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Introduction of GRH Gear Pump – GRH 齿轮泵简介

Gear pumps from GRH Hydraulic have a floating bushing feature with automatic axial clearance compensation. The bushings are made with special abrasion resistant material providing improved service life. Precisely machined gears ensure our units provide excellent low noise characteristics. Our cold extrusion motor bodies can endure pressures above 30Mpa. High strength cast iron front & rear covers also enhance our reliability. Our units are widely used in the industrial, mobile, marine and aerospace industries.

齿轮泵是液压系统中的常用动力元件，它的特点是抗液压系统污染能力强，结构简单，可靠性高。GRH的液压齿轮泵均具有轴向间隙自动补偿功能，轴套独特的耐磨损配方，提供了长期的使用寿命，精心加工的齿轮保证了在低噪音条件下的使用。可广泛用于工业液压系统、行走机械液压系统、航空航天液压系统、船舶液压系统、海洋工程液压系统。

GRH Gear Pump Characteristics – GRH 齿轮泵特性

GRH gear pumps are produced in 9 different versions (0P、1P、1.5P、2P、2.5P、2.8P、3P、3.5P、4P) and in each group different displacements are obtained by changing the gears width, refer to performance curves on page 5 to page 8.

Pressure: GRH offers two pressure ratings, F and G, please refer to charts:

Efficiencies: volumetric efficiency up to 98%, mechanical efficiency up to 93%.

Mountings: flanges, shaft ends and ports.

Seals: Viton, Buna and EPR seals is available.

Integrate: all pumps can be ordered with relief valve and check valve.

GRH现有九组齿轮泵系列：0P、1P、1.5P、2P、2.5P、2.8P、3P、3.5P、4P每组泵通过改变齿轮的宽度可得到不同的排量。

目前以上九组泵的排量范围为：0.16cc/r-199cc/r，具体请参照性能曲线，第5页到第8页。

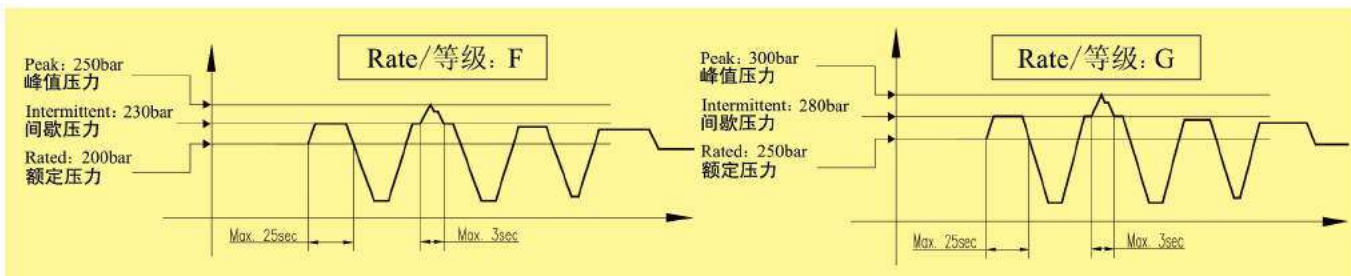
压力：GRH可以提供两个压力等级的齿轮泵F, G，请参照以下压力波形图。

效率：容积效率最高可达到98%，机械效率最高可达93%。

安装：多种安装轴伸与法兰、进出口口组合，满足了市场的需求，特别是欧洲及美国市场的要求。

油封：可提供氟橡胶，丁腈橡胶，乙丙橡胶。

集成：可根据客户要求集成溢流阀、单向阀。



General – 概述

To achieve the performance it necessary not only to meet the catalogue but also to take real care of the design of the hydraulic as a whole, in particular:

The design of the hydraulic circle, especially the suction line, dimension and position of the valves, the filters, the reservoirs and the heat exchangers.

Ensure correct and frequent cleaning and maintenance of the circle and of the hydraulic fluid.

Equip the circuit with suitable alarm and safety devices.

Avoid possible starting under load at lower temperature.

Avoid high pressure at low speed.

In reason choice oil is major factor.



General – 概述

为保证齿轮泵的使用性能，不仅要认真阅读样本了解性能参数，还要合理设计液压系统，应特别注意以下几点：
 液压循环的设计、吸油管路、阀的规格及位置，过滤器的精度及冷却器。

保证定期维护保养系统及过滤装置。

过滤系统应装有报警装置。

避免在以下情况下工作：带压启动、低温状态。

尽量避免高压低速工作。

合理选择油液。

保证齿轮泵与驱动机的正确安装。

0PF

1PF

1.5PF

Hydraulic Fluid – 液压油液

Fluid must be specifically for hydraulic equipment, it must be nonfoaming, antioxidant, noncorrosive and have good lubricating features meeting the following requirements:

应使用专用液压油. 油液具有如下特性:无泡沫、抗氧化性、抗腐蚀性、良好的润滑性能, 并达到以下标准:

Recommended use - 推荐使用: GB11118-94: L-HM46 or equate NFE-603/DIN51524 II -85

2PF

2.5PF

Minimum Working Speed – 最低工作转速

We recommend a minnum working speed for every pump group as follows:

不同组的泵有不同的最低工作转速, 我们推荐如下:

0P: 800RPM

1P: 600RPM

1P~2. 5P: 500RPM

3P: 400RPM

2.8PF

3PF

3.5PF

Hydraulic Circuit – 对液压回路的要求

Avoid shard restrictions and small radius bends.

Place safety relief valve set at correct pressure and with good dynamic characteristic.

Recommended fluid speed in the inlet line: 1.6~5ft/s(0.5~1.5m/s).

Recommended fluid speed in the delivery line: 6.5~20ft/s(2~6m/s).

Recommended fluid speed in the return line: 5~10ft/s(1.5~3m/s).

Reservoir should have a capacity about twice as much as the volume of delivered by the pump in one minute.

The return and inlet pipe must be separated as far as possible and under the minnum level of the oil.

Install pump in a well cleaned environment and make sure prior starting the system that all pipe and reservoir are perfectly clean.

It is recommended to filter the new oil at 8-10um befor filling the reservoir.

Fill the pump with fluid befo installing and check the direction of rotation.

For the first run of the pump it is advisable to disconnection the pump diacharge in order to purge the air from the system.

避免管路局部过小或小半径的弯曲。

将安全阀设定在正确的压力下, 并保证阀有一个好的动态特性。

进油口推荐流速: 1.6~5ft/s(0.5~1.5m/s)

出油口推荐流速: 6.5~20ft/s(2~6m/s)

回油口推荐流速: 5~10ft/s(1.5~3m/s)

Constant Flow
Gear Pumps
恒流齿轮泵

Pumps With
Valve
组合泵

HILO Gear
Pumps
斜齿轮泵

Cat Pumps
卡特泵

4PF

PTO

GEAR PUMP USER GUIDE - 齿轮泵使用指南



Hydraulic Circuit – 对液压回路的要求

油量应是泵每分钟排出体积的2倍。

回油管和进油管必须分离,同时分布尽可能远。

我们推荐泵的安装最好在最小油液面以下。

泵在安装时要在一个清洁的环境下. 确保系统管路和油液完全清洁. 新的油液在注入油箱前, 应进行过滤, 过滤精度为8~10 μ m。

泵在安装前应检查旋向, 并将一些干净的油液注入泵的进油口内。

泵在第一次运转时, 要排除系统中的空气。

GRH Gear Pump Characteristics – GRH齿轮泵特性

By far largest number of premature failures of gear pumps are due to contamination; filtering with clogging indicating and alarms is recommended.

The initial contamination of the fluid must not exceed class 10 NAS 1638. Pass experience has shown that even brand new fluid often exceed this value. In this case it is recommended below 60 μ m inlet side, and in the return side.

齿轮泵的早期损坏大多与油液的污染有关. 因此我们推荐使用带报警器的过滤器。

原始油液的污染等级不能超过 NAS 1638 10级. 我们的经验告诉我们即使一些好的油液也超过了这个级别, 在这个情况下, 我们推荐进油使用60 μ m的过滤器, 回油管路使用如下的过滤器:

Recommended Fluid Cleanliness – 推荐油液清洁度

	P<2000Psi(14MPa)	2000PSI(14MPa)<P<3050Psi(21MPa)	P>3050Psi(21MPa)
NAS1638	10	9	8
ISO4406	19/16	18/15	17/14
FILTER	25 μ m	20 μ m	10 μ m

Driving Arrangements – 驱动布置

The pump must be in line with the P.T.O.

Make sure that the absorbed torque does not exceed the maximum torque allowed for the shaft.

Belt and gear drives are not recommended because they apply axial and radial loads on the bearing.

泵轴中心线必须与驱动轴中心线在一个轴心线上, 偏差<0.1mm。

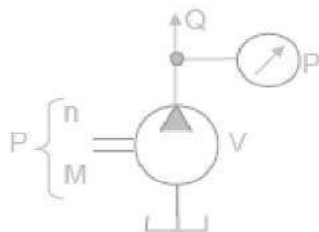
泵轴不能施加轴向和径向负荷, 我们推荐使用柔性或三片式联轴器。

保证输入扭矩不超过主动齿轮轴(特别是多联泵)所能承受的最大扭矩。

不推荐使用皮带和齿轮传动, 因为此种情况会对轴端产生径向力。

Calculated Formula – 计算公式

Displacement 排量	Flow 流量	Pressure 压力	Speed 转速	Power 功率	Torque 扭矩
(cm ³ /r)	(l/min)	(bar)	(r/min)	(kW)	(Nm)
V	Q	p	n	P	M



$$Q = V \cdot n \cdot \eta_v \cdot 10^{-3}$$

$$M = p \cdot V / 62.83 \cdot \eta_m$$

$$P = p \cdot V \cdot n / 600 \cdot 1000 \cdot \eta_t$$



General Notes – 注意事项

Deliveries are carried out under the conditions of GRH.

This catalogue is issued to provide outline information only. We reserve the right to change without any notice the design, features.

Please contact us if you have special request.

泵的运输与交付按照国瑞液压有限公司标准进行。

本说明书, 仅提供了外联接尺寸。我们保留更改设计、特性等方面的权力。

如有特殊要求请联系我们。

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵

Pumps With
Valve
组合泵

HI/LO Gear
Pumps
蜗条机泵

Cat Pumps
卡特泵

PTO

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OPF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

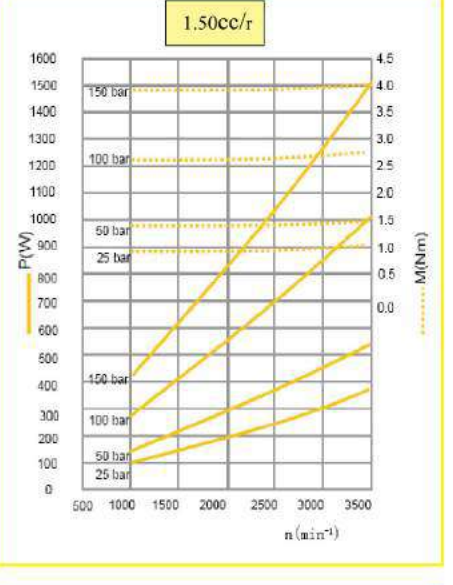
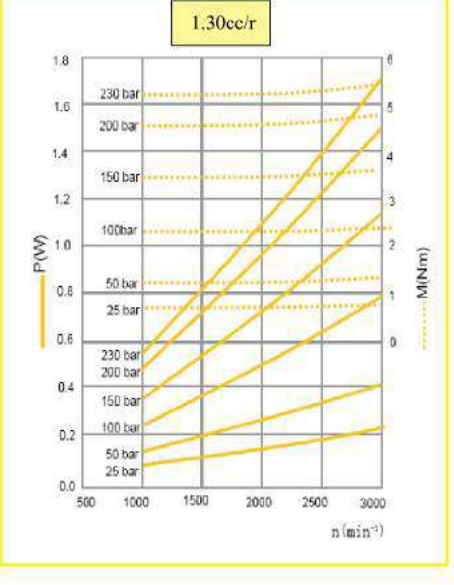
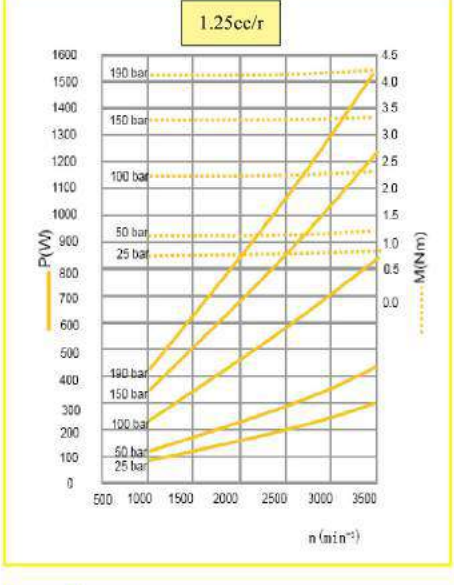
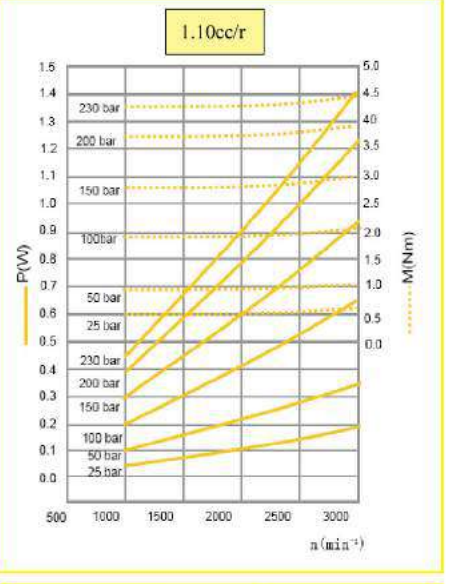
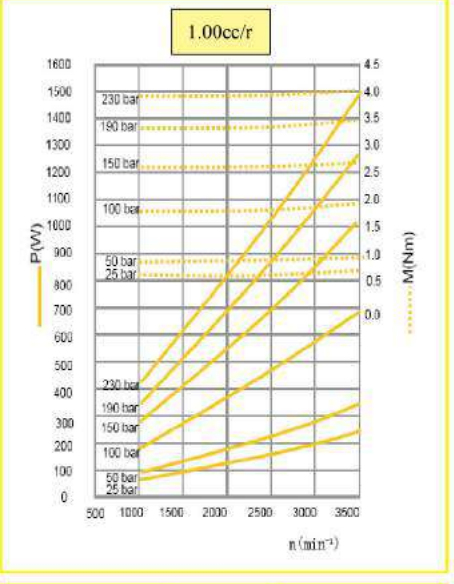
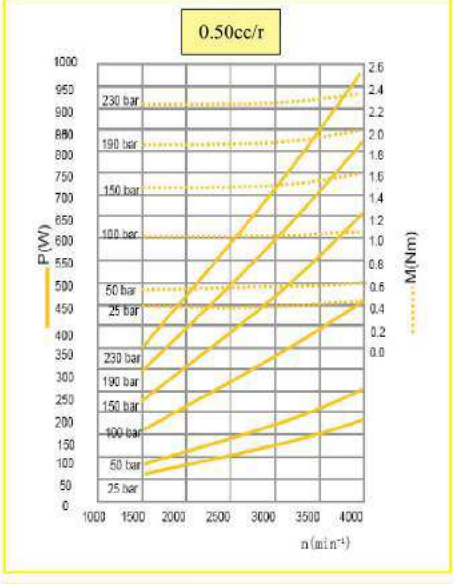
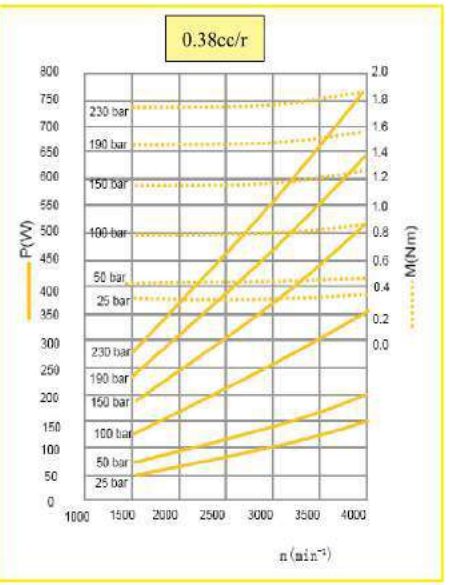
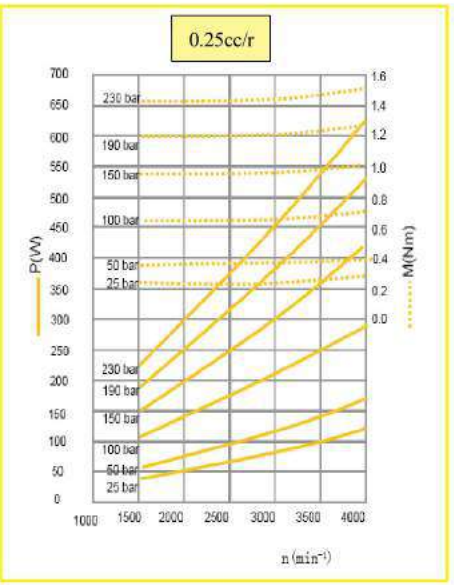
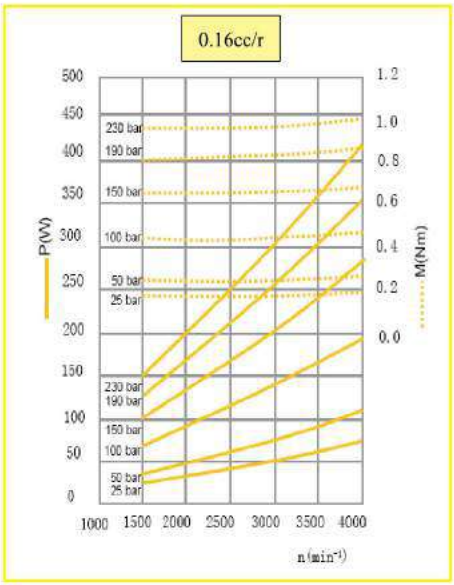
3.5PF

