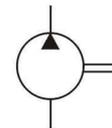
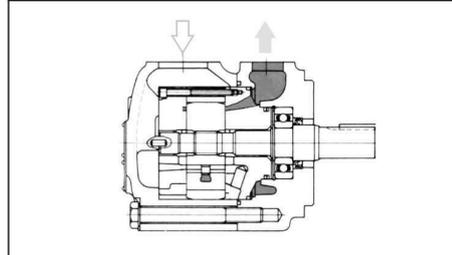




V Series Low Noise Vane Pumps

—High Performance Intravane Pumps For Industrial Applications

V Series Single Pumps



Model Code

(F3-)	**V	**	A	(F)	-*	*	22	*
Prefix	Series	▲ Code	Port Connections	Mounting	Shafts	Outlet Positions	Design	Rotation
Omit-Using antiwear oil water glycol fluid	20V	2,3,4,5,6,7,8, 9,10,11,12,14	A-SAE 4-bolt flange	Omit-Flange mounting F-Foot mounting	1-Str.Key 151-Spline	(Viewed from cover end of pump) A-Opposite inlet port B-90° CCW from inlet C-In line with inlet D-90° CW from inlet	22	(Viewed from shaft end of pump) L-Left hand for counter clockwise R-Right hand for clockwise
	25V	10,12,14,15, 17,19,21			1-Str.Key			
F3-phosphate ester fluid	35V	21,25,30,32, 35,38,45			86-HD Str. Key			
	45V	42,45,50,57, 60,66,75			11-Spline			

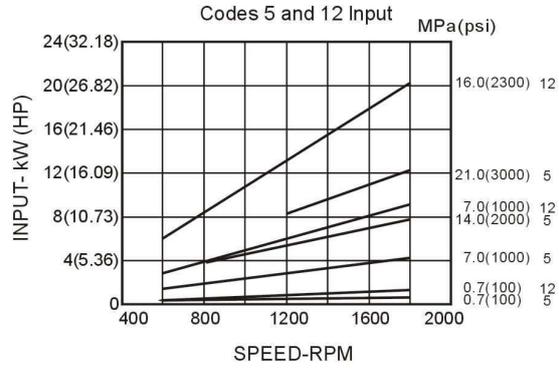
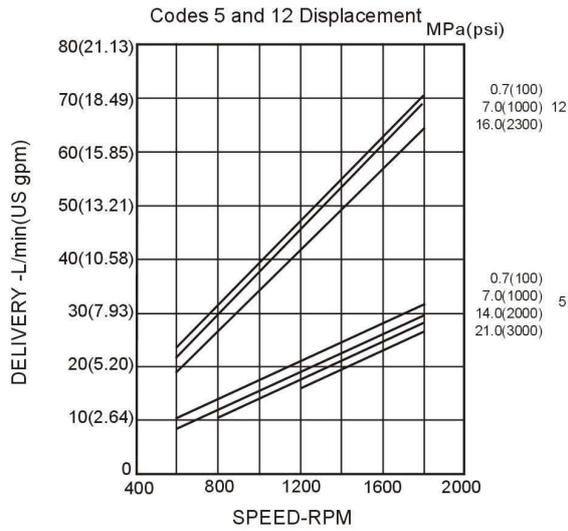
▲ Rated capacity (USgpm) at 1200 rpm, 0.69MPa (100 psi)

