

PV2R 系列叶片泵 Series-vane Pumps

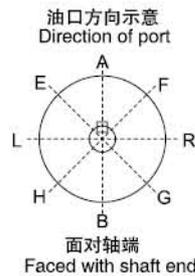


产品简介/Product Introduction

PV2R系列高压低噪声叶片泵是我公司独立研制开发的国产化高性能产品,具有性能先进,结构合理,可靠性好,噪声低,脉动极小,质量稳定的特点。产品精工制造,特别适应高精度低噪声设备的要求,广泛应用于切削机械、塑料机械、皮革机械、锻压机械、工程机械等领域。

PV2R series of vane pumps with high pressure and lower noise are high-performance products, which are developed and domestically produced by our company, featured by advanced performance, reasonable structure, good creditability, lower noise, ultra-low pulse and stable quality and so on. Precisely made, the product can be used in the equipment with high precision and low noise, and is widely used in cutting, plastic, leather, forging and engineering machinery fields, and the like.

油口方向示意图/Direction of port



型号说明/Model Designation

<p>PV2R</p> <p>系列叶片泵 Series of vane pumps</p>	<p>※</p>	<p>—</p>	<p>※</p>	<p>—</p>	<p>※</p>	<p>□</p>	<p>□</p>	<p>□</p>
<p>子系列代号 Code of subsidiary series 1、2、3、21、31、32</p>	<p>单泵或双泵的轴端泵公称排量 Displacement of single or double shaft end pump mL/r</p>				<p>轴径/Shaft diameter F-小轴 Minor shaft (Omitted) F₁-大轴 Major shaft</p>			
<p>双泵的盖端泵公称排量 Displacement of cover end pump mL/r</p>				<p>油口位置 (从轴端看) Port positions (Viewed from shaft end) 进油口: A、B、L、R Inlet: A、B、L、R 单泵或双泵的轴端泵出油口:A Outlet of single or double shaft end pump:A 双泵的盖端泵出油口:A、B、E、F、G、H、L、R Outlet of cover end pump:A、B、E、F、G、H、L、R</p>				
<p>旋转方向 (从轴端看) Direction of rotation (Viewed from shaft end) R-顺时针 Clockwise L-逆时针 Counter clockwise</p>								

技术规格/Specifications

单泵/Single Pumps

产品型号 Model	理论排量 Displacement (mL/r)	最高压力 Max.pressure(MPa)			允许转速 Speed (r/min)		驱动功率 Input power (kW)		
		高压用特定油 Special oil	抗磨液压油 Antiwear oil	普通液压油 Common oil	最低 Min.	最高 Max.			
PV2R1-4	4.3	21	17.5	16	750	1800	2.1		
PV2R1-6	6.5						3.2		
PV2R1-8	8.5						4.5		
PV2R1-10	10.8						5.4		
PV2R1-12	12.8						6.1		
PV2R1-14	14.5						6.9		
PV2R1-17	16.2						7.9		
PV2R1-19	20.1						9.6		
PV2R1-23	22.5						10.5		
PV2R1-25	25.3						12.5		
PV2R1-28	29.6						14.0		
PV2R1-31	32.3	16	16				15.5		
PV2R2-26	25.3	21	17.5	14	600	1800	11.7		
PV2R2-33	32.3						15.5		
PV2R2-41	39.8						18.9		
PV2R2-47	49.8						23.2		
PV2R2-53	51.5						24		
PV2R2-59	55.8						24.9		
PV2R2-65	63.7						29.4		
PV2R2-70	70.3						31.6		
PV2R2-79	78.1						16	1200	35.7
PV2R2-85	82.7						37.5		
PV2R3-52	51.5	21	17.5	14	600	1800	23.2		
PV2R3-60	63.7						29.4		
PV2R3-66	66.6						34.2		
PV2R3-76	75.5						37.7		
PV2R3-94	89.5						41.2		
PV2R3-116	118						50		
PV2R3-125	122.2						16	16	1200
PV2R3-136	136	66.7							

