



**宁波泰勒斯液压传动有限公司**

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**Ningbo TILOORMS  
Hydraulic Transmission Co.,Ltd.**



科技带来强劲动力  
Technology brings a strong driving force

# AKS

AKS 系列内五星液压马达  
AKS swivelling cylinder hydraulic motor



**TILORMS**<sup>®</sup>  
泰勒姆斯

## 产品概述

AKS系列液压马达是本公司集合多年生产实践经验，在原有的技术基础上进行了设计改进。使AKS系列马达壳体强度增加，内部动态元件承载能力增强。这一特点使该系列马达具有很高的连续功率范围。由于机械效率和容积效率高，同时又减少了内部单位负载力，因此减少了热量产生及与此相关的负面效应。其主要特点如下：

- 1、由于活塞与摆缸不存在侧向力，活塞底部设计成静压平衡，活塞与曲轴之间通过滚动轴承传递扭力，这些均减少了传力过程中的摩擦损失。因而 AKS 系列液压马达具有很高的机械效率、高的启动扭矩（启动时机械效率 92% 以上）的特点。
- 2、平面配流器简单可靠，密封性好，泄漏很少。活塞与摆缸之间用塑料活塞密封无泄漏，因而有很高的容积效率（可达 98%）。
- 3、由于结构上减少了摩擦损失，提高了密封性能，因而低速稳定性好，可以在 10r/min 工况下平稳运转，调速范围大（速度调节比可达 1000）。
- 4、由于活塞与轴承套通过卡环贴牢不存在间隙，因而该系列液压马达可以作泵工况下运转，当进油口封闭后马达可在自由轮工况下高速运转。
- 5、该系列液压马达压力高，最高压力可达 31.5MPa。重量轻、体积小、功率高。
- 6、由于结构简单，设计合理，采用符合能力大的轴承，因而工作可靠，寿命长、噪音低，传动轴允许承受径向力，旋转方向可逆。

## 产品适用范围

由于 AKS 系列液压马达具有上述一系列特点，故广泛用于塑料机械、轻工机械、冶金机械、矿山机械、起重运输设备、重型机械、石油煤矿机械、船舶甲板机械、机床、塑料、地质钻探设备等各种机械的液压传动系统中。特别适用于提升绞盘、卷筒机械、各种回转机械驱动、履带和轮子行走机构的驱动等传动机械中。

## Product overview

AKS series hydraulic motor is a new type of product of our company, which is based on years practical experience. The design is improved in the foundation on the original technologies. AKS hydraulic motor mainly has the following characteristics:

As the piston and the tilt cylinder have no side force, the piston bottom is designed to be static pressure balance. The torsional force is transferring between the piston and the crankshaft through rolling bearing, so the friction loss during the transferring process of force is reduced. Therefore, AKS series hydraulic motor has such features as: very high mechanical efficiency and comparatively high startup torque (mechanical efficiency of over 0.92 during startup).

The plane distributor (patented technology) is simple and reliable with perfect seal performance and almost no leakage. The plastic piston ring is used to seal between the piston and the tilt cylinder, so it has very high volumetric efficiency (can be as high as 0.98).

As the structure of this product has reduced friction loss and enhanced the seal performance, the product has perfect stability at low speed. It can stably run at 10r/min working condition and has big speed regulation range.

As the piston is jointed closely with bearing bushing without any clearance, this series of hydraulic motor can run at pump working condition.

This series of hydraulic motor has high pressure, (the highest pressure can reach 31.5 Mpa) light weight, small bulk and high specific power.

As this series hydraulic motor has simple structure, reasonable design and adopts bearing with big load ability, it can work reliably and has long life and low noise; the transmission shaft allows endure radial load and the rotational direction is reversible.

## Products application range

As AKS series hydraulic motor has the above characteristics, it has wide application range. It can be applied in the hydraulic transmission systems of various types of machinery in plastic injection machine, light industry machine, engineering machine, metallurgical equipment, petroleum, coal mine, geological prospecting, railway, ship, environment protection, machine tool and agricultural machine industries.

## 型号说明 Description of model



## 型号举例 Example of model selection

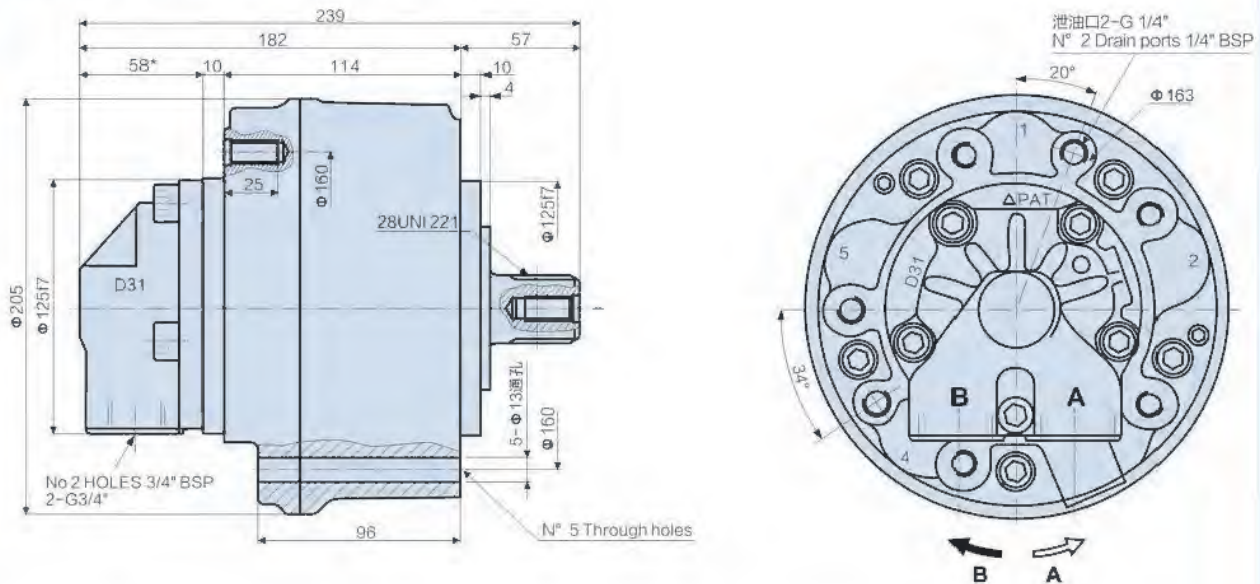
AKS2-420BD31表示基型为2系列AKS液压马达, 其名义排量为 425ml/r; 输出轴为平键轴, 配流器型号为 D31。订货时请按此填写完整的型号, 若有特殊要求请在订货合同中详细说明。

AKS2-420BD31 means the basic type is 2 series AKS hydraulic motor, and it's theoretical displacement is 425ml/r; output shaft 's type is flat key shaft, the distributor 's type is D31. When you place an order, please fill in the complete model according to this form. If you have special requirements please give a detailed description in the order contract.

## 技术参数 Technical data

型号 Model	理论排量 Displacement (ml/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	额定扭矩 Rated Torque (N.m)	单位扭矩 Theoric Specific Torque (N.m/Mpa)	连续转速 Speed range (r/min)	最高转速 Max.cont Speed (r/min)	重量 Weight (kg)
AKS05-60	59	25	31.5	235	9.4	1~700	1000	22
AKS05-75	74	25	31.5	295	11.8	1~700	1000	22
AKS05-90	86	25	31.5	343	13.7	1~700	1000	22
AKS05-110	115	25	31.5	458	18.3	1~650	900	22
AKS05-130	129	25	31.5	513	20.5	1~650	900	22
AKS05-150	151	25	31.5	600	24	1~650	900	22
AKS05-170	166	25	31.5	660	26.4	1~600	800	22
AKS05-200	191	25	28	760	30.4	1~600	800	22
AKS1-100	99	25	31.5	385	15.4	1~550	1000	31
AKS1-150	154	25	31.5	600	24	1~550	1000	31
AKS1-175	172	25	31.5	670	26.8	1~550	900	31
AKS1-200	201	25	31.5	785	31.4	1~550	800	31
AKS1-250	243	25	31.5	950	38	1~450	700	31
AKS1-300	290	25	31.5	1130	45.2	1~350	650	31
AKS1-320	314	25	28	1225	49	1~350	600	31
AKS1-350	340	25	28	1350	54	1~350	600	31
AKS2-200	192	25	31.5	750	30	0.7~550	800	51
AKS2-250	251	25	31.5	980	39.2	0.7~550	800	51
AKS2-300	304	25	31.5	1188	47.5	0.7~500	750	51
AKS2-350	347	25	31.5	1355	54.2	0.7~500	750	51
AKS2-420	425	25	31.5	1658	66.3	0.7~450	750	51
AKS2-500	493	25	31.5	1923	76.9	0.7~450	700	51
AKS2-600	565	25	30	2208	88.3	0.7~450	700	51
AKS2-630	623	25	28	2433	97.3	0.7~400	650	51
AKS3-425	426	25	31.5	1660	66.4	0.5~500	650	87
AKS3-500	486	25	31.5	1895	75.8	0.5~450	600	87
AKS3-600	595	25	31.5	2320	92.8	0.5~450	575	87
AKS3-700	690	25	31.5	2700	108	0.5~400	500	87
AKS3-800	792	25	31.5	3100	124	0.5~400	500	87
AKS3-900	873	25	31.5	3400	136	0.5~350	400	87
AKS3-1000	987	25	28	3850	154	0.5~300	350	87
AKS4-600	616	25	31.5	2403	96.1	0.4~400	550	120
AKS4-800	793	25	31.5	3100	124	0.4~350	550	120
AKS4-900	904	25	31.5	3525	141	0.4~325	450	120
AKS4-1000	1022	25	31.5	4000	160	0.4~300	400	120
AKS4-1100	1116	25	31.5	4350	174	0.4~275	400	120
AKS4-1300	1316	25	28	5125	205	0.4~225	350	120
AKS5-800	807	25	31.5	3150	126	0.3~325	450	175
AKS5-1000	1039	25	31.5	4050	162	0.3~300	450	175
AKS5-1200	1185	25	31.5	4625	185	0.3~300	400	175
AKS5-1300	1340	25	31.5	5225	209	0.3~300	400	175
AKS5-1450	1462	25	31.5	5700	228	0.3~275	350	175
AKS5-1600	1634	25	31.5	6350	254	0.3~250	300	175
AKS5-1800	1816	25	31.5	7075	283	0.3~250	300	175
AKS5-2000	2007	25	31.5	7825	313	0.3~200	250	175
AKS6-1700	1690	25	31.5	6600	264	0.2~250	400	275
AKS6-2100	2127	25	31.5	8300	332	0.2~225	350	275
AKS6-2500	2513	25	31.5	9800	392	0.2~200	300	275
AKS6-3000	3041	25	31.5	11875	475	0.2~175	250	275

## 外形尺寸图 Contour dimension

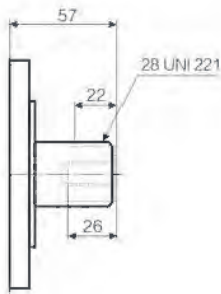


配油器长度 D31=58mm; D40(标准)=77mm  
Distributor length: D31=58mm; D40(standard)=77mm

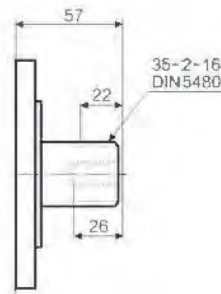
AKS05液压马达可完全替代GM05, INM05, XHS05  
AKS05 can completely replace GM05, INM05, and XHS05.

## 轴伸型式 Shaft extension type

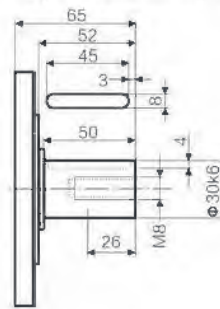
矩形外花键  
Rectangular spline



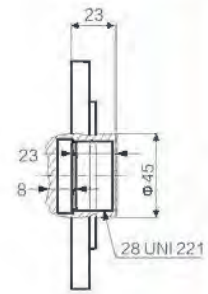
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



内花键 I  
Internal spline I

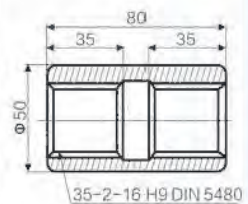


## 花键参数 Spline parameters

35-2-16 DIN5480	
d0	$\phi 32.0$
d1	$\phi 35.0^{+0.520}$ H14
d2	$\phi 31.0^{+0.160}$ H11
A	$\phi 3.5$
da	$\phi 27.711$ H11
d3	$\phi 34.6^{-0.160}$ h11
d4	$\phi 30.6^{-0.520}$ h14
B	$\phi 4.0$
db	$\phi 39.000$ f8

28 UNI 221(6-28-34)DIN5463	
d1	$\phi 28.0^{+0.021}$ H7
d2	$\phi 34.1^{+0.016}$ H11
A	$7.0^{+0.013}$ F7
d3	$\phi 28.0^{-0.025}$ g6
d4	$\phi 34.0^{-0.065}$ h14
B	$7.0^{-0.013}$ F7

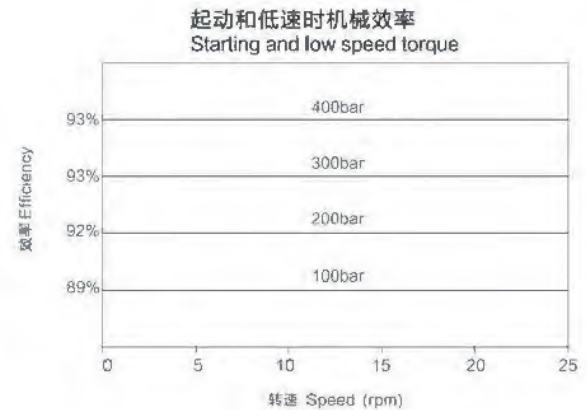
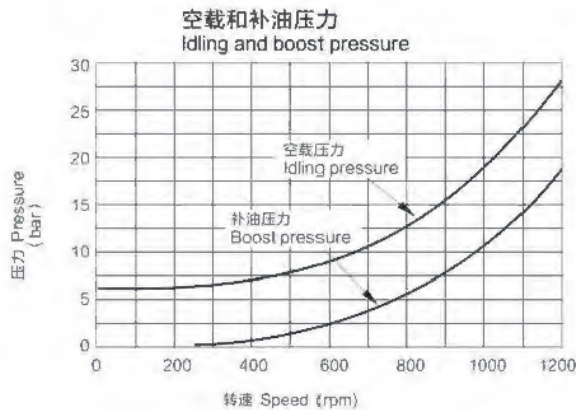
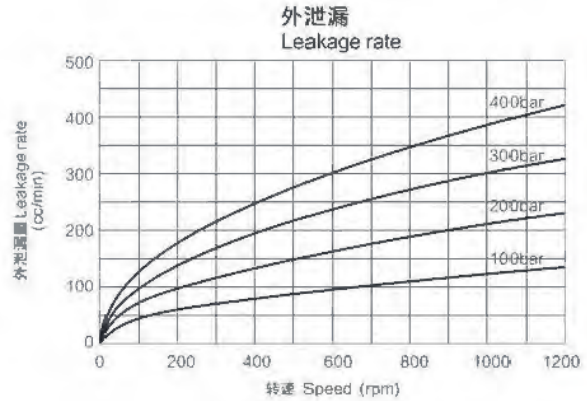
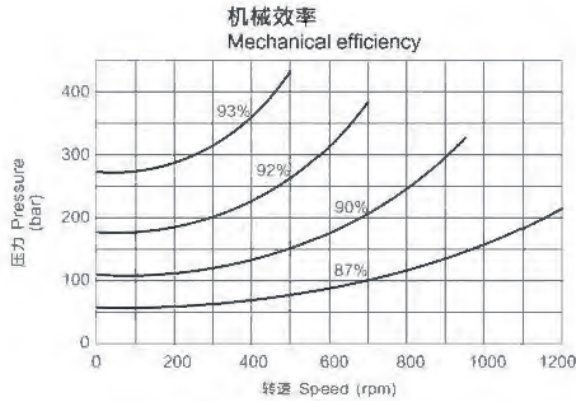
联轴器 Couplings



## 特性曲线 Performance

下列表为排量150cc的马达，在工作液采用矿物油，粘度40cSt，油温50℃工作时的典型特性曲线。

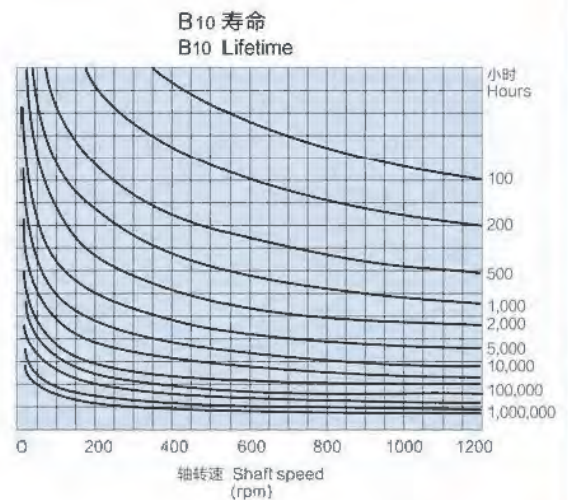
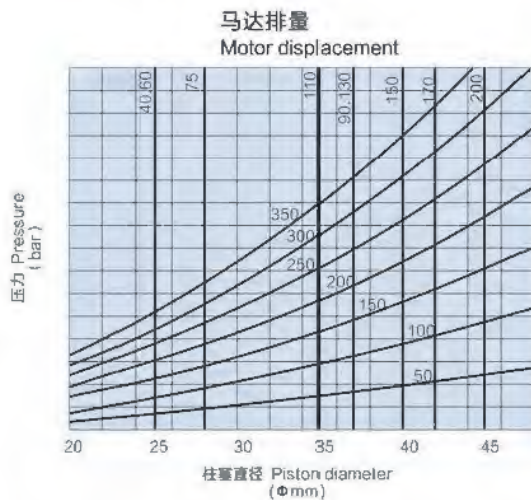
The graphs indicate the typical performance characteristics of the 150 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C



## 轴承寿命 Bearing lifetime

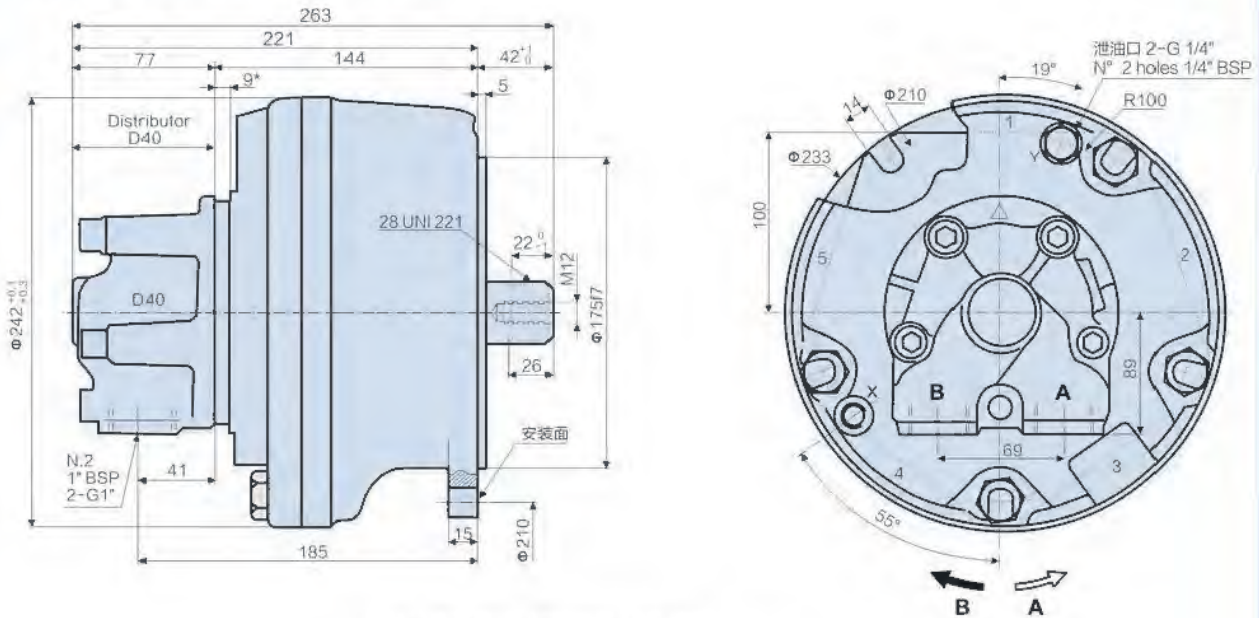
该图表示用配置滚柱轴承（代号H）的马达。注意轴承平均寿命（B50寿命）大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.





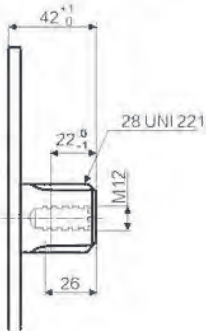
## 外形尺寸图 Contour dimension



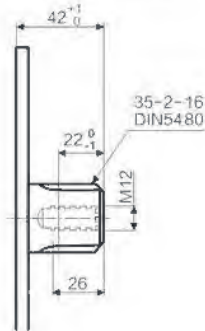
AKS1 液压马达可完全替代 GM1, INM1, XHS1  
AKS1 can completely replace GM1, INM1, and XHS1.

## 轴伸型式 Shaft extension type

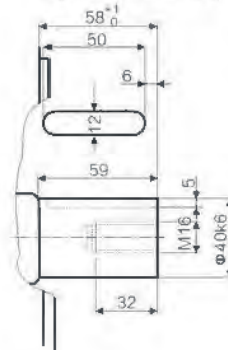
矩形外花键  
Rectangular spline



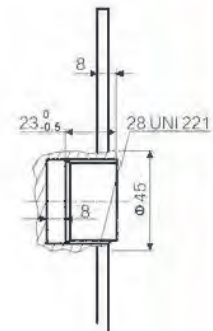
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



内花键 I  
Internal spline I

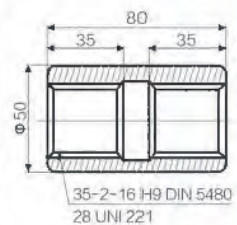


## 花键参数 Spline parameters

35-2-16 DIN5480	
d0	φ 32.0
d1	φ 35.0 $^{+0.520}_{0}$ H14
d2	φ 31.0 $^{+0.160}_{0}$ H11
A	φ 3.5
da	φ 27.711 H11
d3	φ 34.6 $^{-0.160}_{-0.520}$ h11
d4	φ 30.6 $^{-0.520}_{-0.160}$ h14
B	φ 4.0
db	φ 39.000 f8

28 UNI 221(6-28-34)DIN5463	
d1	φ 28.0 $^{+0.021}_{0}$ H7
d2	φ 34.1 $^{+0.016}_{0}$ H11
A	7.0 $^{+0.028}_{0}$ F7
d3	φ 28.0 $^{-0.020}_{-0.020}$ g6
d4	φ 34.0 $^{-0.005}_{-0.100}$ h14
B	7.0 $^{-0.028}_{0}$ f7

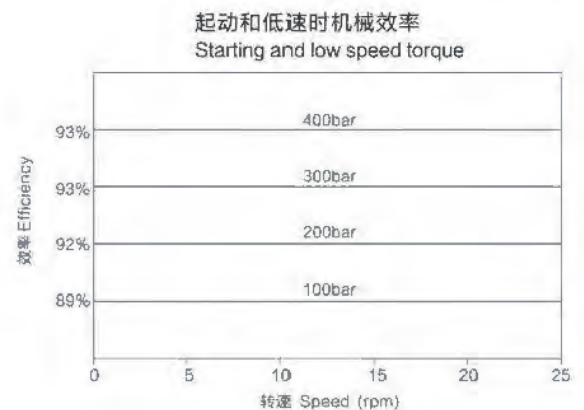
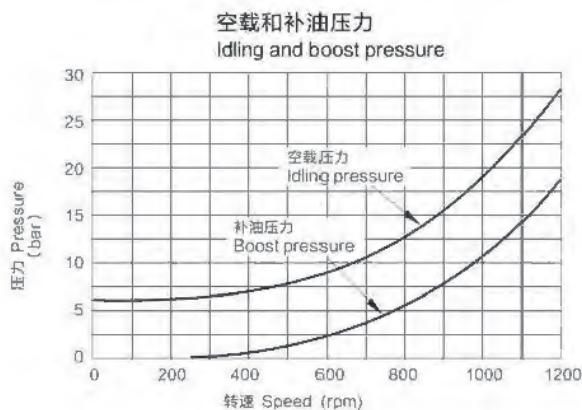
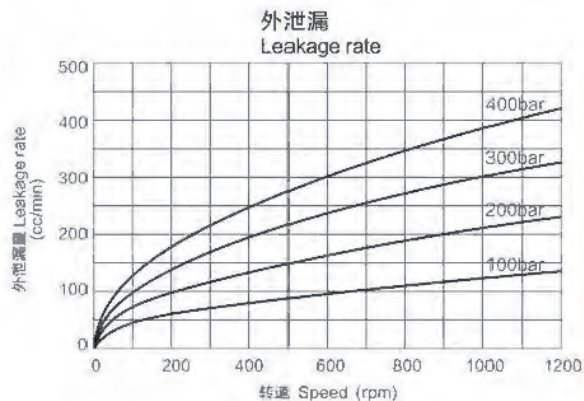
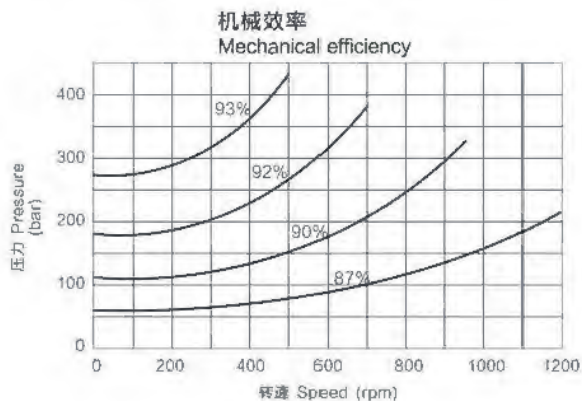
联轴器 Couplings



## 特性曲线 Performance

下列表为排量150cc的马达, 在工作液采用矿物油, 粘度40cSt, 油温50℃工作时的典型特性曲线。

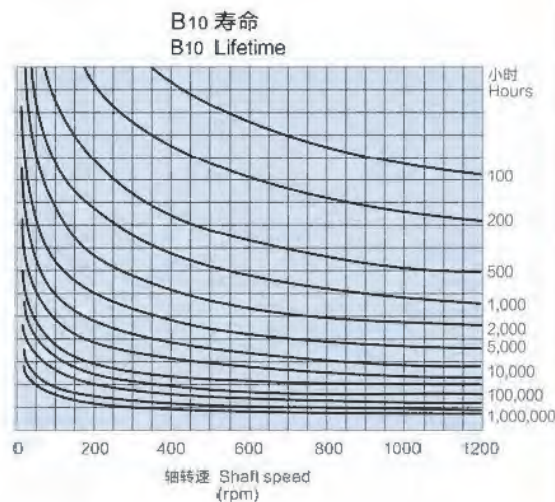
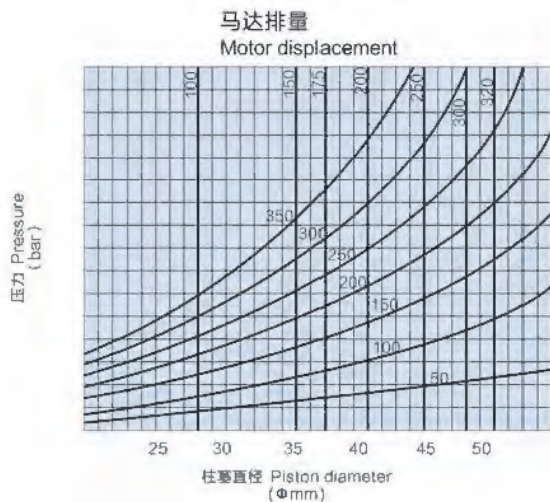
The graphs indicate the typical performance characteristics of the 150 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C



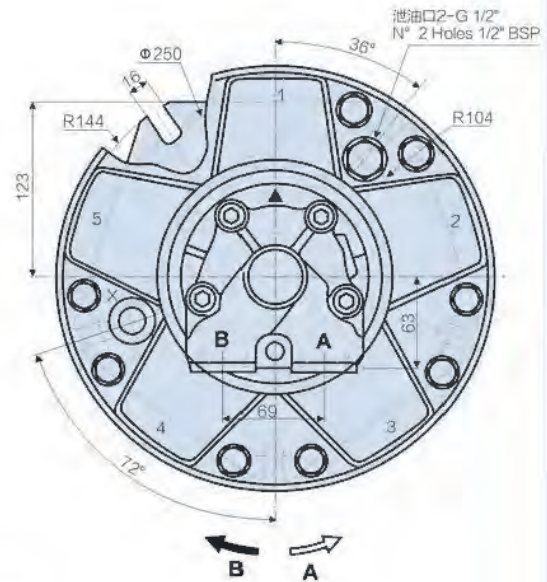
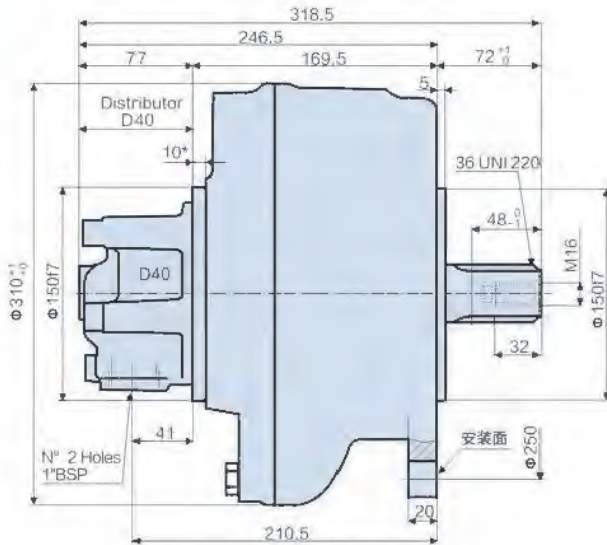
## 轴承寿命 Bearing lifetime

该图表示用配置滚柱轴承 (代号H) 的马达。注意轴承平均寿命 (B50寿命) 大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.



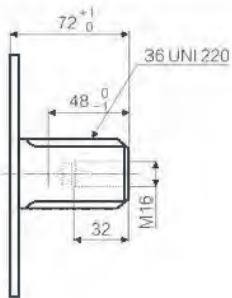
## 外形尺寸图 Contour dimension



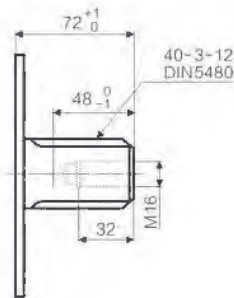
AKS2液压马达可完全替代GM2, INM2, XHS2  
AKS2 can completely replace GM2, INM2, and XHS2.

## 轴伸型式 Shaft extension type

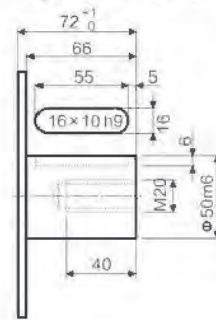
矩形外花键  
Rectangular spline



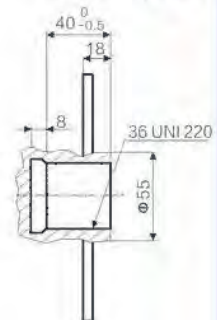
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



内花键 I  
Internal spline I

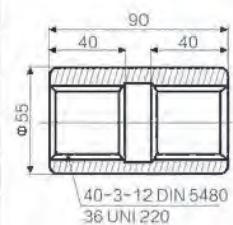


## 花键参数 Spline parameters

40-3-12 DIN5480	
d0	Φ36.0
d1	Φ40.0 $^{+0.020}_{-0.016}$ H14
d2	Φ34.0 $^{+0.016}_{-0.012}$ H11
A	5.25
da	Φ28.964 H11
d3	Φ39.4 $^{+0.016}_{-0.012}$ h11
d4	Φ33.4 $^{+0.020}_{-0.016}$ h14
B	Φ6.0
db	Φ45.989 f8

36 UNI 220 (8-36-40) DIN5462	
d1	Φ36.0 $^{+0.025}_{-0.020}$ H7
d2	Φ40.0 $^{+0.016}_{-0.012}$ H11
A	7.0 $^{+0.028}_{-0.024}$ F7
d3	Φ36.0 $^{+0.025}_{-0.020}$ g6
d4	Φ40.0 $^{+0.025}_{-0.020}$ d11
B	7.0 $^{+0.028}_{-0.024}$ F7

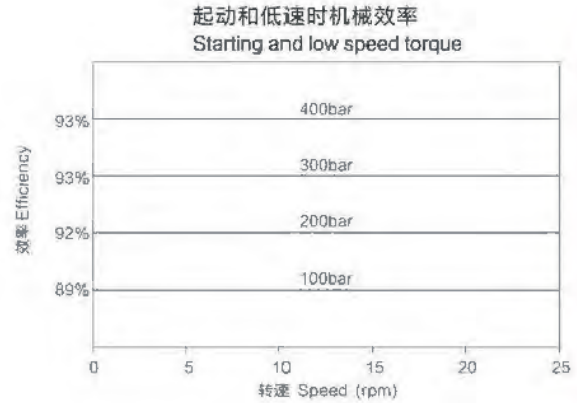
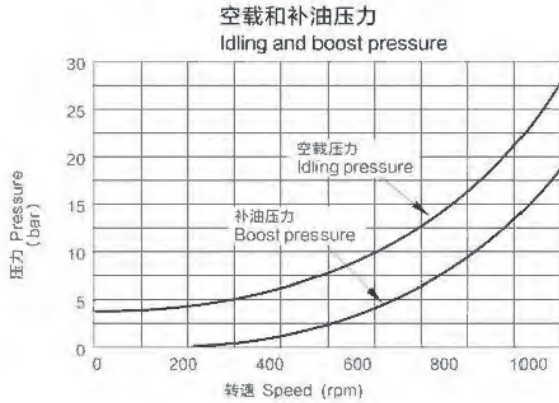
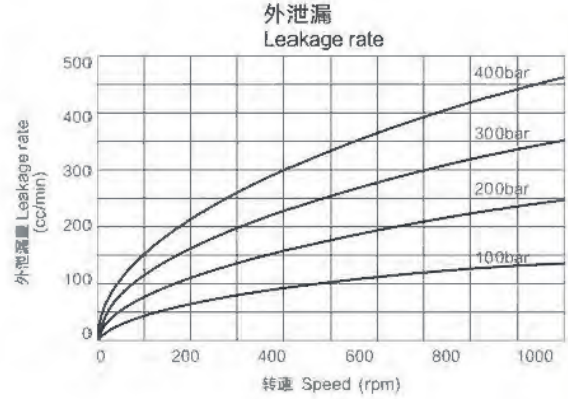
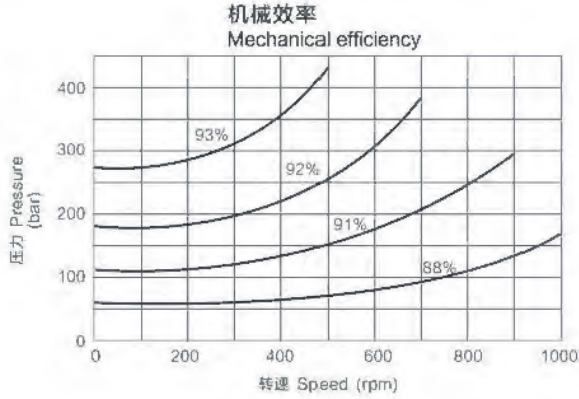
联轴器 Couplings



## 特性曲线 Performance

下列表为排量300cc的马达，在工作液采用矿物油，粘度40cSt，油温50℃工作时的典型特性曲线。

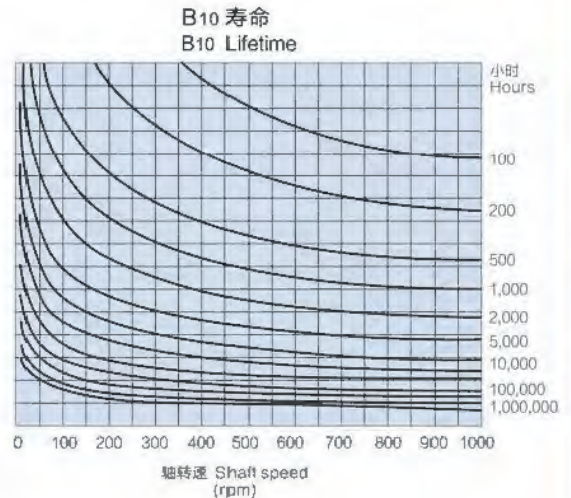
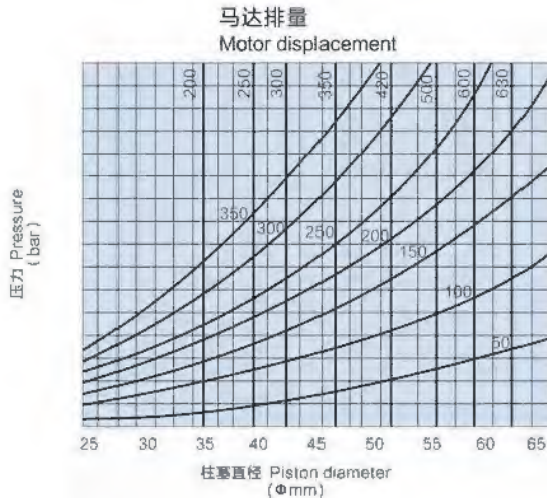
The graphs indicate the typical performance characteristics of the 300 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C.



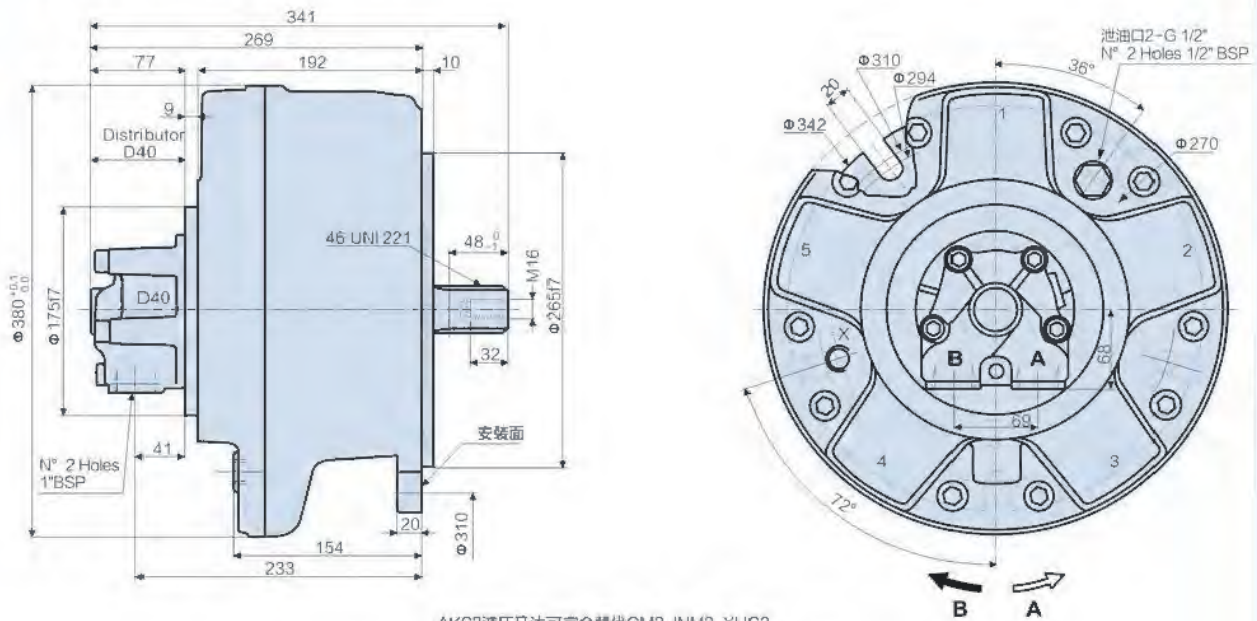
## 轴承寿命 Bearing lifetime

该图表示用配置滚柱轴承（代号H）的马达。注意轴承平均寿命（B50寿命）大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.



