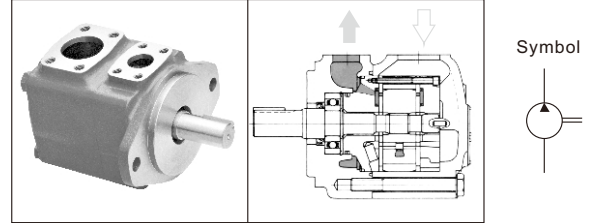


VQ Series Single Pump

Product show and brief introduction

This series of high pressure and high performance mother-vane pumps are specially developed for construction machinery, suitable for construction machinery, especially for the occasion of walking machinery. main features:

1. Hydraulic balanced vane structure design, higher pressure, up to 21MPa;
2. Using floating side plate structure, can automatically compensate the gap, to achieve pressure balance, to achieve high speed and high pressure superior performance;
3. The side plate adopts bimetal flexible material, which greatly improves the anti-bite performance and makes the pump more effective and longer life.



Model Code

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

▲ Rated capacity (US gpm) at 1200 r/min and 0.7 MPa (100psi).

Specification

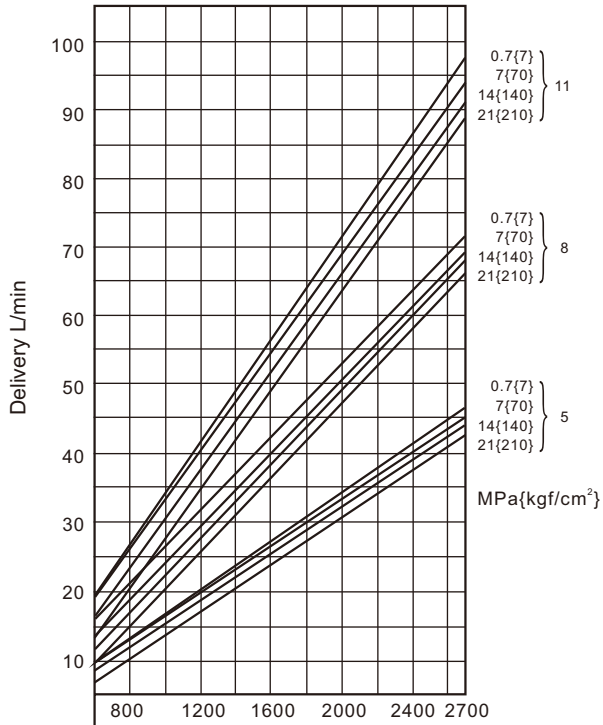
Model	Code	Displ mL/r	Max.Speed r/min	Max. Pressure MPa	Typical del. L/min ▲ max.speed & pressure	Typical input kW ▲ max.speed & pressure	Weight kg
20VQ	2	7	2700	21	16.4	7.2	11.8
	3	11.7	2700	21	24.4	10.8	
	4	15	2700	21	32.7	14.4	
	5	18	2700	21	42.3	17.9	
	6	19	2700	21	50.6	21.5	
	7	22	2700	21	58.8	23.7	
	8	27	2700	21	56.4	25.1	
	9	30	2700	21	73.4	26.0	
	10	31.5	2700	21	81.7	26.8	
	11	36	2700	21	88.5	27.7	
	12	40	2700	16	96.5	28.4	
	14	45	2700	14	115.4	29.1	
25VQ	10	32.5	2700	21	81.4	35.2	14.5
	12	38.3	2700	21	88.5	41.0	
	14	43.3	2700	21	103.8	46.6	
	15	47.3	2500	21	109.4	48.1	
	17	52.5	2500	21	119.2	51.8	
	19	60	2500	21	133.5	55.2	
35VQ	21	65.0	2500	21	146.2	61.9	22.7
	21	64.0	2500	21	145.5	63.7	
	25	79.2	2500	21	173.1	75.3	
	30	95.0	2500	21	211.5	87.7	
	32	101	2500	21	220.2	92.2	
	35	109	2400	21	230.8	98.5	
	38	118	2400	21	250	104.4	
45VQ	45	140	2400	21	271.2	99.8	34.1
	42	134	2400	17.5	255.8	91.4	
	45	147	2200	17.5	271.2	99.8	
	50	156	2200	17.5	303.8	105.2	
	57	180	2200	17.5	343.7	120.2	
	60	189	2200	17.5	369.2	126.8	
	66	208	2200	17.5	408.7	142.4	
75	237	2200	14	460	120.2		

Performance constants:SAE 10W fluid 82° (180°F),and pump inlet▲0 PSIG(14.7PSIA)
Note:Outlet pressure must always be higher than inlet pressure.

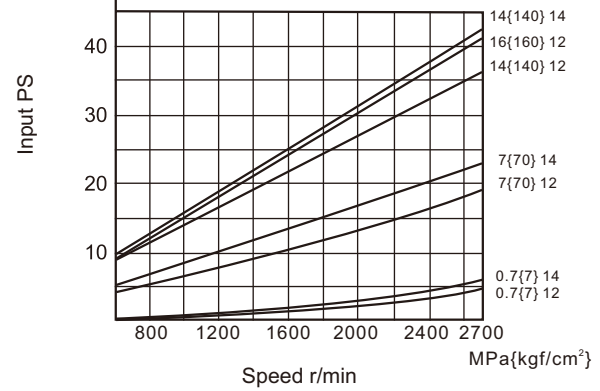
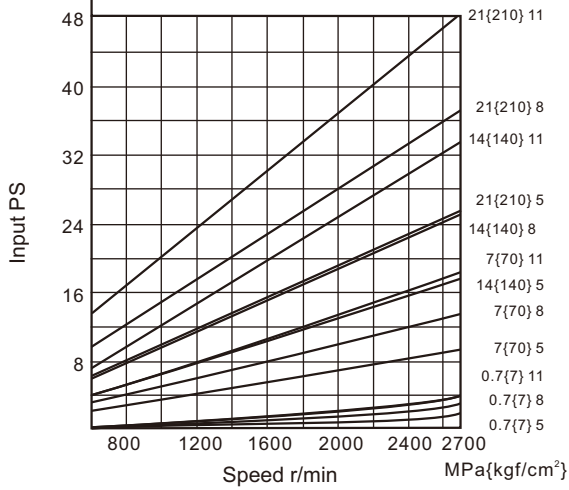
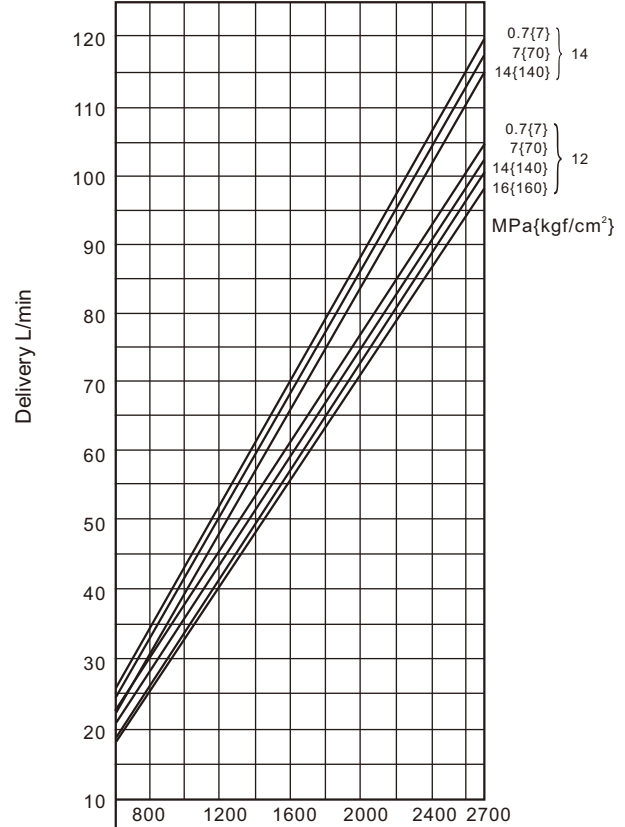
Performance Characteristics Typical flows at 50°C, 10w oil at 26cSt, 0MPa inlet at specified speeds.