注: 1. 公称排量“4”、“6”、“8”泵, 压力超过16MPa使用时, 转速应超过1450r/min。

2. 在高转速下使用大排量单泵及相应的双泵时, 应减少吸入口负压。

3. 使用合成液压油及含水液压油时, 最高转速限制在1200r/min。

4. 对于特别要求低噪音的场合, 建议工作转速选用1000r/min。

5. 噪声值是在P=14MPa、n=1200r/min的工况下。

6. 驱动功率是在P=16MPa、n=1500r/min的工况下。

Note: 1. When pressure of pumps exceeds 16MPa, with displacement of "4" "6" "8", speeds should be more than 1450r/min.

2. Reduce the negative pressure of the inlet when the single pumps or double pumps with large displacement at high speed.

3. In use of synthetic hydraulic fluids and water containing hydraulic fluids, limit the max speed at 1200r/min.

4. Speed at 1000r/min is suggested on occasions with lower noise strictly required.

5. Noisiness is available in working conditions of 14MPa and 1200r/min.

6. Input power is available in working conditions of 16MPa and 1500r/min.

双联泵/Double Pumps

泵系列号 Series	轴端泵排量 Displacement of shaft end pump	盖端泵排量 Displacement of cover end pump
PV2R21	26、33、41、47、53、59、65	4、6、8、10、12、14、17、19、23、25、28、31
PV2R31	52、60、66、76、94、116、125、136	4、6、8、10、12、14、17、19、23、25、28、31
PV2R32	52、60、66、76、94、116、125、136	26、33、41、47、53、59、65

外型尺寸/Installation Dimensions

单泵/Single Pumps

PV2R1

轴伸形式 Shaft type	A	B	C	D	F	G	H
F1	178.5	69.5	44.5	36	19.05	21.24	4.76
F	184	75	50	41	15.88	17.68	3.97