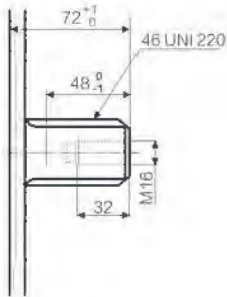
## 外形尺寸图 Contour dimension



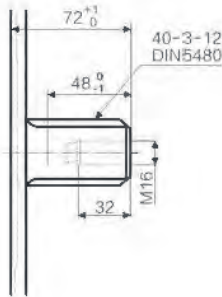
AKS3液压马达可完全替代GM3, INM3, XHS3  
AKS3 can completely replace GM3, INM3, and XHS3.

## 轴伸型式 Shaft extension type

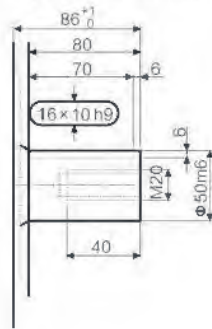
矩形外花键  
Rectangular spline



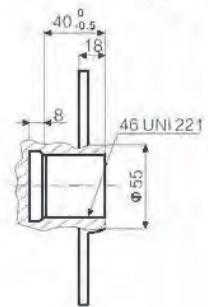
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



内花键 I  
Internal spline I

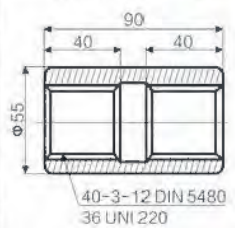


## 花键参数 Spline parameters

40-3-12 DIN5480	
d0	Φ 36.0
d1	Φ 40.0 $+0.020$ H14
d2	Φ 34.0 $+0.0160$ H11
A	Φ 5.25
da	Φ 28.964 H11
d3	Φ 39.4 $-0.160$ h11
d4	Φ 33.4 $-0.020$ h14
B	Φ 6.0
db	Φ 45.989 f8

46 UNI 220 (8-46-54) DIN5462	
d1	Φ 46.0 $+0.030$ H7
d2	Φ 54.0 $+0.190$ H11
A	9.0 $-0.028$ F7
d3	Φ 46.0 $-0.028$ g6
d4	Φ 54.0 $-0.180$ d11
B	9.0 $-0.028$ f7

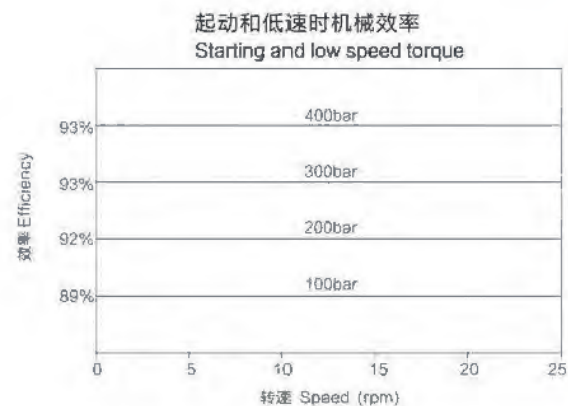
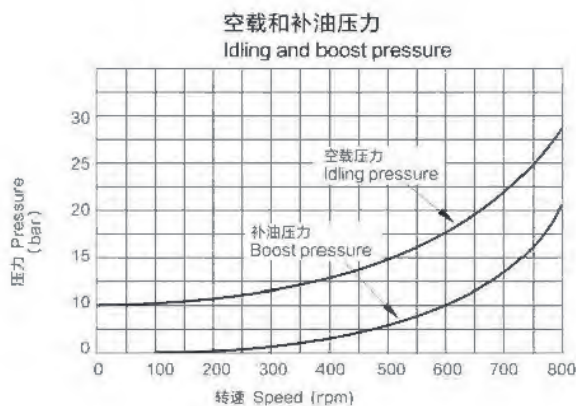
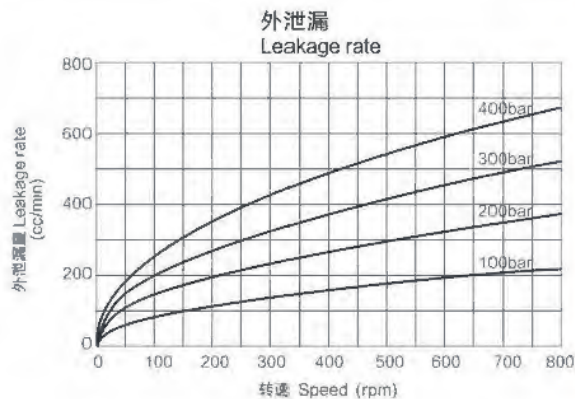
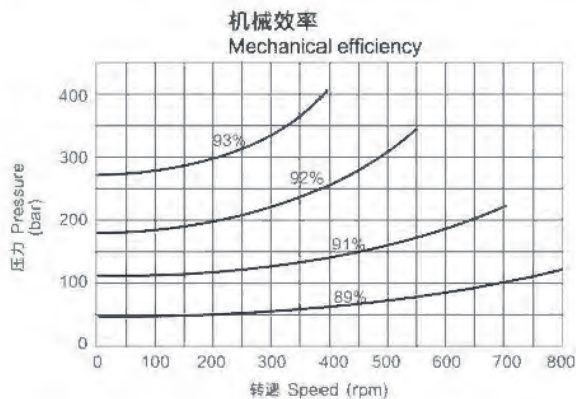
联轴器 Couplings



## 特性曲线 Performance

下列表为排量600cc的马达，在工作液采用矿物油，粘度40cSt，油温50℃工作时的典型特性曲线。

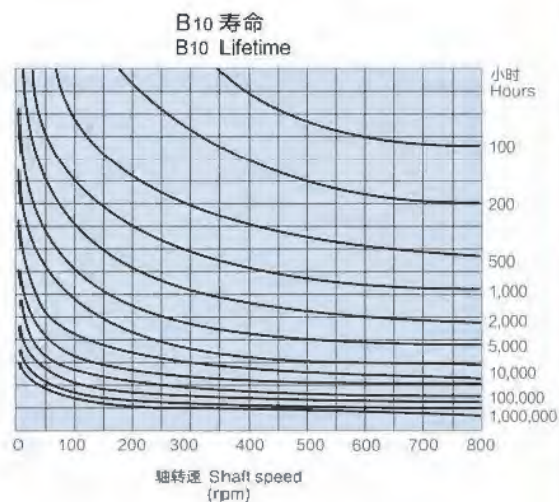
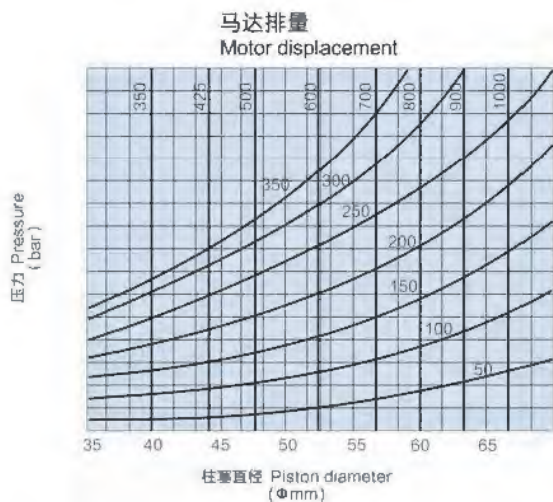
The graphs indicate the typical performance characteristics of the 600 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C



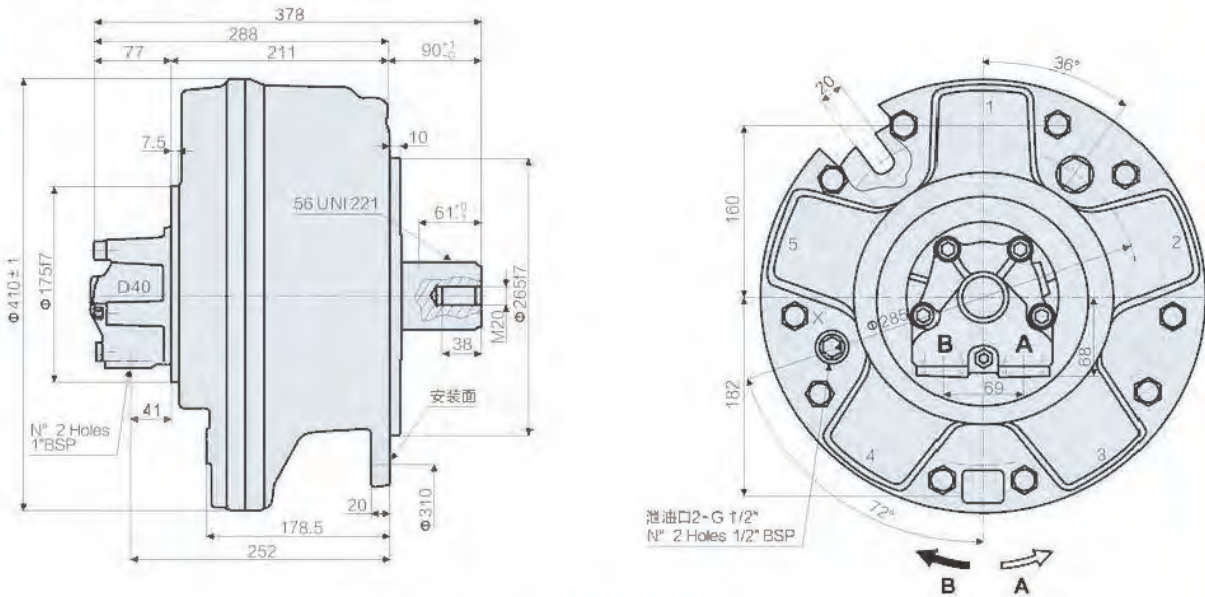
## 轴承寿命 Bearing lifetime

该图表示用配置滚柱轴承（代号H）的马达。注意轴承平均寿命（B50寿命）大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.



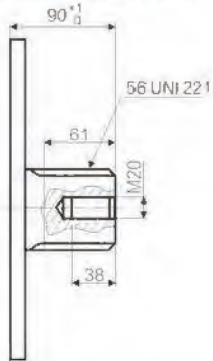
## 外形尺寸图 Contour dimension



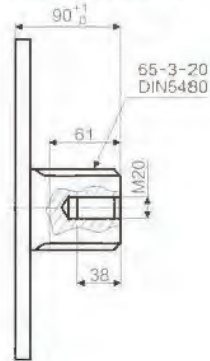
AKS4液压马达可完全替代GM4, INM4, XHS4  
AKS4 can completely replace GM4, INM4, and XHS4.

## 轴伸型式 Shaft extension type

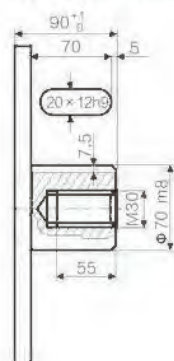
矩形外花键  
Rectangular spline



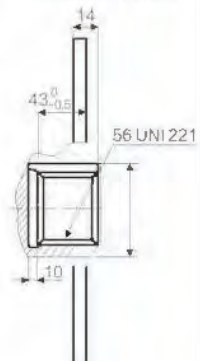
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



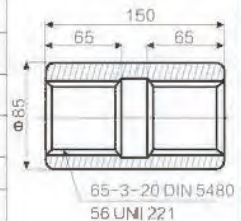
内花键 I  
Internal spline I



## 花键参数 Spline parameters

DIN	65-3-20 DIN5480	55-2-26 DIN5428	55-3-17 DIN5480	56 UNI 221(8-56-65 DIN 5428)
<b>d0</b>	Φ60.0	Φ52.0	Φ51.0	<b>d1</b> Φ56.0 $^{+0.030}_{-0.030}$ H7
<b>d1</b>	Φ65.0 $^{+0.140}_{-0.140}$ H14	Φ55.0 $^{+0.300}_{-0.300}$ H12	Φ55.0 $^{+0.140}_{-0.140}$ H14	<b>d2</b> Φ65.0 $^{+0.190}_{-0.190}$ H11
<b>d2</b>	Φ59.0 $^{+0.190}_{-0.190}$ H11	Φ50.0 $^{+0.360}_{-0.360}$ H11	Φ49.0 $^{+0.190}_{-0.190}$ H11	<b>A</b> 10.0 $^{+0.030}_{-0.030}$ F7
<b>A</b>	Φ5.25	Φ3.5	Φ5.25	<b>d3</b> Φ56 $^{+0.030}_{-0.030}$ g6
<b>da</b>	Φ54.101 H11	Φ46.902 H10	Φ43.807 H11	<b>d4</b> Φ65.0 $^{+0.190}_{-0.190}$ H11
<b>d3</b>	Φ64.4 $^{+0.190}_{-0.190}$ h11	Φ54.5 $^{+0.190}_{-0.190}$ h11	Φ54.4 $^{+0.190}_{-0.190}$ h11	<b>B</b> 10 $^{+0.030}_{-0.030}$ F7
<b>d4</b>	Φ58.4 $^{+0.140}_{-0.140}$ h14	Φ49.0 $^{+0.300}_{-0.300}$ h12	Φ48.4 $^{+0.140}_{-0.140}$ h14	
<b>B</b>	Φ6.0	Φ3.5	Φ6.0	
<b>db</b>	Φ70.999 f8	Φ56.953 e9	Φ60.873 f8	

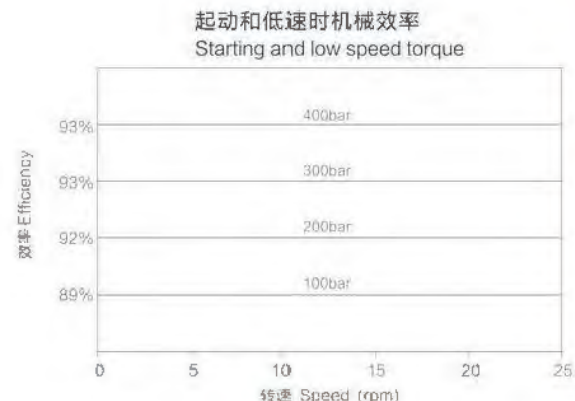
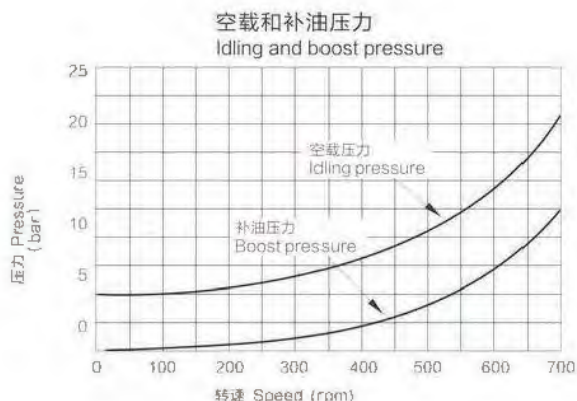
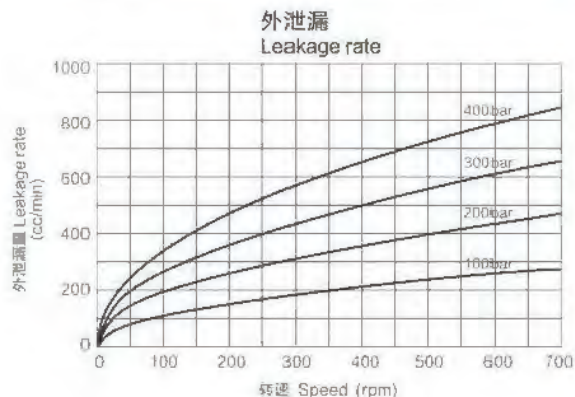
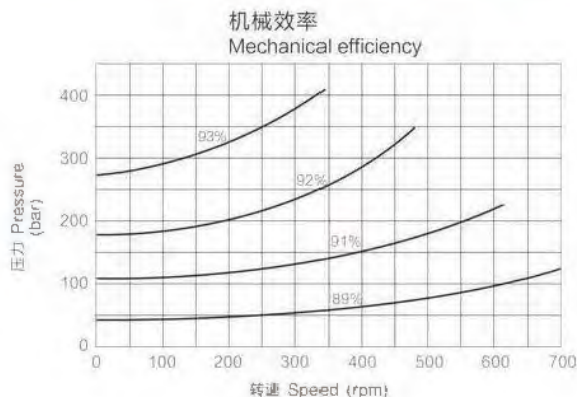
联轴器 Couplings



## 特性曲线 Performance

下列表为排量900cc的马达，在工作液采用矿物油，粘度40cSt，油温50℃工作时的典型特性曲线。

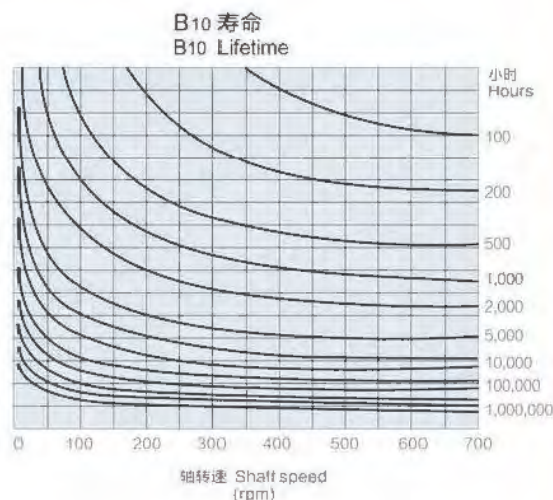
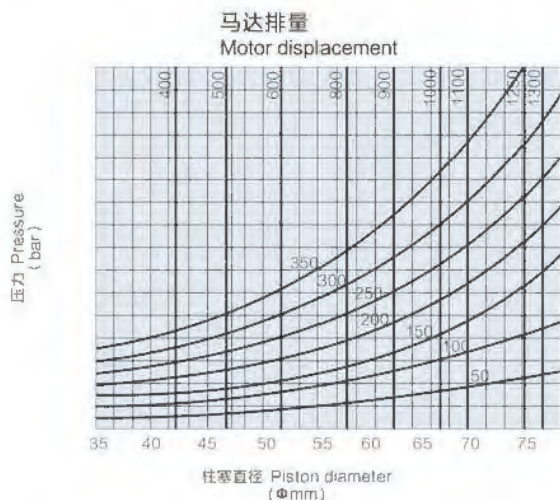
The graphs indicate the typical performance characteristics of the 900 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C



## 轴承寿命 Bearing lifetime

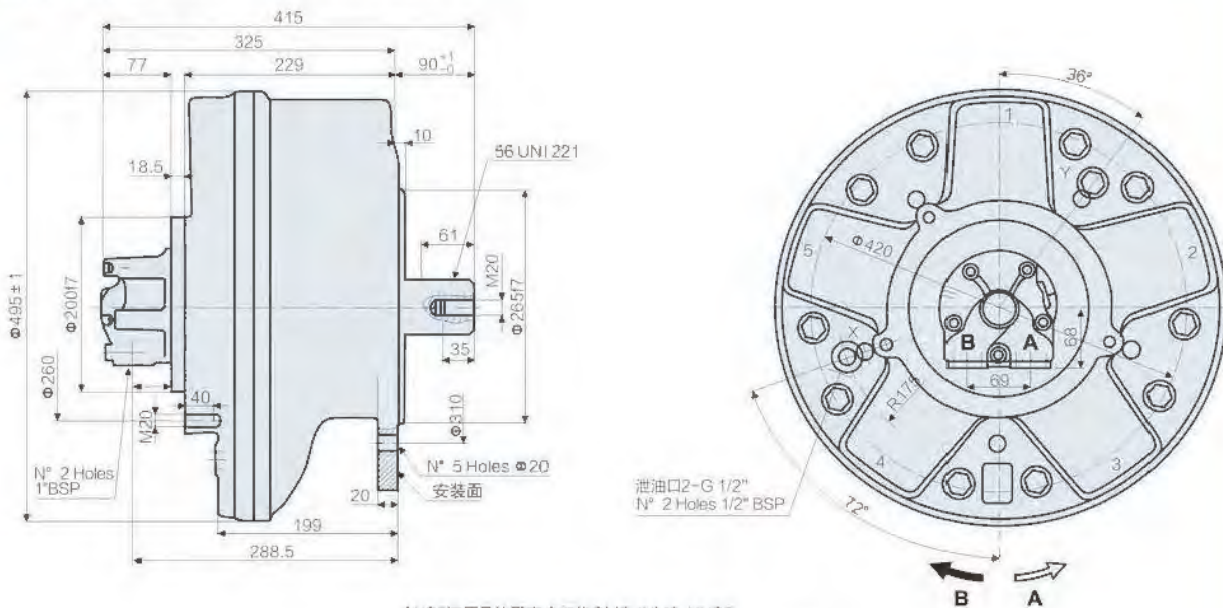
该图表示用配置滚柱轴承（代号H）的马达。注意轴承平均寿命（B50寿命）大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.



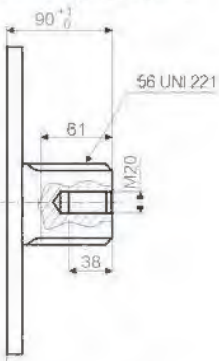


## 外形尺寸图 Contour dimension

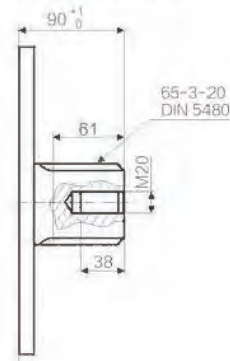


## 轴伸型式 Shaft extension type

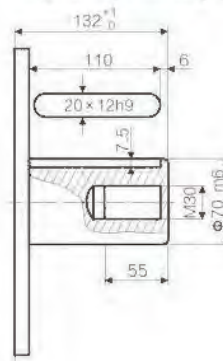
矩形外花键  
Rectangular spline



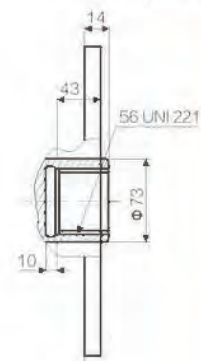
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



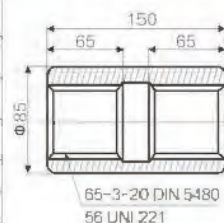
内花键 I  
Internal spline I



## 花键参数 Spline parameters

DIN	65-3-20 DIN5480	55-2-26 DIN5428	55-3-17 DIN5480	56 UNI 221(10-56-65 DIN 5428)
d0	Φ60.0	Φ52.0	Φ51.0	d1 Φ56.0 $\begin{smallmatrix} \text{H}7 \\ \text{H}7 \end{smallmatrix}$
d1	Φ65.0 $\begin{smallmatrix} \text{H}14 \\ \text{H}14 \end{smallmatrix}$	Φ55.0 $\begin{smallmatrix} \text{H}12 \\ \text{H}12 \end{smallmatrix}$	Φ55.0 $\begin{smallmatrix} \text{H}14 \\ \text{H}14 \end{smallmatrix}$	d2 Φ65.0 $\begin{smallmatrix} \text{H}11 \\ \text{H}11 \end{smallmatrix}$
d2	Φ59.0 $\begin{smallmatrix} \text{H}11 \\ \text{H}11 \end{smallmatrix}$	Φ50.0 $\begin{smallmatrix} \text{H}11 \\ \text{H}11 \end{smallmatrix}$	Φ49.0 $\begin{smallmatrix} \text{H}11 \\ \text{H}11 \end{smallmatrix}$	A 10.0 $\begin{smallmatrix} \text{F}7 \\ \text{F}7 \end{smallmatrix}$
A	Φ5.25	Φ3.5	Φ5.25	d3 Φ56 $\begin{smallmatrix} \text{g}6 \\ \text{g}6 \end{smallmatrix}$
da	Φ54.101 H11	Φ46.902 H10	Φ43.807 H11	d4 Φ65.0 $\begin{smallmatrix} \text{H}11 \\ \text{H}11 \end{smallmatrix}$
d3	Φ64.4 $\begin{smallmatrix} \text{h}11 \\ \text{h}11 \end{smallmatrix}$	Φ54.5 $\begin{smallmatrix} \text{h}11 \\ \text{h}11 \end{smallmatrix}$	Φ54.4 $\begin{smallmatrix} \text{h}11 \\ \text{h}11 \end{smallmatrix}$	B 10 $\begin{smallmatrix} \text{f}7 \\ \text{f}7 \end{smallmatrix}$
d4	Φ58.4 $\begin{smallmatrix} \text{h}14 \\ \text{h}14 \end{smallmatrix}$	Φ49.0 $\begin{smallmatrix} \text{h}12 \\ \text{h}12 \end{smallmatrix}$	Φ48.4 $\begin{smallmatrix} \text{h}14 \\ \text{h}14 \end{smallmatrix}$	
B	Φ6.0	Φ3.5	Φ6.0	
db	Φ70.999 f8	Φ56.953 e8	Φ60.873 f8	

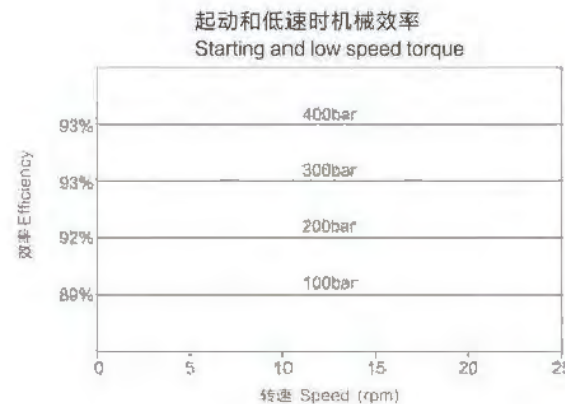
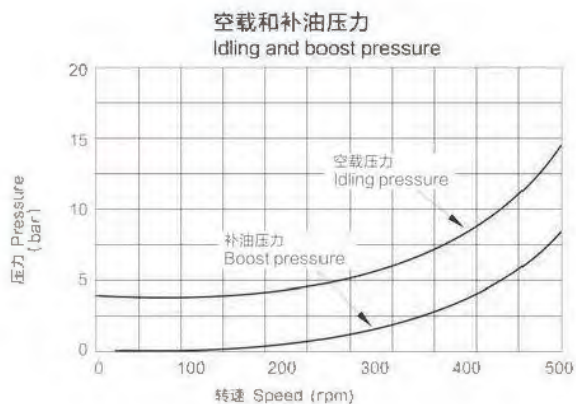
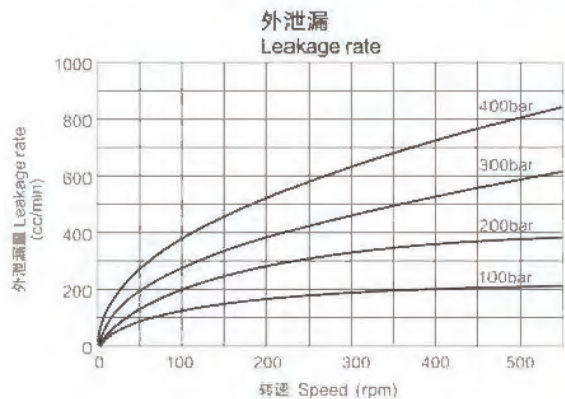
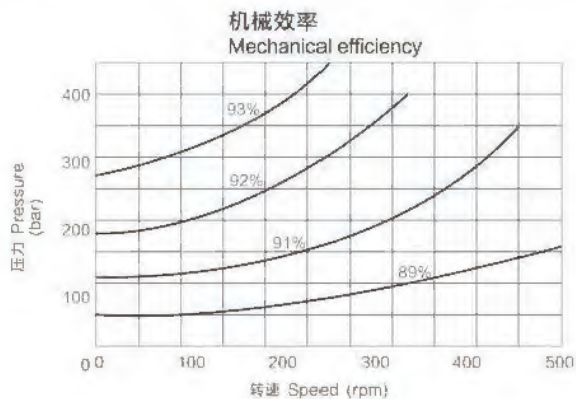
联轴器 Couplings



## 特性曲线 Performance

下列表为排量1200cc的马达，在工作液采用矿物油，粘度40cSt，油温50℃工作时的典型特性曲线。

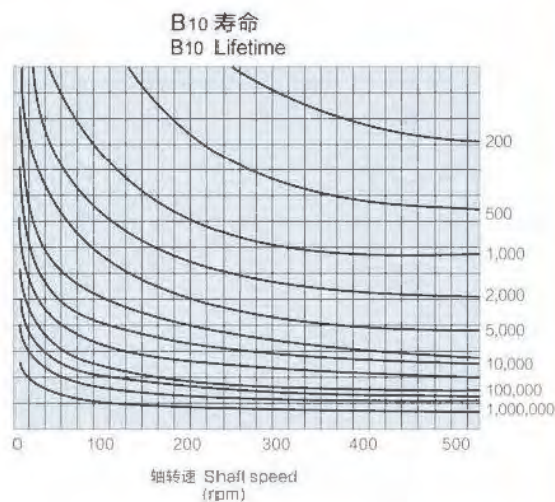
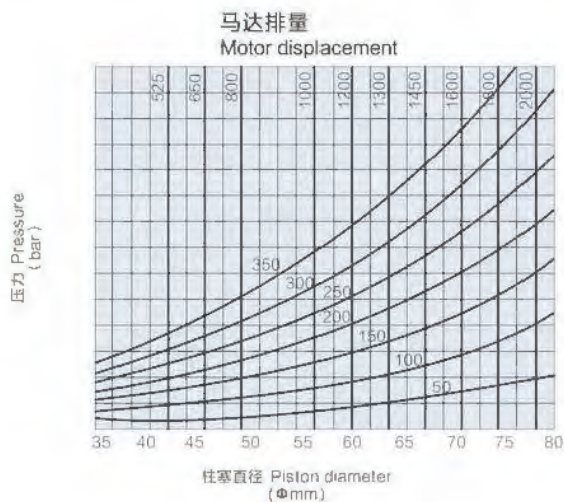
The graphs indicate the typical performance characteristics of the 1200 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C



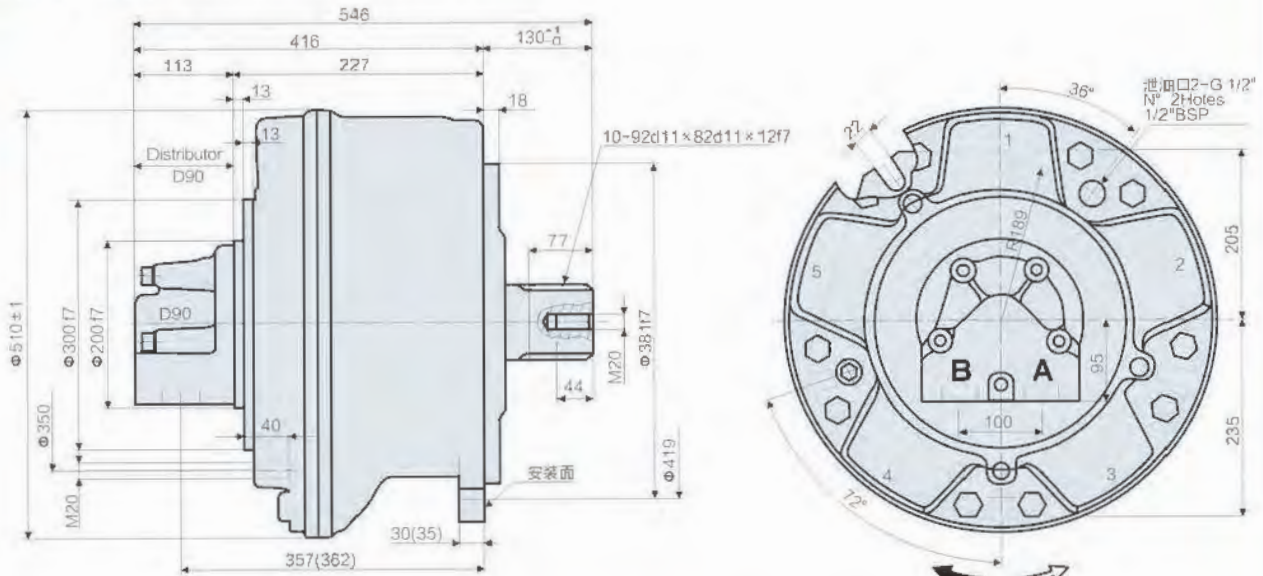
## 轴承寿命 Bearing lifetime

该图表示用配置滚柱轴承（代号H）的马达。注意轴承平均寿命（B50寿命）大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.



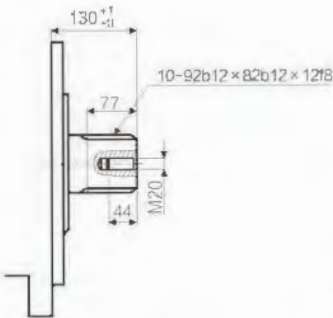
## 外形尺寸图 Contour dimension



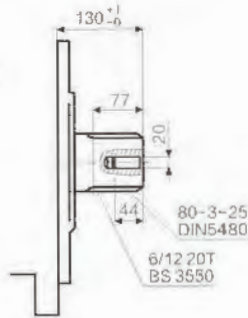
AKS6液压马达可完全替代GM6, INM6, XHS6  
AKS6 can completely replace GM6, INM6, and XHS6.

## 轴伸型式 Shaft extension type

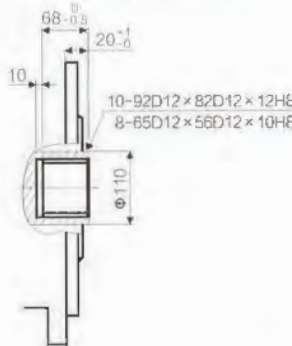
矩形外花键  
Rectangular spline



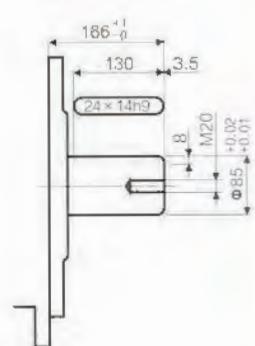
渐开线外花键 A  
Involute spline A



圆柱平键 B  
Cylindrical flat key B



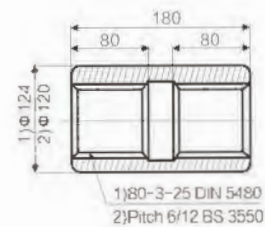
内花键 I  
Internal spline I



## 花键参数 Spline parameters

DIN	80-3-25 DIN5480	Pitch 6/12 BS3550
<b>d0</b>	Φ75.0	<b>A</b> Φ88.0
<b>d1</b>	Φ80.0 $^{+0.070}_{-0}$ H14	<b>B</b> Φ84.6 $^{+0.047}_{-0.070}$
<b>d2</b>	Φ74.0 $^{+0.190}_{-0}$ H11	<b>C</b> Φ80.0 $^{+0.080}_{-0.070}$
<b>A</b>	Φ5.25	<b>D</b> Φ97.0 $^{+0.080}_{-0.070}$
<b>da</b>	Φ68.9 H9	<b>E</b> Φ8.12
<b>d3</b>	Φ79.4 $^{+0.190}_{-0}$ h11	
<b>d4</b>	Φ73.4 $^{+0.070}_{-0.070}$ h14	
<b>B</b>	Φ6.0	
<b>db</b>	Φ85.9 f8	

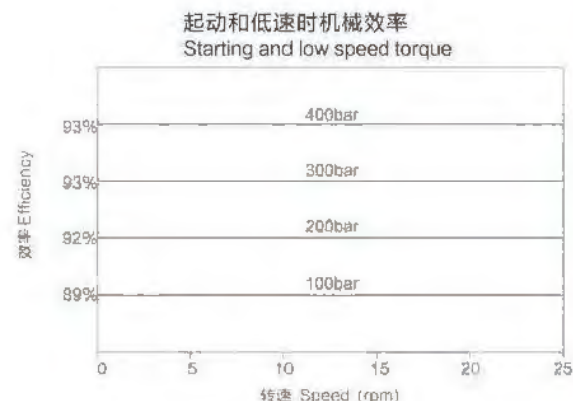
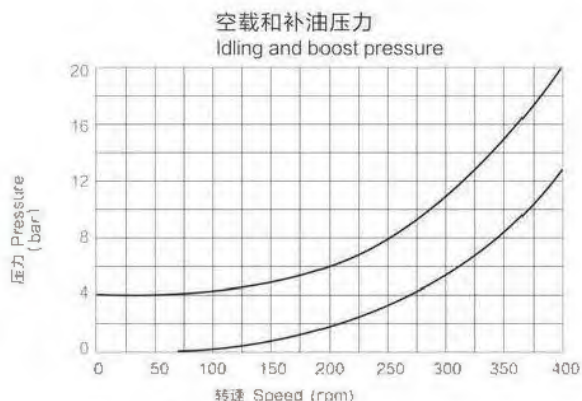
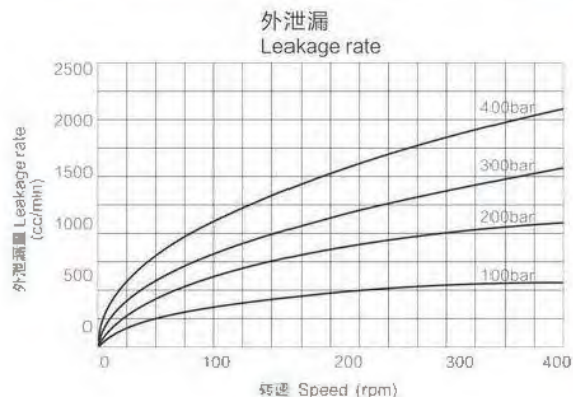
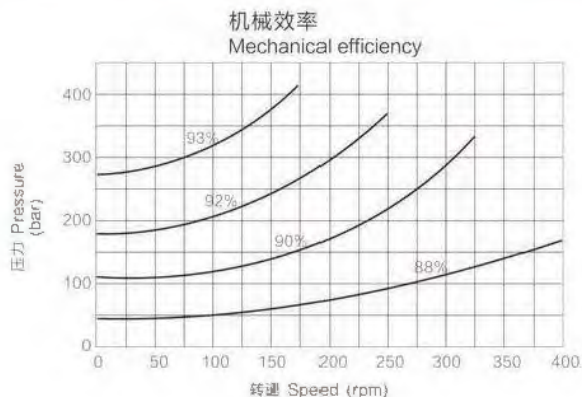
## 联轴器 Couplings



## 特性曲线 Performance

下列表为排量2500cc的马达，在工作液采用矿物油，粘度40cSt，油温50℃工作时的典型特性曲线。

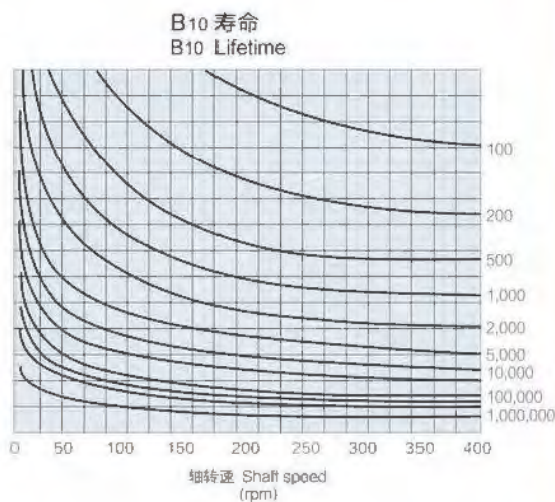
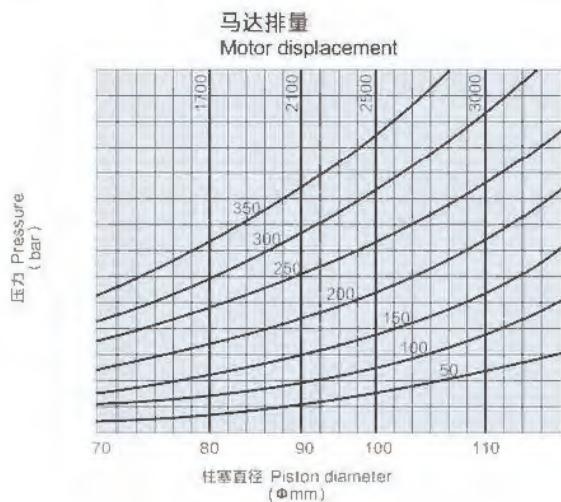
The graphs indicate the typical performance characteristics of the 2500 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C



## 轴承寿命 Bearing lifetime

该图表示用配置滚柱轴承（代号H）的马达。注意轴承平均寿命（B50寿命）大约是B10寿命的5倍。

The graph refers to the motor with the standard bearings. Note that the average lifetime of a bearing (B50 lifetime) is approximately 5 times longer than B10's.