Specification

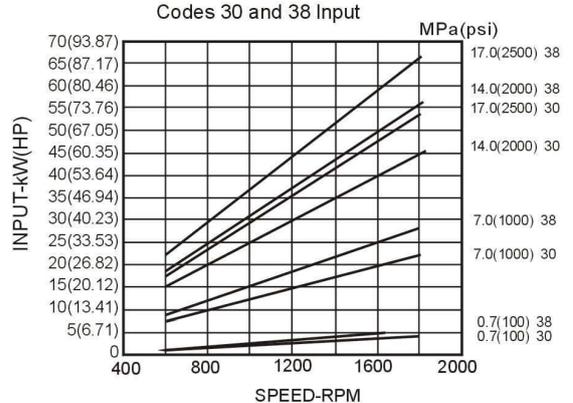
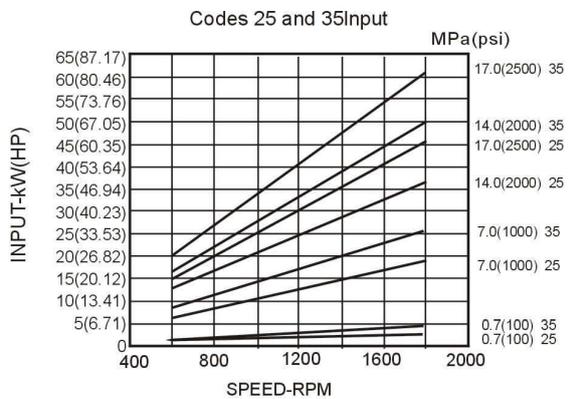
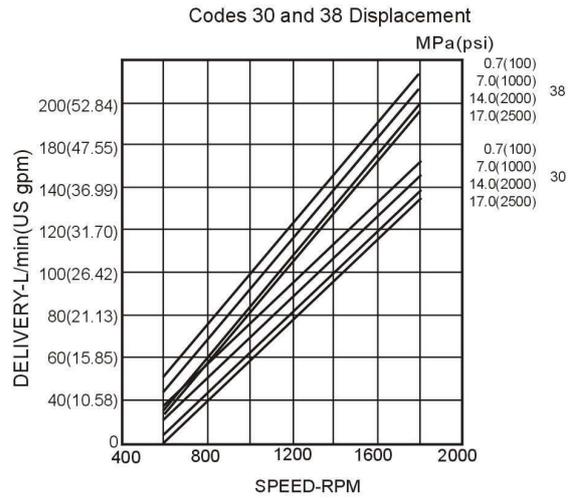
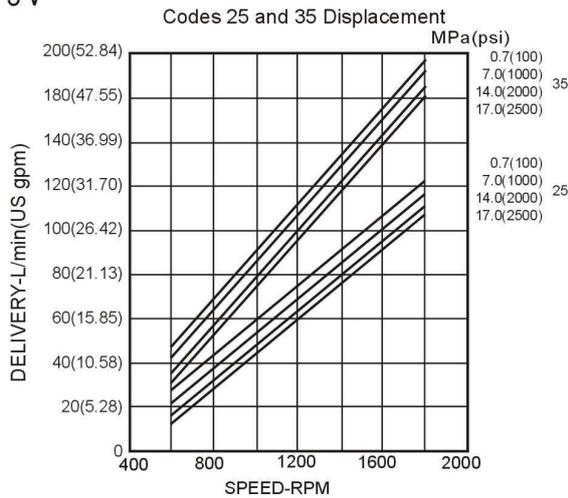
Model	Code	Geometric Displacement mL/r	Using anti-wear oil or phosphate ester fluid		Using water glycol fluid		Using water-in-oil emulsion		Min. Speed r/min
			Max. pressure MPa	Max. Speed r/min	Max. pressure MPa	Max. Speed r/min	Max. pressure MPa	Max. Speed r/min	
20V	2	7.5	13.8	1800	13.8	1500	6.9	1200	600
	3	10							
	4	13							
	5	17							
	6	19							
	7	23							
	8	27							
	9	30							
	10	32.5							
	11	36							
	12	40							
	14	45							
	15.9								
	13.8								
25V	10	32.5	17.2	1800	15.9	1500	6.9	1200	600
	12	40							
	14	43							
	15	45							
	17	55							
	19	59							
	21	67							
35V	21	67	17.2	1800	15.9	1500	6.9	1200	600
	25	81							
	30	97							
	32	100							
	35	112							
	38	121							
45V	45	140	17.2	1800	15.9	1500	6.9	1200	600
	42	138							
	45	142							
	50	162							
	57	183							
	60	193							
	66	212							
75	237								
13.8									
13.8									

V...