4PF

HILLO Gear Pumps
HILLO Gear Pumps With Valve
Pumps With Valve
恒流齿轮泵
组合泵

Cat Pumps
卡特泵

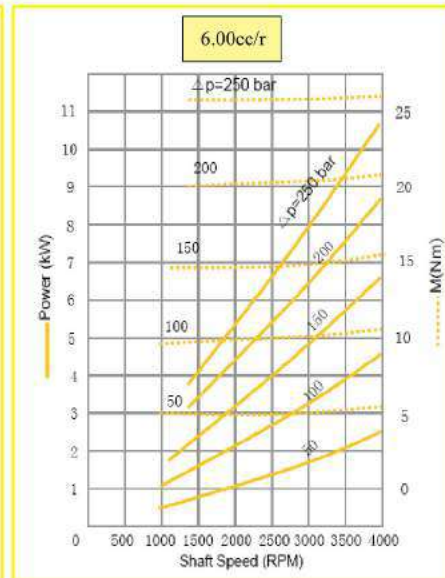
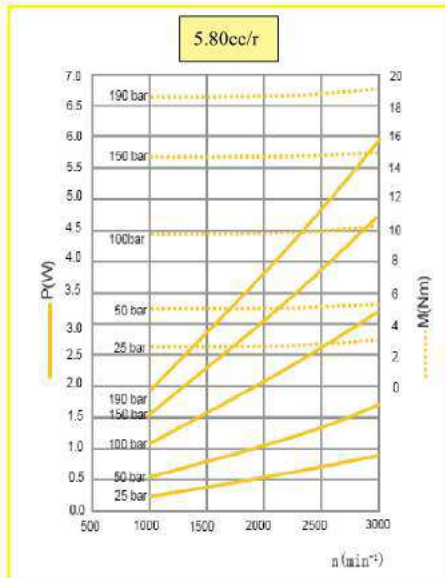
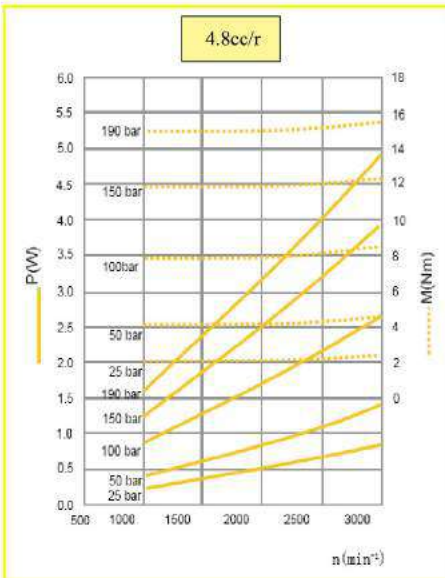
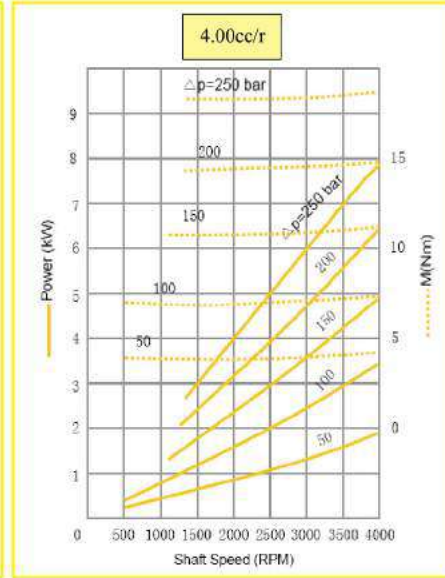
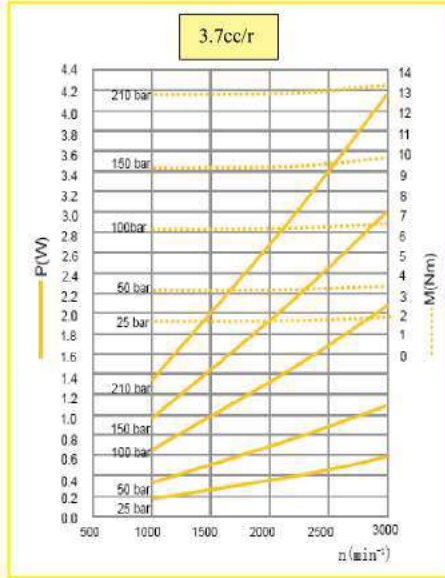
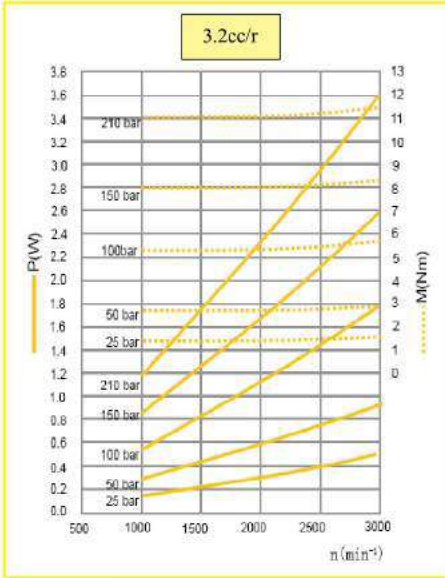
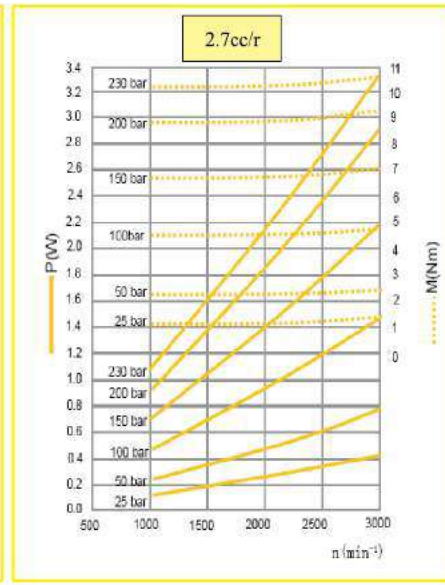
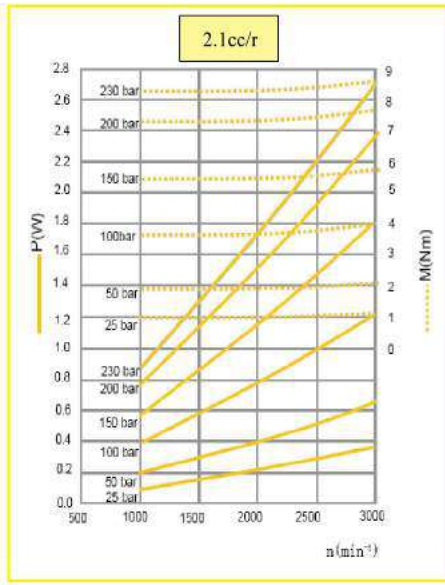
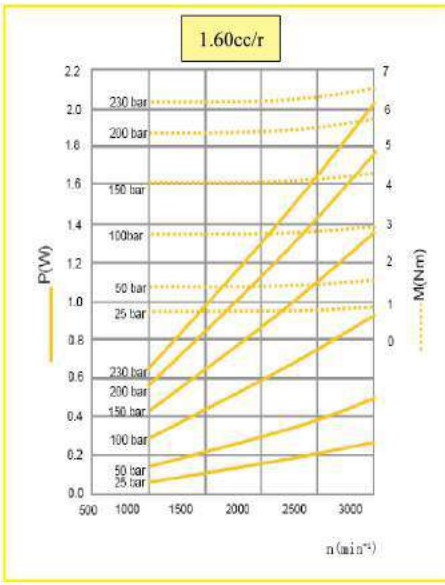
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2.8PF
3PF
3.5PF
4PF
Cat Pumps
卡特泵
HILO Gear Pumps
Hilo 齿轮泵
Pumps With Valve
带阀泵
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OPF