# QJM

QJM 系列钢球液压马达

QJM sphere piston hydraulic motor



**TILOMMS**<sup>®</sup>  
泰勒姆斯

## 产品适用范围

QJM型系列液压马达可与各种油泵、阀及液压附件配套组成液压传动装置，可适应各种机器工况。该液压马达具有重量轻、体积小、调速范围大，低速稳定性好，工作可靠、耐冲击、效率高、寿命长等一系列优点。目前广泛应用于矿山建筑工程、冶金设备、石油、煤矿、船舶、地质勘探等行业。

## QJM型液压马达结构原理

QJM型系列液压马达的配油轴是与后盖刚性连接的，转子体以配油轴作径向支承，以定子球形滚道和钢球作轴向支承，转子出轴是内花键，要求工作机构传动轴与它松动配合，这样转子体是浮动的，配油轴是刚性的，故允许用钢管连结进出油口。压力油经配油轴中通道（或变速阀）分配到各通道高压腔的配油窗口进入各活塞缸孔。活塞在压力油作用下，通过钢球以正压力 $N$ 作用到定子上，定子以同值的反作用力 $N'$ 作用到钢球上。 $N'$ 可分解为径向和切向2个分力，径向力为油压力所平衡，切向力 $F$ 通过活塞作用于转子体。这样转子体在 $F$ 力的推动下绕配油轴旋转，因同一瞬间有几只活塞处于压力油的作用下，所以能产生很大扭矩。当活塞随转子体旋转到定子曲面的顶点后，活塞在定子曲面的推动下向轴心回程，将活塞缸中工作油经配油轴窗口排回低压流通，如此往复即完成将压力能转换成机械能的任务，使液压马达不断旋转。改变两个通油口的油流方向，即可使反向旋转。改变进入液压马达的流量即可改变转速，实现无级调速目的。有级变量液压马达排量的变化，是油装置在液压马达配油轴中的变速阀位置的改变来实现的。变速阀的位置可以用手动机构或先导阀来控制，（先导阀由用户自备）。

## QJM型液压马达主要特点

- 1、该型马达的滚动体用一只钢球代替了一般内曲线液压马达所用的两只以上滚轮和横梁，因而结构简单，工作可靠，体积小，重量轻；
- 2、运动付惯量小，钢球结实可靠，故该型马达可以在冲击负载下连续工作；
- 3、摩擦付少，配油轴与转子内力平衡，球塞付通过自润滑复合材料制成的球垫传力，并具有静压平衡和良好润滑条件，采用自动补偿磨损的软性塑料活塞环密封高压油，因而具有较高的机械和容积效率，能在很低的转速下稳定运转，起动力矩较大；
- 4、因结构具有的特点，该马达所需回油背压较低，一般需0.3-0.8Mpa，转速越高，背压应越大；
- 5、该型马达具二级和三级变量，因而具有较大的调速范围。
- 6、结构简单，拆修方便，对油液清洁度无特殊要求，油液的过滤精度可按配套油泵的要求选定。

## Product overview

QJM series hydraulic motor can constitute hydraulic transmission device with different oil pumps, valves and hydraulic parts, which can meet the requirements on all conditions. QJM hydraulic motor has the characteristics of light weight, small volume, wide speed regulation range, perfect stability performance at low speed, tolerance of stamping, high efficiency, long lifetime, etc. Now it is widely used in constructional engineering, metallurgical equipment, petroleum, coal mine, ship, geological prospecting, etc.

## QJM series hydraulic motor's structure principle

QJM hydraulic motor's oil distribution shaft is rigid connected with rear cover, rotor block uses oil distribution shaft as radial support, uses stator spherical rollaway nest and steel ball as axial support. Rotor's output shaft is internal spline, rotor block is floating, oil distribution shaft is rigid, so it permits to use steel pipe connection in and out of oil mouth. Pressure oil is assigned to the distribution port of each channel's high pressure chamber by the variable valves, and then the pressure oil will flow into each piston cylinder hole. Under the effect of pressure oil, the piston uses the ball with positive pressure  $N$  to effect on the stator. And the stator uses the same value number of reaction force  $N'$  to effect on the steel ball.  $N'$  can be divided into two component force radial and tangential. Tangential force  $F$  uses the piston to effect on the rotor block. Driven by the tangential force  $F$ , the rotor block rotates around the oil distribution shaft. As at the same moment, there is a few piston under the pressure oil effect, so it can produce large torque.

## QJM series hydraulic motor main characteristics

1. Because the rolling body of this motor is replaces by a steel ball rather than two or more rollers and beams. Therefore, QJM series hydraulic motor has such features as: simple structure, reliable performance, small volume and light weight.
2. Small kinematics' pair inertia and hard steel ball make this motor continuously work under the strong impact load.
3. QJM series hydraulic motor has higher mechanical and volumetric efficiency. It can operate stably at low speed, and it has large starting torque.
4. Because of the characteristics of the structure, this motor's requirement of oil return backpressure is lower, general need is 0.3-0.8 Mpa, the higher the speed, the greater the backpressure.
5. As this model has variable displacements dual and trinal speeds, it has greater speed range.
6. Simple structure and easy maintenance. It has no special requirement for the cleanliness of the oil. And the oil filtration precision can be selected according to the requirement of the matching oil pump.

## 如何合理选型

- 1、同一基型编号的液压马达，压力等级有3种，其额定压力分别为10、16、20Mpa，如何合理选择一种比较适合主机工况的型号呢？首先应考虑提高传动效率，对传动功率小，转速低、扭矩大的工况，此时影响传动总效率的主要因素是容积效率，对传动功率相同的液压装置，降低系统工作压力能提高容积效率，因此这时应选择用额定压力为10Mpa的型号，同时实际工作压力还应选得低些，当传动功率越小，转速越低时工作压力越低越有利。相反对传动功率大，转速较高的工况，此时影响传动总效率的主要因素是机械效率，因此这是应选用额定压力为16或20Mpa的型号。其次对于有低速稳定性要求的工况，选型中应注意液压马达排量越大，低速稳定性越好，它还与工作压力有关，工作压力越低低速稳定性越好。
- 2、排量相同的几个不同基型的液压马达，如何选择一种合理的型号呢？这与使用工况和使用寿命要求有关，对于短期间隙运转，整个大修期间累计工作时间较短的机械，可以选用基型号编号较小的型号，而对于每天累计运转时间长，使用寿命又要求较长的机械，应尽可能选用基型编号较大的型号，必要时应选用高压的型号，但在较低的压力条件下使用，此时能显著提高使用寿命，因为QJM型液压马达的使用寿命与使用压力成3.3次方反比，也就是使用压力降低一半，寿命可提高10倍。

### 3、设计中用到的几个计算公式：

#### (1)液压马达实际输出扭矩：

$$M=159(P_1-P_2) \cdot q \cdot \eta_m \quad (N \cdot m)$$

式中：P1, P2分别为液压马达的入口和出口压力(Mpa)

$\eta$ ， 液压马达转速 (r/min)

Q, 液压马达流量 (L/rev)

$\eta_m$ , 液压马达机械效率

$\eta_v$ , 液压马达容积效率

#### (2)液压马达输出功率：

$$N = \frac{M \cdot \eta}{9550} \quad \eta_m \cdot \eta_v \quad (KW) \quad N = \frac{Q(P_1-P_2)}{60} \eta_m \cdot \eta_v \quad (KW)$$

式中：P1, P2分别为液压马达的入口和出口压力(Mpa)

Q, 液压马达排量 (L/rev)

$\eta_m$ , 液压马达机械效率

#### (3)液压马达转速：

$$N = \frac{Q}{q} \eta_v \quad (r/min)$$

## How to select model reasonably?

1. The same basic type number hydraulic motor's pressure rating have three types, and there are 10, 16, 20 Mpa. How to reasonably choose a model is more suitable to the host condition? First of all is to consider to improve the transmission efficiency. For the small transmission power, low speed and high torque working conditions, to influence the total transmission efficiency's major factor is volume efficiency. For the same transmission power of hydraulic devices, to reduce the system's working pressure can improve volume efficiency, therefore, to choose the model of 10 Mpa rated pressure to use is reasonable. And the practical working pressure should choose smaller. When the transmission power is smaller and the speed is slower, the working pressure is the lower the better. Instead, for the big transmission power and high speed working conditions, to influence the total transmission efficiency's major factor is mechanical efficiency. Therefore, to choose the model of 16 or 20 Mpa rated pressure to use is reasonable. Secondly, for the working condition of low speed stability requirements, please pay attention to the motor's displacement in selection model, the displacement the bigger, the stability at low speed the better. It is also relevant to the working pressure, the working pressure the smaller, the stability at low speed the better.

2. The hydraulic motor of the same displacement and the different basic type. How to choose a reasonable model? It is relevant to the using working conditions and service life. For the short period clearance running and the shorter cumulative working hours of machinery in the overhaul period, can choose the model whose basic type number is smaller. However, for the machinery of long time cumulative running and the long life requirement, should choose the basic type number as bigger as possible. When necessary, should choose high pressure model. But use under the low pressure conditions, it can remarkably improve the service life. Because QJM series hydraulic motor's service life is 3.3 power inversely proportional to the using pressure. That is to say to reduce a half of using pressure, the life can enhance ten times.

### 3. several calculation formulas used in the design:

#### (1) hydraulic motor actual output torque:

$$M=159(P_1-P_2) \cdot q \cdot \eta_m \quad (N \cdot m)$$

in the formula: P1---- hydraulic motor's inlet pressure (Mpa)

P2---- hydraulic motor's exit pressure (Mpa)

$\eta$ ---- rotate speed of hydraulic motor ( r/min )

Q ---- the flow of the hydraulic motors ( L/rev )

$\eta_m$ ---- hydraulic motor's mechanical efficiency

$\eta_v$ ----hydraulic motor volume efficiency

#### (2) Out put power of hydraulic motor:

in the formula: P1---- hydraulic motor's inlet pressure (Mpa)

P2---- hydraulic motor's exit pressure (Mpa)

Q----displacement of hydraulic motor (L/rev)

$\eta_m$ ----hydraulic motor's mechanical efficiency

#### (3) Rotate speed of hydraulic motor

$$N = \frac{Q}{q} \eta_v \quad (r/min)$$

## 型号说明 Description of model

QJM	—	—	—	—	—
<p>无字母表示标准型 Z*表示带支承, 注脚数字表示种类 Ze表示转动轴轴承外置式 T*表示通孔, 注脚数字表示通孔直径 B表示带通油板 S表示带自控式制动器 Se表示带外控式制动器矩形花键孔输出 SeZ表示带外控式制动器, 平键轴输出 SeZH表示带外控式制动器矩形花键轴输出 F表示带阀组 A表示花键尺寸与本系列马达的花键尺寸不同</p> <p>No code ----standard model Z*----motor with bearing; *----mode Ze----external bearing of axis of rotation T*----motor with through-hole; *----diameter B----motor with oil passing flange S----motor with brake Se----out control brake Rectangular spline hole output SeZ----out control brake, flat key shaft output SeZH---- out control brake rectangular spline shaft output F----with valve block A----the spline size is diferent from this series</p>					
<p>排量 ( L/rev ) Displacement</p>					
<p>基型编号, 相同基型主要外形尺寸和主要零件相同 Basic type number, all the coupling dimensions with the same base number are the same.</p>					
<p>径向钢球液压马达 Sphere piston hydraulic motor</p>					
<p>变量控制方式: FS表示滑阀手动, LS表示螺杆手动, 无符号表示液控 Variable control mode: FS----manual control with spool valve LS---- manual control with screw No code----hydraulic control</p>					
<p>1表示定量, 2表示2级变量 1----fixed displacement; 2----variable displacement dual speeds</p>					

## 型号说明举例 Example of model selection

2FS QJM21-0.63SZ 表示双速手动滑阀控制变量的径向轴转球塞液压马达, 基型为21系列, 排量0.63L/rev, 带自控式制动器, 带支承型, 平键轴输出。

2FS QJM21-0.63SZ---- double speed manual valve control with variables sphere piston hydraulic motor, basic type is 21 series, displacement is 0.63L/rev, with brake, bearing, flat key shaft output.

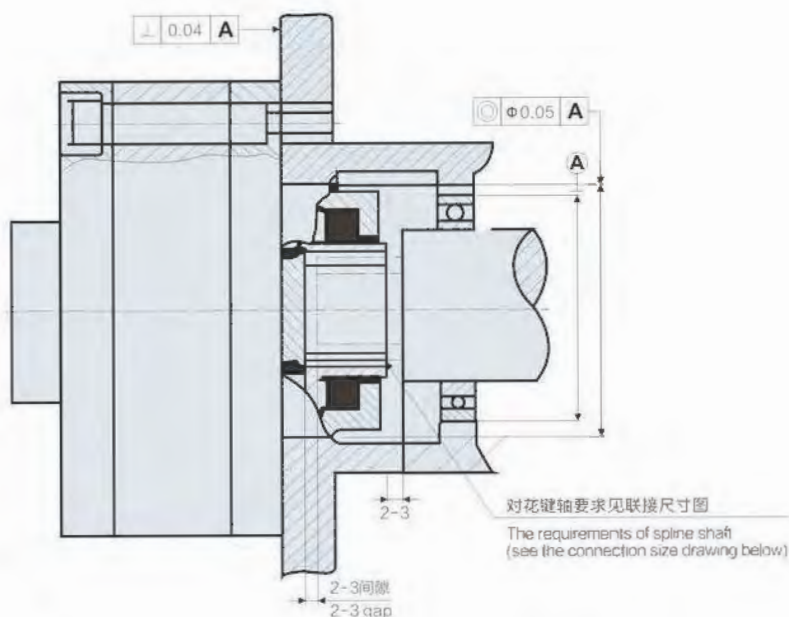


## 1QJM\*\*——\*\*型安装联接要求

- 1、各型液压马达均允许在任何方向上安装使用。
- 2、因QJM液压马达转子呈浮动状态，故安装时花键连接必须留轴向空隙 2-3 毫米，以保证转子体可以在轴向上自由窜动（见下图），并且液压马达花键孔与工作机构花键轴必须对中，并保证两者松动配合。对花键处和安装定位机座的技术要求见图。
- 3、液压马达在机器中安装并连接好管路后，应用手或扳手动液马达，此时转子应灵活，不得有卡住或重轻现象。
- 4、因配油与定子刚性连接，故该型马达进出油管允许用钢管连接。
- 5、泄漏油管：
  - (1) 泄漏油管的最高位置或油箱的油液高度应高于马达壳体的最高水平位置，以防马达壳体内部的油液排空。
  - (2) 泄漏油管路及接头的孔径一般应大于  $\Phi 12$ ，并必须直接与油箱接通，不允许与主回路路连通（若需过滤应单独用粗滤油器），使壳体内压力不超过 0.5Mpa，若有特殊要求应与我公司联系，协商解决。
- 6、严格保证联接油口的清洁度，防止任何固体异物进入。

## 1QJM\*\*-----\*\*Installation Requirement

1. All kinds of hydraulic motor can be installed and used in any direction.
2. As the rotor of QJM motor is in floating status, 2-3 mm distance should be left before connecting the spline to ensure the unrestricted movement of rotor in the shaft direction. (as shown in drawing). The splined hole of motor and the splined shaft of operating mechanism should be aligned and kept in loose coordination. For technical requirements on the spline and locating seat, see the following drawing.
3. After mounting the hydraulic motor in the machine and connecting the pipeline, turn the motor by hand or a spanner. The rotor should be flexible and free from block or unbalance.
4. As the oil feed shaft and stator are in rigid connection, the oil pipeline of this model can be connected with steel pipe.
5. leakage oil pipe
  - (1) The top line of the drain pipe should be higher than that of the motor body, in case emptying oil storage.
  - (2) The bore diameter of the leakage oil pipe and the joint should be generally bigger than  $\Phi 12$ . The pipe can be directly connected to the oil tank. If filtrated, please use separate strained oil filter. The pressure of inner shell should not exceed 0.5 Mpa. If you have special requirements, please contact with us.
6. Strictly maintain the cleanness of the oil port, and keep away any solid particles away.



## 1QJM\*\*--\*\*型液压马达技术参数 1QJM\*\*--\*\* series technical data

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	最大功率 Max. power (Kw)
1QJM001-0.08	0.083	10	16	8-500	123	5
1QJM001-0.10	0.104	10	16	8-400	154	5
1QJM002-0.2	0.2	10	16	8-320	295	8
1QJM01-0.1	0.10	10	16	8-800	148	10
1QJM01-0.16	0.163	10	16	8-630	241	12.5
1QJM01-0.2	0.203	10	16	8-500	300	12.5
1QJM02-0.32	0.326	10	16	5-400	483	13
1QJM02-0.4	0.406	10	16	5-320	600	13
1QJM11-0.32	0.339	10	16	5-400	468	20
1QJM11-0.4	0.404	10	16	5-400	598	20
1QJM11-0.5	0.496	10	16	5-320	734	20
1QJM11-0.63	0.664	10	16	4-250	983	20
1QJM12-0.8	0.8	10	16	4-250	1170	25
1QJM12-1.0	1.0	10	16	4-200	1480	25
1QJM12-1.25	1.33	10	16	2-160	1968	25
1QJM21-0.4	0.404	16	25	2-400	957	32
1QJM21-0.5	0.496	16	31.5	2-320	1175	32
1QJM21-0.63	0.664	16	31.5	2-250	1572	32
1QJM21-0.8	0.808	16	25	2-200	1913	32
1QJM21-1.0	1.01	10	16	2-160	1495	25
1QJM21-1.25	1.354	10	16	2-125	2004	25
1QJM21-1.6	1.65	10	16	2-100	2442	25
1QJM32-0.63	0.635	20	31.5	3-500	1880	80
1QJM32-0.8	0.808	20	31.5	3-500	2368	80
1QJM32-1.0	1.06	20	31.5	2-400	3138	80
1QJM32-1.25	1.295	20	31.5	2-320	3833	80
1QJM32-1.6	1.649	20	31.5	2-250	4881	80
1QJM32-2.0	2.03	16	25	2-200	4807	80
1QJM32-2.5	2.71	10	16	1-160	4011	62
1QJM32-3.2	3.2	10	16	1-125	4884	62
1QJM32-4.0	4.0	10	16	1-100	5920	62
1QJM42-2.0	2.11	20	31.5	1-320	6246	105
1QJM42-2.5	2.56	20	31.5	1-250	7578	105
1QJM42-3.2	3.24	10	16	1-200	4850	90
1QJM42-4.0	4.0	10	16	1-160	5920	90
1QJM42-4.5	4.6	10	16	1-125	6808	90
1QJM52-2.5	2.67	20	31.5	1-320	7903	130
1QJM52-3.2	3.24	20	31.5	1-250	9590	130
1QJM52-4.0	4.0	16	25	1-200	9472	130
1QJM52-5.0	5.23	10	16	1-160	7740	120
1QJM52-6.3	6.36	10	16	1-125	9413	120
1QJM62-4.0	4.0	20	31.5	0.5-150	11840	150
1QJM62-5.0	5.18	20	31.5	0.5-125	15333	150
1QJM62-6.3	6.27	16	25	0.5-125	14847	150
1QJM62-8.0	7.85	10	16	0.5-100	11618	121
1QJM62-10	10.15	10	16	0.5-80	15022	121

注: 各型带支承和带阀组液压马达其技术参数与上表中对应的标准型液压马达技术参数相同。

Note: The technical data of the QJM series hydraulic motor with bearing or valve group is the same as the standard type hydraulic motor's in the table above.

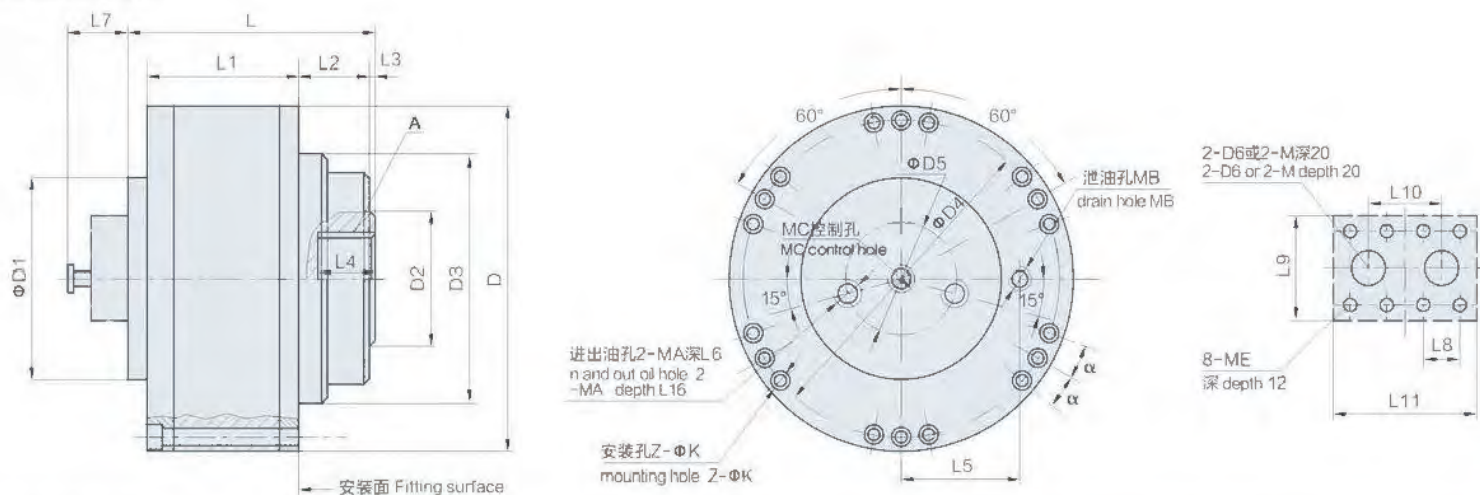
## 2QJM\*\*--\*\*型液压马达技术参数 2QJM\*\*--\*\* series technical data

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	最大功率 Max. power (Kw)
2QJM02-0.32	0.322 / 0.16	10	16	5-400	484 / 242	13
2QJM02-0.4	0.406 / 0.203	10	16	5-320	600 / 300	13
2QJM11-0.4	0.404 / 0.202	10	16	5-400	598 / 299	20
2QJM11-0.5	0.496 / 0.248	10	16	5-320	734 / 367	20
2QJM11-0.63	0.664 / 0.332	10	16	4-250	938 / 492	20
2QJM12-0.8	0.80 / 0.40	10	16	4-250	1170 / 585	25
2QJM12-1.0	1.0 / 0.5	10	16	4-200	1478 / 739	25
2QJM12-1.25	1.25 / 0.63	10	16	4-160	1870 / 935	25
2QJM21-0.32	0.317 / 0.1585	16	25	2-250	751 / 376	32
2QJM21-0.5	0.496 / 0.248	16	25	2-320	1175 / 588	32
2QJM21-0.63	0.664 / 0.332	16	25	2-250	1572 / 786	32
2QJM21-1.0	1.01 / 0.505	10	16	2-160	1495 / 748	25
2QJM21-1.25	1.354 / 0.677	10	16	2-125	2004 / 1002	25
2QJM21-1.6	1.65 / 0.825	10	16	2-100	2442 / 1221	25
2QJM32-0.63	0.635 / 0.318	20	31.5	3-500	1880 / 940	80
2QJM32-1.0	1.06 / 0.53	20	31.5	2-400	3138 / 1519	80
2QJM32-1.25	1.295 / 0.648	20	31.5	2-320	3833 / 1917	80
2QJM32-1.6	1.649 / 0.825	20	31.5	2-250	4881 / 2441	80
2QJM32-2.0	2.03 / 1.015	16	25	2-250	4807 / 2404	80
2QJM32-2.5	2.71 / 1.355	10	16	1-160	4011 / 2006	62
2QJM32-3.2	3.3 / 1.65	10	16	1-125	4844 / 2442	62
2QJM32-4.0	4.0 / 2.0	10	16	1-100	5920 / 2960	62
2QJM42-2.0	2.11 / 1.055	20	31.5	1-320	6246 / 3123	105
2QJM42-2.5	2.56 / 1.28	20	31.5	1-250	7578 / 3789	105
2QJM42-3.2	3.24 / 1.62	10	16	1-200	4850 / 2425	90
2QJM42-4.0	4.0 / 2.0	10	16	1-160	5920 / 2960	90
2QJM42-4.5	4.6 / 2.3	10	16	1-125	6808 / 3404	90
2QJM52-2.5	2.67 / 1.335	20	31.5	1-320	7903 / 3952	130
2QJM52-3.2	3.24 / 1.62	20	31.5	1-250	9590 / 4795	130
2QJM52-4.0	4.0 / 2.0	16	25	1-200	9472 / 4736	130
2QJM52-5.0	5.23 / 2.615	10	16	1-160	7740 / 3870	120
2QJM52-6.3	6.36 / 3.18	10	16	1-125	9413 / 4707	120
2QJM62-4.0	4.0 / 2.0	20	31.5	0.5-200	11840 / 5920	150
2QJM62-5.0	5.18 / 2.59	20	31.5	0.5-160	15333 / 7667	150
2QJM62-6.3	6.27 / 3.135	16	25	0.5-125	14847 / 7424	121
2QJM62-8.0	7.85 / 3.925	10	16	0.5-100	11618 / 5809	121
2QJM62-10	10.15 / 5.075	10	16	0.5-80	15022 / 7511	121
3QJM32-1.25	1.295 / 0.648 / 0.324	20	31.5	2-320	3833 / 1917 / 959	80
3QJM32-1.6	1.649 / 0.825 / 0.413	20	31.5	2-250	4881 / 2441 / 1221	80

注: 各型带支承和带阀组变量液压马达具技术参数与上表中对应的液压马达技术参数相同。

Note: The technical data of the QJM variable hydraulic motors with bearing and valve group is the same as the hydraulic motor's in the table above.

外形安装图 Installation



型号 Model	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	D	D1	D2	D3	D4	Z-ΦK	D5	D6	MA	MB	MC	ME	α	A	重量 Weight (kg)	
1QJM001-**	101	58	38	5	20	43	20	37	-	37	35	63	Φ140	-	Φ60	Φ110g6	Φ128	12-Φ6.5	-	M18×1.5	-	M12×1.5	-	-	10°	6-48H11×42H11×12D9	7	
1QJM01-**	130	80	37	3	30	62	20	-	-	-	-	-	Φ180	Φ105	Φ70	Φ130g7	Φ165	12-Φ9	Φ58	-	M27×2	M14×1.5	-	-	10°	6-48H11×42H11×12D9	15	
1QJM02-**	162	99	38	3	34	62	20	-	-	-	-	-	Φ180	Φ105	Φ70	Φ130g7	Φ165	12-Φ9	Φ58	-	M27×2	M14×1.5	-	-	10°	6-48H11×42H11×12D9	24	
1/2 QJM11-**	132	82	33	3	32	87	18	-	-	-	-	-	Φ240	Φ150	Φ110	Φ160g7	Φ220	12-Φ11	Φ69	-	M33×2	M16×1.5	M12×1.5	-	10°	6-70H11×62H11×16D9	28	
1QJM11-**A	134	82	25	11	38	87	18	-	-	-	-	-	Φ240	Φ150	Φ60	Φ200g7	Φ220	12-Φ11	Φ69	-	M33×2	M16×1.5	-	-	10°	8-42H11×36H11×7D9	28	
1/2 QJM12-**	165	123	33	2	39	84	20	-	-	-	-	-	Φ240	Φ150	Φ110	Φ160g7	Φ220	12-Φ11	Φ69	-	M33×2	M16×1.5	M12×1.5	-	10°	6-90H11×80H11×20D9	39	
1/2 QJM21-**	168	99	29	14	38	100	20	-	-	-	-	-	Φ304	Φ150	Φ110	Φ160g7	Φ283	12-Φ11	Φ69	M33×2	M33×2	M22×1.5	-	-	10°	6-90H11×80H11×20D9	50	
2LSQJM21-**								110		48	58	150											M12×1.5	-	-			
1/2 QJM32-**	215	138	43	10	55	115	22	-	-	-	-	-	Φ320	Φ165	Φ120	Φ170g7	Φ299	12-Φ13	Φ79	M33×2	M33×2	M22×1.5	-	-	10°	10-98H11×92H11×14D9	70	
2LSQJM32-**								95		52	71	165											M12×1.5	-	-			
1/2 QJM42-**	209	160	16	12	35	124	22	-	-	-	-	-	Φ350	Φ190	Φ140	Φ200g7	Φ320	12-Φ13	Φ100	-	M42×2	M22×1.5	-	-	10°	10-112H11×102H11×16D9	90	
2LSQJM42-**								151		73	105	204											M16×1.5	M16	-	-		
1QJM42-**A	207	158	23	5	35	124	22	-	-	-	-	-	Φ340	Φ190	Φ120	Φ170g7	Φ320	12-Φ13	Φ100	-	M42×2	M22×1.5	-	-	10°	10-98H11×92H11×14D9	90	
1/2 QJM52-**	238	175	30	6	45	135	24	-	-	-	-	-	Φ420	Φ220	Φ160	Φ315g7	Φ360	6-Φ22	Φ110	Φ40	M48×2	M22×1.5	-	-	6°	10-120H11×112H11×18D9	150	
2LSQJM52-**								144		73	101	105	220										M16×1.5	M16	-	-		
1/2 QJM62-**	264	182	29	11	45	165	24	-	-	-	-	-	Φ485	Φ255	Φ170	Φ395g7	Φ435	6-Φ22	Φ128	Φ48	M48×2	M22×1.5	-	-	6°	10-120H11×112H11×18D9	200	
2LSQJM62-**								144		73	101	123	255										M16×1.5	M16	-	-		

## $\frac{1}{2}$ QJM\*\*--\*\*Z (Z2/Z3/Ze3)型液压马达技术参数

## $\frac{1}{2}$ QJM\*\*--\*\*Z (Z2/Z3/ZE3) type of hydraulic motor technical data

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	最大功率 Max. power (Kw)
1QJM001-0.063Z	0.064	10	16	8-600	95	5
1QJM001-0.08Z	0.083	10	16	8-500	123	5
1QJM001-0.10Z(ZC)	0.104	10	16	8-400	154	5
1QJM002-0.2Z	0.2	10	16	5-320	295	8
1QJM02-0.315Z	0.326	10	16	5-320	483	13
1QJM02-0.4Z	0.406	10	16	5-320	600	13
1QJM02-0.38Z2	0.38	10	16	5-320	560	13
1QJM02-0.47Z2	0.47	10	16	5-320	692	13
1QJM11-0.315Z	0.339	10	16	5-500	468	20
1QJM11-0.4Z	0.404	10	16	5-400	598	20
1QJM11-0.5Z	0.496	10	16	5-320	734	20
1QJM11-0.63Z	0.664	10	16	4-425	983	20
1QJM12-0.8Z(ZC)	0.8	10	16	4-250	1170	25
1QJM12-1.0Z(ZC)	1.0	10	16	4-200	1480	25
1QJM12-1.25Z(ZC)	1.33	10	16	4-160	1968	25
$\frac{1}{2}$ QJM21-0.32Z3	0.32 / 0.16	16	25	2-600	770 / 384	32
$\frac{1}{2}$ QJM21-0.4Z3(Ze3)	0.4 / 0.2	16	25	2-400	957 / 479	32
$\frac{1}{2}$ QJM21-0.5Z3(Ze3)	0.496 / 0.258	16	25	2-320	1175 / 588	32
$\frac{1}{2}$ QJM21-0.63Z3(Ze3)	0.664 / 0.332	16	25	2-250	1572 / 786	32
$\frac{1}{2}$ QJM21-0.8Z3(Ze3)	0.808 / 0.404	16	25	2-200	1913 / 957	32
$\frac{1}{2}$ QJM21-1.0Z3(Ze3)	1.01 / 0.505	10	16	2-160	1495 / 748	25
$\frac{1}{2}$ QJM21-1.25Z3(Ze3)	1.354 / 0.667	10	16	2-125	2004 / 1002	25
$\frac{1}{2}$ QJM21-1.6Z3(Ze3)	1.65 / 0.825	10	16	2-100	2442 / 1221	25
$\frac{1}{2}$ QJM32-0.63Z(Z3,Ze3)	0.635 / 0.318	20	31.5	3-500	1880 / 940	80
$\frac{1}{2}$ QJM32-1.0Z(Z3,Ze3)	1.06 / 0.503	20	31.5	2-400	3138 / 1519	80
$\frac{1}{2}$ QJM32-1.25Z(Z3,Ze3)	1.295 / 0.648	20	31.5	2-320	3833 / 1917	80
$\frac{1}{2}$ QJM32-1.6Z(Z3,Ze3)	1.649 / 0.825	20	31.5	2-250	4881 / 2441	80
$\frac{1}{2}$ QJM32-2.0Z(Z3,Ze3)	2.03 / 1.015	16	25	2-200	4807 / 2404	80
$\frac{1}{2}$ QJM32-2.5Z(Z3,Ze3)	2.71 / 1.355	10	16	1-160	4011 / 2006	62
$\frac{1}{2}$ QJM32-3.2Z(Z3,Ze3)	3.3 / 1.65	10	16	1-125	4884 / 2442	62
$\frac{1}{2}$ QJM52-2.5Z	2.67 / 1.355	20	31.5	1-200	7903 / 3952	130
$\frac{1}{2}$ QJM52-3.2Z	3.24 / 1.62	20	31.5	1-200	9590 / 4795	130
$\frac{1}{2}$ QJM52-4.0Z	4.0 / 2.0	16	25	1-200	9472 / 4736	130
$\frac{1}{2}$ QJM52-5.0Z	5.23 / 2.165	10	16	1-160	7740 / 3870	120
$\frac{1}{2}$ QJM52-6.3Z	6.36 / 3.18	10	16	1-125	9413 / 4707	120
$\frac{1}{2}$ QJM62-4.0Z	4.0 / 2.0	20	31.5	0.5-150	11840 / 5920	150
$\frac{1}{2}$ QJM62-5.0Z	5.18 / 2.59	20	31.5	0.5-125	15333 / 7667	150
$\frac{1}{2}$ QJM62-6.3Z	6.27 / 3.135	16	25	0.5-125	14847 / 7424	150
$\frac{1}{2}$ QJM62-8.0Z	7.85 / 3.925	10	16	0.5-100	11618 / 5809	121
$\frac{1}{2}$ QJM62-10Z	10.15 / 5.075	10	16	0.5-80	15022 / 7511	121

图1外形安装图 Installation

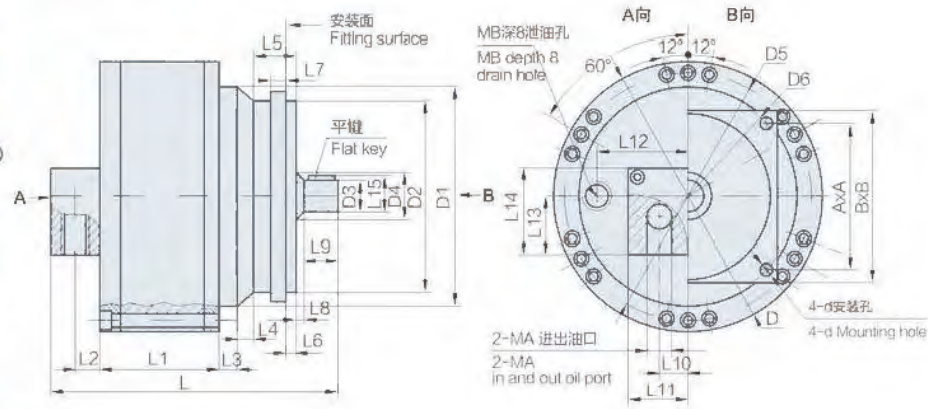


图1

型号 Model	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	D	D1	D2	D3	D4	D5	D6	D	MA	MB	A×A	B×B	平键 Flat key	花键 Spline	重量 Weight (kg)
1QJM001-**Z	237	68	17	6	16	70	48	48	12	12	3	31.5	43	32	49	28	φ141	φ110	φ75g7	φ25h8	φ35 <sup>H7/k6</sup>	φ128	-	φ11	M18x1.5	M12x1.5	70x70	90x90	8x36	-	10
1QJM002-**Z	257	88	17	6	16	70	48	48	12	12	3	31.5	43	32	49	28	φ141	φ110	φ75g7	φ25h8	φ35 <sup>H7/k6</sup>	φ128	-	φ11	M18x1.5	M12x1.5	70x70	90x90	8x36	-	12
1QJM02-**Z	290	102	22	-	52	32	5	5	18	18	3	50	60	41	82	43	φ180	-	φ125g7	φ40k6	-	φ165	φ160	φ13.5	G3/4"	M14x1.5	-	140x140	12x45	-	24
1QJM12-**Z	350	123	40	-	-	-	6	6	18	18	3.5	75	87	40	65	43	φ240	-	φ125g7	φ40f7	-	φ220	φ160	φ13.5	G1"	M18x1.5	-	140x140	12x45	-	70

图2外形安装图 Installation

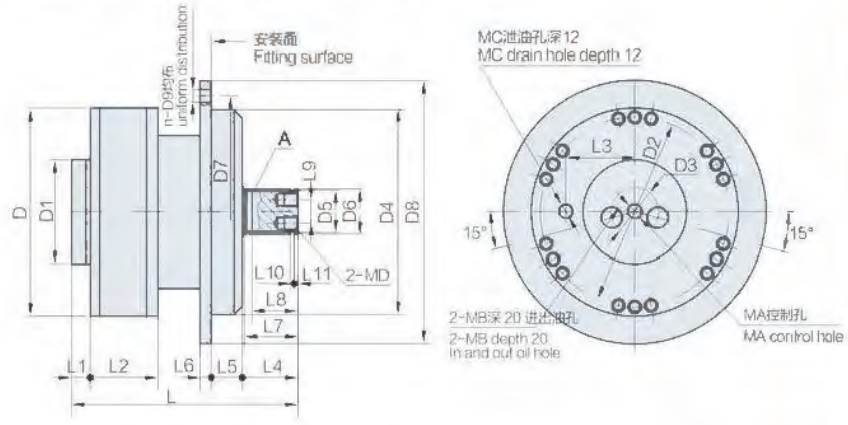
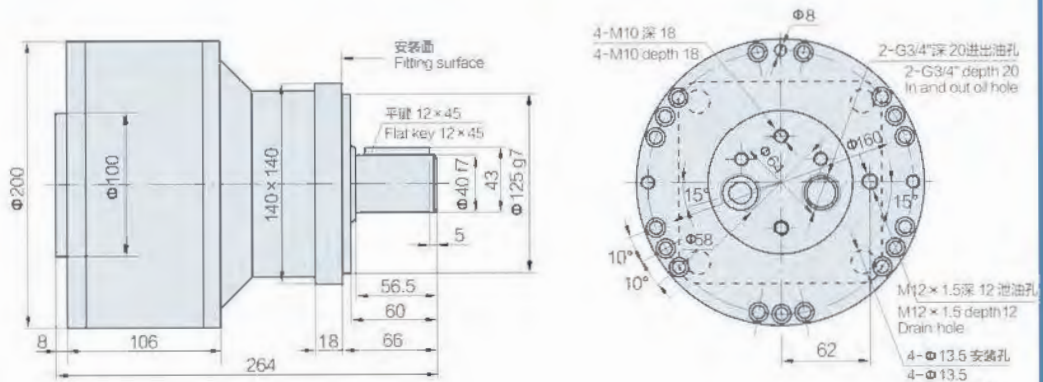


