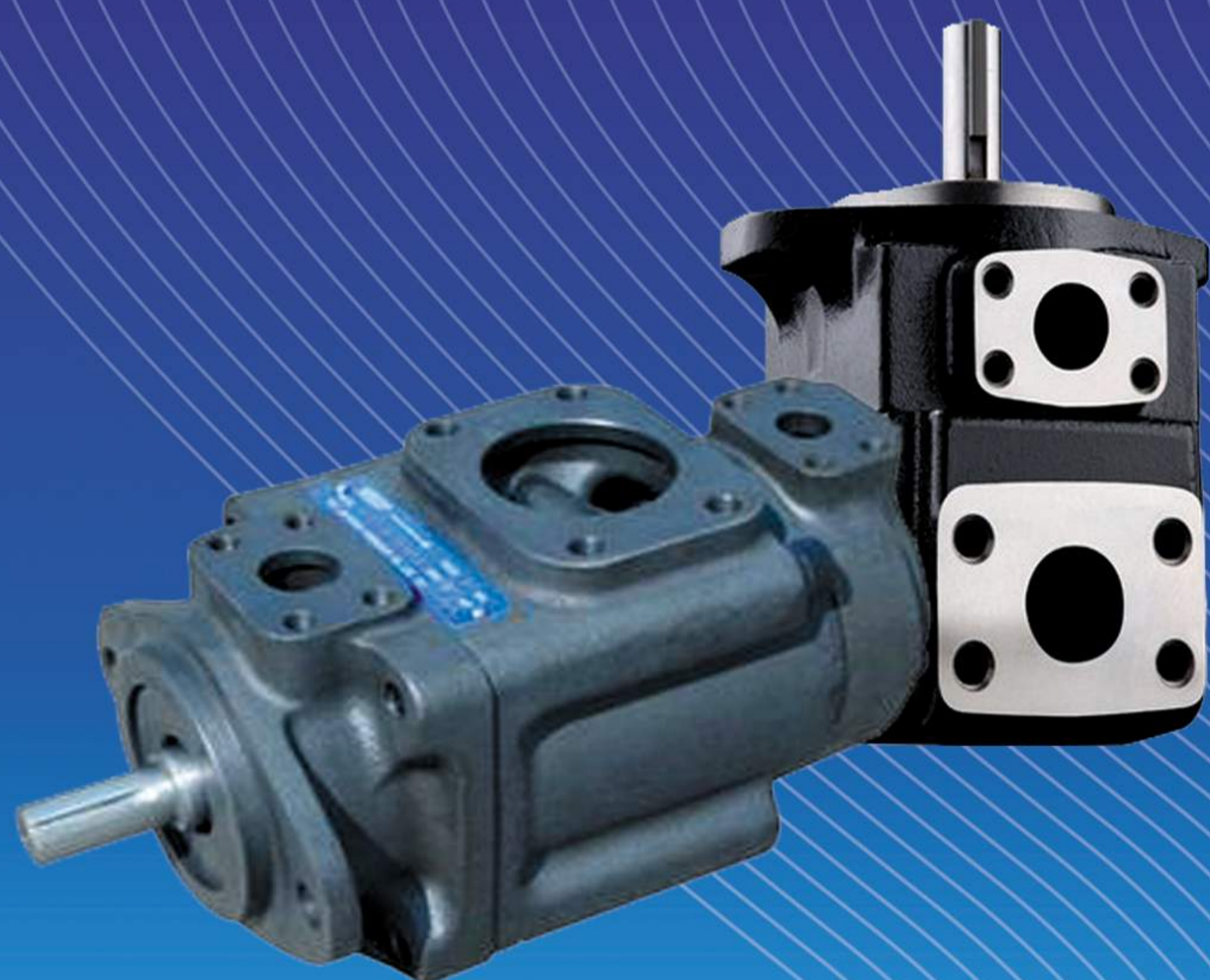


山西·榆次



柱销式叶片泵

晋中市榆次华意液压有限公司

Jinzhong Yuci Huayi Hydraulic Co.,

PFE 系列柱销式叶片泵

PEF Series Pin Type Vane Pumps

■ 简介

PFE 系列高性能叶片泵共有单泵(PFE—21/31/41/51/32/42/52)、双联泵(PFED—3121/4121/4131/5131/5141)十二个系列173个规格。其排量范围为5~150ml/r,额定压力为16~30MPa,转速范围为600~2800r/min。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。增加了外形种类,新的方形泵噪声更低。独特的设计、高精密加工和材料的合理选择使得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。

■ General Description

PFE series are fixed displacement and twelve vane pumps featuring cartridge design with integral hydraulic balancing for high pressure operation and long service life and low noise level. These pumps are available as single and multiple configurations.

Mounting according to SAE and ISO 3019 standards. Easy installation as inlet and outlet ports can be orientated in any of four relative positions.

Easy maintenance as the pumping cartridge can be replaced in a few minutes.

Wide variety of displacement is up to 150mL/r.

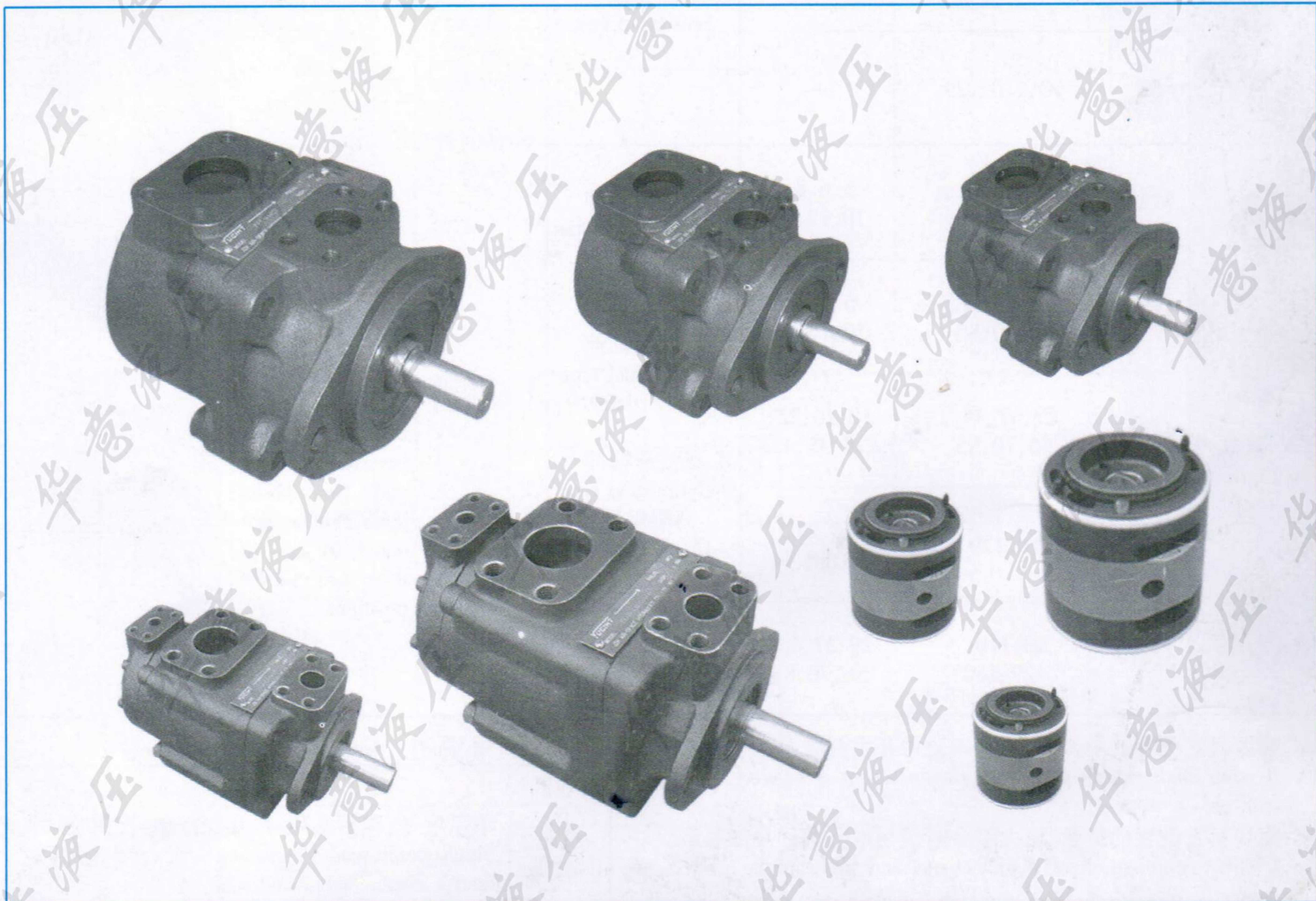
There are 12 series and 173 sizes of PFE pump including single ones (PEE - 21/31/41/51/32/42/52) and double ones (PFED—3121/4121/4131/5131/5141).

Displacement range: 5 ~ 150mL/r

Rated operating pressure: 16 ~ 30MPa

Speed: 600 ~ 2800rpm

● PFE 单泵 PFE single Pump



■ 型号说明 Model Code

PFED—	4131	045/	022/	1	D	TO	/PF	-01
PFE 系列 定量叶片泵	系列号	单泵或双联泵 大排量侧几何排量	双联泵小排 量侧几何排量	* ¹ 轴伸型式	旋 向 (从轴端看)	油口位置	适用 流体记号	设计号
PFE series fixed displacement vane pump	Series number	Single pump or double pump larger displacement volume side geometric displacement (ml/r)	Double pump smaller displacement volume side geometric displacement (ml/r)	Shaft extension	Direction of rotation (viewed from shaft end)	Port orientation	Suitable fluids	Design number
PFE: 单泵系列 single pump series	21	5、6、8、 10、12、16		① 圆柱形轴伸 Cylindrical type	D: 顺时针 CW S: 逆时针 CCW	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] See port orienta- tion table [inlet and outlet ports can be oriented in any of four rela- tive positions: T, V, U, W]	无记号: 石油基 水-乙二醇 None: petroleum base fluid water glycol fluid	01
	31	16、22、 28、36、44	—					
	41	29、37、45、 56、70、85	—	① 圆柱形轴伸 Cylindrical type (标准型) (standard)				
	51	90、110、 129、150	—	② 圆柱形轴伸 Cylindrical type (ISO/DIS3019)				
	32	22、28、36	—	③ 圆柱形轴伸 Cylindrical type (高扭矩型) (high torque)				
	42	45、56、70	—	⑤ 花键轴伸 Splined type				
	52	90、110、129	—					
* ² PFED: 双联泵系列 double pump series	3121	16、22、 28、36、44	5、6、8、 10、12、16	① 圆柱形轴伸 Cylindrical type (标准型) (standard)	见油口位置表 [进口与二个出口 共有 TO (标准)、VG 等 32 组位置关系] See port orienta- tion table [inlet and two outlet ports can be ori- ented in any of thirty two relative positions]	/PF: 磷酸酯 phosphoric ester		
	4121	29、37、45、 56、70、85	5、6、8、 10、12、16	② 圆柱形轴伸 Cylindrical type (ISO/DIS3019)				
	4131	29、37、45、 56、70、85	10、16、22、 28、36、44	③ 圆柱形轴伸 Cylindrical type (高扭矩型) (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				

★¹ 需要其它类型的轴伸时, 请与本公司开发部联系;
If other shaft extension type or displacement is needed, contact with us.

★² 需要其它类型的排量、压力组合时请与本公司开发部联系。
If other combination of displacement and pressure is needed, contact with us.