20VQ Series flow, input power type

20VQ 5 20VQ 8
20VQ 11

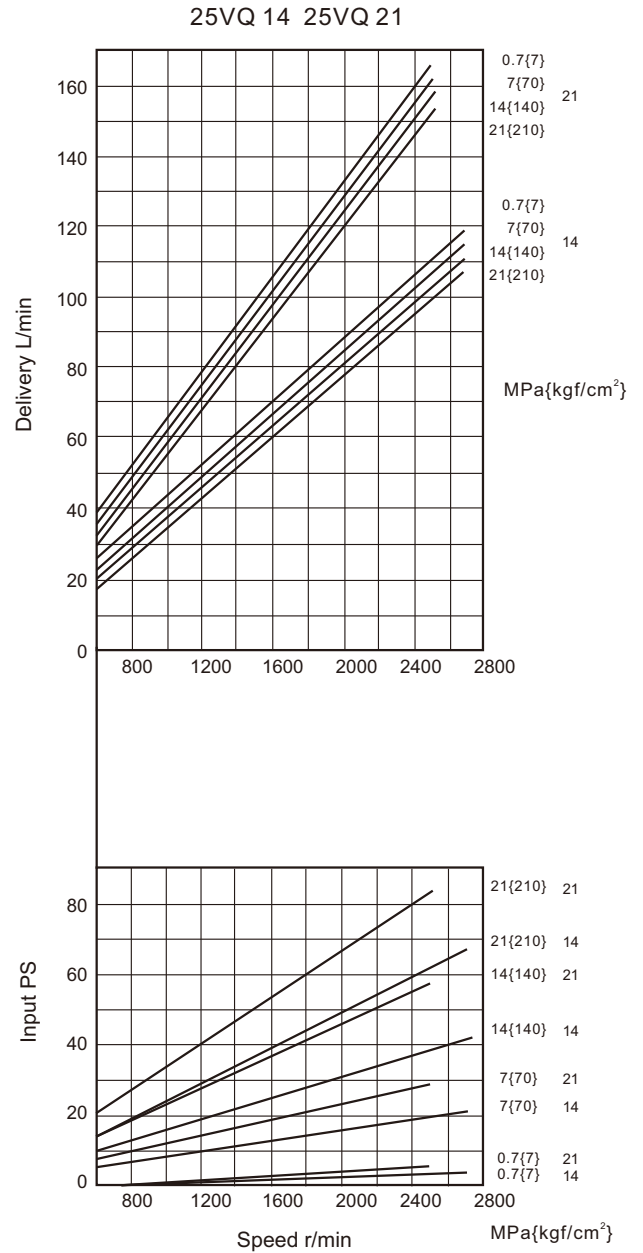
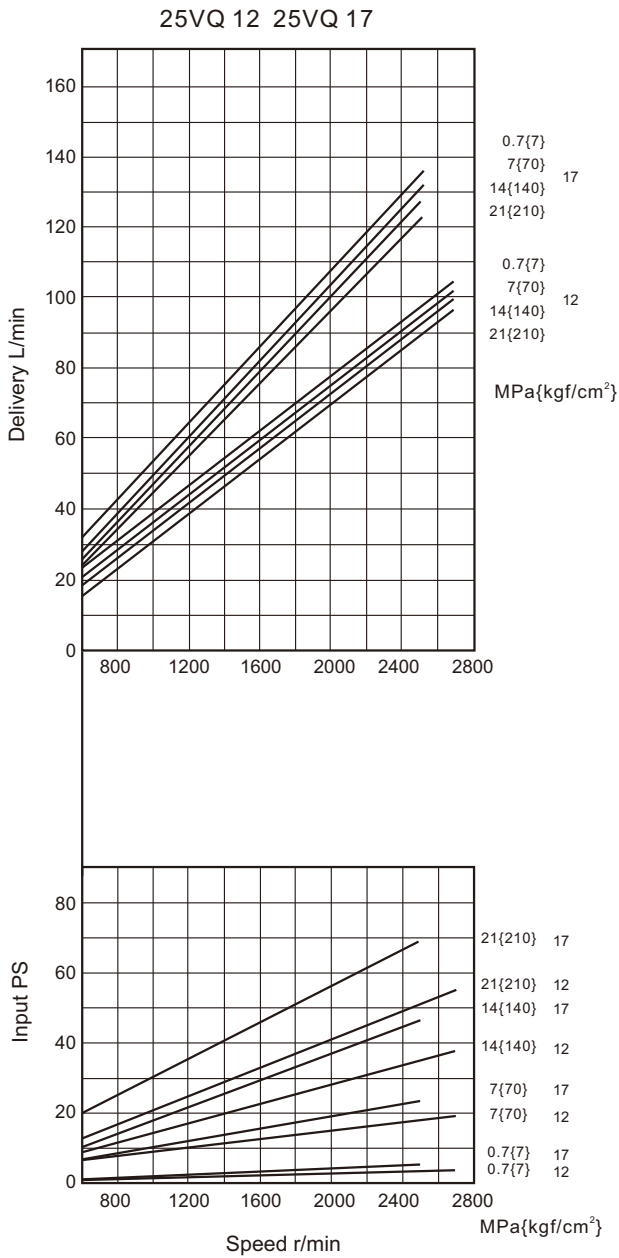


20VQ 12
20VQ 14



Performance Characteristics Typical flows at 50°C, 10w oil at 26cSt, 0MPa inlet at specified speeds.

