SQP 系列叶片泵-适合工业应用的更低噪音的子母叶片泵
Series-vane Pumps
-Applicable to industrial applications of the cluster of lower noise vane pump

本系列是专为低噪音工况而开发的高压高性能子母叶片泵。适用于塑料机械, 压铸机械, 机床以及工程机械等要求噪音较低的液压系统中。

其主要特点：

1、泵芯使用V系列子母叶片泵泵芯,完全互换,使用更灵活方便。

2、增加了脉动衰减结构的设计,极大降低了压力的脉动,使噪音更低,音质更流畅。

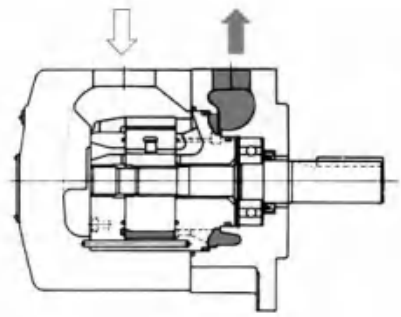
3、使用加厚的外壳设计,增加了泵的强度和抗振性,同时消音性能更优越。

This series vane pumps are high pressure and high performance intra-vane pumps, which are specially developed for low noise working condition. They are widely applied in hydraulic system for machine-tools, presses, die casting machines, engineering plastic injection moulding and other machineries, which call for lower noise.

Main Features:

1. Cartridge kits are entirely similar to those of Vickers stable V series pumps which can be interchanged with cartridge kits of SQP series.
2. New configuration design gets an excellent performance in restraining pulsing and noise.
3. Strengthened pump housing design offers a better anti-vibration ability, which effect the remarkable low noise.

SQP 系列单泵
Series-single Pumps



液压符号
Hydraulic Sign

型号说明/Model Designation

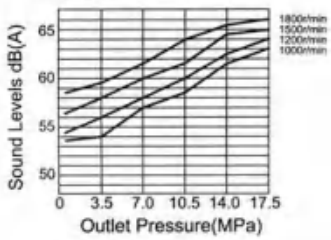
(F3-)	SQP2	-21	-1	C	(F)	-(LH)	-18
前注、油液相深性 Infuse front, oil intermiscibility	系列号 Series	▲排量代号 Displacement code	轴伸形式 Shaft type	出油口位置 Outlet positions	安装形式 Installation type	旋转方向 Rotation	设计号 Design number
无标记- 抗磨液压油、 水-乙二醇液或 油包水乳化液 No-marking: Anti-wear hydraulic oil, Water glycol fluid or water-oil emulsions F3- 磷酸酯液 phosphate ester fluid	SQP1	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	1-带键直轴 Belt key straight shaft 86-重型带键直轴 Heavy belt key straight shaft	(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	无标记 No-marking: 法兰安装型 Flange Mounting F-脚座安装型 F-Foot Mountion	(从泵的轴端看) (Viewed from shaft end of pump) LH-逆时针旋转 Left hand for counter clockwise 无标记-顺时针旋转 No-marking-Rihgt hand for clockwise	15
	SQP2	10, 12, 14, 15, 17, 19, 21, 25					18
	SQP3	21, 25, 30, 32, 35, 38, 45					
	SQP4	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.