● 机芯型号说明 Cartridge model code:

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

■ 主要性能参数 Main Technical Data

抗磨液压油粘度 24cSt, 油温 50℃ (Using anti-wear hydraulic oil, 24cSt at 50℃)

● 单泵 PFE 系列 PFE series single pump

型号 Model	排量 Displacement (ml/r)	额定压力 Rated pressure (MPa)	输出流量 Output flow (L/min)	驱动功率 Driving power (kW)	转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size	
							进口 Inlet	出口 Outlet
PFE—21005	4.8	16	3.96	3	800 ~ 2800	5	3/4"	1/2"
PFE—21006	5.6		5.04	3.8				
PFE—21008	7.8		7.6	5.2				
PFE—21010	9.4		9.87	6.5				
PFE—21012	12.1		13.5	8				
PFE—21016	16		18	10				
PFE—31016	16.5	21	16	6.5	700 ~ 2500	14	1 1/2"	1"
PFE—31022	21.6		23	10				
PFE—31028	28.1		33	14				
PFE—31036	35.6		43	18				
PFE—31044	43.7		55	23				
PFE—41029	29.3		34	14				
PFE—41037	36.6	45	18					
PFE—41045	45.0	57	23					
PFE—41056	55.8	72	30					
PFE—41070	69.9	91	37					
PFE—41085	85.3	114	47	700 ~ 2000	25.5	2"	1 1/4"	
PFE—51090	90.0	114	47					
PFE—51110	109.6	141	58	600 ~ 2200				
PFE—51129	129.2	168	69	600 ~ 1800				
PFE—51150	150.2	197	80					

● 单泵 PFE—*2 系列 PFE—*2 series single pump

型号 Model	排量 Displacement (ml/r)	额定压力 Rated pressure (MPa)	输出流量 Output flow (L/min)	驱动功率 Driving power (kW)	转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size	
							进口 Inlet	出口 Outlet
PFE—32022	21.6	30	20	15	1200 ~ 2500	9	1 1/4"	3/4"
PFE—32028	28.1		30	21				
PFE—32036	35.6		40	27				
PFE—42045	45.0	28	56	31	1000 ~ 2200	14	1 1/2"	1"
PFE—42056	55.8		70	40				
PFE—42070	69.9	25	90	47	1000 ~ 2000	25.5	2"	1 1/4"
PFE—52090	90.0	25	111	57				
PFE—52110	109.6		138	69				
PFE—52129	129.2		163	81				

● 双联泵 PFED 系列 PFE series double pump

详细性能参数见 5—9 页

型号 Model	排量 Displacement (ml/r)	额定压力 Rated pressure (MPa)	输出流量 Output flow (L/min)	驱动功率 Driving power (kW)	转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size						
							进口 Inlet	前泵出口 First outlet	后泵出口 Second outlet				
PFED—3121※/※	PFE—31 + PFE—21 组合 Composed by: cartridge of PFE-31 plus cartridge of PFE-21				800 ~ 2500 (800 ~ 2000) 括号内值为前泵是最大排量时的转速范围。 the first element speed at the largest displacement	14	1"	3/4"	1/2"				
PFED—4121※/※	PFE—41 + PFE—21 组合 Composed by: cartridge of PFE-41 plus cartridge of PFE-21									19	2 1/2"	1"	1/2"
PFED—4131※/※	PFE—41 + PFE—31 组合 Composed by: cartridge of PFE-41 plus cartridge of PFE-31												
PFED—5131※/※	PFE—51 + PFE—31 组合 Composed by: cartridge of PFE-51 plus cartridge of PFE-31				700 ~ 2000 (700 ~ 1800) 括号内值为前泵是最大排量时的转速范围。 the first element speed at the largest displacement	34	3"	1 1/4"	3/4"				
PFED—5141※/※	PFE—51 + PFE—41 组合 Composed by: cartridge of PFE-51 plus cartridge of PFE-41									36	3"	1 1/4"	1"

注：1. 各主要性能参数表中输出流量、驱动功率是在 $n = 1500 \text{r/min}$, $P = P_n$ (额定压力) 工况下保证值。

2. 前泵指轴端(大排量侧)泵,后泵指盖端(小排量侧)泵。

Note: 1. Output flow and driving power in the table are the values guaranteed at rated working condition: $n = 1500 \text{rpm}$ and $p = p_n$ (rated pressure)

2. First element is the shaft end (larger volume) pump, second element is the head end (smaller volume) pump.

● PFED 系列 PFED series (31/21)

型号 Model	理论排量 Theoretical displacement (ml/r)		额定压力 Rated pressure (MPa)		输出流量 Output flow (L/min)		驱动功率 Driving Power (kW)		转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size				
	前泵 Frist element	后泵 Second element	前泵 Frist element	后泵 Second element	前泵 First element	后泵 Second element	前泵 First element	后泵 Second element			进口 Inlet	前泵 出口 First outlet	后泵 出口 Second outlet		
PFED—3121016/005	16.5	4.8	16	16	16	4	3	3	800 ~ 2800	14	1"	3/4"	1/2"		
PFED—3121016/006		5.6												3.96	3.8
PFED—3121016/008		7.8												5.04	5.2
PFED—3121016/010		9.4												7.6	6.5
PFED—3121016/012		12.1												9.87	8
PFED—3121016/016		16.2												13.5	10
PFED—3121022/005	21.6	4.8	16	23	23	6.5	3	3	800 ~ 2800	14	1"	3/4"	1/2"		
PFED—3121022/006		5.6												3.96	3.8
PFED—3121022/008		7.8												5.04	5.2
PFED—3121022/010		9.4												7.6	6.5
PFED—3121022/012		12.1												9.87	8
PFED—3121022/016		16.2												13.5	10
PFED—3121028/005	28.1	4.8	21	33	33	10	3	3	800 ~ 2800	14	1"	3/4"	1/2"		
PFED—3121028/006		5.6												3.96	3.8
PFED—3121028/008		7.8												5.04	5.2
PFED—3121028/010		9.4												7.6	6.5
PFED—3121028/012		12.1												9.87	8
PFED—3121028/016		16.2												13.5	10
PFED—3121036/005	35.6	4.8	16	43	43	14	3	3	800 ~ 2800	14	1"	3/4"	1/2"		
PFED—3121036/006		5.6												3.96	3.8
PFED—3121036/008		7.8												5.04	5.2
PFED—3121036/010		9.4												7.6	6.5
PFED—3121036/012		12.1												9.87	8
PFED—3121036/016		16.2												13.5	10
PFED—3121044/005	43.7	4.8	16	55	55	18	3	3	800 ~ 2800	14	1"	3/4"	1/2"		
PFED—3121044/006		5.6												3.96	3.8
PFED—3121044/008		7.8												5.04	5.2
PFED—3121044/010		9.4												7.6	6.5
PFED—3121044/012		12.1												9.87	8
PFED—3121044/016		16.2												13.5	10

● PFED 系列 PFED series (41/21)

型号 Model	理论排量 Theoretical displacement (ml/r)		额定压力 Rated pressure (MPa)		输出流量 Output flow (L/min)		驱动功率 Driving Power (kW)		转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size			
	前泵 Frist element	后泵 Second element	前泵 Frist element	后泵 Second element	前泵 First element	后泵 Second element	前泵 First element	后泵 Second element			进口 Inlet	前泵出口 First outlet	后泵出口 Second outlet	
PFED—4121029/005	29.3	4.8	16	34	14	3	3	800 ~ 2800	19	2 1/2"	1"	1/2"		
PFED—4121029/006		5.6											3.96	3.8
PFED—4121029/008		7.8											5.04	5.2
PFED—4121029/010		9.4											7.6	6.5
PFED—4121029/012		12.1											9.87	8
PFED—4121029/016		16.2											13.5	10
PFED—4121037/005	36.6	4.8	16	45	18	3	3	800 ~ 2800	19	2 1/2"	1"	1/2"		
PFED—4121037/006		5.6											5.04	3.8
PFED—4121037/008		7.8											7.6	5.2
PFED—4121037/010		9.4											9.87	6.5
PFED—4121037/012		12.1											13.5	8
PFED—4121037/016		16.2											18	10
PFED—4121045/005	45	4.8	16	57	24	3	3	800 ~ 2800	19	2 1/2"	1"	1/2"		
PFED—4121045/006		5.6											5.04	3.8
PFED—4121045/008		7.8											7.6	5.2
PFED—4121045/010		9.4											9.87	6.5
PFED—4121045/012		12.1											13.5	8
PFED—4121045/016		16.2											18	10
PFED—3121036/005	55.8	4.8	21	72	30	3	3	800 ~ 2800	19	2 1/2"	1"	1/2"		
PFED—3121036/006		5.6											5.04	3.8
PFED—3121036/008		7.8											7.6	5.2
PFED—3121036/010		9.4											9.87	6.5
PFED—3121036/012		12.1											13.5	8
PFED—3121036/016		16.2											18	10
PFED—3121044/005	69.9	4.8	16	91	37	3	3	800 ~ 2800	19	2 1/2"	1"	1/2"		
PFED—3121044/006		5.6											5.04	3.8
PFED—3121044/008		7.8											7.6	5.2
PFED—3121044/010		9.4											9.87	6.5
PFED—3121044/012		12.1											13.5	8
PFED—3121044/016		16.2											18	10
PFED—4121085/005	85.3	4.8	16	114	46	3	3	800 ~ 2800	19	2 1/2"	1"	1/2"		
PFED—4121085/006		5.6											5.04	3.8
PFED—4121085/008		7.8											7.6	5.2
PFED—4121085/010		9.4											9.87	6.5
PFED—4121085/012		12.1											13.5	8
PFED—4121085/016		16.2											18	10

● PFED 系列 PFED series (41/31)

型号 Model	理论排量 Theoretical displacement (ml/r)		额定压力 Rated pressure (MPa)		输出流量 Output flow (L/min)		驱动功率 Driving Power (kW)		转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size		
	前泵 Frist element	后泵 Second element	前泵 Frist element	后泵 Second element	前泵 First element	后泵 Second element	前泵 First element	后泵 Second element			进口 Inlet	前泵 出口 First outlet	后泵 出口 Second outlet
PFED—4131029/016		16.5				16		6.5	800 ~ 2500	24.5	2 1/2"	1"	3/4"
PFED—4131029/022	29.3	21.6			34	23	14	10					
PFED—4131029/028		28.1				33		14					
PFED—4131037/010		10				10		4					
PFED—4131037/016		16.5				16		6.5					
PFED—4131037/022	36.6	21.6			45	23	18	10					
PFED—4131037/028		28.1				33		14					
PFED—4131037/036		35.6				43		18					
PFED—4131045/016		16.5				16		6.5					
PFED—4131045/022		21.6				23		10					
PFED—4131045/028	45.0	28.1			57	33	24	14					
PFED—4131045/036		35.6				43		18					
PFED—4131045/044		43.7				55		23					
PFED—4131056/010		10				10		4					
PFED—4131056/016		16.5	21	21		16		6.5					
PFED—4131056/022		21.6				23		10					
PFED—4131056/028	55.8	28.1			72	33	30	14					
PFED—4131056/036		35.6				43		18					
PFED—4131056/044		43.7				55		23					
PFED—4131070/016		16.5				16		6.5					
PFED—4131070/022		21.6				23		10					
PFED—4131070/028	69.9	28.1			91	33	37	14					
PFED—4131070/036		35.6				43		18					
PFED—4131070/044		43.7				55		23					
PFED—4131085/016		16.5				16		6.5					
PFED—4131085/022		21.6				23		10					
PFED—4131085/028	85.3	28.1			114	33	46	14					
PFED—4131085/036		35.6				43		18					
PFED—4131085/044		43.7				55		23					

● PFED 系列 PFED series (51/31)

型号 Model	理论排量 Theoretical displacement (ml/r)		额定压力 Rated pressure (MPa)		输出流量 Output flow (L/min)		驱动功率 Driving Power (kW)		转速范围 Speed range (r/min)	重量 Weight (kg)	油口通径 Port size		
	前泵 Frist element	后泵 Second element	前泵 Frist element	后泵 Second element	前泵 First element	后泵 Second element	前泵 First element	后泵 Second element			进口 Inlet	前泵 出口 First outlet	后泵 出口 Second outlet
PFED—5131090/016		16.5				16		6.5	700 ~ 2000	34	3"	1 1/4"	3/4"
PFED—5131090/022		21.6				23		10					
PFED—5131090/028	90.0	28.1			114	33	48	14					
PFED—5131090/036		35.6				43		18					
PFED—5131090/044		43.7				55		23					
PFED—5131110/016		16.5				16		6.5	700 ~ 2000	34	3"	1 1/4"	3/4"
PFED—5131110/022		21.6				23		10					
PFED—5131110/028	109.6	28.1			141	33	58	14					
PFED—5131110/036		35.6				43		18					
PFED—5131110/044		43.7				55		23					
PFED—5131129/016		16.5	21	21		16		6.5	700 ~ 1800	34	3"	1 1/4"	3/4"
PFED—5131129/022		21.6				23		10					
PFED—5131129/028	129.2	28.1			168	33	69	14					
PFED—5131129/036		35.6				43		18					
PFED—5131129/044		43.7				55		23					
PFED—5131150/016		16.5				16		6.5	700 ~ 1800	34	3"	1 1/4"	3/4"
PFED—5131150/022		21.6				23		10					
PFED—5131150/028	150.2	28.1			197	33	80	14					
PFED—5131150/036		35.6				43		18					
PFED—5131150/044		43.7				55		23					

