5.96	2500	3000	55.0	117.5	
	35	6.88	2400	3000	60.0	132.0	
	38	7.42	2400	3000	65.0	140.0	
45VQ	42	8.46	2200	2500	66.5	122.5	75
	47	9.54	2200	2500	71.0	131.00	
	50	9.90	2200	2500	79.0	141.00	
	57	11.20	2200	2500	92.0	160.00	
	60	11.80	2200	2500	96.0	170.00	

IFP offers a complete line of high performance single 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 for cold-start conditions. The availability of our factory tested cartridges offers fast and efficient field serviceability, and the replacement pump cartridge reduces down time to increase productivity. These units can operate on a wide variety of fluids.

Contact the local representative with your requirements.

IFP HIGH PERFORMANCE MOBILE SINGLE INTRA-VANE PUMPS

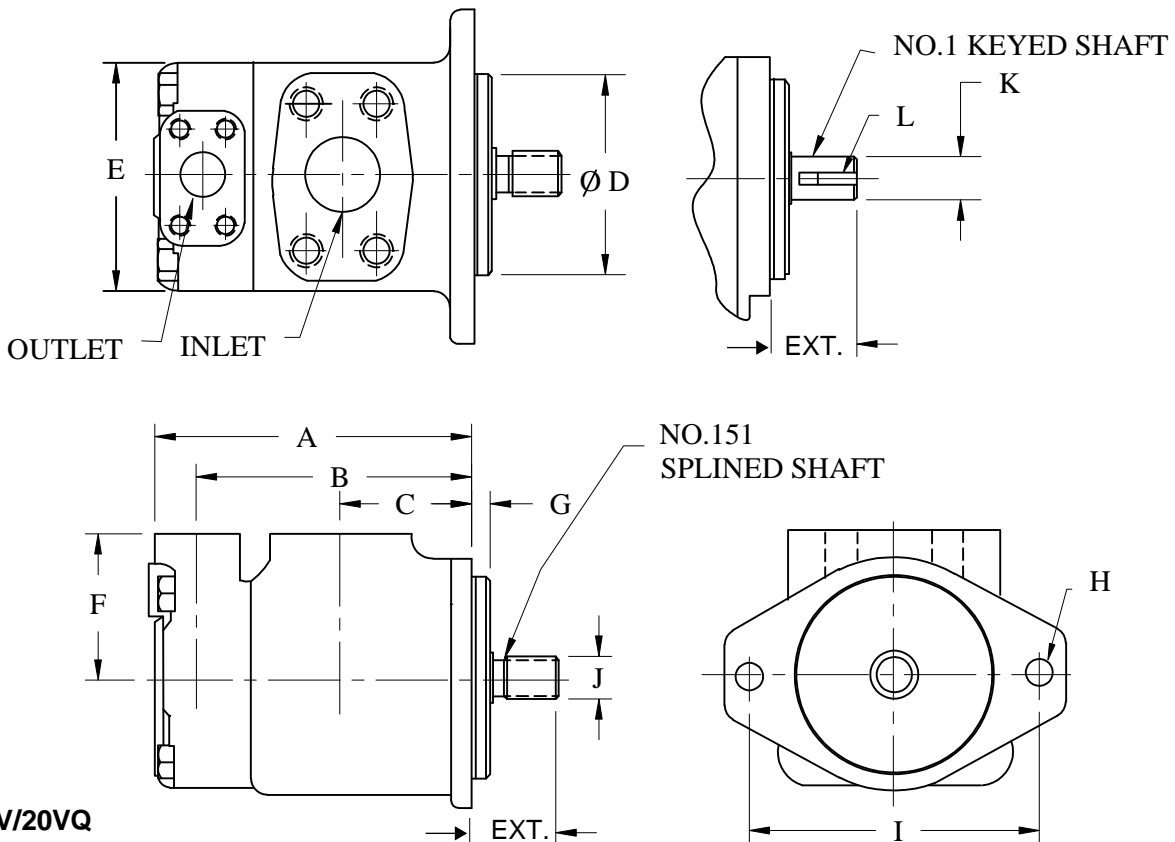
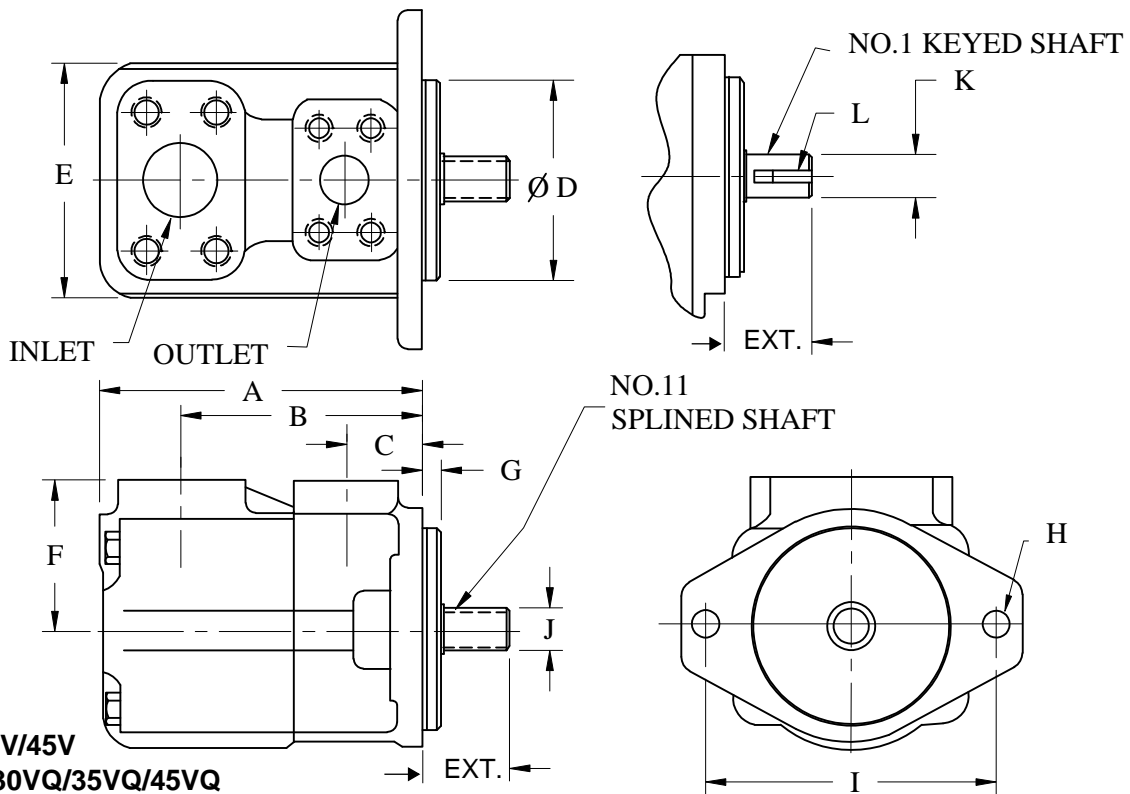