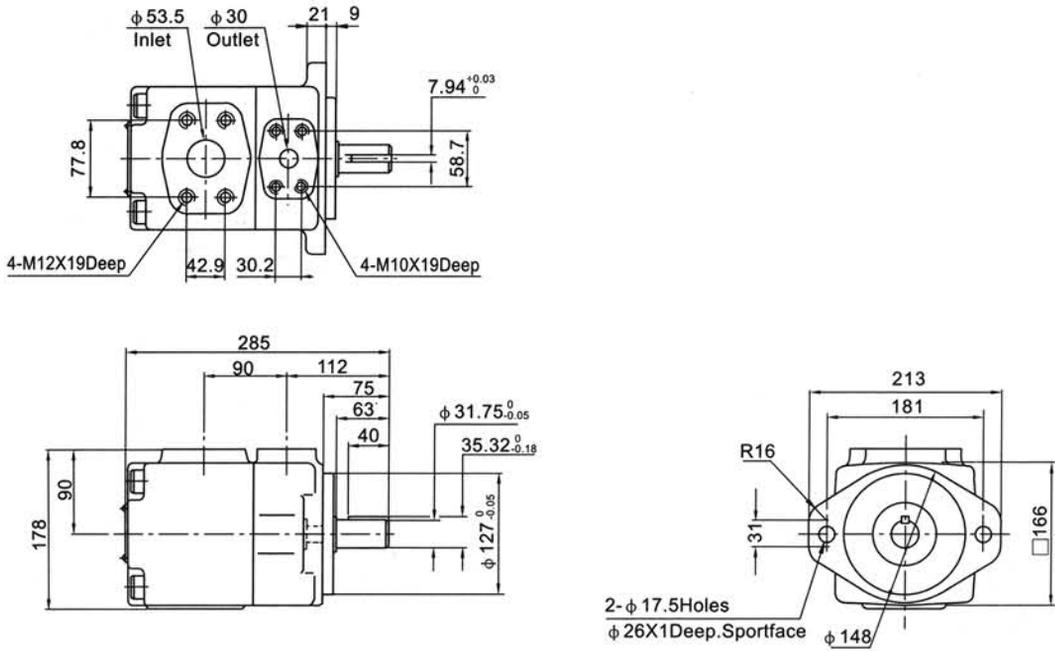
PV2R2

轴伸形式 Shaft type	F	G
F1	25.4	28.18
F	22.23	25.01

2-φ11Holes

2-φ13.5Holes
