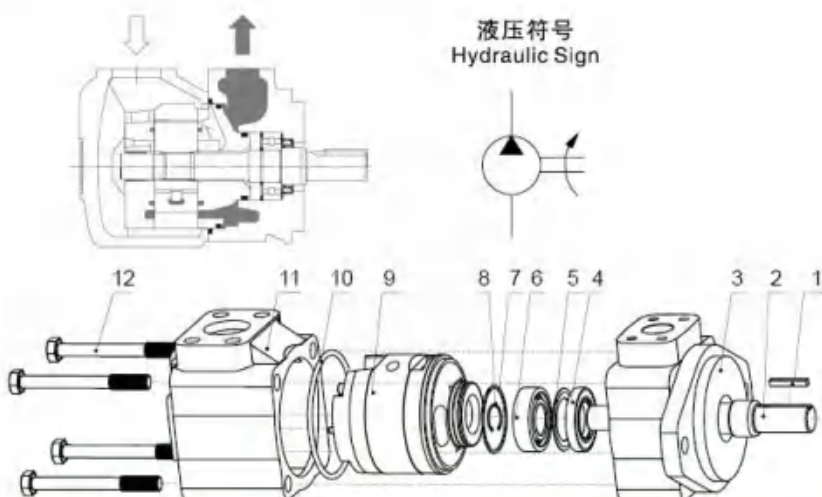


V 系列单泵 Series-single Pumps



序号NO.	名称Part	数量Qty
1	平键straight key	1
2	轴shaft	1
3	前盖Front cover	1
4	油封shaft seal	1

序号NO.	名称Part	数量Qty
5	垫片gasket	1
6	滚动轴承Ball bearing	1
7	叠形挡圈pile type retainer	1
8	轴用弹性挡圈cir clip for shaft	1

序号NO.	名称Part	数量Qty
9	泵芯 cartridge	1
10	O型圈O ring	1
11	后盖Rear cover	1
12	六角头螺栓hexagon headed bolt	4

适用于塑胶机械、鞋革机械、机床、压铸及冶金设备的高性能子母叶片泵。

主要特点为：

- 1、采用子母叶片及施压平衡的结构，减少了叶片对定子的压力，其性能更稳定，寿命更长。
- 2、12叶片制减小了流量脉动的振幅，系统噪声特性低。
- 3、多排量、多轴伸及进出油口四种不同的相对位置，使用户使用更灵活。
- 4、泵芯的插装式结构，现场维修更方便。

High Performance Intravane Pumps for plastic injection machinery, Shoe machinery, Tool machinery, Die casting machinery and Metal I urge equipment.

Features

1. Intravane pumps with hydraulic balancing structure provide more stable performance and longer life since less pressure from vane on stator.
2. Twelve vane system provide low amplitude flow pulsation resulting in low system noise characteristics.
3. Verious displacement and shafts with 4 different outlet opposite position make operation more flexible.
4. The cartridge is independent of the drive shaft, allowing for easy servicing without remore the pump from its mounting.

型号说明/Model Designation

(F3-)	25V	19	A	-1	A	22	R
前注 Note	系列号 Series	▲排量代号 Flow code	油口连接 Port connections	轴伸形式 Shaft type	出油口位置 Outlet positions	设计号 Design number	旋转方向 Rotation
无标记 No-marking: 石油系油 Petroleum series oil 乳化液 emulsification fluid 水-乙二醇 water glycol-fluid F3: 磷酸酯液 phosphate ester fluid	20V	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	A-SAE 4螺栓法兰 4-bolt flange	1-平键轴 Str key 151-花键轴 Spline	(从泵的盖端看) (Viewed from cover end of pump) A-进油口对面 Opposite inlet B-从进油口逆时针90° 90° CCW from inlet C-进油口同侧 Inline with inlet D-从进油口顺时针90° 90° CW from inlet	22	(从泵的轴端看) (Viewed from shaft end of pump) R-顺时针旋转 right hand for clockwise L-逆时针旋转 left hand for counter- clockwise
	25V	10, 12, 14, 15, 17, 19, 21, 25		1-平键轴 Str key 86-重型平键轴 HD Str key 11-花键轴 Spline			
	35V	21, 25, 30, 32, 35, 38, 45					
	45V	42, 45, 50, 57, 60, 66, 75					

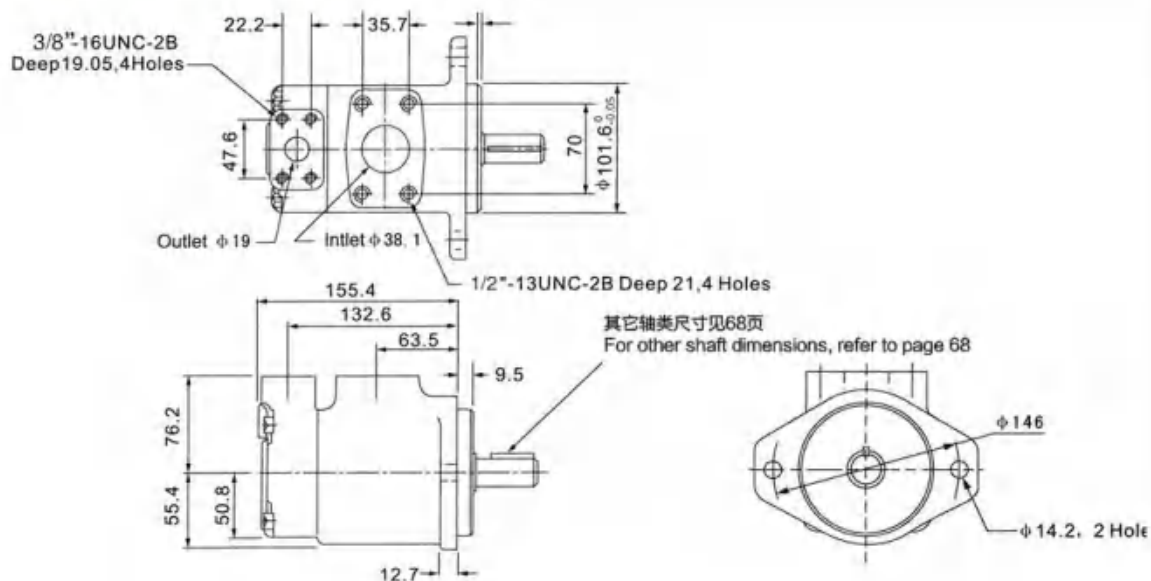
▲ 在1200r/min 和0.69MPa(100psi)下的额定排量
USgpm Flow(USgpm) at 1200r/min and 0.69MPa

技术参数/Technical Data

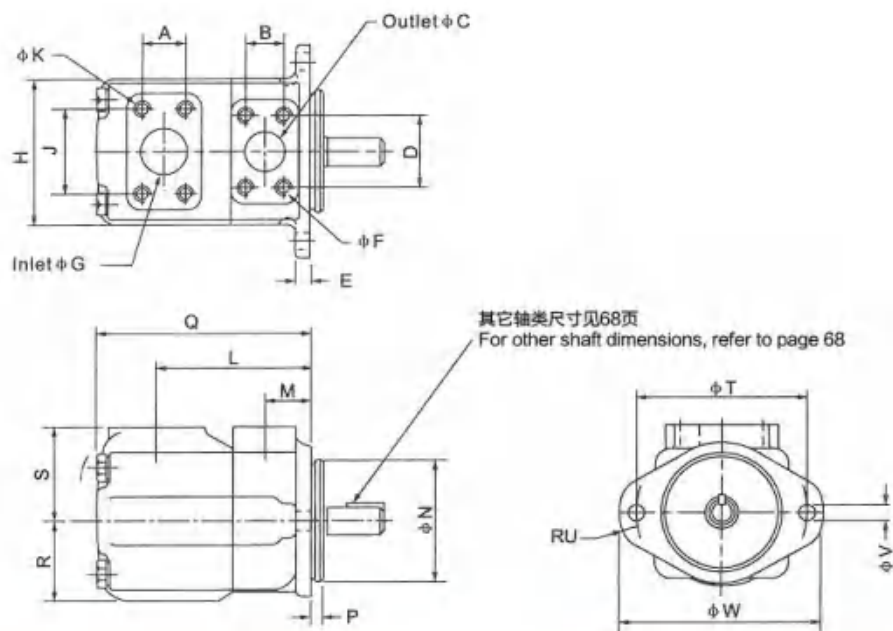
系列号 series	排量代号 Flow code (USgpm)	理论排量 Geometric displacement mL/r(in³/r)	使用抗磨液压油或磷酸酯 With antiwear hydraulic oil ri phosphate ester fluid		使用水—乙二醇 With water glycol fluid		使用油包水乳化液 With water–oil emulsions		最低转速 Min. speed				
			最高使用压力 Max.operating pressure MPa	最高转速 Max.speed r/min	最高使用压力 Max.operating pressure MPa	最高转速 Max.speed r/min	最高使用压力 Max.operating pressure MPa	最高转速 Max.speed r/min					
20V	2	7.5(0.46)	13.8	1800	13.8	1500	6.9	1200	600				
	3	10(0.61)											
	4	13(0.79)											
	5	16.5(1.01)											
	6	19(1.16)											
	7	23(1.40)	20.7		15.9					1500	6.9	1200	600
	8	27(1.67)											
	9	30(1.85)											
	10	32(1.95)											
	11	36(2.20)											
	12	40(2.44)	15.9		13.8					1500	6.9	1200	600
	14	45(2.78)	13.8										
25V	10	32.5(1.98)	17.2	1800	15.9	1500	6.9	1500	600				
	12	39(2.38)											
	14	45(2.78)											
	15	47(2.89)											
	17	55(3.36)											
	19	60(3.66)											
	21	67(4.13)											
	25	81(4.94)											
35V	21	67(4.13)	17.2	1800	15.9	1500	6.9	1500	600				
	25	81(4.94)											
	30	97(5.91)											
	32	101(6.16)											
	35	112(6.83)											
	38	121(7.37)											
	45	147(8.95)	13.8		13.8								
45V	42	138(8.41)	17.2	1800	15.9	1500	6.9	1500	600				
	45	147(8.95)											
	50	162(9.85)											
	57	181(11.05)											
	60	193(11.75)											
	66	212(12.93)											
	75	237(14.46)	13.8		13.8								

安装连接尺寸 Installation Dimensions

20V

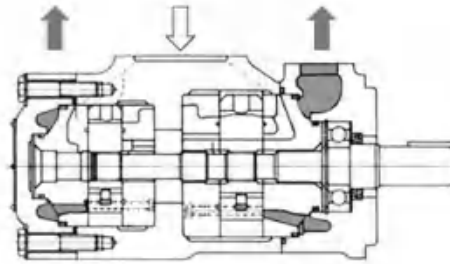


25V, 35V, 45V

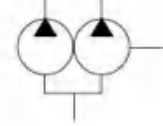


型号 Model	A	B	ϕC	D	E	ϕG	H	J	L	M	N	P	Q	R
25V	35.7	26.2	25.4	52.4	12.7	38.1	118	69.9	121	38.1	101.60/101.55	9.53	162.1	63.5
35V	42.9	30.2	31.8	58.7	16	50.8	140	77.8	125.5	38.1	127.00/126.95	9.53	185	69.9
45V	61.9	35.7	38.1	69.9	16	76.2	159	106.4	153	43	127.00/126.95	12.7	216	82.6
型号 Model	S	T	RU	ϕV	W	ϕX	ϕFX 螺纹深度, 4孔 $\phi F \times$ full thread depth, 4 holes		ϕKX 螺纹深度, 4孔 $\phi K \times$ full thread depth, 4 holes					
25V	76.2	146	14	14.2	175	121	3/8-16UNC-2BX19.1		1/2-13UNC-2BX23.8					
35V	82.6	181	16	17.5	213	148	7/16-14UNC-2BX22.3		1/2-13UNC-2BX22.3					
45V	93.7	181	16	17.5	213	148	1/2-13UNC-2BX23.8		5/8-11UNC-2BX25.4					