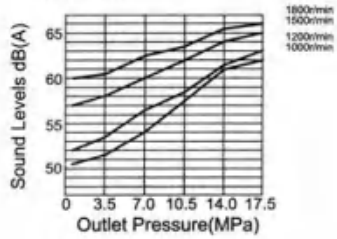
噪音数据/Noise Data

测试条件ISO VG32，(50℃)，距离1m　Test condition ISO VG32, (50℃), distance 1m

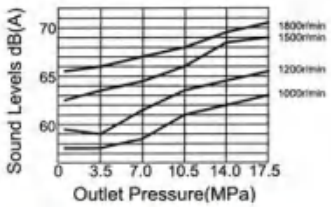
SQP1-11



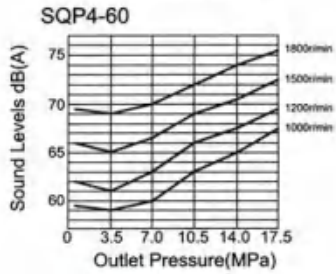
SQP2-21



SQP3-38



SQP4-60



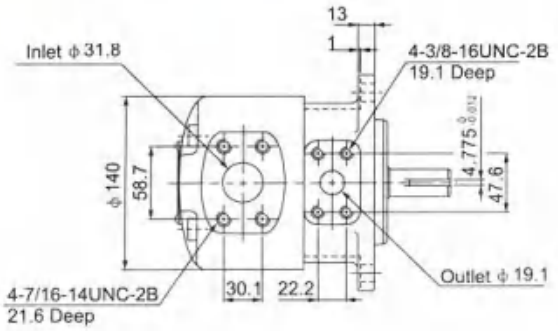
技术参数/Technical Data

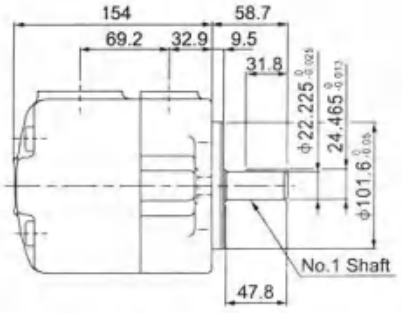
系列号 Series	●排量代号 Displacement code	几何排量 Geometric displacement mL/r	▲使用抗磨液压油或磷酸酯液 With antiwear hydraulic oil or phosphate ester fluid		使用水乙二醇液 With water glycol fluid		使用油包水乳化液 With water-oil emulsions		最低转速 Min. speed r/min
			最高压力MPa Max. pressure	最高转速r/min Max. speed	最高压力MPa Max. pressure	最高转速r/min Max. speed	最高压力MPa Max. pressure	最高转速r/min Max. speed	
SQP1	2	7.5	13.8	1800	13.8	1200	6.9	1200	600
	3	10.2							
	4	12.8							
	5	16.7							
	6	19.2							
	7	22.9	17.2		15.9				
	8	26.2							
	9	28.8							
	10	31.0							
	11	35.0							
	12	37.9	15.7		13.8				
	14	44.2	13.8						
SQP2	10	32.5	17.2	1800	15.9	1200	6.9	1200	600
	12	38.3							
	14	43.3							
	15	46.7							
	17	52.5							
	19	59.2							
	21	65.0							
	25	79.2							
SQP3	21	66.7	17.2	1800	15.9	1200	6.9	1200	600
	25	79.2							
	30	95.0							
	32	100							
	35	109							
	38	118							
	45	140	13.8		13.8				
SQP4	42	134	17.2	1800	15.9	1200	6.9	1200	600
	45	140							
	50	156							
	57	178							
	60	189							
	66	207							
	75	237	13.8		13.8				

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

▲ 0.5秒内，允许超过最高压力10%的瞬时压力。 Permit surpassing the top pressure 10% instantaneous pressure, within 0.5 Second.