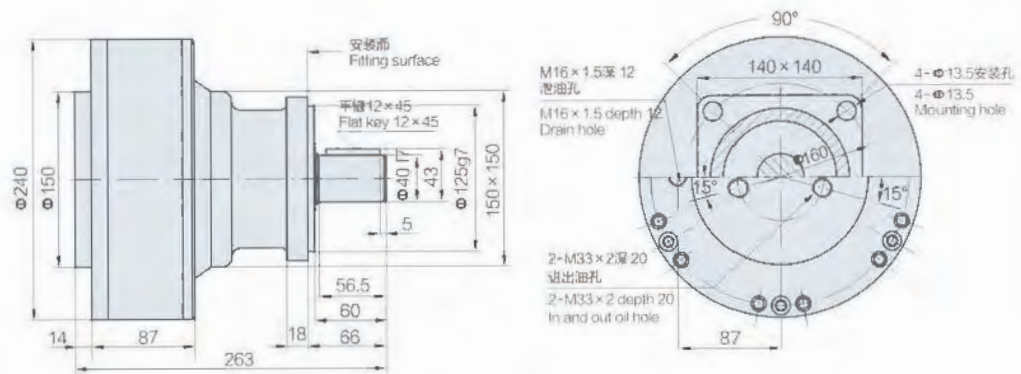
图2

型号 Model	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	D	D1	D2	D3	D4	D5	D6	D7	D8	N-D9	MA	MB	MC	MD	平键 Flat key	花键A Spline A	重量 Weight (kg)
<sup>1</sup> / <sub>2</sub> QJM21-**Z3	328	26	99	100	81	55	16	78	66	38	-	-	φ304	φ150	φ283	φ69	φ195f9	-	φ65f7	φ335	φ379	6-φ18	M12x1.5	M33x2	M22x2	2-M12深20	C18x75	-	75
<sup>1</sup> / <sub>2</sub> QJM21-**Ze3	378	26	113	100	81	38	16	78	66	38	-	-	φ304	φ150	φ283	φ69	φ220f9	-	φ65f7	φ260	φ300	6-φ18	M12x1.5	M33x2	M22x2	2-M12深20	C18x75	-	80
<sup>1</sup> / <sub>2</sub> QJM32-**Z	395	24.5	144	115	101	30	25	100	70	40	2.65	3	φ320	φ165	φ299	φ79	φ250f7	φ79	φ82b11	φ300	φ335	6-φ18	M12x1.5	M33x2	M22x2	2-M12深25	-	10-82b11x72b11x12f9	106
<sup>1</sup> / <sub>2</sub> QJM32-**Z2	395	22	139	115	140	22	21	86	65	-	-	-	φ320	φ165	φ299	φ79	φ340d9	φ79	φ92b11	φ390	φ430	6-φ17	M12x1.5	M33x2	M22x2	2-M20深20	-	10-82g6x72b12x12f9	106
<sup>1</sup> / <sub>2</sub> QJM32-**Ze3	446	24.5	138	115	81	55	16	78	66	-	-	-	φ320	φ165	φ299	φ79	φ295f9	-	φ65f7	φ335	φ379	6-φ18	M12x1.5	M33x2	M22x2	中央孔M16深25	C18x75	-	140
<sup>1</sup> / <sub>2</sub> QJM32-**Z3	363.5	24.5	138	115	81	55	16	78	66	-	-	-	φ320	φ165	φ299	φ79	φ295f9	-	φ65f7	φ335	φ379	6-φ18	M12x1.5	M33x2	M22x2	2-M12深25	C18x75	-	108
<sup>1</sup> / <sub>2</sub> QJM52-**Z	516	27	176	135	131	10	30	131	131	-	-	-	φ420	φ220	φ360	φ110	φ295f7	-	φ78h7	φ340	φ370	8-φ20	M16x1.5	M48x2	M22x2	中央孔M16深40	C22x132	-	190
<sup>1</sup> / <sub>2</sub> QJM62-**Z	487	42	162	165	157	5	20	155	152	-	-	-	φ485	φ255	φ435	φ128	φ400f8	-	φ101.55	φ490	φ530	8-φ22	M16x1.5	M48x2	M22x2	-	A25.4x120	-	240

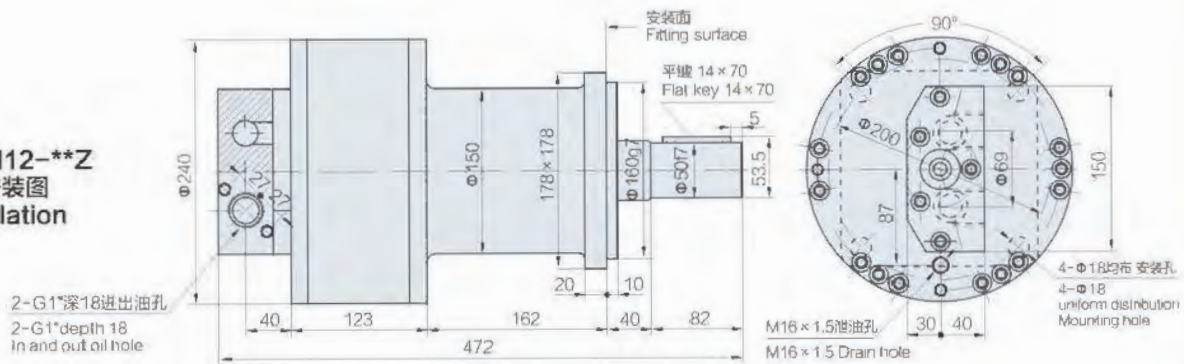
1QJM02-\*\*Z2  
外形安装图  
Installation



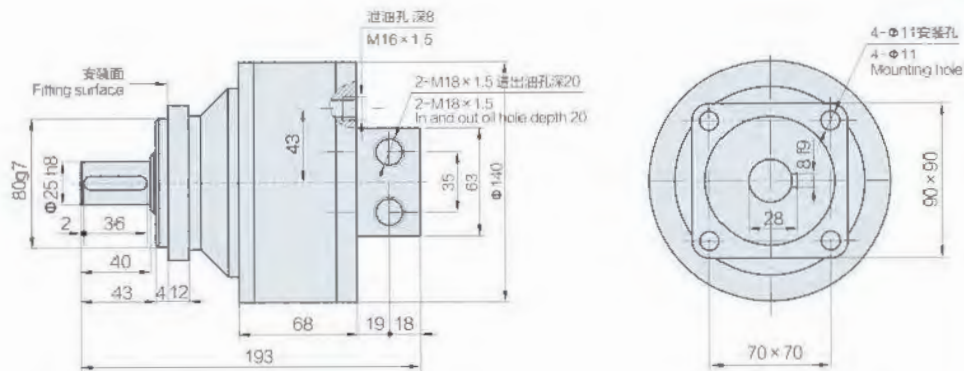
\*\*QJM11-\*\*Z  
外形安装图  
Installation



1QJM12-\*\*Z  
外形安装图  
Installation



1QJM001-0.1Z  
外形安装图  
Installation



<sup>1</sup>/<sub>2</sub> QJM\*\*--\*\*S型自控式带制动器液压马达技术参数  
Technical data of <sup>1</sup>/<sub>2</sub> QJM\*\*--\*\*S series hydraulic motor with brake

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	制动器开启压力 Open brake Pressure (MPa)	制动器 制动扭矩 Brake torque (N.m)
1QJM11-0.32S	0.317	10	16	5-400	468	4-6	400-600
1QJM11-0.40S	0.404	10	16	5-400	598	3-5	400-600
1QJM11-0.50S	0.496	10	16	5-320	734	3-5	400-600
1QJM11-0.63S	0.664	10	16	4-250	983	3-5	400-600
2QJM11-0.40S	0.404 / 0.202	10	16	5-400	598 / 299	3-5	400-600
2QJM11-0.50S	0.496 / 0.248	10	16	5-320	734 / 367	3-5	400-600
2QJM11-0.63S	0.664 / 0.332	10	16	4-250	983 / 492	3-5	400-600
1QJM21-0.32S	0.317	16	25	2-500	751	4-6	1000-1400
1QJM21-0.40S	0.404	16	25	2-400	957	4-6	1000-1400
1QJM21-0.50S	0.496	16	25	2-320	1175	4-6	1000-1400
1QJM21-0.63S	0.664	16	25	2-250	1572	4-6	1000-1400
1QJM21-0.8S	0.808	16	25	2-200	1913	4-6	1000-1400
1QJM21-1.0S	1.01	10	16	2-160	1495	3-5	1000-1400
1QJM21-1.25S	1.354	10	16	2-125	2004	3-5	1000-1400
1QJM21-1.6S	1.65	10	16	2-100	2442	3-5	1000-1400
2QJM21-0.32S	0.317 / 0.1585	16	25	2-500	751 / 376	4-7	1000-1400
2QJM21-0.40S	0.404 / 0.202	16	25	2-400	957 / 479	4-7	1000-1400
2QJM21-0.50S	0.496 / 0.248	16	25	2-320	1175 / 588	4-7	1000-1400
2QJM21-0.63S	0.664 / 0.332	16	25	2-250	1572 / 786	4-7	1000-1400
2QJM21-0.8S	0.808 / 0.404	16	25	2-200	1913 / 957	4-7	1000-1400
2QJM21-1.0S	1.01 / 0.505	10	16	2-160	1495 / 748	3-5	1000-1400
2QJM21-1.25S	1.354 / 0.667	10	16	2-125	2004 / 1002	3-5	1000-1400
2QJM21-1.6S	1.65 / 0.825	10	16	2-100	2442 / 1221	3-5	1000-1400

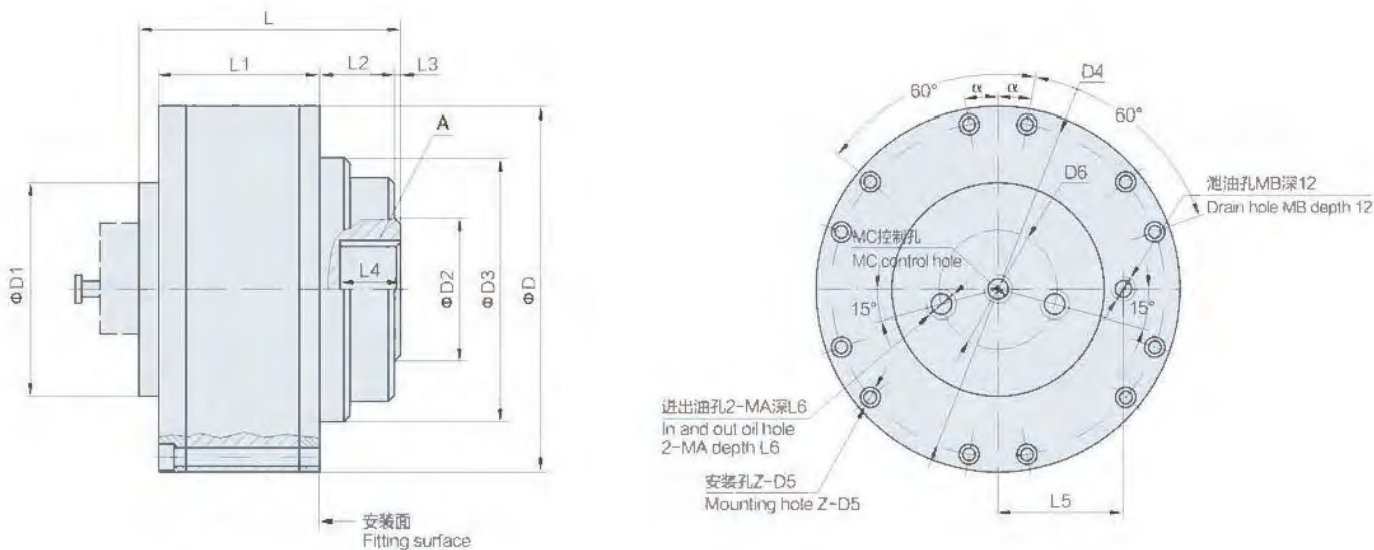


## 1/2 QJM\*\*--\*\*S型自控式带制动器液压马达技术参数

Technical data of 1/2 QJM\*\*--\*\*S series hydraulic motor with brake

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	制动器开启压力 Open brake Pressure (MPa)	制动器 制动扭矩 Brake torque (N.m)
1/2 QJM32-0.63S	0.635 / 0.318	20	31.5	3-300	1880	4-7	≥2500
1/2 QJM32-0.8S	0.808 / 0.404	20	31.5	3-250	2368	4-7	≥2500
1/2 QJM32-1.0S	1.06 / 0.53	20	31.5	2-250	3138	4-7	≥2500
1/2 QJM32-1.25S	1.295 / 0.648	20	31.5	2-200	3833	3-5	≥2500
1/2 QJM32-1.6S	1.649 / 0.825	20	31.5	2-200	4881	3-5	≥2500
1/2 QJM32-2.0S	2.03 / 1.015	16	25	2-200	4807	3-5	≥2500
1/2 QJM32-2.5S	2.71 / 1.355	10	16	1-160	4011	3-5	≥2500
1/2 QJM32-3.2S	3.3 / 1.65	10	16	1-125	4884	3-5	≥2500
1/2 QJM32-4.0S	4.0 / 2.00	10	16	1-100	5920	3-5	≥2500
1/2 QJM32-0.63S2	0.635 / 0.318	20	31.5	3-500	1880	4-7	≥4000
1/2 QJM32-0.8S2	0.808 / 0.404	20	31.5	3-400	2368	4-7	≥4000
1/2 QJM32-1.0S2	0.993 / 0.497	20	31.5	2-400	3138	4-7	≥4000
1/2 QJM32-1.25S2	1.295 / 0.648	20	31.5	2-320	3833	3-5	≥4000
1/2 QJM32-1.6S2	1.649 / 0.825	20	31.5	2-250	4881	3-5	≥4000
1/2 QJM32-2.0S2	2.03 / 1.015	16	25	2-200	4807	3-5	≥4000
1/2 QJM32-2.5S2	2.71 / 1.355	10	16	1-160	4011	3-5	≥4000
1/2 QJM32-3.2S2	3.3 / 1.65	10	16	1-125	4884	3-5	≥4000
1/2 QJM32-4.0S2	4.0 / 2.0	10	16	1-100	5920	3-5	≥4000
1/2 QJM42-2.0S	2.11 / 1.055	20	31.5	1-250	6246	4-7	≥5000
1/2 QJM42-2.5S	2.56 / 1.28	20	31.5	1-250	7578	4-7	≥5000
1/2 QJM42-3.2S	3.28 / 1.64	10	16	1-200	4850	4-6	≥5000
1/2 QJM42-4.0S	4.0 / 2.0	10	16	1-160	5920	3-5	≥5000
1/2 QJM42-4.5S	4.56 / 2.28	10	16	1-125	6808	3-5	≥5000
1/2 QJM52-2.5S	2.67 / 1.335	20	31.5	1-200	7903	4-7	≥6000
1/2 QJM52-3.2S	3.24 / 1.62	20	31.5	1-200	9590	4-7	≥6000
1/2 QJM52-4.0S	4.0 / 2.0	16	25	1-200	9472	4-6	≥6000
1/2 QJM52-5.0S	5.23 / 2.615	16	25	1-160	7740	3-5	≥6000
1/2 QJM52-6.3S	6.36 / 3.18	16	25	1-125	9413	3-5	≥6000

外形安装图 Installation



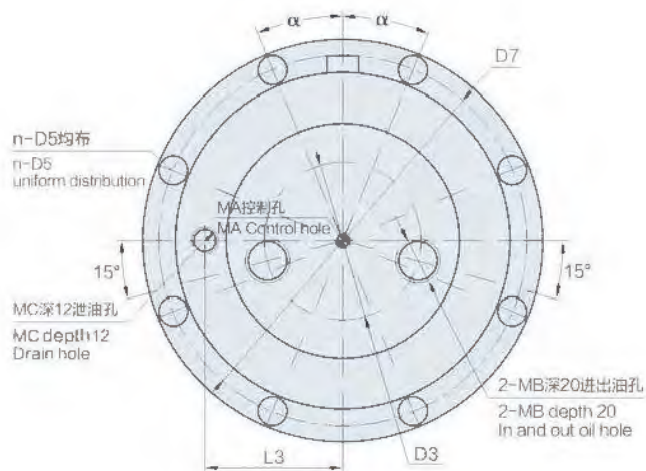
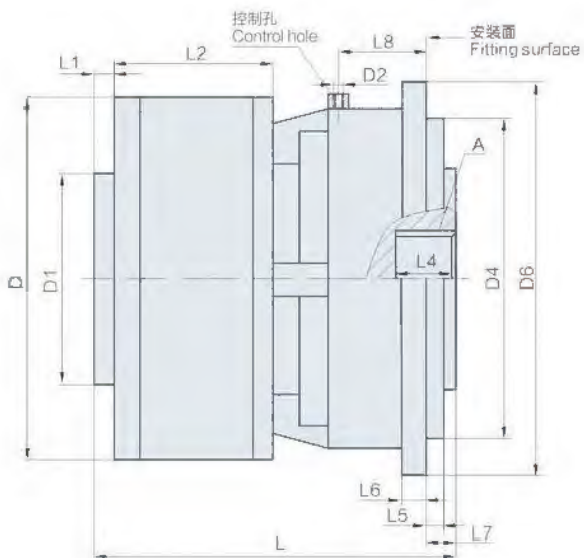
型号 Model	L	L1	L2	L3	L4	L5	L6	D	D1	D2	D3	D4	Z-D5	D6	MA	MB	MC	$\alpha$	A	重量 Weight (kg)
$\frac{1}{2}$ QJM11-***S	146.5	97	20	11.5	28	87	20	$\phi 240$	$\phi 150$	$\phi 100$	$\phi 160g7$	$\phi 220$	12- $\phi 11$	$\phi 69$	M33x2	M16x1.5	M12x1.5	$10^\circ$	6-70H11x62H11x16D9	35
$\frac{1}{2}$ QJM21-***S	170	117	17	7	31	100	20	$\phi 304$	$\phi 150$	$\phi 100$	$\phi 160g7$	$\phi 220$	12- $\phi 11$	$\phi 69$	M33x2	M22x1.5	M12x1.5	$10^\circ$	6-90H11x80H11x20D9	53
$\frac{1}{2}$ QJM32-***S	231	140	58	3	55	115	20	$\phi 320$	$\phi 165$	$\phi 170$	$\phi 280g7$	$\phi 299$	12- $\phi 13$	$\phi 79$	M33x2	M22x1.5	M12x1.5	$10^\circ$	10-98H11x92H11x14D9	86
$\frac{1}{2}$ QJM32-***S2	252	167.5	58	3	55	115	20	$\phi 320$	$\phi 165$	$\phi 170$	$\phi 280g7$	$\phi 299$	12- $\phi 13$	$\phi 79$	M33x2	M22x1.5	M12x1.5	$10^\circ$	10-98H11x92H11x14D9	86
$\frac{1}{2}$ QJM42-***S	229	187	16	3	35	124	22	$\phi 350$	$\phi 190$	$\phi 140$	$\phi 200g7$	$\phi 320$	12- $\phi 13$	$\phi 100$	M42x2	M22x1.5	M12x1.5	$10^\circ$	10-112H11x102H11x16D9	108
$\frac{1}{2}$ QJM52-***S	266	187	56	3	55	135	24	$\phi 420$	$\phi 220$	$\phi 160$	$\phi 315g7$	$\phi 360$	10- $\phi 22$	$\phi 110$	M48x2	M22x1.5	M12x1.5	$6^\circ$	10-120H11x112H11x18D9	167

## <sup>1</sup>/<sub>2</sub>QJM\*\*--\*\*Se型外控式带制动器液压马达技术参数

Technical data of out control <sup>1</sup>/<sub>2</sub>QJM\*\*--\*\*Se series hydraulic motor with brake

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	制动器开启压力 Open brake Pressure (MPa)	制动器 制动扭矩 Brake torque (N.m)
1QJM12-0.8Se	0.808	10	16	4-250	1076	1.3≤P≤6.3	≥1800
1QJM12-1.0Se	0.993	10	16	4-200	1332	1.3≤P≤6.3	≥1800
1QJM12-1.25Se	1.328	10	16	4-160	1771	1.3≤P≤6.3	≥1800
<sup>1</sup> / <sub>2</sub> QJM21-0.32Se	0.317 / 0.158	16	25	2-500	751 / 376	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-0.40Se	0.404 / 0.202	16	25	2-400	957 / 479	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-0.50Se	0.496 / 0.248	16	25	2-320	1175 / 588	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-0.63Se	0.664 / 0.332	16	25	2-250	1572 / 786	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-0.80Se	0.808 / 0.404	16	25	2-200	1913 / 957	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-1.0Se	1.01 / 0.505	10	16	2-160	1495 / 748	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-1.25Se	1.354 / 0.677	10	16	2-125	2004 / 1002	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM21-1.6Se	1.65 / 0.825	10	16	2-100	2442 / 1221	2.5≤P≤6.3	≥2500
<sup>1</sup> / <sub>2</sub> QJM32-0.63Se	0.635 / 0.318	20	31.5	1-500	1880 / 940	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-0.8Se	0.808 / 0.404	20	31.5	1-500	2368 / 1184	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-1.0Se	0.993 / 0.497	20	31.5	2-400	3138 / 1569	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-1.25Se	1.328 / 0.664	20	31.5	2-320	3833 / 1942	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-1.6Se	1.616 / 0.808	20	31.5	2-250	4881 / 2441	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-2.0Se	2.03 / 1.015	16	25	2-200	4807 / 2404	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-2.5Se	2.71 / 1.355	10	16	1-160	4011 / 2006	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-3.2Se	3.3 / 1.65	10	16	1-125	4884 / 2442	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM32-4.0Se	4.0 / 2.0	10	16	1-100	5920 / 2960	2.5≤P≤6.3	≥6000
<sup>1</sup> / <sub>2</sub> QJM42-2.0Se	2.11 / 1.055	20	31.5	1-250	6246 / 3123	2.1≤P≤6.3	≥9000
<sup>1</sup> / <sub>2</sub> QJM42-2.5Se	2.56 / 1.28	20	31.5	1-250	7578 / 3789	2.1≤P≤6.3	≥9000
<sup>1</sup> / <sub>2</sub> QJM42-3.2Se	3.3 / 1.65	10	16	1-200	4884 / 2442	2.1≤P≤6.3	≥9000
<sup>1</sup> / <sub>2</sub> QJM42-4.0Se	4.0 / 2.0	10	16	1-160	5920 / 2960	2.1≤P≤6.3	≥9000
<sup>1</sup> / <sub>2</sub> QJM42-4.5Se	4.56 / 2.28	10	16	1-125	6808 / 3404	2.1≤P≤6.3	≥9000
<sup>1</sup> / <sub>2</sub> QJM52-2.5Se	2.67 / 1.355	20	31.5	1-200	7903 / 3952	2.2≤P≤6.3	≥10000
<sup>1</sup> / <sub>2</sub> QJM52-3.2Se	3.24 / 1.62	20	31.5	1-200	9590 / 4795	2.2≤P≤6.3	≥10000
<sup>1</sup> / <sub>2</sub> QJM52-4.0Se	4.0 / 2.0	16	25	1-200	9472 / 4736	2.2≤P≤6.3	≥10000
<sup>1</sup> / <sub>2</sub> QJM52-5.0Se	5.23 / 2.615	10	16	1-160	7740 / 3870	2.2≤P≤6.3	≥10000
<sup>1</sup> / <sub>2</sub> QJM52-6.3Se	6.36 / 3.18	10	16	1-125	9413 / 4707	2.2≤P≤6.3	≥10000

外形安装图 Installation



型号 Model	L	L1	L2	L3	L4	L5	L6	L7	L8	D	D1	D2	D3	D4	Z-D5	D6	D7	MA	MB	MC	$\alpha$	A	重量 Weight (kg)
1QJM12-***Se	288	17	121	87	60	12	13	25	33	$\Phi 240$	$\Phi 150$	M16x1.5	$\Phi 69$	$\Phi 290g7$	8- $\Phi 11$	$\Phi 327$	$\Phi 307$	-	2-M33x2	M16x1.5	22.5°	6-90H11x80H11x20D9	50
1/2QJM21-***Se	245	27	102	100	60	18.5	16	24	36	$\Phi 304$	$\Phi 150$	M18x1.5	$\Phi 69$	$\Phi 310g7$	8- $\Phi 13$	$\Phi 360$	$\Phi 330$	M12x1.5	2-M33x2	M22x1.5	22.5°	6-90H11x80H11x20D9	95
1/2QJM32-***Se	271	24	140	115	55	13	16	19	35	$\Phi 320$	$\Phi 165$	M16x1.5	$\Phi 79$	$\Phi 335g7$	8- $\Phi 13$	$\Phi 380$	$\Phi 354$	M12x1.5	2-M33x2	M22x1.5	15°	10-98H11x92H11x14D9	120
1/2QJM42-***Se	278	21	160	124	35	15	18	22	45	$\Phi 350$	$\Phi 190$	M16x1.5	$\Phi 100$	$\Phi 395f6$	12- $\Phi 17$	$\Phi 445$	$\Phi 418$	M16x1.5	2-M42x2	M22x1.5	15°	10-112H11x102H11x16D9	150
1/2QJM52-***Se	318	27	175	135	45	17	18	22	45	$\Phi 420$	$\Phi 220$	M16x1.5	$\Phi 110$	$\Phi 395f6$	12- $\Phi 17$	$\Phi 445$	$\Phi 418$	M16x1.5	2-M48x2	M22x1.5	15°	10-120H11x112H11x18D9	200

## $\frac{1}{2}$ QJM\*\*--\*\*SeZ(SeZH)型外控式带制动器液压马达技术参数

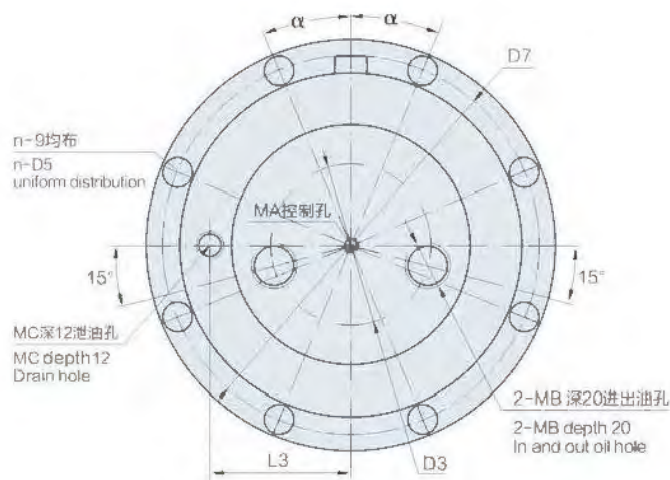
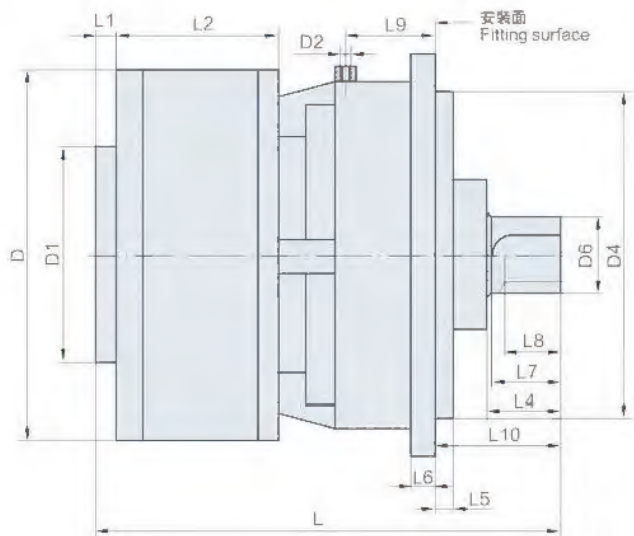
### Technical data of out control $\frac{1}{2}$ QJM\*\*--\*\*SeZ(SeZH) series hydraulic motor with brake

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	制动器开启压力 Open brake Pressure (MPa)	制动器 制动扭矩 Brake torque (N.m)
1QJM12-0.8SeZ	0.808	10	16	4-250	1076	1.3≤P≤6.3	≥1800
1QJM12-1.0SeZ	0.993	10	16	4-200	1332	1.3≤P≤6.3	≥1800
1QJM12-1.25SeZ	1.328	10	16	4-160	1771	1.3≤P≤6.3	≥1800
$\frac{1}{2}$ QJM21-0.32SeZ	0.317 / 0.158	16	25	2-500	751 / 376	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-0.40SeZ	0.404 / 0.202	16	25	2-400	957 / 478	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-0.50SeZ	0.496 / 0.248	16	25	2-320	1175 / 588	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-0.63SeZ	0.664 / 0.332	16	25	2-250	1572 / 786	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-0.80SeZ	0.808 / 0.404	16	25	2-200	1913 / 956	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-1.0SeZ	1.01 / 0.505	10	16	2-160	1495 / 748	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-1.25SeZ	1.354 / 0.677	10	16	2-125	2004 / 1002	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM21-1.6SeZ	1.65 / 0.825	10	16	2-100	2442 / 1221	2.5≤P≤6.3	≥2500
$\frac{1}{2}$ QJM32-0.63SeZ	0.635 / 0.318	20	31.5	3-500	1880 / 940	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-0.8SeZ	0.808 / 0.404	20	31.5	3-500	2368 / 1184	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-1.0SeZ	0.993 / 0.497	20	31.5	2-400	3138 / 1519	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-1.25SeZ	1.328 / 0.664	20	31.5	2-320	3833 / 1917	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-1.6SeZ	1.616 / 0.808	20	31.5	2-250	4881 / 2441	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-2.0SeZ	2.03 / 1.015	16	25	2-200	4807 / 2404	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-2.5SeZ	2.71 / 1.355	10	16	4-160	4011 / 2006	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-3.2SeZ	3.3 / 1.65	10	16	1-125	4884 / 2442	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM32-4.0SeZ	4.0 / 2.0	10	16	1-100	5920 / 2960	2.5≤P≤6.3	≥6000
$\frac{1}{2}$ QJM42-2.0SeZ	2.11 / 1.055	20	31.5	1-320	6246 / 3123	2.1≤P≤6.3	≥9000
$\frac{1}{2}$ QJM42-2.5SeZ	2.56 / 1.28	20	31.5	1-125	7578 / 3789	2.1≤P≤6.3	≥9000
$\frac{1}{2}$ QJM42-3.2SeZ	3.3 / 1.65	10	16	1-200	4884 / 2442	2.1≤P≤6.3	≥9000
$\frac{1}{2}$ QJM42-4.0SeZ	4.0 / 2.0	10	16	1-160	5920 / 2960	2.1≤P≤6.3	≥9000
$\frac{1}{2}$ QJM42-4.5SeZ	4.56 / 2.28	10	16	1-125	6808 / 3404	2.1≤P≤6.3	≥9000
$\frac{1}{2}$ QJM52-2.5SeZ	2.67 / 1.355	20	31.5	1-320	7903 / 3952	-	-
$\frac{1}{2}$ QJM52-3.2SeZ	3.24 / 1.62	20	31.5	1-250	9590 / 4795	-	-
$\frac{1}{2}$ QJM52-4.0SeZ	4.0 / 2.0	16	25	1-200	9472 / 4736	-	-
$\frac{1}{2}$ QJM52-5.0SeZ	5.23 / 2.615	10	16	1-160	7740 / 3870	-	-
$\frac{1}{2}$ QJM52-6.3SeZ	6.36 / 3.18	10	16	1-125	9413 / 4707	-	-

注： $\frac{1}{2}$ QJM\*\*--SeZH的技术参数与上表中相应排量的液压马达技术参数相同

Note: Technical data of  $\frac{1}{2}$ QJM\*\*--\*\*SeZH hydraulic motor have the same data as  $\frac{1}{2}$ QJM\*\*--\*\*SeZ hydraulic motors.

外形安装图 Installation



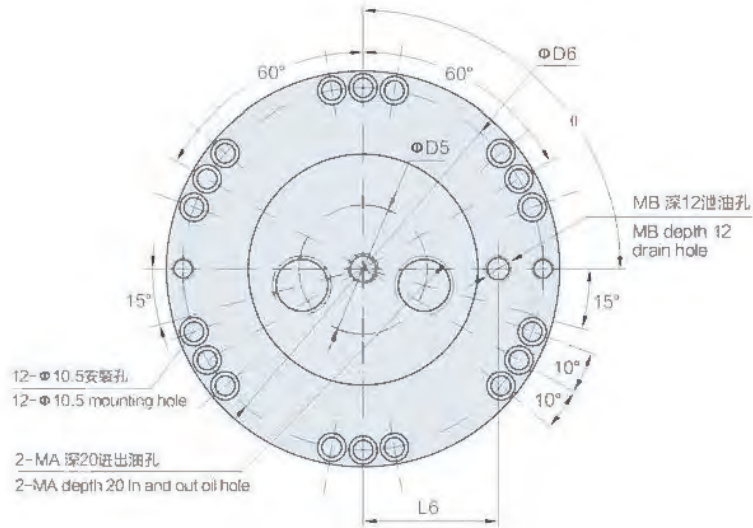
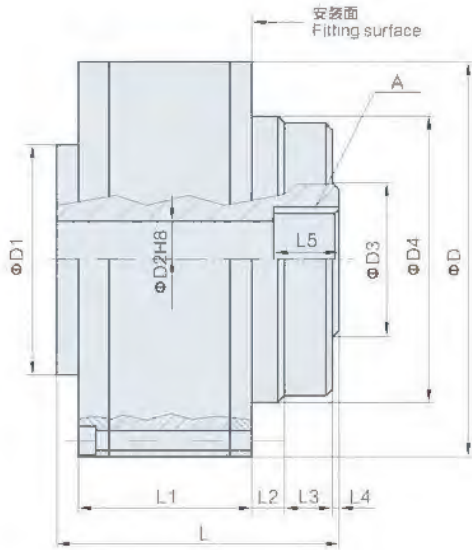
型号 Model	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	D	D1	D2	D3	D4	D6	D7	D8	N-D9	MA	MB	MC	α	平键 Flat key	花键 Spline A	重量 Weight (kg)
1QJM12-**SeZ	350	17	121	87	60	10	13	62	-	24	96	φ240	φ150	M16x1.5	φ69	φ250g7	φ60h7	φ265	φ285	8-φ11	-	2-M33x2	M16x1.5	22.5°	C18x60	-	60
1QJM12-**SeZH	370	17	121	87	62	12	16	58	39	24	100	φ240	φ150	M16x1.5	φ69	φ290g7	-	φ307	φ327	8-φ11	-	2-M33x2	M16x1.5	22.5°	-	6-90b12x80b12x20d9	60
1QJM21-**SeZ	410	27	102	100	69.5	14	16	65	-	36	113	φ304	φ150	M18x1.5	φ69	φ310g7	φ70h7	φ330	φ360	8-φ13	M12x1.5	2-M33x2	M22x1.5	22.5°	C20x60	-	8
1/2 QJM32-**SeZ	446	24	140	115	81	13	16	78	-	35	136	φ320	φ165	M16x1.5	φ79	φ335g7	φ70h7	φ354	φ380	12-φ13	M12x1.5	2-M33x2	M22x1.5	15°	C20x70	-	95
1/2 QJM32-**SeZH	440	24	140	115	75	13	16	72	55	35	114	φ320	φ165	M16x1.5	φ79	φ335g7	-	φ354	φ380	12-φ13	M12x1.5	2-M33x2	M22x1.5	15°	-	10-98b12x92b12x14d9	95
1/2 QJM42-**SeZ	466	21	160	124	75	12	18	71	50	44	135	φ350	φ190	M16x1.5	φ100	φ365g7	-	φ398	φ430	12-φ17	M16x1.5	2-M42x2	M22x1.5	15°	-	10-112b12x102b12x16d9	120
1/2 QJM42-**SeZH	456	21	160	124	75	15	18	71	50	37	120	φ350	φ190	M16x1.5	φ100	φ365g7	-	φ398	φ430	12-φ17	M16x1.5	2-M42x2	M22x1.5	15°	-	10-112b12x102b12x16d9	120
1/2 QJM52-**SeZ	532	27	175	135	141	17	18	136	-	45	184	φ420	φ220	M16x1.5	φ110	φ395f6	φ78h7	φ418	φ445	12-φ17	M16x1.5	2-M48x2	M22x1.5	15°	C22x132	-	120
1/2 QJM52-**SeZH	471	27	175	135	71	17	18	-	45	45	114	φ420	φ220	M16x1.5	φ110	φ395f6	-	φ418	φ445	12-φ17	M16x1.5	2-M48x2	M22x1.5	15°	-	12-120b12x112b12x20d9	150

## 1 QJM\*\*--\*\*T\*\*型通孔液压马达技术参数

## 2 QJM\*\*--\*\*T\*\* series technical data

型号 Model	排量 Displacement (L/r)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	转速范围 Rotational Speed Range (r/min)	额定输出扭矩 Rated Output Torque (N.m)	通孔直径 Through hole dia (mm)
1QJM01-0.1T40	0.1	10	16	8-800	148	40
1QJM01-0.16T40	0.163	10	16	8-630	241	40
1QJM01-0.2T40	0.203	10	16	8-500	300	40
1QJM11-0.32T50	0.317	10	16	5-400	468	50
1QJM11-0.4T50	0.404	10	16	5-400	598	50
1QJM11-0.5T50	0.5	10	16	5-320	734	50
$\frac{1}{2}$ QJM21-0.32T65	0.317 / 0.159	16	25	2-500	751 / 376	65
$\frac{1}{2}$ QJM21-0.5T65	0.496 / 0.248	16	25	2-320	1175 / 588	65
$\frac{1}{2}$ QJM21-0.63T65	0.664 / 0.332	16	25	2-250	1572 / 786	65
$\frac{1}{2}$ QJM21-1.0T65	1.01 / 0.505	10	16	2-160	1495 / 748	55
$\frac{1}{2}$ QJM21-1.25T65	1.354 / 0.677	10	16	2-125	2004 / 1002	65
$\frac{1}{2}$ QJM32-0.63T75	0.635 / 0.318	20	25	1-500	1880 / 940	75
$\frac{1}{2}$ QJM32-1.0T75	1.06 / 0.53	20	25	1-400	3138 / 1569	75
$\frac{1}{2}$ QJM32-1.25T75	1.30 / 0.65	20	25	2-320	3833 / 1917	75
$\frac{1}{2}$ QJM32-2.0T75	2.03 / 1.02	16	25	2-200	4807 / 2404	75
$\frac{1}{2}$ QJM32-2.5T75	2.71 / 1.36	10	16	1-160	4011 / 2006	75
$\frac{1}{2}$ QJM42-2.5T80	2.56 / 1.26	20	31.5	1-250	7578 / 3789	80
$\frac{1}{2}$ QJM52-3.2T80	3.24 / 1.62	20	31.5	1-250	9690 / 4795	80
$\frac{1}{2}$ QJM52-4.0T80	4.0 / 2.0	16	25	1-200	9472 / 4736	80
$\frac{1}{2}$ QJM52-5.0T80	5.23 / 2.615	10	16	1-160	7740 / 3870	80
$\frac{1}{2}$ QJM52-6.3T80	6.36 / 3.18	10	16	1-125	9413 / 4707	80
$\frac{1}{2}$ QJM62-4.0T125	4.0 / 2.0	20	31.5	0.5-150	11840 / 5920	125
$\frac{1}{2}$ QJM62-5.0T125	5.18 / 2.59	20	31.5	0.5-125	15333 / 7667	125
$\frac{1}{2}$ QJM62-6.3T125	6.27 / 3.135	16	25	0.5-125	14847 / 7424	125
$\frac{1}{2}$ QJM62-8.0T125	7.85 / 3.925	10	16	0.5-100	11618 / 5809	125
$\frac{1}{2}$ QJM62-10T125	10.15 / 5.057	10	16	0.5-80	15022 / 7501	125