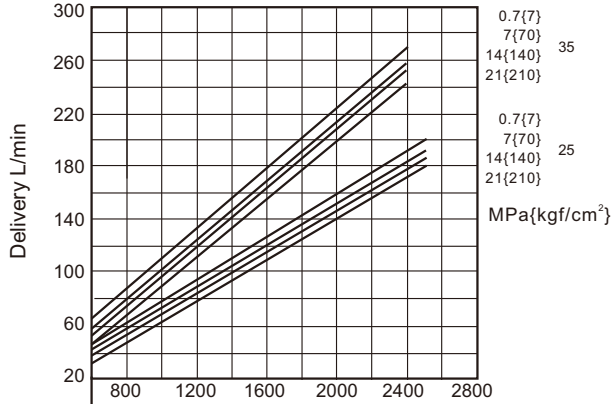
25VQ Series flow, input power type



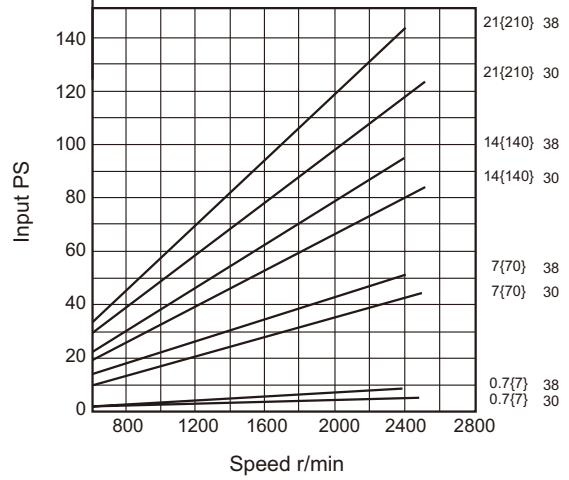
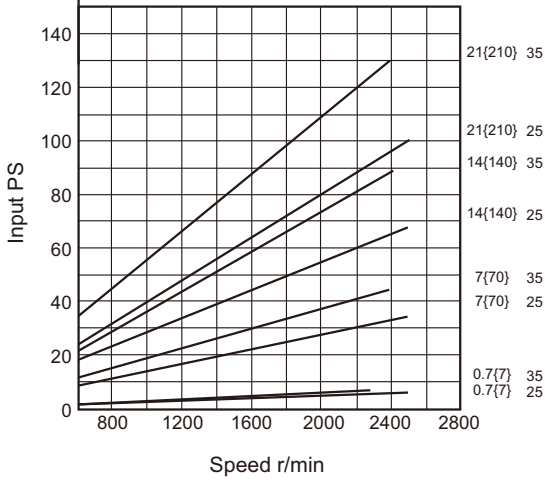
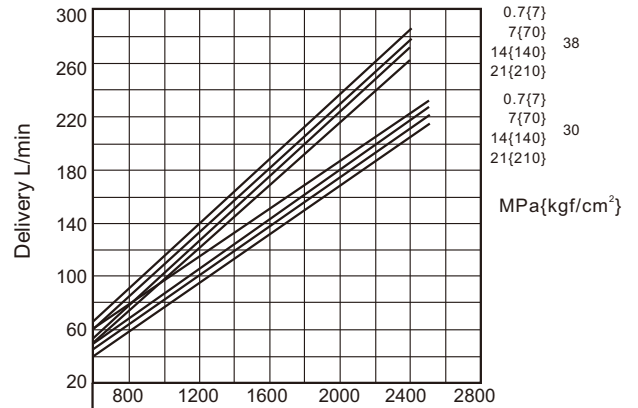
Performance Characteristics Typical flows at 50°C, 10w oil at 26cSt, 0MPa inlet at specified speeds.

35VQ series flow input power type

35VQ 25 35VQ35



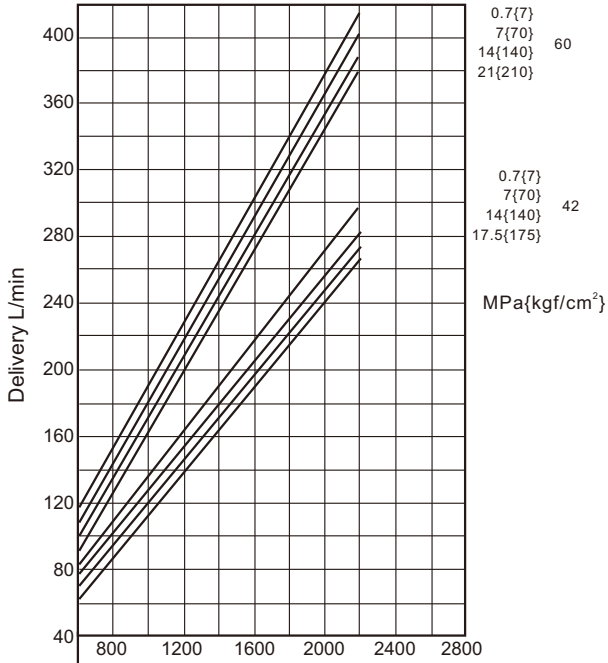
35VQ 30 35VQ38



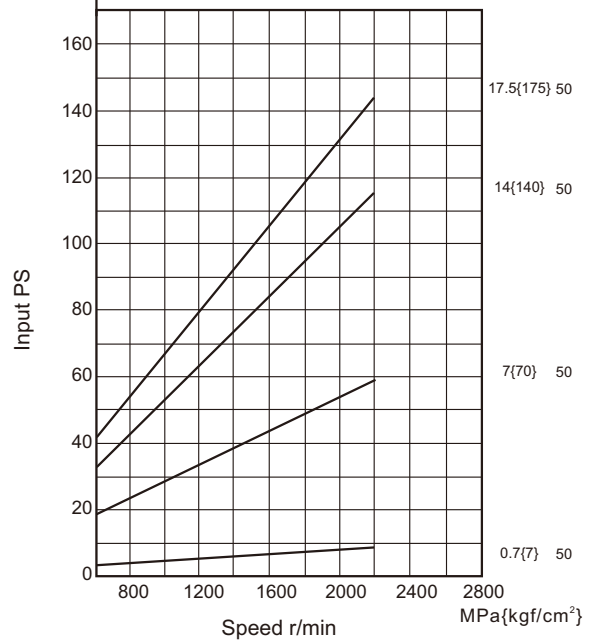
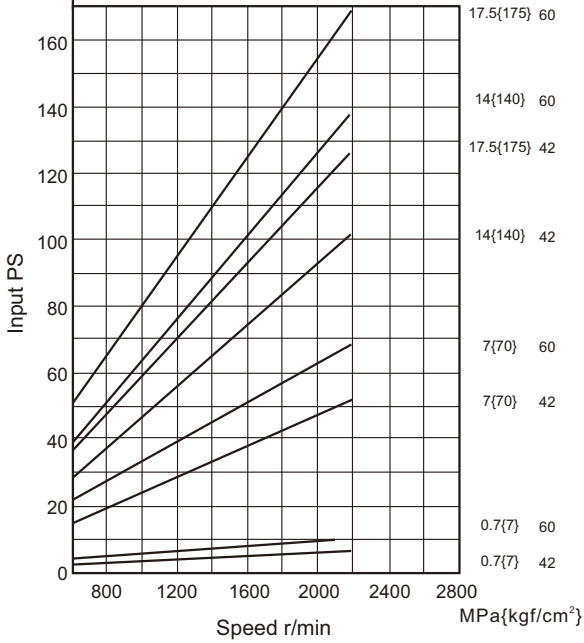
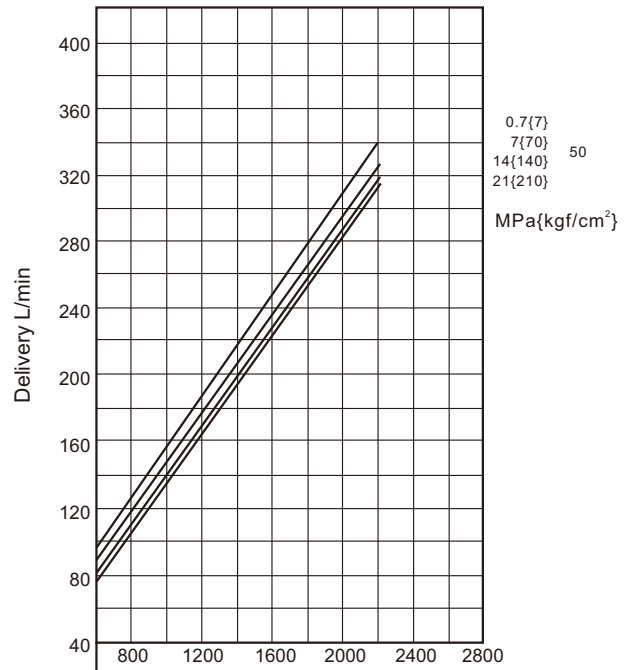
Performance Characteristics Typical flows at 50°C, 10w oil at 26cSt, 0MPa inlet at specified speeds.