V 系列双联泵 Series-double Pumps



液压符号
Hydraulic Sign



型号说明/Model Designation

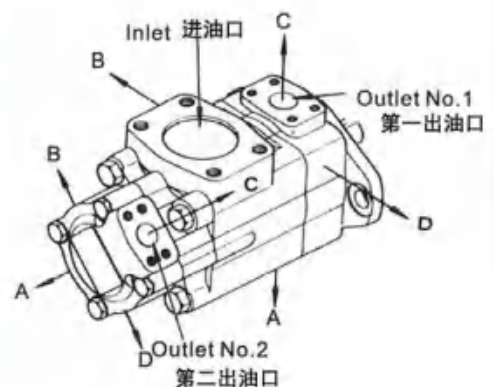
(F3-)	3525V	38	A	17	-1	AB	22	R
前注 Note	系列号 Series	▲轴端泵排量代号 Flow-Shaft end code	油口连接 Port connections	▲盖端泵排量代号 Flow-Cover end code	轴伸形式 Shaft type	出油口位置 Outlet positions	设计号 Design number	旋转方向 Rotation
无标记 No-marking: 石油系油 Petroleum series oil 乳化液 emulsification fluid 水-乙二醇 water glycol-fluid F3: 磷酸酯液 phosphate ester fluid	2520V	10, 12, 14, 15, 17, 19, 21, 25	A-SAE 4螺栓法兰 4-bolt flange	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	1-平键轴 Str key 86-重型平键轴 HD Str key 11-花键轴 Spline	见下表 See below	22	(从泵的轴端看) (Viewed from shaft end of pump) R-顺时针旋转 right hand for clockwise L-逆时针旋转 left hand for counter- 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, 25				
	4520V	42, 45, 50, 57, 60, 66, 75		2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14				
	4525V	42, 45, 50, 57, 60, 66, 75		10, 12, 14, 15, 17, 19, 21, 25				
	4535V	42, 45, 50, 57, 60, 66, 75		21, 25, 30, 32, 35, 38, 45				

▲ 在1200r/min 和0.69MPa(100psi)下的额定排量
USgpm Flow(USgpm) at 1200r/min and 0.69MPa

出油口位置 (从泵的盖端看)

Outlet Porsitions (Viewed from cover end of pump)

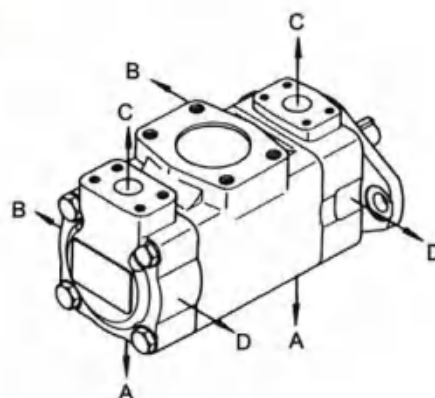
出油口位置 Outlet positions	除4535V外的所有系列 All series except 4535V	4535V
第一出油口 在进油口对面 No.1 outlet opposite inlet	AA 第二出油口在进油口逆时针转135° No.2 outlet 135° CCW from inlet	第二出油口在进油口对面 No.2 outlet opposite inlet
	AB 第二出油口在进油口逆时针转45° No.2 outlet 45° CCW from inlet	第二出油口在进油口逆时针转90° No.2 outlet 90° CCW from inlet
	AC 第二出油口在进油口顺时针转45° No.2 outlet 45° CW from inlet	第二出油口在进油口同侧 No.2 outlet inline with inlet
	AD 第二出油口在进油口顺时针转135° No.2 outlet 135° CW from inlet	第二出油口在进油口顺时针转90° No.2 outlet 90° CW from inlet
第一出油口 从进油口 逆时针转90° No.1 outlet 90° CCW from inlet	BA 第二出油口在进油口逆时针转135° No.2 outlet 135° CCW from inlet	第二出油口在进油口对面 No.2 outlet opposite inlet
	BB 第二出油口在进油口逆时针转45° No.2 outlet 45° CCW from inlet	第二出油口在进油口逆时针转90° No.2 outlet 90° CCW from inlet
	BC 第二出油口在进油口顺时针转45° No.2 outlet 45° CW from inlet	第二出油口在进油口同侧 No.2 outlet inline with inlet
	BD 第二出油口在进油口顺时针转135° No.2 outlet 135° CW from inlet	第二出油口在进油口顺时针转90° No.2 outlet 90° CW from inlet



出油口位置 (从泵的盖端看)

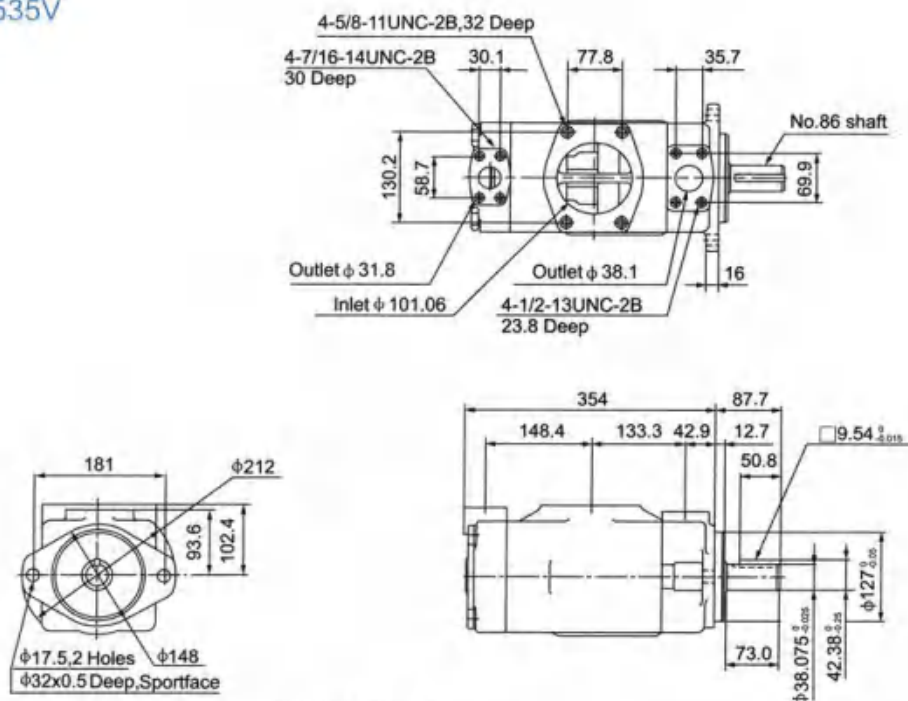
Outlet Positions (Viewed from cover end of pump)

出油口位置 Outlet positions	除4535V外的所有系列 All series except 4535V	4535V
第一出油口 在进油口同侧 No.1 outlet inline with inlet	CA 第二出油口在进油口逆时针转135° No.2 outlet 135° CCW from inlet	第二出油口在进油口对面 No.2 outlet opposite inlet
	CB 第二出油口在进油口逆时针转45° No.2 outlet 45° CCW from inlet	第二出油口在进油口逆时针转90° No.2 outlet 90° CCW from inlet
	CC 第二出油口在进油口顺时针转45° No.2 outlet 45° CW from inlet	第二出油口在进油口同侧 No.2 outlet inline with inlet
	CD 第二出油口在进油口顺时针转135° No.2 outlet 135° CW from inlet	第二出油口在进油口顺时针转90° No.2 outlet 90° CW from inlet
第一出油口 从进油口 顺时针转90° No.1 outlet 90° CW from inlet	DA 第二出油口在进油口逆时针转135° No.2 outlet 135° CCW from inlet	第二出油口在进油口对面 No.2 outlet opposite inlet
	DB 第二出油口在进油口逆时针转45° No.2 outlet 45° CCW from inlet	第二出油口在进油口逆时针转90° No.2 outlet 90° CCW from inlet
	DC 第二出油口在进油口顺时针转45° No.2 outlet 45° CW from inlet	第二出油口在进油口同侧 No.2 outlet inline with inlet
	DD 第二出油口在进油口顺时针转135° No.2 outlet 135° CW from inlet	第二出油口在进油口顺时针转90° No.2 outlet 90° CW from inlet



安装连接尺寸/Installation Dimensions

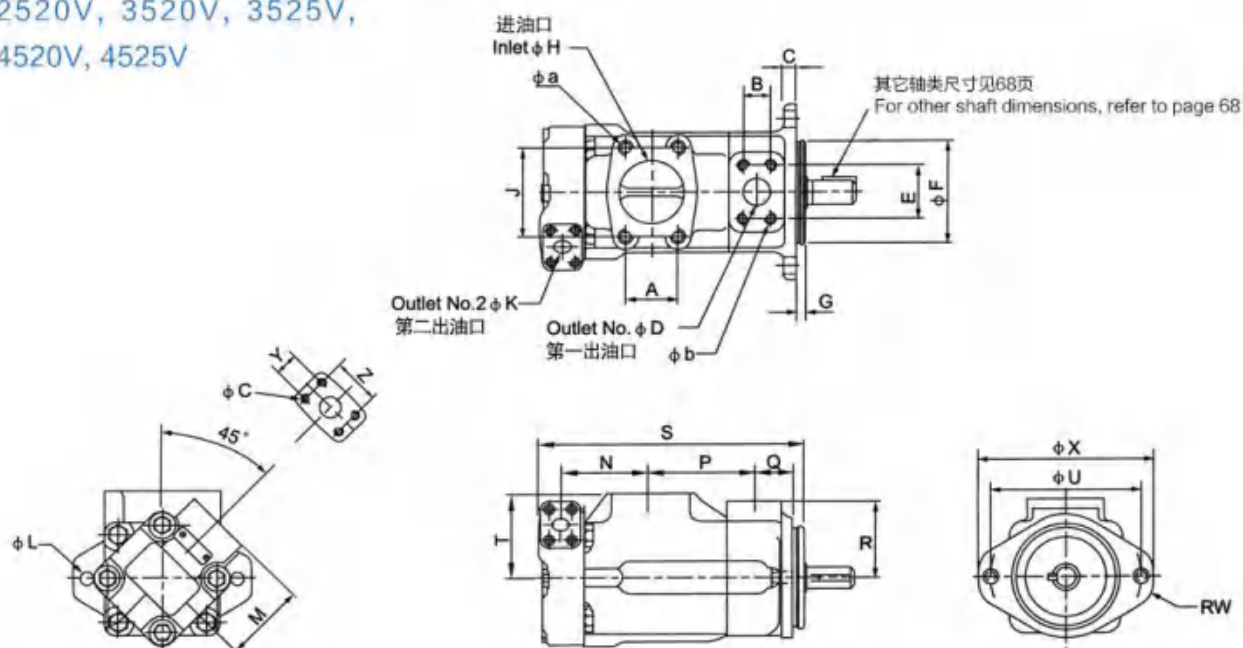
4535V



其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

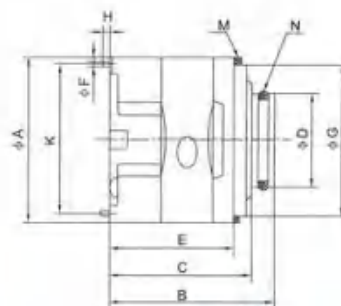
安装连接尺寸/Installation Dimensions

2520V, 3520V, 3525V,
4520V, 4525V



型号 Model	Øa x 螺紋深度、4孔 Øa x full thread depth, 4 holes				Øb x 螺紋深度、4孔 Øb x full thread depth, 4 holes				Øc x 螺紋深度、4孔 Øc x full thread depth, 4 holes			
2520V	1/2-13UNC-2Bx23.8				3/8-16UNC-2Bx19.1				3/8-16UNC-2Bx19.1			
3520V	5/8-11UNC-2Bx30.0				7/16-14UNC-2Bx22.3				3/8-16UNC-2Bx19.1			
3525V	5/8-11UNC-2Bx30.0				7/16-14UNC-2Bx22.3				3/8-16UNC-2Bx19.1			
4520V	5/8-11UNC-2Bx30.0				1/2-13UNC-2Bx23.8				3/8-16UNC-2Bx19.1			
4525V	5/8-11UNC-2Bx30.0				1/2-13UNC-2Bx23.8				3/8-16UNC-2Bx19.1			
型号Model	A	B	C	ØD	E	ØF	G	ØH	J	ØK	ØL	M
2520V	50.8	26.2	12.7	25.4	52.4	101.60/101.55	9.53	63.5	88.9	19.1	14.2	76.2
3520V	62	30.1	15.9	31.7	58.7	127.00/126.95	9.53	76.2	106.3	19.1	17.5	76.2
3525V	62	30.1	15.9	31.7	58.7	127.00/126.95	9.53	76.2	106.3	25.4	17.5	74.7
4520V	69.9	35.7	15.9	38.1	69.9	127.00/126.95	12.7	88.9	120.6	19.1	17.5	76.2
4525V	69.9	35.7	15.9	38.1	69.9	127.00/126.95	12.7	88.9	120.6	25.4	17.5	74.7
型号Model	N	P	Q	R	S	T	ØU	ØV	RW	ØX	Y	Z
2520V	88.1	101.6	38.1	76.2	250	85.3	146.1	120.7	14	174.7	22.2	47.6
3520V	99.6	114.3	38.1	82.6	273.3	88.9	181	148	16	213	22.2	47.6
3525V	109.5	114.3	38.1	82.6	287.3	88.9	181	148	16	213	26.2	52.4
4520V	120	119.4	42.9	93.7	303.5	102.4	181	148	16	213	22.2	47.6
4525V	136	119.4	42.9	93.7	325	102.4	181	148	16	213	26.2	52.4