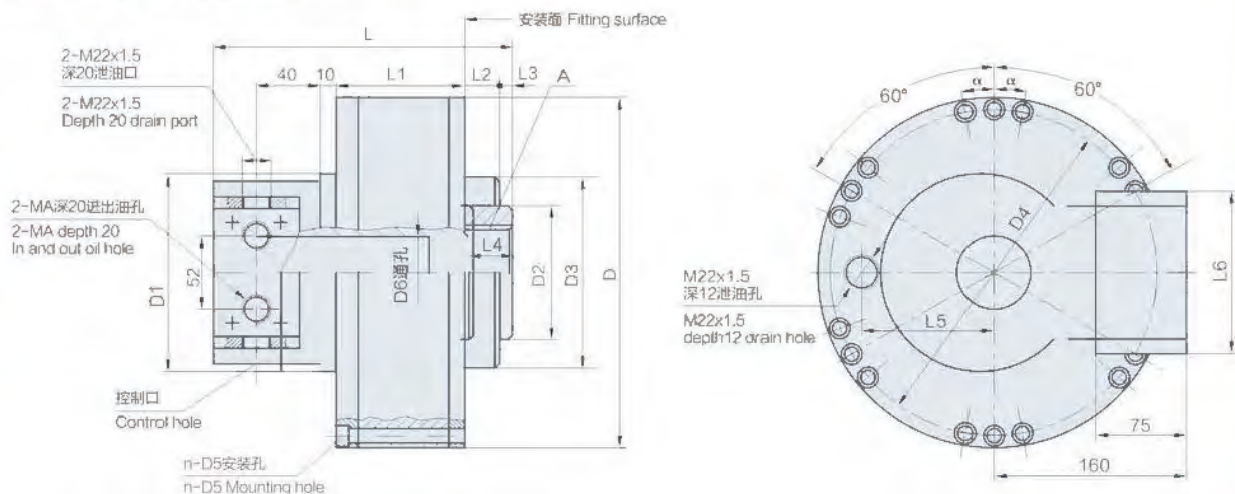
外形安装图 Installation



型号 Model	L	L1	L2	L3	L4	L5	L6	$\theta$	D	D1	D2	D3	D4	D5	D6	MA	MB	A	重量 Weight (kg)
1QJM01-**T40	130	79	15	23	3	30	53	180°	$\phi 180$	$\phi 130$	$\phi 40$	$\phi 110$	$\phi 130g6$	$\phi 70$	$\phi 65$	M22 × 1.5	M12 × 1.5	6-48H11 × 42H11 × 12D9	15
1QJM11-**T50	139	87	16	17	3	28	87	90°	$\phi 240$	$\phi 150$	$\phi 50$	$\phi 100$	$\phi 160g6$	$\phi 80$	$\phi 220$	M22 × 1.5	M16 × 1.5	6-70H11 × 62H11 × 16D9	26



## 外形安装图 Installation

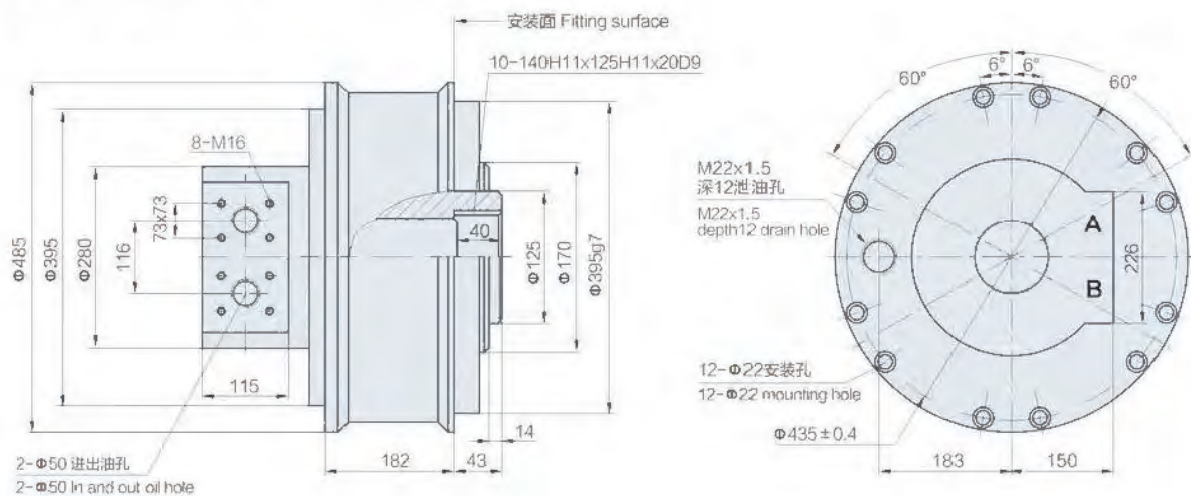


型号 Model	L	L1	L2	L3	L4	L5	L6	D	D1	D2	D3	D4	N-D5	D6	MA	$\alpha$	A	重量 Weight (kg)
1/2 QJM21-**T50	229	99	29	14	36	100	156	$\phi 300$	$\phi 178$	$\phi 110$	$\phi 160g6$	$\phi 283$	10- $\phi 11$	$\phi 50$	M27x2	10°	10-98H11x92H11x14D9	60
1/2 QJM21-**T65	230	98	29	14	37	110	146	$\phi 304$	$\phi 186$	$\phi 110$	$\phi 160g6$	$\phi 283$	10- $\phi 11$	$\phi 65$	M33x2	10°	10-98H11x92H11x14D9	64
1/2 QJM32-**T75	273	138	43	10	41	115	146	$\phi 320$	$\phi 186$	$\phi 120$	$\phi 170g6$	$\phi 299$	10- $\phi 13$	$\phi 75$	M33x2	10°	10-98H11x92H11x14D9	88
1/2 QJM42-**2.5T80	292	180	16	30	40	124	146	$\phi 350$	$\phi 190$	$\phi 140$	$\phi 200h6$	$\phi 320$	10- $\phi 13$	$\phi 80$	M33x2	10°	10-112H11x102H11x18D9	120
1/2 QJM52-**2.5T80	367	175	30	24	45	135	190	$\phi 420$	$\phi 220$	$\phi 160$	$\phi 315g7$	$\phi 360$	6- $\phi 22$	$\phi 80$	M48x2	6°	10-120H11x112H11x18D9	162

注：2QJM52-2.5T80 马达控制口泄油口与上图所示对调

Note: in the pictured above, the 2QJM52-2.5T80 motor's control port and drainage port should exchange with each other.

## 1QJM62-\*\*T125 型马达外形安装图 Installation



# YLM

YLM 系列外五星液压马达

YLM low speed high torque hydraulic motor



**TILO RMS**<sup>®</sup>  
泰勒姆斯

## 产品概述

我公司生产的液压马达主要零件由加工中心和数控机床加工，所有密封、高强度内六角螺钉由德国、意大利、台湾进口，外表铸件采用精密铸造球墨铸铁，从而保证产品性能和外观质量超过国内外同类产品水平。它具有以下特点：

- 1、采用偏心轴及较低激振频率的五柱塞结构，因而具有低噪音的特点。
- 2、启动扭矩大，低速稳定性好，能在很低速度下平稳运转。
- 3、采用先进的可补偿式端面配流结构，可靠性好，泄漏少，柱塞与缸体间采用新型密封环密封，具有很高的容积效率。
- 4、曲轴与连杆间由滚柱支承，因而具有很高的机械效率。
- 5、旋转方向可逆，输出轴允许承受一定的径向和轴向力。
- 6、具有较高的功率质量比，体积重量相对较小。

## 产品适用范围

由于 YLM 系列低速大扭矩液压马达具有可靠性好、效率高、寿命长、噪音低、转速范围宽等一系列特点，因而适用范围广，可广泛应用于矿山建筑工程机械、起重运输设备、重型冶金机械、石油煤矿机械、船舶甲板机械、机床、轻工、塑料机械、地质钻探设备等各种机械的液压传动系统中，特别适用于注塑机的螺杆驱动、提升绞盘、卷筒的驱动、各种回转机构的驱动、履带和轮子行走机构的驱动等传动机械中。

## 注意事项

- 1、过滤：正常的工业用过滤精度推荐为25微米，对低压、低速或间隙工况时可以允许精度为75微米。
- 2、粘度：最佳性能应在良好的粘度条件下才能获得，因此马达在大多数工况下，粘度应在 15—1000厘范围内，该范围保证满意地工作。
- 3、泄漏：泄油口应单独地与油箱接通，一般下壳体允许最大压力为0.1Mpa。若压力过高，易使油封损坏，引起外泄。
- 4、液压马达可以任意位置安装，安装马达的支架必须有足够的刚性，安装时应保证液压马达所联接的转动主轴与液压马达的输出轴同轴线。
- 5、泄油管的最大水平位置应高于马达壳体的最大水平位置，以防马达壳体内的油液排空。
- 6、首次启动前，必须向液体马达壳体内注满液压油，以防损坏。
- 7、严格保证联接油口的清洁度，不允许任何固体异物进入。
- 8、减少液压马达出轴所受径向负荷，可以使液压马达寿命延长。

## Product overview

Our company's hydraulic motor's main parts and components are machined by machining center and CNC machine tools. All the seal parts and high strength interior hexagonal bolts are imported from Germany, Italia and Taiwan. The casting is made of polyester sand nodular cast iron to ensure the performance and appearance quality of the products to overpass the similar products in China and overseas market. The product has the following features:

1. As the product adopts eccentric crankshaft and five-piston structure with comparatively low frequency, it has low noise characteristic;
2. It has big startup torque, perfect stability at low speed, so it can stably operate at very low speed;
3. The plane compensation port plate has perfect reliability and almost no leakage. The piston bushing is sealed by seal ring, so it has comparatively high volume efficiency;
4. The bent axle and the connecting rod are supported by roller, so it has very high mechanical efficiency;
5. The rotational direction is reversible, the output shaft allows endure certain radial and axial force;
6. It has comparatively high power mass ratio. The volume and weight relatively small.

## Scope of application

As YLM series low speed high torque hydraulic motor has such characteristics as: perfect reliability, high efficiency, long life, low noise and wide rotation speed range, it has wide application range. It can be widely applied in the hydraulic and transmission systems of construction engineering machinery, lifting and transportation equipment, heavy type metallurgical machinery, petroleum and coal mining machinery, ship's deck machinery, machine tools, light industry and plastic machinery, geological prospecting equipments. This product is especially applicable for the transmission devices of screw drive of plastic in jecton machine, hoisting winch, all sorts of rotational mechanism and the track and wheel travel machine.

## Notes:

1. Filtration: the recommended filtration precision for normal industrial use is 25  $\mu$  m, and in the working condition of low pressure, low speed or interval, the allowable precision is 75  $\mu$  m.
2. Oil viscosity: the optimum performance could only be obtained under proper oil viscosity between 15—1000 cst.
3. Leakage: drain port should be connected separately to the tank. Normally the maximum pressure for the motor body is 0.1Mpa. If the pressure is too high, it is easy to make the oil seal damage and cause to leak.
4. Hydraulic motor can be installed in any position with rigid support, when installed, shafts of the motor and its transmission should be concentric.
5. The top line of the drain pipe should be higher than that of the motor body, in case emptying oil storage.
6. Before the first start-up, it must fill hydraulic oil in the hydraulic motor body, to avoid the damage.
7. Strictly maintain the cleanness of the oil port, and keep away any solid particles away.
8. Release both the radial and axial loads of the output shaft to enable longer life of the motor.

## 型号说明 Description of model

YLM

通油盘种类，订货时若不注明，则按标准配置（见各系列马达安装联接尺寸图）如有特殊需要请参见51-56页，并在订货时注明。

Oil distribution casing type: it will be configured with standard casing if there is no special requirement marked in the ordering. If you have special requirements, please mark your requirements in the order.

### 输出轴类形

- 1、无字母表示标准矩形花键轴（以外径定心）
- 2、B表示平键轴：注脚数字表示同BM型摆线液压马达或其他品牌对应型号安装尺寸相同（带过渡法兰板）。
- 3、D安装联接尺寸与昆山液压件厂1JMD型同排量液压马达相同。
- 4、I表示内花键轴（以内径定心）：注脚数字表示与QJM系列安装尺寸相同（带过渡法兰板）。
- 5、QM, SL表示安装尺寸与意大利SAI公司生产的M系列、L系列、GM系列液压马达相同，注脚数字表示不同种类安装尺寸。

### Form of output shaft

1. no letter---- standard rectangular spline shaft (the center is up to exterior diameter).
2. B----Flat key shaft: Footnote number ----the installation dimension is the same as BM motors series model (with flange).
3. D----installation dimension is the same as 1JMD series motors of the same displacement (KunShan HYD element plant).
4. I----internal spline shaft( the center is up to interior diameter). Footnote number----the installation dimension is the same as QJM series motors(with flange).
5. QM,SL indicates the installation dimension is the same as M series, L series, GM series of ITALY SAI company. Footnote number----different kinds of installation dimension.

名义排量 ( ml/r )  
Theoretical displacement(ml/r)

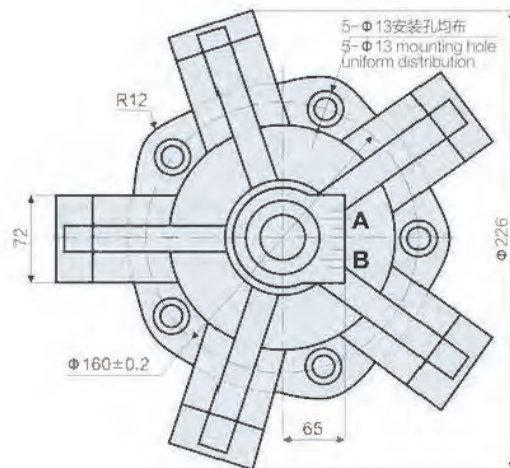
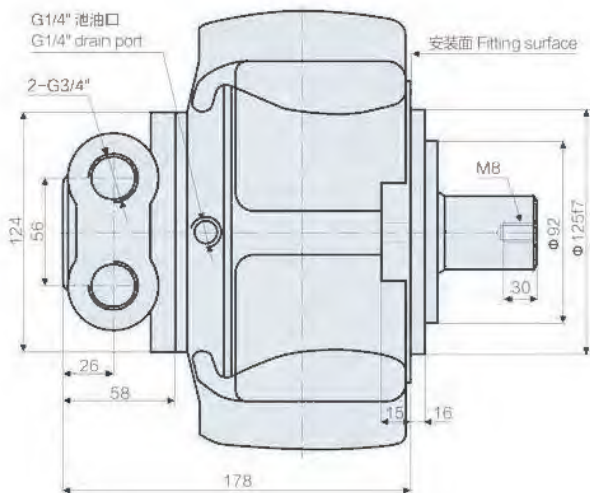
系列（同一系列，其外型尺寸、体积大小相同）  
Series (the same series have the same figuration and volume)

泰勒姆斯低速大扭矩液压马达  
TILORMS low speed high torque hydraulic motor

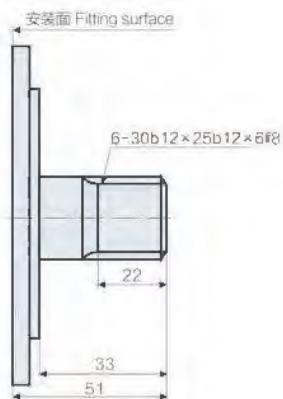
## 技术参数 Technical data

型号 Model	理论排量 Displacement (ml/r)	最高转速 Max.cont Power (r/min)	额定压力 Rated Pressure (Mpa)	尖峰压力 Peak Pressure (Mpa)	额定扭矩 Rated Torque (N.m)	单位扭矩 Theoric Specific Torque (N.m/Mpa)	重量 Weight (kg)
YLM1-63	64	15-1500	20	30	180	9.0	20
YLM1-80	78	15-1250	20	30	240	12	20
YLM1-100	96	15-1000	20	30	280	14	20
YLM1-125	126	15-1000	20	25	380	19	20
YLM1-160	159	15-1000	20	25	472	23	20
YLM2-100	113	15-1250	25	32	420	18	27
YLM2-150	159	15-1000	25	32	620	25	27
YLM2-175	180	15-1000	20	25	526	28	27
YLM2-200	206	8-800	20	25	600	32	27
YLM2-250	235	8-630	16	20	607	40	27
YLM2-280	276	8-500	16	20	670	44	27
YLM3-175	181	8-800	20	30	578	28	35
YLM3-200	201	8-700	20	30	640	32	35
YLM3-250	254	8-630	20	30	810	40	35
YLM3-300	289	6-500	20	25	864	46	35
YLM3-350	340	6-400	20	25	1040	55	35
YLM3-400	380	6-400	16	20	949	63	35
YLM3-450	452	6-350	16	20	1120	70	35
YLM6-400	397	5-500	20	30	1265	63	57.5
YLM6-450	452	5-630	20	30	1440	72	57.5
YLM6-500	491	5-500	20	25	1562	78	57.5
YLM6-600	594	4-500	20	25	1775	94	57.5
YLM6-700	683	4-400	16	20	1633	103	57.5
YLM6-750	754	4-320	16	20	1760	110	57.5
YLM11-700	682	4-400	20	30	2260	114	94
YLM11-800	782	4-400	20	30	2520	120	94
YLM11-900	894	4-400	20	30	2860	140	94
YLM11-1000	981	3-320	20	25	2974	158	94
YLM11-1100	1104	3-320	20	25	3336	177	94
YLM11-1200	1234	3-320	20	25	3740	187	94
YLM11-1300	1301	3-250	16	20	3152	197	94
YLM11-1400	1406	3-230	16	25	3568	223	98
YLM16-1400	1413	2-400	20	30	4500	210	170
YLM16-1600	1648	2-400	20	30	5240	262	170
YLM16-1800	1814	2-320	20	25	5433	283	170
YLM16-2000	2034	2-320	16	25	5168	323	170
YLM16-2400	2401	2-250	16	20	5763	360	170
YLM16-3000	3000	2-200	16	20	7550	471	170
YLM31-2500	2553	2-250	20	30	8100	405	298
YLM31-2800	2683	1-200	20	30	8860	443	298
YLM31-3000	3063	1-200	20	25	9135	485	298
YLM31-3150	3218	1-200	20	25	9392	500	298
YLM31-3500	3462	1-160	20	25	10220	544	298
YLM31-4000	4152	1-160	20	25	12481	665	298
YLM31-5000	4828	1-160	16	20	12387	825	298

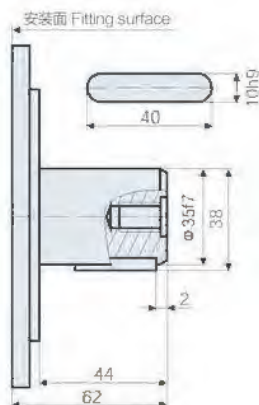
## YLM1-63~160 外形尺寸 Dimension



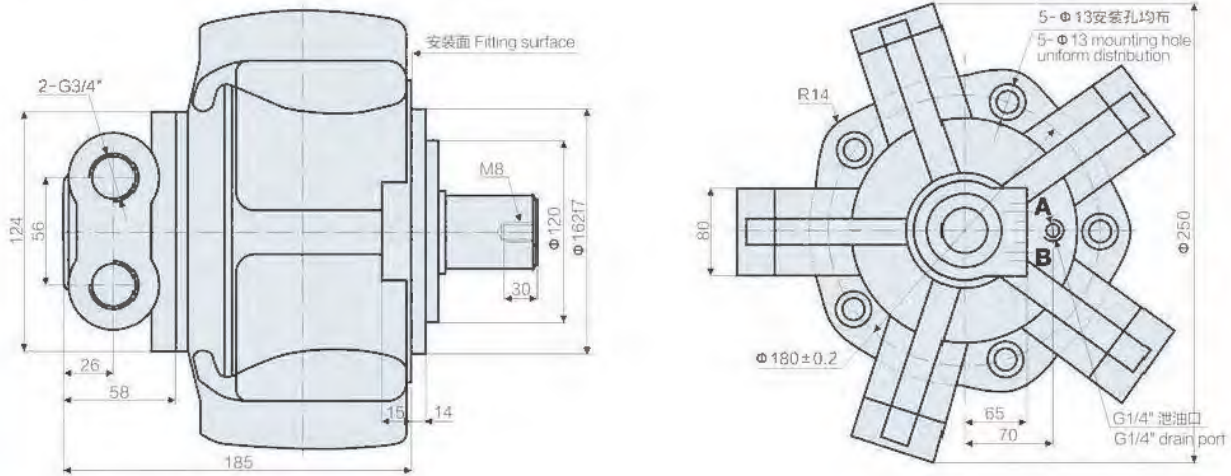
### 标准外花键: YLM1-\*\* External spline



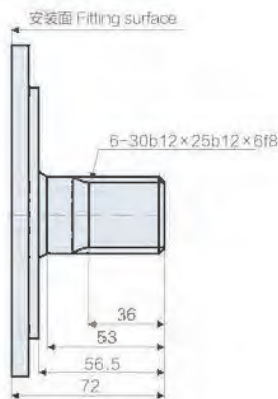
### 标准平键: YLM1-\*\*B Flat key



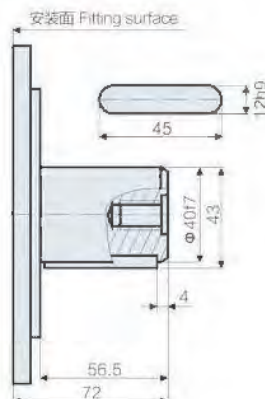
## YLM2-100~280 外形尺寸 Dimension



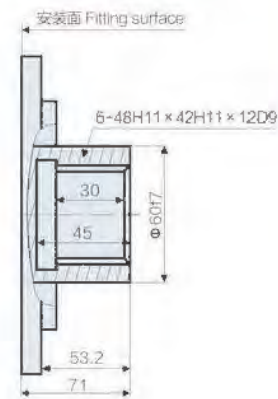
标准外花键: YLM2-\*\*  
External spline



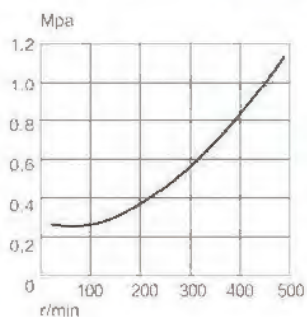
标准平键: YLM2-\*\*B  
Flat key



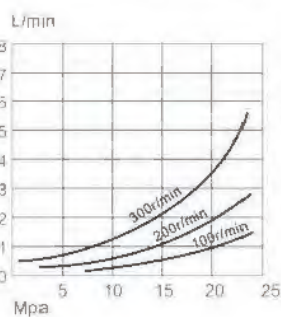
标准内花键: YLM2-\*\*I  
Internal spline



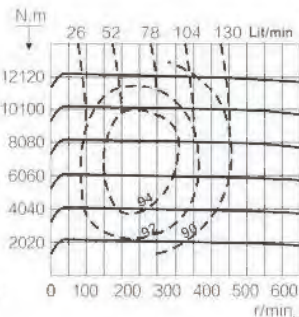
## YLM2-250 特性曲线图 Performance



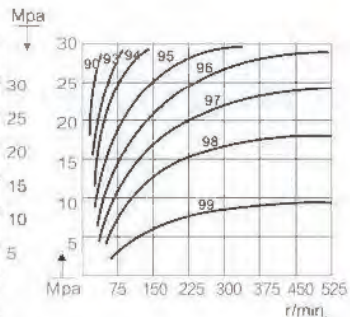
空载压力  
Idling Pressure



内泄漏  
Internal Leakage

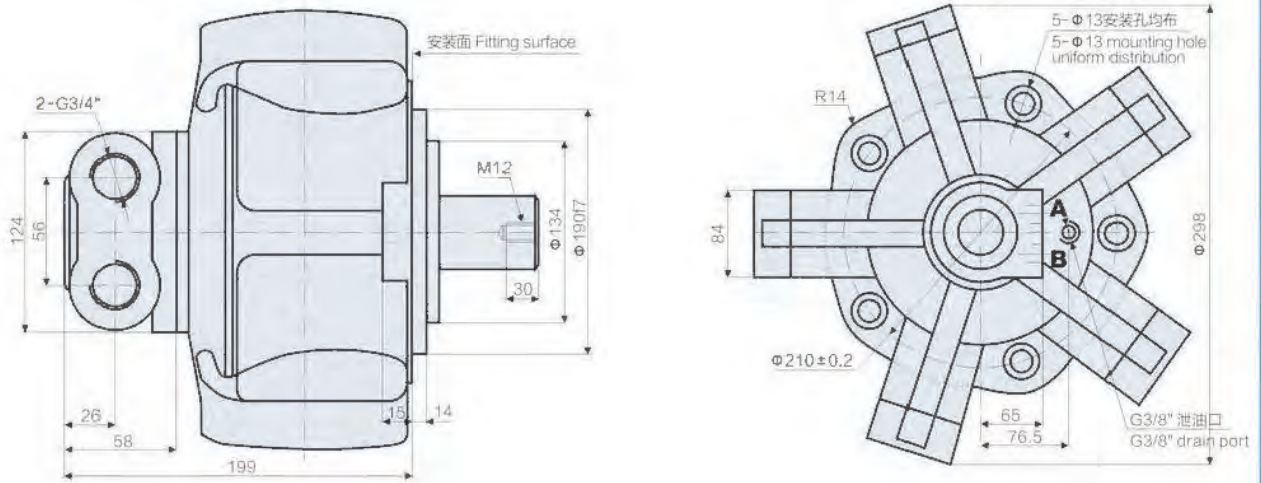


输出特性  
Output Characteristic

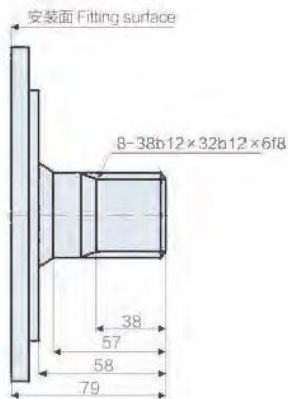


容积效率  
Volumetric Efficiency(%)

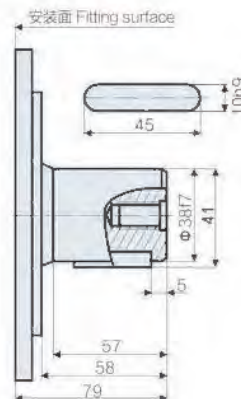
## YLM3-175~450 外形尺寸 Dimension



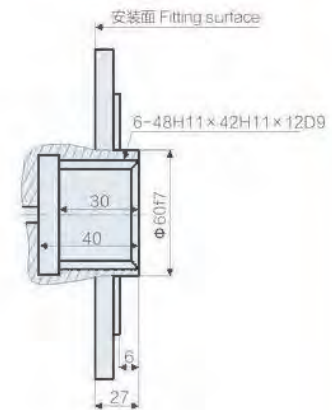
标准外花键: YLM3-\*\*  
External spline



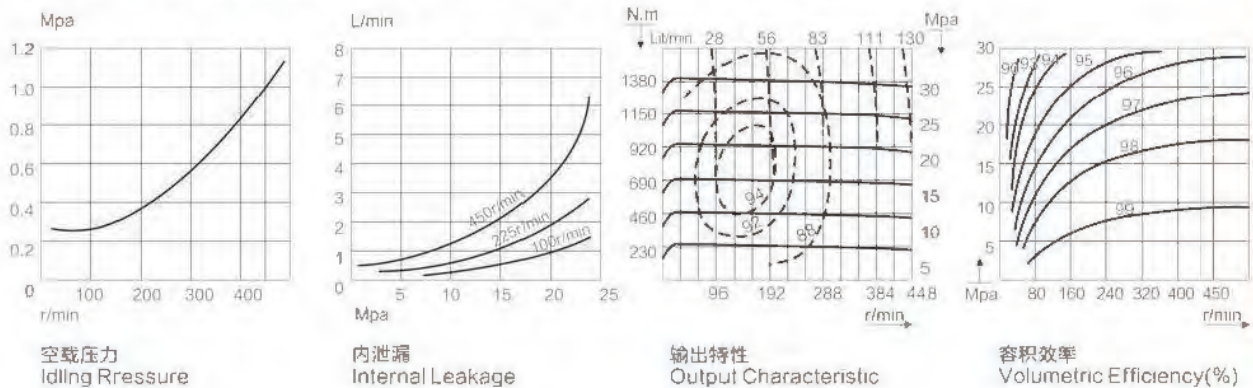
标准平键: YLM3-\*\*B  
Flat key



标准内花键: YLM3-\*\*I  
Internal spline

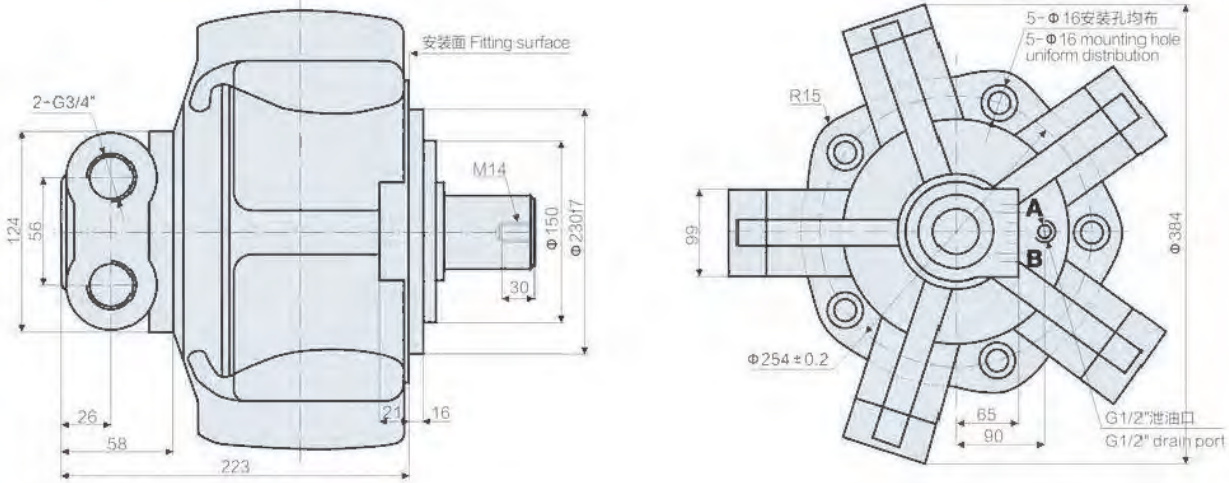


## YLM3-300 特性曲线图 Performance

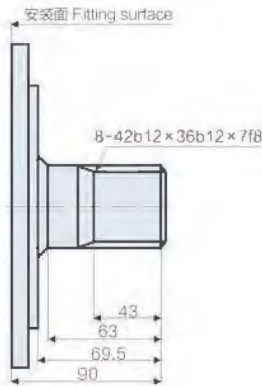




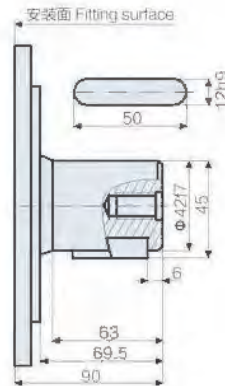
## YLM6-400~750 外形尺寸 Dimension



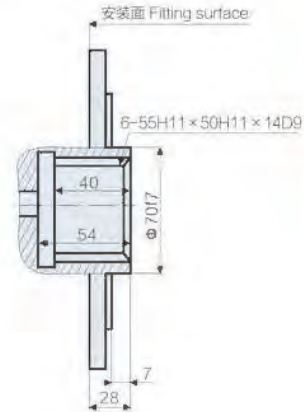
标准外花键: YLM6-\*\*  
External spline



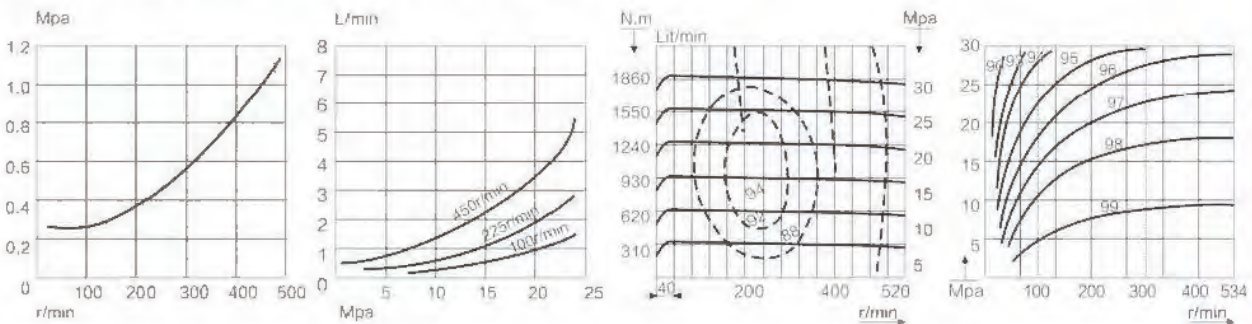
标准平键: YLM6-\*\*B  
Flat key



标准内花键: YLM6-\*\*I  
Internal spline



## YLM6-500 特性曲线图 Performance



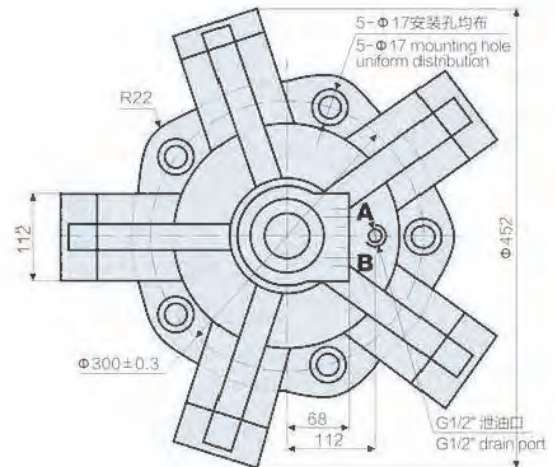
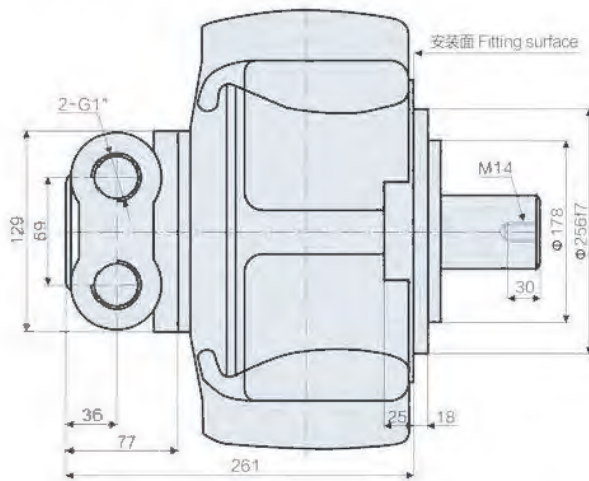
空载压力  
Idling Pressure

内泄漏  
Internal Leakage

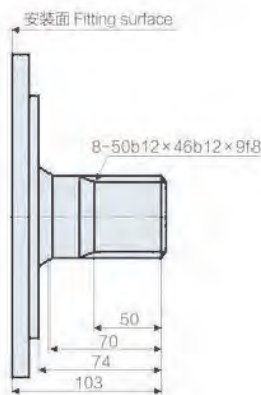
输出特性  
Output Characteristic

容积效率  
Volumetric Efficiency (%)

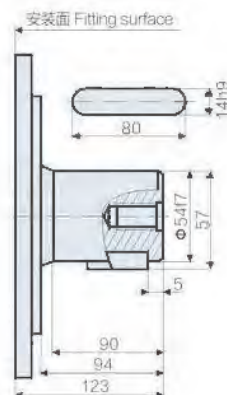
## YLM11-700~1400 外形尺寸 Dimension



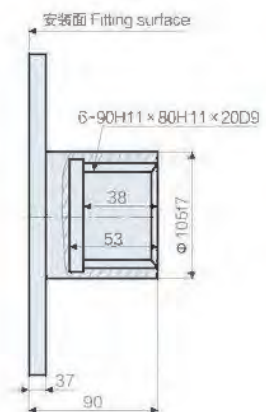
标准外花键: YLM11-\*\*  
External spline



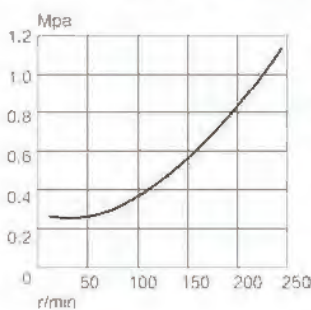
标准平键: YLM11-\*\*B  
Flat key



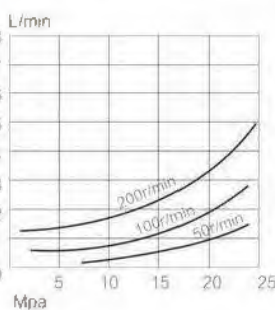
标准内花键: YLM11-\*\*\*  
Internal spline



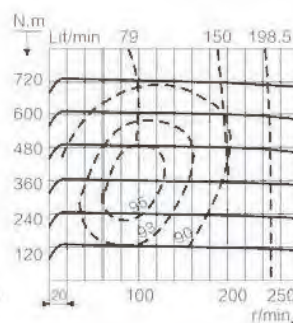
## YLM11-800 特性曲线图 Performance



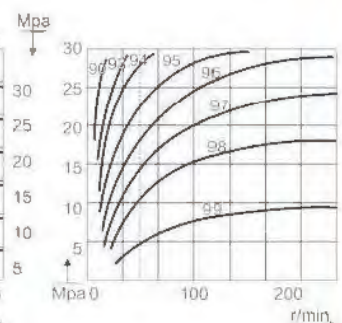
空载压力  
Idling Pressure



内泄漏  
Internal Leakage

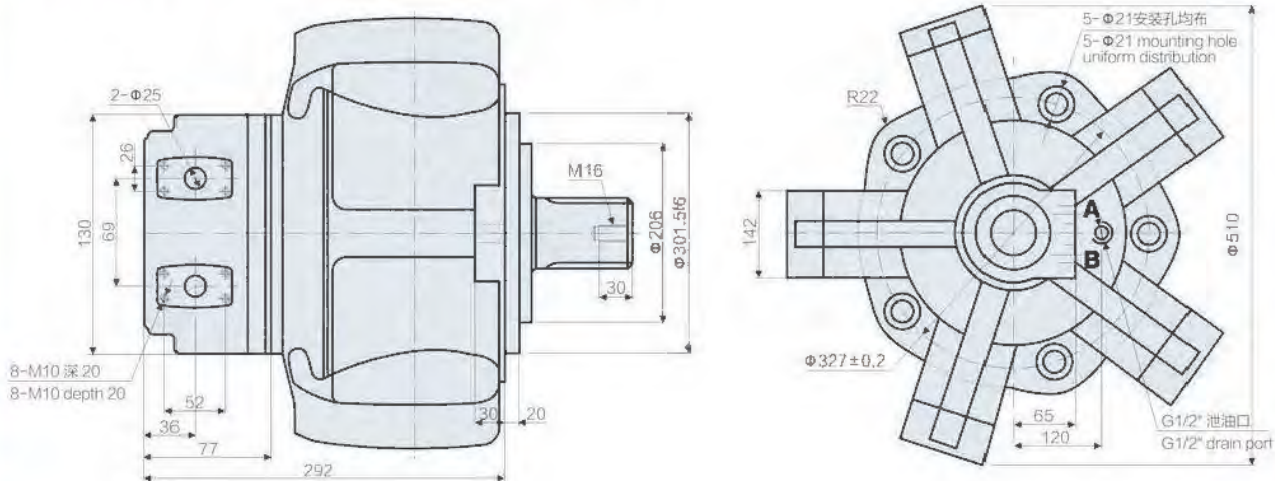


输出特性  
Output Characteristic

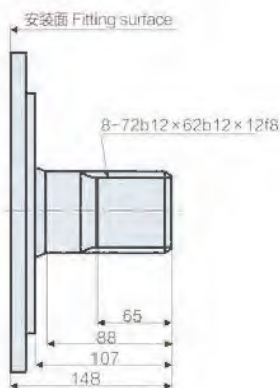


容积效率  
Volumetric Efficiency (%)