45VQ series flow input power type

45VQ 42 45VQ60

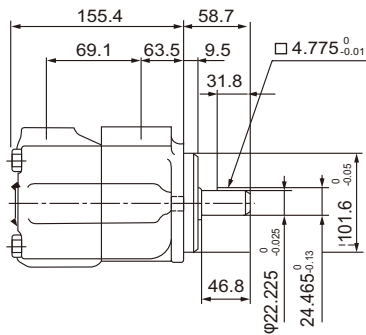
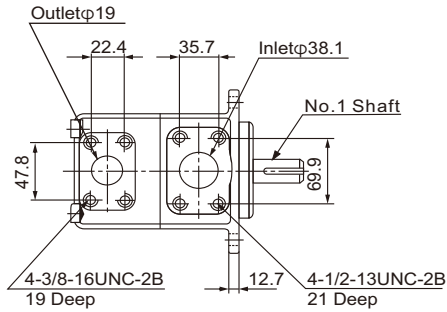


45VQ 50

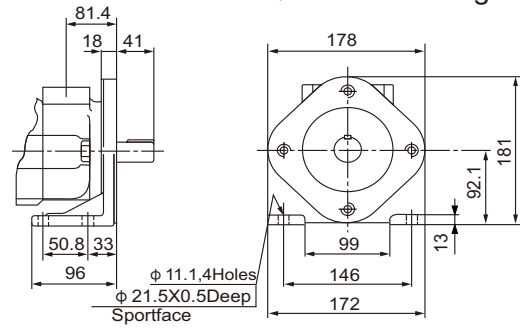


Installation dimensions

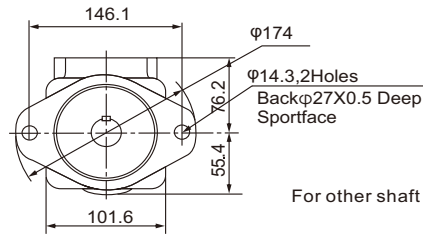
20VQ Flange Mounting



20VQ Foot Mounting

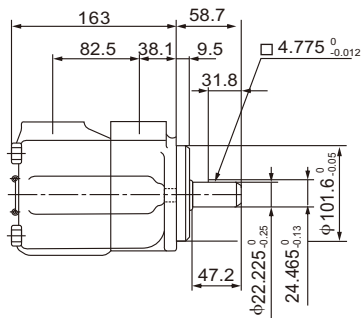
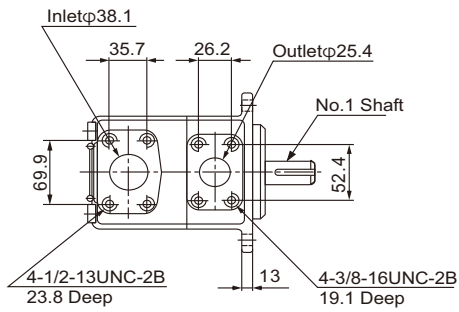


For other dimensions, refer to "Flange Mounting" type.

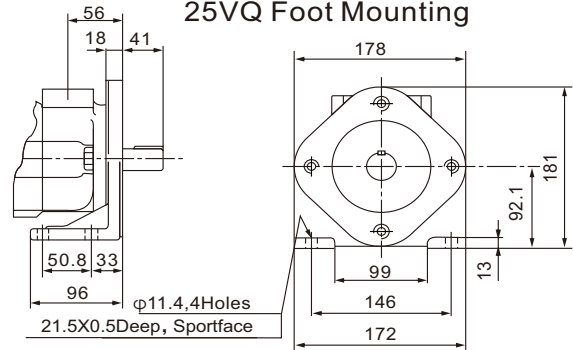


For other shaft dimensions, refer to page 14

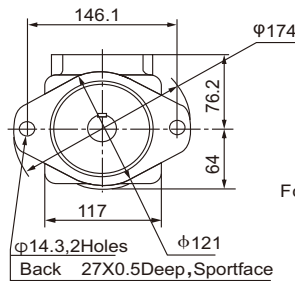
25VQ Flange Mounting



25VQ Foot Mounting



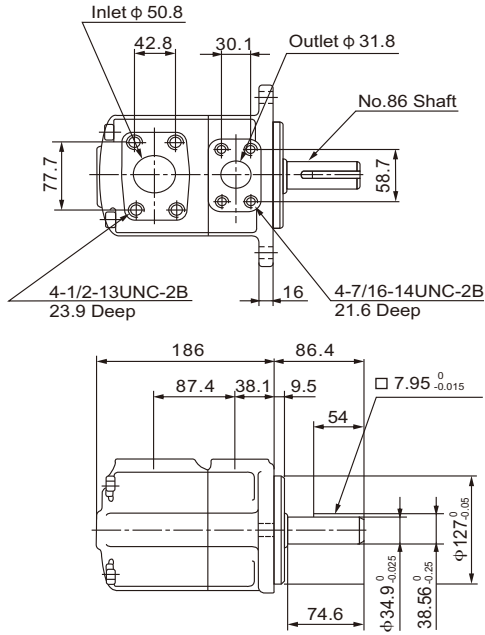
For other dimensions, refer to "Flange Mounting" type.