● PFED 系列 PFED series (51/41)

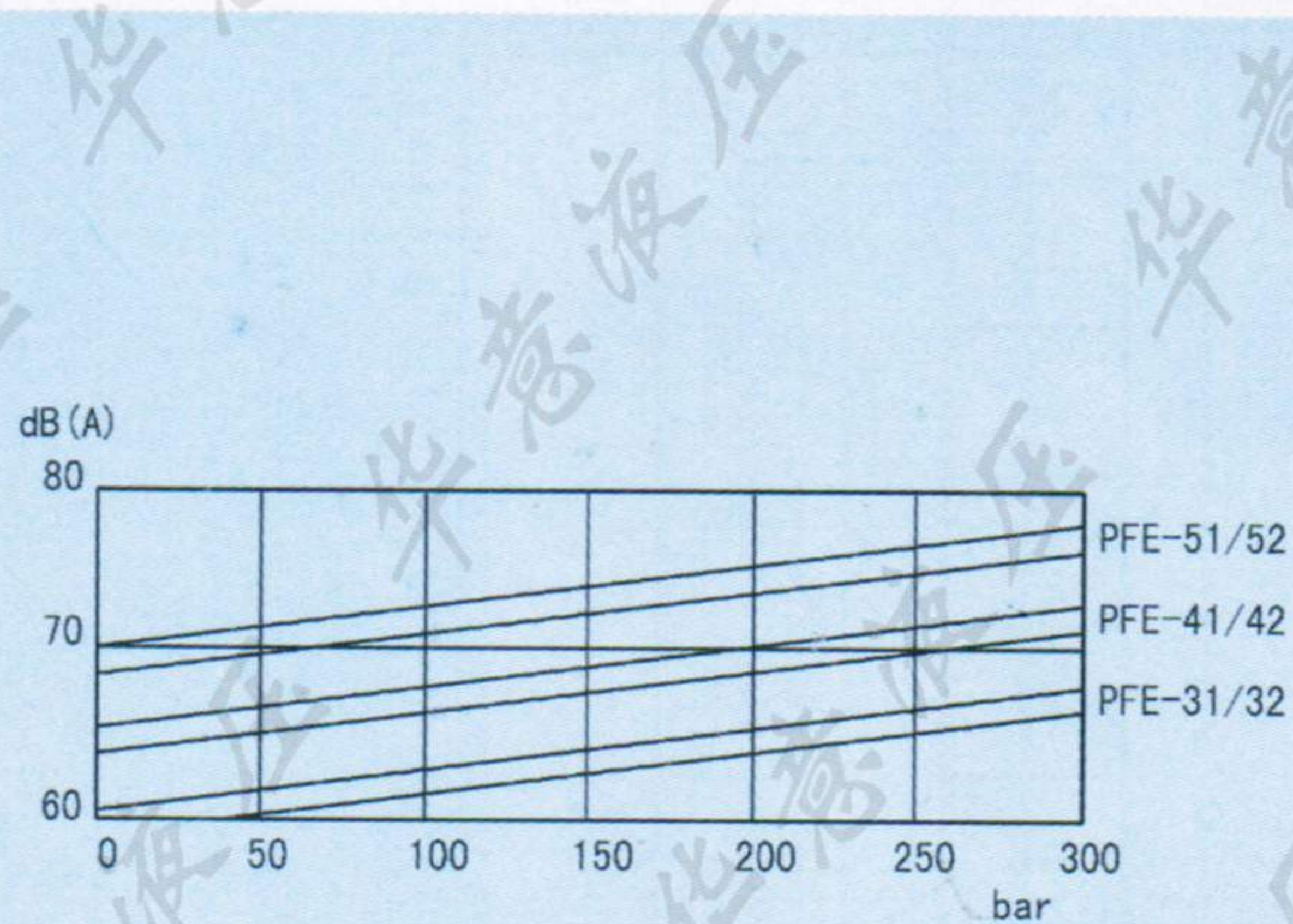
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	前泵 Frist element	后泵 Second element	前泵 Frist element	后泵 Second element	前泵 First element	后泵 Second element	前泵 First element	后泵 Second element			进口 Inlet	前泵 出口 First outlet	后泵 出口 Second outlet
PFED—5141090/029	90.0	29.3	21	21	114	48	14	700 ~ 2000	36	3"	1 1/4"	1"	
PFED—5141090/037		36.6					18						
PFED—5141090/045		45.0					24						
PFED—5141090/056		55.8					30						
PFED—5141090/070		69.9					37						
PFED—5141090/085		85.3					46						
PFED—5141110/029	109.6	29.3	21	21	141	58	14	700 ~ 2000	36	3"	1 1/4"	1"	
PFED—5141110/037		36.6					18						
PFED—5141110/045		45.0					24						
PFED—5141110/056		55.8					30						
PFED—5141110/070		69.9					37						
PFED—5141110/085		85.3					46						
PFED—5141129/029	129.2	29.3	21	21	168	69	14	700 ~ 1800	36	3"	1 1/4"	1"	
PFED—5141129/037		36.6					18						
PFED—5141129/045		45.0					24						
PFED—5141129/056		55.8					30						
PFED—5141129/070		69.9					37						
PFED—5141129/085		85.3					46						
PFED—5141150/029	150.2	29.3	21	21	197	80	14	700 ~ 1800	36	3"	1 1/4"	1"	
PFED—5141150/037		36.6					18						
PFED—5141150/045		45.0					24						
PFED—5141150/056		55.8					30						
PFED—5141150/070		69.9					37						
PFED—5141150/085		85.3					46						

■ 特性曲线 Characteristics

● 噪声 Noise

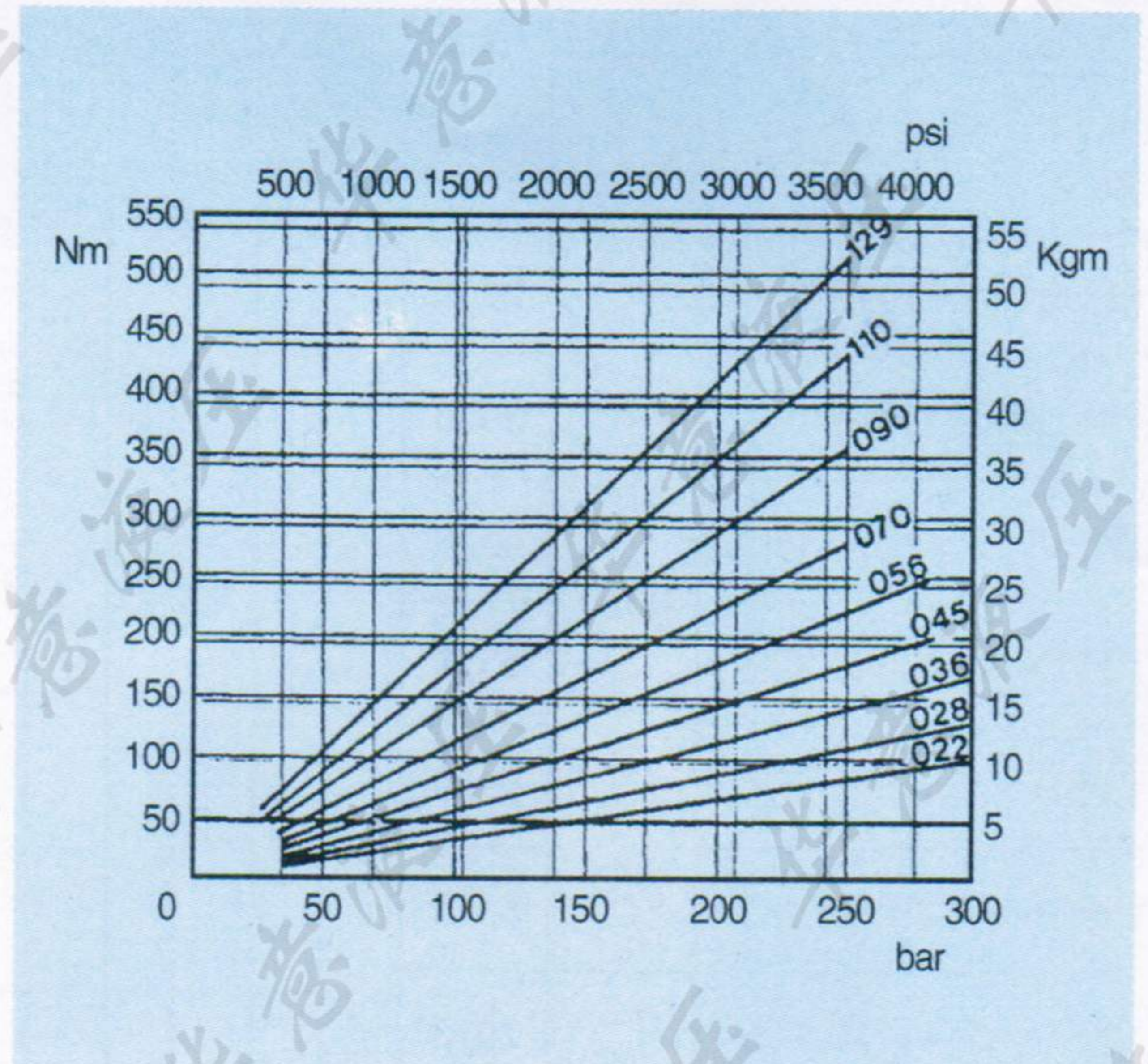
[测试条件: $n = 1500\text{r/min}$, 油粘度 $24\text{cSt}(3.5^\circ\text{E})$, 环境符合 ISO4412 标准。]

[Testing conditions: $n = 1500\text{r/min}$, oil viscosity $24\text{cSt}(3.5^\circ\text{E})$, ambient conditions in accordance with ISO4412 standard]