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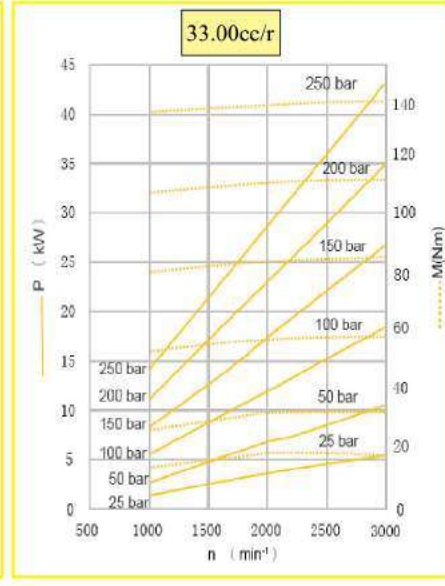
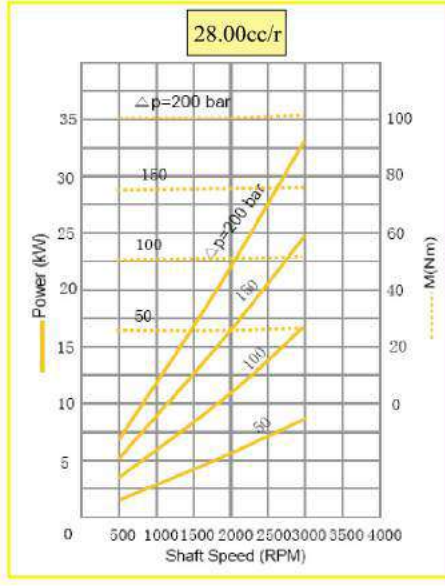
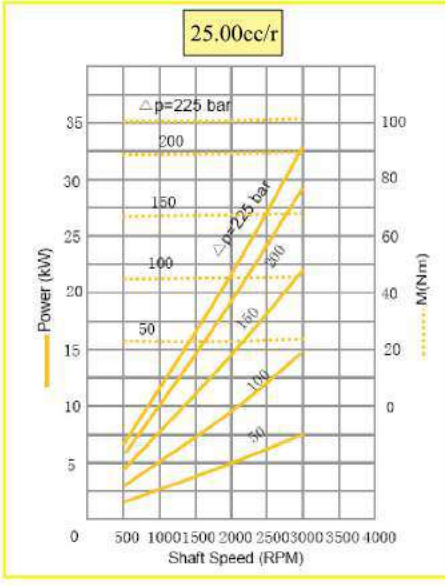
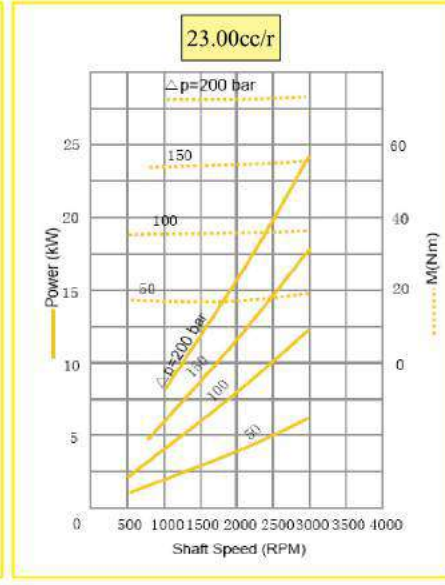
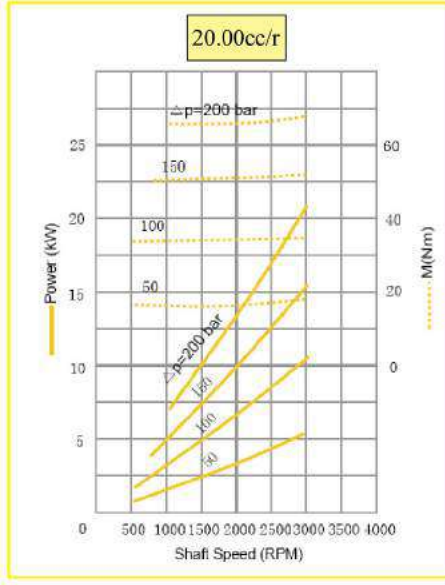
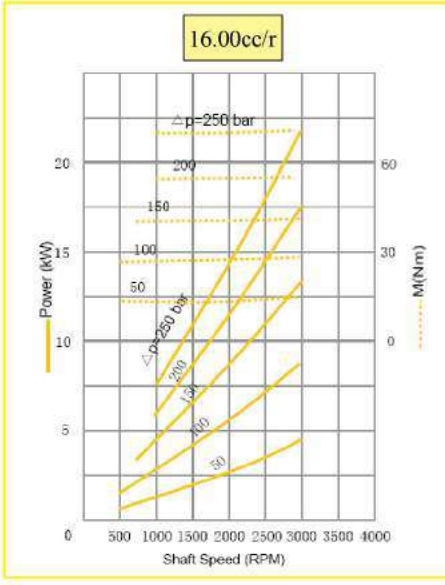
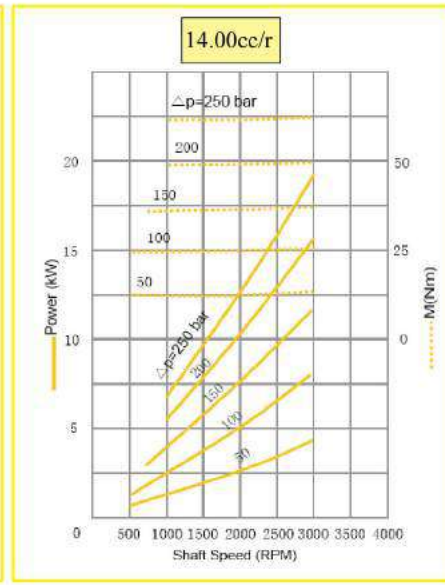
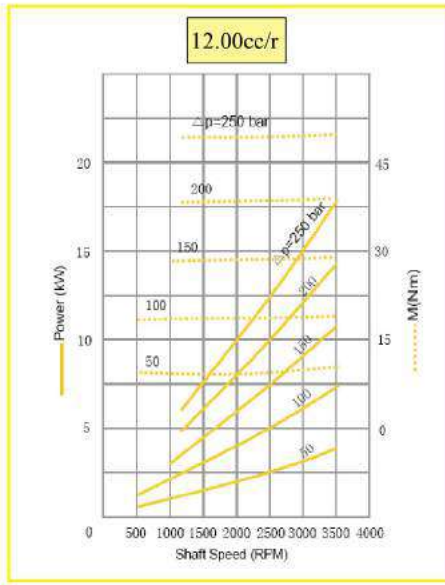
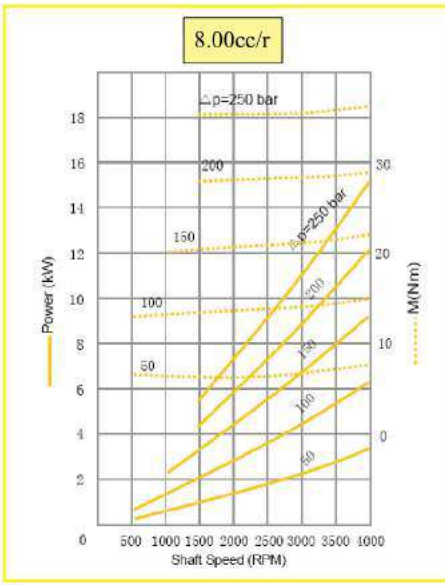
3.5PF

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HILO Gear Pumps
HILLO Gear Pumps With Valve
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Cat Pumps
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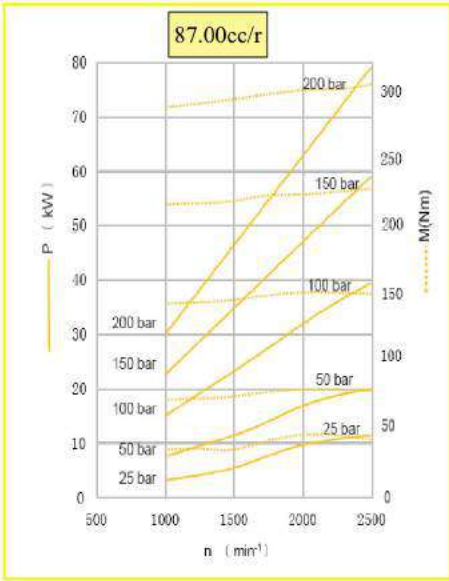
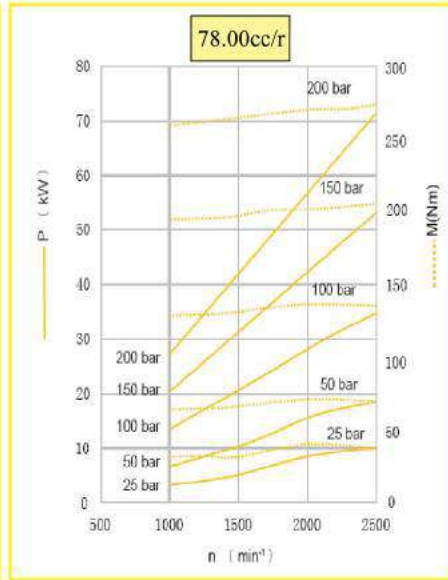
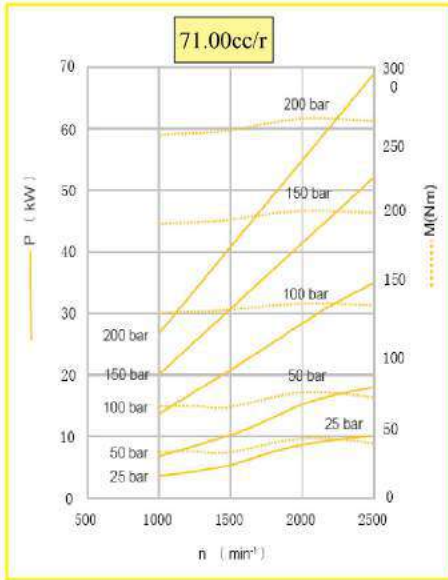
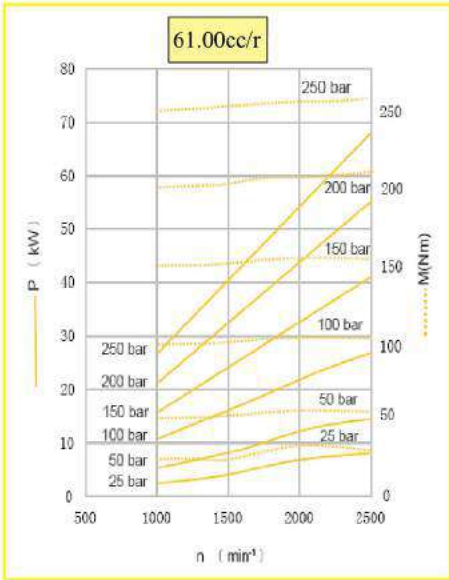
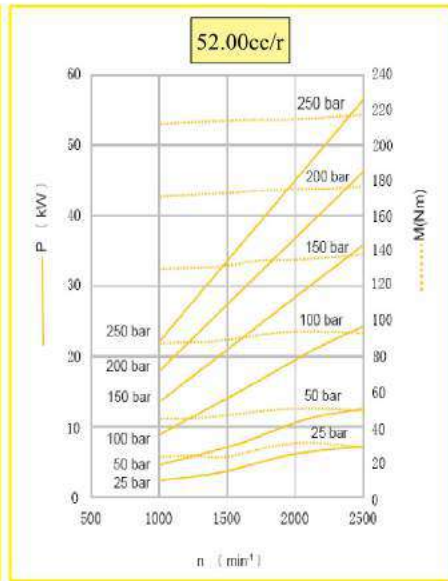
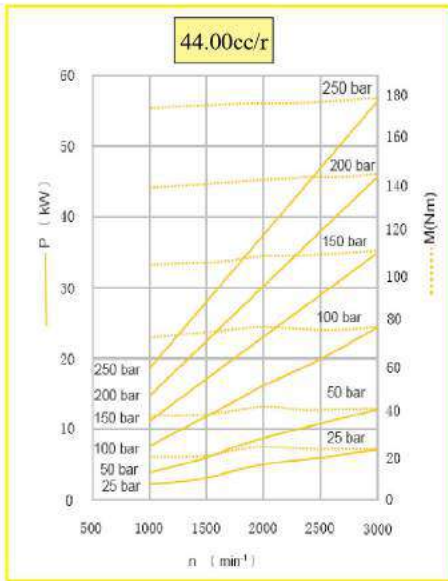
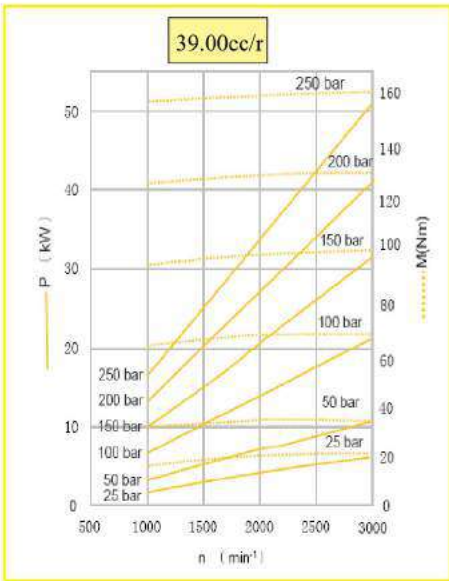
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GEAR PUMP PERFORMANCE CURVES - 齿轮泵性能曲线



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- 1.5PF
- 2PF
- 2.5PF
- 2.8PF
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- 3.5PF
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- Pumps With Valve 组合泵
- Constant Flow Gear Pumps 恒流齿轮泵
- Cat Pumps 卡特泵
- PTO



0PF**L**B01***



Ordering Code - 订单编码

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵

Pumps With
Valve
组合泵

HILO Gear
Pumps
斜齿轮泵

Cat Pumps
卡特泵

PTO

0	P	F/G	**	L07	B01	*	SS	*		
Group 0 0组	Gear pump 齿轮泵	Pressure 压力(bar)	Displacement 排量(ml/r)	Ports combination 油口组合		Shaft and flange 轴伸和法兰		Rotation 旋向	Ports position 油口位置	Options 可选项
		F 200	0.16	Accessory 1 附录1	Accessory 2 附录2	L 逆时针	BF 后进前出	Y 溢流阀		
		G 250	0.25			R 顺时针	BB 后进后出	D 单向阀		
			0.38				BS 后进侧出	/ 不带阀		
			0.50				SB 侧进后出			
			0.75				SF 侧进前出			
			1.00				SS 侧进侧出			
			1.25							
			1.50							
			1.75							
			2.00							

Rotation/旋向	Ports position/油口位置	Options/可选项
L CCW 逆时针	BF Back inlet and front outlet 后进前出	Y Relief valve 溢流阀
R CW 顺时针	BB Back inlet and back outlet 后进后出	D Check valve 单向阀
	BS Back inlet and side outlet 后进侧出	/ Omit 不带阀
	SB Side inlet and back outlet 侧进后出	
	SF Side inlet and front outlet 侧进前出	
	SS Side inlet and side outlet 侧进侧出	



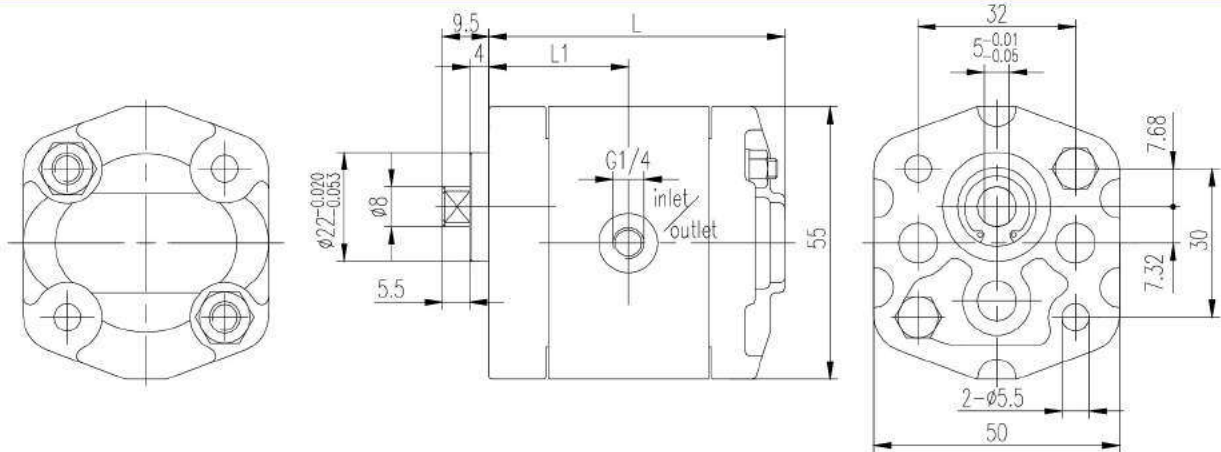


Specifications - 性能参数

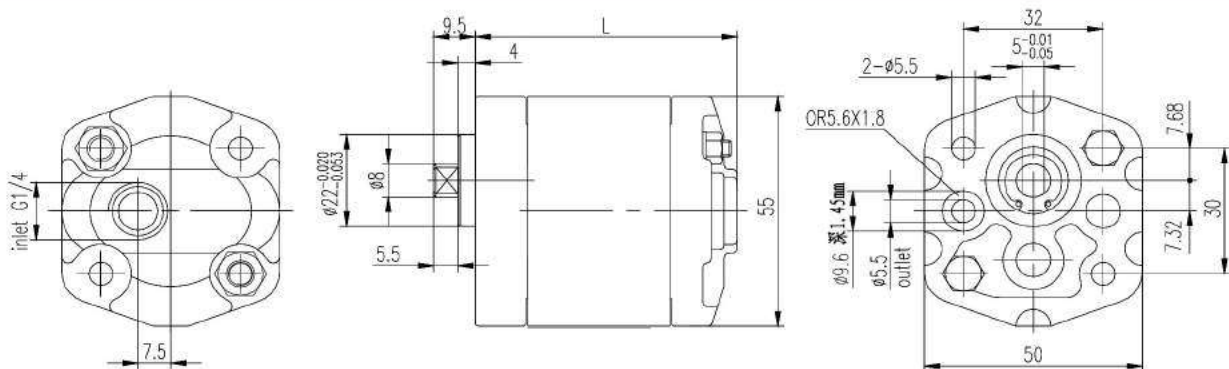
Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	SS 侧进侧出	Inlet 进油口 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低		L1(mm)	
OPF0.16L07B01***	0.16	200	250	2000	6000	800	58.2	30.8	G1/4
OPF0.25L07B01***	0.25	200	250	2000	6000	800	59	31.3	
OPF0.38L07B01***	0.38	200	250	2000	6000	800	60.3	31.9	
OPF0.50L07B01***	0.50	200	250	2000	6000	800	61	32.3	
OPF0.75L07B01***	0.75	200	250	2000	6000	800	63.5	33.5	
OPF1.00L07B01***	1.00	200	250	2000	6000	800	66	34.8	
OPF1.25L07B01***	1.25	200	250	2000	5000	800	68.5	36	
OPF1.50L07B01***	1.50	200	250	2000	4500	800	70	37	
OPF1.75L07B01***	1.75	200	250	2000	4000	800	73	38.3	
OPF2.00L07B01***	2.00	160	200	2000	3500	800	75.5	39.5	

