

## **PFE系列柱销式叶片泵**

### **PFE SERIES PIN TYPE VANE PUMP**

#### **简介**

##### **GENERAL DESCRIPTION**

PFE系列高性能叶片泵,共有单泵(PFE-31/41/51/32/42/52)及双联泵(PFED-4131/5141)八个系列75个规格。其排量范围为16.5~150ml/r,额定压力为21~30Mpa,转速范围为600~2800r/min(在此基础上,本公司又研制出PFE-21/61两个系列单泵、PFED-3121/4121/5121/5131四个系列双联泵以及PFET-41/51两个系列通轴泵,使排量范围扩展为5~250ml/r)。该泵设计工艺独特,采用偏心柱销式叶片结构,具有压力高、流量大、体积小、运转平稳、噪声低、效率高、寿命长等一系列优点,主要技术指标达到国际同类产品先进水平。

该系列泵为插装式结构。机芯的最佳设计,进一步降低了压力、流量脉动及噪声。前后侧板结构相同,具有对称的沟槽,且都采用液压平衡,保证了一致的变形和补偿,从而可以获得更好的容积效率。叶片及柱销根部供油系统的合理设计,保证了叶片与定子间的良好接触,并使得流量损失为最小。独特的设计、高精度加工和材料的合理选择使该泵具有非常好的寿命指标。

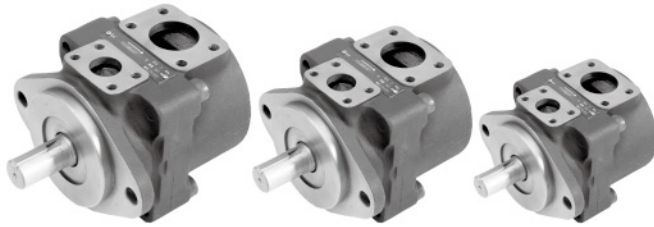
PFE系列叶片泵品种规格齐全、性能优良可靠、结构简单合理、安装维修方便(安装连接符合ISO/SAE标准),可广泛应用于机床、压力压铸机械、工程机械、冶金、矿山、轻工、化工机械、农业机械以及各类液压系统等领域。

The high performance vane pump in series PFE includes eight series and 75 specifications in total, which are single pump (PFE—31/41/51/32/42/52) and double pump (PFED—4131/5141) The displacement range is 16.5~150 ml/r, rated pressure is 21~30Mpa, rotation rate range is 600 ~ 2800r/min. On this basis, our company develops two series of single pumps PFE—21/61, four series of double pump— PFED —3121/4121/5121/5131 and axis- through pump in two series PFET—41/51, which extend the displacement range to 5 to 250 ml/r. The pump design process is unique, the vane structure is eccentric column pin type and it has a series of advantages of high pressure, large flow, small size, smooth operation, high efficiency, long life and so on. The main technical indicators have reached the international advanced level of similar products.

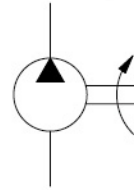
This series of pumps is cartridge-type structure. The best design of the movement further reduces the pressure, flow pulsation and noise. The front and the rear side plate have the same structure, the symmetrical groove. They all keep hydraulically balanced to ensure a consistent deformation and compensation, and thus they can get a better volumetric efficiency. Rational design of blades and the supply system in roots of cancellation ensure that the blades keep good contact with stator and make the flow losses to a minimum. Unique design, high-precision machining and reasonable choice of materials make the pump has a very good life indicator.

PFE series vane pumps have complete varieties and specifications, high-quality performance, simple and reasonable structure, easy installation and maintenance (the installation is compliant with ISO / SAE standard). It can be widely used in machine tools, pressure die casting machinery, engineering machinery, metallurgy, mining, light industry, chemical industry machinery, agricultural machinery, as well as various types of hydraulic systems and other fields.