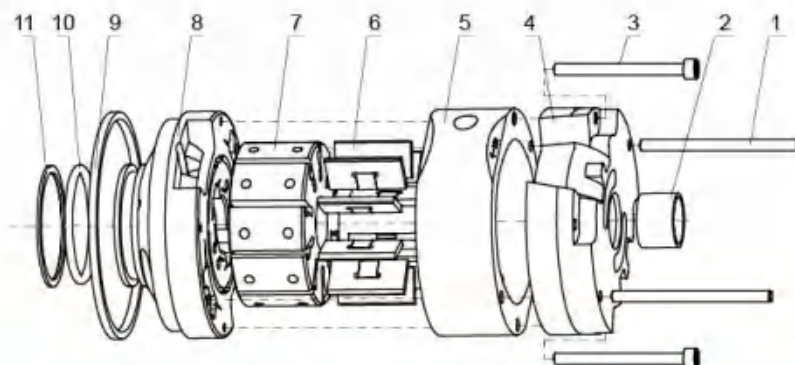
V 系列泵芯 Series-cartridge



型号说明/Model Designation

(F3-)	PC-	25V	19	R	10
前注 Note	泵芯标志 Cartridge mark	系列号 Series	▲排量代号 Flow code	旋转方向 Rotation	设计号 Design number
无标记 No-marking: 石油系油 Petroleum series oil 乳化液 emulsification fluid 水-乙二醇 water glycol-fluid F3: 磷酸酯液 phosphate ester fluid	PC-单泵泵芯	20V	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	(从泵的轴端看) (Viewed from shaft end of pump) L-逆时针旋转 Left hand for counter clockwise R-顺时针旋转 Right hand for clockwise	10
	双联泵轴端泵芯	25V	10, 12, 14, 15, 17, 19, 21, 25		
	Cartridge kit of single pump double pump shaft end	35V	21, 25, 30, 32, 35, 38, 45		
	PCT-双联泵盖端泵芯	45V	42, 45, 50, 57, 60, 66, 75		
	Cartridge kit of double pump cover end				

▲ 在1200r/min和0.69MPa(100psi)下的额定排量; 与相应系列、规格的油泵性能参数一致, 详见V系列单泵的性能参数。
USgpm Flow(USgpm) at 1200r/min and 0.69MPa.
The data of relevant series, model are unanimous. Please see V series-single pump data.



序号NO.	名称Part	数量Qty	序号NO.	名称Part	数量Qty	序号NO.	名称Part	数量Qty
1	销 Pin	2	5	定子 cam ring	1	9	挡圈 Retainer	1
2	滑动轴承 sliding bearing	1	6	叶片 vane kit	12	10	O型圈 O ring	1
3	十字槽盘头螺钉 cross pan head bolts	2	7	转子 Rotor	1	11	挡圈 Retainer	1
4	侧板 inlet support plate	1	8	压力侧板 outlet support plate	1			

系列号 Series	ØA	B	C	ØD	E	ØF	ØG	H	K	M(挡圈Gasket)	M(O形圈O-Ring)
20V	82.55	81.5	70.1	47	61.5	4.8	76.2	7	73.6	82.76x76.26x3.5	40x3.55
25V	96.8	98.8	87	52.2	71.2	4.8	90.5	7	88.19	97x91x3.5	44x3.53
35V	114.3	117.7	105	72.2	90.3	6.4	108	8	103.94	114.5x108.5x3.5	63.09x3.53
45V	133.35	141.1	129.6	80.2	105.5	6.4	127	8	123.8	133.6x127.6x3.5	71x3.55

转子内花键齿廓参数Inside spline tooth outline parameter of rotor

系列号 Series	齿数 Number of teeth	径节 Pitch	压力角 Pressure angle	大径 Major Diameter	小径 Minor Diameter
20V	30	48/96	45°	16.617	15.56
25V	40	48/96	45°	21.9	20.86
35V	37	40/80	45°	24.38	23.10
45V	14	12/24	30°	32.59	27.6

VQ 系列叶片泵 Series-vane Pumps

产品简介/Product Introduction

适用于工程机械的高压高性能子母叶片泵。

主要特点为:

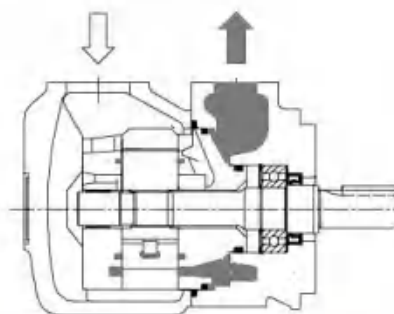
- 1、采用液压平衡的子母叶片结构及10叶片制的设计, 压力更高, 最高达到21MPa。
- 2、采用浮动侧板结构, 可自动补偿端面间隙, 使泵在高压下能保持较高的容积效率。
- 3、侧板采用双金属材料, 提高了抗咬合性能, 使泵的使用寿命更长。

The high-pressure and high-performance Intra-vane pumps for Mobile Equipment.

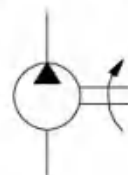
Features:

1. To adopt balanced hydraulic for the struction of Intra-vane and ten-Vane design, higher Pressure, top to 21 MPa.
2. To adopt floating structure for side plate, it will do a compensation for end-face clearance by automatic, so that even the pump under high pressure it can maintain a high volumetric efficiency.
3. The side plate is made of dual-metal material, it improved the seizure resistance. and so that the life of pump will be longer

VQ 系列单泵 Series-single Pumps



液压符号
Hydraulic Sign



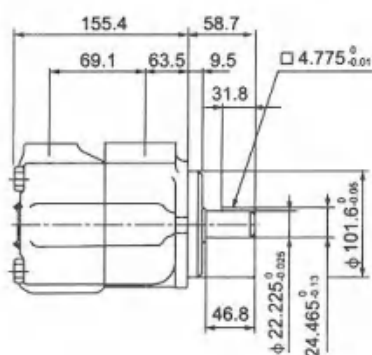
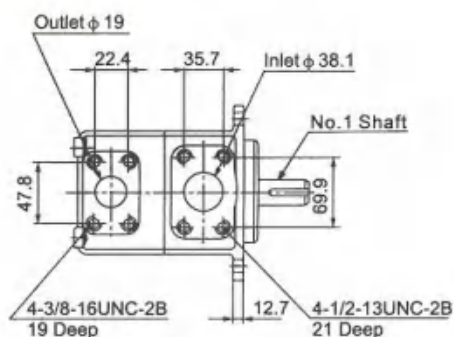
(F3-)	25VQ	19	A	(F)	-1	A	30	R
前注 Note	系列号 Series	▲排量代号 Flow code	油口连接 Port connections	安装形式 Installation type	轴伸形式 Shaft type	出油口位置 Outlet positions	设计号 Design number	旋转方向 Rotation
无标记 No-marking	20VQ	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	A-SAE 4 螺栓法兰 A-SAE 4 bolt flange	无标记 No-marking	1平键轴/Str key 151花键轴/Spline	(从泵的盖端看) (Viewed from cover end of pump)	30	(从泵的轴端看) (Viewed from shaft end of pump)
石油系油 Petroleum series oil	25VQ	10, 12, 14, 15, 17, 19, 21, 25		- 法兰安装型 Flange	1平键轴/Str key 86重型平键轴 HD str key 11 花键轴/Spline	A-进油口对面 Opposite inlet port	20	R - 顺时针旋转 right hand for clockwise
乳化液 emulsification fluid	35VQ	21, 25, 30, 32, 35, 38, 45		Mounting		B-从进油口逆时针90° 90° CCW from inlet		L - 逆时针旋转 left hand for counter-clockwise
水-乙二醇 water glycol-fluid	45VQ	42, 45, 50, 57, 60, 66, 75		F - 脚座安装型 F-Foot Mounion		C-进油口同侧 Inline with inlet		
F3: 磷酸酯液 phosphate ester fluid						D-从进油口顺时针90° 90° CW from inlet		

▲ 在1200r/min 和0.69MPa(100psi)下的额定排量
USgpm Flow(USgpm) at 1200r/min and 0.69MPa

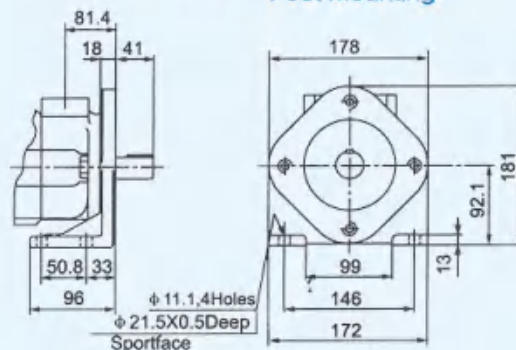
技术参数/Technical Data

系列号 series	排量代号 Flow code (USgpm)	理论排量 Geometric displace- ment mL/r	最高使用压力 Max.operating pressure Mpa	最高转速 Max.speed r/min	最低转速 Min. speed r/min
20VQ	2	7(0.43)	21	2700	600
	3	10(0.61)			
	4	13(0.79)			
	5	16.5(1.01)			
	6	19(1.16)			
	7	22(1.40)			
	8	27(1.67)			
	9	30(1.85)			
	10	31.5(1.92)			
	11	35(2.14)			
	12	40(2.44)	16		
	14	45(2.78)	14		
25VQ	10	32(1.95)	21	2700	600
	12	38(2.32)		2500	
	14	43.5(2.65)			
	15	47(2.89)			
	17	54(3.30)			
	19	60(3.66)			
	21	67(4.13)			
	25	79.2(4.83)			
35VQ	21	67(4.13)	21	2500	600
	25	81(4.94)		2400	
	30	95(5.80)			
	32	101(6.16)			
	35	109(6.65)			
	38	119(7.26)			
	45	143(8.72)	14		
45VQ	42	134(8.17)	17.5	2400	600
	45	143(8.72)		2200	
	50	159(9.70)			
	57	181(11.05)			
	60	189(11.53)			
	66	210(12.81)			
	75	237(14.46)	14		

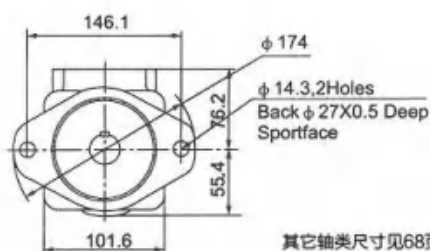
20VQ 法兰安装尺寸 Flange Mounting



20VQ 脚座安装尺寸 Foot Mounting

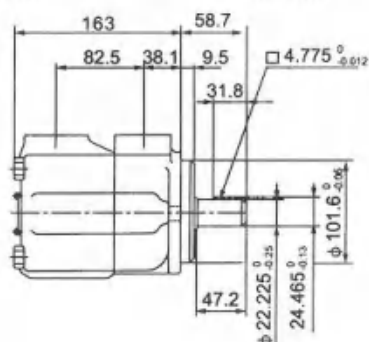
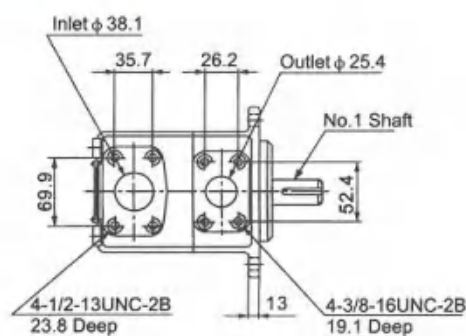


For other dimensions, refer to "Flange Mounting" type.

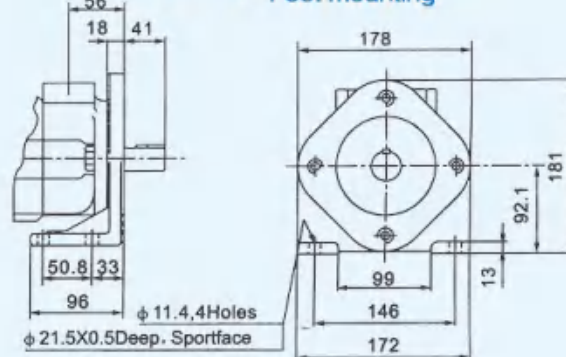


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

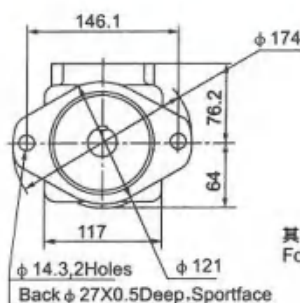
25VQ 法兰安装尺寸 Flange Mounting



25VQ 脚座安装尺寸 Foot Mounting

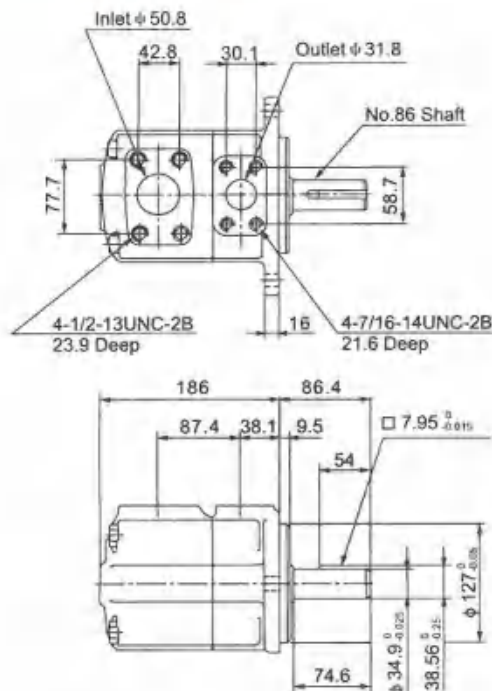


For other dimensions, refer to "Flange Mounting" type.