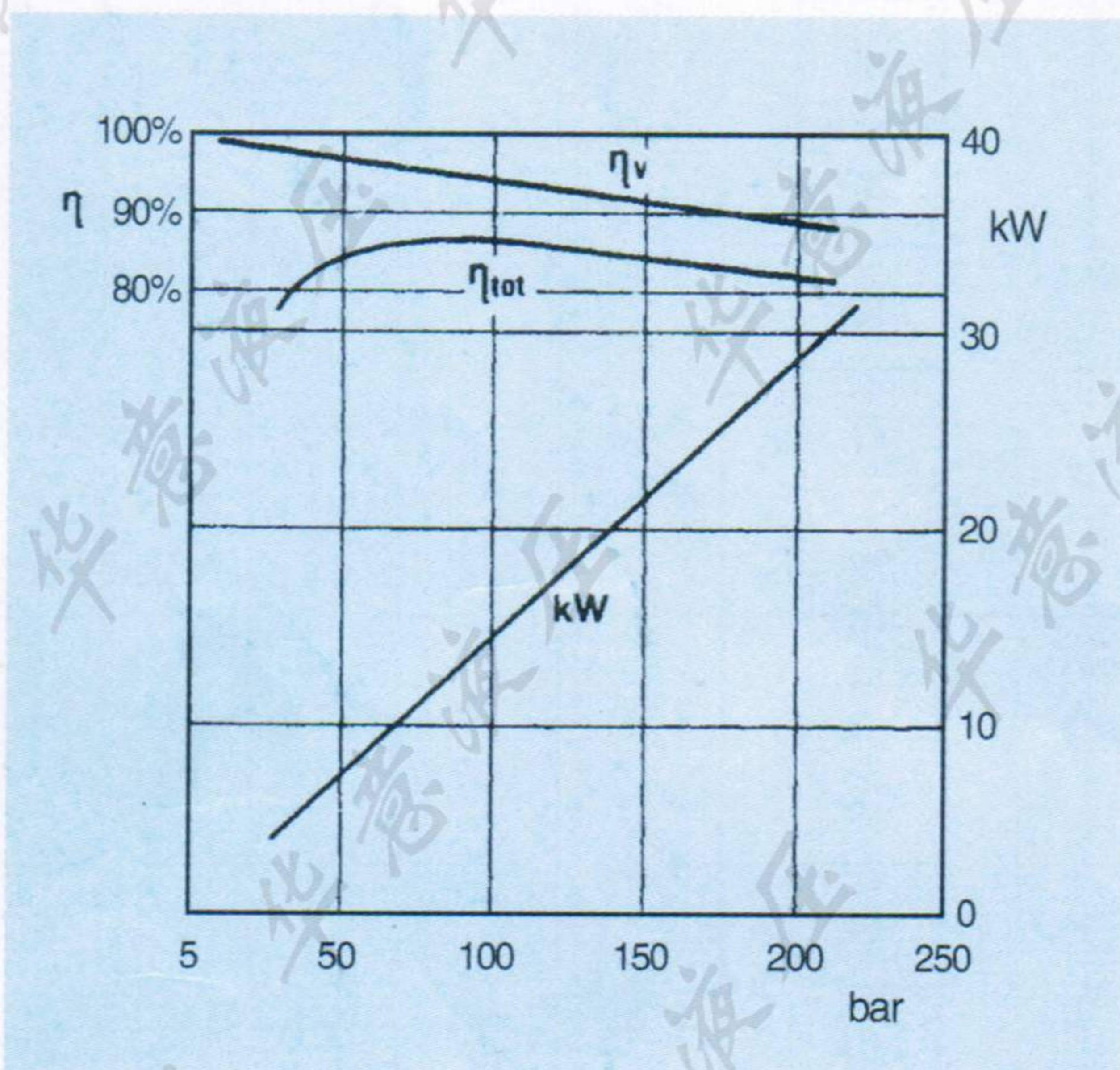
● 驱动扭矩/输出压力曲线

Driving torque versus output pressure diagram
PFE - 31/41/51

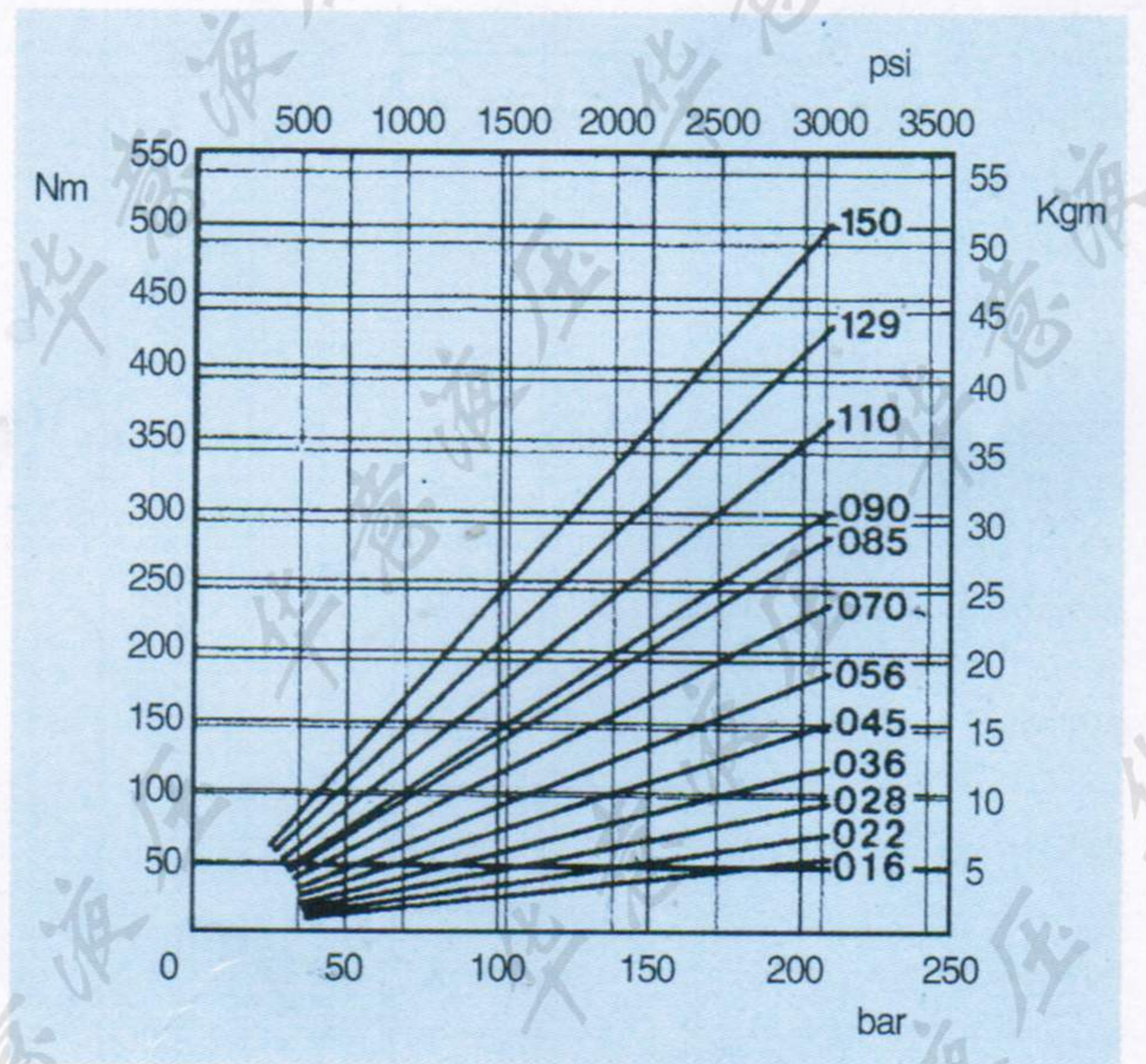


● PFE—41056 典型曲线

PFE - 41056 pump typical diagram
($n = 1500\text{r/min}$)



PFE—32/42/52



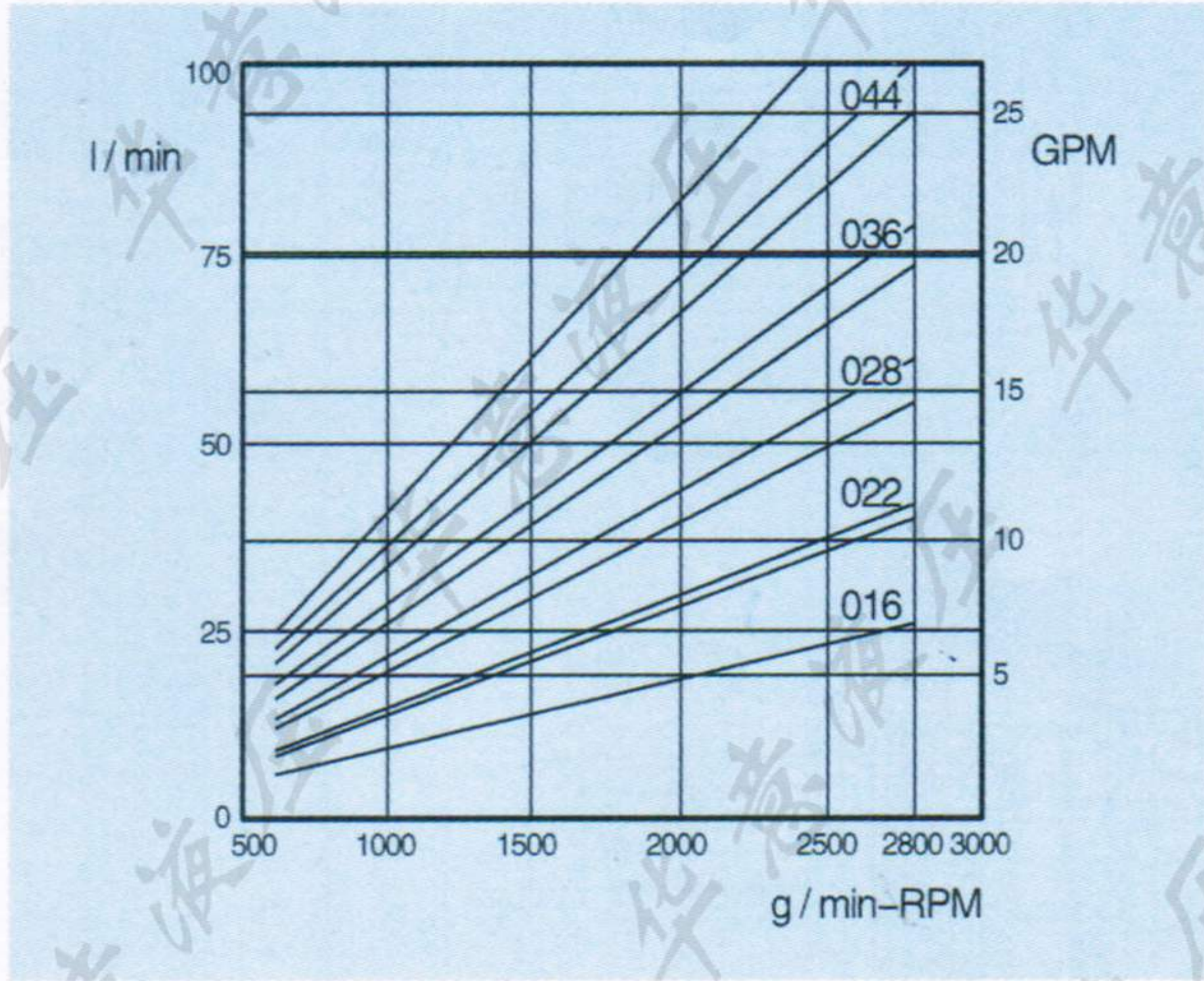
● 流量/转速曲线

Flow versus rotation speed diagram

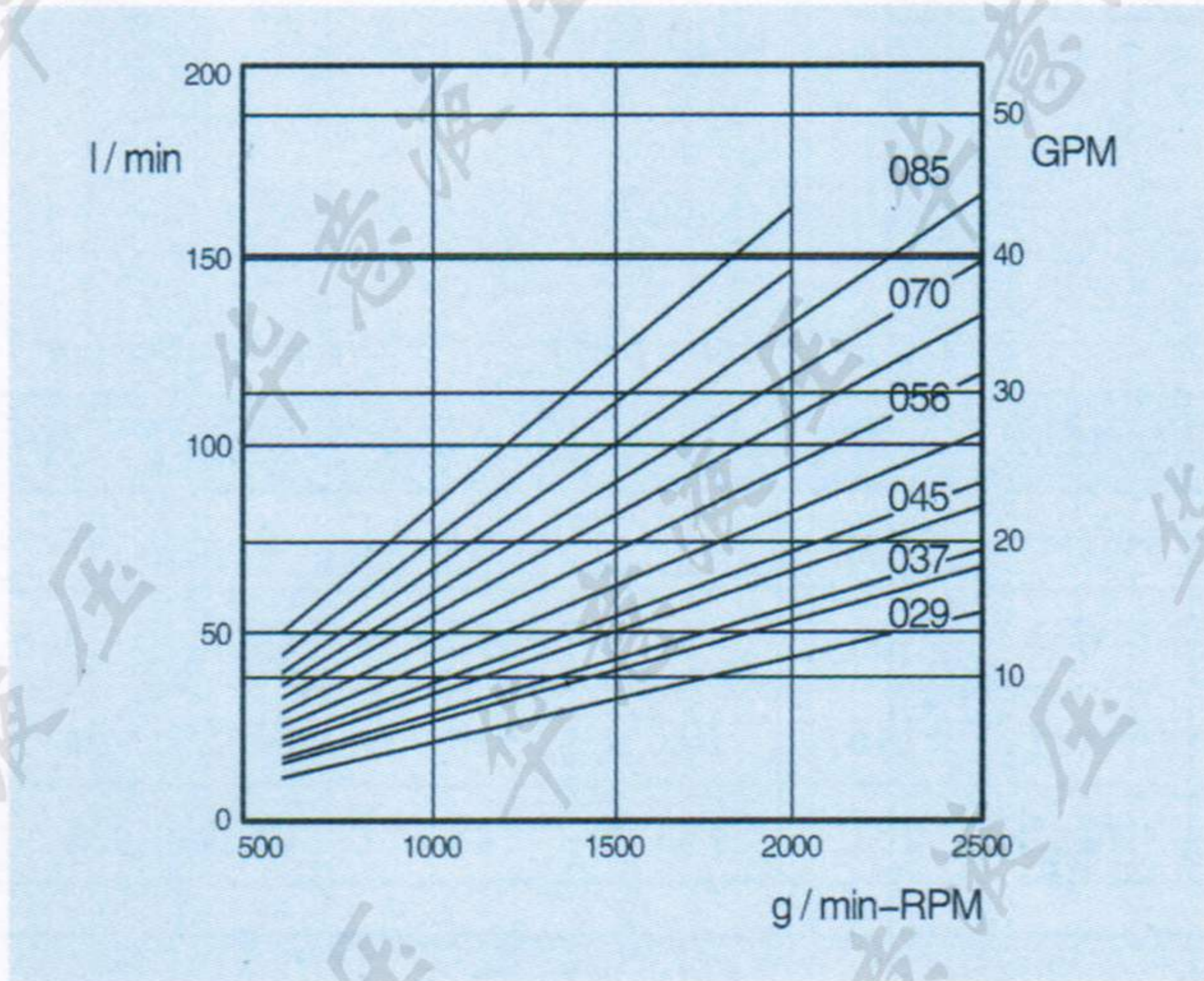
[工况: 压力 0.7 ~ 21MPa, 油粘度 24cSt(3.5°E)]