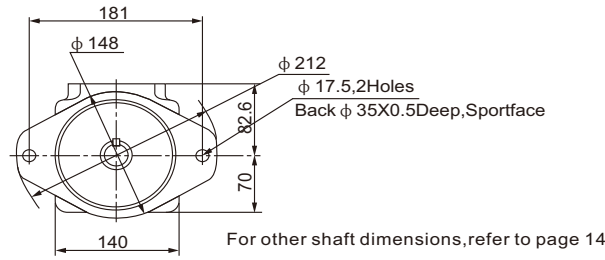
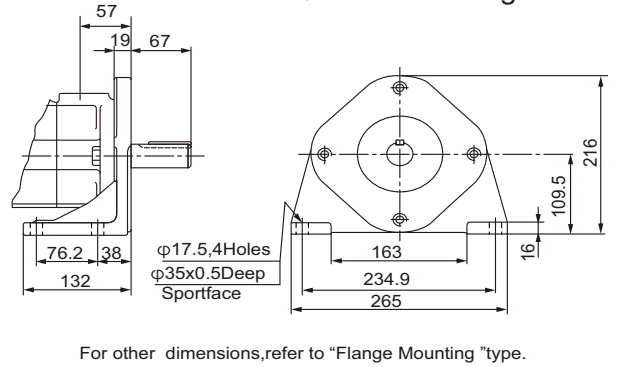
For other shaft dimensions, refer to page 14

Installation dimensions

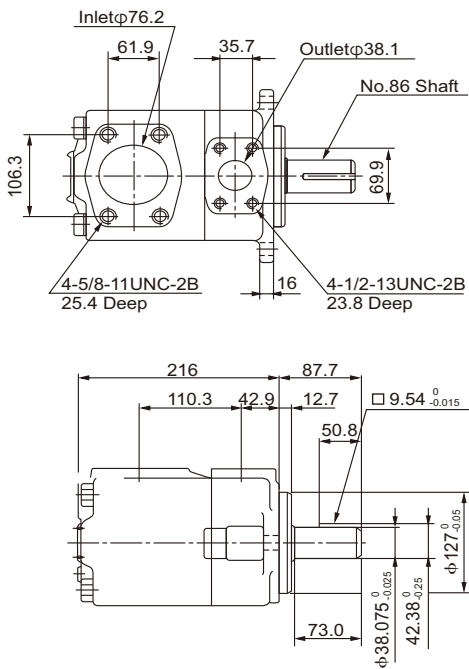
35VQ Flange Mounting



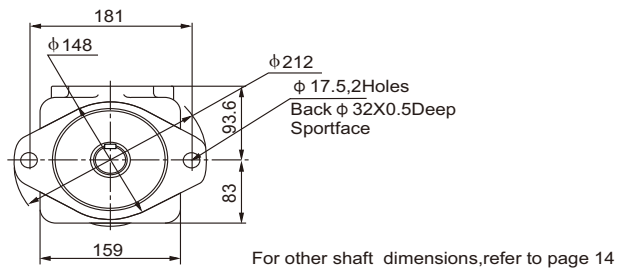
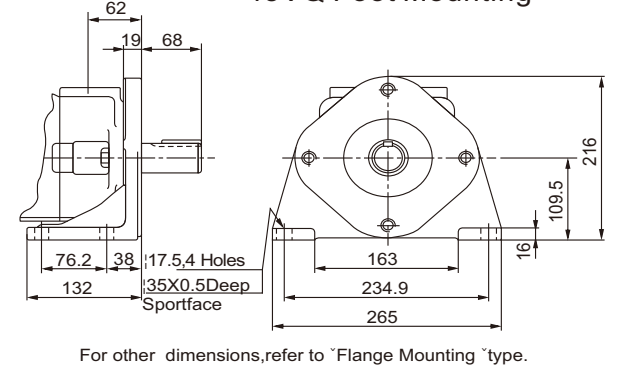
35VQ Foot Mounting



45VQ Flange Mounting

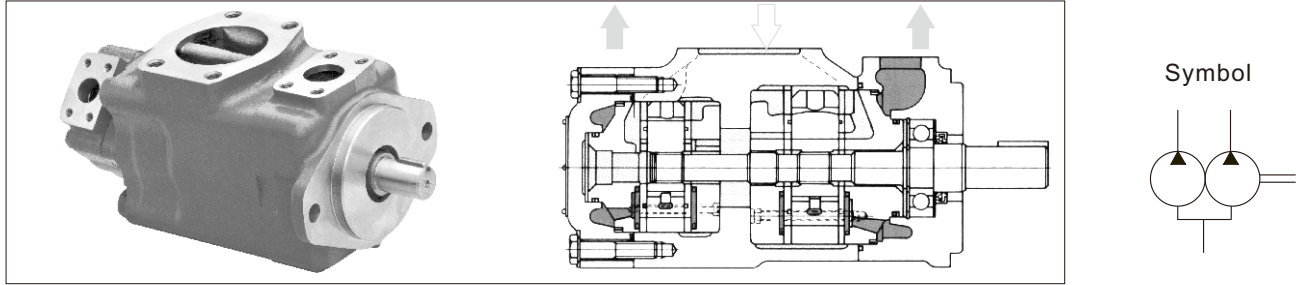


45VQ Foot Mounting



VQ Series Double Pumps

Product show and brief introduction



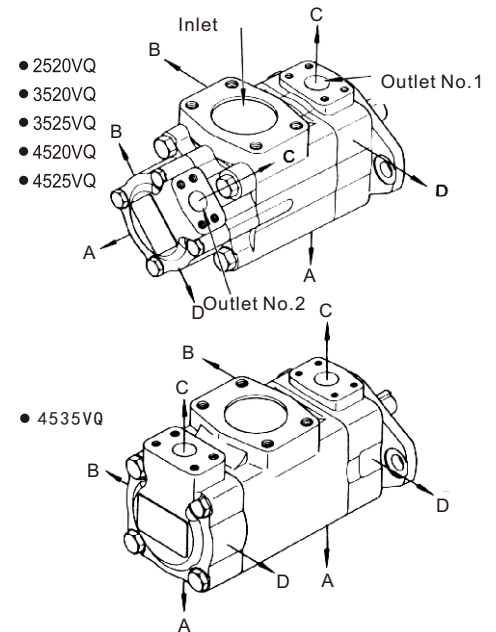
Model Code

(F3-)	****VQ	**	A	**	(F)	-*	*	20	*
Prefix	Series	▲ Code Shaft End Pump	Port Connections	▲ Code Cover End Pump	Mounting	Shaft	Port Connections	Design	Rotation
Omit-Using antiwear oil water glycol fluid	2520VQ	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-Flang mounting	1-Str.key 86-HD Str.key	See below	20	(Viewed from shaft end of pump) Omit- Right hand for clockwise L-Left hand for counter clockwise
	3525VQ	21,25,30,32,35,38,45		10,12,14,15,17,19,21					
	4525VQ	42,45,50,57,60,66,75		10,12,14,15,17,19,21					
	3520VQ	21,25,30,32,35,38,45		2,3,4,5,6,7,8,9,10,11,12,14					
F3-Phosphate ester fluid	4520VQ	42,45,50,57,60,66,75	F-Foot mounting	2,3,4,5,6,7,8,9,10,11,12,14	11-Spline				
	4535VQ	42,45,50,57,60,66,75		21,25,30,32,35,38,45					

▲ Rate capacity(USgpm) at 1200rpm,0.69MPa(100 psi).
Note:For options other than listed in the model code ,i.e,shaft,ports,displacements and mounting,contact us.