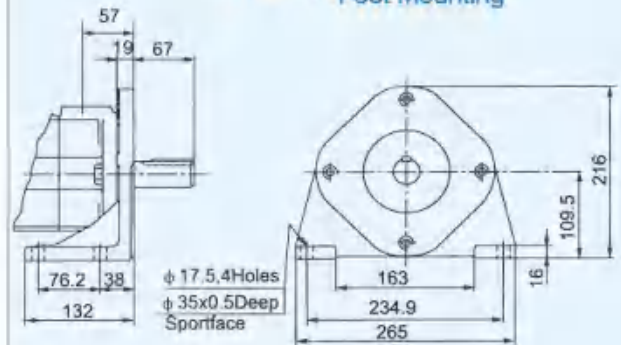


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

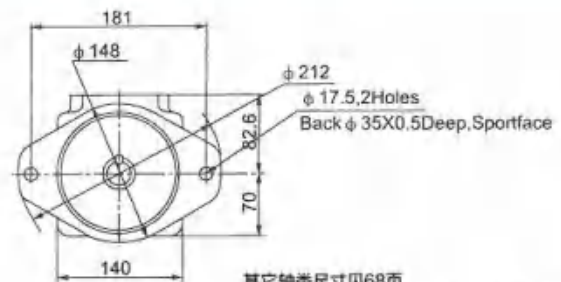
35VQ 法兰安装尺寸 Flange Mounting



35VQ 脚座安装尺寸 Foot Mounting

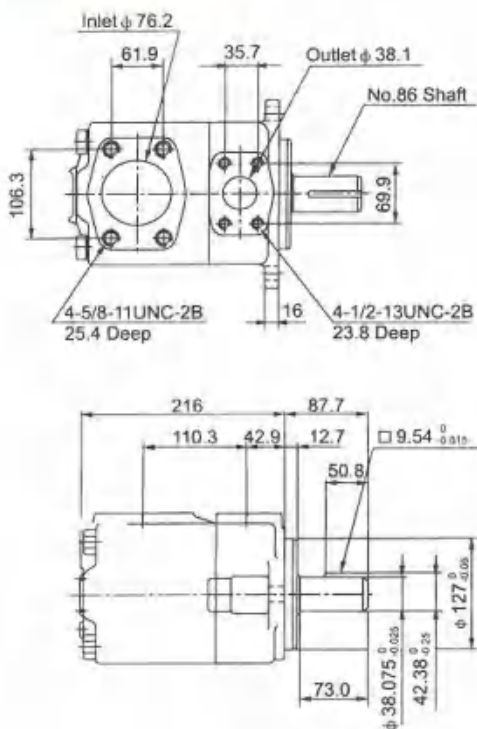


For other dimensions, refer to "Flange Mounting" type.

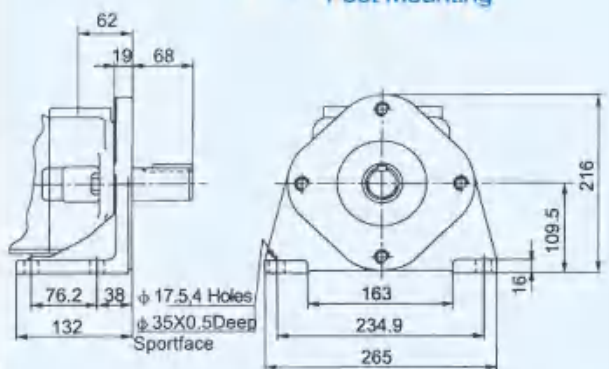


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

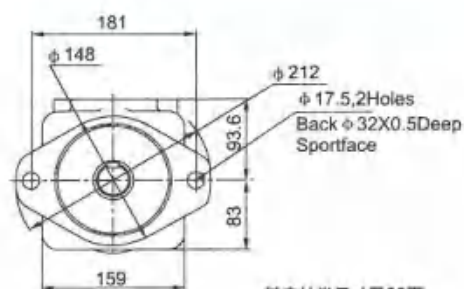
45VQ 法兰安装尺寸 Flange Mounting



45VQ 脚座安装尺寸 Foot Mounting

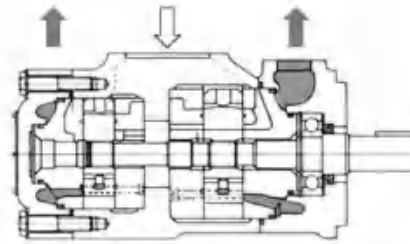


For other dimensions, refer to "Flange Mounting" type.

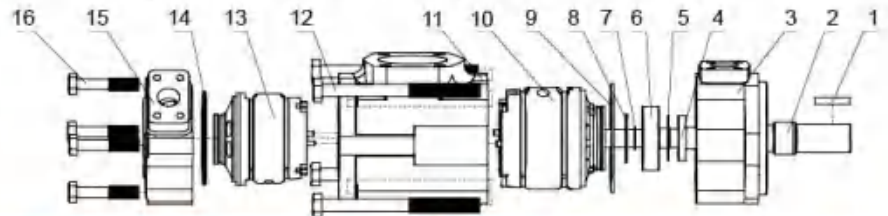
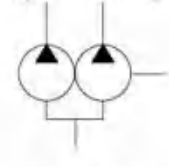


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

VQ 系列双联泵 Series-double Pumps



液压符号
Hydraulic Sign



序号NO.	名称Part	数量Qty
1	平键 straight key	1
2	轴 shaft	1
3	前盖 front cover	1
4	油封 shaft seal	1
5	垫片 gasket	1
6	滚动轴承 ball bearing	1

序号NO.	名称Part	数量Qty
7	轴用弹性挡圈 cir clip for shaft	1
8	叠形挡圈 pile type retainer	1
9	O型圈 O ring	1
10	前泵芯 front cartridge	1
11	泵体 body	1
12	六角头螺栓 hexagon headed bolt	4

序号NO.	名称Part	数量Qty
13	后泵芯 rear cartridge	1
14	O型圈 O ring	1
15	后盖 rear cartridge	1
16	六角头螺栓 hexagon headed bolt	4

型号说明/Model Designation

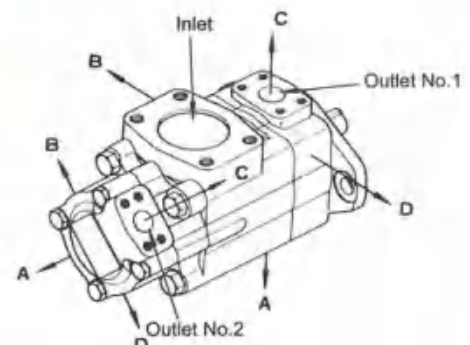
(F3-)	3525VQ	38	A	17	(F)	-1	AB	22	R
前注 Note	系列号 Series	▲轴端泵排量代号 Flow-Shaft end code	油口连接 Port connections	▲盖端泵排量代号 Flow-Cover end code	安装形式 Installation type	轴伸形式 Shaft type	出油口位置 Outlet positions	设计号 Design number	旋转方向 Rotation
无标记 No-marking; 石油系油 Petroleum series oil 乳化液 emulsification fluid 水-乙二醇 water glycol- fluid F3: 磷酸酯液 phosphate ester fluid	2520VQ 3520VQ 3525VQ 4520VQ 4525VQ 4535VQ	10, 12, 14, 15, 17, 19, 21, 25 21, 25, 30, 32, 35, 38, 45 21, 25, 30, 32, 35, 38, 45 42, 45, 50, 57, 60, 66, 75 42, 45, 50, 57, 60, 66, 75 42, 45, 50, 57, 60, 66, 75	A-SAE 4螺栓法兰 4-bolt flange	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 10, 12, 14, 15, 17, 19, 21, 25 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 10, 12, 14, 15, 17, 19, 21, 25 21, 25, 30, 32, 35, 38, 45	无标记 No-marking; 法兰安装型 Flange Mounting F-脚座安装型 F-Foot Mounion	1-平键轴 Str key 86-重型平键轴 HD Str key 11-花键轴 Spline	见下表 See below	20	(从泵的轴端看) (Viewed from shaft end of pump) R-顺时针旋转 right hand for clockwise L-逆时针旋转 left hand for counter- clockwise

▲ 在1200r/min和0.69MPa(100psi)下的额定排量
USGpm Flow(USgpm) at 1200r/min and 0.69MPa

出油口位置 (从泵的盖端看)

Outlet Porsitions (Viewed from cover end of pump)

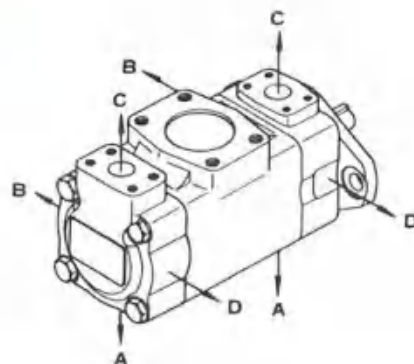
出油口位置 Outlet positions	除4535VQ外的所有系列 All series except 4535VQ	4535VQ
第一出油口在进油口 对面 NO.1 outlet opposite inlet	AA 第二出油口在进油口逆时针转135° NO.2 outlet 135° CCW from inlet AB 第二出油口在进油口逆时针转45° NO.2 outlet 45° CCW from inlet AC 第二出油口在进油口顺时针转45° NO.2 outlet 45° CW from inlet AD 第二出油口在进油口顺时针转135° NO.2 outlet 135° CW from inlet	第二出油口在进油口对面 NO.2 outlet opposite inlet 第二出油口在进油口逆时针转90° NO.2 outlet 90° CCW from inlet 第二出油口在进油口同侧 NO.2 outlet inline with inlet 第二出油口在进油口顺时针转90° NO.2 outlet 90° CW from inlet
第一出油口从进油口 逆时针转90° NO.1 outlet 90° CCW from inlet	BA 第二出油口在进油口逆时针转135° NO.2 outlet 135° CCW from inlet BB 第二出油口在进油口逆时针转45° NO.2 outlet 45° CCW from inlet BC 第二出油口在进油口顺时针转45° NO.2 outlet 45° CW from inlet BD 第二出油口在进油口顺时针转135° NO.2 outlet 135° CW from inlet	第二出油口在进油口对面 NO.2 outlet opposite inlet 第二出油口在进油口逆时针转90° NO.2 outlet 90° CCW from inlet 第二出油口在进油口同侧 NO.2 outlet inline with inlet 第二出油口在进油口顺时针转90° NO.2 outlet 90° CW from inlet



出油口位置 (从泵的盖端看)

Outlet Positions (Viewed from cover end of pump)

出油口位置 Outlet positions		除 4535VQ 外的所有系列 All series except 4535VQ	4535VQ
第一出油口在进油口同侧 NO.1 outlet inline with inlet	CA	第二出油口在进油口逆时针转135° NO.2 outlet 135° CCW from inlet	第二出油口在进油口对面 NO.2 outlet opposite inlet
	CB	第二出油口在进油口逆时针转45° NO.2 outlet 45° CCW from inlet	第二出油口在进油口逆时针转90° NO.2 outlet 90° CCW from inlet
	CC	第二出油口在进油口顺时针转45° NO.2 outlet 45° CW from inlet	第二出油口在进油口同侧 NO.2 outlet inline with inlet
	CD	第二出油口在进油口顺时针转135° NO.2 outlet 135° CW from inlet	第二出油口在进油口顺时针转90° NO.2 outlet 90° CW from inlet
第一出油口从进油口顺时针转90° NO.1 outlet 90° CW from inlet	DA	第二出油口在进油口逆时针转135° NO.2 outlet 135° CCW from inlet	第二出油口在进油口对面 NO.2 outlet opposite inlet
	DB	第二出油口在进油口逆时针转45° NO.2 outlet 45° CCW from inlet	第二出油口在进油口逆时针转90° NO.2 outlet 90° CCW from inlet
	DC	第二出油口在进油口顺时针转45° NO.2 outlet 45° CW from inlet	第二出油口在进油口同侧 NO.2 outlet inline with inlet
	DD	第二出油口在进油口顺时针转135° NO.2 outlet 135° CW from inlet	第二出油口在进油口顺时针转90° NO.2 outlet 90° CW from inlet