Dimension - 外形尺寸

OPF**L06B01LSS



OPF**L07B01LBF





1PF**L**B02***



Ordering Code - 订单编码

1	P	F/G	**	L**	B02	B	BB	-	F	*
Group 1 1组	Gear pump 齿轮泵	Pressure 压力(bar)	Displacement 排量(ml/r)	Ports combination 油口组合	Shaft and flange 轴伸和法兰	Rotation 旋向	Ports position 油口位置		Seal 密封	Options 可选项
		F 200	1.1	Accessory 1 附录1	Accessory 2 附录2	B 双向	BF 后进前出		F 氟橡胶	Y 溢流阀
		G 250	1.3			L 逆时针	BB 后进后出		/ 丁腈橡胶	D 单向阀
			1.6			R 顺时针	BS 后进侧出			/ 不带阀
			1.8				SB 侧进后出			
			2.1				SF 侧进前出			
			2.7				SS 侧进侧出			
			3.2							
			3.7							
			4.2							
			4.8							
			5.8							
			8.0							

Rotation/旋向

B Bi-direction 双向
L CCW 逆时针
R CW 顺时针

Ports position/油口位置

BF Back inlet and front outlet 后进前出
BB Back inlet and back outlet 后进后出
BS Back inlet and side outlet 后进侧出
SB Side inlet and back outlet 侧进后出
SF Side inlet and front outlet 侧进前出
SS Side inlet and side outlet 侧进侧出

F
Seal/密封

F FPM seal 氟橡胶
Omit NBR seal 丁腈橡胶

*

Options/可选项

Y Relief valve 溢流阀
D Check valve 单向阀
/ Omit 不带阀



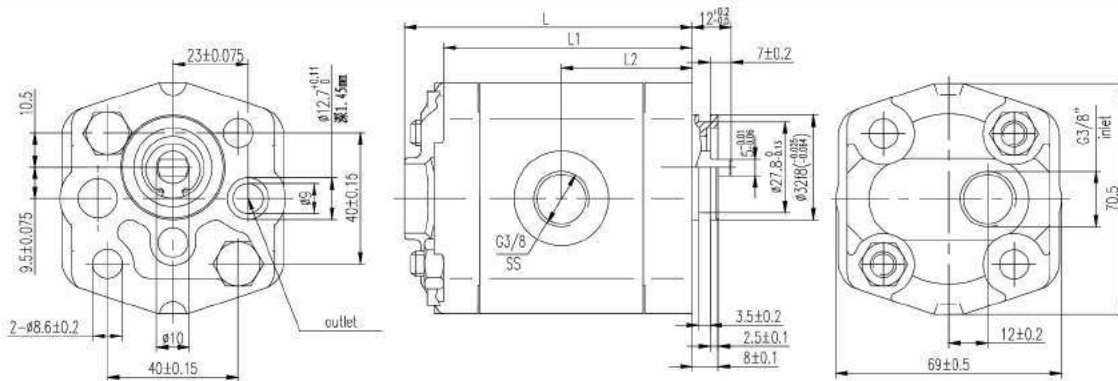


Specifications - 性能参数

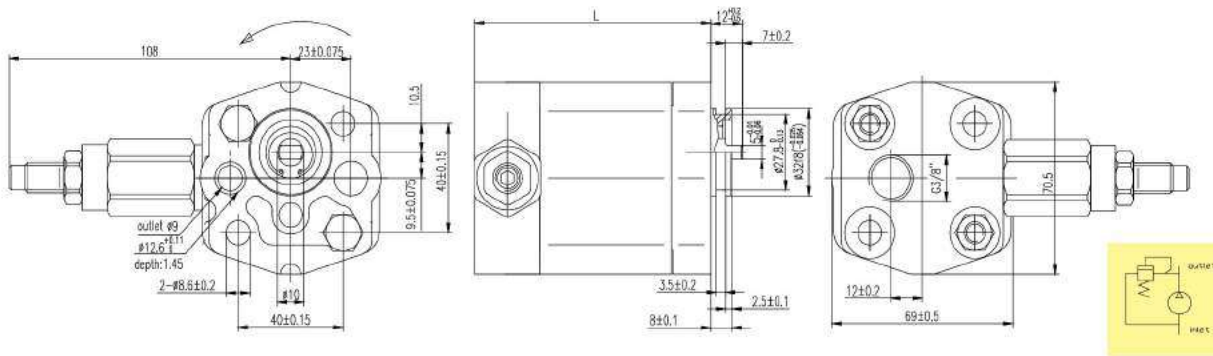
Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	SS 侧进侧出		Inlet 进油口 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			L2 (mm)		
1PF1.1L01B02***	1.1	200	250	2000	6000	600	74	63	33	G3/8	
1PF1.3L01B02***	1.3	200	250	2000	6000	600	75	64	33.5		
1PF1.6L01B02***	1.6	200	250	2000	6000	600	76	65	34		
1PF1.8L01B02***	1.8	200	250	2000	6000	600	77	66	34.5		
1PF2.1L01B02***	2.1	200	250	2000	6000	600	78	67	35		
1PF2.7L01B02***	2.7	200	250	2000	6000	600	80	69	36		
1PF3.2L01B02***	3.2	200	250	2000	5000	600	82	71	37		
1PF3.7L01B02***	3.7	200	250	2000	4500	600	84	73	38		
1PF4.2L01B02***	4.2	200	250	2000	4000	600	86	75	39		
1PF4.8L01B02***	4.8	160	200	2000	3500	600	88	77	40		
1PF5.8L01B02***	5.8	160	200	2000	2900	600	92	81	42		
1PF8.0L01B02***	8.0	160	200	2000	2100	600	100	89	46		

Dimension - 外形尺寸

1PF***L01B02 With Relief Valves - 1PF***L01B02-Y 带溢流阀



Adjusted Pressure of Relief Valves - 溢流阀调整压力 50 Bar To 250 Bar





1PF*****Z02



Ordering Code - 订单编码

I	P (DP)		F/G		** (**/**)	DF02		Z02		R	-	F
Group I 1组	Function Code 功能代码		Pressure 压力(bar)		Displacement 排量(ml/r)	Ports combination 油口组合		Shaft and flange 轴伸和法兰		Rotation 旋向		Seal 密封
	P	单泵	F	200	1.1	Accessory 1	附录1	Accessory 2	附录2	L	逆时针	F 氟橡胶
	DP	双泵	G	250	1.3					R	顺时针	/ 丁腈橡胶
					1.8							
					2.1							
					2.7							
					3.2							
					3.7							
					4.2							
					4.8							
					5.8							
					8.0							

Function Code/功能代码	Rotation/旋向	F Seal/密封	* Options/可选项
P Single Pump 单泵	L CCW 逆时针	F FPM seal 氟橡胶	Y Relief valve 溢流阀
DP Double Pump 双联泵	R CW 顺时针	Omit NBR seal 丁腈橡胶	D Check valve 单向阀
			/ Omit 不带阀





1PF*****Z02/IDPF*****Z02

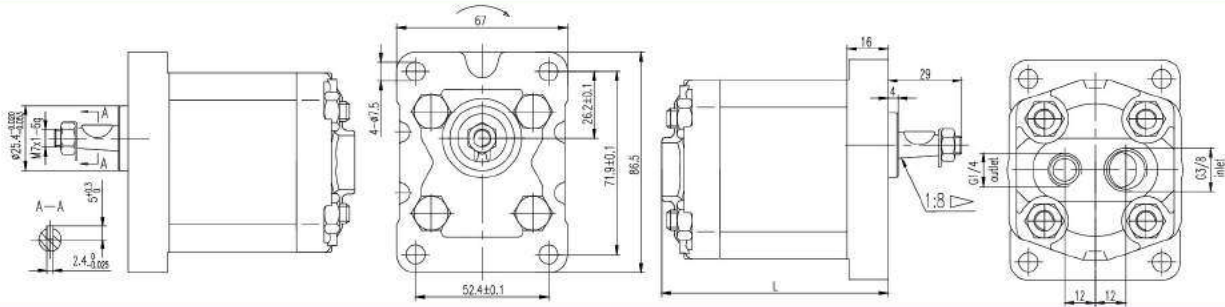


Specifications - 性能参数

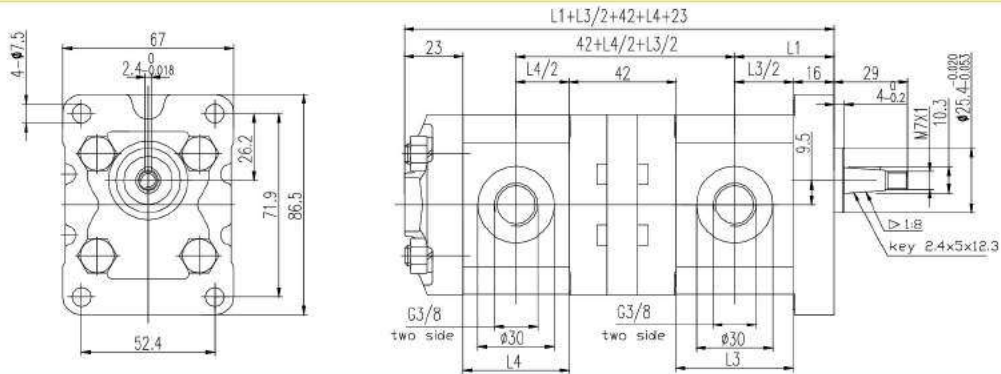
Model 型号	Displacement 排量(ml/r)	Pressure 压力(bar)		Speed 转速(r/min)			L (mm)	L1 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低		
1PF1.1*****Z02**	1.1	200	250	2000	6000	600	75	33
1PF1.3*****Z02**	1.3	200	250	2000	6000	600	76	34
1PF1.6*****Z02**	1.6	200	250	2000	6000	600	78	35
1PF1.8*****Z02**	1.8	200	250	2000	6000	600	78.5	35.5
1PF2.1*****Z02**	2.1	200	250	2000	6000	600	79	36
1PF2.7*****Z02**	2.7	200	250	2000	6000	600	81	37
1PF3.2*****Z02**	3.2	200	250	2000	5000	600	83	38
1PF3.7*****Z02**	3.7	200	250	2000	4500	600	85	39
1PF4.2*****Z02**	4.2	200	250	2000	4000	600	87	40
1PF4.8*****Z02**	4.8	160	200	2000	3500	600	89	41
1PF5.8*****Z02**	5.8	160	200	2000	2900	600	93	43
1PF8.0*****Z02**	8.0	160	200	2000	2100	600	101	47

Dimension - 外形尺寸

1PF***L44Z02BB



1DPF**/**DL**Z02* Double Pumps - 1DPF**/**DL**Z02* 双联泵



Pump Displacement - 前泵排量(ml/r)	1.1	1.3	1.6	2.1	2.7	3.2	3.7	4.2	4.8	5.8	8.0
L3(Front Pump)/L4(Rear Pump)	36	37	38	40	42	44	46	48	50	54	62



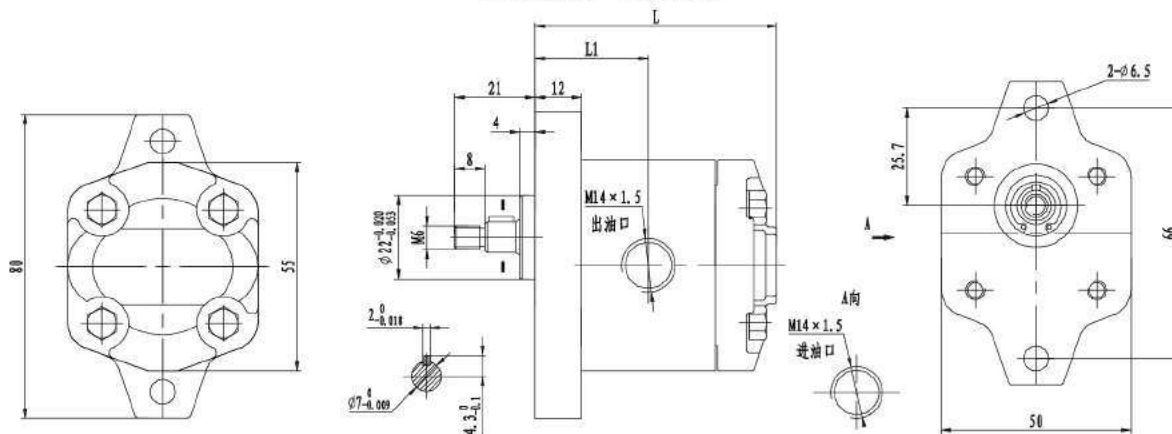
0APF**L**P122*

Use Guide
使用说明

Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低		
0APF0.16L61P122*	0.16	200	250	2000	4000	800	57.7	26.9
0APF0.25L61P122*	0.25	200	250	2000	4000	800	58.5	27.3
0APF0.38L61P122*	0.38	200	250	2000	4000	800	59.8	27.9
0APF0.50L61P122*	0.50	200	250	2000	4000	800	60.5	28.3
0APF0.63L61P122*	0.63	200	250	2000	4000	800	62	29
0APF0.75L61P122*	0.75	200	250	2000	4000	800	63	29.5
0APF1.00L61P122*	1.00	200	250	2000	4000	800	65.5	30.8
0APF1.25L61P122*	1.25	200	250	2000	4000	800	68	32
0APF1.50L61P122*	1.50	200	250	2000	4000	800	70	33
0APF1.75L61P122*	1.75	200	250	2000	4000	800	72.5	34.3
0APF2.00L61P122*	2.00	180	220	2000	4000	800	75	35.5

Dimension - 外形尺寸



0APF**L**P122*



0APF**L**P122*

16

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵Pumps With
Valve
组合泵HILO Gear
Pumps
蜗轮蜗杆泵Cat Pumps
卡特泵