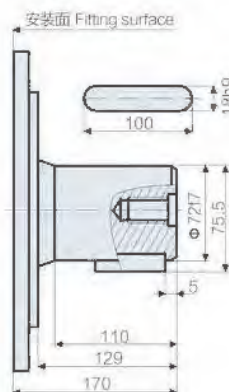
## YLM16-1400~3000 外形尺寸 Dimension



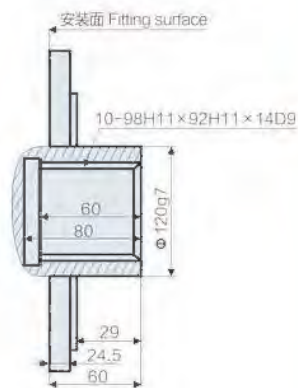
标准外花键: YLM16-\*\*  
External spline



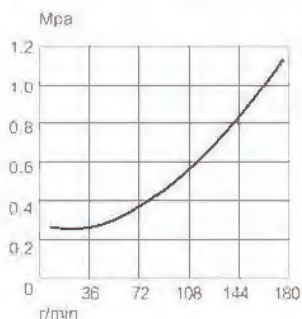
标准平键: YLM16-\*\*B  
Flat key



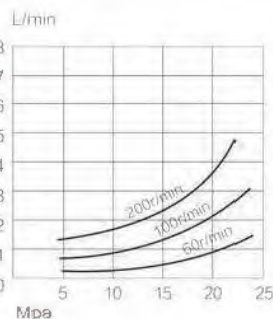
标准内花键: YLM16-\*\*\*I  
Internal spline



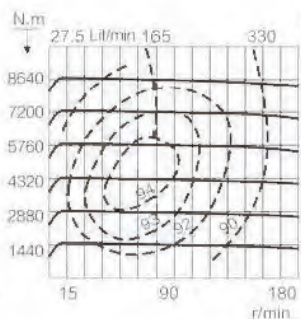
## YLM16-1800 特性曲线图 Performance



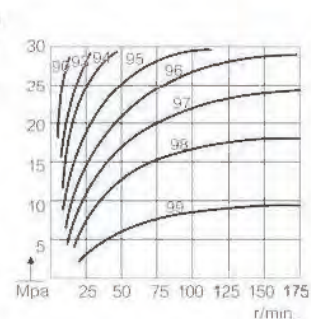
空载压力  
Idling Pressure



内泄漏  
Internal Leakage

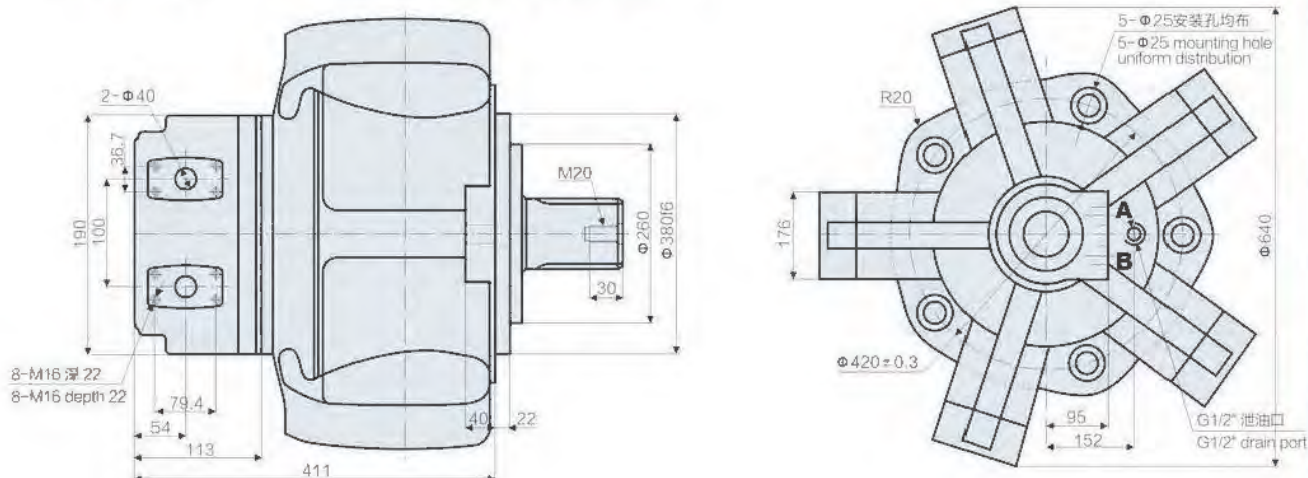


输出特性  
Output Characteristic

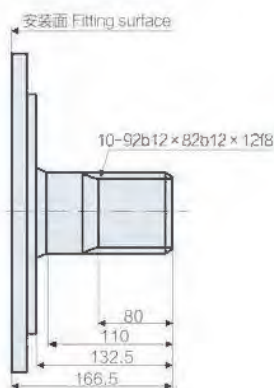


容积效率  
Volumetric Efficiency (%)

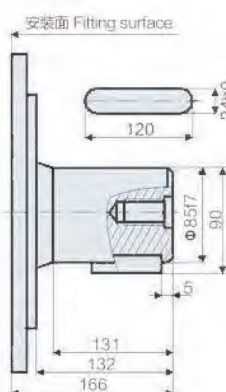
## YLM31-2500~5000 外形尺寸 Dimension



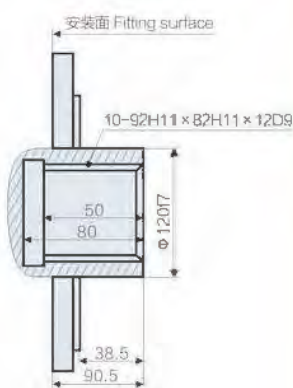
标准外花键: YLM31-\*\*  
External spline



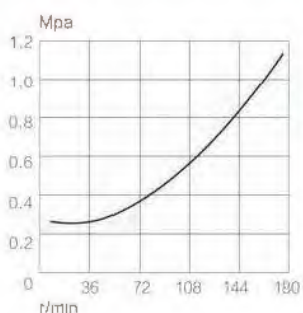
标准平键: YLM31-\*\*B  
Flat key



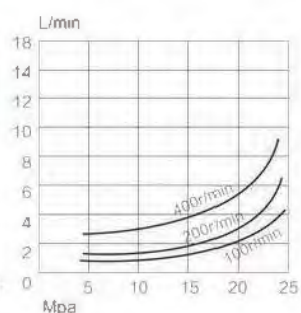
标准内花键: YLM31-\*\*I  
Internal spline



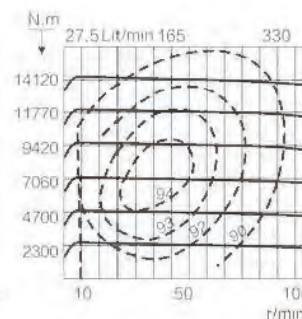
## YLM31-3150 特性曲线图 Performance



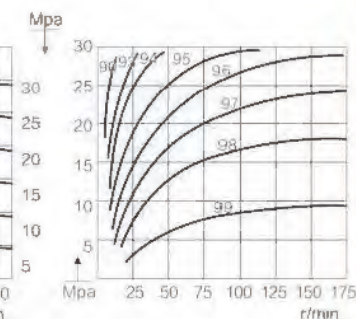
空载压力  
Idling Pressure



内泄漏  
Internal Leakage



输出特性  
Output Characteristic



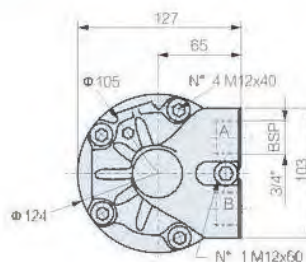
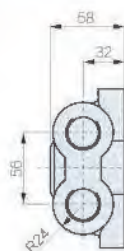
容积效率  
Volumetric Efficiency (%)

# 液压马达配流器 Hydraulic motors distributors

科技带来强劲动力!  
Technology brings a strong driving force!

## D31

D31配油盘, 油孔为G3/4"  
D31 distributor with 3/4" ports.

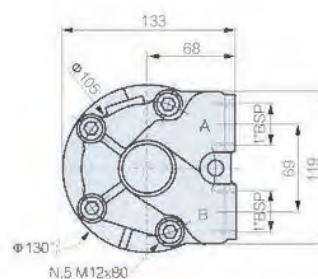
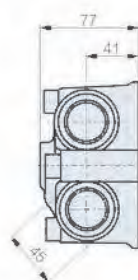


## D310

与D31相同, 油口为G1"  
重量: 4kg  
Is the same as D31, oil port is G1"  
Weight: 4kg

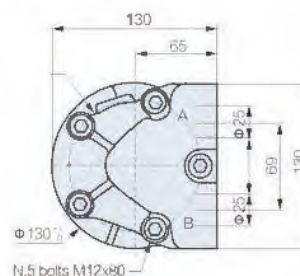
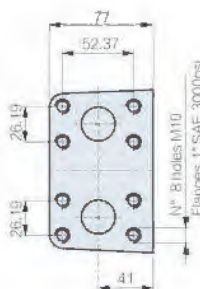
## D40

标准配置用配油盘。  
重量: 5kg  
Standard distributor for motors.  
Weight: 5kg



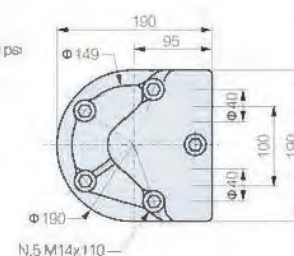
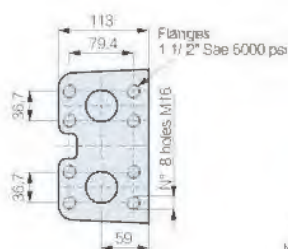
## D47

油孔为 $\Phi 25$ 的法兰连接配油盘。  
重量: 6kg  
Distributor with SAE 1" 3000 psi flanges.  
Weight: 6kg



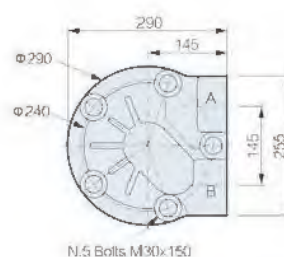
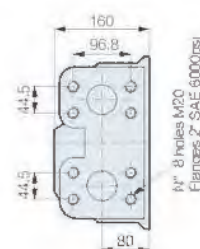
## D90

AKS6, YLM31 系列标准配油盘。  
重量: 14.5kg  
Standard distributor for AKS6, YLM31 series motors.  
Weight: 14.5kg



## D250

大流量配油盘  
重量: 50kg  
High flow distributor  
Weight: 50kg



# 集成式液压配流器

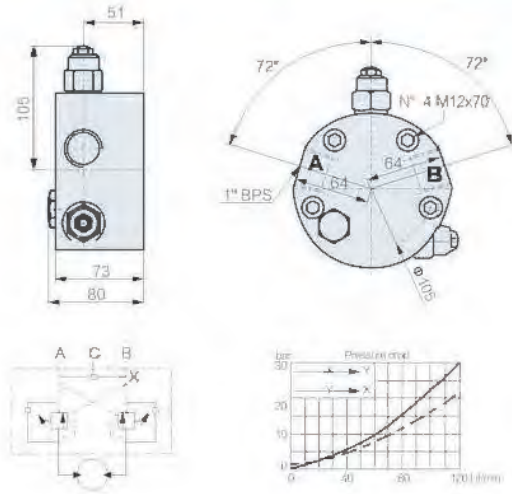
Distributors with integration valve block

信任源自真诚服务!  
Trust stems from the sincere service!

## D503

带有双向平衡阀和高压梭阀 (C) 的配油盘  
最大流量 120 lit/min  
调节比 10: 1  
最大压力 265 bar  
压力设定=1.3x工作压力  
压力设定范围从 100bar 到 350bar  
B口背压可能对阀的作用产生不利影响  
重量: 5kg

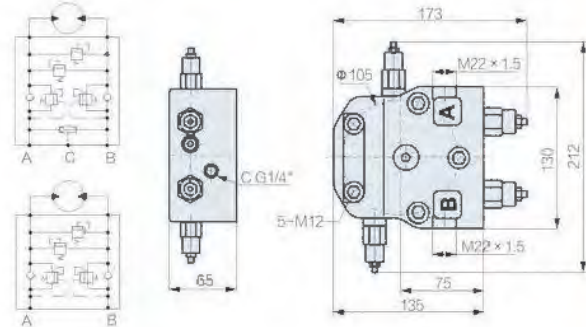
Distributor with double overcentre valve and high pressure pilot line(C)  
Max flow 120 lit/min  
Pilot ratio 10:1  
Max pressure 265 bar.  
Pressure setting=1.3x working pressure.  
Press.Setting range 100 to 350 bar  
Back-pressure in port B may adversely affect operation of the valve  
Weight: 5kg



## D60221

双向过载阀, 双向平衡阀  
高压梭阀  
最高设定压力 35MPa  
最大流量为 60L/min

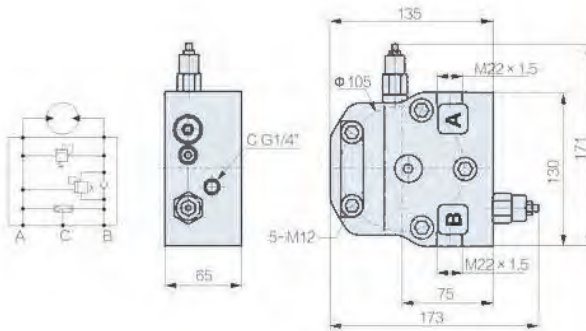
Bidirectional overload valve  
Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



## D6022

带双向过载阀, 双向平衡阀  
最高设定压力 35MPa  
最大流量为 60L/min

Bidirectional overload valve  
Bidirectional counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



## D60111

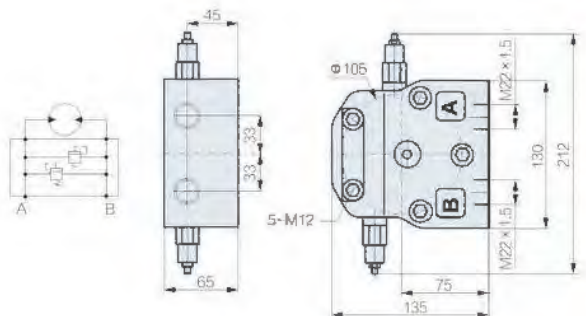
单向过载阀、单向平衡阀  
高压梭阀  
最高设定压力 35MPa  
最大流量为 60L/min

Single overload valve  
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min

## D6002

双向过载阀  
最高设定压力 35MPa  
最大流量为 60L/min

Bidirectional overload valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



# 集成式液压配流器

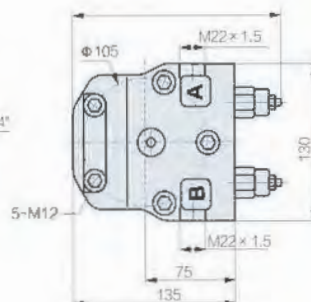
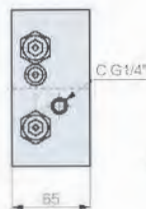
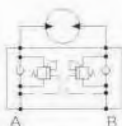
## Distributors with integration valve block

科技带来强劲动力!  
Technology brings a strong driving force!

### D602

双向平衡阀  
最高设定压力35MPa  
最大流量为60L/min

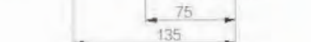
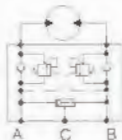
Bidirectional counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



### D60201

双向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为60L/min

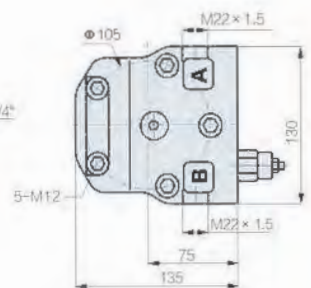
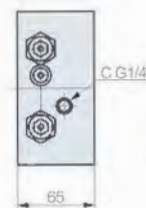
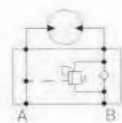
Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



### D601

单向平衡阀  
最高设定压力35MPa  
最大流量为60L/min

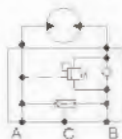
Single counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



### D60101

单向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为60L/min

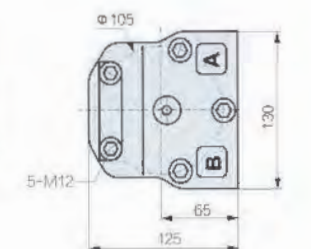
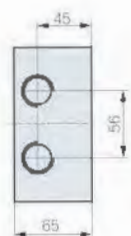
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 60L/min



### D60L

A、B油口为G3/4\"/>

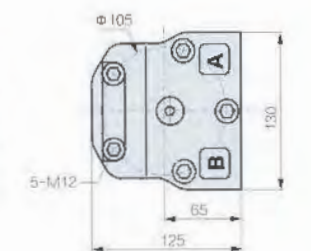
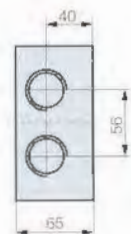
The diameter of port A and port B is G3/4\"/>



### D60LG

A、B油口为M27 x 2  
额定压力为32MPa  
额定流量为100L/min  
(相当于D31)

The diameter of port A and port B is M27 x 2  
Rated pressure is 35MPa  
Rated flow is 100L/min



### D60L0

A、B油口为G1\"/>

The diameter of port A and port B is G1\"/>

# 集成式液压配流器

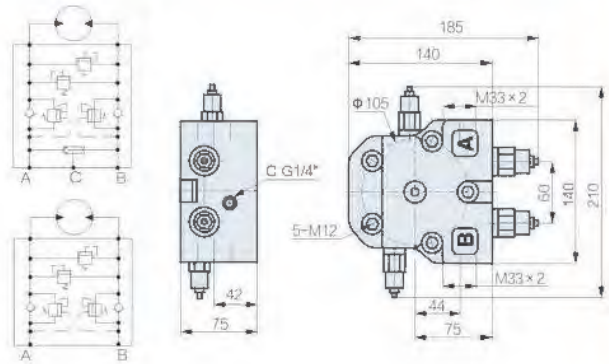
Distributors with integration valve block

信任源自真诚服务！  
Trust stems from the sincere service!

## D120221

双向过载阀，双向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为120L/min

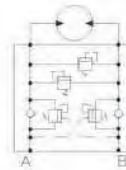
Bidirectional overload valve  
Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D12022

带双向过载阀，双向平衡阀  
最高设定压力35MPa  
最大流量为120L/min

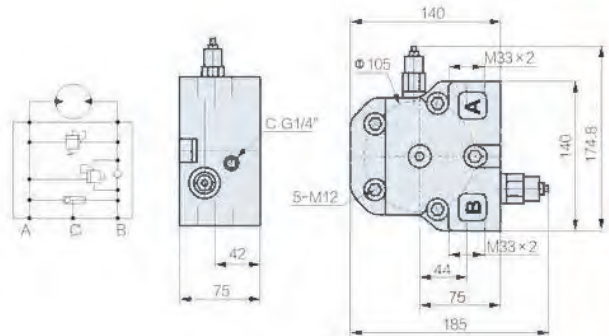
Bidirectional overload valve  
Bidirectional counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D120111

单向过载阀、单向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为120L/min

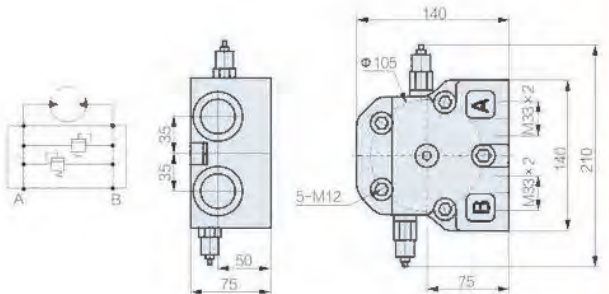
Single overload valve  
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D12002

双向过载阀  
最高设定压力35MPa  
最大流量为120L/min

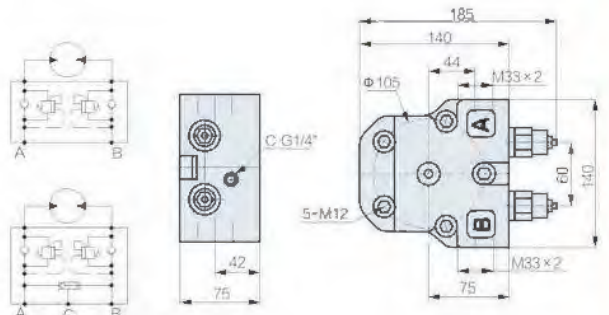
Bidirectional overload valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D1202

双向平衡阀  
最高设定压力35MPa  
最大流量为120L/min

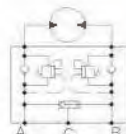
Bidirectional counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D120201

双向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为120L/min

Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min





# 集成式液压配流器

Distributors with integration valve block

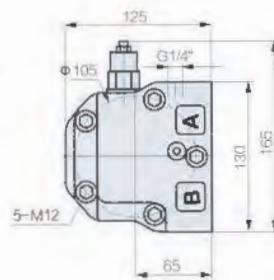
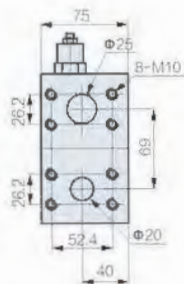
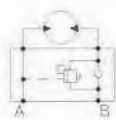
科技带来强劲动力!

Technology brings a strong driving force!

## D1201

单向平衡阀  
最高设定压力35MPa  
最大流量为120L/min

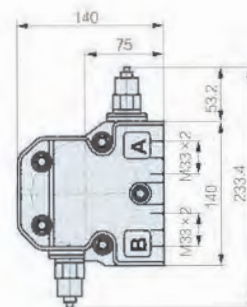
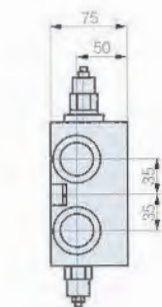
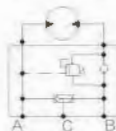
Single counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D120101

单向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为120L/min

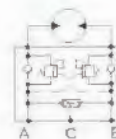
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D120201

双向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为120L/min

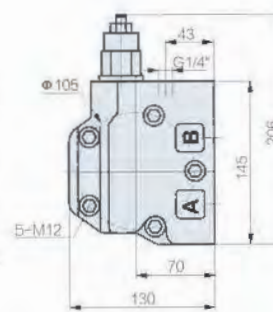
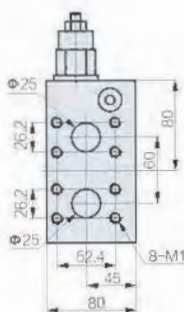
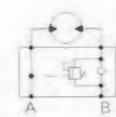
Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 120L/min



## D2401

单向平衡阀  
最高设定压力35MPa  
最大流量为240L/min

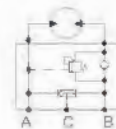
Single counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



## D240101

单向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为240L/min

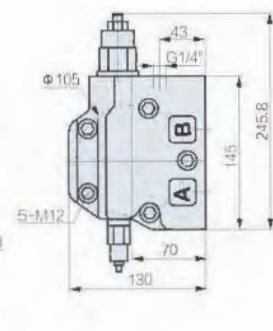
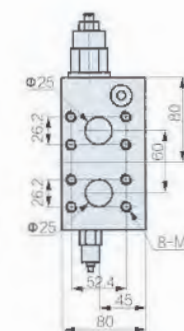
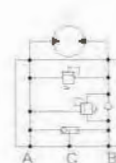
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



## D240111

单向平衡阀及单向过载阀  
高压梭阀  
最高设定压力35MPa  
最大流量为240L/min

Single overload valve  
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



# 集成式液压配流器

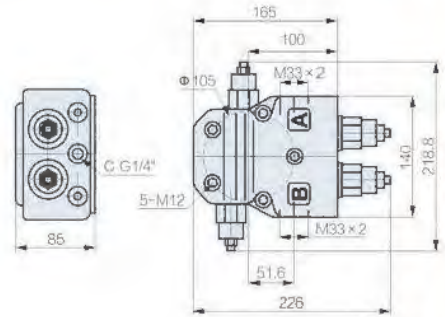
Distributors with integration valve block

信任源自真诚服务!  
Trust stems from the sincere service!

## D240221

双向过载阀, 双向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为240L/min

Bidirectional overload valve  
Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



## D24022

带双向过载阀及平衡阀  
最高设定压力35MPa  
最大流量为240L/min

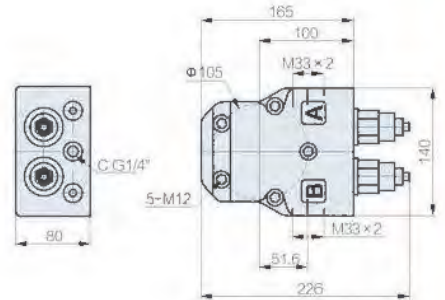
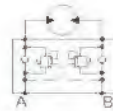
Bidirectional overload valve  
Bidirectional counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



## D2402

双向平衡阀  
最高设定压力35MPa  
最大流量为240L/min

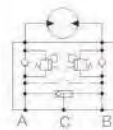
Bidirectional counterbalance valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



## D240201

双向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为240L/min

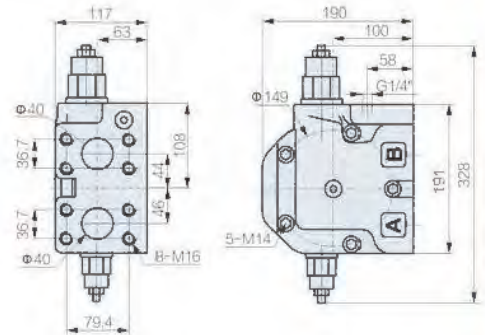
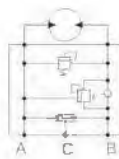
Bidirectional counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 240L/min



## D480111

单向平衡阀及单向过载阀  
高压梭阀  
最高设定压力35MPa  
最大流量为480L/min

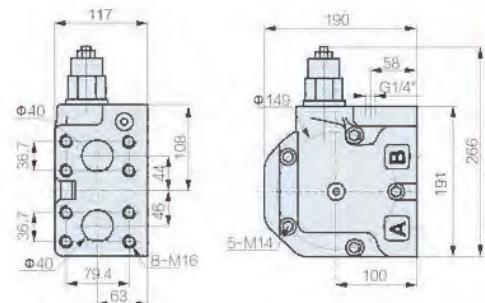
Single overload valve  
Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 480L/min



## D480101

单向平衡阀  
高压梭阀  
最高设定压力35MPa  
最大流量为480L/min

Single counterbalance valve  
High pressure shuttle valve  
Maximum setting pressure is 35MPa  
Maximum flow is 480L/min



# BM

BM 系列摆线液压马达  
BM orbit hydraulic motor



**TILORMS**<sup>®</sup>  
泰勒姆斯

## 产品概述

本系列马达是一种体积小、经济型轴配流液压马达。  
采用整体式转定子付，结构紧凑、重量轻、功率密度大。

## 主要特点

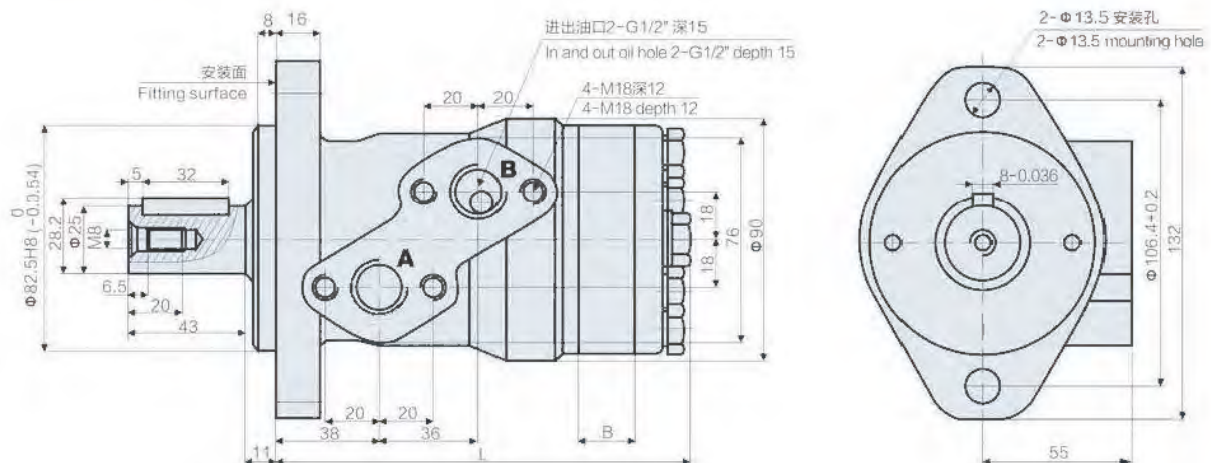
- 1、整体式转定子付采用先进加工手段，确保整机体积小，效率高、功率大、寿命长。
- 2、轴密封承压高，可串、并联使用。
- 3、结构设计先进，功率密度大。

## 技术参数 Technical data

型号 Model	排量 Displacement (ml/r)	最大压降 Max. Pressure Drop (Mpa)			最大扭矩 Max. torque (N.m)			转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	重量 Weight (kg)	长度 Length (mm)	
		连续 cont	间断 int	尖峰 peak	连续 cont	间断 int	尖峰 peak					B	L
BMP-50	52.9	14	17.5	20	89	110	130	10-800	40	7	5.6	7	141
BMP-80	79.3	14	17.5	20	150	185	215	10-770	60	10	5.7	10.5	144.5
BMP-100	98.2	14	17.5	20	191	231	268	9-615	60	10	5.9	13	147
BMP-125	120.9	14	17.5	20	235	292	336	9-480	60	10	6.0	16	150
BMP-160	158.7	14	17.5	20	307	376	430	8-385	60	10	6.2	21	155
BMP-200	196.4	14	17.5	20	365	440	506	7-310	60	8	6.4	26	160
BMP-250	241.8	11	14	16	378	465	537	5-250	60	6	6.6	32	166
BMP-315	317.3	9	11	13	378	465	537	5-195	60	5	6.9	42	176
BMP-400	392.9	7	9	11	378	465	537	5-155	60	4	7.4	52	186

间断工作时间每分钟不得超过6秒，尖峰工作时间每分钟不得超过0.6秒。  
Intermittent operation the permissible values may occur for max. 10% of every minute  
Peak load: the permissible values may occur for max. 1% of every minute.

## BMP外形安装图 Installation BMP-50-400PA II Y



## 产品概述

本系列马达壳体采用足够强度的球墨铸铁铸造而成，适用于负载较小且间隙工作的场合，广泛应用于农业、林业、塑料、机床、矿业机械，如注塑机的调膜，清扫机，锯木机，工作平台等。

## 主要特点

- 1、主轴上装有深沟球轴承，可承受一定的轴向和径力。
- 2、采用了轴向配油结构，体积小、重量轻。
- 3、内置2个单向阀，不需要外接泄油管。
- 4、采用了有滚柱的摆线轮组，摩擦力小，机械效率高。

## Product overview

This series of motor, with its shell made of ductile cast iron of adequate intensity, can be applied to situation with less load and interval operation, widely to agriculture, forestry, plastics, machine tools and min machines, such as the mould height adjustment of the injection molding machine, the cleaner, the saw the worktable etc.

## Main Characteristics

1. The output shaft with the depth groove ball bearing, can bear certain axial force and radial force.
2. Adopt the axial oil distribution structure, small volume, light weight.
3. With two inner check valves, with no need for drain connection.
4. With cycloid group with the roller, it has a small frictional force and high mechanical efficiency.

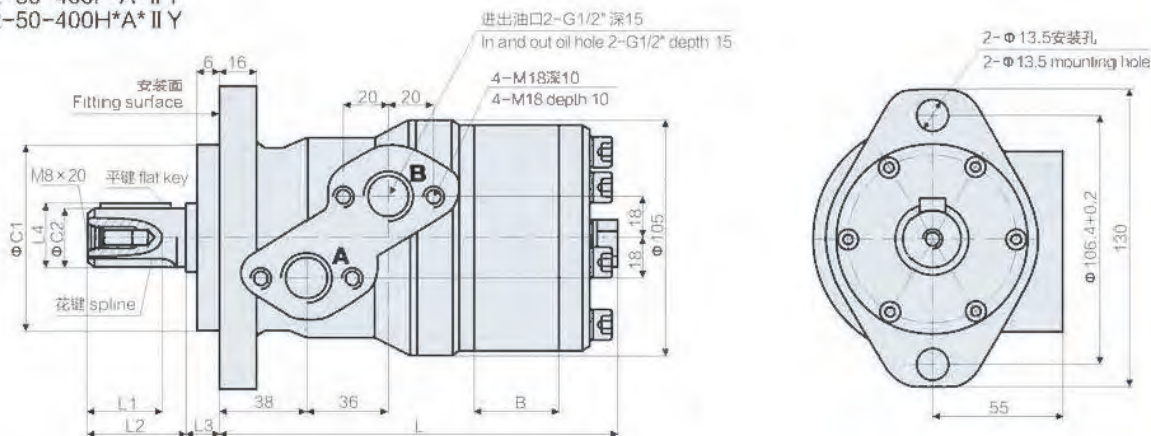
## 技术参数 Technical data

型号 Model	排量 Displacement (ml/r)	最大压降 Max. Pressure Drop (Mpa)			最大扭矩 Max. torque (N.m)			转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	重量 Weight (kg)	长度 Length (mm)		
		连续 cont	间断 int	尖峰 peak	连续 cont	间断 int	尖峰 peak					B	L	Lw
BMR-50 BMRW-50	51.7	14	17.5	20	93	118	135	10-775	40	7	6.5	9	108	139
BMR-80 BMRW-80	80.5	14	17.5	20	152	189	216	10-750	60	10	6.9	14	113	144
BMR-100 BMRW-100	100.5	14	17.5	20	194	236	270	10-600	60	10	7.0	17.5	116.5	17.5
BMR-125 BMRW-125	126.3	14	17.5	20	237	296	338	9-475	60	10	7.3	22	121	152
BMR-160 BMRW-160	160.8	14	17.5	20	310	378	433	7-375	60	10	7.5	28	127	158
BMR-200 BMRW-200	200.9	14	17.5	20	369	450	509	5-300	60	8	8.0	35	134	165
BMR-250 BMRW-250	252.6	11	14	16	380	470	540	5-240	60	6	8.5	44	143	174
BMR-315 BMRW-315	321.5	9	11	13	380	470	540	5-190	60	5	9.0	56	155	186
BMR-400 BMRW-400	401.9	7	9	11	380	470	540	5-160	60	4	11	70	169	200

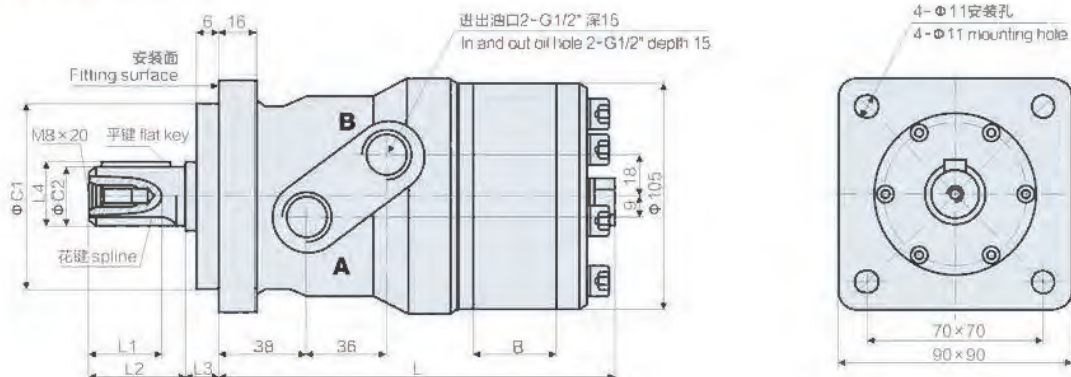
间断工作时间每分钟不得超过6秒，尖峰工作时间每分钟不得超过0.6秒。  
Intermittent operation the permissible values may occur for max. 10% of every minute  
Peak load: the permissible values may occur for max. 1% of every minute.