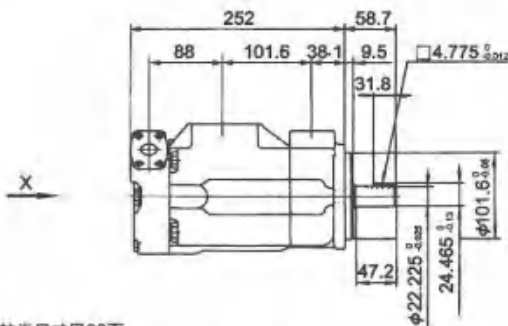
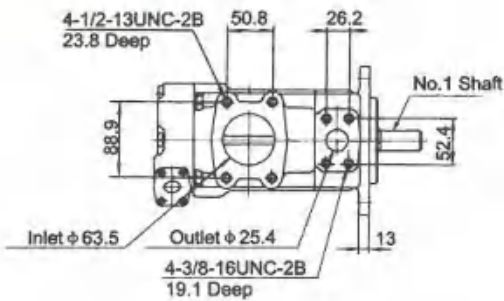


产品重量/Product Weight

产品名称 Product name	型号 Series	重量 Weight Kg	产品名称 Product name	型号 Series	重量 Weight Kg	产品名称 Product name	型号 Series	重量 Weight Kg
泵芯 Cartridge	20V, 20VQ, SQP1	3.0	单泵 Single pump	20V, 20VQ	13.0	单泵 Single pump	SQP1	16.7
	25V, 25VQ, SQP2	4.0		25V, 25VQ	15.0		SQP2	28.0
	35V, 35VQ, SQP3	7.0		35V, 35VQ	24.0		SQP3	38.0
	45V, 45VQ, SQP4	11.0		45V, 45VQ	37.0		SQP4	65.0
	T6C, T6CC	4.1		T6C	15.7		PV2R1	9.0
	T6D	8.3		T6D	24.0		PV2R2	17.0
	T6E	12.8		T6E	43.0		PV2R3	33.0

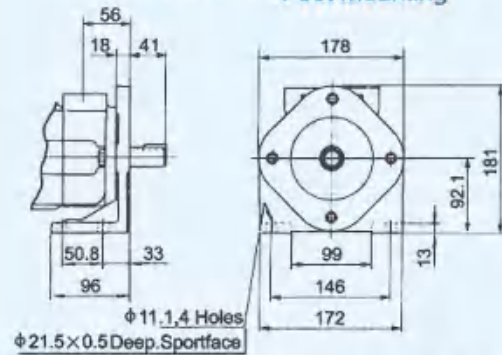
产品名称 Product name	型号 Series	重量 Weight Kg	产品名称 Product name	型号 Series	重量 Weight Kg	产品名称 Product name	型号 Series	重量 Weight Kg
双联泵 Double pumps	2520V, 2520VQ	23.0	双联泵 Double pumps	SQP21	34.0	双联泵 Double pumps	T6CC	26.0
	3520V, 3520VQ	33.0		SQP31	48.0		T6DC	36.6
	3525V, 3525VQ	35.0		SQP32	50.0		T6EC	55.0
	4520V, 4520VQ	46.0		SQP41	80.0		T6ED	66.0
	4525V, 4525VQ	48.0		SQP42	85.0		PV2R21	23.0
	4535V, 4535VQ	58.0		SQP43	95.0		PV2R31	41.0
							PV2R32	45.0

2520VQ 法兰安装尺寸 Flange Mounting

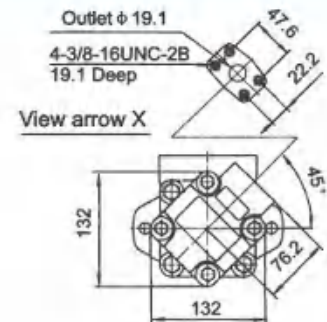
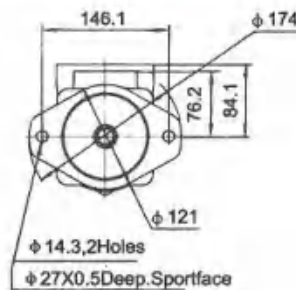


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

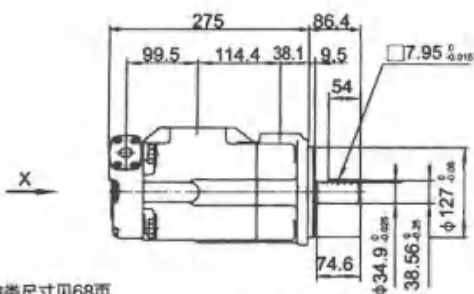
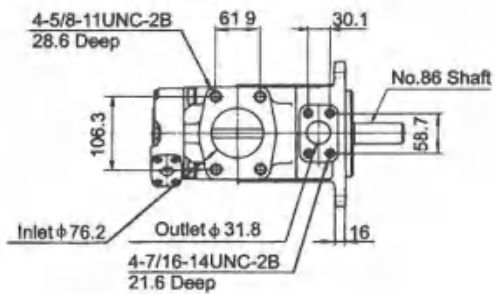
2520VQ 脚座安装尺寸 Foot Mounting



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

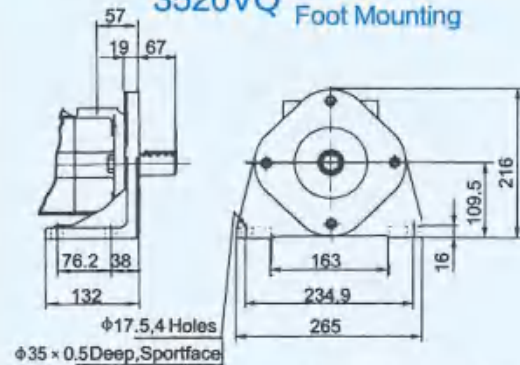


3520VQ 法兰安装尺寸 Flange Mounting

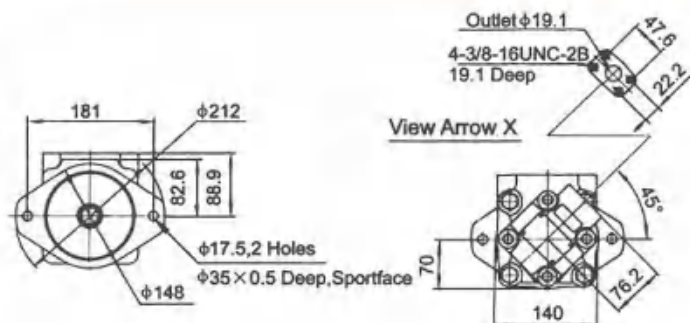


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

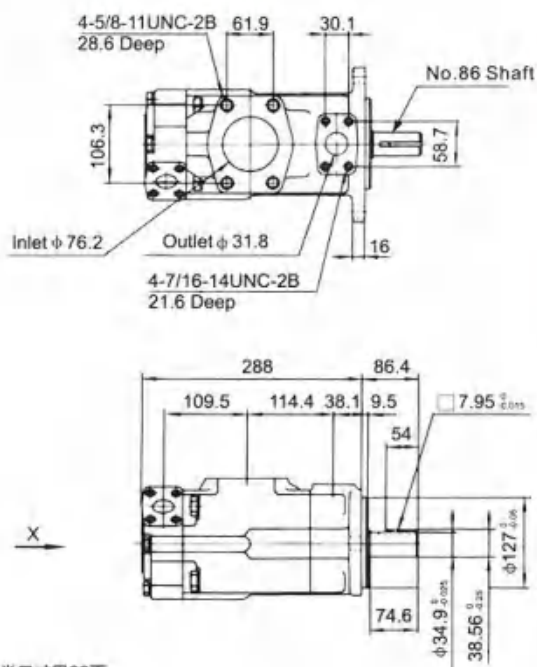
3520VQ 脚座安装尺寸 Foot Mounting



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

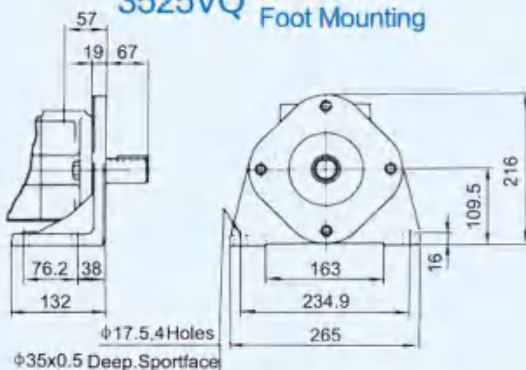


3525VQ 法兰安装尺寸 Flange Mounting

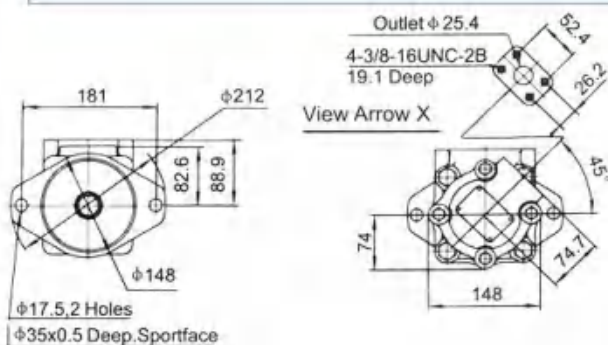


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

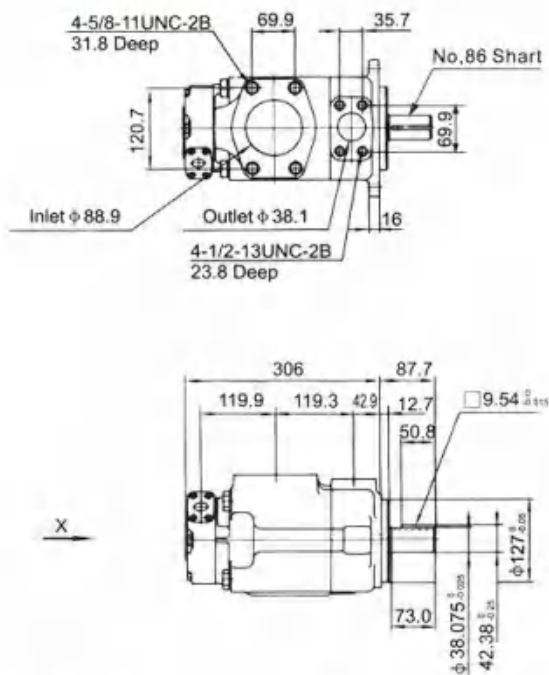
3525VQ 脚座安装尺寸 Foot Mounting



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

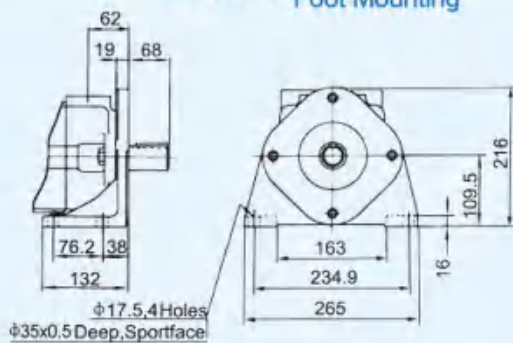


4520VQ 法兰安装尺寸 Flange Mounting

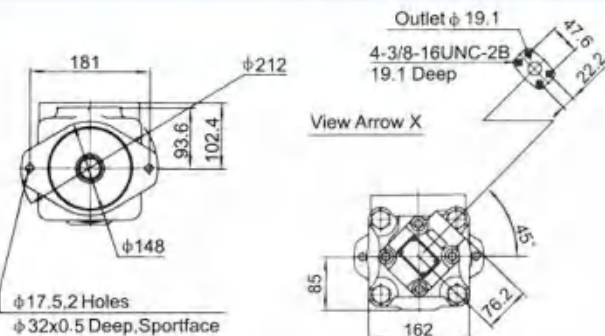


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

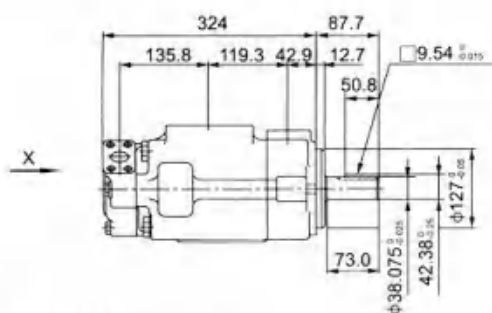
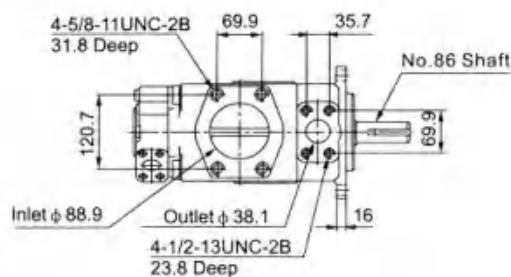
4520VQ 脚座安装尺寸 Foot Mounting