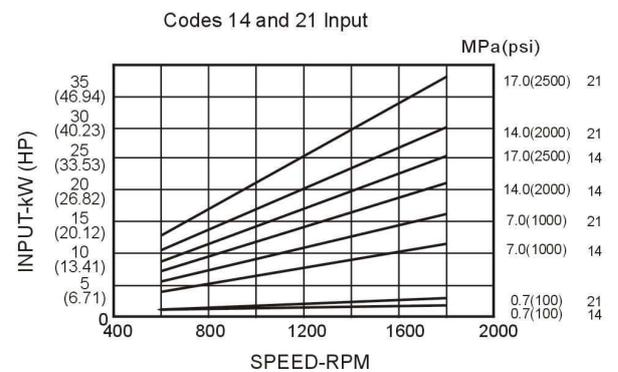
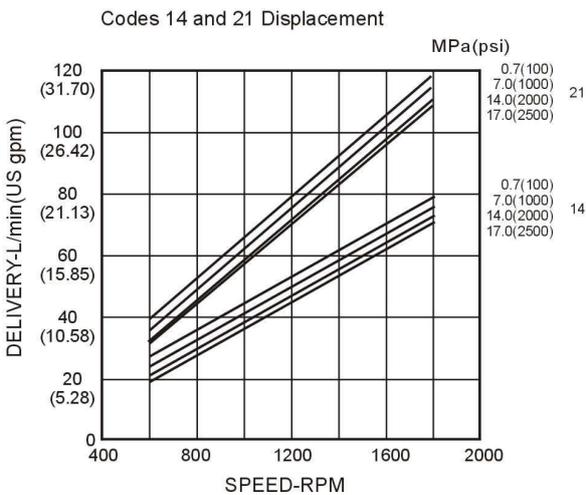
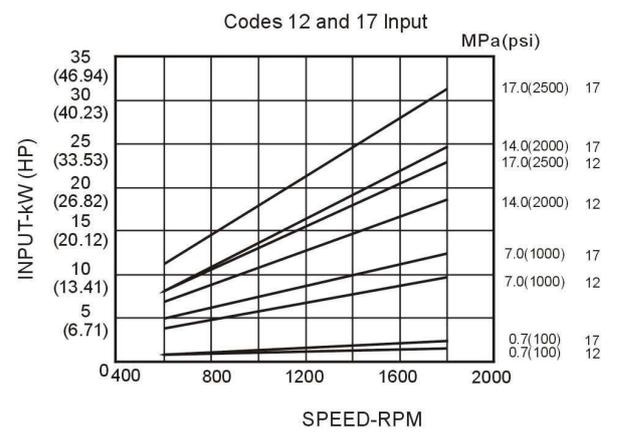
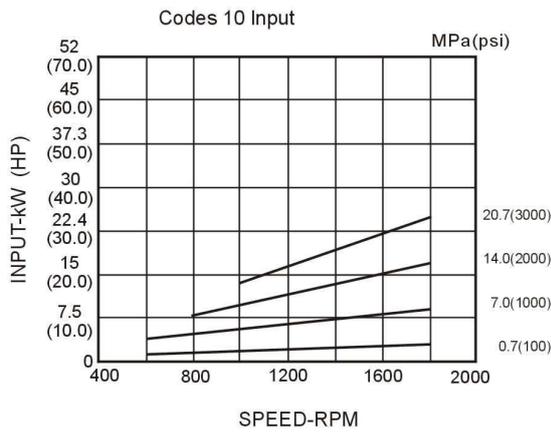
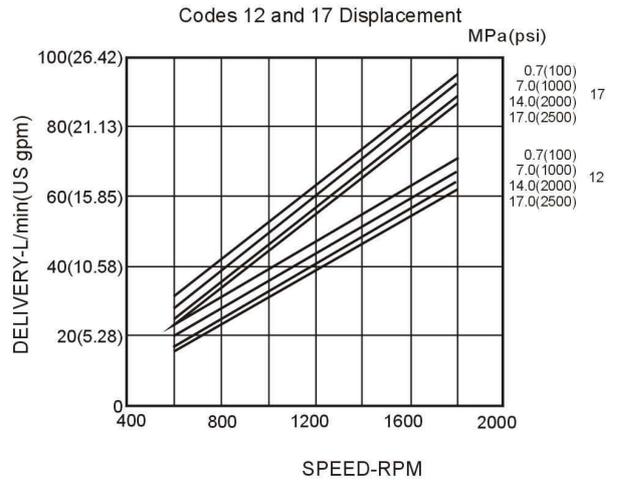
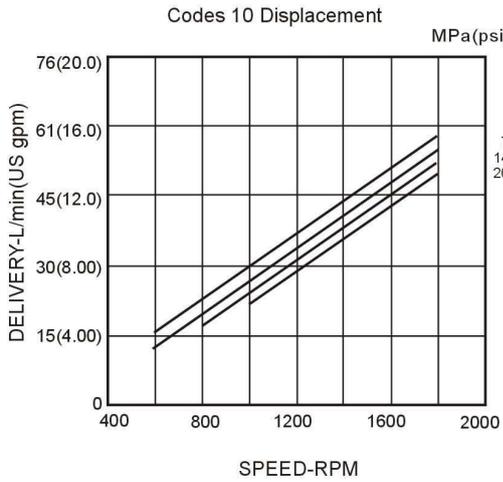
20V