## BMR外形安装图 Installation

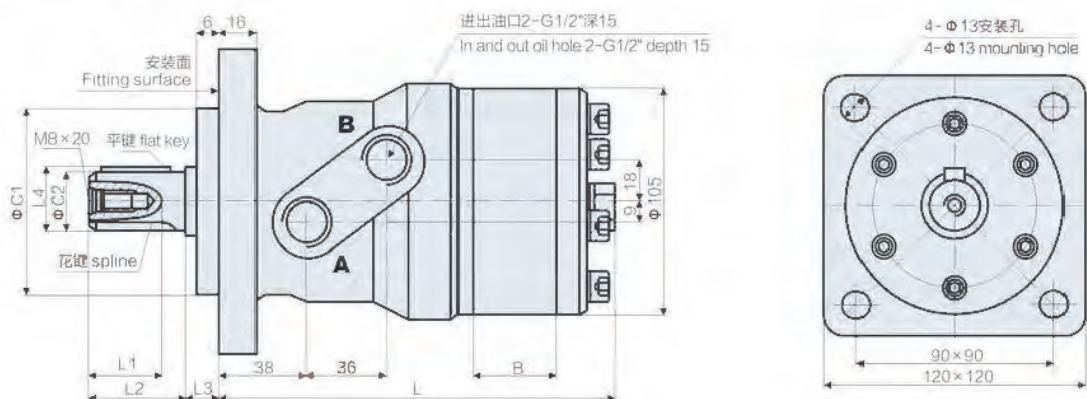
BMR-50-400P\*A\*II Y  
BMR-50-400H\*A\*II Y



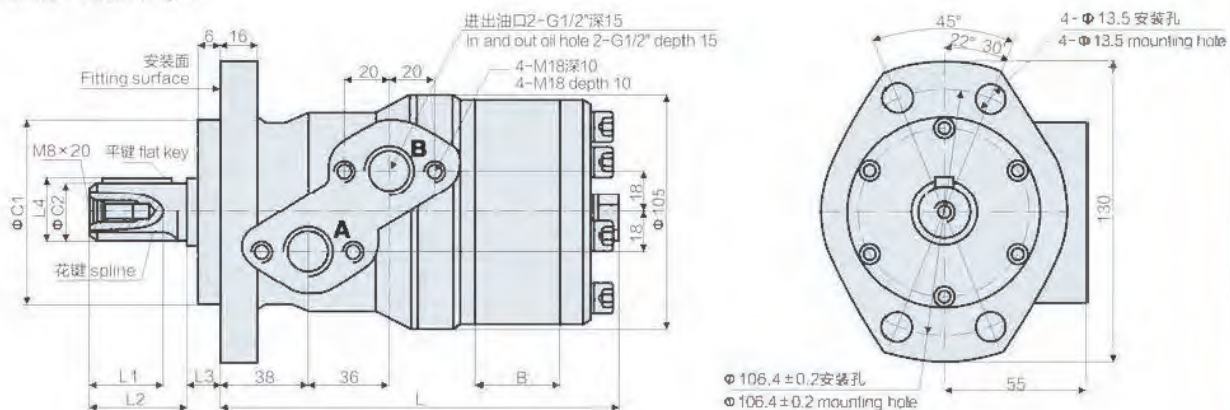
BMR-50-400P\*A\*Y  
BMR-50-400H\*A\*Y



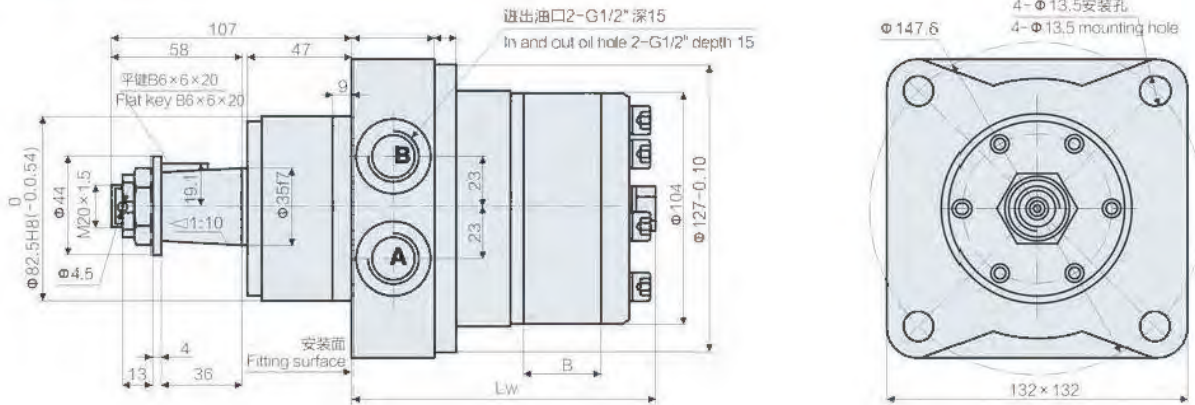
BMR-50-400P\*A\*III Y  
BMR-50-400H\*A\*III Y



BMR-50-400P\*A\*IV Y  
BMR-50-400H\*A\*IV Y



## BMRW-\*ZAY



## 型号说明 Description of model

**BMR** -

1 2 3 4 5 6

- |            |                                       |
|------------|---------------------------------------|
| 1、摆线液压马达代号 | 1. Code name of orbit hydraulic motor |
| 2、机型系列代号   | 2. Code name of type/series           |
| 3、排量代号     | 3. Code name of displacement          |
| 4、输出轴代号    | 4. Code name of output shaft          |
| 5、安装止口尺寸   | 5. Size of installation spigot        |
| 6、油口代号     | 6. Code name of hydraulic fluid port  |

名称 Name	代号 Code name	轴外径 Shaft external diameter	键参数 Key parameter	L2	L4	花键有效长 L1 Spline effective length L1
平键 Flat key	P1	Φ25h7	8×7×32	43	28.2	-
	P2	Φ30h7	8×7×32	43	33.2	-
	P3	Φ25.4h7	6.35×6.35×32	43	28.4	-
矩形花键 Rectangular spline	H1	Φ30h7	6-30×25b12×6d10	43	-	32
	H2	Φ25h7	6-25×21b12×5d10	43	-	32
	H3	Φ25.4h7	6-25.4×21.4×6.2	-	-	-

代号 Code name	法兰形式, 止口ΦC1 Form of flange, spigot ΦC1	L3
A	4-Φ11 方法兰, Φ82.5h8 4-Φ11 Square flange Φ82.5h8	11.3
A1	4-Φ11 方法兰, Φ80h8 4-Φ11 Square flange Φ80h8	11.3
AIV	4-Φ13.5 菱形法兰, Φ82.5h8 4-Φ13.5 diamond flange Φ82.5h8	11.3

代号 Code name	法兰形式, 止口ΦC1 Form of flange, spigot ΦC1	L3
AII	2-Φ13.5 菱形法兰, Φ82.5h8 2-Φ13.5 diamond flange Φ82.5h8	11.3
A1II	2-Φ13.5 菱形法兰, Φ80h8 2-Φ13.5 diamond flange Φ80h8	11.3
A2III	4-Φ13 大法兰, Φ100h8 4-Φ13 large-scale flange Φ100h8	11.3

代号 Code name	进出油口尺寸 Size of in and out oil port	泄油口 Drainage port
Y	G1/2	M14×1.5
Y1	M18×1.5	M14×1.5
Y2	M22×1.5	M14×1.5
Y5	$\frac{7}{8}$ -14UNF	M14×1.5
Y8	NPT1/2	M14×1.5

注: 输出转向  
A腔进油时为顺时针旋转,  
B腔进油时为逆时针旋转 (从轴端看)  
Note: export forwarding  
Oil enter into A is clockwise rotation  
Oil enter into B is counterclockwise rotation

注: P1A1Y1, P1AII Y, P3AII Y 优先考虑  
Note: give priority to P1A1Y1, P1AII Y, P3AII Y

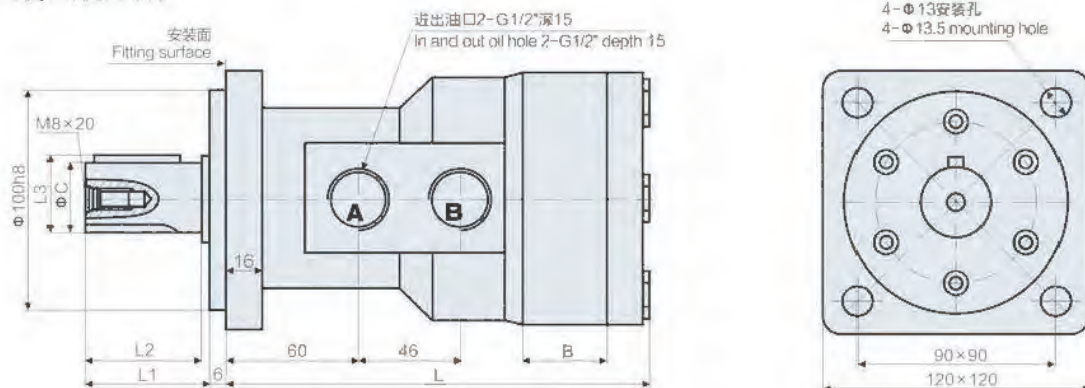
## 技术参数 Technical data

型号 Model	排量 Displacement (ml/r)	最大压降 (连续) Max. Pressure Drop (cont) (Mpa)	最大扭矩 (连续) Max. torque (cont) (N.m)	转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	进油口最大 压力 (连续) (cont) (Mpa)	重量 Weight (kg)	长度 Length (mm)	
									B	L
BM2-100	105.2	14	194	10-600	60	10	17.5	8	14	167
BM2-125	127.8	14	237	9-480	60	10	17.5	8.5	17	170
BM2-160	165.4	14	310	7-375	60	10	17.5	9	22	175
BM2-200	203	14	369	5-300	60	8	17.5	9.5	27	180
BM2-250	255.6	11	380	5-240	60	6	17.5	10	34	187
BM2-315	323.3	9	380	5-190	60	5	17.5	10.5	43	196
BM2-400	406	7	360	5-160	60	4	17.5	12.9	54	207

## BM2外形安装图 Installation

BM2-100-400P\*AY

BM2-100-400H\*AY



## 型号说明 Description of model

BM 2      
1 2 3 4 5 6

- |            |                                       |
|------------|---------------------------------------|
| 1、摆线液压马达代号 | 1. Code name of orbit hydraulic motor |
| 2、机型系列代号   | 2. Code name of type/series           |
| 3、排量代号     | 3. Code name of displacement          |
| 4、输出轴代号    | 4. Code name of output shaft          |
| 5、安装止口尺寸   | 5. Size of installation spigot        |
| 6、油口代号     | 6. Code name of hydraulic fluid port  |

代号 Code name	轴外径 φC Shaft external diameter φC	键参数 Key parameter	L1	L2	L3	花键有效长 Spline effective length
P1	φ32h7	10×8×45	58.5	56.5	35	-
H1	φ30h7	6-30×25×6	48	46	-	32

代号 Code name	法兰形式, 止口φC1 Form of flange, spigot φC1
A	4-φ13方法兰, φ100 4-φ13 Square flange φ100

注: 输出转向  
A腔进油时为顺时针旋转,  
B腔进油时为逆时针旋转 (从轴端看)

Note: export forwarding  
Oil enter into A is clockwise rotation  
Oil enter into B is counterclockwise rotation

代号 Code name	进油口尺寸 Size of in and out oil port	泄油口 Drainage port
Y	G1/2	M14×1.5
Y1	M18×1.5	M14×1.5
Y2	M22×1.5	M14×1.5



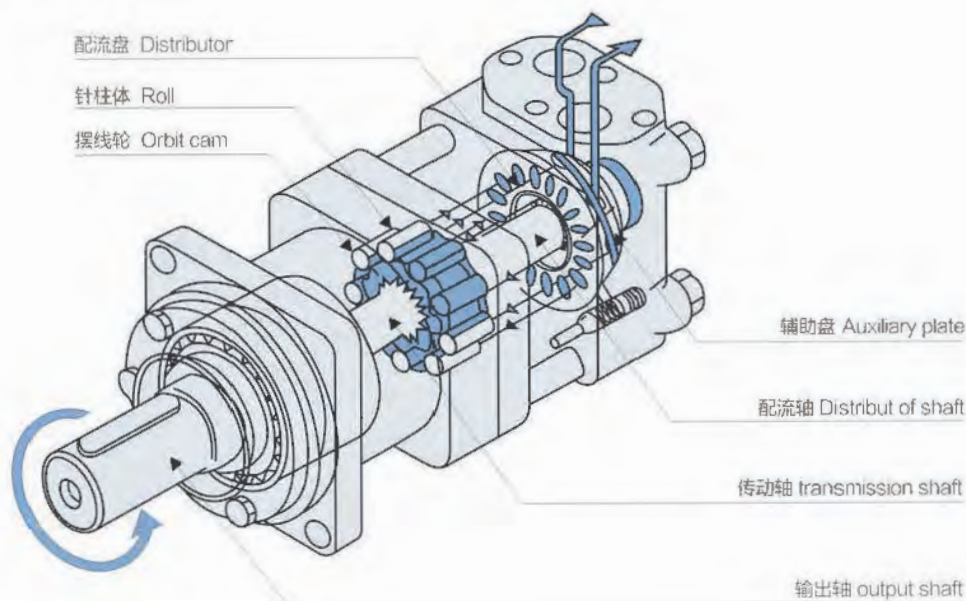
## 产品特点及适用范围

BM系列端面配流摆线液压马达，是一种低速大扭矩液压马达。它的端面配油提高了容积效率使用寿命。该系列马达具有输出扭矩大，转速范围宽、高速平稳、低速稳定、效率高、寿命长、体积小、重量轻、可以直接与工作机构相连接等优点。因而适用于各种低速重载的传动装置，广泛应用与农业、渔业、船舶、机床、注塑、起重装卸、采矿和建筑等部门。  
如：液压挖掘机的行走和回转驱动；机床主轴和进给机构的驱动；注塑机的预塑螺杆驱动；船舶的锚链升降及渔轮收网；绞车驱动及各种输送机的驱动；采煤机的液压牵引传动等。

## Product features and applicable scope

BM series hydraulic motor is one type of high torque low speed hydraulic motors, with high efficiency and long life. BM series motor has a wide speed range, high output torque and rotating stable at high speed, small volume, light weight, it can be connected to working machine directly, adapted to all kinds of low speed heavy load facilities. BM series hydraulic motors are widely applied in agriculture machinery, fishing machinery, plastic industry, mining and construction machinery.

## 工作原理 Working Principle



如上图所示：压力油经过油孔进入后壳体，通过辅助盘、配流盘和后侧板，进入摆线轮针柱体间的工作腔。在油压的作用下，摆线轮被压向低压腔一侧旋转，摆线轮相对针柱体中心做自转和公转，并通过传动轴将其自转传给输出轴，同时通过配流轴、使配流盘与摆线轮同步运转。以达到连接不断地配油，输出轴连续不断的旋转，改变输出的流量，就能输出不同的转速。改变进油方向，即能改变马达的旋转方向。

Shown as the drawing, high pressure oil goes into the motor's housing through the inlet, passing the auxiliary plate, distributor, then the working space between the orbit cam and rolls. Pressed by the high pressure oil, orbit cam rotates from the high pressure side to the low pressure side. The orbit cam makes rotation and revolution against the rolls, at the same time, high pressure oil is distributed continuously, thus, the output shaft can also rotate continuously. The output speed can be controlled by adjusting the inlet flow capability of the motor, and the rotating direction can be changed by exchanging the flow direction.

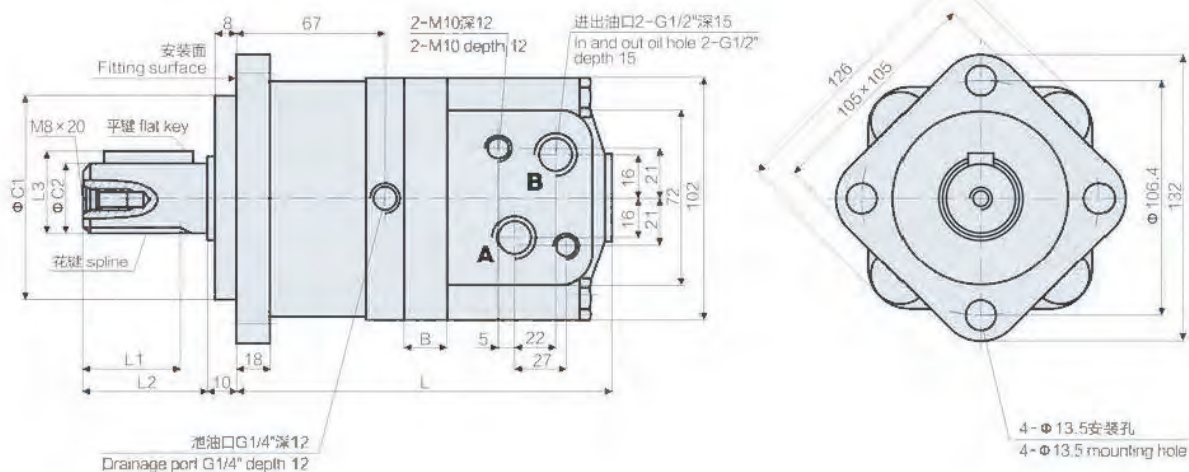
## 技术参数 Technical data

型号 Model	排量 Displacement (ml/r)	最大压降 Max. Pressure Drop (Mpa)			最大扭矩 Max. torque (N.m)			转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	重量 Weight (kg)	长度 Length (mm)		
		连续 cont	间断 int	尖峰 peak	连续 cont	间断 int	尖峰 peak					B	L	Lw
BM3-80 BM3S-80 BM3W-80	80.5	17.5	20	22.5	194	218	271	10-780	65	14	9.8	11	167	129
BM3-100 BM3S-100 BM3W-100	100.5	17.5	20	22.5	242	283	318	10-750	75	16	10.0	14.5	170	132
BM3-125 BM3S-125 BM3W-125	126.3	17.5	20	22.5	303	345	373	9-600	75	16	10.3	19	175	137
BM3-160 BM3S-160 BM3W-160	160.8	16	20	22.5	358	429	459	7-470	75	14	10.7	25	181	143
BM3-200 BM3S-200 BM3W-200	200.9	16	20	22.5	438	540	576	6-375	7	14	11.1	32	188	150
BM3-250 BM3S-250 BM3W-250	252.6	12.5	16	20	440	580	700	6-300	75	11	11.6	41	197	159
BM3-315 BM3S-315 BM3W-315	321.5	12.5	16	20	551	625	831	5-240	75	10	12.3	53	208	169
BM3-400 BM3S-400 BM3W-400	401.9	10	14	17.5	560	687	865	5-180	75	8	13.1	67	222	183

间断工作时间每分钟不得超过6秒，尖峰工作时间每分钟不得超过0.6秒。  
Intermittent operation the permissible values may occur for max. 10% of every minute  
Peak load: the permissible values may occur for max. 1% of every minute.

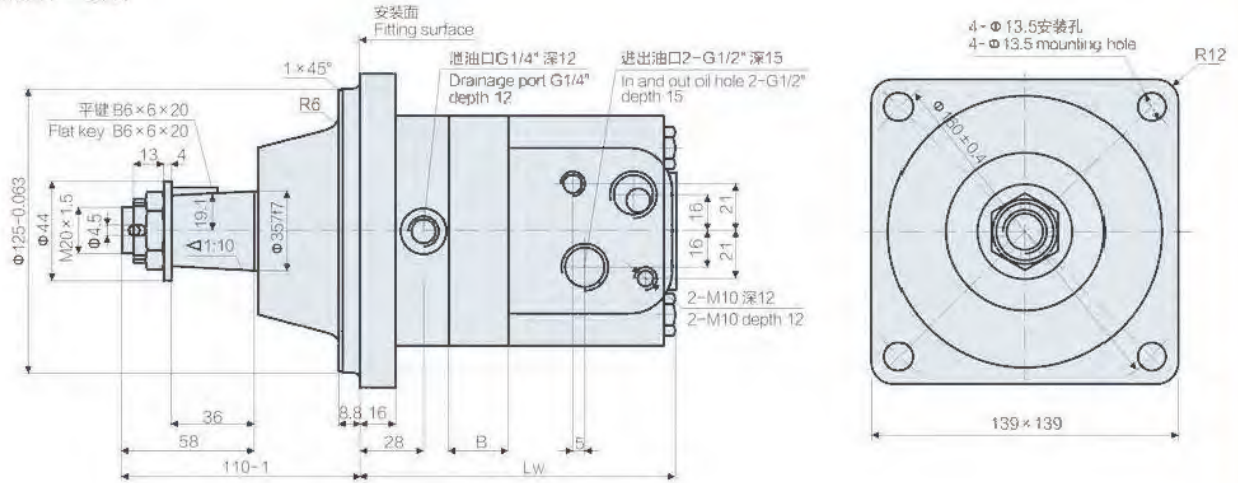
## BM3外形安装图 Installation

BM3-80-400P\*A\*Y  
BM3-80-400H\*A\*Y





## BM3W-\*ZAY



## 型号说明 Description of model

BM 3 —

1 2 3 4 5 6

- |            |                                       |
|------------|---------------------------------------|
| 1、摆线液压马达代号 | 1. Code name of orbit hydraulic motor |
| 2、机系列代号    | 2. Code name of type/series           |
| 3、排量代号     | 3. Code name of displacement          |
| 4、输出轴代号    | 4. Code name of output shaft          |
| 5、安装止口尺寸   | 5. Size of installation spigot        |
| 6、油口代号     | 6. Code name of hydraulic fluid port  |

名称 Name	代号 Code name	轴外径 φC2 Shaft external diameter φC2	L3	键参数 Key parameter	L4	花键有效长 L1 Spline effective length L1
平键 Flat key	P	φ32h7	35	10 × 8 × 45	-	56.5
	P3	φ25.4h7	28.2	6.35 × 6.35 × 32	-	40.5
	P5	φ31.75h7	35	7.96 × 7.96 × 32	-	49.5
矩形花键 Rectangular spline	H1	φ30h7	-	6-30 × 25b12 × 6d10	32	45.5
	H2	φ25h7	-	6-25 × 21b12 × 5d10	32	45.5
	H3	φ34.85h7	-	6-34.85 × 28.9 × 8.64	-	-

代号 Code name	法兰形式, 止口 φC1 Form of flange, spigot φC1
A	4-φ13.5方法兰, φ82.5h8 4-φ13.5 Square flange φ82.5h8
A1	4-φ13.5方法兰, φ80h8 4-φ13.5 Square flange φ80h8
AII	2-φ13.5菱形法兰, φ82.5h8 2-φ13.5 diamond flange φ82.5h8
A1II	2-φ13.5菱形法兰, φ80h8 2-φ13.5 diamond flange φ80h8
A2III	2-φ13.5大法兰, φ100h8 2-φ13.5 large-scale flange φ100h8
AIV	4-φ13.5菱形法兰, φ82.5 4-φ13.5 diamond flange φ82.5

代号 Code name	进油口尺寸 Size of in and out oil port	泄油口 Drainage port
Y	G1/2	G1/4
Y1	M18 × 1.5	M14 × 1.5
Y2	M22 × 1.5	M14 × 1.5
Y5	7/8 -14UNF	7/16 -20UNF
Y8	NPT1/2	G1/4

注: 输出转向  
A腔进油时为顺时针旋转,  
B腔进油时为逆时针旋转 (从轴端看)

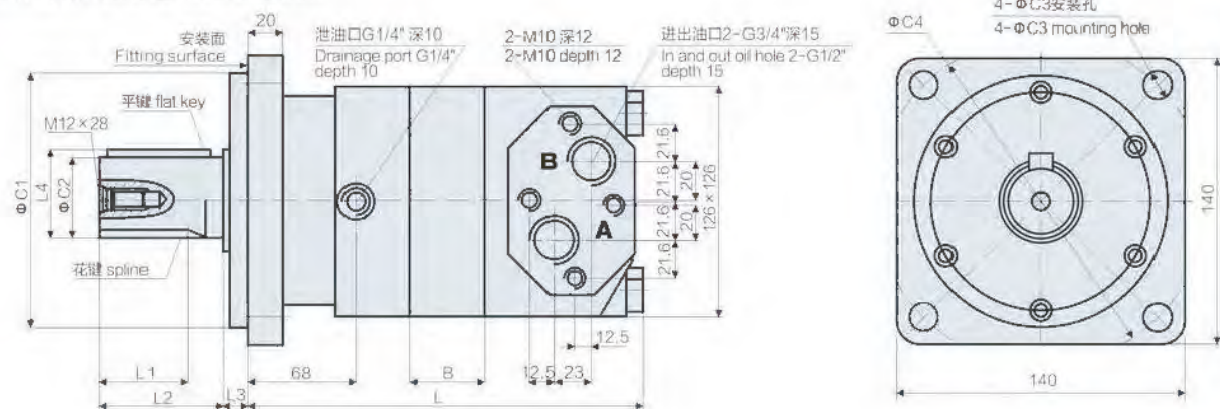
Note: export forwarding  
Oil enter into A is clockwise rotation  
Oil enter into B is counterclockwise rotation

## 技术参数 Technical data

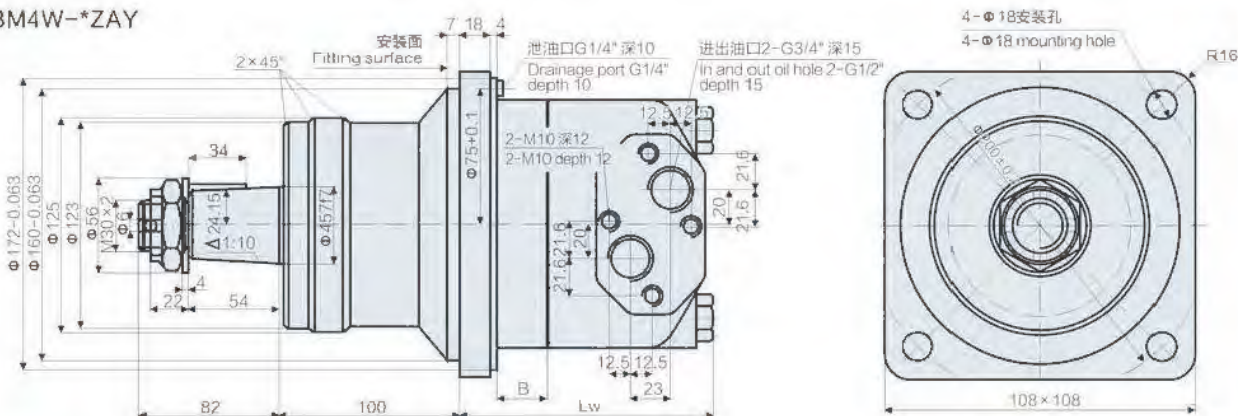
型号 Model	排量 Displacement (ml/r)	最大压降 Max. Pressure Drop (Mpa)			最大扭矩 Max. torque (N.m)			转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	重量 Weight (kg)	长度 Length (mm)		
		连续 cont	间断 int	尖峰 peak	连续 cont	间断 int	尖峰 peak					B	L	Lw
BM4-160 BM4S-160 BM4W-160	148	20	24	28	450	559	663	10-625	100	20.1	20.3	12	210	123
BM4-200 BM4S-200 BM4W-200	187.1	20	24	28	561	714	818	9-625	125	25.2	20.8	16.5	214.5	128
BM4-250 BM4S-250 BM4W-250	235	20	24	28	710	883	1021	8-500	125	25.2	21.4	22	220	13.4
BM4-320 BM4S-320 BM4W-320	295.9	20	24	28	902	1143	1322	7-380	125	25.2	22.4	29	227	141
BM4-400 BM4S-400 BM4W-400	374.3	18	21	24	1008	1255	1431	6-305	125	22	23	38	228	150
BM4-500 BM4S-500 BM4W-500	535.3	16	18	21	1121	1377	1598	5-240	125	31	24	56.5	255	168

间断工作时间每分钟不得超过6秒,尖峰工作时间每分钟不得超过0.6秒。  
Intermittent operation the permissible values may occur for max. 10% of every minute  
Peak load: the permissible values may occur for max. 1% of every minute.

## BM4外形安装图 Installation



## BM4W-\*ZAY



## 型号说明 Description of model

BM 4—

1 2 3 4 5 6

- |            |                                       |
|------------|---------------------------------------|
| 1、摆线液压马达代号 | 1. Code name of orbit hydraulic motor |
| 2、机型系列代号   | 2. Code name of type/series           |
| 3、排量代号     | 3. Code name of displacement          |
| 4、输出轴代号    | 4. Code name of output shaft          |
| 5、安装止口尺寸   | 5. Size of installation spigot        |
| 6、油口代号     | 6. Code name of hydraulic fluid port  |

名称 Name	代号 Code name	轴外径ΦC2 Shaft external diameter ΦC2	L4	键参数 Key parameter	L1	L2	L3
平键 Flat key	P	Φ40h7	43	12×8×50	-	60	15
	P1	Φ32h7	35	10×8×50	-	60	15
	P3	Φ40h7	43	12×8×70	-	82	32
矩形花键 Rectangular spline	H4	Φ35f7	-	6-35×29b12×10d10	40	61.5	15
	H5	Φ35f7	-	6-35×29b12×6d10	40	61.5	15
渐开花键 gradually open spline	K3	Φ38.1f7	-	DP12/24z17 a30°	56	82	32

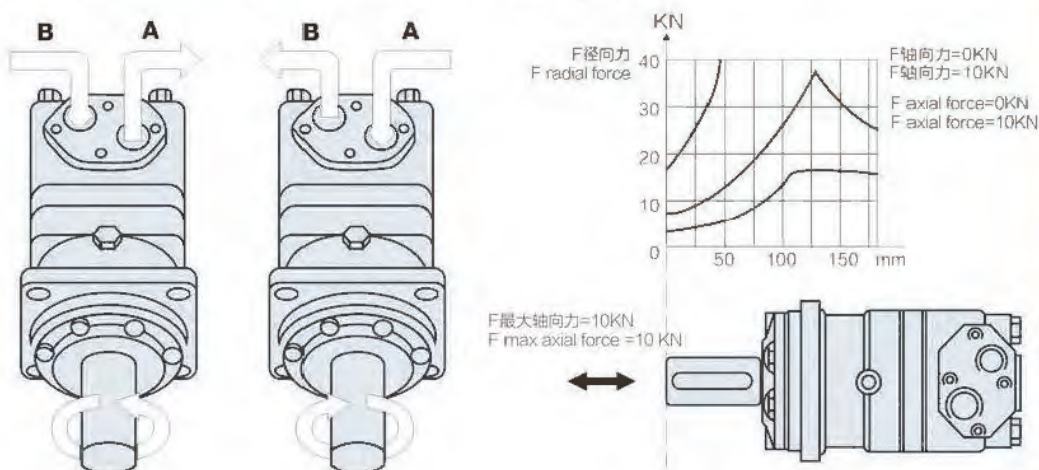
代号 Code name	法兰形式, 止口ΦC1 Form of flange, spigot ΦC1	ΦC3	ΦC4
A	4-Φ14法兰, Φ125h8 4-Φ14 square flange Φ125h8	Φ14	Φ160
A1	4-Φ14法兰, Φ90h8 4-Φ14 square flange Φ90h8	Φ14	Φ160
A4	4-Φ14法兰, Φ125h8 4-Φ14 square flange Φ125h8	Φ14	Φ160

代号 Code name	进出油口尺寸 Size of in and out oil port	泄油口 Drainage port
Y	G3/4	G1/4
Y3	M27×2	M14×1.5
Y4	M22×1.5	M14×1.5
Y5	M20×1.5	M14×1.5

注: 输出转向  
A腔进油时为顺时针旋转,  
B腔进油时为逆时针旋转 (从轴端看)

Note: export forwarding  
Oil enter into A is clockwise rotation  
Oil enter into B is counterclockwise rotation

### BM4 输出轴的旋转方向和轴上负载 BM4 output shaft direction of rotation and shaft loading

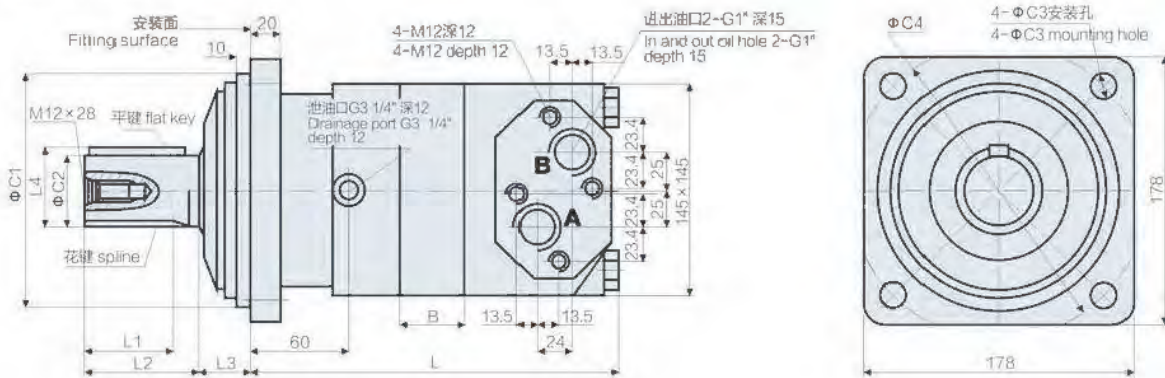


## 技术参数 Technical data

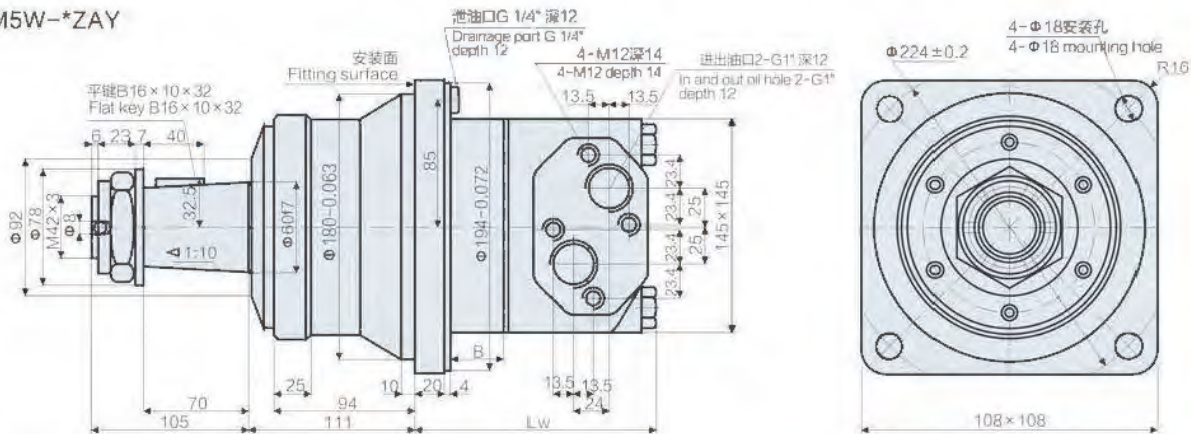
型号 Model	排量 Displacement (ml/r)	最大压强 Max. Pressure Drop (Mpa)			最大扭矩 Max. torque (N.m)			转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	重量 Weight (kg)	长度 Length (mm)		
		连续 cont	间断 int	尖峰 peak	连续 cont	间断 int	尖峰 peak					B	L	Lw
BM5-315 BM5S-315 BM5W-315	296.4	20	24	28	873	1119	1293	10-630	200	32	30.7	19	211	146
BM5-400 BM5S-400 BM5W-400	376.2	20	24	28	1108	1440	1650	9-500	200	40	31.5	28	218	153
BM5-500 BM5S-500 BM5W-500	467.4	20	24	28	1385	1783	2060	8-400	200	40	32.4	34	226	161
BM5-630 BM5S-630 BM5W-630	581.4	18	21	24	1570	1951	2249	6-315	200	40	33.6	44	236.5	172
BM5-800 BM5S-800 BM5W-800	741	16	18	21	1773	2122	2481	5-250	200	35	35.2	58	250.5	185
BM5-985 BM5S-985 BM5W-985	912	14	16	18	1900	2133	2399	5-160	160	24	37.2	73	265.5	200.5

间断工作时间每分钟不得超过6秒，尖峰工作时间每分钟不得超过0.6秒。  
Intermittent operation the permissible values may occur for max. 10% of every minute  
Peak load: the permissible values may occur for max. 1% of every minute.

## BM5外形安装图 Installation



## BM5W-\*ZAY



## 型号说明 Description of model

BM 5—  
1 2 3 4 5 6

- |            |                                       |
|------------|---------------------------------------|
| 1、摆线液压马达代号 | 1. Code name of orbit hydraulic motor |
| 2、机型系列代号   | 2. Code name of type/series           |
| 3、排量代号     | 3. Code name of displacement          |
| 4、输出轴代号    | 4. Code name of output shaft          |
| 5、安装止口尺寸   | 5. Size of installation spigot        |
| 6、油口代号     | 6. Code name of hydraulic fluid port  |

名称 Name	代号 Code name	轴外径 $\Phi$ C2 Shaft external diameter $\Phi$ C2	L4	键参数 Key parameter	L1	L2
平键 Flat key	P	$\Phi$ 50h7	54	14×9×70	-	79.5
	P1	$\Phi$ 40h7	43	12×8×45	-	55
矩形花键 Rectangular spline	H4	$\Phi$ 40f7	-	8-40×35b12×7d10	48	67
	H5	$\Phi$ 40f7	-	6-40×35b12×10d10	51.5	74
渐开花键 gradually open spline	K2	$\Phi$ 44	-	m2.5 z16 a30°	56	74
	K3	$\Phi$ 45	-	m2.5 z17 a30°	40	62

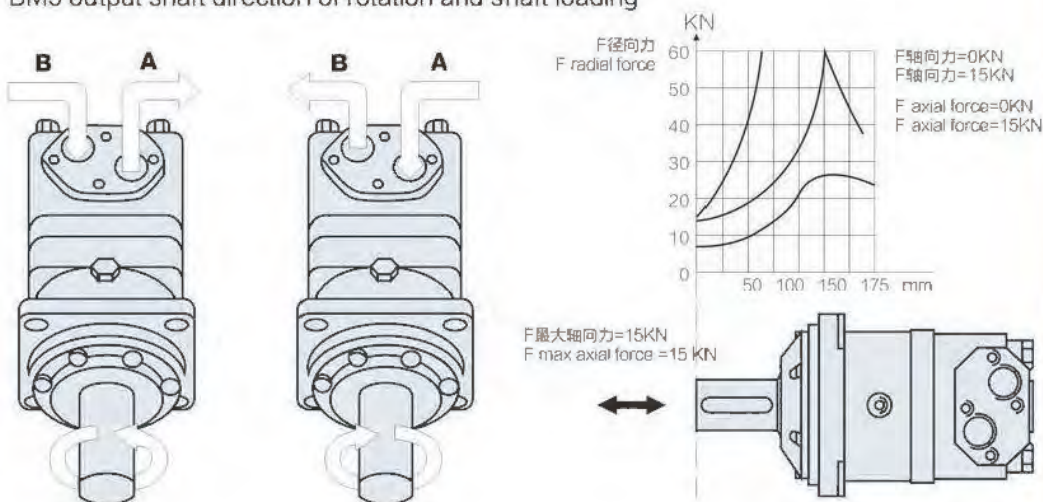
代号 Code name	法兰形式, 止口 $\Phi$ C1 Form of flange, spigot $\Phi$ C1	$\Phi$ C3	$\Phi$ C4	L3
A	4- $\Phi$ 18大法兰, $\Phi$ 160 4- $\Phi$ 18 large-scale flange, $\Phi$ 160	$\Phi$ 18	$\Phi$ 200	40
A.1	4- $\Phi$ 14小方法兰, $\Phi$ 125 4- $\Phi$ 14 Small square flange, $\Phi$ 125	$\Phi$ 14	$\Phi$ 160	15

注: 输出转向  
A腔进油时为顺时针旋转。  
B腔进油时为逆时针旋转(从轴端看)

Note: export forwarding  
Oil enter into A is clockwise rotation  
Oil enter into B is counterclockwise rotation

代号 Code name	进油口尺寸 Size of in and out oil port	泄油口 Drainage port
Y	G1	G1/4
Y1	G3/4	G1/4
Y2	M33×2	M14×1.5
Y3	M27×2	M14×1.5
Y4	M22×1.5	M14×1.5
Y5	M18×1.5	M14×1.5

### BM5 输出轴的旋转方向和轴上负载 BM5 output shaft direction of rotation and shaft loading

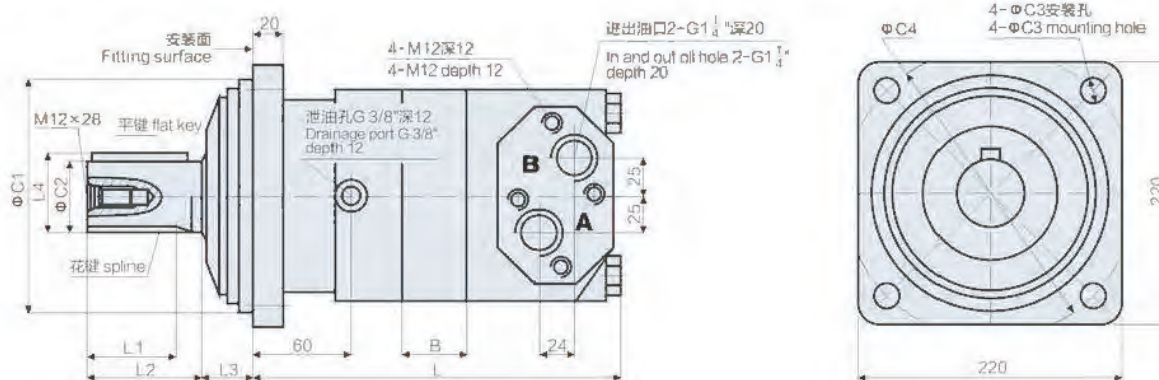




## 技术参数 Technical data

型号 Model	排量 Displacement (ml/r)	最大压强 (连续) Max. Pressure Drop (cont) (Mpa)	最大扭矩 (连续) Max. torque (cont) (N.m)	转速范围 (连续) Speed Range (cont) (r/min)	最大流量 (连续) Max. Flow (cont) (L/min)	最大输出功率 (连续) Max. Output Power (cont) (Kw)	进油口最大 压力(连续) Max. Pressure (cont) (Mpa)	重量 Weight (kg)	长度 Length (mm)	
									B	L
BM6-800	759.6	16	1690	5-200	160	35	20	54	32	303
BM6-1000	949.5	16	2160	5-160	160	35	20	56	42	313
BM6-1250	1186.8	16	2650	5-130	160	35	20	58	54.5	324

## BM5外形安装图 Installation



## 型号说明 Description of model

BM 6 -

1 2 3 4 5 6

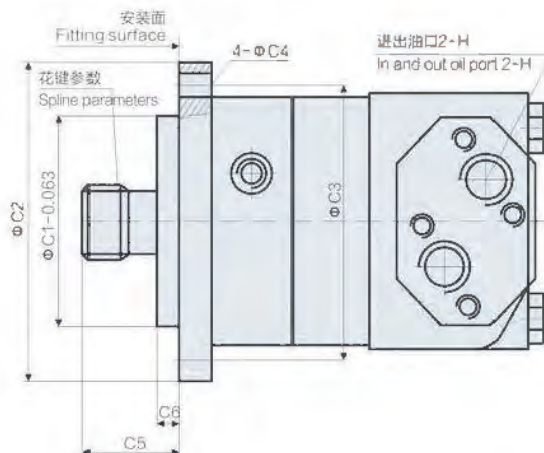
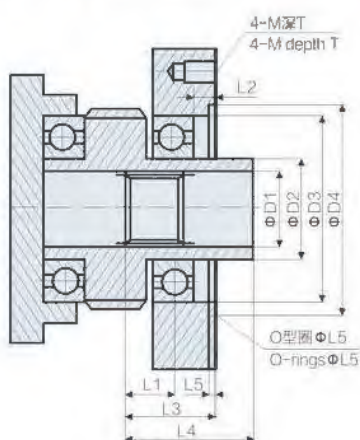
- |            |                                       |
|------------|---------------------------------------|
| 1、摆线液压马达代号 | 1. Code name of orbit hydraulic motor |
| 2、机型系列代号   | 2. Code name of type/series           |
| 3、排量代号     | 3. Code name of displacement          |
| 4、输出轴代号    | 4. Code name of output shaft          |
| 5、安装止口尺寸   | 5. Size of installation spigot        |
| 6、油口代号     | 6. Code name of hydraulic fluid port  |

名称 Name	代号 Code name	轴外径 φC2 Shaft external diameter φC2	L4	键参数 Key parameter	L1	L2
平键 Flat key	P	φ63h7	67	18 × 11 × 80	-	105
花键 Spline	H2	φ45h7	-	6-45 × 39b12 × 12d10	49	77

代号 Code name	法兰形式, 止口 φC1 Form of flange, spigot φC1	φC3	φC4	L3
A	4-φ22方法兰, φ200h8	φ22	φ250	35
A1	4-φ22方法兰, φ175h8	φ22	φ150	18

代号 Code name	进出油口尺寸 Size of in and out oil port	泄油口 Drainage port
Y	G1 1/4	G3/8
Y1	φ36	G3/8

## BM\*S型马达外型及连接要求 BM\*S shape and installation



型号 Model	L1	L2	L3	L4	L5	M	T	D5	D1	D2	D3	D4	C1	C2	C3	C4	H	C5	C6	花键参数 Spline parameters		
																				z	m	a
BM3S	20	9.2	33	55	2.8	M10	18	100×3.55	30	40	100	108	100	145	125	11	G1/2	32	6	12	12/24	30°
BM4S	34	11.2	48	69	2.4	M12	18	135×3.1	42	60	125	136	125	185	160	14	G3/4	47	8	16	2.25	30°
BM5S	36	11.2	58	72	2.4	M12	18	140×3.1	46	60	140	148	140	207	180	14	G1	51	6	16	2.5	30°

## 对照表 Table of comparisons

宁波泰勒姆斯 Ningbo TILORMS	BMP	BMR	BM3	BM3S	BM4	BM4S	BM5	BM5S	BM6
danfoss	OMP	OMR	OMS	OMSS	OMT	OMTS	OMV	OMVS	-
m+s	EPM	EPRM	EPMS	-	EPMT	-	EPMV	-	-
上海飞机制造厂 Shanghai aircraft factory	-	-	BM-C	BM-CS	BM-D	BM-DS	BM-E	BM-ES	BM-F
济宁伊顿 Jining Eaton	JH	JS	2K	2K	6K	6K	J6K	-	10K

## 使用及注意事项

1. 应按规定的技术参数选用液压马达。
2. 安装马达时，其轴线应与被驱动的轴线保持同轴，马达安装支架应具有足够的刚度。
3. 推荐使用运动粘度为 (20-50) mm<sup>2</sup>/s(50℃) 的机械油，马达工作温度以 25℃-55℃ 为最佳，最高油温不大于 65℃。油液必须清洁，过滤精度不低于 20 μm。
4. BM3-6 型外泄油口应配置接头排出外泄油，外泄油应接回油箱；BMR(2) 型背压应小于 0.7Mpa，当背压大于 1.0Mpa 时，应接泄油管。
5. 选用马达时，如必须采用非标准连接型式的马达，或对马达有特殊要求时，请与本公司协商。

## Usage and notice

1. Selecting motor by standards technical data.
2. The motor must be coaxial with the driven part and the bracket should be stiff enough.
3. Work temperature is 25℃-55℃, maximum temperature is 65℃. Hydraulic oil with kinematic viscosity 20-50mm<sup>2</sup>/s(50℃) is recommended. The filter is about 20 μm. The oil must be clear, polluted oil will damage the motor badly.
4. For BM3-6 there should be a pipe connected the drain port and the oil tank; for BMR(2) the back pressure should be lower than 0.7Mpa, if the back pressure is higher than 1.0Mpa, a drain line should be connected to the oil tank.
5. If nonstandard motor is needed, please contact our technical department.