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

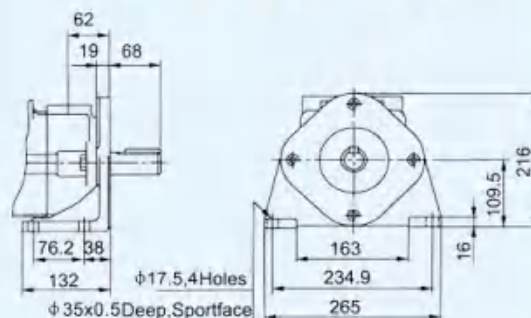


4525VQ 法兰安装尺寸 Flange Mounting

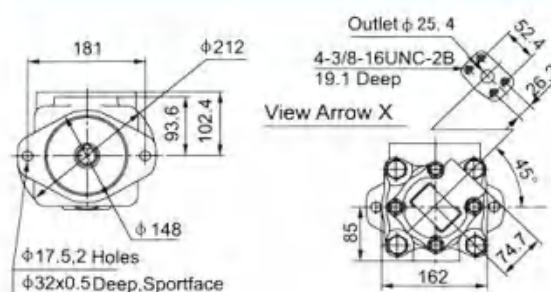


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

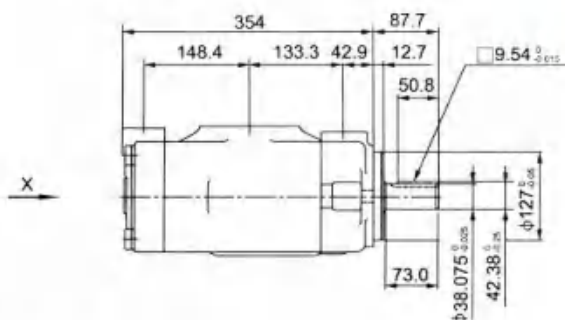
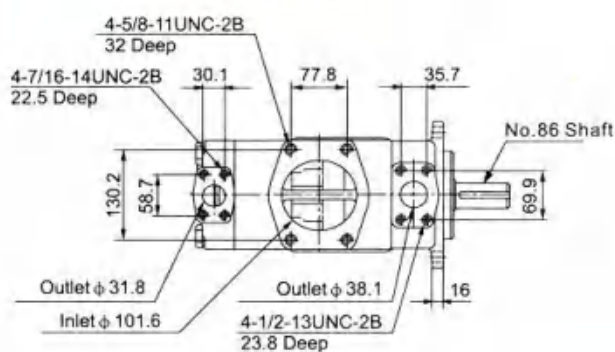
4525VQ 脚座安装尺寸 Foot Mounting



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

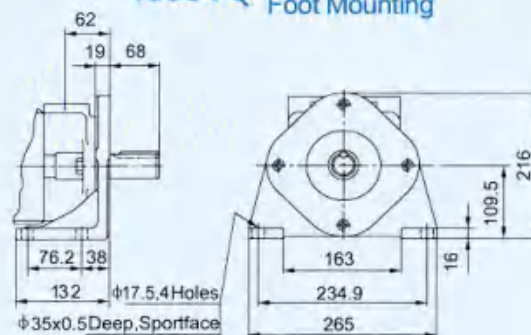


4535VQ 法兰安装尺寸 Flange Mounting

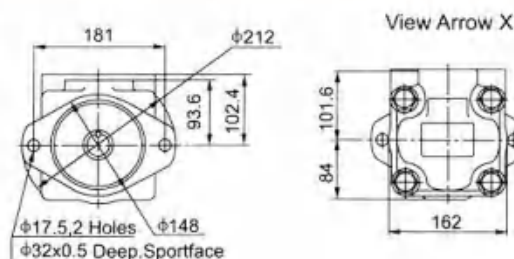


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

4535VQ 脚座安装尺寸 Foot Mounting

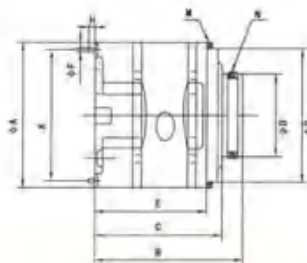


For other dimensions, refer to "Flange Mounting" type.



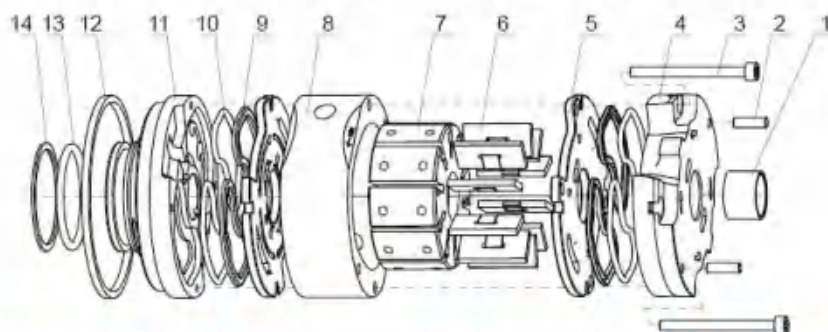
VQ 系列泵芯 Series-cartridge

型号说明/Model Designation



(F3-)	PC-	25VQ	19	R	10
前注 Note	泵芯标记 Cartridge mark	系列号 Series	▲排量代号 Displacement	旋转方向 Rotation	设计号 Design number
无标记 No-marking: 石油系油 Petroleum series oil 乳化液 emulsification fluid 水-乙二醇 water glycol-fluid F3: 磷酸酯液 phosphate ester fluid	PC-单泵泵芯、双联泵轴端泵芯 Cartridge kit of single pump double pump shaft end PCT-双联泵盖端泵芯 Cartridge kit of double pump cover end	20VQ	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	(从泵的轴端看) (Viewed from shaft end of pump) R-顺时针旋转 right hand for clockwise L-逆时针旋转 left hand for counter-clockwise	10
		25VQ	10, 12, 14, 15, 17, 19, 21, 25		
		35VQ	21, 25, 30, 32, 35, 38, 45		
		45VQ	42, 45, 50, 57, 60, 66, 75		

▲ 在1200r/min和0.69MPa(100psi)下的额定排量;与相应系列、规格的油泵性能参数一致,详见VQ系列单泵的性能参数。
USgpm Flow(USgpm) at 1200r/min and 0.69MPa.
The data of relevant series, model are unanimous. Please see VQ series-single pumps data.



序号NO.	名称Part	数量Qty	序号NO.	名称Part	数量Qty	序号NO.	名称Part	数量Qty
1	滑动轴承 Sliding bearing	1	6	叶片 vane kit	10	11	压力侧板 outlet support plate	1
2	销 Pin	2	7	转子 Rotor	1	12	挡圈 Retainer	1
3	内六角圆柱头螺钉 Hexagon socket head cap screws	2	8	定子 cam ring	1	13	O型圈 O shape retainer	1
4	侧板 inlet support plate	1	9	异形挡圈 irregular shape retainer	4	14	挡圈 Retainer	1
5	配油盘 valve plate	2	10	O型圈 O shape retainer	4			

技术规格/Specifications

系列号 Series	ΦA	B	C	ΦD	E	ΦF	ΦG	H	K	M (挡圈 Gasket)	N (O形圈 O-Ring)
20VQ	82.55	81.5	70.1	47.2	61.5	4.8	76.2	7	73.8	82.76×76.26×3.5	40×3.55
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	123.8	133.6×127.6×3.5	71×3.55

系列号 Series	转子内花键齿廓参数 Inside spline tooth outline parameter of rotor				
	齿数 Number of teeth	径节 Pitch	压力角 Pressure angle	大径 Major diameter	小径 Minor diameter
20VQ	30	48/96	45°	16.617	15.56
25VQ	40	48/96	45°	21.9	20.86
35VQ	37	40/80	45°	24.38	23.10
45VQ	14	12/24	30°	32.59	27.6

2520VQSV10S 三联泵

Series-treble Pumps

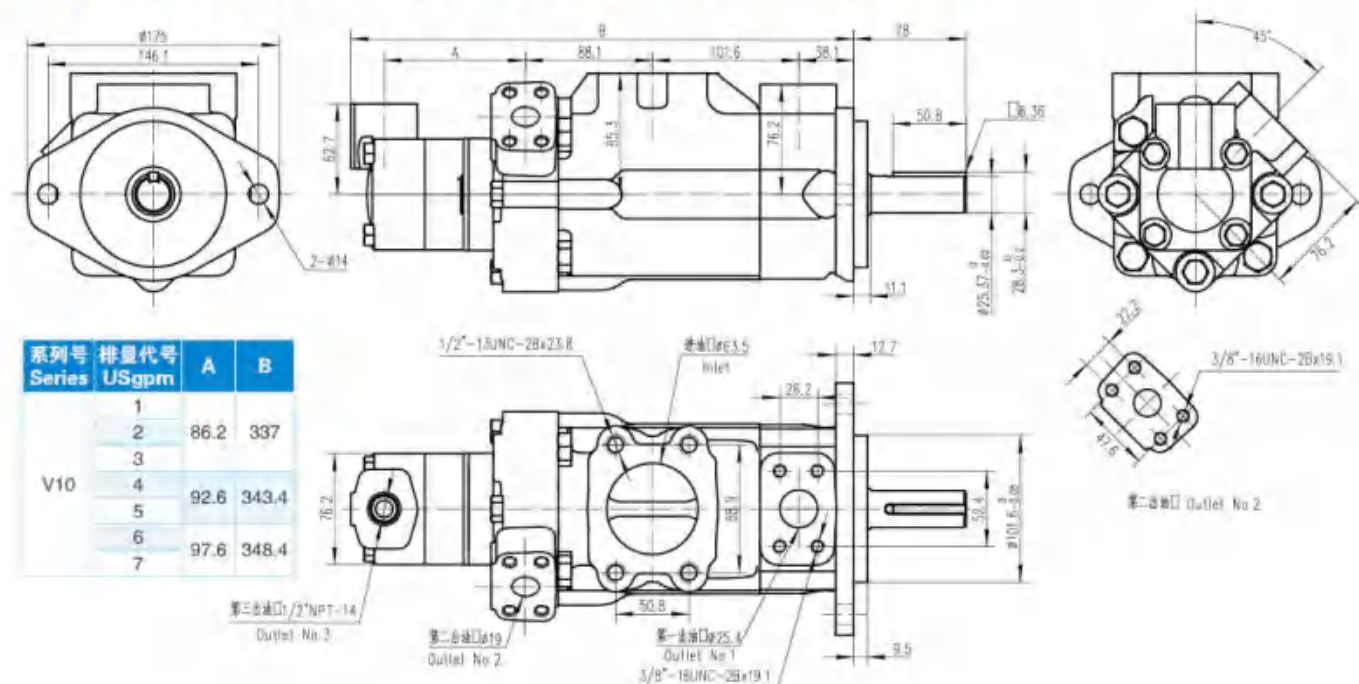
型号说明/Model Designation

(F3-)	2520VQSV10S	-21	A	7	-P	7	-86	C	B	C	-20	R
前注 Note	系列号 Series	轴端泵排量 代号 Flow-shaft end code	双泵油口连接 Double pump port connection	中间泵排量 代号 Flow-mid code	盖端泵油口连接 Flow-cover end pump port connection	盖端泵排 量代号 Flow- cover end code	轴伸形 式 Shaft type	第一出 油口位 置 No.1 Outlet positions	第二出 油口位 置 No.2 Outlet positions	第三出 油口位 置 No.3 Outlet positions	设计号 Design number	旋转方向 Rotation
无标记 No-marking: 石油系油 Petroleum series oil 乳化液 emulsification fluid 水-乙二醇 water glycol- fluid F3: 磷酸酯液 phosphate ester fluid	2520VQSV10S	10, 12, 14, 15, 17, 19, 21, 25	A-SAE 4螺栓法兰 A-SAE 4-bolt flange	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	1/2"NPT-14	1, 2, 3, 4, 5, 6, 7	-86 轴 Shaft	见下表 see below	见下表 see below	见下表 see below	-20	(从泵的轴端 看) (Viewed from shaft end of pump) R-顺时针旋转 right hand for clockwise L-逆时针旋转 left hand for counter- clockwise