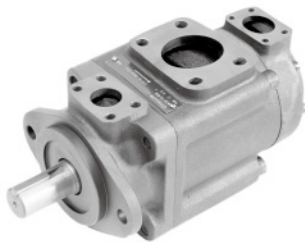
★PFE 单泵 PFE Single pump



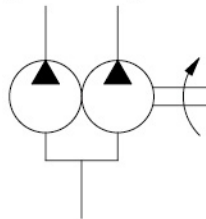
液压符号  
Hydraulic Symbol



★PFED 双联泵 PFED Double pump



液压符号  
Hydraulic Symbol



★机芯 Cartridge



## 型号说明

### MODEL CODE

PFE—	41	045/	1	D	TO
<b>PFE 系列</b> 定量叶片泵 PEF series fixed displacement vanepump	<b>系列号</b> Series	<b>单泵几何排量 ( ml/r )</b> Single pump geometric displacement (ml/r)	<b>轴伸型式</b> Shaft type	<b>旋向</b> ( 从轴端看 ) Direction of rotation (viewed from shaft end)	<b>油口位置</b> Port orientation
PFE: 单泵系列  PFE: single pump series	21	5、6、8、10、12、16	1—圆柱形轴伸 ( 标准型 ) Cylindrical type ( standard )	D: 顺时针 CW	见油口位置示意图【进口 与出口共有 T ( 标准 )、V、 U、W4 组位置关系】
	31	16、22、28、36、44	2—圆柱形轴伸 ( ISO/DIS3019 ) Cylindrical type ( ISO/DIS3019 )		
	41	29、37、45、56、70、85	3—圆柱形轴伸 ( 大扭矩型 ) Cylindrical type ( high torque )	S: 逆时针 CCW	See port orientation table [inlet and outlet ports can be oriented in any of four relative positions: [T,V,U,W]
	51	90、110、129、150			
	61	160、180、200、224、250	5—花键轴伸 Splined type		
	22	8、10、12			
	32	22、28、36			
	42	45、56、70			
52	90、110、129				

PFED —	4131	045/	022/	1	D	TO
<b>PFE 系列</b> <b>定量叶片泵</b> <b>PEF series</b> <b>fixed</b> <b>displacement</b> <b>vanepump</b>	<b>系列号</b> <b>Series</b>	<b>双联泵大排量侧</b> <b>几何排量 ( ml/r )</b> <b>Doublepump larger</b> <b>displacement/volume</b> <b>sidegeometric</b> <b>displacement(ml/r)</b>	<b>双联泵小排量侧</b> <b>几何排量 ( ml/r )</b> <b>Doublepump smaller</b> <b>displacement/volume</b> <b>sidegeometric</b> <b>displacement(ml/r)</b>	<b>轴伸型式</b> <b>Shaft type</b>	<b>旋向</b> <b>( 从轴端看 )</b> <b>Direction</b> <b>of rotation</b> <b>(viewed from</b> <b>shaftend )</b>	<b>油口位置</b> <b>Port orientation</b>
<b>PFED:</b> <b>双联泵系列</b>  <b>PFED:</b> <b>double pump</b> <b>series</b>	3121	16、22、28、36、44	5、6、8、10、12、16	1—圆柱形轴伸 ( 标准型 ) Cylindrical type ( standard )	<b>D: 顺时针</b> <b>CW</b>  <b>S: 逆时针</b> <b>CCW</b>	见油口位置示意图 <b>【 进口与两个出口</b> <b>共有 TO ( 标准 )、</b> <b>VG、等 32 组位置</b> <b>关系】</b>  Seeport orientation table [ inlet and two outlet ports can be oriented in any of thirty two relative positions: TO, VG]
	4121	29、37、45、56、70、85	5、6、8、10、12、16	2—圆柱形轴伸 ( ISO/DIS3019 ) Cylindrical type ( ISO/DIS3019 )		
	4131	29、37、45、56、70、85	16、22、28、36、44			
	5121	90、110、129、150	5、6、8、10、12、16	3—圆柱形轴伸 ( 大扭矩型 ) Cylindrical type ( high torque )		
	5131	90、110、129、150	16、22、28、36、44	5—花键轴伸 Splined type		
	5141	90、110、129、150	29、37、45、56、70、85	6—花键轴伸 Splined type		

注： 1. 需要其他类型的轴伸时，请与本公司设计处联系；

2. 需要其他类型的排量、压力组合时请与本公司设计处联系；

Note: 1. If other shaft extension type or displacement is needed , contact with us.