Performance Data - Typical Flows at 120° F, 10 W oil (128SUS), 0 PSI inlet

Flow in Gallons Per Minute (GPM).

Pump Model	Displacement (in ³ /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)	} MAX. PSI 2300
		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)		
25 VQ	12 (2.47)	1200	12.0 (1.0)	9.5 (12.0)	7.5 (24.0)	} MAX. PSI 2200
		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)		
30 VQ	24 (4.70)	1200	24.0 (2.2)	21.0 (22.0)	19.0 (46.0)	
		1800	36.0 (3.3)	33.0 (33.0)	31.5 (71.0)	
		2400	48.0 (4.4)	45.0 (47.0)	42.5 (95.0)	
	28 (5.50)	1200	28.0 (2.6)	26.0 (22.0)	23.5 (58.0)	
		1800	42.0 (5.0)	39.0 (33.0)	37.5 (77.0)	
		2400	56.0 (6.5)	52.5 (47.0)	49.5 (98.0)	
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 (4.98)	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	42 (8.46)	1200	42.0 (4.0)	34.5 (39.5)	30.0 (68.0)	} MAX. PSI 2500
		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 (9.54)	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)		

IFP MOBILE & INDUSTRIAL SINGLE PUMP INSTALLATION DIMENSIONS



IFP MOBILE & INDUSTRIAL SINGLE PUMP INSTALLATION DIMENSIONS



DIMENSION CHART

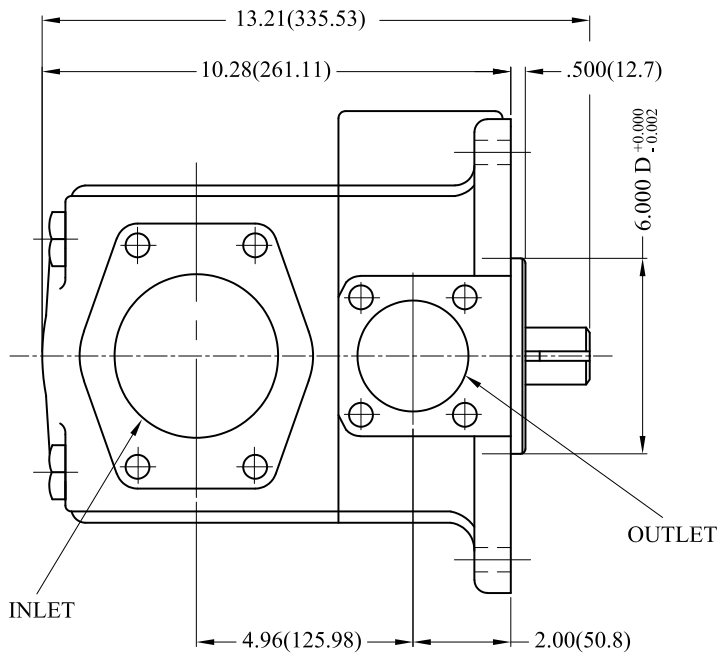
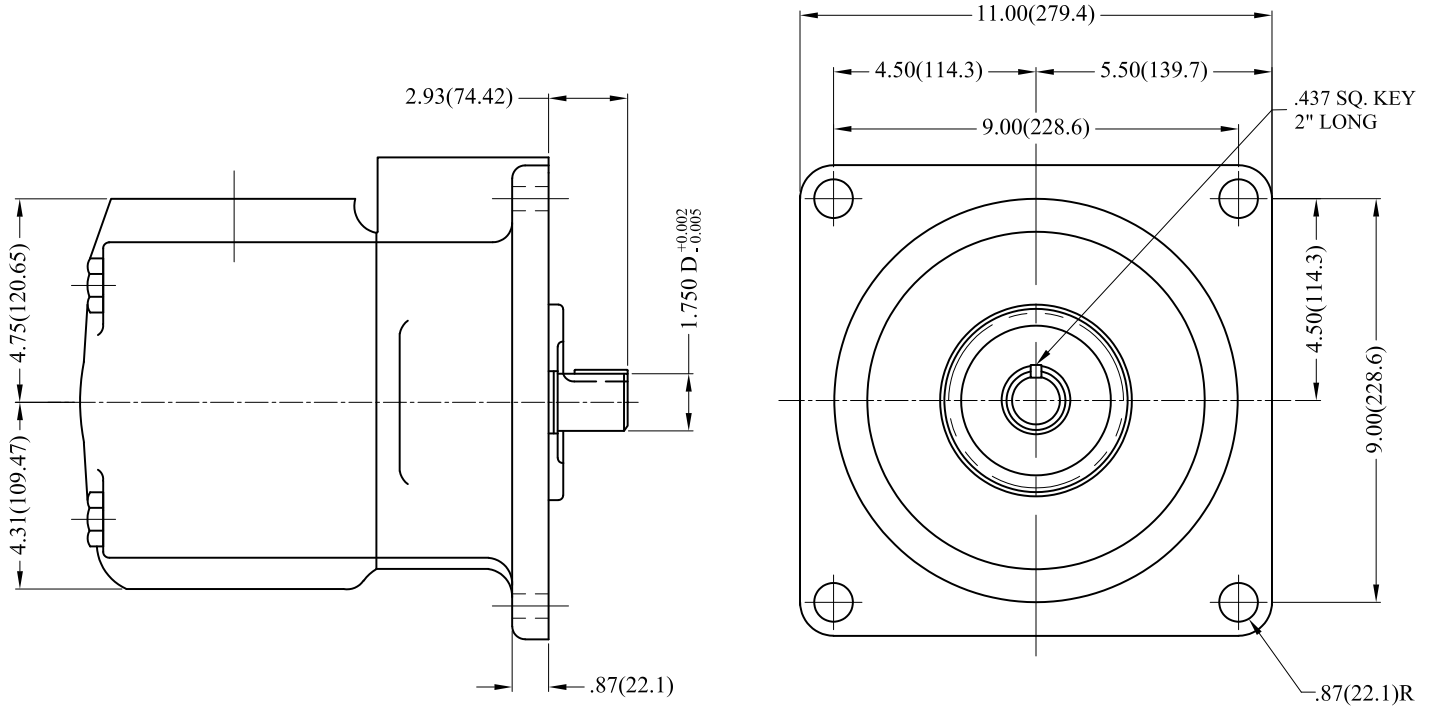
	20 SERIES	25SERIES	30 SERIES	35 SERIES	45 SERIES
A	6.12	6.38	6.96	7.28	8.5
B	5.22	4.75	4.85	4.94	6.02
C	2.5	1.5	1.5	1.5	1.69
D	4"Ø SAE 'B'	4"Ø SAE 'B'	4"Ø SAE 'B'	5"Ø SAE 'C'	5"Ø SAE 'C'
E	4"	4.62	4.62	5.51	6.36
F	3	3	3	3.25	3.69
G	.375	.375	.375	.375	.500
H	.56	.56	.56	.688	.688
I	5.75	5.75	5.75	7.125	7.125
J	.875Ø 13 TH. 1.75 EXT.	.875Ø 13 TH. 1.75 EXT.	.875Ø 13 TH. 1.75 EXT	1.25Ø 14 TH. 2.31 EXT.	1.25Ø 14 TH. 2.44 EXT.
K	.875Ø EXT. 2.13	.875Ø EXT. 2.31	.875Ø EXT. 2.31	1.25Ø EXT. 2.88	1.25Ø EXT. 2.44
L	KEY .187	KEY .187	KEY .187	KEY .3125	KEY .3125
Inlet	1-1/2" FL.	1-1/2" FL.	1-1/2" FL.	2" FL.	3" FL.
Outlet	3/4" FL.	1" FL.	1-1/4" FL.	1-1/4" FL.	1-1/2" FL.
Foot Bracket	IFB - B	IFB - B	IFB - B	IFB - C	IFB - C
Weight	32 lbs.	32 lbs.	36 lbs.	50 lbs.	75 lbs.