35V

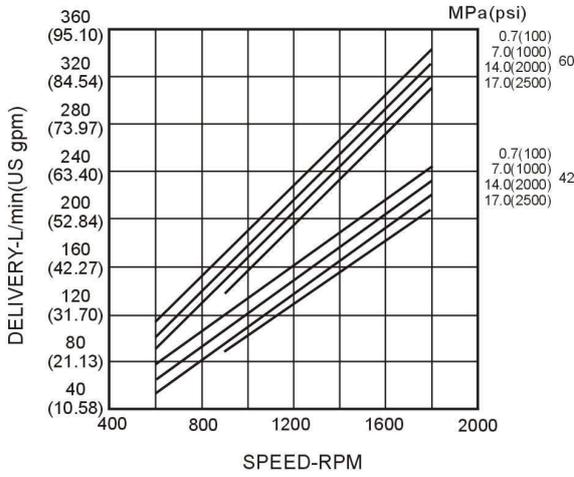


25V

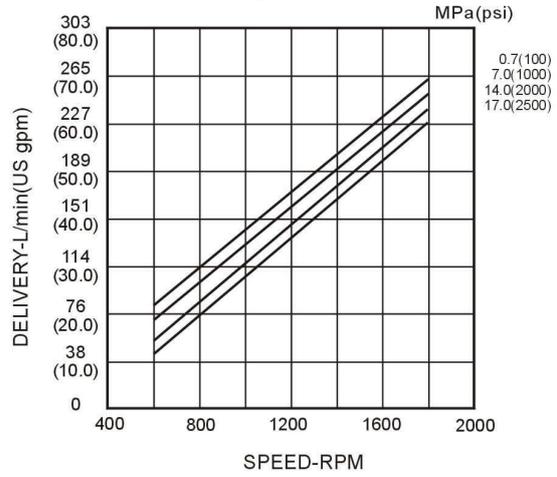


45V

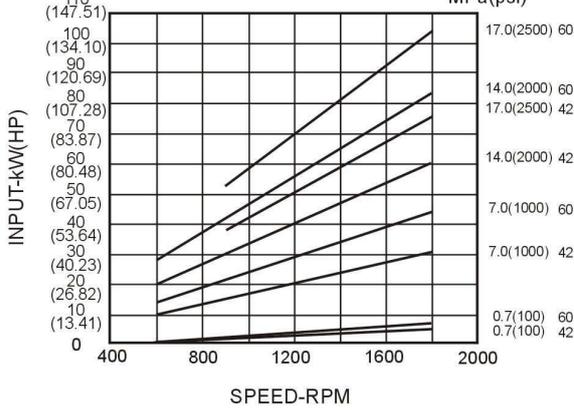
Codes 42 and 60 Displacement



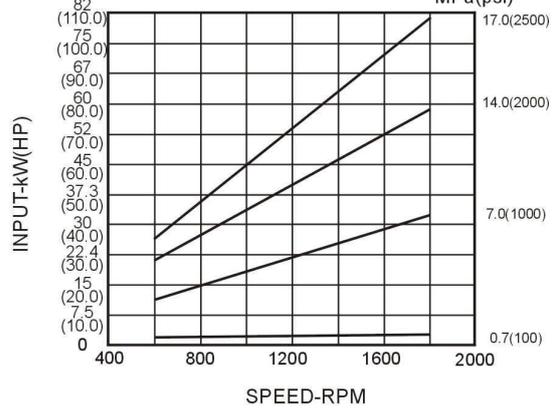
Codes 45 Displacement



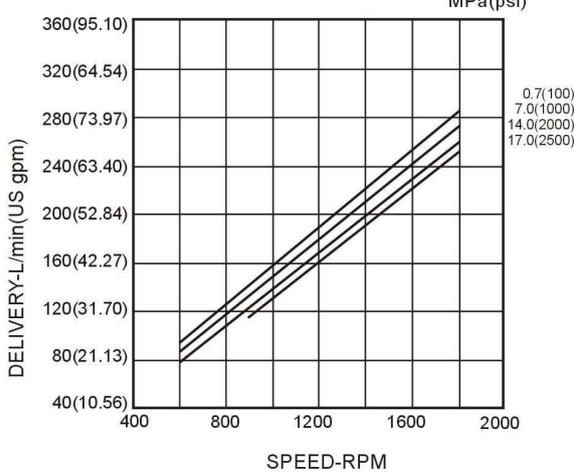
Codes 42 and 60 Input



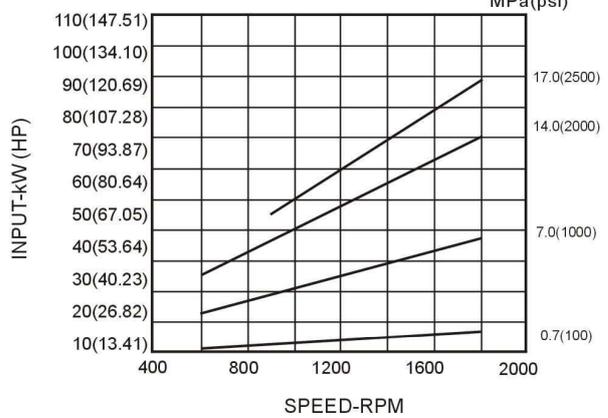
Codes 45 Input



Codes 50 Displacement

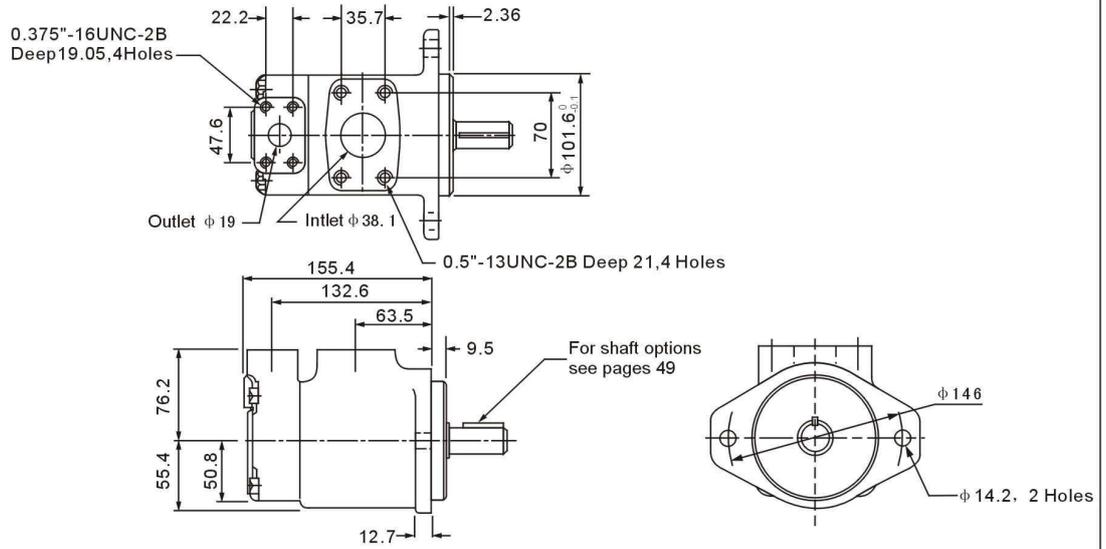


Codes 50 Input

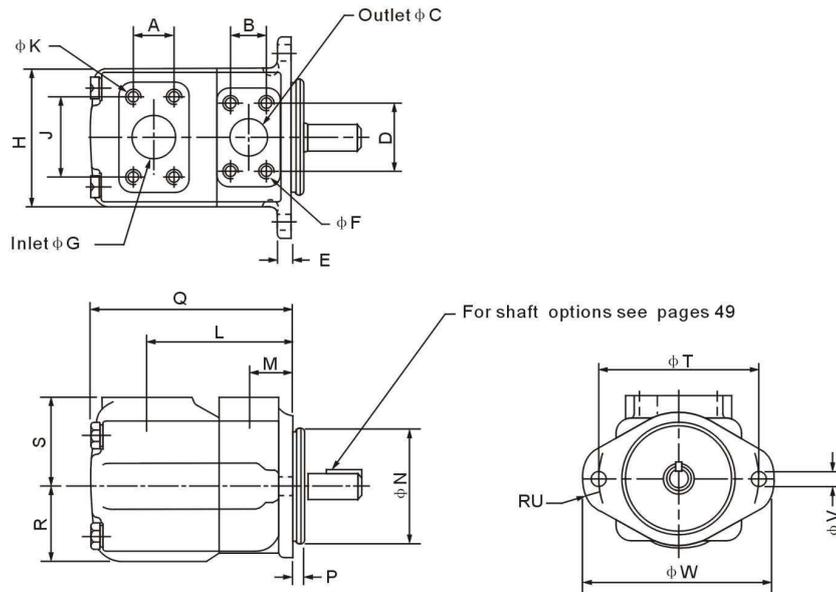


Installation dimensions

20V

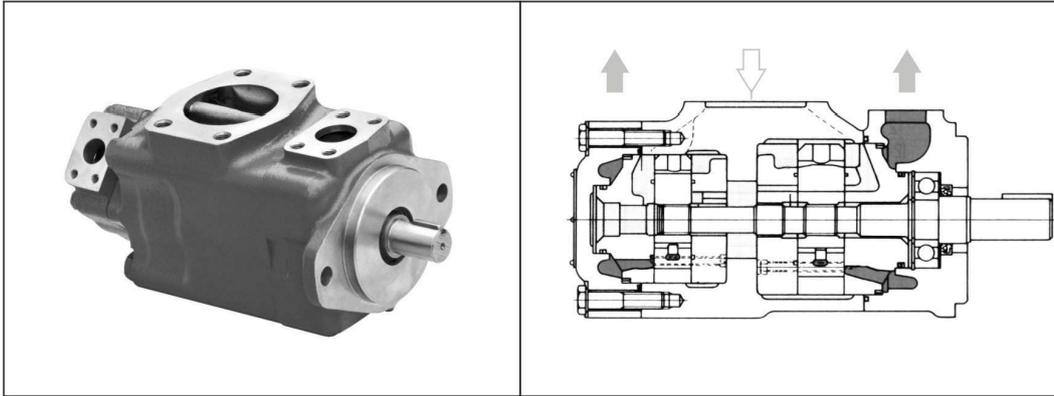


25V, 35V, 45V



Model	A	B	C	D	E	G	H	J	L	M	N	P	Q	R
25V	35.7	26.2	25.4	52.4	12.7	38.1	118	69.9	121	38.1	101.6/101.5	9.53	162.1	63.5
35V	42.9	30.2	31.8	58.7	16	50.8	140	77.8	125.5	38.1	127.0/126.9	9.53	185	69.9
45V	61.9	35.7	38.1	69.9	16	76.2	159	106.4	153	43	127.0/126.9	12.7	216	82.6
Model	S	T	U	V	W	$\phi F \times$ full thread depth, 4holes			$\phi K \times$ full thread depth, 4holes					
25V	76.2	146	14	14.2	175	3/8-16UNC-2B \times 19.1deep			1/2-13UNC-2B \times 23.8deep					
35V	82.6	181	16	17.5	213	7/16-14UNC-2B \times 22.3deep			1/2-13UNC-2B \times 22.3deep					
45V	93.7	181	16	17.5	213	1/2-13UNC-2B \times 23.8deep			5/8-11UNC-2B \times 30deep					