2. If other combination of displacement and pressure is needed , contact with us.

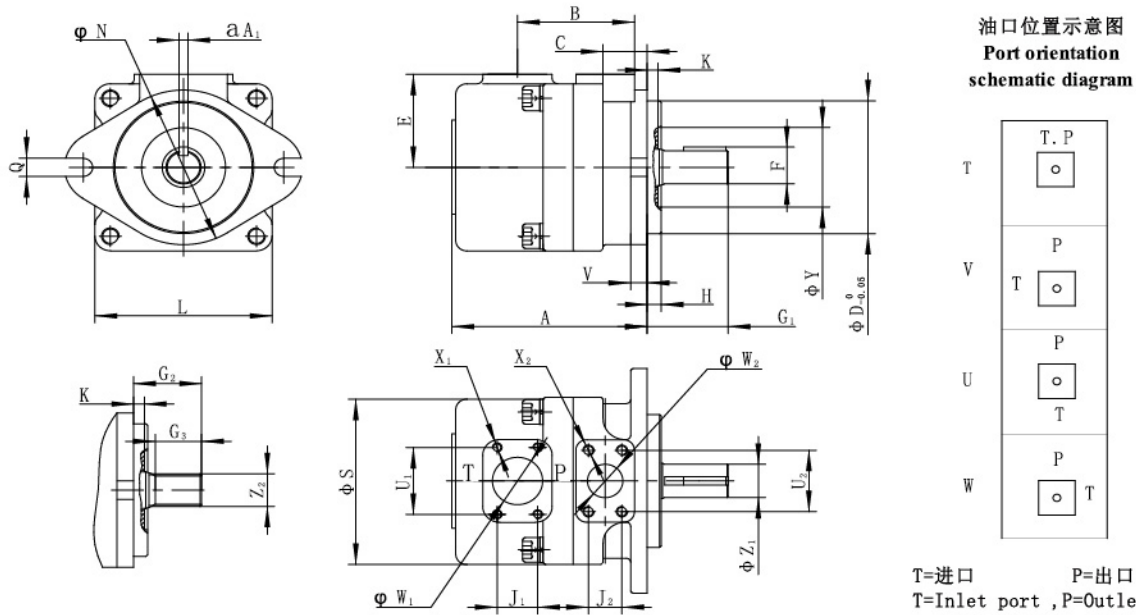
## 型号说明

### MODEL CODE

SC	PFE — 31036/D
机芯	单泵型号包括系列号、几何排量、旋向
Cartridge	Single pump model including series number , geometric displacement and rotation