φ21X1Deep.Sportface

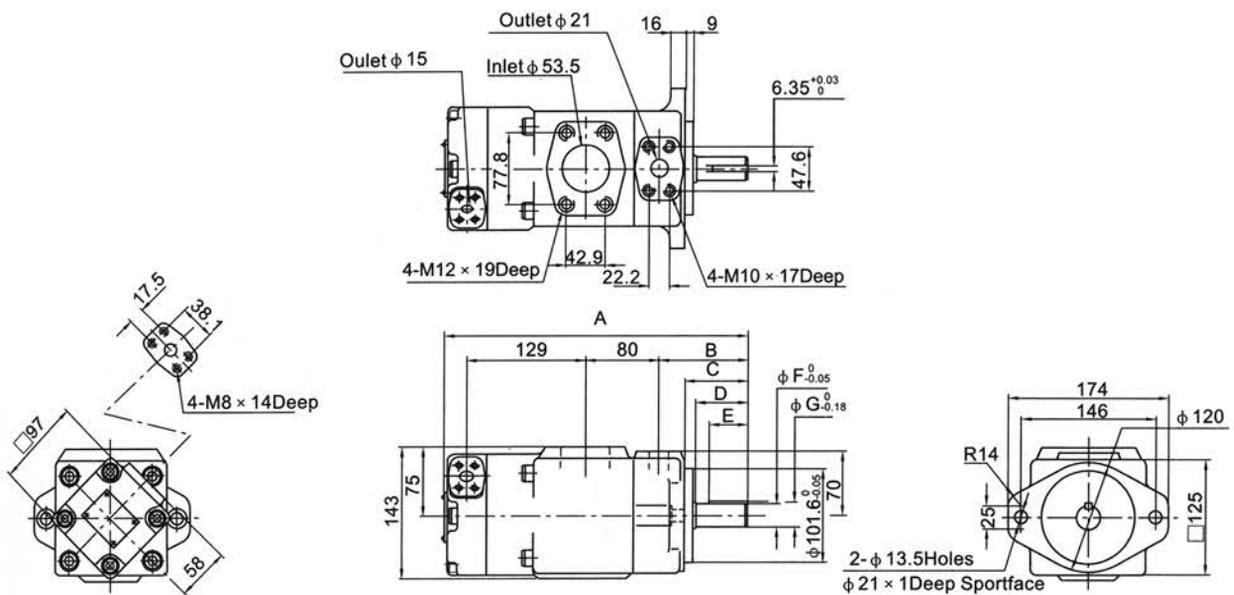
PV2R3



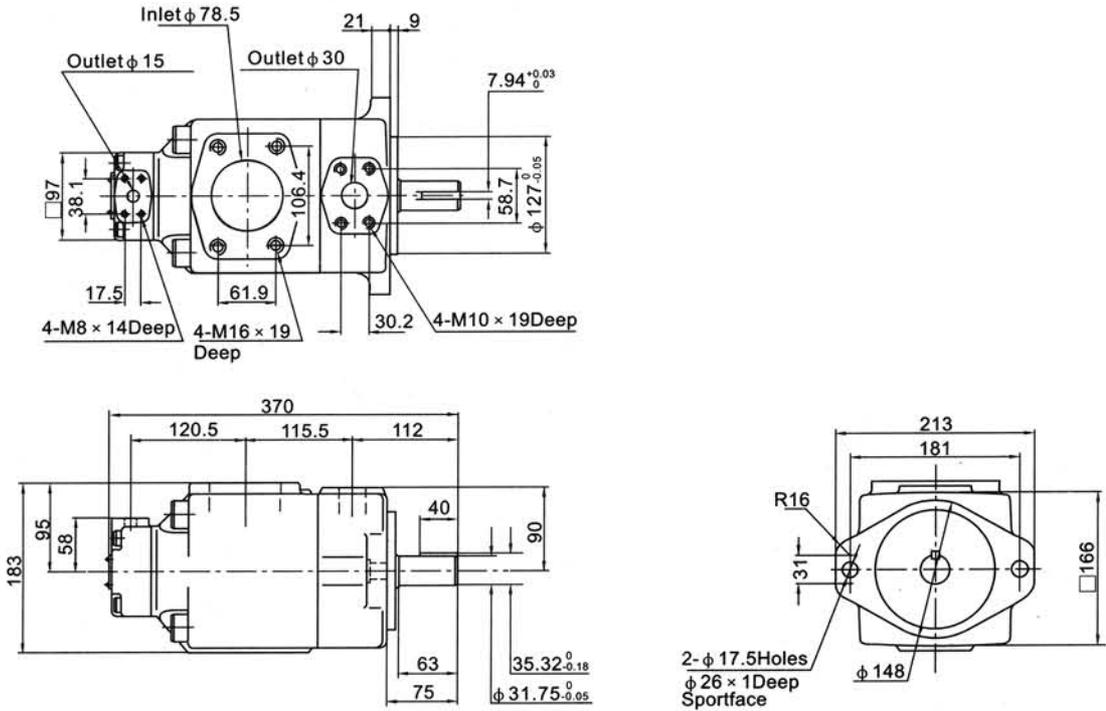
双联泵/Double Pumps

PV2R21