V Series Double Pumps



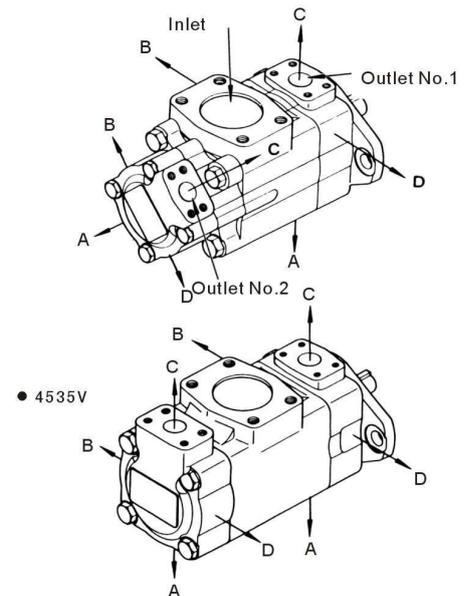
Model Code

(F3-)	****V	**	A	**	(F)	-**	*	22	*
Prefix	Series	▲ Code Shaft End Pump	Port Connections	▲ Code Cover End Pump	Mounting	Shafts	Port Orientation	Design	Rotation
Omit-Using antiwear oil water glycol fluid	2520V	10,12,14,15,17, 19,21	A-SAE 4-bolt flange	2,3,4,5,6,7,8,9, 10,11,12,14	Omit- Flange mounting	1:str.Key 86:HD Str.Key	See below	22	(Viewed from shaft end of pump) L-Left hand for counter clockwise R-Right hand for clockwise
	3520V	21,25,30,32, 35,38,45		2,3,4,5,6,7,8,9, 10,11,12,14					
3525V	21,25,30,32, 35,38,45	10,12,14,15,17, 19,21		F- Foot mounting	11:spline				
4520V	42,45,50,57, 60,66,75	2,3,4,5,6,7,8,9, 10,11,12,14							
F3-Phosphate ester fluid	4525V	42,45,50,57, 60,66,75		10,12,14,15,17, 19,21					
	4535V	42,45,50,57, 60,66,75		21,25,30,32,35, 38,45					

▲Rated capacity(USgpm) at 1200 rpm,0.69 MPa (100psi).

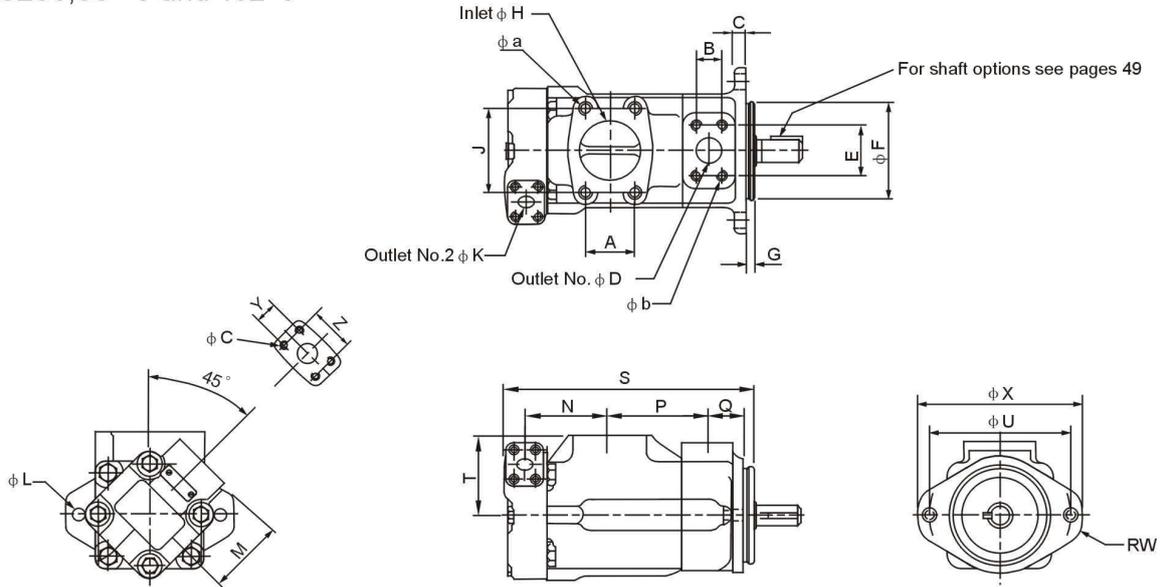
Port Orientation Table (Viewed from cover end of pump)