## ■ 外形及安装尺寸 ( mm ) (注: PFE—2 系列仅提供 3 型轴) Configuration and Installation Dimension ( mm )

### ★ 单泵 Single pump (PFE—21、31、41、51)



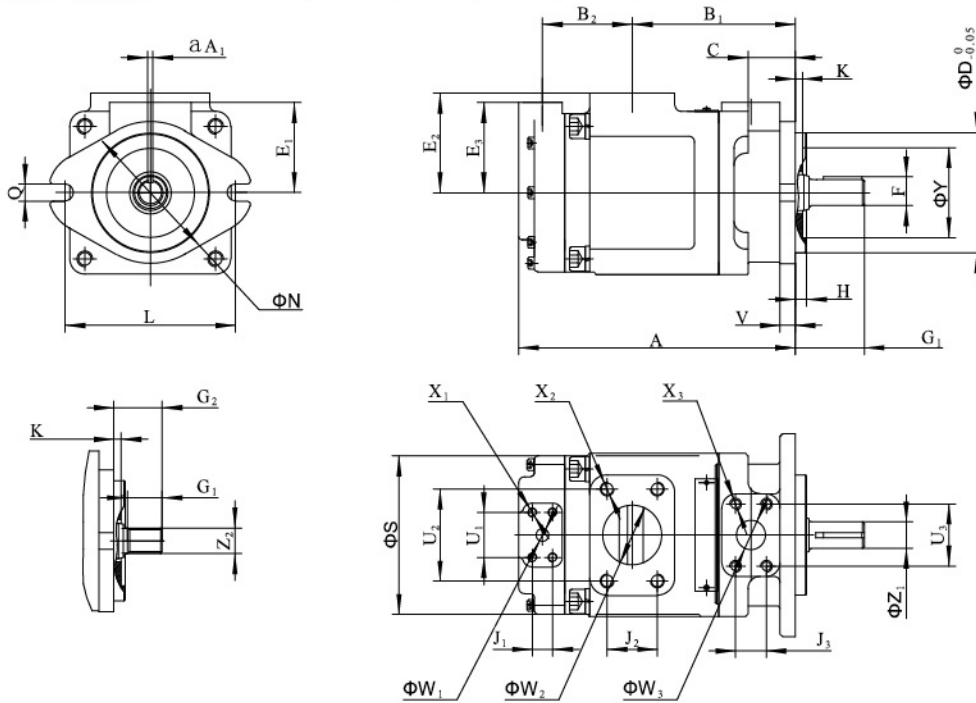
系列号 Series	A	B	C	ΦD	E	H	L	ΦN	Q
PFE—21	105	69	20	63	57	7	100	84	9
PFE—31/32	135	98.5	27.5	82.5	70	6.4	106	95	11.1
PFE—41/42	159.5	121	38	101.6	76.2	9.7	146	120	14.3
PFE—51/52	181	125	38	127	82.6	12.7	181	148	17.5
PFE—61	200	144	40	152.4	98	12.7	229	188	22

系列号 Series	ΦS	U1	U2	V	ΦW1	ΦW2	J1	J2	X1	X2	ΦY
PFE—21	92	47.6	38.1	10	19	11	22.2	17.5	M10×17	M8×15	40
PFE—31/32	114	58.7	47.6	10	32	19	30.2	22.2	M10×20	M10×17	47
PFE—41/42	134	70	52.4	13	38	25	35.7	26.2	M12×20	M10×17	76
PFE—51/52	158	77.8	58.7	15	51	32	42.9	30.2	M12×20	M10×20	76
PFE—61	185	89	70	18	63.5	38	50.8	35.7	M12×22	M12×22	100

系列号 Series	1型轴 (标准) Shaft type 1 (standard)					2型轴 Shaft type 2				3型轴 Shaft type 3				5型轴 Shaft type 5					
	ΦZ1	G1	A1	F	K	Φ				Φ									
PFE—21	15.88	48	4.00	17.37	8	—	—	—	—	—	—	—	—	—	—	—	—		
	15.85		3.98	17.27															
PFE—31/32	19.05	55.6	4.76	21.11	8	—	—	—	—	22.22	55.	4.76	24.54	8	9T	56	19.5	8	
	19.00		4.75	20.94						22.20		6	4.75						24.41
PFE—41/42	22.22	59	4.76	24.54	11.4	22.22	71	6.36	25.07	8	25.38	78	6.36	28.30	11.4	13T	59	28	8
	22.20		4.75	24.41				22.20	6.35				25.03	25.36					
PFE—51/52	31.75	73	7.95	35.33	13.9	31.75	84	7.95	35.33	8	34.90	84	7.95	38.58	13.9	14T	56	42	8
	31.70		7.94	35.07		31.70		7.94	35.07		34.88		7.94	38.46					
PFE—61	38.10	91	9.56	42.40	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	38.05		9.53	42.14		—		—	—		—		—	—					



★ 双联泵 Double pump ( PFED — 3121、4121、4131、5121、5131、5141 )