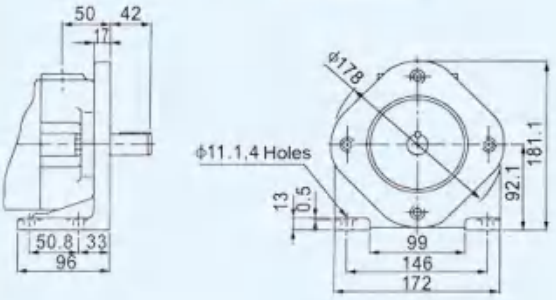
SQP1 法兰安装尺寸 Flange Mounting



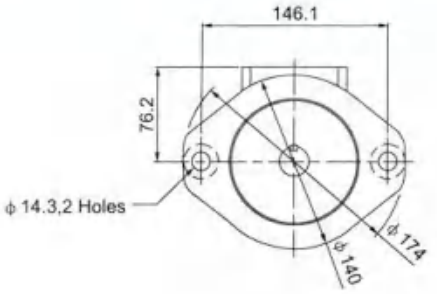


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

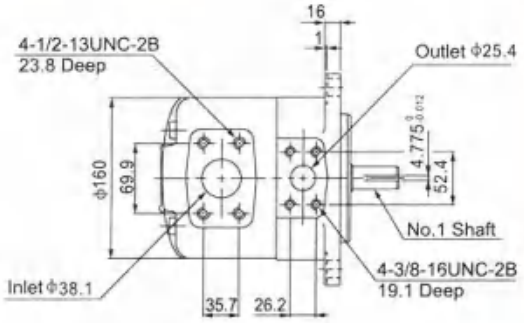
SQP1 脚座安装尺寸 Foot Mounting

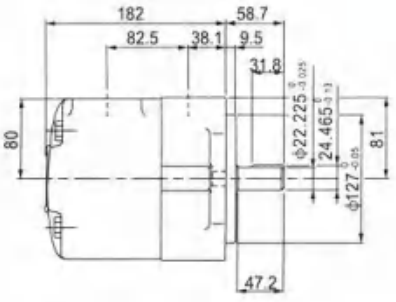


For other dimensions,refer to "Flange Mounting" type



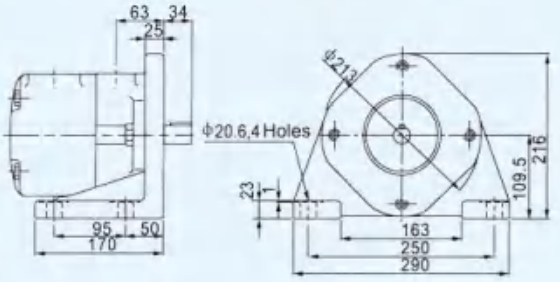
SQP2 法兰安装尺寸 Flange Mounting



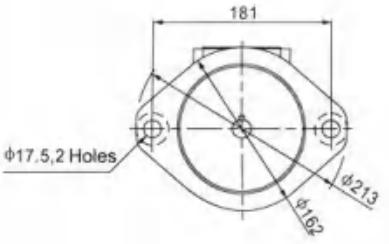


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

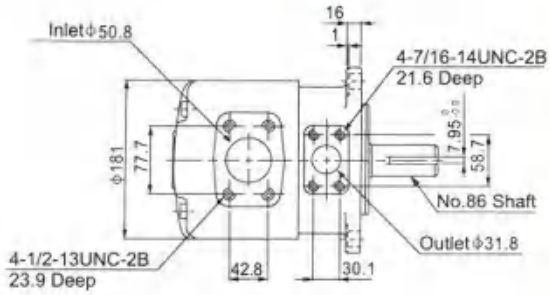
SQP2 脚座安装尺寸 Foot Mounting

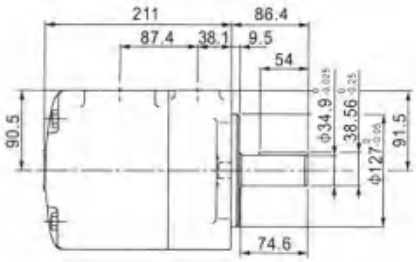


For other dimensions,refer to "Flange Mounting" type

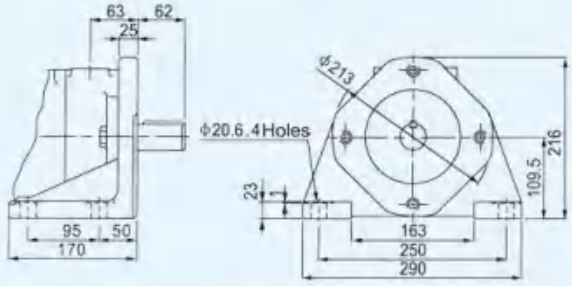


SQP3 法兰安装尺寸 Flange Mounting

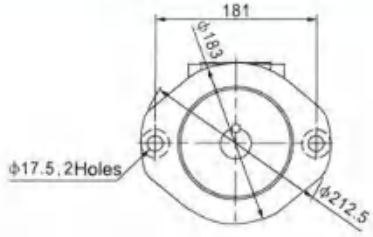




SQP3 脚座安装尺寸 Foot Mounting

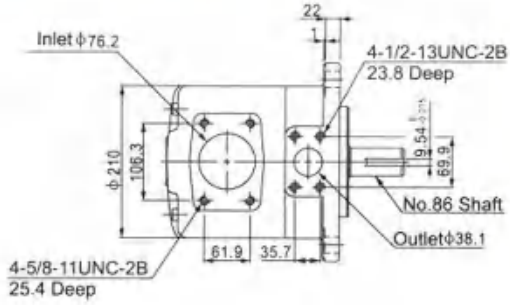


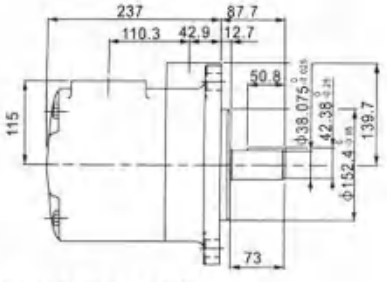
For other dimensions,refer to "Flange Mounting" type



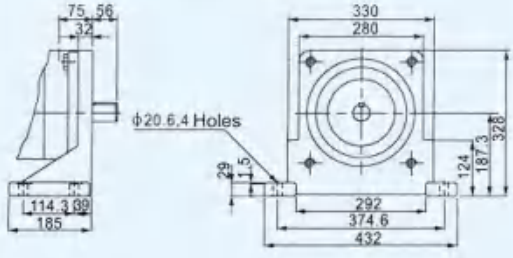
其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP4 法兰安装尺寸 Flange Mounting