PTO



1APF****L**P01*



Ordering Code - 订单编码

1	A*	P (DP)	F/G	** (**/**)	DL**	P01	B	BB	F	*
Group 1 1组	Improve number 改进号	Function 功能代码	Pressure 压力(bar)	Size 排量(ml/r)	Ports combination 油口组合	Shaft and flange 轴伸和法兰	Rotation 旋向	Ports position 油口位置	Seal 密封	Options 可选项
	AT 铸铁	P 单泵	F 200	1.3	Accessory 1 附录1	Accessory 2 附录2	B 双向	BS 后进侧出	F 氟橡胶	Y 溢流阀
	AB 双向铸铝	DP 双泵	G 250	2.0			L 逆时针	SB 侧进后出	/ 丁腈橡胶	D 单向阀
	A 铝制			2.7			R 顺时针	SS 侧进侧出	/	不带阀
				3.4						
				4.1						
				5.1						
				6.1						

Improve number/改进号

AT Cast iron covers
铸铁前后盖AB Rotation could be changed
可换旋向铝前后盖A Aluminum covers and body, bushing
铝前后盖

Function Code/功能代码

P Single Pump 单泵

DP Double Pump 双联齿轮泵

Rotation/旋向

B Bi-direction 双向

L CCW 逆时针

R CW 顺时针

Ports position/油口位置

BS Back inlet and side outlet 后进侧出

SB Side inlet and back outlet 侧进后出

SS Side inlet and side outlet 侧进侧出

F

Seal/密封

F FPM seal 氟橡胶

Omit NBR seal 丁腈橡胶

*

Options/可选项

Y Relief valve 溢流阀

D Check valve 单向阀

/ Omit 不带阀





1APF***L**P01*/1ADPF***DL**P01*



Use Guide
使用说明

Specifications - 性能参数

Model 型号	Displacement 排量(ml/r)	Pressure 压力(bar)		Speed 转速(r/min)			A (mm)	B (mm)	D (mm)	
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			Inlet 进油口	Outlet 出油口
1APF1.3L05P01*	1.3	200	250	2000	4500	500	82	42	G 1/2	G 3/8
1APF2.0L05P01*	2.0	200	250	2000	4500	500	84	43		
1APF2.7L05P01*	2.7	200	250	2000	4500	500	86	44		
1APF3.4L05P01*	3.4	200	250	2000	4500	500	88	45		
1APF4.1L05P01*	4.1	200	250	2000	4000	500	90	46		
1APF5.1L05P01*	5.1	200	250	2000	3200	500	93	47.5		
1APF6.1L05P01*	6.1	200	250	2000	3200	500	96	49		

0PF

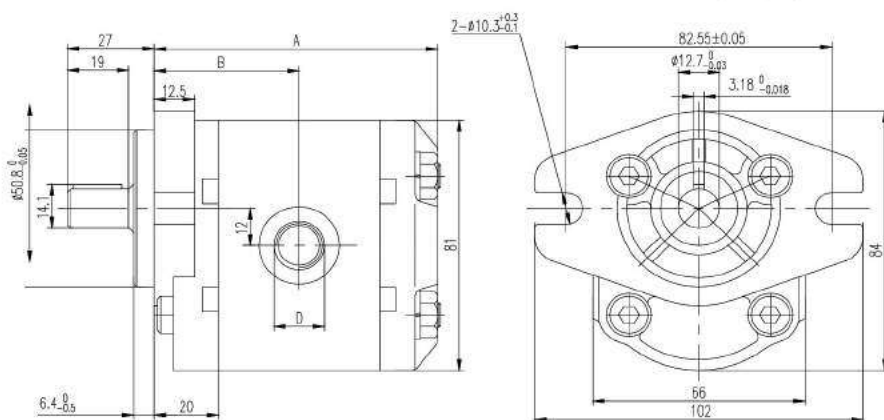
1PF

1.5PF

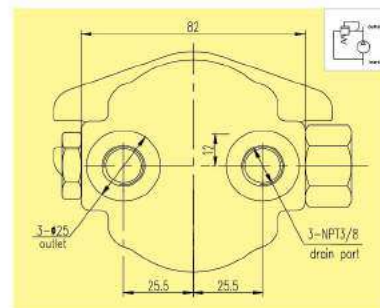
2PF

2.5PF

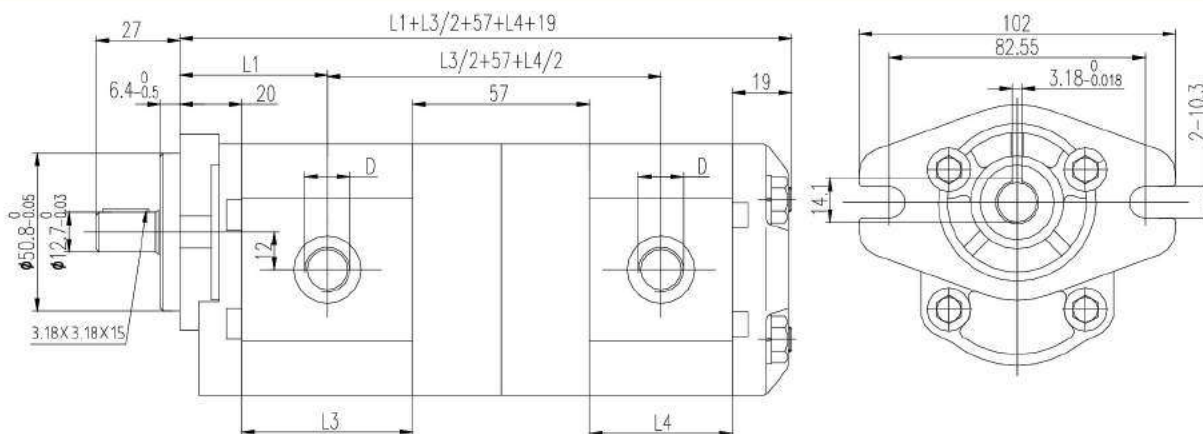
Dimension - 外形尺寸



Option: 1APF with relief valve
选项: 1APF带溢流阀



1ADPF**/**DL**P01* Double Pumps - 1ADPF**/**DL**P01* 双联泵



Displacement - 排量 (ml/r)	1.3	2.0	2.7	3.4	4.1	5.1	6.1
L3(Front Pump)/L4(Rear Pump)	44	46	48	50	52	55	58

HILO Gear Pumps
Hilo Gear Pumps With Valve
Constant Flow Gear Pumps
恒流齿轮泵
组合泵
齿轮泵
卡特泵

PTO

1APF***L**P01*

18



1.5PF**F50P04*



Ordering Code - 订单编码

1.5	P (DP)		F/G	** (**/**)	DL**		P04		L		-	F	*		
Group 1.5 1.5组	Function Code 功能代码		Pressure 压力(bar)	Displacement 排量(ml/r)	Ports combination 油口组合		Shaft and flange 轴伸和法兰		Rotation 旋向			Seal 密封	Options 可选项		
	P	单泵	F	200	Front/Rear 前/后泵	Accessory 1 附录1	Accessory 2 附录2	B	双向			F	氟橡胶	Y	溢流阀
	DP	双泵	G	250	2			L	逆时针			/	丁腈橡胶	D	单向阀
					3			R	顺时针				/		不带阀
					4										
					5										
					6										
					8										
					9										
					11										
					12										

Function Code/功能代码			Rotation/旋向			F Seal/密封			* Options/可选项		
P	Single Pump	单泵	B	Bi-direction	双向	F	FPM seal	氟橡胶	Y	Relief valve	溢流阀
DP	Double Pump	双联齿轮泵	L	CCW	逆时针	Omit	NBR seal	丁腈橡胶	D	Check valve	单向阀
			R	CW	顺时针				/	Omit	不带阀





1.5PF**F50P04*/1.5DPF**F50P04*



Use Guide
使用说明

Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)		
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低
1.5PF2F50P04*	2	210	250	3500	3500	500
1.5PF3F50P04*	3	210	250	3500	3500	500
1.5PF4F50P04*	4	210	250	3500	3500	500
1.5PF5F50P04*	5	210	250	3500	3500	500
1.5PF6F50P04*	6	210	250	3500	3500	500
1.5PF8F50P04*	8	210	250	3500	3500	500
1.5PF9F50P04*	9	175	210	1500	2000	500
1.5PF11F50P04*	11	175	210	1500	2000	500
1.5PF12F50P04*	12	175	210	1500	2000	500

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵

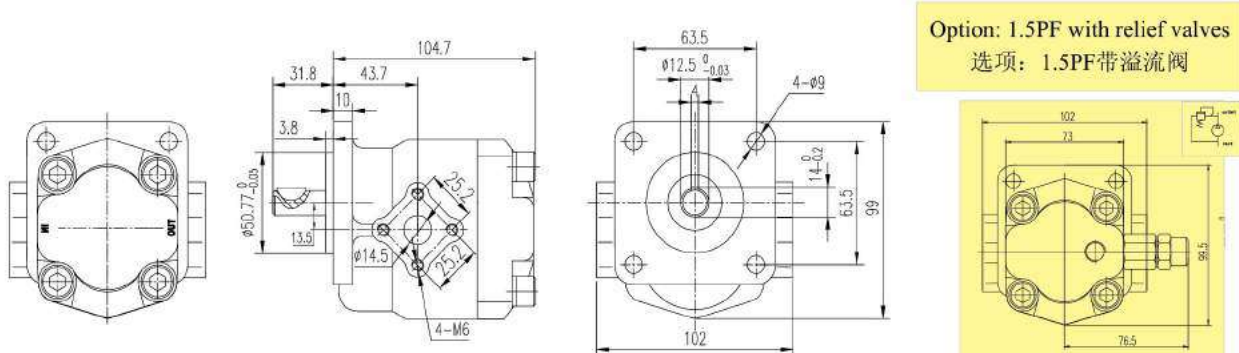
Pumps With
Valve
组合泵

HILO Gear
Pumps
斜齿泵

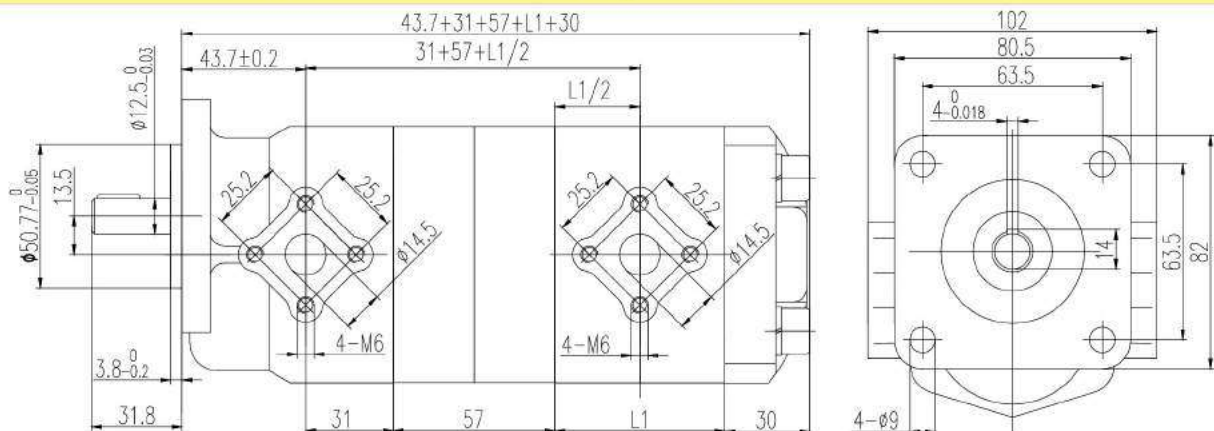
Cat Pumps
卡特泵

PTO

Dimension - 外形尺寸



1.5DPF**/**F50P04* Double Pumps - 1.5DPF**/**F50P04* 双联泵



Displacement - 排量 (ml/r)	2	3	4	5	6	7	8	9	10	11	12
L1 (mm)	42	44	46	48	50	52	54	56	58	60	62

1.5PF**F50P04*/1.5DPF**F50P04*

20



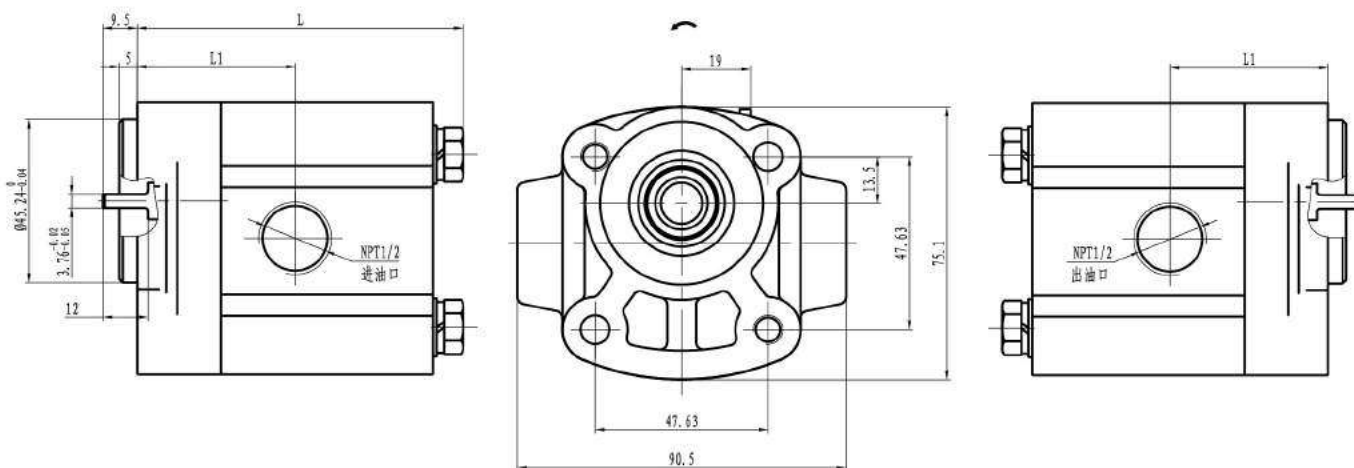
IQPF**L**B27*



Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低		
IQPF0.8L29B27*	0.8	200	250	2000	4000	500	80.3	40.8
IQPF1.1L29B27*	1.1	200	250	2000	4000	500	80.8	41
IQPF1.6L29B27*	1.6	200	250	2000	4000	500	82.8	42
IQPF2.5L29B27*	2.5	200	250	2000	4000	500	86.3	43.8
IQPF3.2L29B27*	3.2	200	250	2000	4000	500	88.8	45