Port Orientation	All series (except 4535V)	Series 4535V
With No.1 outlet Opposite inlet:	AA No,2 outlet 135° CCW from inlet	No.2 outlet opposite inlet
	AB No,2 outlet 45° CCW from inlet	No.2 outlet 90° CCW from inlet
	AC No,2 outlet 45° CW from inlet	No.2 outlet in line with inlet
	AD No,2 outlet 135° CW from inlet	No.2 outlet 90° CW from inlet
With No.1 outlet 90° CCW from inlet:	BA No,2 outlet 135° CCW from inlet	No.2 outlet opposite inlet
	BB No,2 outlet 45° CCW from inlet	No.2 outlet 90° CCW from inlet
	BC No,2 outlet 45° CW from inlet	No.2 outlet in line with inlet
	BD No,2 outlet 135° CW from inlet	No.2 outlet 90° CW from inlet
With No.1 outlet inline with inlet:	CA No,2 outlet 135° CCW from inlet	No.2 outlet opposite inlet
	CB No,2 outlet 45° CCW from inlet	No.2 outlet 90° CCW from inlet
	CC No,2 outlet 45° CW from inlet	No.2 outlet in line with inlet
	CD No,2 outlet 135° CW from inlet	No.2 outlet 90° CW from inlet
With No.1 outlet 90° CW inlet	DA No,2 outlet 135° CCW from inlet	No.2 outlet opposite inlet
	DB No,2 outlet 45° CCW from inlet	No.2 outlet 90° CCW from inlet
	DC No,2 outlet 45° CW from inlet	No.2 outlet in line with inlet
	DD No,2 outlet 135° CW from inlet	No.2 outlet 90° CW from inlet



Installation dimensions

2520V, 35**V and 452*V



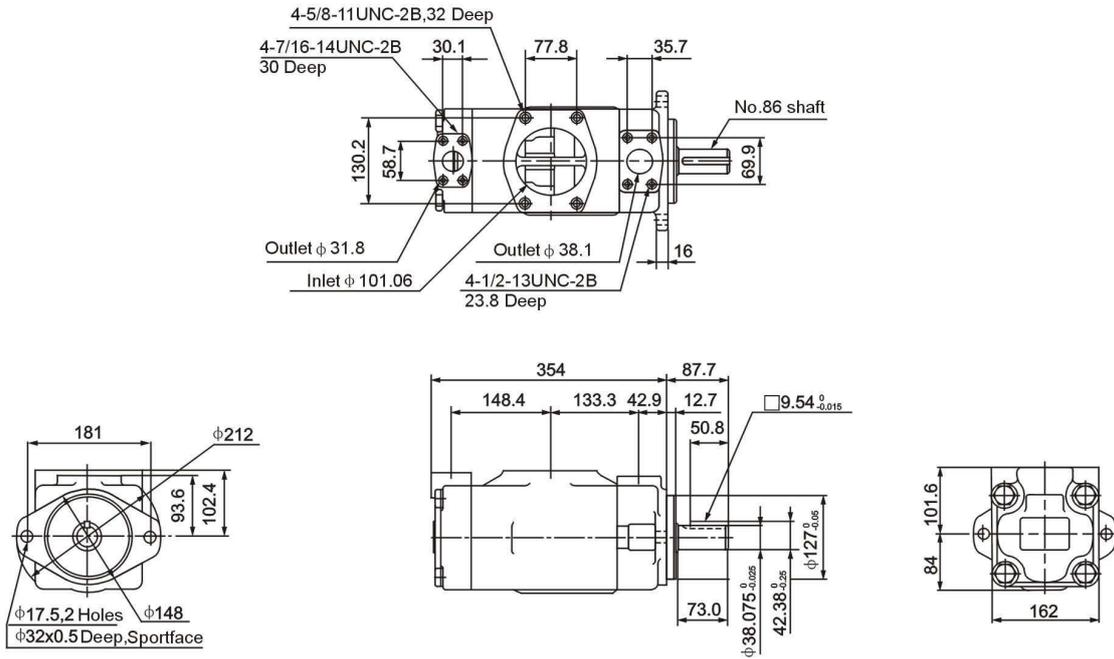
Model	φ a × full thread depth, 4 holes	φ b × full thread depth, 4 holes	φ c × full thread depth, 4 holes
2520V	1/2" -13UNC-2B × 23.8Deep	3/8-16UNC-2B × 20.1Deep	3/8-16UNC-2B × 20.1Deep
3520V	5/8" -11UNC-2B × 25.4Deep	7/16-14UNC-2B × 21.0Deep	3/8-16UNC-2B × 20.1Deep
3525V	5/8" -11UNC-2B × 25.4Deep	7/16-14UNC-2B × 21.0Deep	3/8-16UNC-2B × 20.1Deep
4520V	5/8" -11UNC-2B × 25.4Deep	1/2-13UNC-2B × 23.8Deep	3/8-16UNC-2B × 20.1Deep
4525V	5/8" -11UNC-2B × 25.4Deep	1/2-13UNC-2B × 23.8Deep	3/8-16UNC-2B × 20.1Deep

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
2520V	50.8	26.2	12.7	25.4	52.4	101.6/101.5	9.53	63.5	88.9	19.1	14.2	76.2	88.1	101.6	38.1
3520V	62	30.1	15.9	31.7	58.7	127/126.9	9.53	76.2	106.3	19.1	17.5	76.2	99.6	114.3	38.1
3525V	62	30.1	15.9	31.7	58.7	127/126.9	9.53	76.2	106.3	25.4	17.5	74.7	109.5	114.3	38.1
4520V	69.9	35.7	15.9	38.1	69.9	127/126.9	12.7	88.9	120.6	19.1	17.5	76.2	120	119.4	42.9
4525V	69.9	35.7	15.9	38.1	69.9	127/126.9	12.7	88.9	120.6	25.4	17.5	74.7	136	119.4	42.9