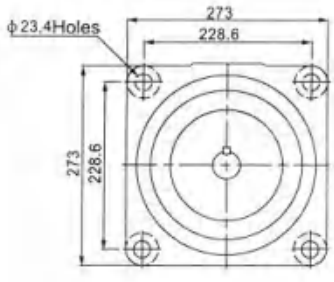




SQP4 脚座安装尺寸 Foot Mounting

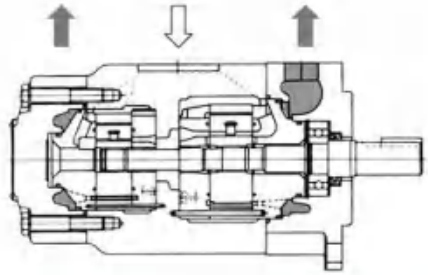


For other dimensions,refer to "Flange Mounting" type

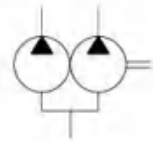


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP 系列双联泵 Series-double Pumps



液压符号
Hydraulic Sign



型号说明/Model Designation

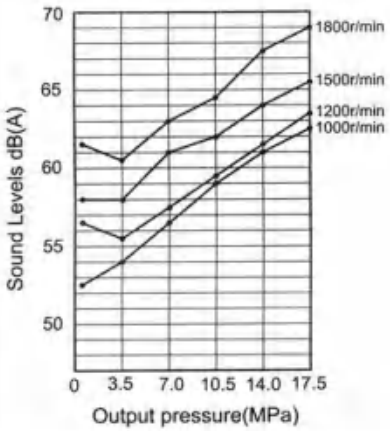
(F3-)	SQP32	-35	-17	-86	CD	(F)	-(LH)	-18
前注、油液相深性 Infuse front, oil intermiscibility	系列号 Series	▲排量代号轴端泵 Displacement code of shaft end pump	▲排量代号盖端泵 Displacement code of cover end pump	轴伸形式 Shaft type	油口位置 Port positions	安装形式 Installation type	旋转方向 Rotation	设计号 Design number
无标记-抗磨液压油、水-乙二醇液或油包水乳化液 No-marking: Anti-wear hydraulic oil, Water glycol fluid or water-oil emulsions F3-磷酸酯液 phosphate ester fluid	SQP21	10, 12, 14, 15, 17, 19, 21, 25	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14	1-带键直轴 Belt key straight shaft 86-重型带键直轴 Heavy belt key straight shaft	见下表 See below	无标记 No-marking: 法兰安装型 Flange Mounting F- 脚座安装型 F-Foot Mountion	(从泵的轴端看) (Viewed from shaft end of pump) LH-逆时针旋转 Left hand for counter clockwise 无标记-顺时针旋转 No marking-Rihgt hand for clockwise	18
	SQP31	21, 25, 30, 32, 35, 38, 45	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14					
	SQP32	21, 25, 30, 32, 35, 38, 45	10, 12, 14, 15, 17, 19, 21, 25					
	SQP41	42, 45, 50, 57, 60, 66, 75	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14					
	SQP42	42, 45, 50, 57, 60, 66, 75	10, 12, 14, 15, 17, 19, 21, 25					
	SQP43	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.

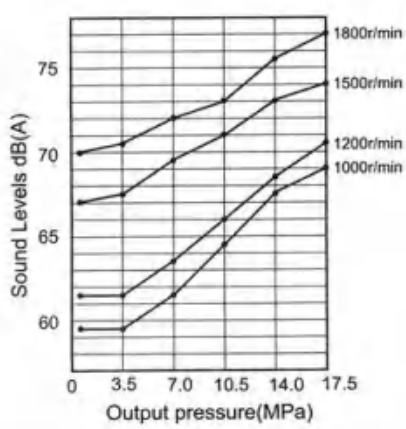
噪音数据/Noise Data

测试条件ISO VG32，(50℃)，距离1m　Test condition ISO VG32, (50℃), distance 1m

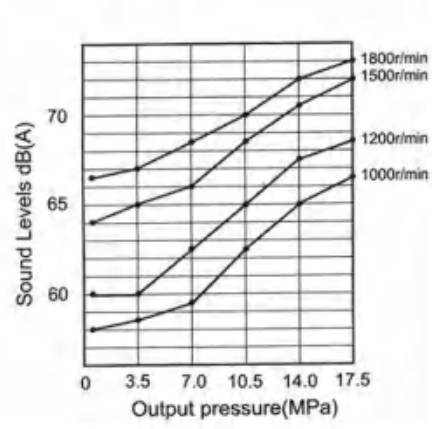
SQP21-17-8



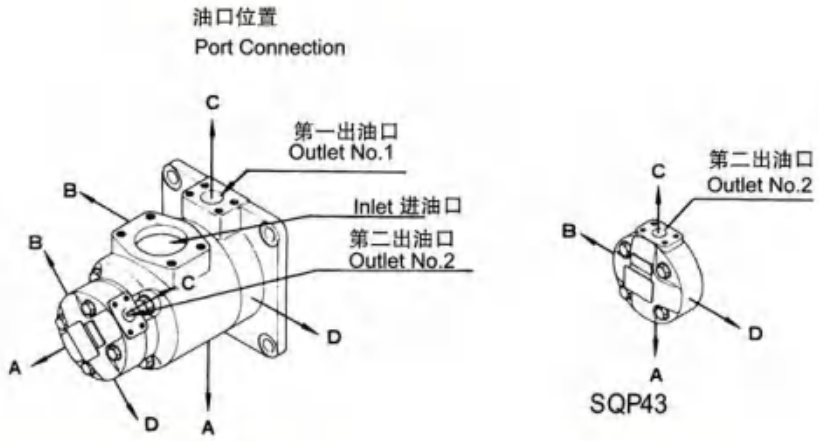
SQP43-50-35



SQP32-35-17



油口位置（从泵的盖端看）
Outlet Positions (Viewed from cover end of pump)



油口位置 Port positions		所有系列(除SQP43外) All series (except SQP43)	SQP43系列 SQP43 series
第一出油口 在进油口对侧 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侧 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侧 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
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侧 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侧 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