SHAFTS DESCRIPTIONS & CODES

Pump Style	Code	Description	Major Dia.	Ext.
20V/VQ	1	3/16 Square Keyed	0.875	2.310
	151	13T 16/32 Splined	0.875	1.620
25V/VQ	1	13/16 Square Keyed	0.875	2.312
30V/VQ	3	#15 Woodruff Key	0.875	2.440
	11	13T 16/32 Splined	0.875	1.750
	25	14T 12/24 Splined	1.250	1.750
	127	14T 12/24 Splined	1.250	2.310
35V/VQ	1	5/16 Square Keyed	1.250	2.880
	11	14T 12/24 Splined	1.250	2.310
	19	14T 12/24 X-Long Splined	1.250	3.050
	86	5/16 Heavy-Duty Square Keyed	1.375	3.380
45V/VQ	1	15/16 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 Square Keyed	1.500	3.440

- Other shafts available on request -

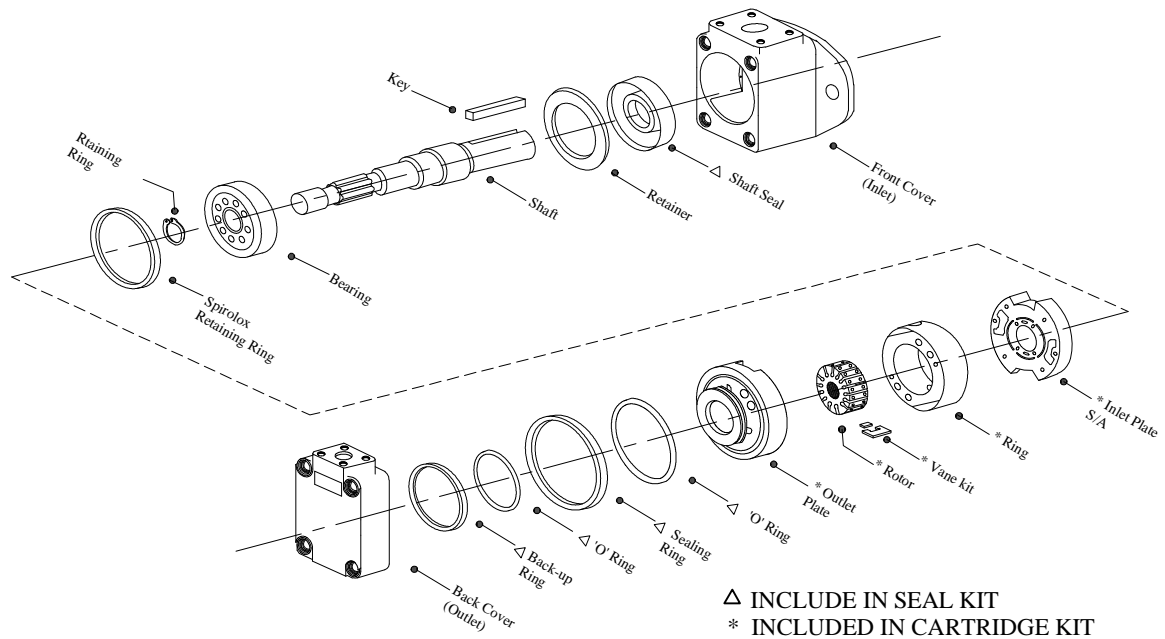
50 V INDUSTRIAL SINGLE PUMP INSTALLATION DIMENSIONS



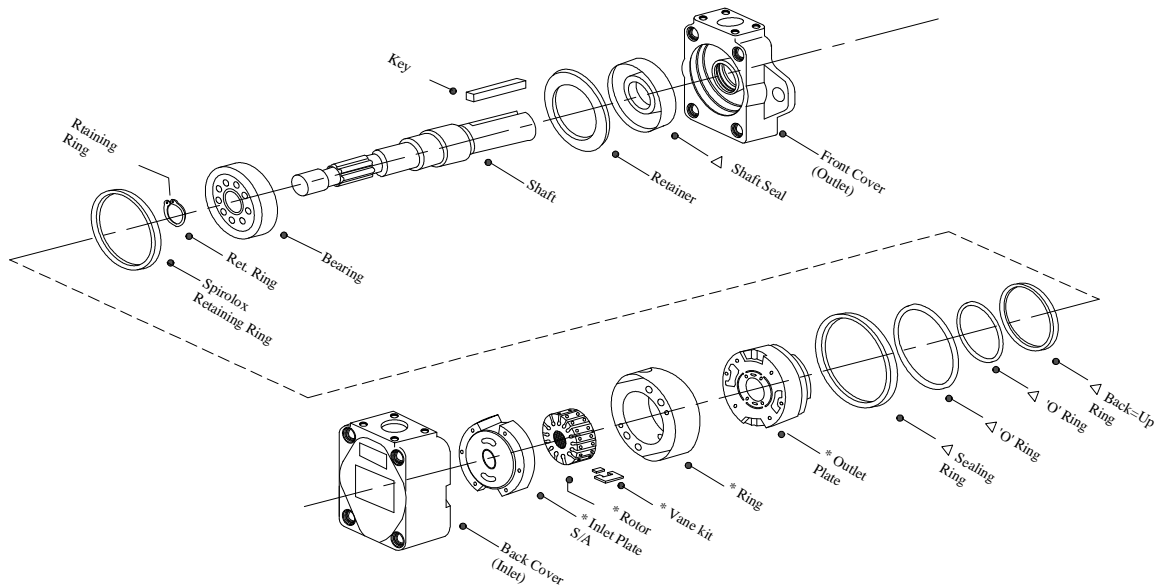
Weight - 138 lbs
 Inlet - 4" Flange Connection
 Outlet - 2" Flange Connection