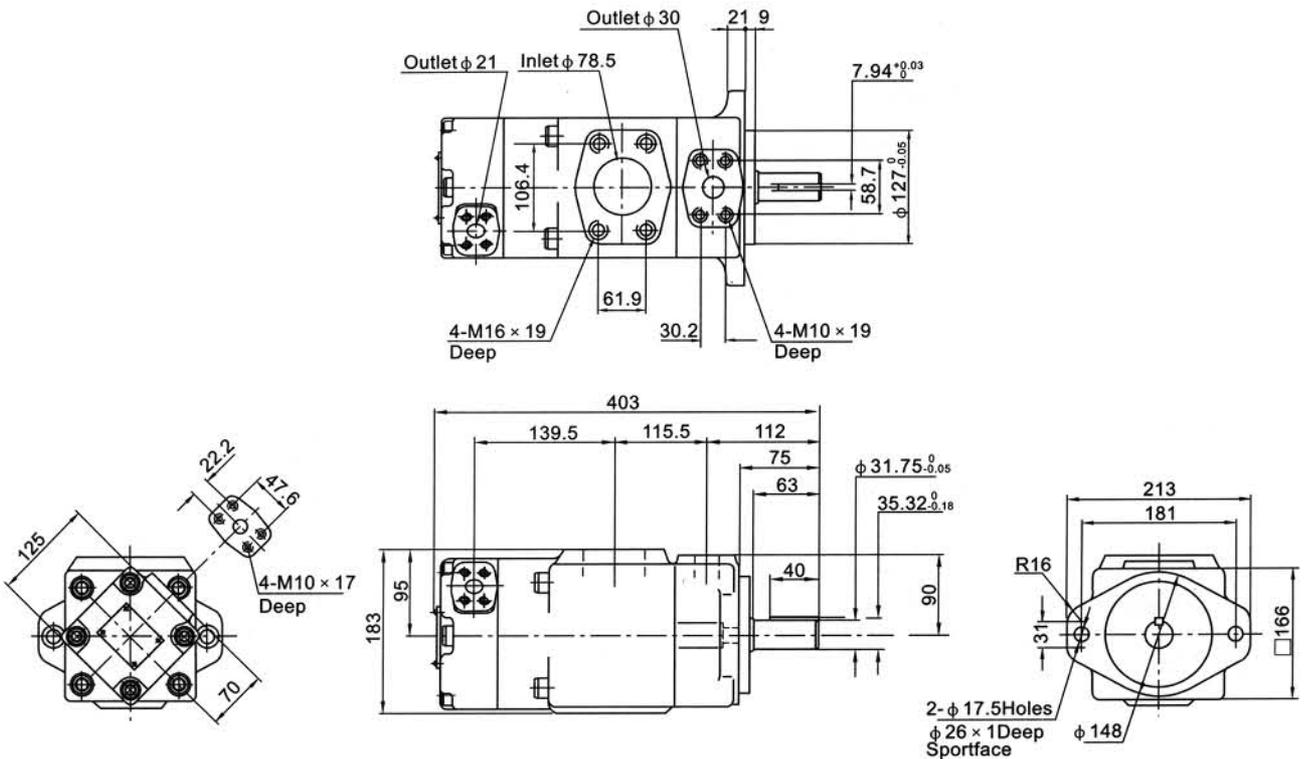
轴伸形式 Shaft type	A	B	C	D	E	F	G
F1	326	95	67	55	40	25.4	28.18
F	318	87	59	47	32	22.23	25.01