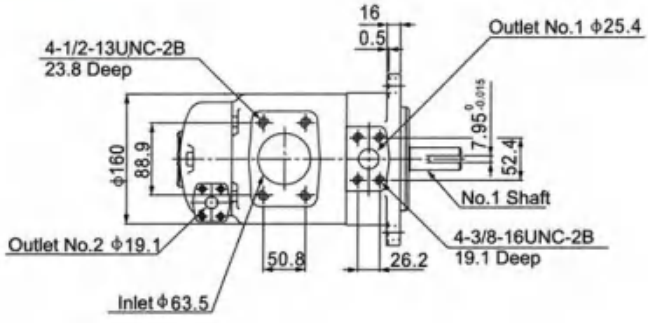
技术参数/Technical Data

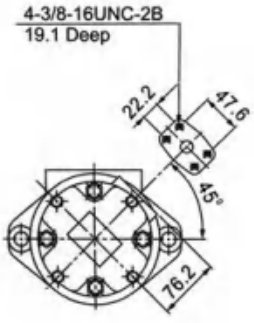
系列号 Series	轴端泵（第一出油口） Shaft end pump (No.1 outlet)			盖端泵（第二出油口） Cover end pump (No.2 outlet)			最高转速 r/min Max. speed	最低转速 Min. speed r/min
	●排量代号 Displacement code	几何排量mL/r Geometric displacement	最大压力MPa Max. pressure	●排量代号 Displacement code	几何排量mL/r Geometric displacement	最大压力MPa Max. pressure		
SQP21	10	32.5	▲同SQP2 As SQP2	2	7.5	▲同SQP1 As SQP1	同SQP系列单泵 As SQP Series single pumps	600
	12	38.3						
	14	43.3		3	10.2			
	15	46.7						
	17	52.5		4	12.8			
	19	59.2						
	21	65.0		5	16.7			
	25	79.2						
SQP31	21	66.7	▲同SQP3 As SQP3	6	19.2			
	25	79.2						
	30	95.0		7	22.9			
	32	100						
	35	109		8	26.2			
	38	118						
	45	140		9	28.8			
SQP41	42	134	▲同SQP4 As SQP4	10	31.0			
	45	140						
	50	156		11	35.0			
	57	178						
	60	189		12	37.9			
	66	207						
	75	237		14	44.2			
SQP32	21	66.7	▲同SQP3 As SQP3	10	32.5	▲同SQP2 As SQP2	同SQP系列单泵 As SQP Series single pumps	600
	25	79.2						
	30	95.0		12	38.3			
	32	100						
	35	109		14	43.3			
	38	118						
	45	140		15	46.7			
SQP42	42	134	▲同SQP4 As SQP4	17	52.5			
	45	140						
	50	156		19	59.2			
	57	178						
	60	189		21	65.0			
	66	207						
	75	237		25	79.2			
SQP43	42	134	▲同SQP4 As SQP4	21	66.7	▲同SQP3 As SQP3	同SQP系列单泵 As SQP Series single pumps	600
	45	140		25	79.2			
	50	156		30	95.0			
	57	178		32	100			
	60	189		35	109			
	66	207		38	118			
	75	237		45	140			

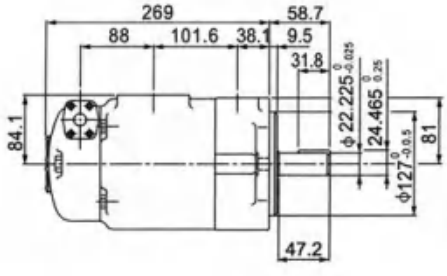
● 在1200r/min 和0.69MPa(100psi)下的额定排量
USgpm Flow(USgpm) at 1200r/min and 0.69MPa

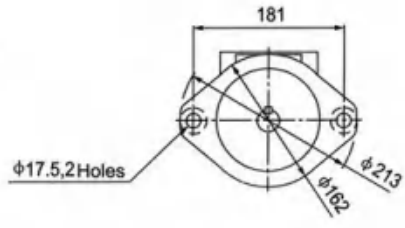
▲ 0.5秒内，允许超过最高压力10%的瞬时压力。
Permit surpassing the top pressure 10% instantaneous pressure, within 0.5 second.

SQP21 法兰安装尺寸 Flange Mounting



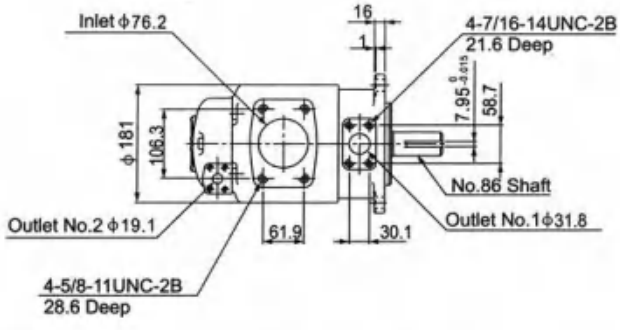


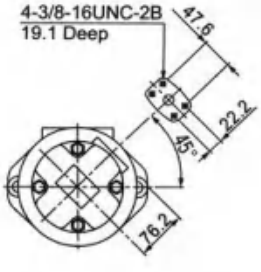


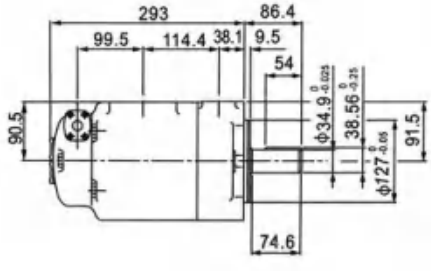


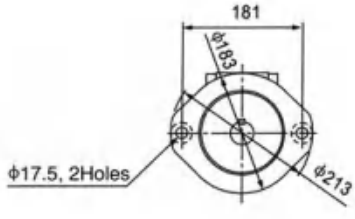
其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP31 法兰安装尺寸 Flange Mounting