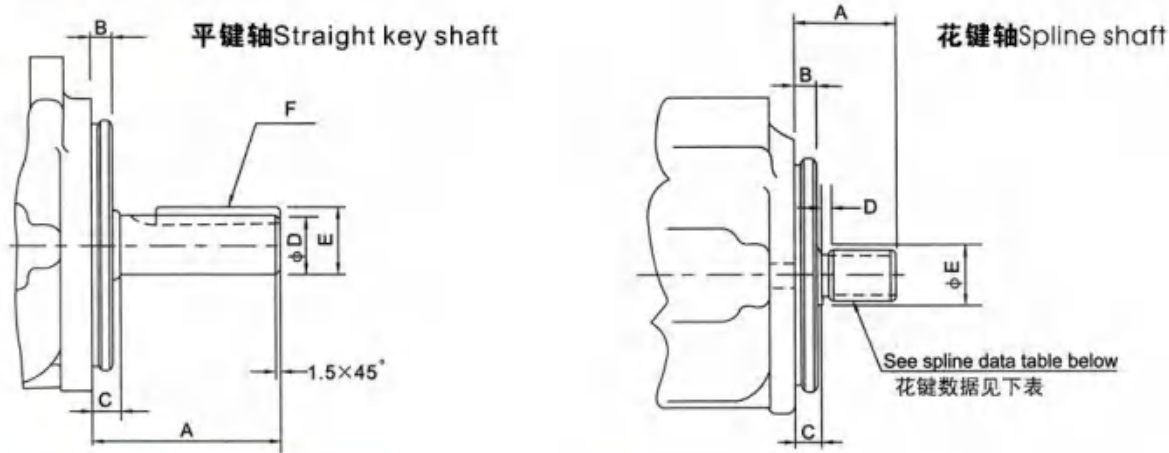
出油口位置代号/Outlet oil port position code

从盖端观察的位置/Views from cover end of pump	No.1 出油口/No.1 Outlet	No.2 出油口/No.2 Outlet	No.3 出油口/No.3 Outlet
在进油口对侧 Oppsite of the inlet oil port	A	-	A
从进油口逆时针135° CCW from the inlet oil port	-	A	-
从进油口逆时针90° CCW from the inlet oil port	B	-	B
从进油口逆时针45° CCW from the inlet oil port	-	B	-
在进油口同侧 Same side of the inlet oil port	C	-	C
从进油口顺时针45° CW from the inlet oil port	-	C	-
从进油口顺时针90° CW from the inlet oil port	D	-	D
从进油口顺时针135° CW from the inlet oil port	-	D	-

2520VQSV10S安装连接尺寸/Installation Dimensions



轴伸选择/Shaft type



平键轴/Straight Key shaft

型号 Model	轴伸代号 Shaft code	A	B	C	ΦD	E	F键宽*长 F key width x length
20V、20VQ、SQP1	1	59	9.53	12.1	22.23/22.20	24.5/24.4	4.76*32
25V、2520V 25VQ、2520VQ SQP2、SQP21	1	59	9.53	11.1	22.23/22.20	24.5/24.4	4.76*32
	86	78	9.53	11.1	25.37/25.35	28.3/28.1	6.36*50.8
35V、35※V 35VQ、35※VQ SQP3、SQP3※	1	73.2	9.53	11.1	31.75/31.70	35.36/35.10	7.94*38.1
	86	86	9.53	11.1	34.90/34.87	38.6/38.3	7.94*54
45V、45※V 45VQ、45※VQ SQP4、SQP4※	1	62	12.7	14.22	31.75/31.70	35.36/35.10	7.94*28.5
	86	87.4	12.7	14.22	38.07/38.05	42.4/42.1	9.54*50.8

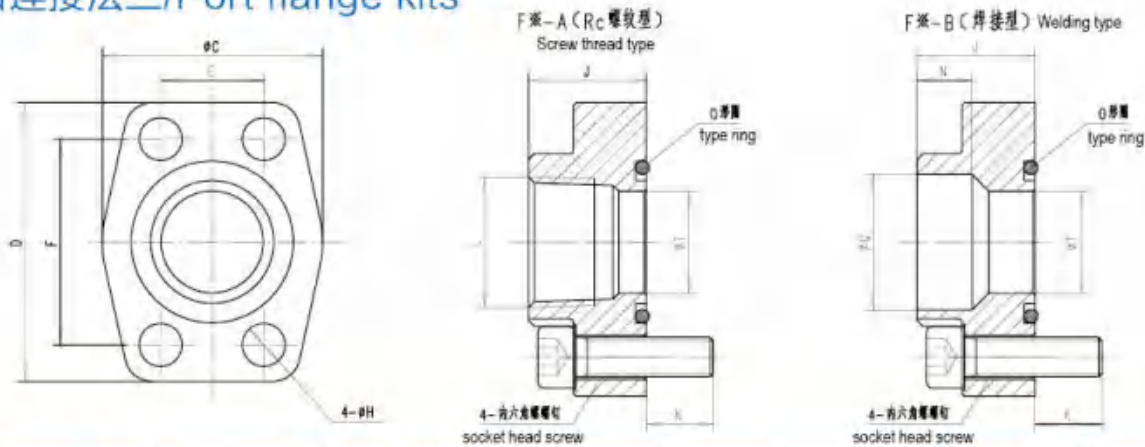
花键轴/Spline shaft

型号 Model	轴伸代号 Shaft code	A	B	C	D	E	花键数据(见下表) Spline data(see below)
20V、20VQ	151	41.1	9.53	11.1	3.9	27.8	A
25V、2520V 25VQ、2520VQ	11	44.5	9.53	11.1	3.9	27.8	A
35V、35※V 35VQ、35※VQ	11	58.7	9.53	11.1	6.35	35.1	C
45V、45※V 45VQ、45※VQ	11	61.9	12.7	14.3	9.7	39.6	C

花键数据表（渐开线花键）/Spline Data Table(Involute spline)

花键数据标记 Spline Data Reference	齿数 Number of teeth	径节 Pitch	大径 Major Diameter	成形直径 Form Diameter	小径 Minor Diameter	平齿根配合 Minor Diameter
A	13	16/32	22.17/22.15	19.03	18.63/18.35	大径配合 Major diameter fit
C	14	12/24	31.70/31.67	27.2	26.99/26.64	

油口连接法兰/Port flange kits



法兰型号 Flange model	对应管子规格 Corresponding pipe specifications	尺寸/Dimensions mm										O 形圈/ Ring GB3452.1-2005	PV2R 系列/ Series		
		C	D	E	F	H	J	L	N	Q	T		内六角螺钉 socket head screw	尺寸 Dimensions K	对应油泵接口 Corresponding oil pump interface
F04-A	1/2"	40	54	17.5	38.1	9.0	27	Rc1/2"	-	-	-	21.2x2.65	M8x30mm	12.5	PVR1 出口/outlet, PV2R21, PV2R31 盖端泵出口/outlet of cover end pump
F04-B								-	11	22.5	13				
F06-A	3/4"	50.5	65.5	22.2	47.6	11.0	28	Rc3/4"	-	-	-	30x3.55	M10x30mm	12.5	PVR2 出口/outlet, PV2R21 泵端泵出口/outlet of shaft end pump, PV2R32 盖端泵出口/outlet of cover end pump
F06-B								-	12	28.5	19				
F08-A	1"	56	71	26.2	52.4	11.0	30	Rc1"	-	-	-	34.5x3.55	M10x35mm	17.0	PVR1 吸油口/inlet port
F08-B								-	14	34.5	26				
F10-A	1-1/4"	64.5	79.5	30.2	58.7	12.0	32	Rc1-1/4"	-	-	-	40x3.55	M10x40mm	19	PVR2 吸油口/inlet port, PV2R3 出口/outlet, PV2R31, PV2R32 轴端泵出口/outlet of shaft end pump
F10-B								-	16	43.0	32				
F12-A	1-1/2"	71	94	35.7	69.9	13.8	37	Rc1-1/2"	-	-	-	50x3.55	-	-	-
F12-B								-	18	49.1	38				
F16-A	2"	87.5	103	42.9	77.8	13.8	38	Rc2"	-	-	-	65x3.55	M12x45mm	17.5	PVR3, PV2R21 吸油口/inlet
F16-B								-	20	61.0	51				
F20-A	2-1/2"	96	115	50.8	88.9	13.8	42	Rc2-1/2"	-	-	-	75x3.55	-	-	-
F20-B								-	22	77.1	63				
F24-A	3"	123	136	61.9	106.4	17.0	45	Rc3"	-	-	-	85x3.55	M16x45mm	16.5	PVR31, PV2R32 吸油口/inlet
F24-B								-	25	90.0	76				
F28-A	3-1/2"	135	153	69.9	120.7	17.5	46	Rc3-1/2"	-	-	-	100x3.55	-	-	-
F28-B								-	20	102.8	89				
F32-A	4"	145	162	77.8	130.2	17.0	50	Rc4"	-	-	-	115x3.55	-	-	-
F32-B								-	28	115.5	102				

法兰型号 Flange model	V、VQ、SQP、T6 系列/ Series		
	内六角螺钉 socket head screw	尺寸 K Dimensions	对应油泵接口 Corresponding oil pump interface
F04-A	-	-	-
F04-B	-	-	-
F06-A	3/8"-16UNCx1.5" (38.1mm)	20.6	20V(Q)、SQP1 出口/outlet, 2520V(Q)、3520V(Q)、4520V(Q)、SQP21、SQP31、SQP41、T6CC (油口尺寸 01、11/oil port dimensions)、T6DCC (油口尺寸 01/oil port dimensions)、T6DDCS (油口尺寸 01/oil port dimensions)、T6EDC(S) (油口尺寸 01/oil port dimensions) 盖端泵出口/outlet of cover end pump
F06-B			25V(Q)、SQP2、T6C 出口/outlet port, 2520V(Q)、SQP21、T6CC 轴端泵出口/outlet of shaft end pump, 3525V(Q)、4525V(Q)、SQP32、SQP42、T6CC (油口尺寸 00、10/oil port dimensions)、T6EC、T6DCC (油口尺寸 00/oil port dimensions)、T6DDCS (油口尺寸 00/oil port dimensions)、T6EDC(S) (油口尺寸 00/oil port dimensions) 盖端泵出口/outlet of cover end pump、T6DCC 中间泵出口/outlet of middle pump
F08-A	3/8"-16UNCx1.5" (38.1mm)	20.1	SQP1 吸油口/inlet, 35V(Q)、SQP3、T6D 出口/outlet, 3520V(Q)、3525V(Q)、SQP31、SQP32、T6DC、T6DCC、T6DDCS 轴端泵出口/outlet of shaft end pump, 4535V(Q)、SQP43、T6ED 盖端泵出口/outlet of cover end pump, T6DDCS、T6EDC(S) 中间泵出口/outlet of middle pump
F08-B			20V(Q)、25V(Q)、SQP2、T6C 吸油口/inlet, 45V(Q)、SQP4、T6E 出口/outlet, 4535V(Q)、SQP43、T6EC、T6ED、T6EDC(S) 轴端泵出口/outlet of shaft end pump
F10-A	7/16"-14UNCx1.575" (40mm)	19.0	35V(Q)、SQP3、T6D 吸油口/inlet
F10-B			2520V(Q)、SQP21、T6CC (油口尺寸 10、11/oil port dimensions) 吸油口/inlet
F12-A	1/2"-13UNCx1.75" (44.5mm)	16.5	45V(Q)、SQP4、T6E 吸油口/inlet, 3520V(Q)、3525V(Q)、SQP31、SQP32、T6CC (油口尺寸 00、01/oil port dimensions)、T6DC 吸油口/inlet
F12-B			4520V(Q)、4525V(Q)、SQP41、SQP42、T6EC 吸油口/inlet
F16-A	1/2"-13UNCx1.75" (44.5mm)	17.0	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F16-B			-
F20-A	1/2"-13UNCx1.75" (44.5mm)	22.3	-
F20-B			-
F24-A	5/8"-11UNCx2" (50.8mm)	22.3	-
F24-B			-
F28-A	5/8"-11UNCx2" (50.8mm)	19.3	-
F28-B			-
F32-A	5/8"-11UNCx2" (50.8mm)	23.0	-
F32-B			-

安装、使用与维护

1. 工作介质

- 为提泵油泵性能, 延长使用寿命, 推荐使用抗磨液压油, 粘度范围10-860cst, 推荐粘度46cst。
- 液压油的污染会引起叶片泵的故障和降低其寿命, 应对液压油液进行有效的控制, 系统过滤精度不低于 $25\mu\text{m}$ 。为防止吸入污物和杂质, 应在吸油口处安装过滤精度70-150 μm 的过滤器, 其额定流量不低于泵流量的两倍。
- 油泵工作油温范围: 0°C - 70°C , 为保证长期的可靠寿命, 最佳油温 10°C - 60°C 。