系列号 Series	A	B1	B2	C	ΦD	E1	E2	E3	H	L	ΦN	Q
PFED—3121	210	87.5	74.5	27.5	82.5	70	82.6	70	6.4	106	95	11.1
PFED—4121	237	101.6	76.9	38	101.6	76.2	84	76.2	9.7	146	120	14.3
PFED—4131	254	101.6	88.1	38	101.6	76.2	84	76.2	9.7	146	120	14.3
PFED—5121	248.5	106.6	83.4	38	127	82.6	89	76.2	12.7	181	148	17.5
PFED—5131	270.1	111.9	91.7	38	127	82.6	89	76.2	12.7	181	148	17.5
PFED—5141	290	114.3	109.5	38	127	82.6	89	74.7	12.7	181	148	17.5

系列号 Series	ΦS	U1	U2	U3	ΦW1	ΦW2	ΦW3	J1	J2	J3	X1	X2	X3	ΦY
PFED—3121	114	38.1	77.8	47.6	11	51	19	17.5	42.9	22.2	M8×15	M12×20	M10×17	47
PFED—4121	134	38.1	77.8	52.4	11	51	25	17.5	42.9	26.2	M8×15	M12×20	M12×20	76
PFED—4131	134	47.6	89	52.4	19	63	25	22.2	50.8	26.2	M10×20	M12×22	M12×20	76
PFED—5121	158	38.1	89	58.7	11	63	32	17.5	50.8	30.2	M8×15	M12×22	M12×20	76
PFED—5131	158	47.6	106.4	58.7	19	70	32	22.2	62	30.2	M10×20	M16×17	M12×20	76
PFED—5141	158	52.4	106.4	58.7	25	75	32	26.2	62	30.2	M10×20	M16×17	M12×20	76

系列号 Series	1型轴 ( 标准 ) Shafttype1 ( standard )					2 型 轴 Shafttype2					3 型 轴 Shafttype3					5 型 轴 Shafttype5				6 型 轴 Shafttype6			
	ΦZ1	G1	A1	F	K	ΦZ1	G1	A1	F	K	Z1	G1	A1	F	K	Z2	G2	G3	K	Z3	G2	G3	K
PFED—3121	19.05	55.6	4.76	21.11	8	—	—	—	—	—	22.22	55.6	4.76	24.54	8	9T 16/32DP	56	19.5	8	—	—	—	—
PFED—4121	22.22	59	4.76	24.54	11.4	22.22	71	6.36	25.07	8	25.38	78	6.36	28.3	11.4	13T 16/32DP	59	28	8	—	—	—	—
PFED—4131	22.22	59	4.76	24.54	11.4	22.22	71	6.36	25.07	8	25.38	78	6.36	28.3	11.4	13T 16/32DP	59	28	8	14T 12/24DP	42	56	8
PFED—5121	31.75	73	7.95	35.33	13.9	31.75	84	7.95	35.33	8	34.9	84	7.95	38.58	13.9	14T 12/24DP	56	42	8	—	—	—	—
PFED—5131	31.75	73	7.95	35.33	13.9	31.75	84	7.95	35.33	8	34.9	84	7.95	38.58	13.9	14T 12/24DP	56	42	8	—	—	—	—
PFED—5141	31.75	73	7.95	35.33	13.9	31.75	84	7.95	35.33	8	34.9	84	7.95	38.58	13.9	14T 12/24DP	56	42	8	—	—	—	—