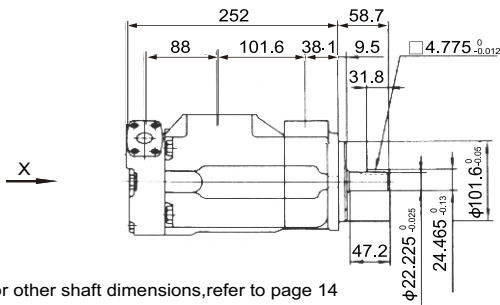
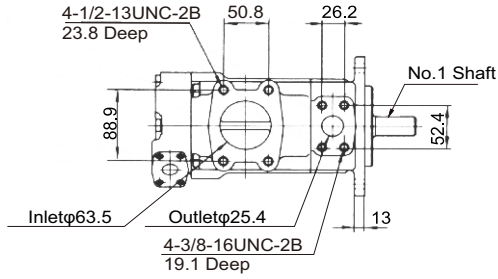
Port Orientation Table (Viewed from cover end of pump)

Port Orientation		All series (except 4535VQ)	Series 4535VQ
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



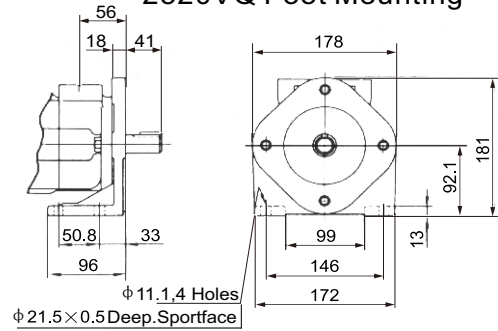
Installation dimensions

2520VQ Flange Mounting

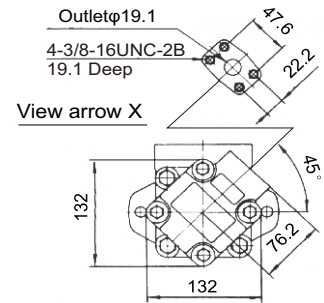
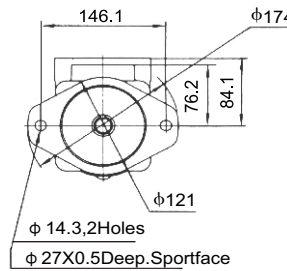


For other shaft dimensions, refer to page 14

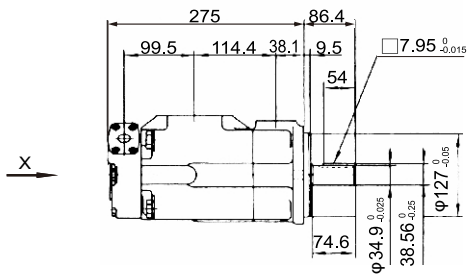
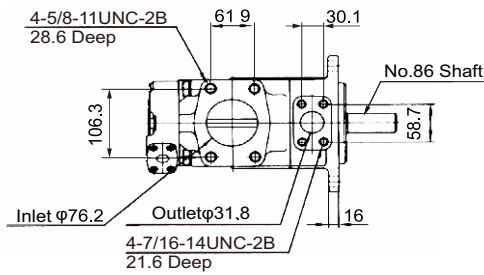
2520VQ Foot Mounting



For other dimensions, refer to "Flange Mounting" type.

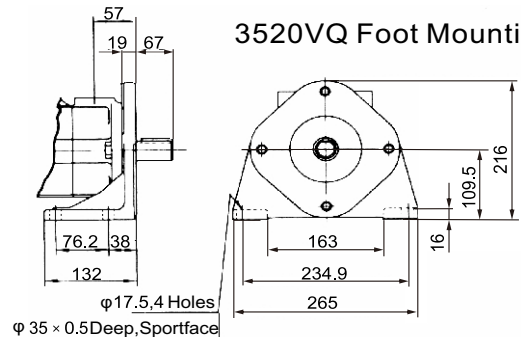


3520VQ Flange Mounting

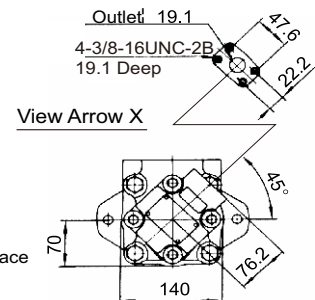
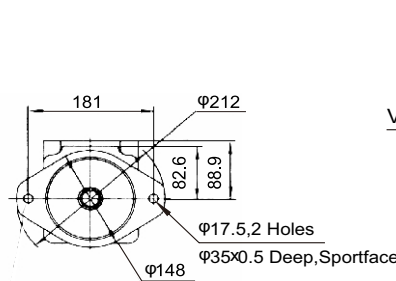


For other shaft dimensions, refer to page 14

3520VQ Foot Mounting

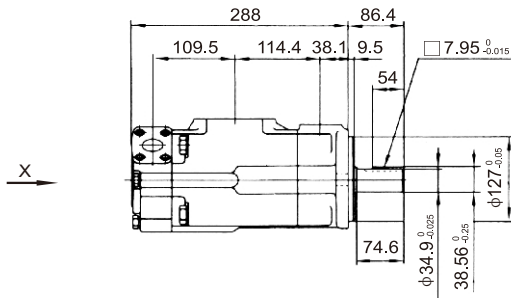
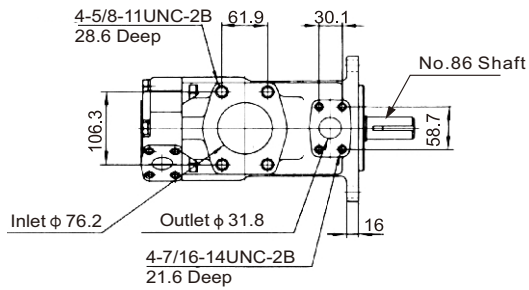


For other dimensions, refer to "Flange Mounting" type.

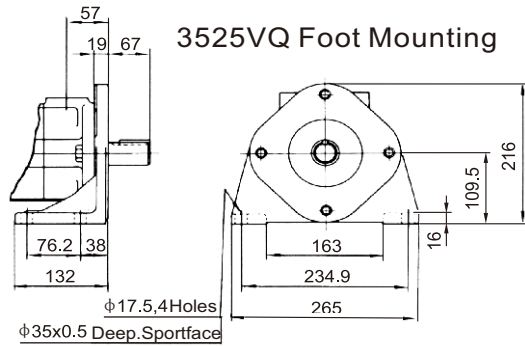


Installation dimensions

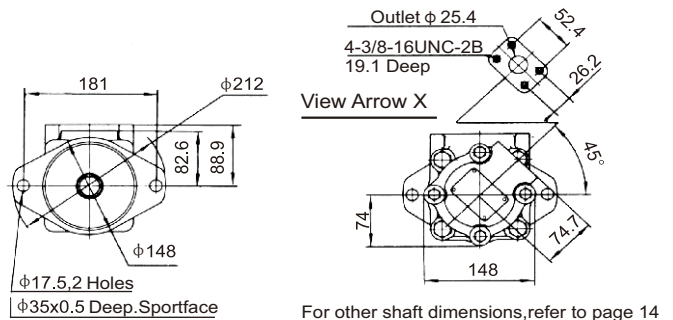
3525VQ Flange Mounting



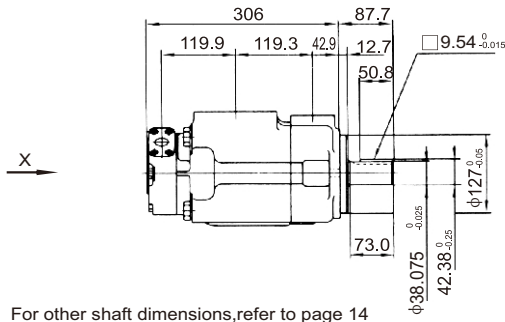
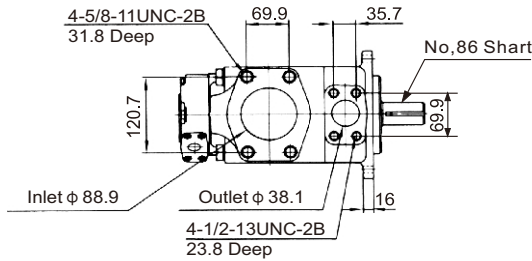
3525VQ Foot Mounting