Dimension - 外形尺寸



IQPF**L**B27*





1.5BDPF**DL**S44L

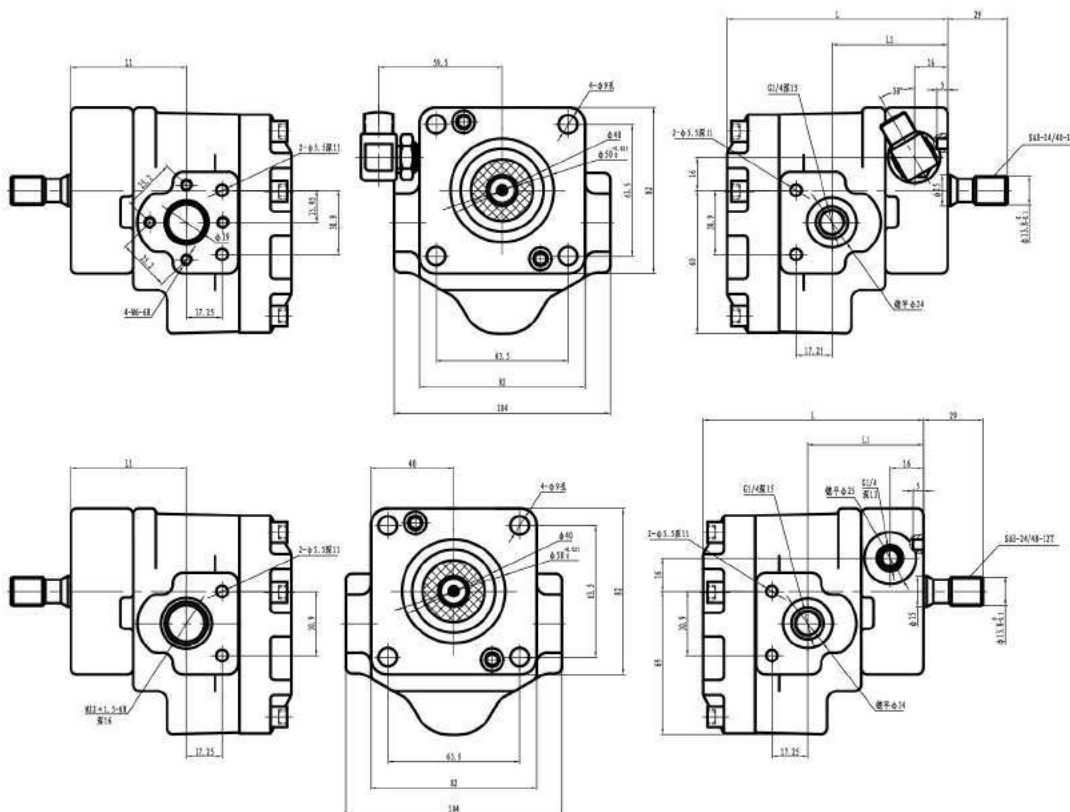


Use Guide
使用说明

Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)		Pressure 压力 (bar)				Speed 转速 (r/min)			L (mm)	L1 (mm)
			Front Pump 前泵		Rear Pump 后泵		Rated 额定	Max 最高	Min 最低		
	Front Pump 前泵	Rear Pump 后泵	Rated 额定	Peak 最高	Rated 额定	Max 最高					
1.5BDPF3/3DFL17S44L	3	3	4	10	140	200	1500	3200	800	106.2	56
1.5BDPF4/4DL20S44L	4	4	4	10	140	200	1500	3200	800	106.2	56

Dimension - 外形尺寸



1.5BDPF**DL**S44L



1.5BDPF**DL**S44L

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵

Pumps With
Valve
组合泵

Hi/Lo Gear
Pumps
斜齿机泵

Cat Pumps
卡特泵

PTO



2PF**L**P02*



Ordering Code - 订单编码

2	A	P (DP)	F/G	** (**/**/**)	DF02(TF02)	Z03	L	BS	- O - FY
Group 2 2组	Improve number 改进号	Function 功能代码	Pressure 压力(bar)	Displacement 排量(ml/r)	Ports combination 油口组合	Shaft and flange 轴伸和法兰	Rotation 旋向	Ports position 油口位置	
	A 铸铁盖	P 单泵	F 200	Front/Middle/Rear 前/中/后泵	Accessory 1 附录1	Accessory 2 附录2	L 逆时针	BB 后进后出	
	B 低噪音	DP 双泵	G 250				R 顺时针	BS 后进侧出	
	L 螺旋泵	TP 三联 齿轮 泵		4				SB 侧进后出	
	/ 铝制			6				SS 侧进侧出	
				8					
				10					
				12					
				14					
				16					
				18					
				20					
				23					
				25					
				28					
				30					

Improve number/改进号	Function Code/功能代码	Rotation/旋向	Ports position/油口位置
A Cast iron covers 铸铁前后盖	P Single Pump 单泵 DP Double Pump 双联齿轮泵	L CCW 逆时针 R CW 顺时针	BB Back inlet and back outlet 后进后出 BS Back inlet and side outlet 后进侧出
B Low noise gear pump 低噪音齿轮泵	TP Triple Pump 三联齿轮泵		SB Side inlet and back outlet 侧进后出 SS Side inlet and side outlet 侧进侧出
L Helical gear pump 螺旋齿轮泵			
Omit Aluminum covers 铝前后盖			

O Bearing/支撑	F Seal/密封	* Options/可选项
O Outboard bearing 带外支撑	F FPM seal 氟橡胶	Y Relief valve 溢流阀
Omit No outboard bearing 无外支撑	Omit NBR seal 丁腈橡胶	D Check valve 单向阀
		/ Omit 不带阀





2PF**L**P02*



Use Guide
使用说明

Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	D (mm)	
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			Inlet 进油口	Outlet 出油口
2PF4L09P02*	4	200(250)	250(300)	2000	3500	500	96	43.3	PT 1/2	PT 1/2
2PF6L09P02*	6	200(250)	250(300)	2000	3500	500	98	45		
2PF8L09P02*	8	200(250)	250(300)	2000	3500	500	102	46.5		
2PF10L09P02*	10	200(250)	250(300)	2000	3500	500	104	48		
2PF12L10P02*	12	200(250)	250(300)	2000	3500	500	108	50		
2PF14L10P02*	14	200(250)	250(300)	2000	3500	500	110	51	PT 3/4	PT 1/2
2PF16L10P02*	16	200(250)	250(280)	2000	3500	500	114	53		
2PF18L10P02*	18	200(250)	250(280)	2000	3500	500	117	55		
2PF20L10P02*	20	200(250)	250(280)	2000	3500	500	120	56		
2PF23L10P02*	23	200	250	2000	3000	500	123	58		
2PF25L10P02*	25	200	250	2000	3000	500	128	60		
2PF28L10P02*	28	160	200	2000	3000	500	133	63		
2PF30L10P02*	30	160	200	2000	3000	500	136	64		

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵

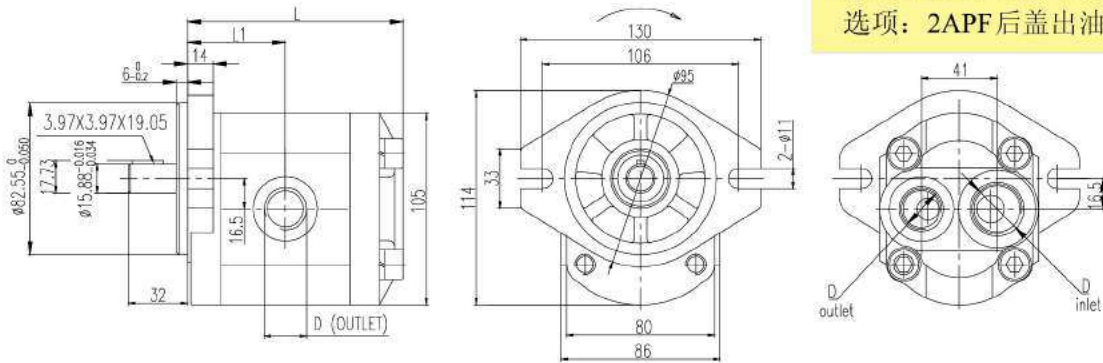
Pumps With
Valve
组合泵

HILO Gear
Pumps
斜齿泵

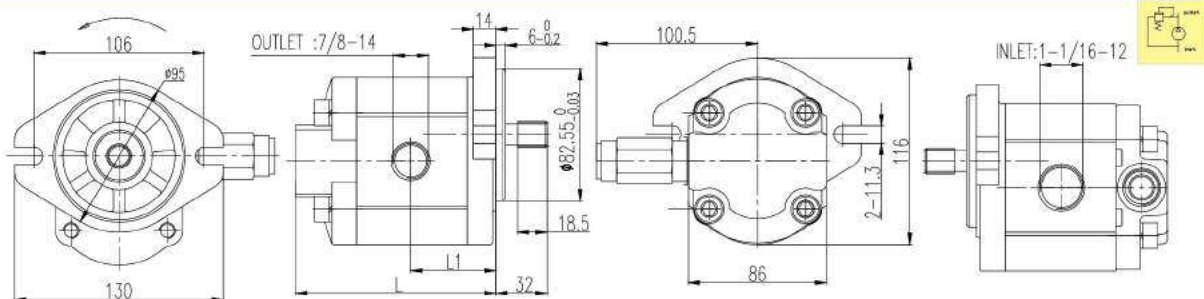
Cat Pumps
卡特泵

PTO

Dimension - 外形尺寸



2PF**L**S03-Y With Relief Valves - 2PF**L**S03-Y带溢流阀



Adjusted Pressure of Relief Valves - 溢流阀调整压力 50 Bar to 250 Bar

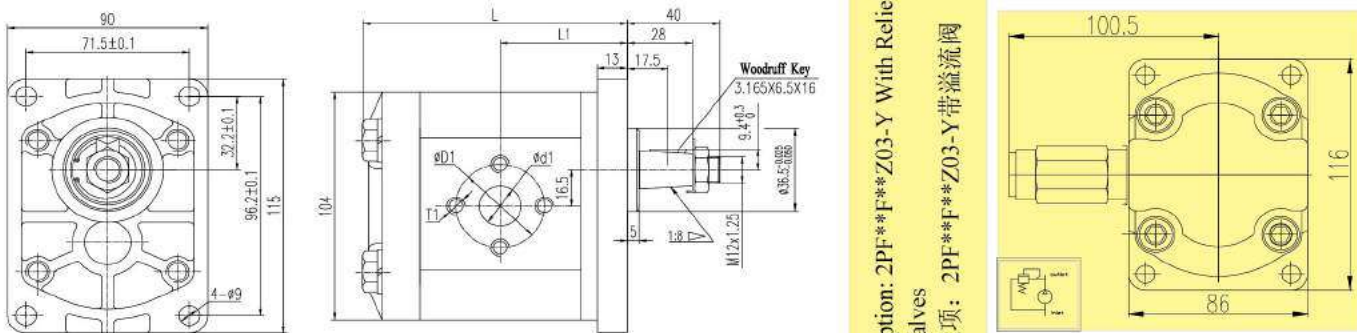
2PF**L**P02*

24

Specifications - 性能参数

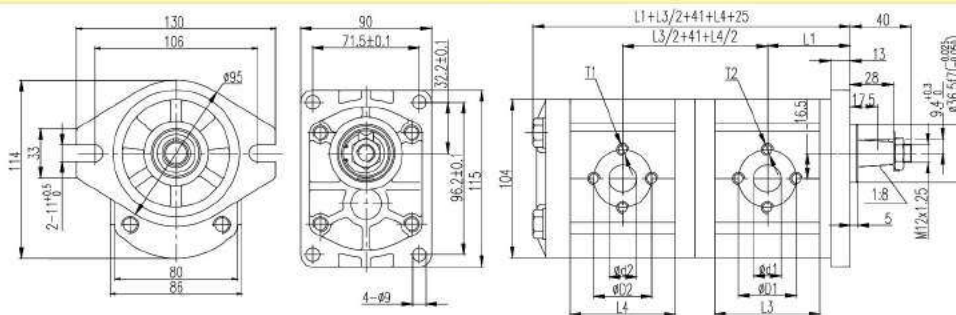
Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	Inlet 进油口 (mm)			Outlet 出油口 (mm)			
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			φD1	φd1	T1	φD2	φd2	T2	
2PF4F02Z03*	4	200(250)	250(300)	2000	3500	500	95.5	43.3	30	13	M6				
2PF6F02Z03*	6	200(250)	250(300)	2000	3500	500	99	45							
2PF8F02Z03*	8	200(250)	250(300)	2000	3500	500	102	46.5							
2PF10F06Z03*	10	200(250)	250(300)	2000	3500	500	105	48							
2PF12F06Z03*	12	200(250)	250(300)	2000	3500	500	108	49.5							
2PF14F06Z03*	14	200(250)	250(300)	2000	3500	500	111	51	40	20	M8	30	13	M6	
2PF16F06Z03*	16	200(250)	250(280)	2000	3500	500	114	52.5							
2PF18F06Z03*	18	200(250)	250(280)	2000	3500	500	117.5	54.3							
2PF20F06Z03*	20	200(250)	250(280)	2000	3500	500	121	56							
2PF23F06Z03*	23	200	250	2000	3000	500	125.5	58.3							
2PF25F06Z03*	25	200	250	2000	3000	500	128	59.5							
2PF28F06Z03*	28	160	200	2000	3000	500	133	62							
2PF30F06Z03*	30	160	200	2000	3000	500	136	63.5							

Dimension - 外形尺寸



Option: 2PF**F**Z03-Y With Relief
Valves
选项: 2PF**F**Z03-Y带溢流阀

2ADPF**/**DF02Z03* Double Pumps - 2ADPF**/**DF02Z03* 双联泵



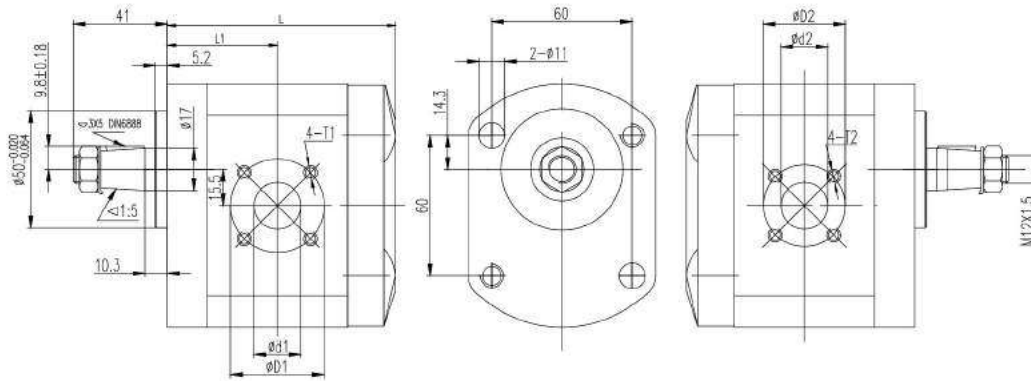
Displacement - 排量(ml/r)	4	6	8	10	12	14	16	18	20	23	25	28	30
L3(Front Pump)/L4(Rear Pump)	50.5	54	57	60	63	66	69	72.5	76	80.5	83	88	91