Model	R	S	T	U	W	X	Y	Z
2520V	76.2	250	85.3	146.1	14	174.7	22.2	47.6
3520V	82.6	273.3	88.9	181	16	213	22.2	47.6
3525V	82.6	287.3	88.9	181	16	213	26.2	52.4
4520V	93.7	303.5	102.4	181	16	213	22.2	47.6
4525V	93.7	325	102.4	181	16	213	26.2	52.4

Installation dimensions

4535V



For other shaft dimensions, refer to pages 49

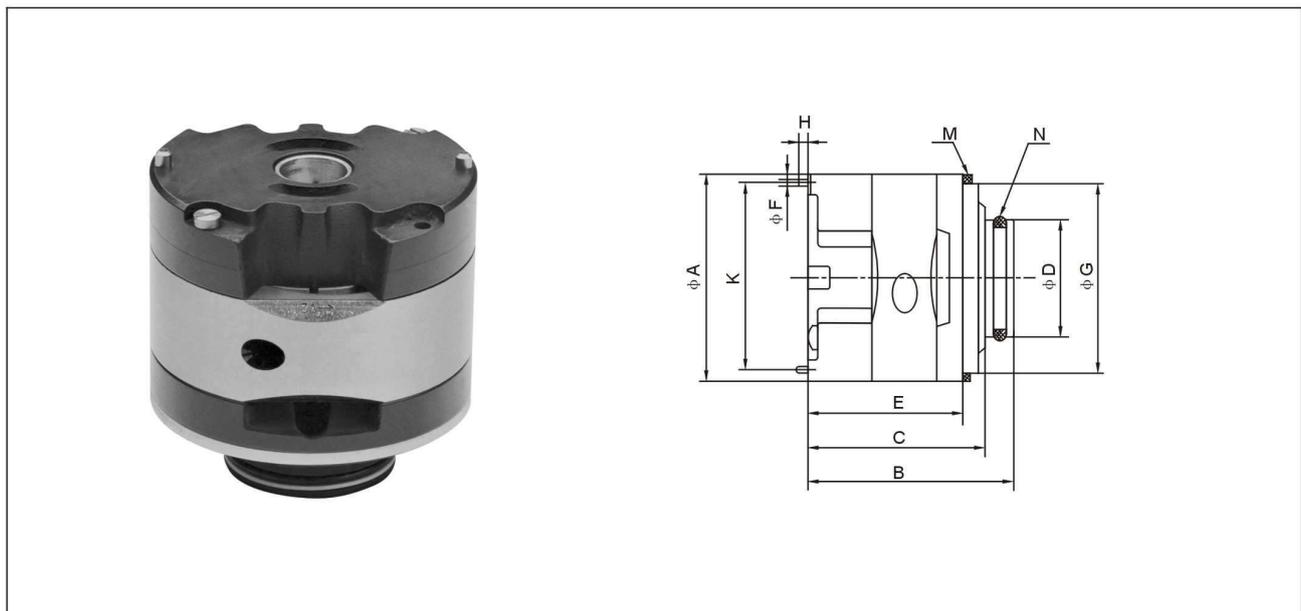
V Series Cartridge Kits

Model Code

(F3-)	PC-	20V	-5	-R	-10
Prefix	Cartridge kits mark	Series	▲ Code	Rotation	Design
Omit-Using antiwear oil water glycol fluid F3-Phosphate ester fluid	PC-Single pump cartridge kits Double pump shaft end pump cartridge kits	20V	2,3,4,5,6,7,8,9,10, 11,12,14	(Viewed from shaft end of pump) R-Right hand for clockwise L-Left hand for counter clockwise	10
		25V	10,12,14,15,17,19,21		
	35V	21,25,30,32,35,38,45			
	45V	42,45,50,57,60,66,75			

▲ Rated capacity(USgpm) at 1200 rpm,0.69 MPa(100 psi).

Installation dimensions



Series	A	B	C	D	E	F	G	H	K	M(Gasket)	N(O-Ring)
20V	82.5	81.5	70.1	47	61.5	4.8	76.2	6	73.6	82.76×76.26×3.5	40×3.5
25V	96.8	98.8	87	52.2	71.2	4.8	90.5	5	88.19	97×91×3.5	44×3.53
35V	114.3	117.7	105	72.2	90.3	6.4	108	6	103.94	114.5×108.5×3.5	63.09×3.53
45V	133.35	141.1	129.6	80.2	105.5	6.4	127	10	133.35	133.6×127.6×3.5	71×3.55

Series	Inner spline dentiform parameter of rotor				
	Pitch	Number of teech	Pressure angle	Major diameter	Minor diameter
20V	48/96	30	45°	16.617	15.56
25V	48/96	40	45°	21.9	20.86
35V	40/80	37	45°	24.38	23.1
45V	12/24	14	30°	32.59	27.60