[Working condition: pressure - 0.7 ~ 21MPa, viscosity - 24cSt(3.5°E)]

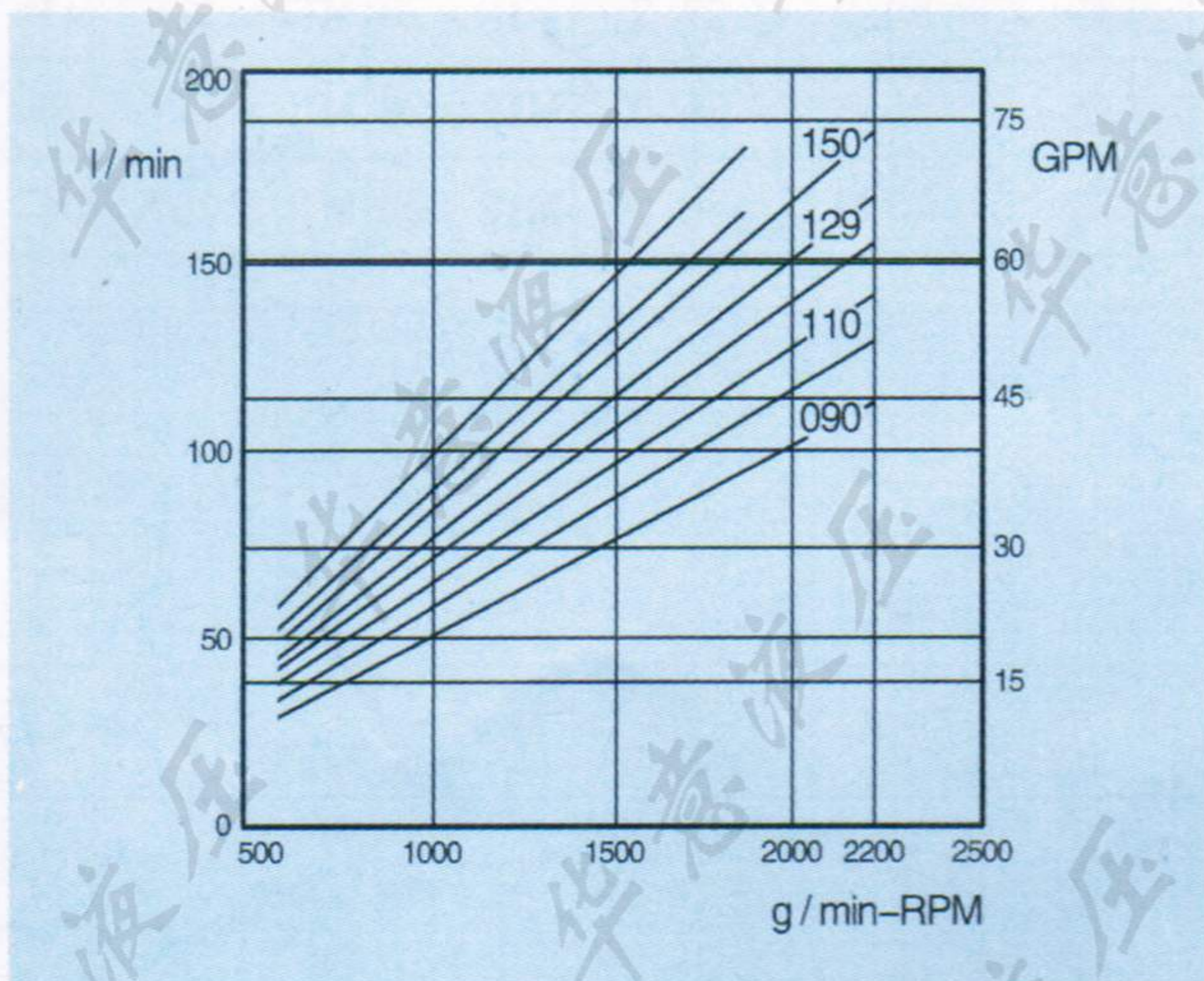
PFE—31:



PFE—41:



PFE—51:



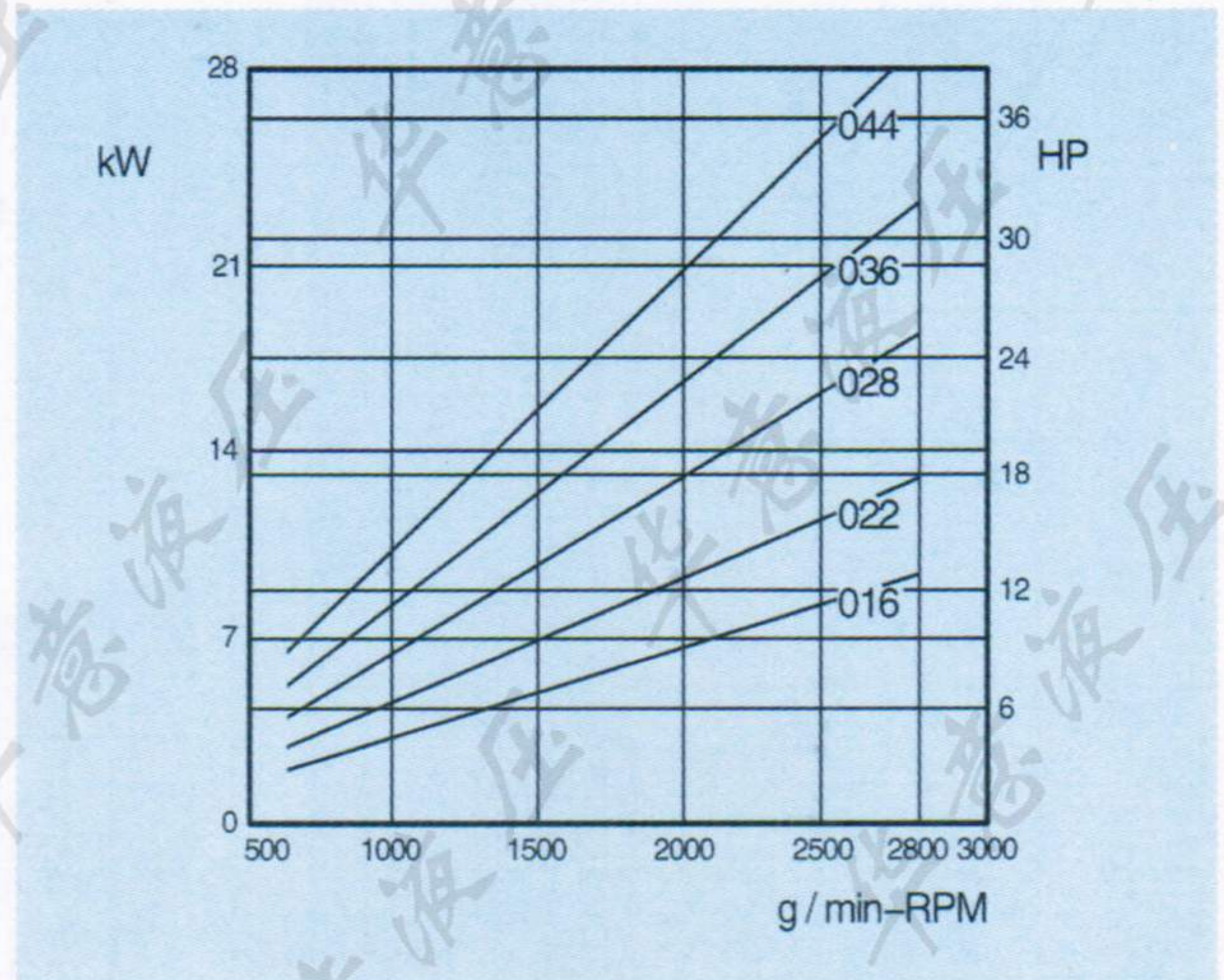
● 功率/转速曲线

Power consumption versus rotation speed diagram

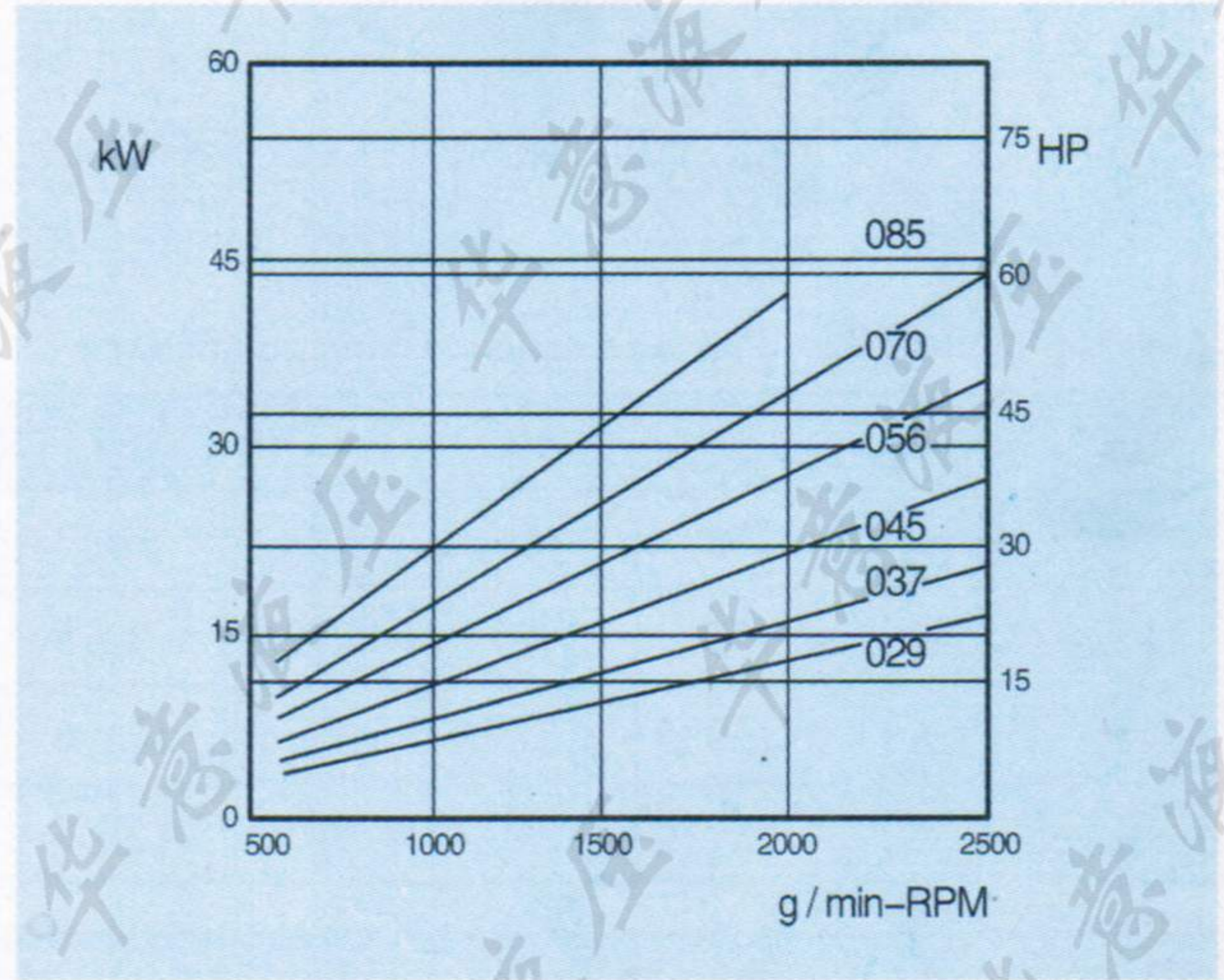
(工况: 压力 14MPa)