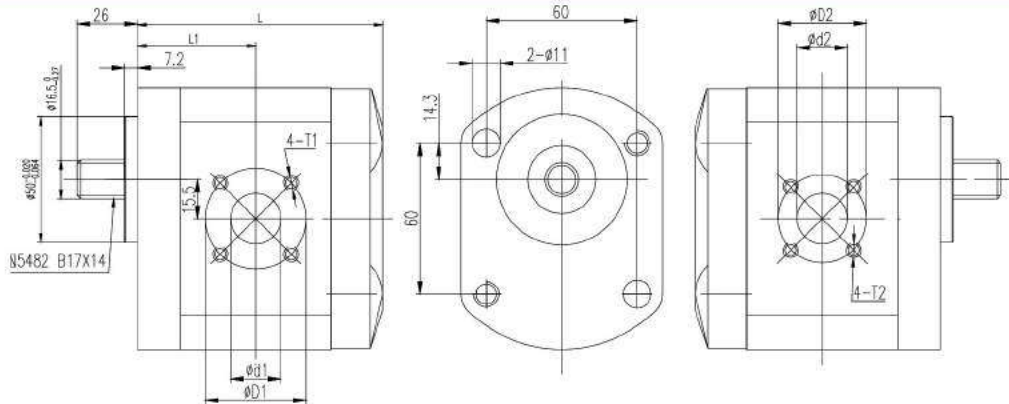
Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	Inlet 进油口 (mm)			Outlet 出油口 (mm)		
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			φD1	φd1	T1	φD2	φd2	T2
2APF4F60Z11*	4	200(250)	250(300)	2000	3500	500	95.5	43.3	40	15	M6	35	15	M6
2APF6F60Z11*	6	200(250)	250(300)	2000	3500	500	99	45						
2APF8F52Z11*	8	200(250)	250(300)	2000	3500	500	102	46.5						
2APF10F52Z11*	10	200(250)	250(300)	2000	3500	500	105	48						
2APF12F52Z11*	12	200(250)	250(300)	2000	3500	500	108	49.5						
2APF14F52Z11*	14	200(250)	250(300)	2000	3500	500	111	51						
2APF16F52Z11*	16	200(250)	250(280)	2000	3500	500	114	52.5	40	20	M6	35	15	M6
2APF18F52Z11*	18	200(250)	250(280)	2000	3500	500	117.5	54.3						
2APF20F52Z11*	20	200(250)	250(280)	2000	3500	500	121	56						
2APF23F52Z11*	23	200	250	2000	3000	500	125.5	58.3						
2APF25F52Z11*	25	200	250	2000	3000	500	128	59.5						
2APF28F52Z11*	28	160	200	2000	3000	500	133	62						
2APF30F52Z11*	30	160	200	2000	3000	500	136	63.5						

Dimension - 外形尺寸



2ADPF**F52D01* Gear Pumps - 2ADPF**F52D01* 齿轮泵





2PF**F**Z18*-O/2ADPF**DF05Z18*



Use Guide
使用说明

Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	Inlet 进油口 (mm)			Outlet 出油口 (mm)			
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			φD1	φd1	T1	φD2	φd2	T2	
2PF4F60Z18*-O	4	200(250)	250(300)	2000	3500	500	123	73	40	15	M6	35	15	M6	
2PF6F60Z18*-O	6	200(250)	250(300)	2000	3500	500	124	74							
2PF8F52Z18*-O	8	200(250)	250(300)	2000	3500	500	127	75							
2PF10F52Z18*-O	10	200(250)	250(300)	2000	3500	500	130	77							
2PF12F52Z18*-O	12	200(250)	250(300)	2000	3500	500	133	79							
2PF14F52Z18*-O	14	200(250)	250(300)	2000	3500	500	137	80	40	20	M6	35	15	M6	
2PF16F52Z18*-O	16	200(250)	250(280)	2000	3500	500	141	82							
2PF18F52Z18*-O	18	200(250)	250(280)	2000	3500	500	143	83	40	20	M6	35	15	M6	
2PF20F52Z18*-O	20	200(250)	250(280)	2000	3500	500	147	86							
2PF23F52Z18*-O	23	200	250	2000	3000	500	153	89							
2PF25F52Z18*-O	25	200	250	2000	3000	500	157	92							

0PF

1PF

1.5PF

2PF

2.5PF

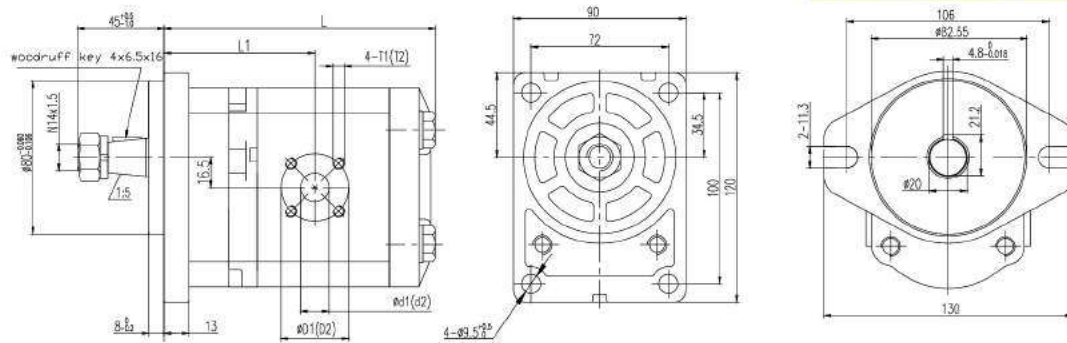
2.8PF

3PF

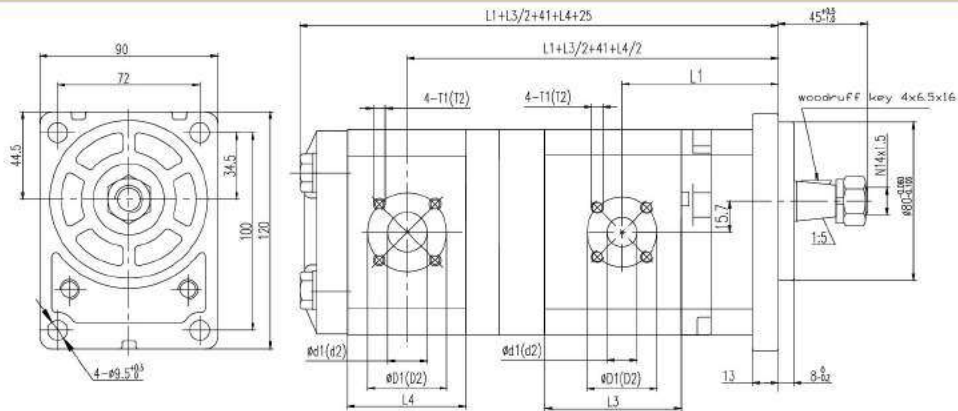
3.5PF

4PF

Dimension - 外形尺寸



2ADPF**/**DF05Z18* Double Pumps - 2ADPF**/**DF05Z18* 双联泵



Constant Flow
Gear Pumps
恒流齿轮泵

Pumps With
Valve
组合泵

H/LO Gear
Pumps
蜗轮蜗杆泵

Cat Pumps
卡特泵

PTO

Displacement - 排量(ml/r)	4	6	8	10	12	14	16	18	20	23	25	28	30
L3(Front Pump)/L4(Rear Pump)	50.5	54	57	60	63	66	69	72.5	76	80.5	83	88	91
2PF**F**Z18*-O/2ADPF**DF05Z18*													28



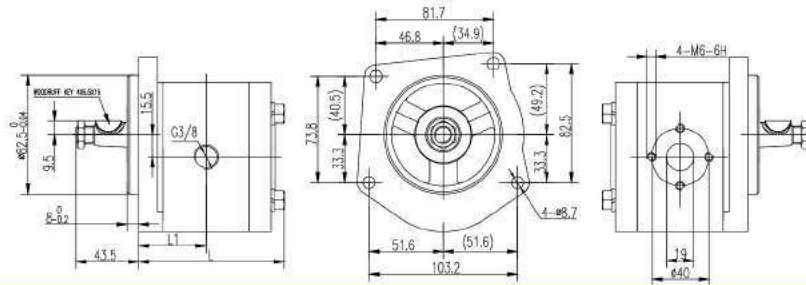
2PF**F**Z12*/2ADPF**DL**Z12*



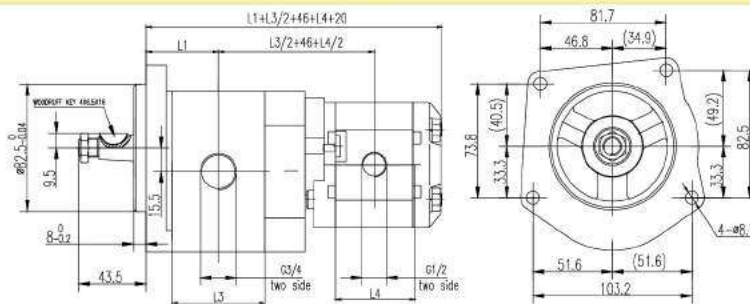
Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	Inlet 进油口 (mm)			Outlet 出油口 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			øD1	ød1	T1	
2PF4LF5Z12*	4	200(250)	250(300)	2000	3500	500	91.5	42.3	40	19	M6	G3/8
2PF6LF5Z12*	6	200(250)	250(300)	2000	3500	500	95	44				
2PF8LF5Z12*	8	200(250)	250(300)	2000	3500	500	98	45.5				
2PF10LF5Z12*	10	200(250)	250(300)	2000	3500	500	101	47				
2PF12LF5Z12*	12	200(250)	250(300)	2000	3500	500	104.5	48.8				
2PF14LF5Z12*	14	200(250)	250(300)	2000	3500	500	107.5	50				
2PF16LF5Z12*	16	200(250)	250(280)	2000	3500	500	111	52				
2PF18LF5Z12*	18	200(250)	250(280)	2000	3500	500	114	54				
2PF20LF5Z12*	20	200(250)	250(280)	2000	3500	500	118	55				
2PF23LF5Z12*	23	200	250	2000	3500	500	122	58				
2PF25LF5Z12*	25	200	250	2000	3500	500	125	59				
2PF28LF5Z12*	28	160	200	2000	3500	500	130	61				
2PF30LF5Z12*	30	160	200	2000	3500	500	133	63				

Dimension - 外形尺寸



2ADPF**/**DL**Z12* Double Pumps - 2ADPF**/**DL**Z12* 双联泵

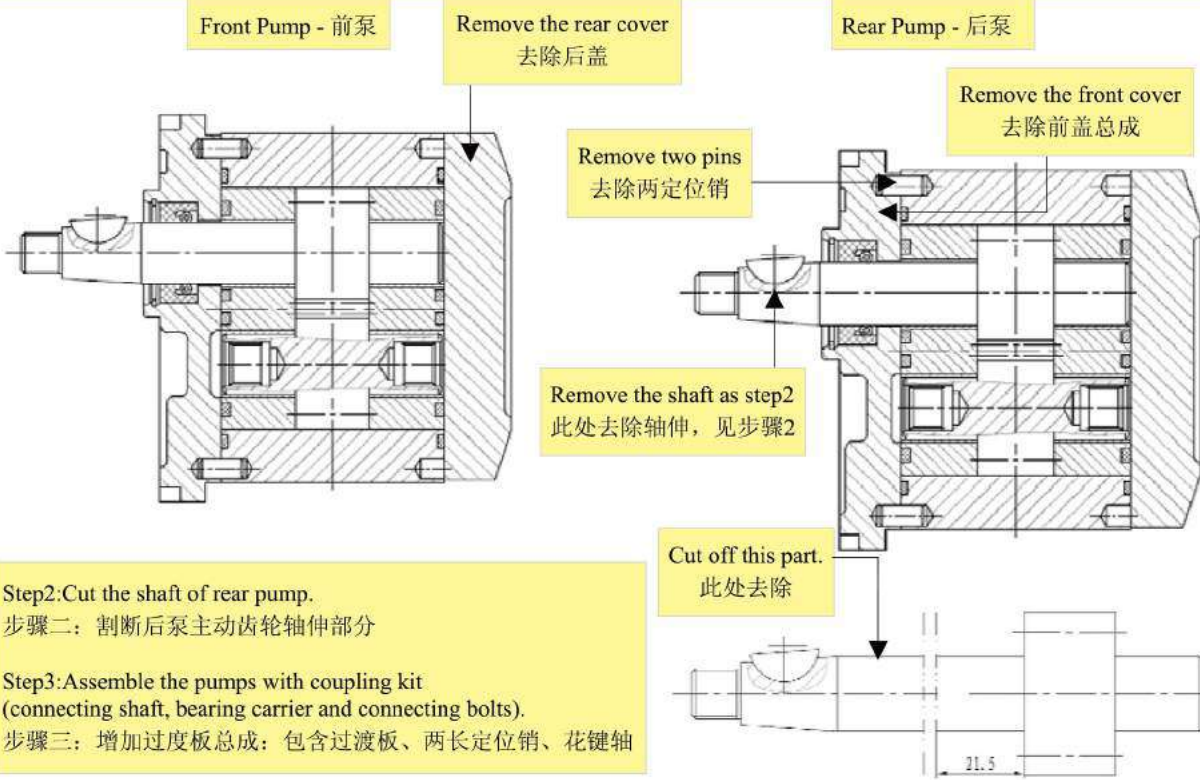


Front Pump Displacement 前泵排量(ml/r)	4	6	8	10	12	14	16	18	20	23	25	28	30
L3(Front Pump)	50.5	54	57	60	63	66	69	72.5	76	80.5	83	88	91
Rear Pump Displacement 后泵排量(ml/r)	1.3	2.0	2.7	3.4	4.1	5.1	6.1	/	/	/	/	/	/
L4(Rear Pump)	44	46	48	50	52	55	58	/	/	/	/	/	/



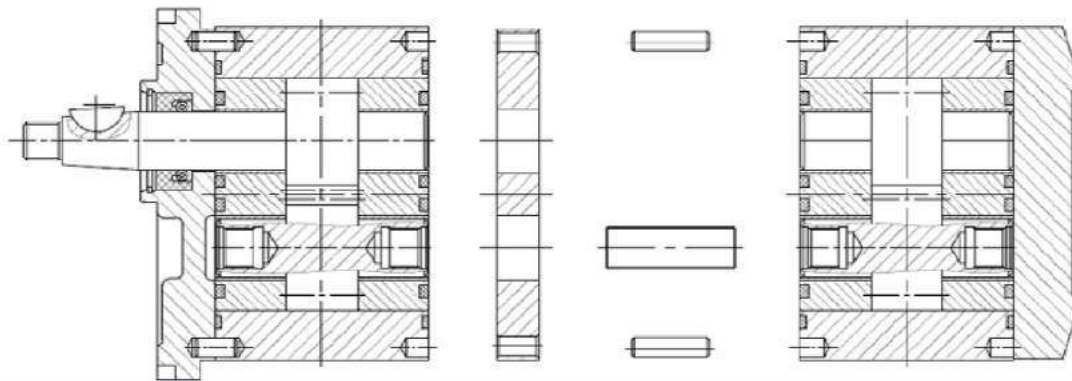
Step1: Remove rear cover from the front pump. Also remove front cover and pins from the rear pump.