Note: Pump inlet Pressure may not exceed 20 PSI

IFP INDUSTRIAL SINGLE VANE PUMP SERVICE PARTS INFORMATION



20V



25V/35V/45V

IFP INDUSTRIAL SINGLE VANE PUMP SERVICE PARTS INFORMATION



CARTRIDGE CHART

PUMP SE	CARTRIDGE KITS	ROTOR	VANE KIT	RING	INLET PLATE	OUTLET PLATE	SHAFTS	
20V	5 02-102518N	402690N	02-136720N	333624N	584383N	585382N	1 151	497109N 497113N
	8 02-102519N			333625N				
	11 02-102520N	403539N	02-136721N	333626N	584384N			
	12 02-102521N		353901N					
	14 02-102522N		353902N					
25V	12 02-102532N	584618N	941214N	326984N	591016N	588690N	1	238755N
	14 02-102533N			326985N			11	238929N
	17 02-102534N			326986N			86	419882N
	21 02-102535N			326988N				
35V	21 02-102551N	575478N	941019N	394961N	576265N	575479N	1	233624N
	25 02-102552N			319396N			11	242287N
	30 02-102553N			319397N			86	392669N
	35 02-102554N			319398N				
	28 02-102555N			319399N				
45V	42 02-102572N	578900N	941049N	297510N	578903N	580921N	1	233369N
	50 02-102574N			297502N			11	242885N
	60 02-102575N			297503N			86	361760N

- 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	BACK COVER
20V	497125N	981322N	394976N	429286N	429283N	1704N	02-102335N	250824N
25V	922850N	919656N	394976N	429286N	429283N	1705N	942353N	224309N
35V	922851N	919262N	394973N	429284N	429281N	38441N	942355N	234248N
45V	919850N	919632N	394974N	429285N	429282N	131812N	942356N	229633N