2. 泵的安装

- 油泵支架结构要牢固, 刚性好, 并能充分吸收振动。
- 油泵可卧式或立式安装(最好卧式)。泵和电机轴必须对齐, 同轴度应控制在 0.1mm 以内, 尽量采用柔性联轴器, 以避免因弯曲或侧向力引起的任何应力。
- 尽量避免进出口油管采用软管硬连接, 建议使用橡胶软管, 以避免出现额外的负载导致额外的噪声。
- 吸入阻力不应太高, 以防产生空蚀现象。油泵允许吸入真空度为110mm水银柱。安装应尽量接近油箱, 吸入高度不得大于500mm。
- 注意进出口处连接法兰、接头以及整个吸油管道必须严格密封, 防止漏气。否则将会引起噪声、系统振动, 并使油箱内产生大量泡沫, 降低泵的寿命。
- 油泵的吸油管道通径不小于泵入口通径。
- 油箱应设有隔板, 用来分隔回油带来的气泡与脏物。回油管应伸到油面以下(不得直接和泵的入口连接), 防止回油飞溅引起气泡。

3. 启动

- 油泵启动前, 应检查进、出口, 切勿搞错方向。泵旋转方向应与标牌指示方向一致(订货时未注明旋向者, 一律按顺时针旋向供货)。初次启动应向泵里注满油, 并用手动转动联轴器, 旋转力量应均匀、灵活。
- 启动时, 应尽量在无负荷工况下经点动运转正常后再正式启动。
- 由于泵装配后或长时间停运再启动, 会产生吸空现象, 故应在排油口安装放气阀, 或松动出口法兰、接头, 以便放出空气。

4. 维护

- 用户购回油泵后, 如不及时使用, 必须将内部注入防锈油, 并将外加工表面涂防锈油膜, 然后盖好防尘盖, 妥善保存。
- 要定期检查油液性能, 达不到规定要求时要及时予以更换, 并清洗油箱。
- 过滤器应经常清洗, 以便正油液吸入通畅。
- 保持油箱正常油面高度。配管和油箱的容量很大时, 尽管最初已加入足够数量的油, 在启动之后, 油进入管道和油缸, 也会发生油面下降使过滤器露出油面。因此必须再补油。在使用过程中, 还会发生泄漏, 应该在油箱中设置油面计, 以便经常观察和补油。
- 油泵工作一段时间后, (由于振动) 安装螺钉或进出口法兰螺钉有可能松动, 要注意检查, 并拧紧防松。
- 由于ABT伺服泵泵腔采用插装式结构, 因此正常维修时只需要更换泵芯, 更换时应检查密封圈是否完整, 防止切边。拧紧壳体连接螺钉时, 应按对角线方向逐渐拧紧, 用力均匀。

Installation, Application and Maintenance

1. Operating oil

- Anti-wear hydraulic oil is recommended for better performance and longer life. Viscosity range: 10-860cst, Recommended viscosity 46cst.
- Proper fluid condition is essential for long and satisfactory life of hydraulic components and systems. The filtration rating should not be lower than $25\mu\text{m}$. Filter of 70-150 μm on the inlet port is recommended and its rated flow should not be lower than 200% of pump's.
- Oil temperature range of pump working: 0°C - 70°C . The best oil temperature is 10°C - 60°C for ensuring long-term and reliable life.

2. Installation

- Foot and frame for pump must be reliable, solid and good in vibration absorbent.
- Horizontal mounting is recommended to maintain necessary case fluid level. Concentricity of shafts between pump and motor is important to pump life and should be within 0.1mm . It is better to use flexible coupling to avoid harmful effects.
- Try to avoid using the steel pipe connection for tubing, the rubber hose is recommended for avoiding additional load causes the extra noise.
- The oil pump allows the inhalation vacuum as 110 mm column of mercury. Installation should near fuel tank, inhaling the height can not be big in 500 mm.
- Please notice the seal of flange at port connections, ports and absorb pipeline has to be sealed strictly, to prevent air leakage. If not it will cause the noise and vibration of system, also will make foam, to low the life of pump.
- The diameter of absorb pipeline should not smaller than that of inlet.
- There should be a plank in the tank to separate bubble and dirty thing from used oil. Return pipeline under oil is recommended(not connect with inlet) for avoid bubble.

3. Start

- Before starting pump, please check up if the inlet and outlet have been correctly connected and the rotation of the pump is inline with the nameplate.(CW without notice).
- After confirming it is able to work well without burthen, please restart.
- When initially starting the pump after long-time unused, removing all trapped air from the system can be accomplished by loosening flange or connections.

4. Maintenance

- Please inject defend-rust oil in the pump, paint the surface with defend-rust grease and then cover ports, if you do not want to use it right now.
- Please check up oil periodically, while if the oil can not reach the demand, replace it and clean up tank.
- Purging of filter regular is recommended.
- Keep the normal level of oil in the tank. When capability of tubing and tank are large, even if injected enough oil. Because when starting, the level of oil would fall, then please add some oil. Please observe the level of oil and add some oil when needed.
- After a period of working, it is likely that the install bolt and flange of inlet and outlet would loose because of vibrating, please tight them.
- The cartridge design of ABT series servo pumps offers fast and efficient field service ability, when replacing the cartridge, seals inside the pump should be checked to avoid them crimping, when tightening the fastening screws, they should be treated with even force in diagonal direction.

常见故障及排除方法一览表 Common trouble and solving

现象 Trouble	产生原因 Cause of trouble	排除方法 Remedy method
油泵吸不上油或 无压力 Pump starveling Or no pressure	1.原动机与油泵旋向不一致 Not the same of rotation direction of primer as that of pump	纠正原动机旋向 Correct rotation direction of primer
	2.油泵传动键脱落 Key of pump shaft falls off	重新安装传动键 Re-assembly the key
	3.进出油口接反 Wrong connecting of inlet and outlet	按说明书选用正确接法 According to operating manual, re-connect them
	4.油箱内油面过低,吸入管口露出液面 Oil level in tank too low,suction pipe exposed above the oil level	补充油液至最低油标线以上 Fill oil to the position above the lowest oil level in tank
	5.转速太低吸力不足 Rotation speed too low,suction not enough	提高转速达到油泵最低转速以上 Increase speed of pump above the lowest one
	6.油粘度过高,使叶片运动不灵活 Oil viscosity too high	选用推荐粘度的工作油 Use recommended operating oil
	7.油温过低,使油粘度过高 Oil viscosity too high due to lower ambient temperature	加温至推荐正常工作油温 Heat oil to normal oprating temperature range
	8.系统油液过滤精度低导致叶片在槽内卡住 Vane is clipped due to lower filtration of system oil	拆洗、修磨油泵内脏件,仔细重装,并更换油液 Disassembly,mend pump cartridge parts;after finishing the above, carefully reassemble them and change the oil
	9.吸入管道或过滤装置堵塞造成吸油不畅 Pipe line or filter blocked,oil in suction line can't flow freely	清洗管道或过滤装置,除去堵塞物,更换或过滤油箱内油液 Clean pipe line and filter,remove foreign material, change or filter oil in the tank
	10.吸入口过滤器过滤精度过高造成吸油不畅 Filtration rating of the suction filter too high	按说明书正确选用过滤器 Select correct filter according to oprating manual
流量不足达 不到额定值 Flow not enough, lo-wer than rated one	11.吸入管道漏气 Air leak in suction line	检查管道各连接处,并予以密封.紧固 Check every connection and re-tighten them
	12.小排量油泵吸力不足 Small delivery pump poor suction	向泵内注满油 Full fill the pump with oil
	1.转速未达到额定转速 Speed of pump lower than rated value	按说明书指定额定转速选用电机转速 According to rated speed in oprating manual, select correct model of electric motor
	2.系统中有泄漏 There is leakage in system	检查系统,修补泄漏点 Check system,repair leakage point
	3.由于油泵长时间工作.振动使泵盖螺钉松动 Locking screws for pump cover loosen due to longer time vibration	适当拧紧螺钉 Properly tighten the screws
	4.吸入管道漏气 There is leakage in suction line	检查各连接处,并予以密封.紧固 Check all connection and re-seal or lock them
	5.吸油不充分 Suction oil not enough	
	①油箱内油面过低 Oil level in tank too low	补充油液至最低油标线以上 Fill oil to and above the lowest level
	②入口滤油器堵塞或通流量过小 Inlet Filter blocked or its size too small	清洗过滤器或选用通流量为油泵流量2倍以上的滤油器 Clean filter or select bigger size filter(with double flow of that of pump)
	③吸入管道堵塞或口径小 Suction line blocked or too small in size	清洗管道,选用不小于油泵入口口径的吸入管 Clean pipe line,select bigger size pipe
压力升 不上去 Pressure lower	④油粘度过高或过低 Oil viscosity too high or too low	选用推荐粘度工作油 Use recommended operating oil
	1.油泵不上油或流量不足 Pump starveling or flow not enough	同前述排除方法 Same as the above
	2.溢流阀调整压力太低或出现故障 Adjusting pressure of relief valve too low or trouble in it	重新调试溢流阀压力或修复溢流阀 Re-adjust relief valve or repair it
	3.系统中有泄漏 There is leakage in system	检查系统.修补泄漏点 Check system and repair leakage point
	4.由于油泵长时间工作.振动,使泵盖螺钉松动 Locking screws for pump cover loosen due to longer time vibration	适当拧紧螺钉 Properly tighten screws

现象 Trouble	产生原因 Cause of trouble	排除方法 Remedy method
压力升不上去 Pressure lower	5.吸入管道漏气 Leakage in suction line	检查各连接处, 并予以密封.紧固 Check all connections and seal or tighten them
	6.吸油不充分 Suction not enough	同前述排除方法 Same as the above
噪声过大 Noise too high	1.吸入管道漏气 Leak in suction line	检查管道各连接处, 并予以密封.紧固 Check all connections in pipe line and reseal or tighten them
	2.吸油不充分 Suction not enough	同前述排除方法 Same as the above
	3.泵轴和原动机轴不同心 Poor concentricity between shaft of pump and that of electric motor	重新安装达到说明书要求精度 Re-assemble until attain the precision specified
	4.油中有气泡 There are bubbles in oil	补充油液或采取结构措施把回油口浸入油面以下 Fill more oil or put return port under oil level in tank
	5.泵转速过高 Pump speed too high	选用推荐转速范围 Select recommended speed range
	6.泵压力过高 Pump pressure too high	降压至额定压力以下 Decrease pressure below rated value
	7.轴密封处漏气 Air leak in shaft seal	更换油封 Change the seal
过度发热 Too much heat	1.油温过高 Oil temperature too high	改善油箱散热条件或增设冷却器使油温控制在推荐正常油温范围内 Improve heat radiation or install a cooler to control oil temperature within normal range
	2.油粘度太低, 内泄过大 Oil viscosity too low and internal leakage too much	选用推荐粘度工作油 Select operating oil with recommended viscosity
	3.工作压力过高 Operating pressure too high	降压至额定压力以下 Decrease it below rated value
	4.回油口直接接到油泵入口 Return pipe directly connected to pump inlet	回油口接至油箱液面以下 Connecting return pipe under oil level in tank
振动过大 Vibration too big	1.泵轴与电机轴不同心 Poor concentricity between shafts of pump and motor	重新安装达到说明书要求精度 Re-assemble until attain the precision specified
	2.安装螺钉松动 Mounting screw loosen	拧紧螺钉 Tighten screws
	3.转速或压力过高 Speed or pressure too high	调整至许用范围以内 Decrease them below rated value
	4.油液过滤精度过低, 导致叶片在槽中卡住 Vane is clipped due to lower filtration of system oil	拆洗修磨内脏件, 并仔细重新组装, 并更换油液或重新过滤油箱内油液 Disassemble, mend and clean cartridge parts; after finishing the above, carefully reassemble them and change the oil
	5.吸入管道漏气 Air leak in suction line	检查管道各连接处, 并予以密封.紧固 Check all connections and reseal or tighten them
	6.吸油不充分 Suction area not enough	同前述排除方法 Same as the above
	7.油液中有气泡 There are bubbles in oil	补充油液或采取结构措施把回油口浸入油面以下 Fill more oil or put return port under oil level in tank
外渗漏 External leakage	1.密封老化或损伤 Seal aging or damaged	更换密封 Replace seals
	2.进出油口连接部位松动 Connection of inlet or outlet loosen	紧固螺钉或管接头 Tighten screws of fittings
	3.密封面磕碰 Sealing surface cracking	修磨密封面 Mend or grind the surface
	4.外壳体砂眼 Sand holes in housing	更换外壳体 Replace housing

订货须知: NOTE

1. 订货时要考虑如下因素: Please notice the following factors when booking.
 产品用途及使用环境压力(常用压力, 瞬时最高压力, 及使用压力—时间曲线状况),
 转速及转向, 扭矩排量原动机种类, 安装位置及方式, 使用油液的种类等。

The product use, using environmental pressure (usual pressure, moment highest pressure and cartridge performance)
 speed and rotation, torque, flow, kinds of prime motive, install positions and ways, kinds of oil.

2. 订货时必须详细写明型号规格 Please note model and specification in detail when booking.

例如: eg: 25V19A-1A22R