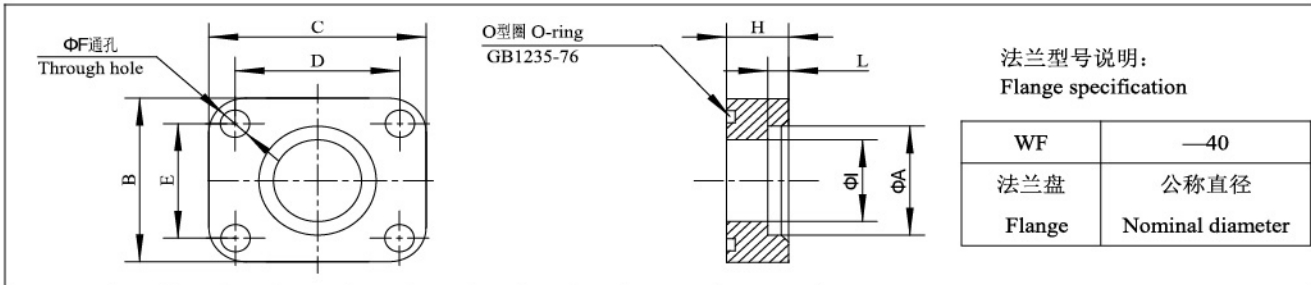
▲ 油口位置表(从轴端看) (注: T=进口 P1=前泵出口 P2=后泵出口)

Port Orientation ( as viewed from the shaft end ) ( Note : T=Inlet port ,P1=Outlet of the first pump,P2=Outlet of the second pump )

TO P1, T, P2	TA P1, T, P2	TB P1, T, P2	TC P1, T, P2	TD P1, T, P2	TE P1, T, P2	TF P1, T, P2	TG P1, T, P2
WO P1, P2, T	WA P1, P2, T	WB P1, P2, T	WC P1, P2, T	WD P1, P2, T	WE P1, P2, T	WF P1, P2, T	WG P1, P2, T
UO P1, P2, T	UA P1, P2, T	UB P1, P2, T	UC P1, P2, T	UD P1, P2, T	UE P1, P2, T	UF P1, P2, T	UG P1, P2, T
VO P1, P2, T	VA P1, P2, T	VB P1, P2, T	VC P1, P2, T	VD P1, P2, T	VE P1, P2, T	VF P1, P2, T	VG P1, P2, T

▲油口法兰连接尺寸 (mm)

Flange Connection Dimensions of Port (mm)



WF	—40
法兰盘	公称直径
Flange	Nominal diameter

系列号 Series	ΦA	B	C	D	E	ΦF	H	ΦI	L	O型圈 O ring	螺钉 Screw	法兰对应油泵油口 Pump port corresponding to flange
WF—12	18	34	54	38.1	17.5	9	18	11	10	25×2.4	M8×30	PFE—21出口; PFE—21outlet;
WF—20	28.2	42	65	47.6	22.2	11	18	19	10	35×3.1	M10×30	PFE—21进口, PFE—31/32出口; PFE—21inlet, PFE—31/32outlet;
WF—25	35	50	70	52.4	26.2	11	18	25	10	40×3.1	M10×30	PFE—41/42出口; PFE—41/42outlet;
WF—32	43	53	79	58.7	30.2	11	21	32	12	45×3.1	M10×35	PFE—31/32进口, PFE—51/52出口; PFE—31/32inlet, PFE—51/52outlet
WF—40	52	65	87	70	35.7	13.5	25	38	15	55×3.1	M12×40	PFE—41/42进口, PFE—61出口; PFE—41/42inlet, PFE—61outlet;
WF—50	65.5	73	102	77.8	42.9	13.5	25	51	15	65×3.1	M12×40	PFE—51/52进口, PFED—31/21进口, PFED—41/21进口; PFE—51/52inlet, PFED—31/21inlet, PFED—41/21inlet;
WF—65	78	87	110	89	50.8	13.5	25	63	15	75×3.1	M12×40	PFE—61进口, PFED—41/31进口; PFE—61inlet, PFED—41/31inlet;
WF—75	93	107	132	106.4	62	17.5	30	75	18	95×3.1	M16×45	PFED—51/41进口, PFED—51/21进口, PFED—51/31进口; PFED—51/41inlet, PFED—51/21inlet, PFED—51/31inlet;

注: 图示尺寸 A、I 为参考尺寸, 相应孔及倒角出厂前不加工。

Note: Size of diagrammatic representation A and I are reference, corresponding hole and chamfer aren't machined before ex-factory.