BOLT TORQUES

PUMP SE	COVER BOLT (FT. LB.)	CARTRIDGE KIT (IN. LB.)
20V	50	30
25V	50	40
35V	100	90
45V	100	100

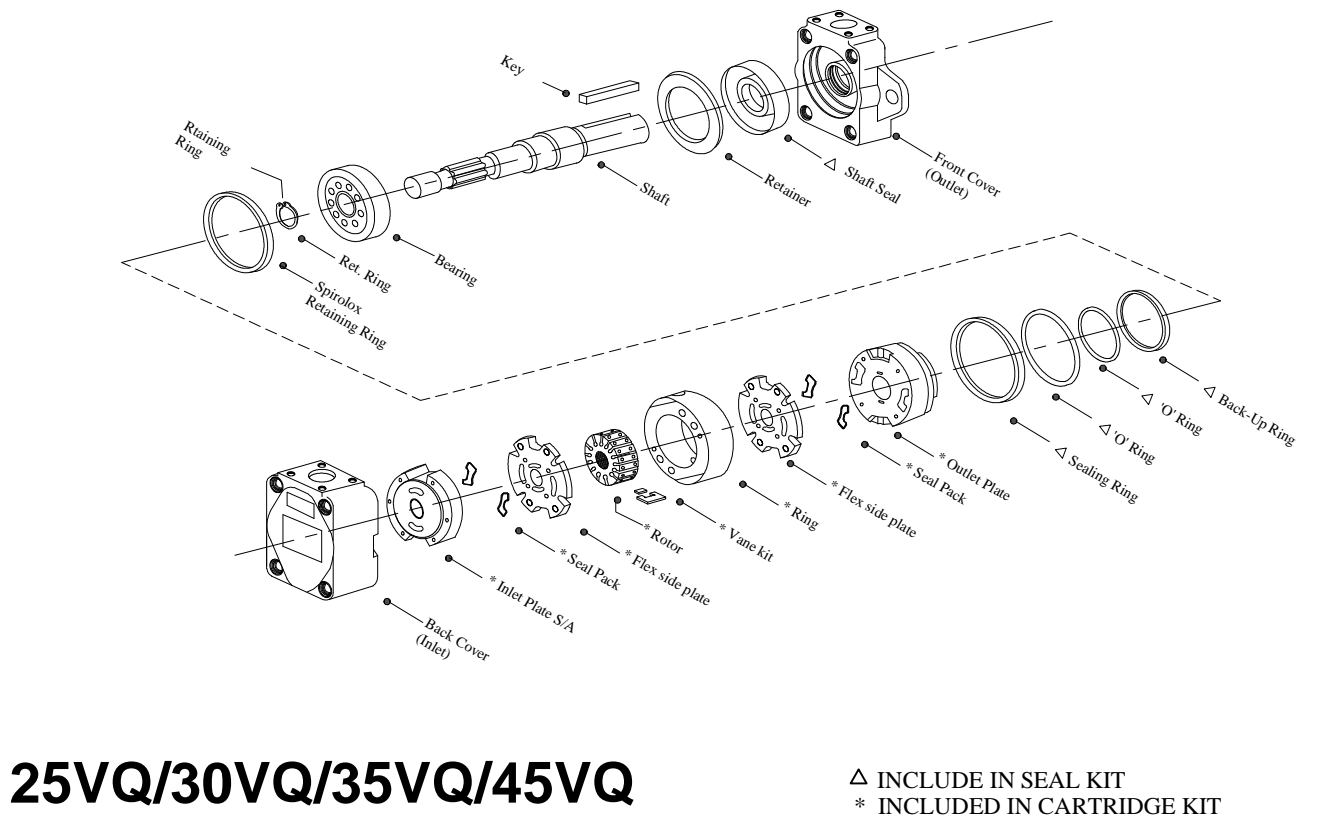
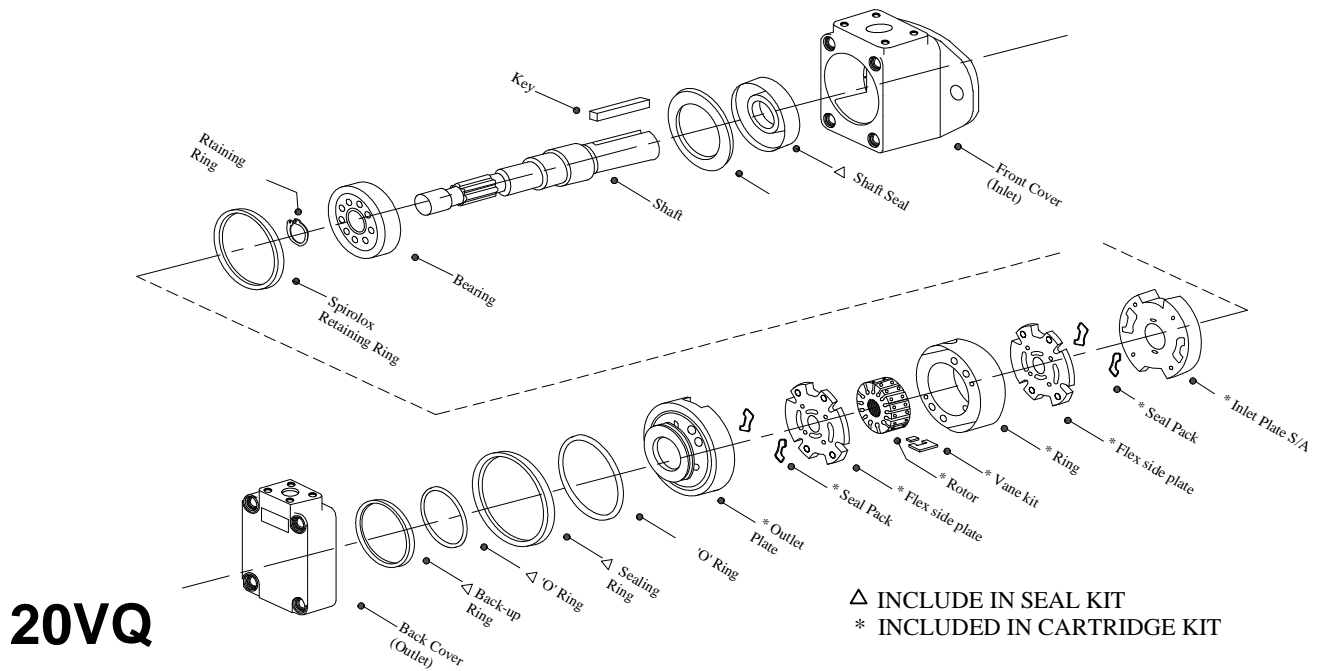
Cartridge Kit Rotation