[Working condition: pressure - 14MPa]

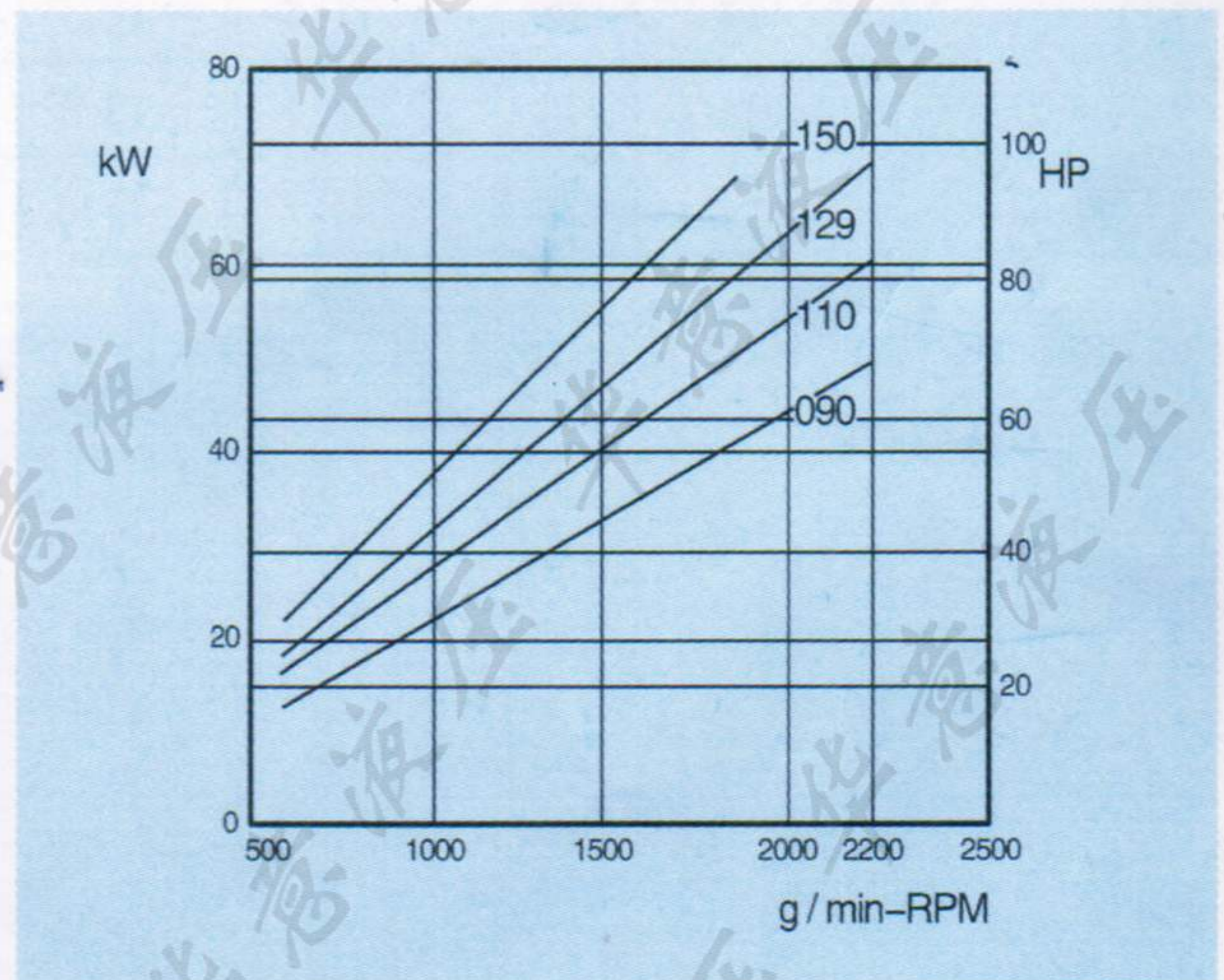
PFE—31:



PFE—41:



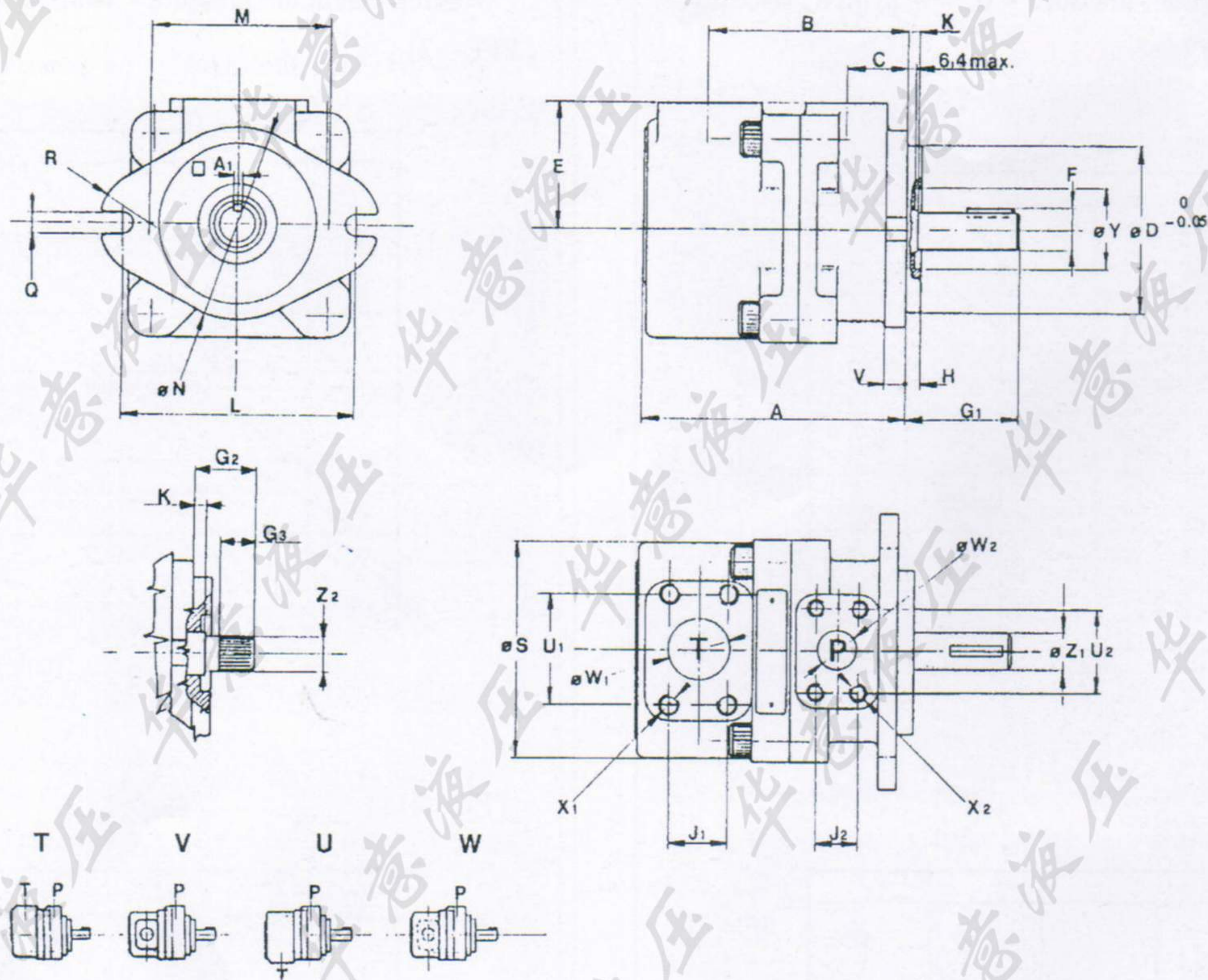
PFE—51:



■ 外形及安装尺寸 Configuration and Installation Dimensions (mm)

(注: PFE—*2 系列仅提供 3 型轴)

● 单 泵 Single pump (PFE—21、31、41、51)



▲ 油口位置示意图 Port orientation schematic diagram

T = 进口 (inlet port) P = 出口 (outlet port)