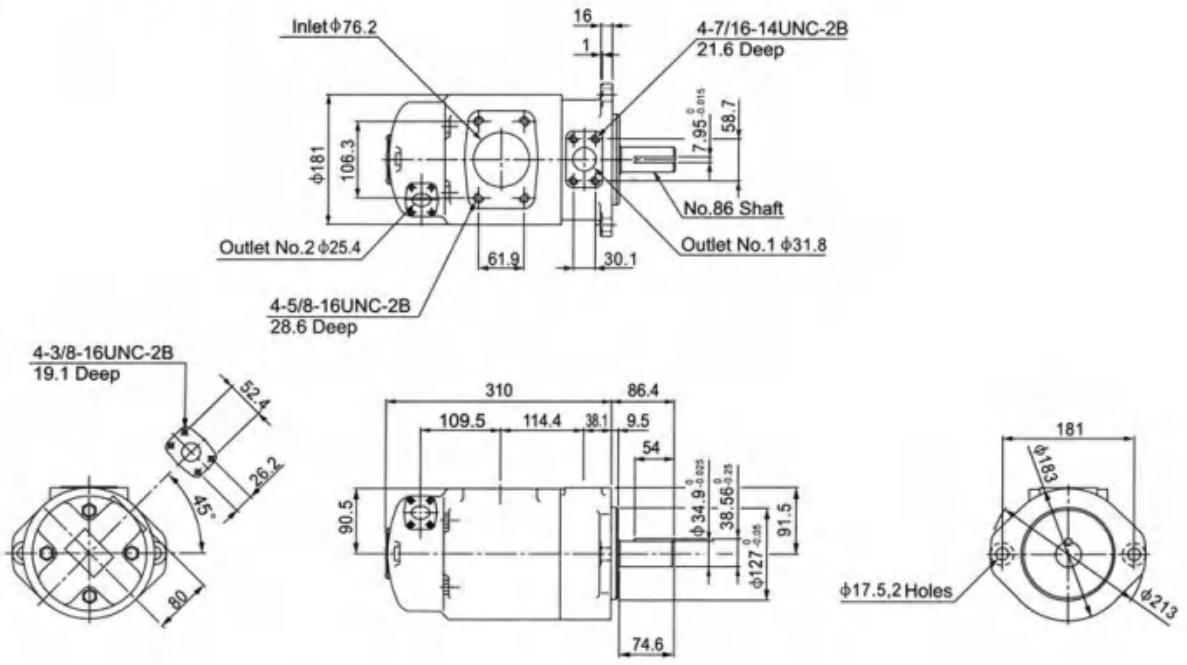






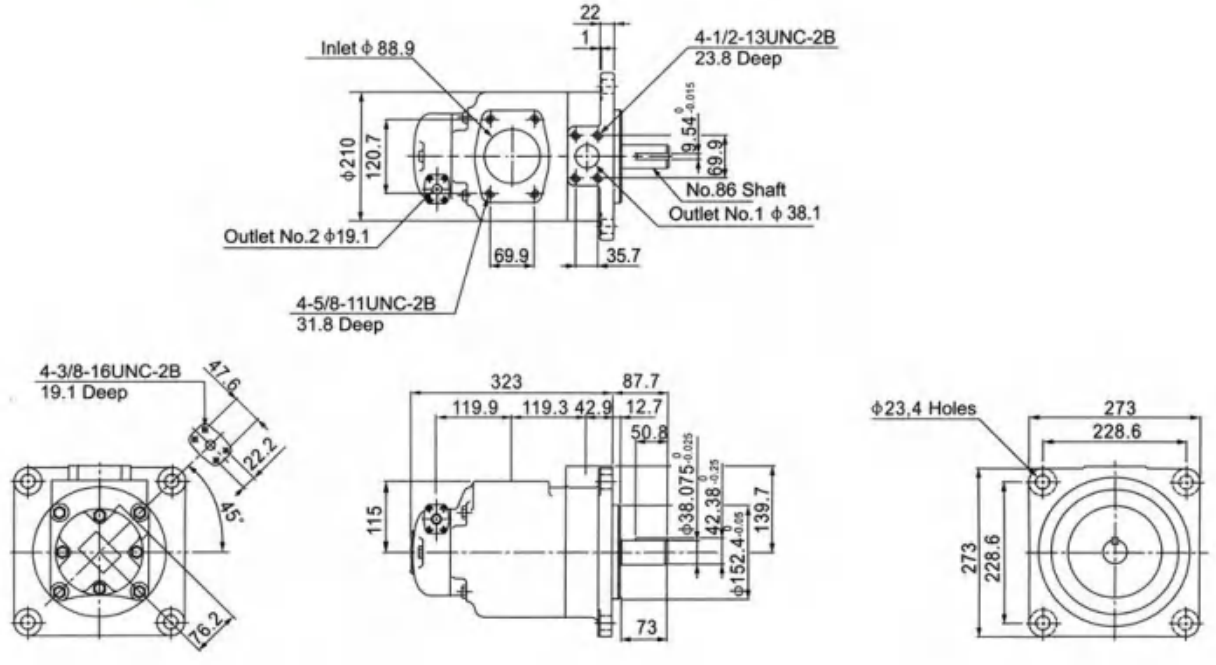
其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP32 法兰安装尺寸 Flange Mounting