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.

IFP MOBILE SINGLE VANE PUMP SERVICE PARTS INFORMATION



IFP MOBILE SINGLE VANE PUMP SERVICE PARTS INFORMATION



CARTRIDGE CHART

PUMP SE	CARTRIDGE KITS	ROTOR	VANE	RING	FLEX PLATE	INLET PLATE	OUTLET PLATE	SHAFTS	
20VQ	5 497115N	402690N	922741N	333624N	923955N	419502N	497134N	1	497109N
	8 497118N			333625N				151	497113N
	11 497120N	403539N	922743N	333626N		419501N			
	12 497121N			353901N					
	14 497122N			353902N					
25VQ	12 416439N	270597N	922710N	326984N	923956N	430805N	419079N	1	238755N
	14 416440N			326985N				3	242747N
	17 416441N			326986N				11	238929N
	19 421232N			326987N				25	270187N
	21 416442N			326988N				127	424457N
30VQ	24 417052N	262152N	922642N	234470N	923956N	430805N	419079N	SAME AS 25VQ	
	28 416452N			224525N					
35VQ	21 413420N	262154N	922700N	394961N	923953N	430806N	412003N	1	233624N
	25 413421N			319396N				11	242287N
	30 413422N			319397N				19	275270N
	35 413418N			319398N					
	38 413419N			319399N					
45VQ	42 416435N	283271N	922701N	297510N	923954N	430807N	415382N	1	233369N
	47 421234N			297718N					
	50 416436N			297502N				11	242885N
	57 421233N			306772N					
	60 416437N			297503N				19	265575N

- 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	BACK COVER
20VQ	497123N	451471N	394976N	429286N	429283N	001704N	02-102335N	250824N
25VQ	920021N	920023N	394976N	429286N	429283N	1705N	942353N	224309N
30VQ	920021N	920023N	394976N	429286N	429283N	1705N	942354N	224526N
35VQ	920015N	920029N	394973N	429284N	429281N	38441N	942355N	234248N
45VQ	920025N	920027N	394974N	429282N	429285N	131812N	942356N	229633N

BOLT TORQUES

PUMP SE	COVER BOLT (FT. LB.)	CARTRIDGE KIT (IN. LB.)
20VQ	50	30
25VQ	50	45
30VQ	50	45
35VQ	100	100
45VQ	100	105

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.