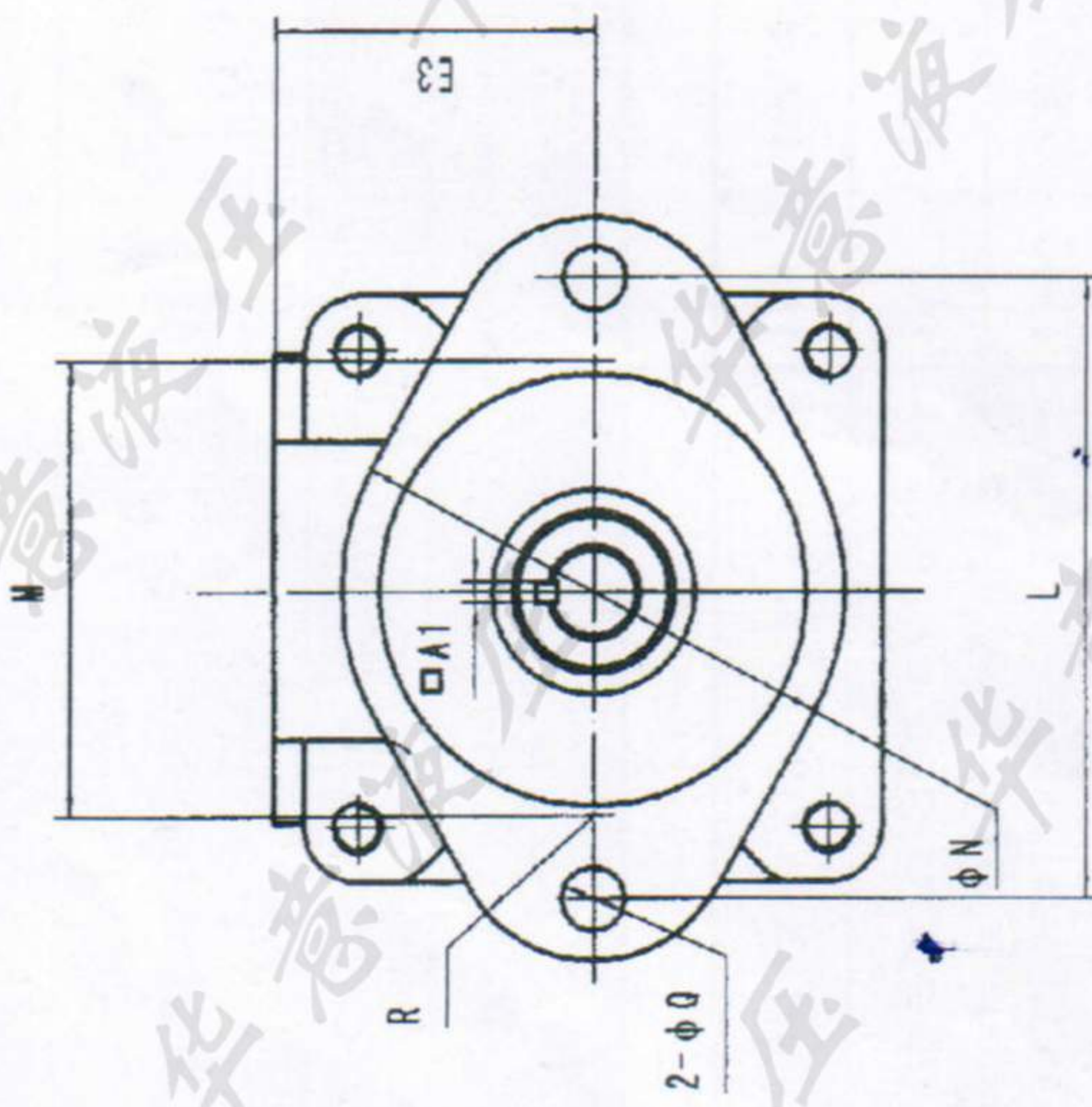
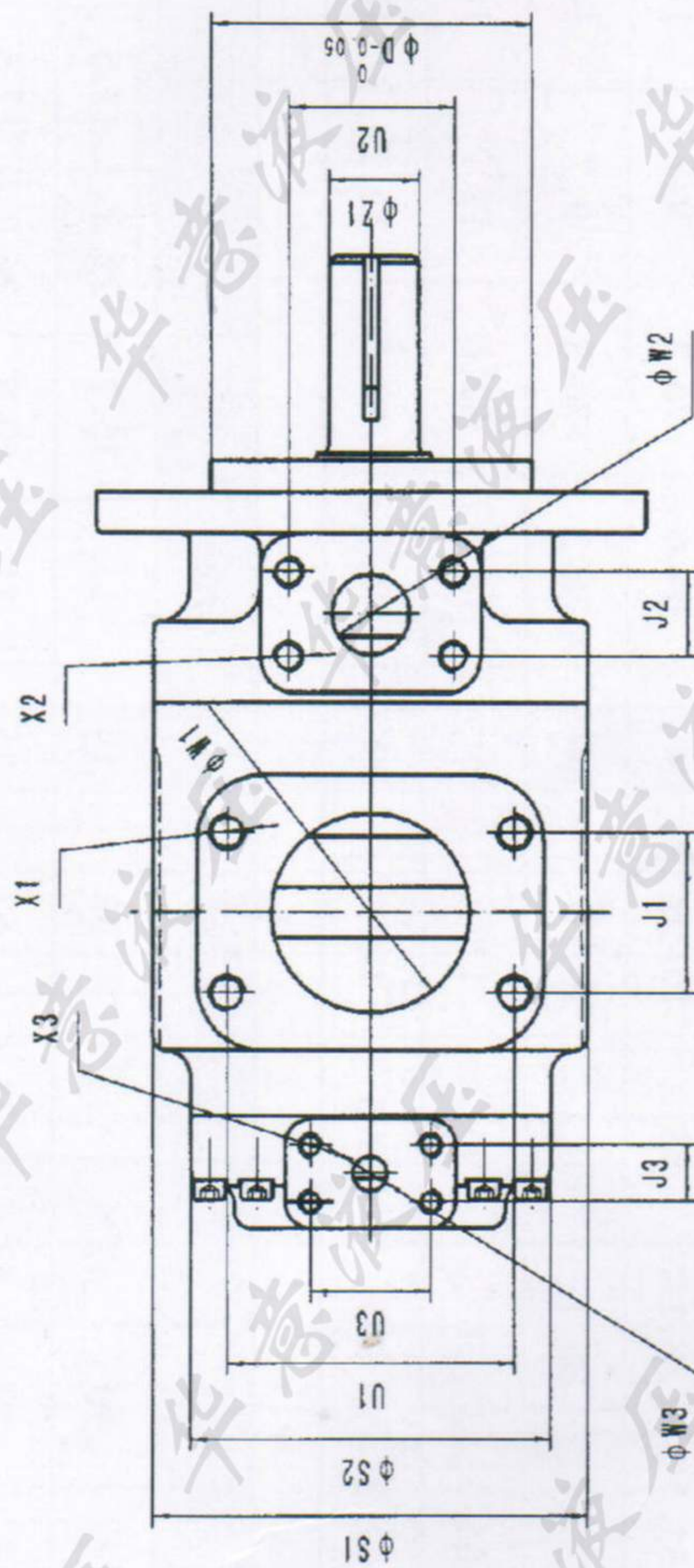
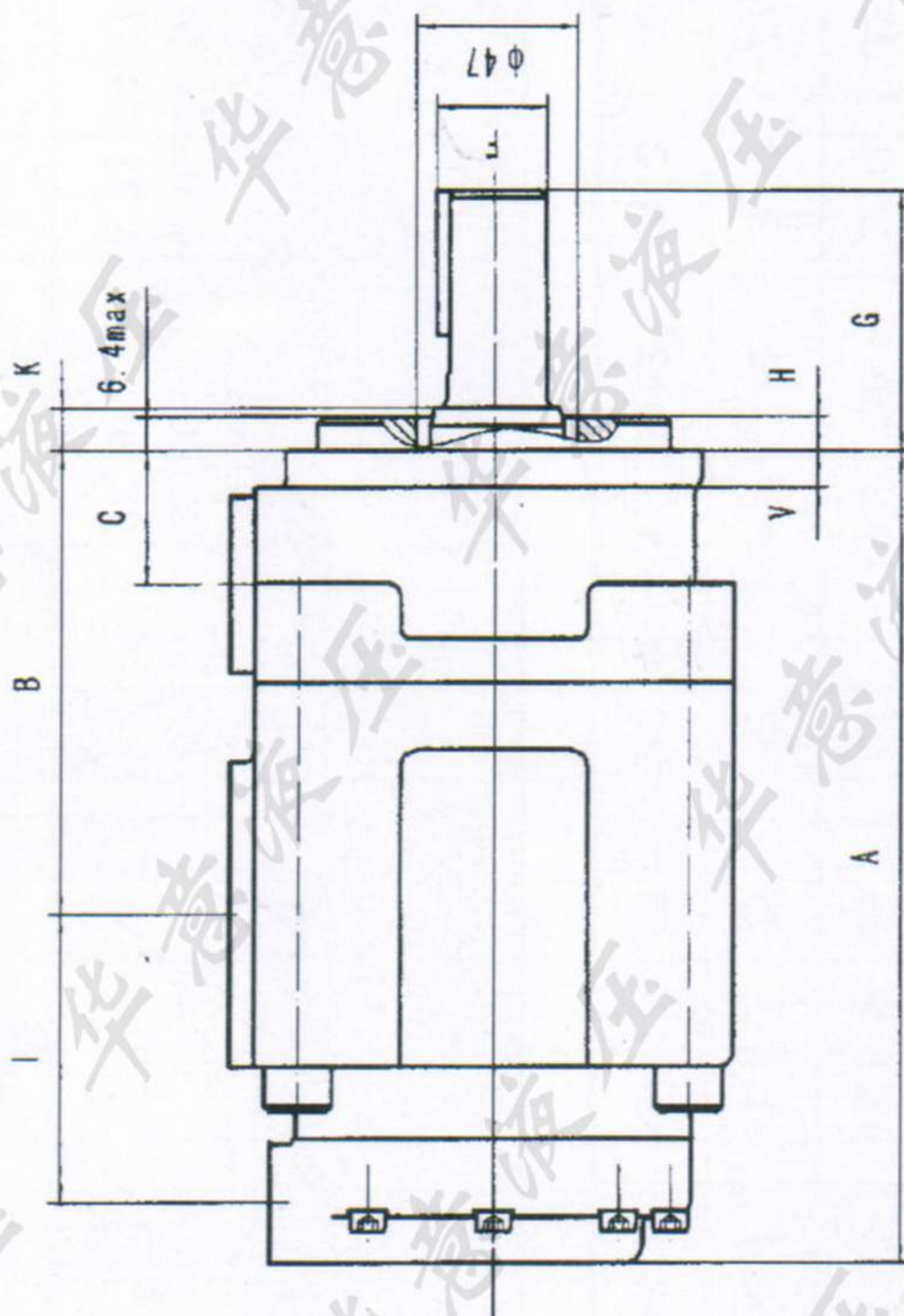
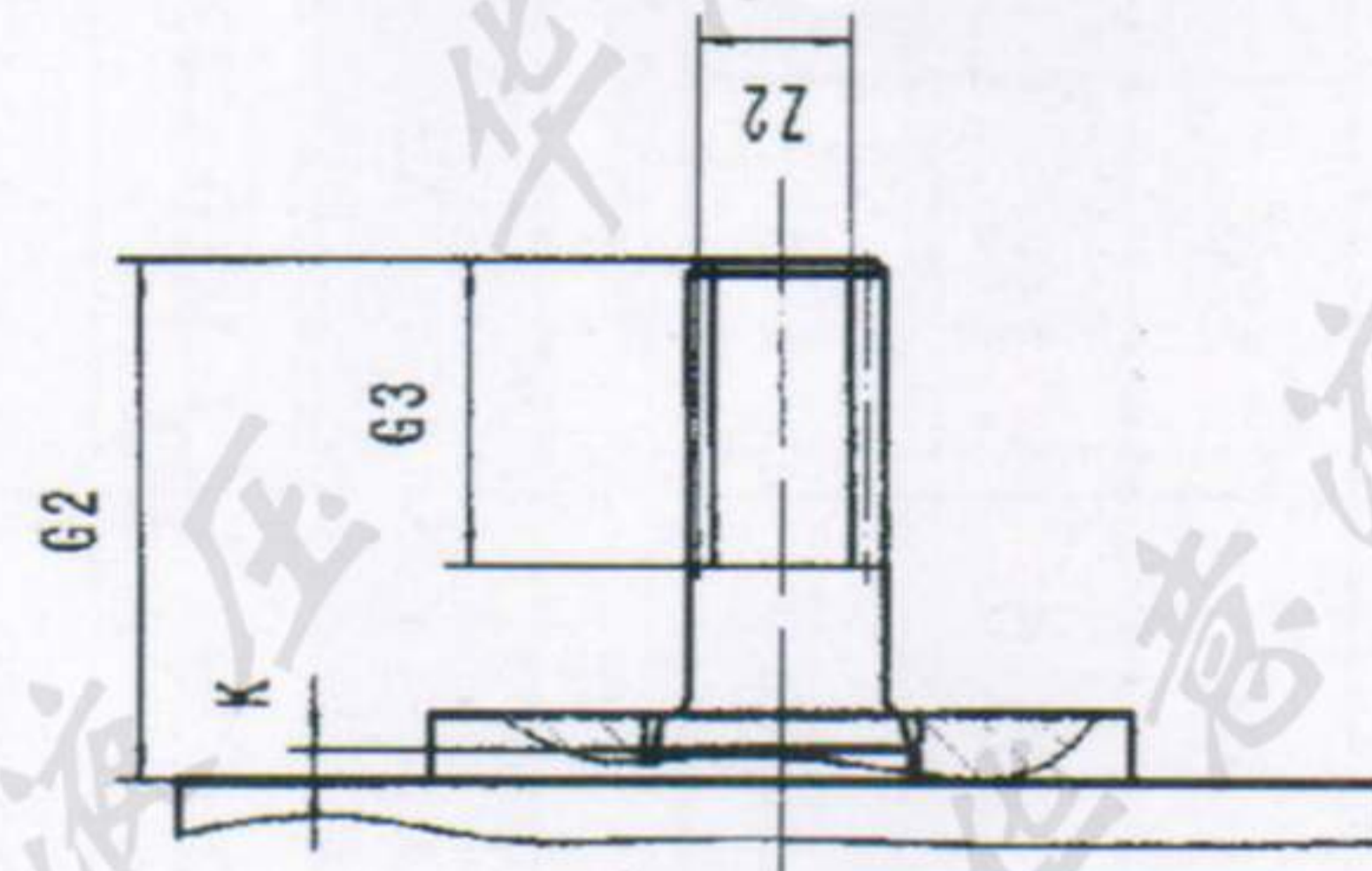
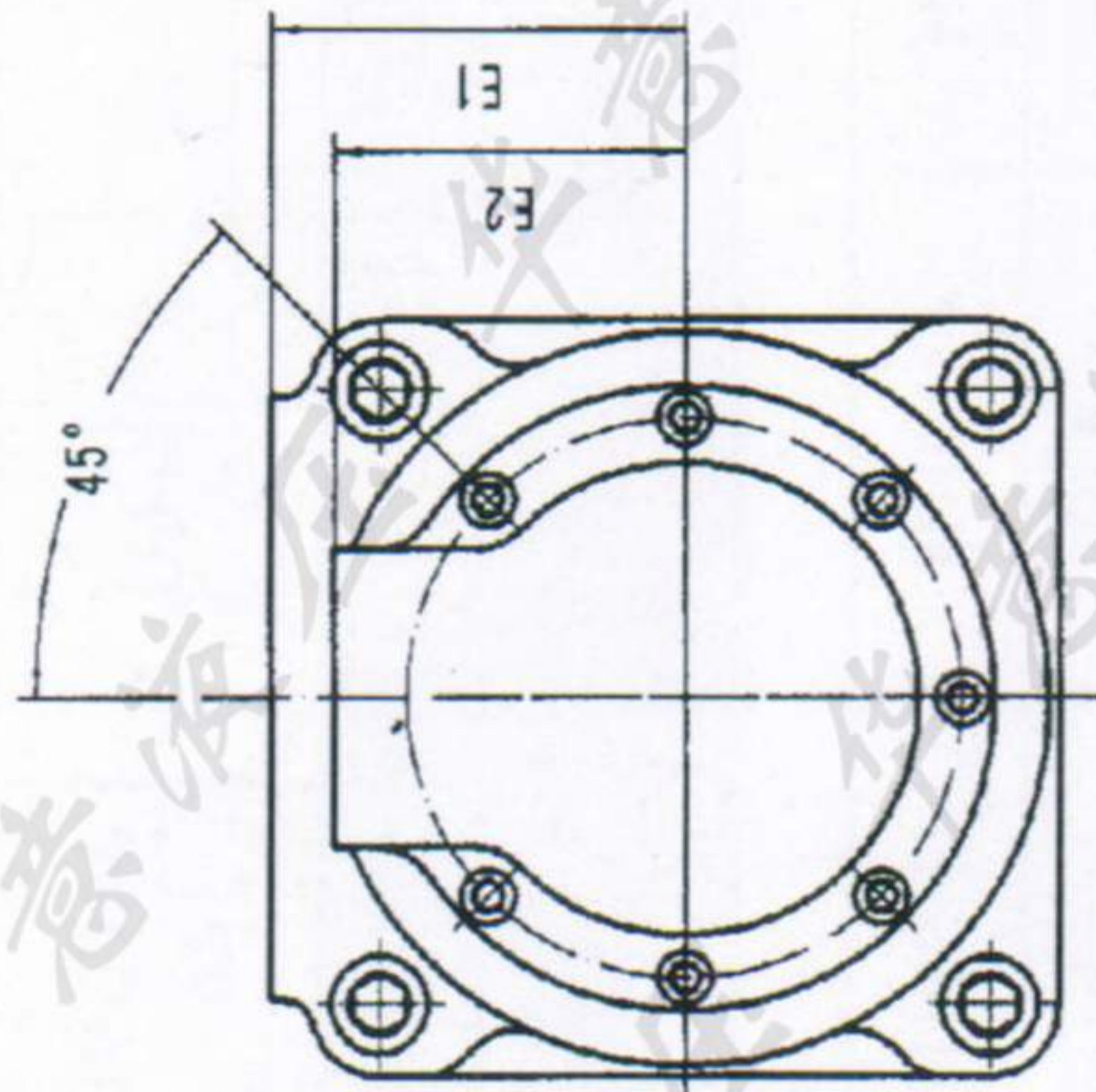
型号 Model	A	B	C	ØD	E	H	L	M	ØN	Q	R
PFE—21	105	69	20	63	57	7	100	—	84	9	—
PFE—31/32	135	98.5	27.5	82.5	70	6.4	106	73	95	11	28.5
PFE—41/42	159.5	121	38	101.6	76.2	9.7	146	107	120	14.5	34
PFE—51/52	181	125	38	127	82.6	12.7	181	143.5	148	17.5	35