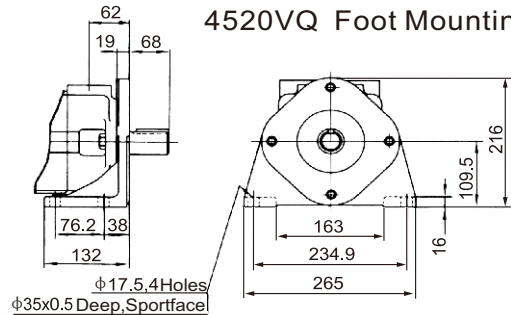
For other dimensions, refer to "Flange Mounting" type.



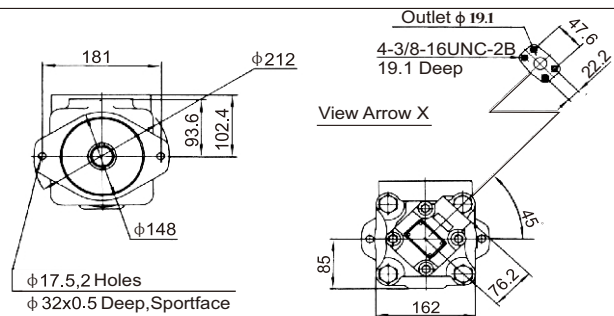
4520VQ Flange Mounting



4520VQ Foot Mounting

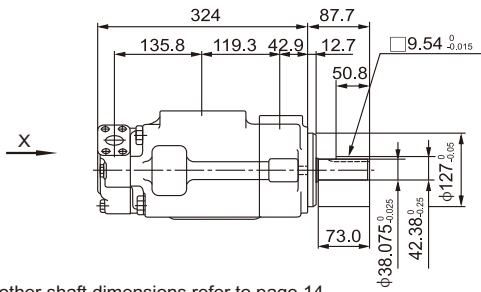
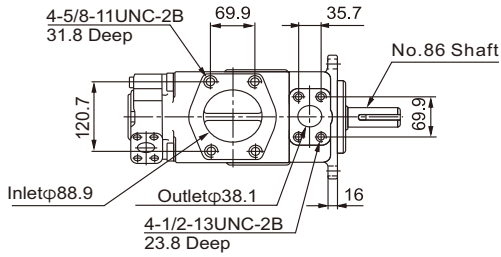


For other dimensions, refer to "Flange Mounting" type.



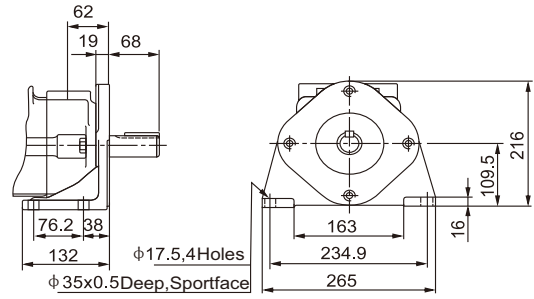
Installation dimensions

4525VQ Flange Mounting

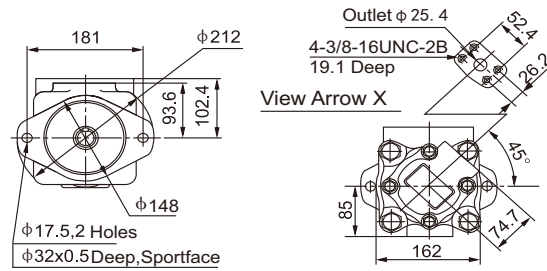


For other shaft dimensions, refer to page 14

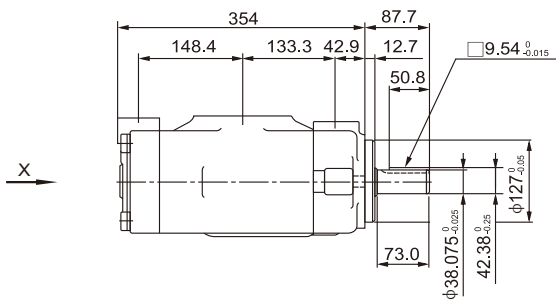
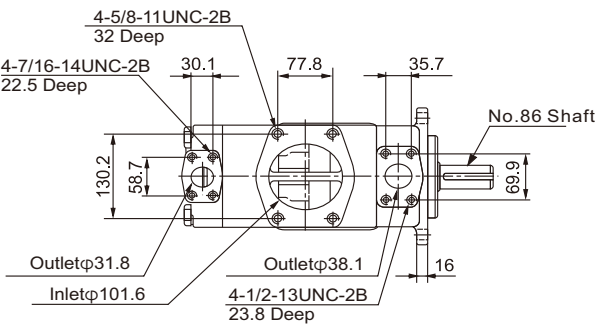
4525VQ Foot Mounting



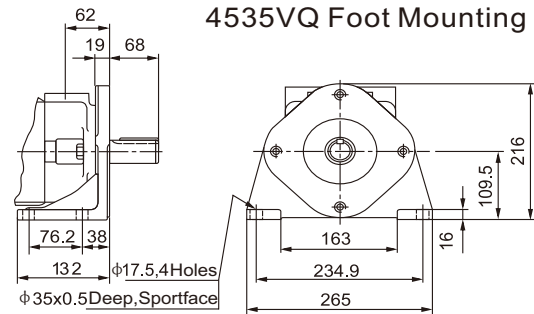
For other dimensions, refer to "Flange Mounting" type.



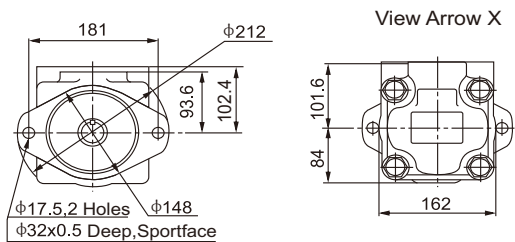
4535VQ Flange Mounting



4535VQ Foot Mounting



For other dimensions, refer to "Flange Mounting" type.



For other shaft dimensions, refer to page 14

■ Use and maintenance

● Hydraulic oil

It is recommended to use anti-wear hydraulic oil with a viscosity grade of 32-68 cSt at 40°C or an automobile crankcase oil with the symbol SC,SD,SE or SF. Retard speed and pressure recommended viscosity under force:

Min 13cSt	Max 54cSt
Minimum 49°C	Maximum 65°C

● Cold start

When operating in the 860 to 54cSt range with SAE 10W oil, speed and pressure should be limited to within 50% of their respective ratings until the system warms up.

When the oil viscosity exceeds 860cSt, special attention should be paid to make the whole system, including the remote cylinder and motor, warm up.

● High temperature operation

During high temperature operation, the viscosity must not fall below 13cSt and the temperature must not exceed 99°C, as the expected life of the pump core components and seals will be shortened.