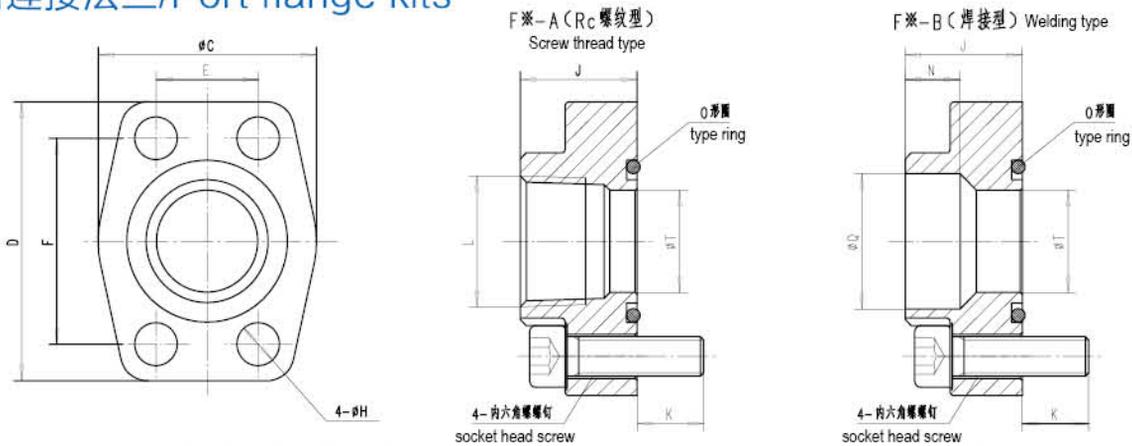
PV2R31



PV2R32



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"	-	-	13	21.2x2.65	M8x30mm	12.5	PVR1 出油口/outlet, PV2R21, PV2R31 盖端泵出油口/outlet of cover end pump
F04-B								-	11	22.5					
F06-A	3/4"	50.5	65.5	22.2	47.6	11.0	28	Rc3/4"	-	-	19	30x3.55	M10x30mm	12.5	PVR2 出口/outlet, PV2R21 泵端泵出油口/outlet of shaft end pump, PV2R32 盖端泵出油口/outlet of cover end pump
F06-B								-	12	28.5					
F08-A	1"	56	71	26.2	52.4	11.0	30	Rc1"	-	-	26	34.5x3.55	M10x35mm	17.0	PVR1 吸油口/inlet port
F08-B								-	14	34.5					
F10-A	1-1/4"	64.5	79.5	30.2	58.7	12.0	32	Rc1-1/4"	-	-	32	40x3.55	M10x40mm	19	PVR2 吸油口/inlet port, PV2R3 出油口/outlet, PV2R31, PV2R32 轴端泵出油口/outlet of shaft end pump
F10-B								-	16	43.0					
F12-A	1-1/2"	71	94	35.7	69.9	13.8	37	Rc1-1/2"	-	-	38	50x3.55	-	-	-
F12-B								-	18	49.1					
F16-A	2"	87.5	103	42.9	77.8	13.8	38	Rc2"	-	-	51	65x3.55	M12x45mm	17.5	PVR3, PV2R21 吸油口/inlet
F16-B								-	20	61.0					
F20-A	2-1/2"	96	115	50.8	88.9	13.8	42	Rc2-1/2"	-	-	63	75x3.55	-	-	-
F20-B								-	22	77.1					
F24-A	3"	123	136	61.9	106.4	17.0	45	Rc3"	-	-	76	85x3.55	M16x45mm	16.5	PVR31, PV2R32 吸油口/inlet
F24-B								-	25	90.0					
F28-A	3-1/2"	135	153	69.9	120.7	17.5	46	Rc3-1/2"	-	-	89	100x3.55	-	-	-
F28-B								-	20	102.8					
F32-A	4"	145	162	77.8	130.2	17.0	50	Rc4"	-	-	102	115x3.55	-	-	-
F32-B								-	28	115.5					

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 出油口/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) 盖端泵出油口/outlet of cover end pump
F06-B			25V(Q)、SQP2、T6C 出油口/outlet port, 2520V(Q)、SQP21、T6CC 轴端泵出油口/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) 盖端泵出油口/outlet of cover end pump、T6DCC 中间泵出油口/outlet of middle pump
F08-A	3/8"-16UNCx1.5" (38.1mm)	20.1	20V(Q)、25V(Q)、SQP2、T6C 吸油口/inlet, 45V(Q)、SQP4、T6E 出油口/outlet, 4535V(Q)、SQP43、T6EC、T6ED、T6EDC(S) 轴端泵出油口/outlet of shaft end pump
F08-B			35V(Q)、SQP3、T6D 吸油口/inlet
F10-A	7/16"-14UNCx1.575" (40mm)	19.0	2520V(Q)、SQP21、T6CC(油口尺寸10、11/oil port dimensions) 吸油口/inlet
F10-B			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-A	1/2"-13UNCx1.75" (44.5mm)	19.0	4520V(Q)、4525V(Q)、SQP41、SQP42、T6EC 吸油口/inlet
F12-B			4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 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			4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F20-A	1/2"-13UNCx1.75" (44.5mm)	16.5	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F20-B			4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F24-A	5/8"-11UNCx2" (50.8mm)	22.3	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F24-B			4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F28-A	5/8"-11UNCx2" (50.8mm)	22.3	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F28-B			4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F32-A	5/8"-11UNCx2" (50.8mm)	19.3	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F32-B			4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet
F32-B	5/8"-11UNCx1.75" (44.5mm)	23.0	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S) 吸油口/inlet

安装、使用与维护

1、工作介质

- 为提高油泵性能, 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 μ 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 μ m的滤油器, 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

- 油泵支架座结构要牢固, 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)。泵和电机轴必须对正, 同轴度应控制在 \varnothing 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。
- 尽量避免进出油管采用钢管硬连接, 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。
- 注意进油口处连接法兰、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、出油口, 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, 并将外露加工表面涂防锈油脂, 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。
- 滤油器应经常清洗, 以保证油液吸入通畅。
- 保持油箱正常油面高度。配管和油缸的容量很大时, 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滤油器露出油面, 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) 安装螺钉或进出油口法兰螺钉有可能松动, 要注意检查, 并拧紧防松。
- 由于ABT伺服泵内腔采用插装式结构, 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 μ m. Filter of 70-150 μ m 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 \varnothing 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, plain 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
	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
流量不足达 不到额定值 Flow not enough, lo-wer than rated one	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
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	
压力升 不上去 Pressure lower	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 oprating 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