型号 Model	ØS	U ₁	U ₂	V	ØW ₁	ØW ₂	J ₁	J ₂	X ₁	X ₂	ØY
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

型号 Model	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				
	ØZ ₁	G ₁	A ₁	F	K	ØZ ₁	G ₁	A ₁	F	K	ØZ ₁	G ₁	A ₁	F	K	Z ₂	G ₂	G ₃	K	
PFE—21	15.88 15.85	48	4.00 3.98	17.37 17.27	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PFE—31/32	19.05 19.00	55.6	4.76 4.75	21.11 20.94	8	—	—	—	—	—	22.22 22.20	55.6	4.76 4.75	24.54 24.41	8	9T 16/32DP	32	19.5	8	
PFE—41/42	22.22 22.20	59	4.76 4.75	24.54 24.41	11.4	22.22 22.20	71	6.36 6.35	25.07 25.03	8	25.38 25.36	78	6.36 6.35	28.30 28.10	11.4	13T 16/32DP	41	28	8	
PFE—51/52	31.75 31.70	73	7.95 7.94	35.33 35.07	13.9	31.75 31.70	84	7.95 7.94	35.33 35.07	8	34.90 34.88	84	7.95 7.94	38.58 38.46	13.9	14T 12/24DP	56	42	8	

● 双联泵 Double pump

PFED—31/21 PFED—41/21 PFED—41/31 PFED—51/31 PFED—51/41



油口位置表 (从轴端看) Port orientation (as viewed from the shaft end)

注:T=进口 P₁=前泵出口 P₂=后泵出口 (Note:T=inlet,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 T P2	VD P1 T P2	VE P1 T P2	VF P1 T P2	VG P1 T P2

油口法兰连接尺寸 Flange Connection Dimensions of Port (mm)

φF通孔

0型圈
GB1235-76

法兰型号说明
Flange specification

WF	—40
法兰盘 Flange	公称通径 Nominal diameter

型号 Model	A	B	C	D	E	F	H	I	L	O型圈 O ring	螺钉 Screw	法兰对应油泵油口 Pump port corresponding to flange
WF—12	17	34	54	38.1	17.5	9	18	11	10	25 × 2.4	M8 × 30	PFE—21 出口(outlet)
WF—20	28.2	42	65	47.6	22.2	11	18	19	10	35 × 3.1	M10 × 30	PFE—31/32 出口(outlet) PFE—21 进口(inlet)
WF—25	35	50	70	52.4	26.2	11	18	25	10	40 × 3.1	M10 × 30	PFE—41/42 出口(outlet)
WF—32	43	53	79	58.7	30.2	11	21	32	12	45 × 3.1	M10 × 35	PFE—31/32 进口(inlet) PFE—51/52 出口(outlet)
WF—40	52	65	87	70	35.7	13.5	25	38	15	55 × 3.1	M12 × 40	PFE—41/42 进口(inlet)
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(inlet)
WF—65	78	87	110	89	50.8	13.5	25	63	15	75 × 3.1	M12 × 40	PFED—41/31 进口(inlet)
WF—75	93	107	132	106.4	62	17.5	30	75	18	95 × 3.1	M16 × 45	PFED—51/41 进口(inlet)

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 the diagrammatic representation A and I are reference, correspondent hole and chamfer aren't machined before ex-factory.

■ 安装与使用

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 ~ 100cSt (1.8 ~ 13°E), 推荐粘度 24cSt (50°C)。

- 过滤

系统过滤精度不低于 25 μ m, 并在进油口安装过滤精度为 70 ~ 150 μ m 的过滤器(其额定流量应不小于泵流量的两倍)。

- 环境温度 -20 ~ +70°C;

工作油温 +10 ~ +60°C。

- 难燃液

使用难燃液时须装入特种密封, 泵的额定压力与最高转速应符合下表规定。

工作介质	密封件	额定压力	最高转速	最高油温
磷酸酯	氟酸胶	16MPa	1800r/min	60°C
水乙二醇	标准	16MPa	1500r/min	50°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。
- 泵可安装成任何方向(最好水平放置)。泵和电机轴必须对正, 同轴度应控制在 $\varnothing 0.1$ mm 以内。请注意, 泵轴上不得施加径向或轴向载荷, 不允许刚性联接, 必须通过挠性联轴节驱动。
- 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, 降低泵的使用寿命。
- 油泵启动前, 应检查进出油口, 切勿搞错。泵旋转方向与标牌指示方向要一致。由于泵装配后或长时间停运转再启动, 会产生吸空现象, 故应在排出口安装放气阀或松动出口法兰, 以放出空气。启动后, 应尽量在无负荷工况下经点动运转正常后再正式启动。

■ Installation and Application

1. Hydraulic oil

- Anti-wear hydraulic oil is recommended in order to increase the performance and service life of the pump.

Viscosity range of the oil: 10 ~ 100cSt (1.8 ~ 13°E), recommended viscosity: 24cSt at 50°C

- Filtration

Filtration rating of the system should not be lower than 25 μ m and a filter with filtration of 70 ~ 150 μ m fitted at the inlet of the pump (the rated flow of the filter should not be smaller than twice of the pump flow).

- Ambient temperature range: -20 ~ +70°C

Temperature of operating oil: +10 ~ +60°C

- Fire-resistance fluids

When fire-resistance fluid is used, special seal must be adopted and at the same time, the rated pressure and the max. speed of the pump should be in accordance with that specified in the following table:

Operating fluid	Sealing	Rated press.	Max. speed	Max. oil temperature
Phosphate ester	Fluoror - elastomer	16MPa	1800r/min	60°C
Water glycol	Standard	16MPa	1500r/min	50°C

2. Installation

- Pump must be firmly mounted on a rigid support bracket which is capable of fully absorbing vibration.
- Horizontal mounting is recommended to maintain necessary fluid level. Shaft of pump should be align with that of motor and co-axiality within > 0.1 mm. Any radial or axial load on shaft of the pump is not permitted and a flexible coupling must be used as linkage between pump and motor.
- All connections at flanges, fittings and suction line of the system must be strictly sealed to prevent air leakage causing noise or vibration and bubble occurrence in oil tank which can reduce service life of the pump.
- Inlet and outlet of pump must be correctly connected to respective pipeline and rotation of the pump be in line with the arrow on the label plate. When firstly starts or hasn't be operated for a longer time, it is necessary to bleed air from pump outlet to permit priming and reduce noise through loosening outlet flange or using air bleed valve. After pump started, it should be jogged repeatedly without any load until it can run smoothly.

- 油泵吸油高度一般不超过 500mm。油泵吸入口压力请参照下表。

工作介质	$n \leq 1800r/min$	$n > 1800r/min$
抗磨液压油	-0.015 ~ +0.15MPa	0 ~ +0.15MPa
难燃液	-0.01 ~ +0.15MPa	

3、驱动扭矩

- 泵所需驱动扭矩值见“驱动扭矩/输出压力”曲线,对于双联泵,所需驱动扭矩为组合单泵所需扭矩之和,其值不应超过下表所示最大驱动扭矩值。

型号	最大驱动扭矩(N·m)				通轴泵轴 末端最大 允许传动扭矩 (N·m)
	1—2 型轴	3 型轴	5 型轴	6 型轴	
PFE-21					
PFE—31/32	160	220	110	220	110
PFE—41/42	250	320	200	320	200
PFE—51/52	500	700	450	—	320

4、机芯更换

- 由于 PFE 系列叶片泵内脏件采用组合式结构,因此正常维修只需更换机芯。更换时应检查密封圈是否平整,防止切边。拧紧外壳件联接螺钉时,应按对角线方向逐渐拧紧,用力要均匀。

■ 订货注意事项

- 1、订货时须详细写明型号规格。

例:

单泵 PFE—41045/1DT/PF

双泵 PFED—4131045/016/1DT0/PF

- 2、用户按本说明书使用,从我们公司发货之日起六个月内如有因制造质量不良而发生损坏或其它不正常情况(有完整的使用记录),我公司负责无偿修理、更换或退货。

- 3、用户如需技术咨询请与 0354 - 2666397 联系。

- Suction head of pump should not be over 500mm and pressure at suction port of pump is as the following:

Operating oil	At $n \leq 1800r/min$	At $n > 1800r/min$
Anti-wear hydraulic oil	-0.015 ~ +0.15MPa	0 ~ +0.15MPa
Fire-resistant fluid	-0.01 ~ +0.15MPa	

3. Drive torque

- For drive torque value required by pump, see drive torque/output pressure diagram; for double pump, the value is the sum of those required by two single pumps, which should not exceed the max. torque in the following table:

Model	Max. drive torque(N·m)				Max. permitted drive torque at shaft end of through-shaft pump (N·m)
	Shaft 1-2	Shaft 3	Shaft 5	Shaft 6	
PFE-21					
PFE—31/32	160	220	110	220	110
PFE—41/42	250	320	200	320	200
PFE—51/52	500	700	450	—	320

4. Replacing pump cartridge

- If pump failed to work, it is only necessary to replace the pump cartridge with new one. When replacing, be careful to keep seals in position so as to avoid edge cutting. Fixing screws for pump housing should be gradually tightened in diagonal line direction and with an even force.

■ Ordering procedure

- Order pump by full model designation devised from the previous code table.

example:

Single pump PEF—41045/1DT/PF

Double pump PEFD—4131045/0.6/1DT0/PF



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