步骤1: 去除前泵后盖、后泵前盖总成、两定位销

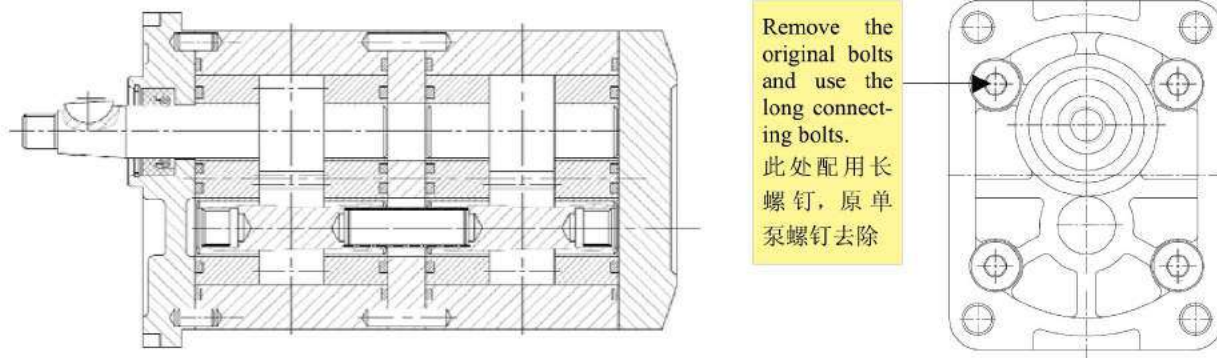


Step2: Cut the shaft of rear pump.
步骤二: 割断后泵主动齿轮轴伸部分

Step3: Assemble the pumps with coupling kit (connecting shaft, bearing carrier and connecting bolts).
步骤三: 增加过度板总成: 包含过度板、两长定位销、花键轴



Step: Screw 4 pcs of long connecting bolts.
步骤四: 拧紧四根长螺钉, 成品如图所示



2(A)D(T)PF**/**

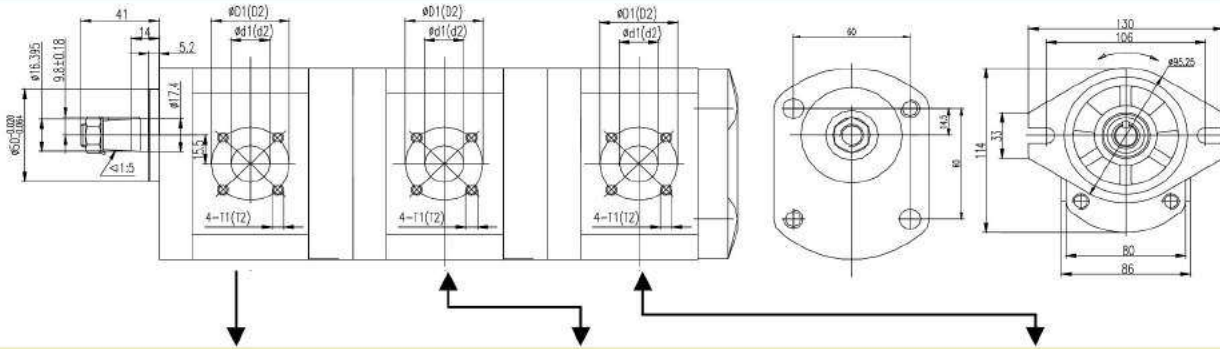


Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)	Inlet 进油口 (mm)			Outlet 出油口 (mm)		
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低			φD1	φd1	T1	φD2	φd2	T2
2APF04F60*	4	200(250)	250(300)	2000	3000	500	87.9	42.2	40	15	M6			
2APF06F60*	6	200(250)	250(300)	2000	3000	500	91.1	43.8						
2APF08F52*	8	200(250)	250(300)	2000	3000	500	94.3	45.4						
2APF10F52*	10	200(250)	250(300)	2000	3000	500	97.5	47.0						
2APF12F52*	12	200(250)	250(300)	2000	3000	500	110.7	48.6	40	20	M6	35	15	M6
2APF14F52*	14	200(250)	250(300)	2000	3000	500	114.0	50.2						
2APF16F52*	16	200(250)	250(280)	2000	3000	500	109.5	51.2						
2APF18F52*	18	200(250)	250(280)	2000	3000	500	113.0	52.8						
2APF20F52*	20	200(250)	250(280)	2000	3000	500	116.5	55.3						
2APF23F52*	23	200	250	2000	3000	500	121.5	56.9						
2APF25F52*	25	200	250	2000	3000	500	124.7	58.5						

2TPF**/**/**TF02Z11*

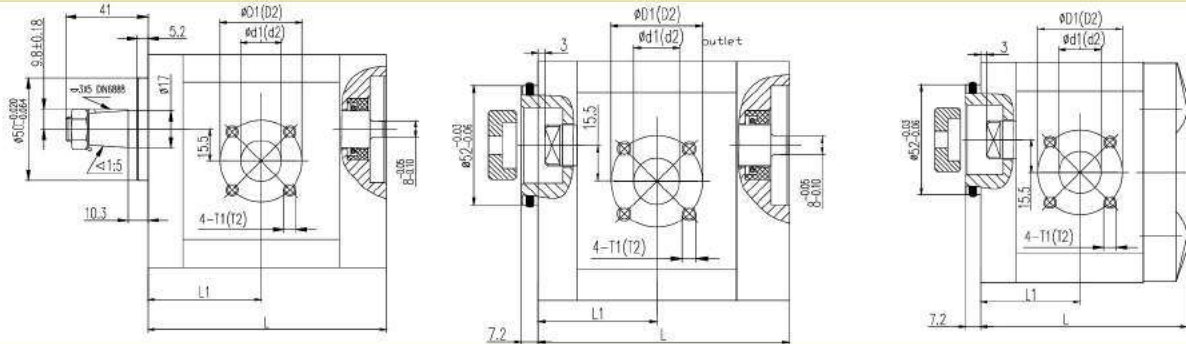
Option - 选项: 2TPF**/**/**TF02P21*



Order code - 订单编码: 2APF**F52Z11*-A

Order code - 订单编码: 2APF**F52*-M

Order code - 订单编码: 2APF**F52*-B



F52: combination of inlet and outlet, refer to accessory 1, Z11: combination of shaft and flange, refer to accessory 2.

-A: front pump, -M: middle pump, -B: back pump.

F52: 进出油口组合, 详见附录1; Z11: 轴伸和法兰组合, 详见附录2. -A: 前泵, -M: 中泵, -B: 后泵。



Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)	Pressure 压力 (bar)		Speed 转速 (r/min)			L (mm)	L1 (mm)
		Rated 额定	Peak 最高	Rated 额定	Max 最高	Min 最低		
2LPF04F52Z08*	04	200	230	1500	1800	1000	95.5	42
2LPF06F52Z08*	06	200	230	1500	1800	1000	99	43.8
2LPF08F52Z08*	08	200	230	1500	1800	1000	103	45.8
2LPF10F52Z08*	10	200	230	1500	1800	1000	107	47.8
2LPF12F52Z08*	12	200	230	1500	1800	1000	111	49.8
2LPF14F52Z08*	14	200	230	1500	1800	1000	115	51.8
2LPF16F52Z08*	16	200	230	1500	1800	1000	118.5	53.5
2LPF18F52Z08*	18	200	230	1500	1800	1000	122.5	55.5
2LPF19F52Z08*	19	180	210	1500	1800	1000	124.5	56.5
2LPF20F52Z08*	20	180	210	1500	1800	1000	126.5	57.5
2LPF23F52Z08*	23	180	210	1500	1800	1000	132.5	60.5
2LPF25F52Z08*	25	160	180	1500	1800	1000	136	62.3
2LPF28F52Z08*	28	160	180	1500	1800	1000	142	65.3
2LPF30F52Z08*	30	160	180	1500	1800	1000	146	67.3

0PF

1PF

1.5PF

2PF

2.5PF

2.8PF

3PF

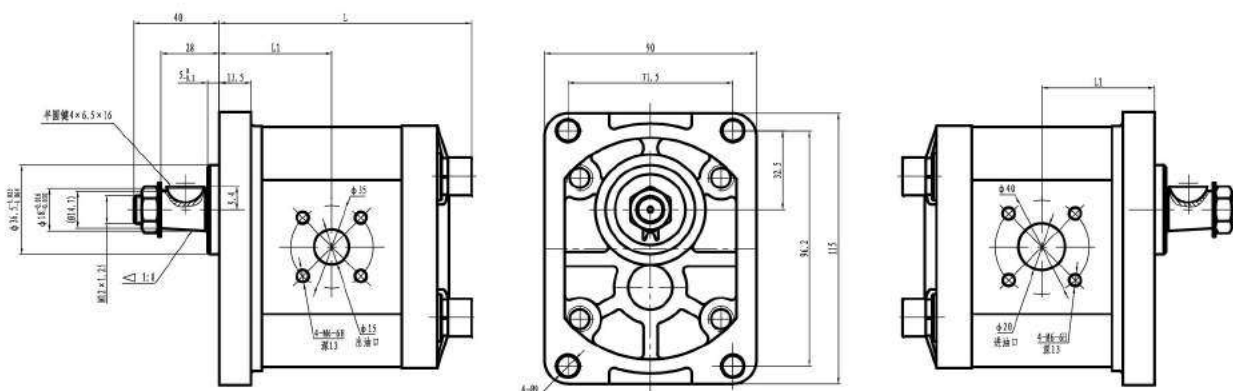
3.5PF

4PF

Constant Flow
Gear Pumps
恒流齿轮泵Pumps With
Valve
组合泵Hi/LO Gear
Pumps
蜗壳机泵Cat Pumps
卡特泵

PTO

Dimension - 外形尺寸



2LPF**F**Z08*



2LF螺旋齿轮为低噪音泵，它的排量为7-35cm³/rev；它的最大工作压力可以达到250bar。螺旋形的齿轮在齿数较少的情况下仍可保证泵运行的连贯性。连续运动和较少的齿数可以降低泵运行噪音的基本频率，使泵运行的声音更柔和悦耳。特殊设计的齿形大大降低了由泵产生的压力波动和振荡，并且不容易传递给液压系统中的其他部件，这样可以降低整个液压系统的噪音水平。

2LPF helical pumps is low noise type with displacements from 7 to 35cm³/rev; The maximum operating pressures are 250 bar. The helical gears ensure the continuity of the motion despite the low number of teeth. Continuous motion and the low number of teeth reduces the fundamental frequencies of the pump noise, give out a more pleasant sound. The particular designed shape of the profile reduces pressure oscillations and vibrations produced by the pump and transmitted to the other components, reducing the noise level of the hydraulic system.



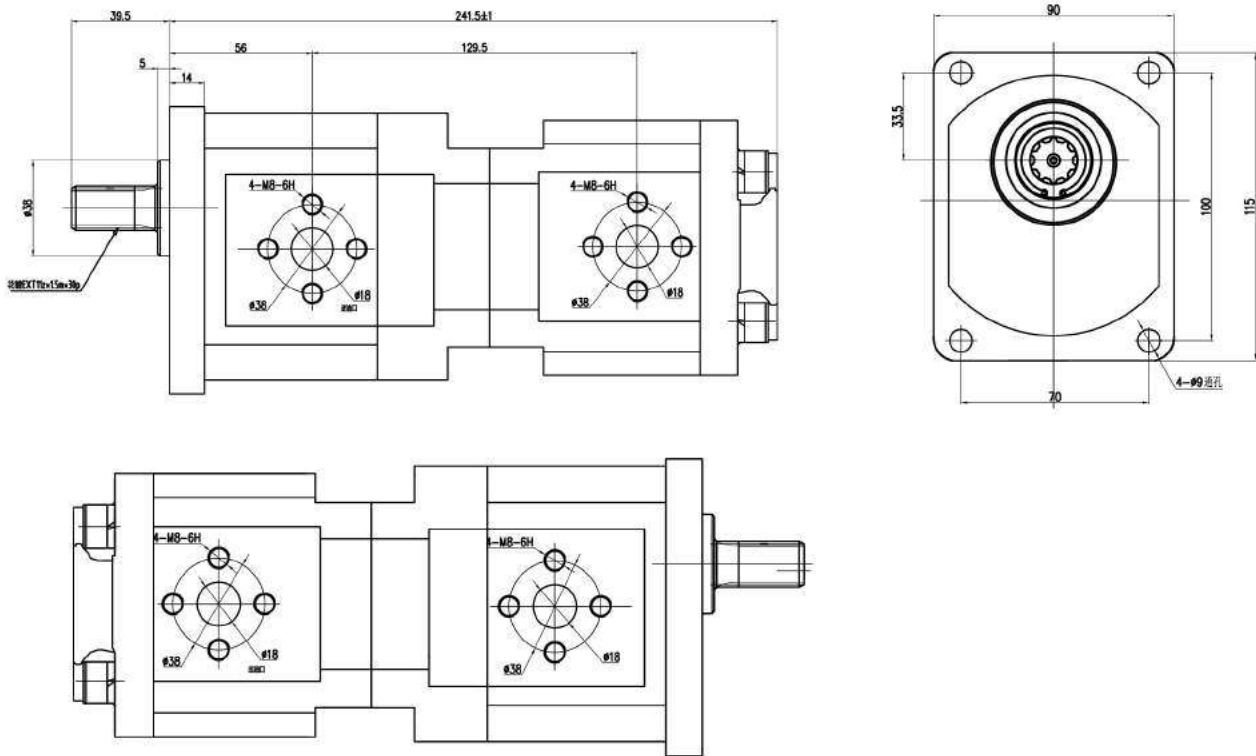
2YBDPF**DF**J08*



Specifications - 性能参数

Model 型号	Displacement 排量 (ml/r)		Pressure 压力 (bar)				Speed 转速 (r/min)		
			Front Pump 前泵		Rear Pump 后泵				
	Front Pump 前泵	Rear Pump 后泵	Rated 额定	Peak 最高	Rated 额定	Max 最高	Rated 额定	Max 最高	Min 最低
2YBDPF20/10DF54J08*	20	10	200/250	250/300	200/250	250/300	2500	3000	800

Dimension - 外形尺寸



2YBDPF**DF**J08*