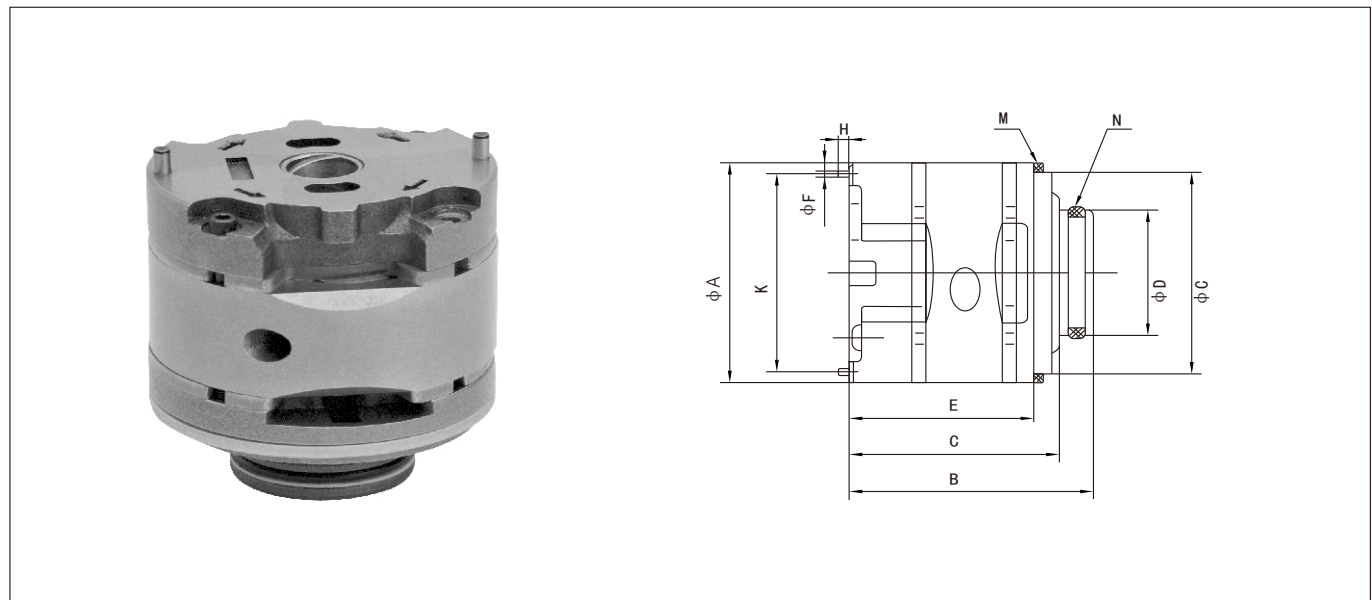
VQ Series Cartridge Kits

Model Code

(F3-)	PC-	20VQ	-5	-R	-10
Prefix	Cartridge kits mark	Series	▲ Code	Rotation	Design
Omit-Using antiwear oil water glycol fluid	PC-Single pump cartridge kits Double pump shaft end pump cartridge kits	20VQ	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
F3-Phosphated ester fluid	PCT-Double pump cover end pump cartridge kits	25VQ	10,12,14,15,17,19, 21		
		35VQ	21,25,30,32,35,38,45		
		45VQ	42,45,50,57,60,66,75		

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

Installation dimensions

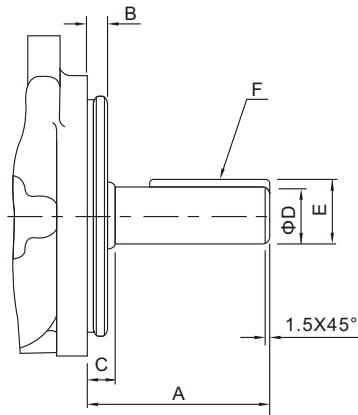


Series	A	B	C	D	E	F	G	H	K	M (Gasket)	N (O-Ring)
20VQ	82.5	81.5	70.1	47	61.5	4.8	76.2	7	73.6	82.76×76.26×3.5	40×3.5
25VQ	96.8	98.8	87	52.2	71.2	4.8	90.5	7	88.19	97×91×3.5	44×3.53
35VQ	114.3	117.7	105	72.2	90.3	6.4	108	7	103.94	114.5×108.5×3.5	63.09×3.53
45VQ	133.35	141.1	129.6	80.2	105.5	6.4	127	11	133.35	133.6×127.6×3.5	71×3.55

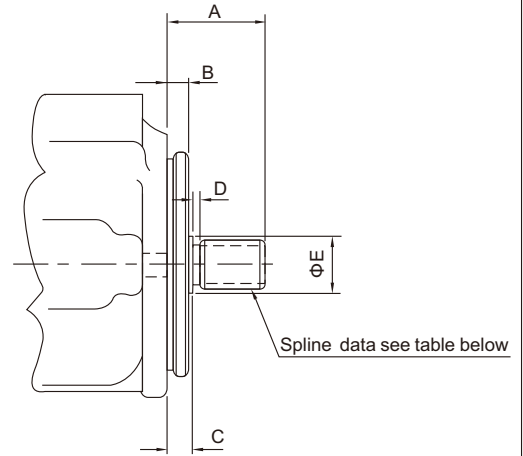
Series	Inner spline dentiform parameter of rotor				
	Pitch	Number of teeth	Pressure angle	Major diameter	Minor diameter
20VQ	48/96	30	45°	16.617	15.56
25VQ	48/96	40	45°	21.9	20.86
35VQ	40/80	37	45°	24.38	23.1
45VQ	12/24	14	30°	32.59	27.60

Optional shafts

● key shaft



● Spline shaft



● key shaft

Model	Shaft	A	B	C	D	E	F
20VQ	1	59	9.53	12.1	22.23/22.20	24.5/24.4	4.76×32
25VQ	1	59	9.53	11.1	22.23/22.20	24.5/24.4	4.76×32
2520VQ	86	78	9.53	11.1	25.37/25.35	28.3/28.1	6.36×50.8
35VQ	1	73.2	9.53	11.1	31.75/31.70	35.36/34.10	7.94×38.1
352*VQ	86	86	9.53	11.1	34.90/34.87	38.6/38.3	7.94×54
45VQ	1	62	12.7	14.22	31.75/31.70	35.36/34.10	7.94×28.5
45**VQ	86	87.4	12.7	14.22	38.07/38.05	42.4/42.1	9.54×50.8

● Spline shaft

Model	Shaft	A	B	C	D	E	Spline data (see table below)
20VQ	151	41.1	9.53	11.1	3.9	27.8	A
25VQ	11	44.5	9.53	11.1	3.9	27.8	A
2520VQ							
35VQ	11	58.7	9.53	11.1	6.35	35.1	C
352*VQ							
45VQ	11	61.9	12.7	14.3	9.7	39.6	C
45**VQ							

● Spline data (involute spline)

Spline data tag	teeth	diameter	large diameter	forming diameter	trail	flat tooth with fit
A	13	16/32	22.17	19.03	18.63	large diameter fit
			22.15		18.35	
C	14	12/24	31.7	27.2	26.99	large diameter fit
			31.67		26.64	