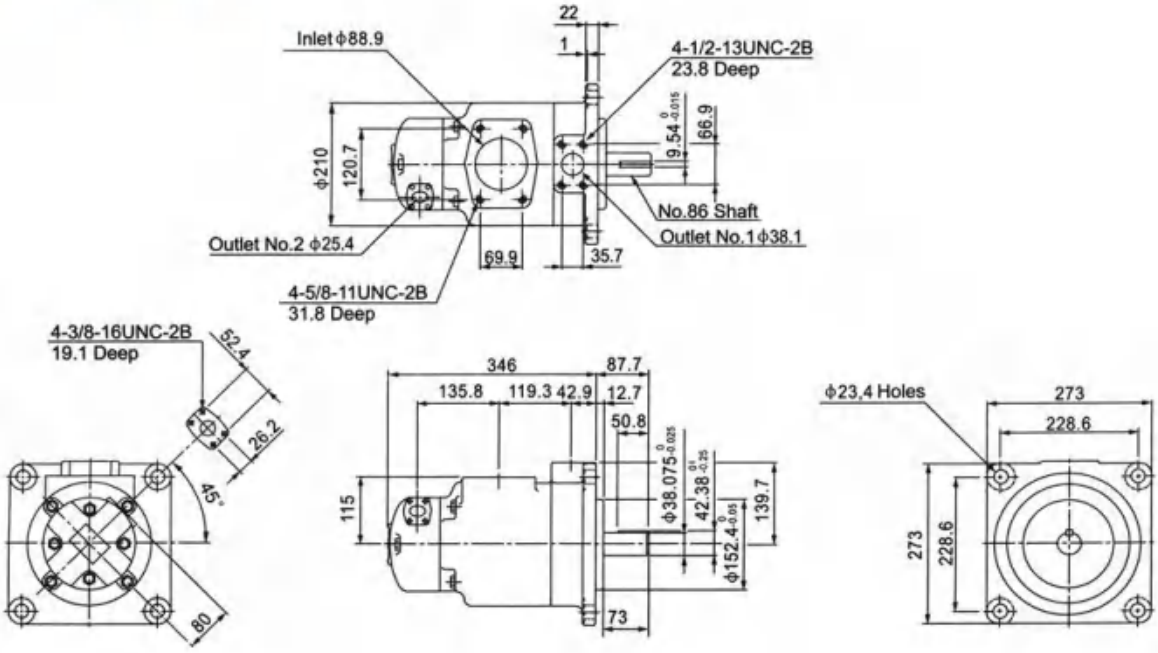
其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP41 法兰安装尺寸 Flange Mounting



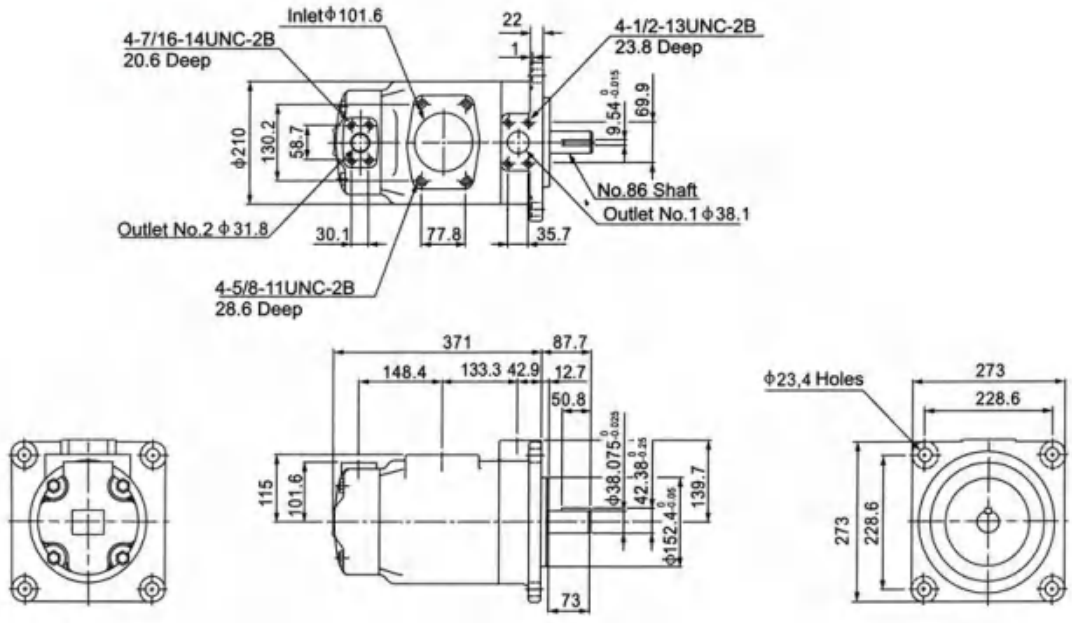
其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP42 法兰安装尺寸 Flange Mounting



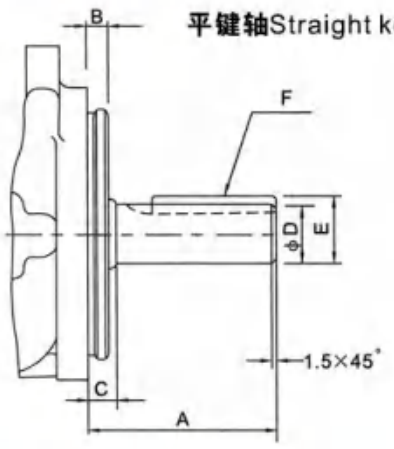
其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

SQP43 法兰安装尺寸 Flange Mounting

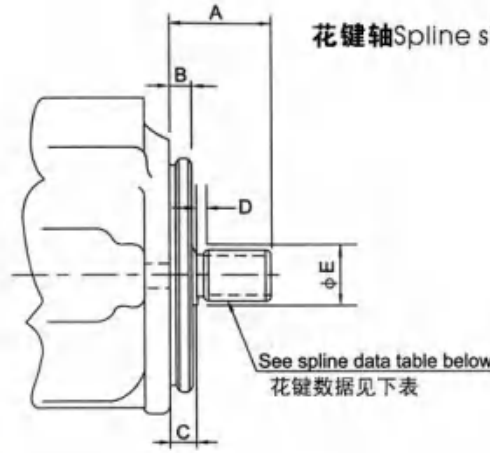


其它轴类尺寸见68页
For other shaft dimensions, refer to page 68

轴伸选择/Shaft type



平键轴Straight key shaft



花键轴Spline shaft

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

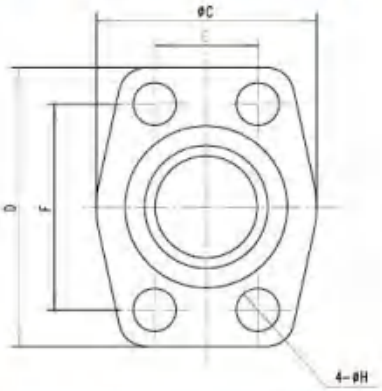
花键轴/Spline shaft

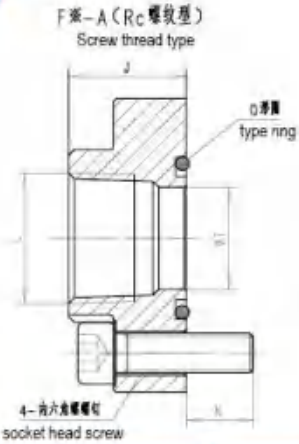
型号 Model	轴伸代号 Shaft code	A	B	C	D	E	花键数据(见下表) Spline data(see below)
20V、20VQ	151	41.1	9.53	11.1	3.9	27.8	A
25V、2520V 25VQ、2520VQ	11	44.5	9.53	11.1	3.9	27.8	A
35V、35※V 35VQ、35※VQ	11	58.7	9.53	11.1	6.35	35.1	C
45V、45※V 45VQ、45※VQ	11	61.9	12.7	14.3	9.7	39.6	C

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"	–	–	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							40	–	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			
F08-A	3/8"-16UNCx1.5" (38.1mm)	20.1	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-B			
F10-A	7/16"-14UNCx1.575" (40mm)	19.0	SQP1吸油口/inlet, 35V(Q)、SQP3、T6D出油口/outlet, 3520V(Q)、3525V(Q)、SQP31、SQP32、T6DC、T6DCC、T6DDCS轴端泵出油口/outlet of shaft end pump,4535V(Q)、SQP43、T6ED盖端泵出油口/outlet of cover end pump, T6DDCS、T6EDC(S)中间泵出油口/outlet of middle pump
F10-B			
F12-A	1/2"-13UNCx1.75" (44.5mm)	19.0	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
F12-B			
F16-A	1/2"-13UNCx1.75" (44.5mm)	17.0	35V(Q)、SQP3、T6D吸油口/inlet
F16-B			
F20-A	1/2"-13UNCx1.75" (44.5mm)	16.5	2520V(Q)、SQP21、T6CC(油口尺寸10、11/oil port dimensions)吸油口/inlet
F20-B			
F24-A	5/8"-11UNCx2" (50.8mm)	22.3	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
F24-B			
F28-A	5/8"-11UNCx2" (50.8mm)	22.3	4520V(Q)、4525V(Q)、SQP41、SQP42、T6EC吸油口/inlet
F28-B			
F32-A	5/8"-11UNCx2" (50.8mm)	19.3	4535V(Q)、SQP43、T6ED、T6DCC、T6DDCS、T6EDC(S)吸油口/inlet
F32-B	5/8"-11UNCx1.75" (44.5mm)	23.0	

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25μm。为防止吸入污物和杂质，应在吸油口处安装过滤精度70-150μm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℃-70℃，为保证长期的可靠寿命，最佳油温10℃-60℃

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Ø0.1mm以内，尽量采用柔性联轴节，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，用来分离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转再启动，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，因此必须再一次补油。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 25μm.Filter of 70-150μm 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℃-70℃.The best oil temperature is 10℃-60℃ 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 Ø0.1mm.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, plaint 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 efficent field service ability, when replacing the catridge, seals inside the pump should be checked to avoid them crimping, when tighting 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 Fitration 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吸入管道堵塞或通径小 Suction line blocked or too small in size	清洗管道，选用不小于油泵入口通径的吸入管 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.及使用压力一时间曲线状况)，
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