# W

W 系列摆线液压马达  
W orbit hydraulic motor



**TILORMS**<sup>®</sup>  
泰勒姆斯

## 产品概述

是一种先进端面配流式摆线液压马达。采用先进的镶柱式定转子参数设计，具有工作效率高，工作压力高、启动压力低、运转平稳、双向可获得同样的输出扭矩、可靠的轴动密封。为满足不同结构设计需要，有三种结构型式：标准马达，车轮马达，无轴承马达。

## 主要特点

- 1、先进的定转子参数设计，启动压力低，效率高，低速运转平稳。
- 2、较高的工作压力，输出扭矩高。
- 3、先进的轴密封设计，高的背压承受能力。
- 4、先进可靠的联动轴设计，使马达具有长寿命。
- 5、先进的配流机构设计，具有配流精度高和磨损自动补偿的特点。
- 6、马达允许串联和并联使用，串联使用时应接外泄油管。
- 7、采用圆锥滚子轴承支撑设计，具有较大的径向承载能力，使得马达可直接驱动工作机构。

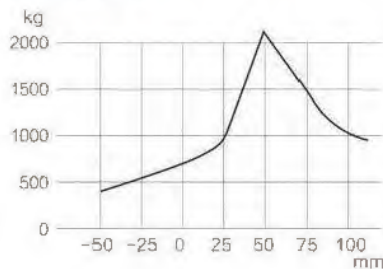
## Product Overview

It is an advanced end face distributor orbit hydraulic motor. It is designed by advanced cylindrical stator's parameters. And it has many characteristics: high working efficiency, high working pressure, low start-up pressure, stable operation and reliable dynamic sealing. In order to meet the needs of different structure design, there are three kinds of structure type: standard motor, wheel motor, no bearing motor.

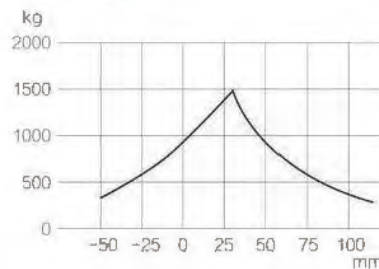
## Main Characteristics

1. designed by advanced stator's parameters, low start-up pressure, high efficiency, perfect stability at low speed.
2. higher working pressure, high output torque.
3. advanced shaft sealing design, high bearing ability of backpressure.
4. advanced and reliable universal driving shaft design make motors have long life.
5. advanced distributor mechanism design, it has the features of high accuracy of distributing and automatic compensation of attrition.
6. motors can be used in parallel or in series. When using in series should connect leaked tubing.
7. Use TRB(tapered roller bearing) support to design. It has big radial load bearing capacity, can make the motor directly drive the operating mechanism.

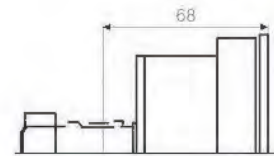
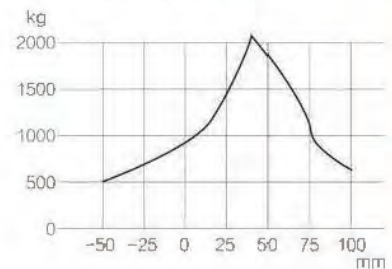
1.25" 或32mm直轴允许侧向力  
1.25" or 32mm straight shaft allowable yawing force



1" 或25mm直轴允许侧向力  
1" or 25mm straight shaft allowable yawing force



车轮马达允许侧向力  
wheel motor allowable yawing force



## 技术参数 Technical data

排量 Displacement (ml/r)	转速 Speed (rpm)		流量 Flow (LPM)		扭矩 Torque (N.m)		压力 Pressure (Bar)			重量 Weight (kg)	允许最大背压 Maximum allowable back pressure (Bar)
	最大连续 Max.cont	间断 int	连续 cont	间断 int	连续 cont	间断 int	连续 cont	间断 int	尖峰 peak		
80	799	908	75	75	235	345	205	310	310	11	70
100	742	924	75	95	295	445	205	310	310	11.1	70
130	576	720	75	95	385	560	205	310	310	11.3	70
160	477	713	75	115	455	570	205	260	310	11.3	70
195	385	577	75	115	540	665	205	260	310	11.6	70
245	308	462	75	115	660	820	205	260	310	11.9	70
305	246	365	75	115	765	885	205	240	310	12.3	70
395	191	335	75	130	775	925	155	190	225	13	70

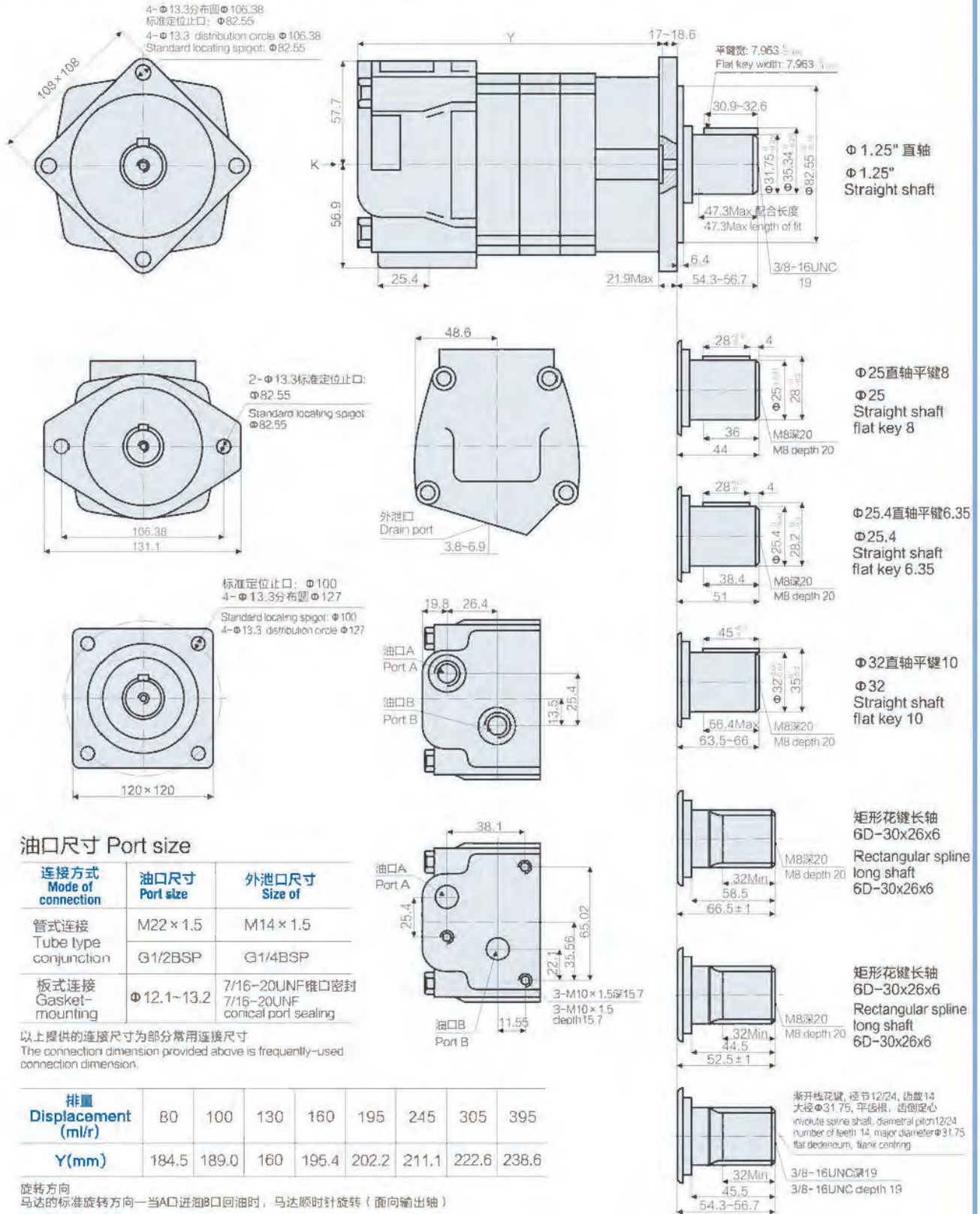
## 注意事项

- 1、应避免同时在最大扭矩和最大转速下使用马达。
- 2、表中所列扭矩值适用于直径32mm和1.25"的输出轴，1"的轴出轴允许的最大连续扭矩和间断扭矩为395Nm和485Nm。
- 3、超过允许背压时，应接外泄管，并保证马达内腔总能充满液压油。
- 4、峰值压力为最大入口压力，连续压力、间断压力全部为进回油工作压差，但入口压力不越过峰值压力。
- 5、马达间断工作持续时间不超过6秒钟；峰值工作持续时间不超过0.6秒钟。
- 6、系统最大工作温度：80℃
- 7、推荐用油：抗磨液压油，工作条件下粘度不低于13cSt，滤清精度：ISO18/13。
- 8、在马达全负载工作前，应在额定压力的30%下运转约1小时，确保在满负荷工作前马达内腔充满液压油。
- 9、马达的连续工作压力和间断工作压力同规格不同流量下会不同，详见不同工作点的性能参数。

## Notes

1. It should be avoided using the motor at the highest torque and maximum speed at the same time.
2. The torque listed in the table is suitable for the 1.25" output shaft, whose diameter is 32mm. 1" output shaft can bear the maximum continuous torque is 395Nm and maximum intermittent torque is 485Nm.
3. When exceed the maximum backpressure, it should connect with a leaked pipe, and ensure the hydraulic motor always be full of hydraulic oil.
4. Peak pressure is the maximum inlet pressure, continuous pressure and intermittent pressure are all the differential pressure of inlet and outlet oil.
5. Motor intermittent working duration time is less than 6 second; Peak working duration time is less than 0.6 second.
6. The system's maximum working temperature: 80℃.
7. Recommended oil: antiwear hydraulic oil, viscosity is no less than 13cSt, under working condition, filtration precision: ISO18/13.
8. Before the motor full load working, it should work an hour under the 30% rated pressure to ensure the motor is full of hydraulic oil before full load working.
9. Under the same specifications and different flow, the motor's continuous and intermittent working pressure are different.

## 标准马达外形及联接尺寸 Standard motor's appearance and connection dimension



### 油口尺寸 Port size

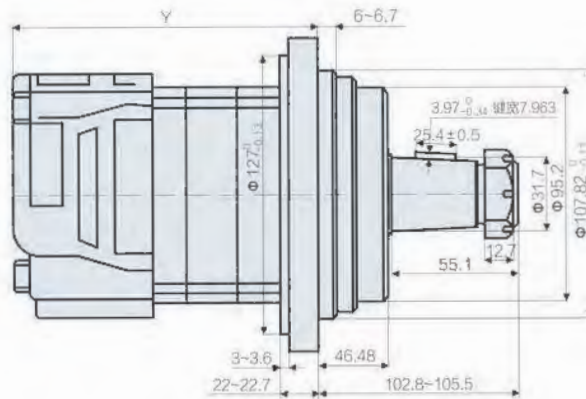
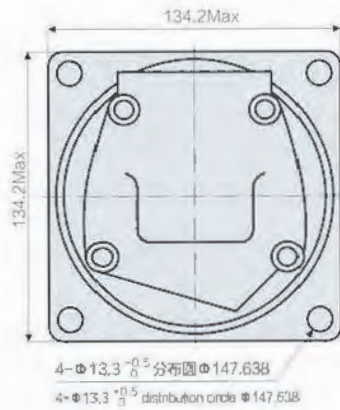
连接方式 Mode of connection	油口尺寸 Port size	外泄口尺寸 Size of
管式连接 Tube type conjunction	M22 x 1.5	M14 x 1.5
	G1/2BSP	G1/4BSP
板式连接 Gasket- mounting	$\phi$ 12.1~13.2	7/16-20UNF 锥口密封 7/16-20UNF conical port sealing

以上提供的连接尺寸为部分常用连接尺寸  
The connection dimension provided above is frequently-used  
connection dimension.

排量 Displacement (ml/r)	80	100	130	160	195	245	305	395
Y(mm)	184.5	189.0	160	195.4	202.2	211.1	222.6	238.6

旋转方向  
马达的标准旋转方向——当A口进油B口回油时, 马达顺时针旋转(面向输出轴)  
Direction of rotation  
Motor's standard direction of rotation---When oil flow in A port and return to port B,  
the motors do clockwise rotation (turn in the direction of output shaft).

## 车轮马达外形及联接尺寸 Wheel motor's appearance and connection size

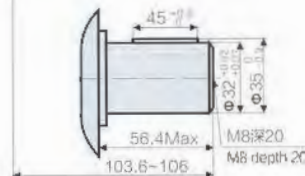


1.25" 锥轴 1:8  
1.25" tapered shaft 1:8

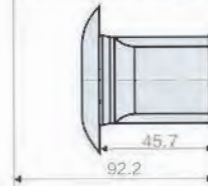
排量 Displacement (ml/r)	80	100	130	160	195	245	305	395
Y(mm)	144.3	148.9	155.2	155.2	162.1	171	182.4	198.4

油口及油口位置标准马达;  
马达输出轴旋向同标准马达;  
图中提供的连接尺寸为部分常用连接

Oil port and oil port position standard motor;  
the direction of rotation of motor's output shaft is the same as standard motor;  
The connection dimension presented in the graphs is the frequently-used connection dimension.

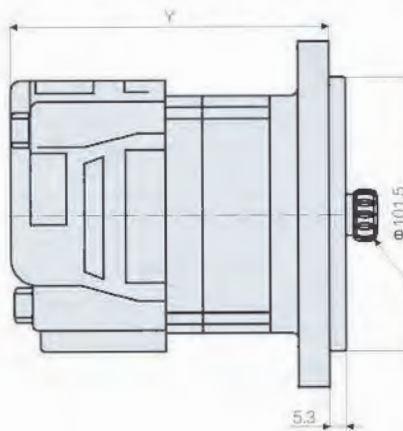


φ32直轴  
平键宽10  
φ32  
Straight shaft  
flat key width 10



花键轴  
6D-30×26×6  
Spline shaft  
6D-30×26×6

## 无轴承马达外形及联接尺寸 No bearing motor appearance and connection dimension

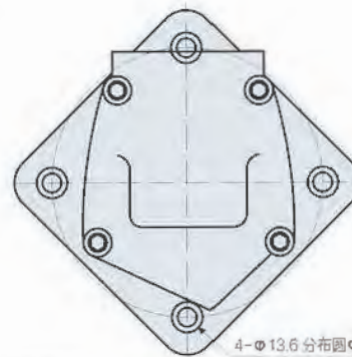


标准定位止口φ101.5, φ100  
Standard locating spigot  
φ101.5, φ100

标准定位止口M22×1.5, G1/2"  
Standard locating spigot  
M22×1.5, G1/2"

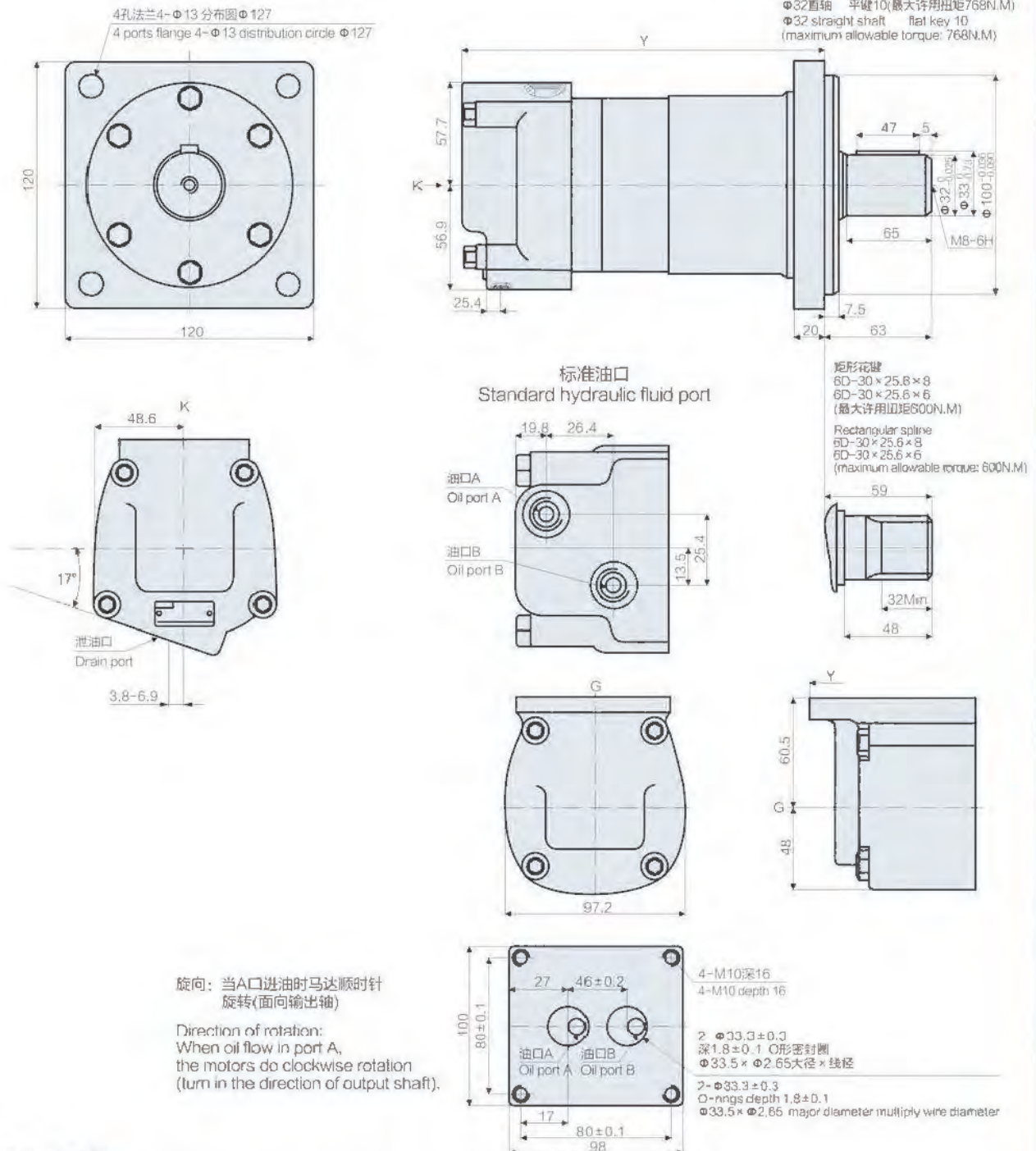
渐开线花键参数  
Parameter of involute spline

径节 Diametral pitch	12/24
压力角 Pressure angle	30°
齿数 Number of teeth	12
齿顶圆直径 Tip diameter	26.6 $\frac{+0.31}{-0.01}$
齿根圆直径 Root diameter	φ22 $\frac{+0.35}{+0.05}$
分度圆直径 Reference diameter	4 $\frac{+0.135}{+0.060}$
测棒直径 Measuring sticks diameter	φ2.794
测棒间距 Measuring sticks spacing	29 $\frac{+0.355}{+0.25}$



排量 Displacement (ml/r)	80	100	130	160	195	245	305	396
Y(mm)	144.3	148.9	155.2	155.2	162.1	171	182.4	198.4

## J2W大法兰马达外形及联接尺寸 J2W large-scale flange appearance and connection dimension



尺寸 Size Y

排量 Displacement (ml/r)		100	130	160	195	245	305	395
Y(mm)	标准油口 Standard hydraulic fluid port	184	190.5	190.5	197	206	217.5	133.5
	板式连接 Gasket-mounting	215	221.5	221.5	228	237	249	264.5



订货参考尺寸及外形图，根据所选用的马达具体型式从下表中选择对应编号，本表中仅提供了产品编号的一部份，当需要的规格查不到时，请与营销部联系，标准颜色：蓝色。

The reference dimension and outside drawing of ordering goods: According to the selected motor specific pattern to choose corresponding numbers from the table. This table only provides a part of the product number. When the needed specification can not be found, please contact with sales department. Standard Colors: blue

## 订货编号 ORDER NUMBER

尺寸规格 Dimensions			排量 Displacement							
法兰 Flange	输出轴 Shaft	油口螺纹 Ports screw thread	80	100	130	160	195	245	305	395
标准2孔法兰 Φ82.55止口 Standard two holes flange Φ82.55 spigot	1.25" 直轴, 平键7.95 轴伸55.5 1.25" straight shaft, flat key 7.95 shaft extension 55.5	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-0011	-0012	-0013	-0014	-0015	-0016	-0017	-0018
	Φ25直轴, 平键8 轴伸44 Φ25 straight shaft, flat key 8 shaft extension 44	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-0021	-0022	-0023	-0024	-0025	-0026	-0027	-0028
	Φ32轴伸, 平键10 轴伸64.8 Φ32 shaft extension, flat key 10 shaft extension 64.8	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-0071	-0072	-0073	-0074	-0075	-0076	-0077	-0078
	1" 直轴, 平键8 轴伸44 1" straight shaft, flat key 8 shaft extension 44	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-0061	-0062	-0063	-0064	-0065	-0066	-0067	-0068
	花键, 径节12/24, 14齿轴伸58 Spline, diametral pitch 12/24, 14 tooth shaft extension 58	G1/2" 外泄口 ZG1/8" G1/2" Drain port ZG1/8"	604-2321	-2322	-2323	-2324	-2325	-2326	-2327	-2328
标准4孔法兰 Φ82.55止口 Standard four holes flange Φ82.55 spigot	1.25" 直轴, 平键7.96 轴伸65 1.25" straight shaft, flat key 7.96 shaft extension 65	板式连接3-M10 外泄口G1/4" Gasket-mounting 3-M10 drain port G1/4"	604-0361	-0362	-0363	-0364	-0365	-0366	-0367	-0368
	32mm直轴, 平键10 轴伸65 32mm straight shaft, flat key 10 shaft extension 65	R1/2" BSP 外泄口 M14×1.5 R1/2" BSP Drain port M14×1.5	604-1384	-1385	-1386	-1387	-1388	-1389	-1390	-1391
	32直轴, 平键10 轴伸65 32mm straight shaft, flat key 10 shaft extension 65	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-0041	-0042	-0043	-0044	-0045	-0046	-0047	-0048
	6D-30×26×6 轴伸65 6D-30×26×6 Shaft extension 65	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-1051	-1052	-1053	-1054	-1055	-1056	-1057	-1058
	花键, 径节12/24, 14齿轴伸57 Spline, diametral pitch 12/24, 14 tooth shaft extension 57	R1/2" BSP 外泄口 G1/4" R1/2" BSP Drain port G1/4"	604-2241	-2242	-2243	-2244	-2245	-2246	-2247	-2248
4孔大法兰 Φ100止口 Four holes large-scale flange Φ100 spigot	1.25" 直轴, 平键7.95 轴伸55.5 1.25" straight shaft, flat key 7.95 shaft extension 55.5	G1/2" 外泄口G1/4" G1/2" Drain port G1/4"	604-0251	-2252	-2253	-2254	-2255	-2256	-2257	-2258
	6D-30×26×8 轴伸57 6D-30×26×8 Shaft extension 57	M22×1.5	/	/	630 -1001	-1002	-1003	-1004	-1005	-1006
车轮马达 Wheel motor	6D-30×26×8 轴伸57 6D-30×26×8 Shaft extension 57	板式连接4-M10 Gasket-mounting 4-M10	/	/	630 -1011	-1012	-1013	-1014	-1015	-1016
	Φ32轴伸, 平键10 轴伸104 Φ32 shaft extension, flat key 10 shaft extension 104	M22×1.5 外泄口M14×1.5 M22×1.5 Drain port M14×1.5	604-4371	-4372	-4373	-4374	-4375	-4376	-4377	-4378
无轴承马达 No bearing motor	1.25" 锥轴, 带槽螺母 轴伸104 1.25" tapered shaft, splined nut shaft extension 104	板式连接3-M10 泄油口7/16-20UNP Gasket-mounting 3-M10 drain port 7/16-20UNP	604-4391	-7392	-7393	-7394	-7395	-7396	-7397	-7398
		M22×1.5	604-8181	-8182	-8183	-8184	-8185	-8186	-8187	-8188

## 产品概述

6W 是一种端面配流式摆线液压马达。采用先进的镶柱式定转子参数设计，具有工作效率高，工作压力高、启动压力低、运转平稳、双向可获得同样的输出扭矩、可靠的轴动密封。为满足不同结构设计需要，有三种结构型式：标准马达，车轮马达，无轴承马达。

## 主要特点

- 1、先进的定转子参数设计，启动压力低，效率高，低速运转平稳。
- 2、较高的工作压力，输出扭矩高。
- 3、先进的轴密封设计，高的背压承受能力。
- 4、先进可靠的联动轴设计，使马达具有长寿命。
- 5、先进的配流机构设计，具有配流精度高和磨损自动补偿的特点。
- 6、马达结构紧凑，便于安装。
- 7、马达允许串联和并联使用，串联使用时应接外泄油管。
- 8、采用圆锥滚子轴承支撑设计，具有较大的径向承载能力，使得马达可直接驱动工作机构，无需加外部轴承。

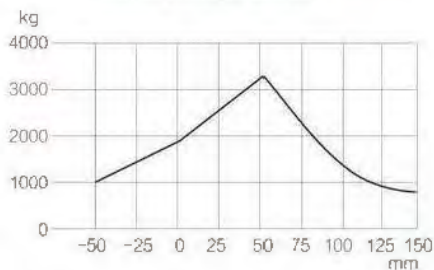
## Product Overview

6W is an advanced end face distributor orbit hydraulic motor. It is designed by advanced cylindrical stator's parameters. And it has many characteristics: high working efficiency, high working pressure, low start-up pressure, stable operation and reliable dynamic sealing. In order to meet the needs of different structure design, there are three kinds of structure type: standard motor, wheel motor, no bearing motor.

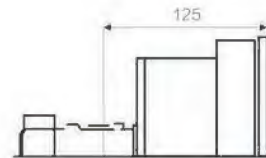
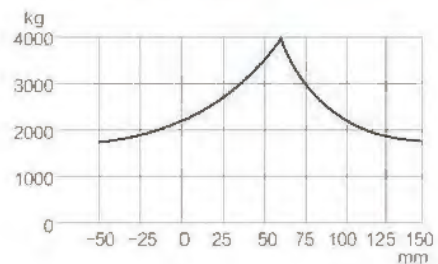
## Main Characteristics

1. Designed by advanced stator's parameters, low start-up pressure, high efficiency, perfect stability at low speed.
2. Higher working pressure, high output torque.
3. Advanced shaft sealing design, high bearing ability of backpressure.
4. Advanced and reliable universal driving shaft design make motors have long life.
5. Advanced distributor mechanism design, it has the features of high accuracy of distributing and automatic compensation of attrition.
6. Motor's structure is compact, easy to install.
7. Motors can be used in parallel or in series. When using in series should connect leaked tubing.
8. Use TRB(tapered roller bearing) support to design. It has big radial load bearing capacity, can make the motor directly drive the operating mechanism. There is no need to add external bearing.

标准马达直轴允许侧向负荷  
Standard motor straight shaft  
allowable lateral load



车轮马达 1.75" 锥轴允许侧向力负荷  
Wheel motor 1.75" tapered shaft allowable  
yawing force load



上述所允许的侧向力在100RPM转速下，转速下同时应乘系数  
The above-mentioned allowable yawing force is in the 100 RPM speed, if the speed is the same as below, it should multiply coefficient

转速 Rotate speed	50	200	300	400	500
系数 Coefficient	1.23	0.81	0.72	0.66	0.62

## 技术参数 Technical data

排量 Displacement (ml/r)	转速 Speed (rpm)		流量 Flow (LPM)		扭矩 Torque (N.m)		压力 Pressure (Bar)		重量 Weight (kg)	允许最大背压 Maximum allowable back pressure (Bar)
	最大连续 Max.cont	间断 int	连续 cont	间断 int	连续 cont	间断 int	连续 cont	间断 int		
195	775	866	150	170	575	860	170	275	28.1	70
245	615	834	150	210	735	1100	170	275	28.6	70
310	485	698	150	225	930	1355	170	275	29.2	70
390	387	570	150	225	1155	1535	170	275	30	70
490	307	454	150	225	1445	1885	170	24	30.9	70
625	241	355	150	225	1380	1378	120	140	32.1	70
985	153	230	150	225	1685	1873	120	140	35.5	70

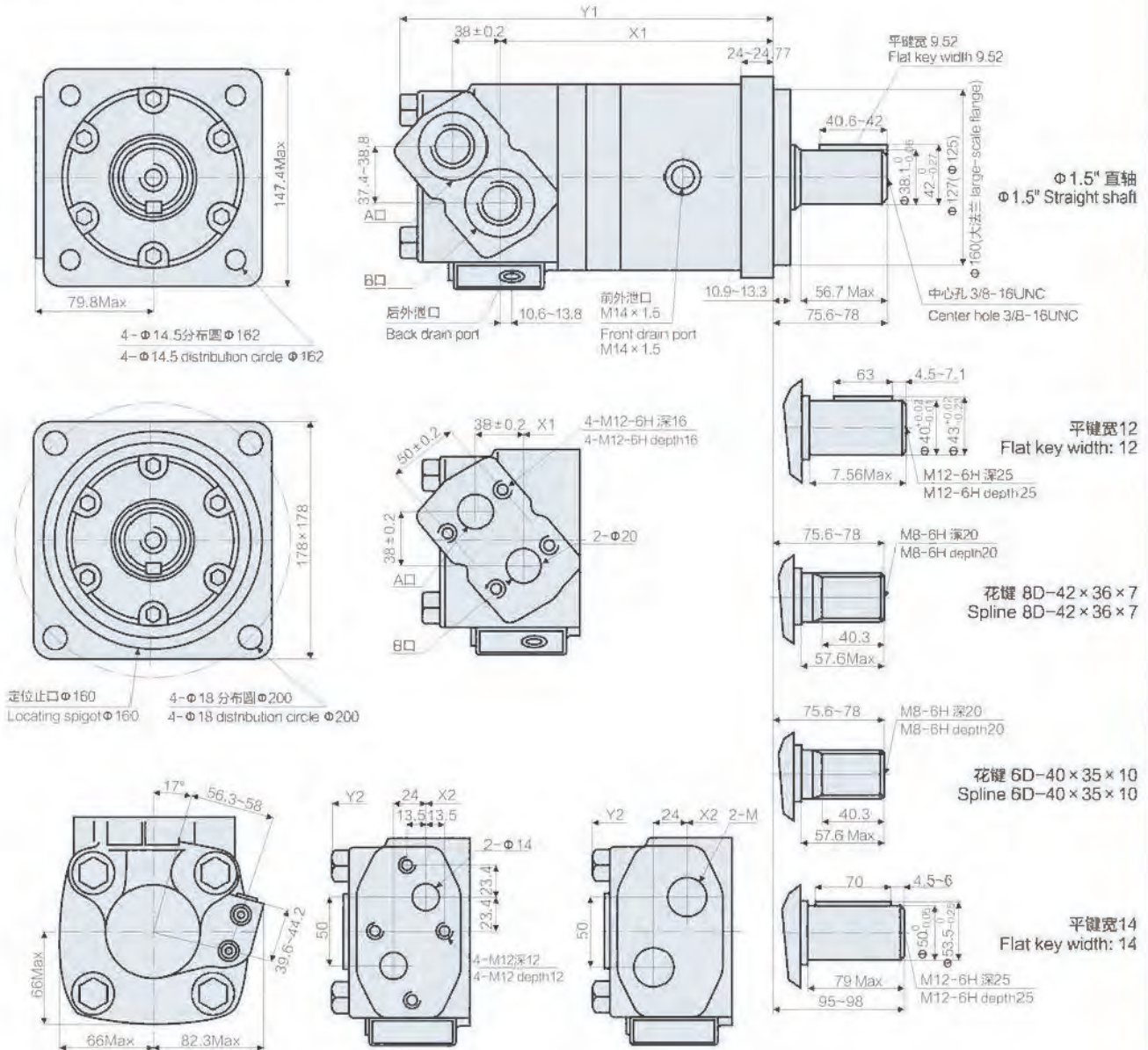
## 注意事项

- 1、应避免同时在最高扭矩和最大转速下使用马达。
- 2、表中所列扭矩值适用于直径1.75"的锥轴，1.5"的轴输出轴允许的最大连续扭矩和间断扭矩为1325Nm和1650Nm。
- 3、超过允许背压时，应接外泄管，并保证马达内腔总能充满液压油。
- 4、最大入口压力为310Bar，但工作压力差应符合上表要求。
- 5、最大回油背压70Bar，为保证马达长寿命可靠工作，推荐当回油背压大于35Bar时接外泄油管。
- 6、马达间断工作持续时间不超过6秒钟；峰值工作持续时间不超过0.6秒钟。
- 7、系统最大工作温度：82℃
- 8、推荐用油：抗磨液压油，工作条件下粘度不低于13cSt，滤清精度：ISO18/13。
- 9、在马达全负载工作前，应在额定压力的30%下运转约1小时，确保在满负荷工作前马达内腔充满液压油。

## Notes

1. It should be avoided using the motor at the highest torque and maximum speed at the same time.
2. The torque listed in the table is suitable for the diameter 1.75" tapered shaft, 1.5" output shaft can bear the maximum continuous torque is 1325Nm and maximum intermittent torque is 1650Nm.
3. When exceed the maximum backpressure, it should connect with a leaked pipe, and ensure the hydraulic motor always be full of hydraulic oil.
4. Maximum inlet pressure is 310 Bar, but working pressure difference shall meet the above chart's requirements.
5. Maximum oil return backpressure is 70 Bar. In order to ensure motor long life and reliable work, it is recommended to connect a leaked tubing when the oil return backpressure greater than 35Bar.
6. Motor intermittent working duration time is less than 6 second; Peak working duration time is less than 0.6 second.
7. The system's maximum working temperature: 82℃.
8. Recommended oil: antiwear hydraulic oil, viscosity is no less than 13cSt, under working condition, filtration precision: ISO18/13.
9. Before the motor full load working, it should work an hour under the 30% rated pressure to ensure the motor is full of hydraulic oil before full load working.

## 标准马达外形及联接尺寸 Standard motor's appearance and connection size



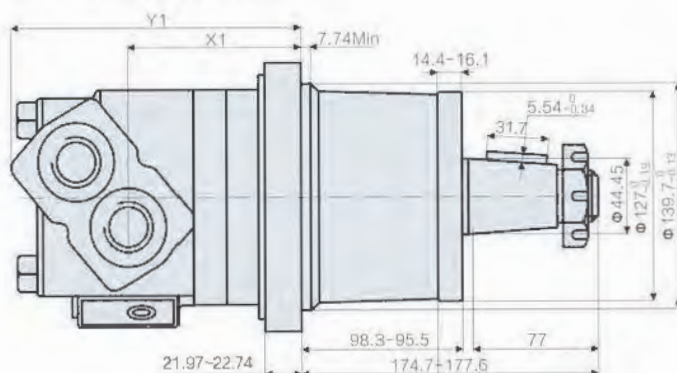
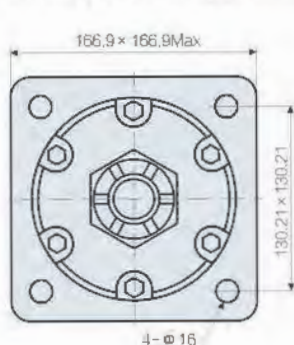
### 油口尺寸 Port size

连接方式 Mode of connection	油口尺寸 Port size	外泄口尺寸 Size of
管式连接 Tube type conjunction	M33 $\times 2$	M14 $\times 1.5$
	G1" BSP	G1/4BSP
	G3/4	G1/4
板式连接 Gasket- mounting	M24 $\times 1.5$	M14 $\times 1.5$

本图仅标出部分连接尺寸  
This chart only mark part of the connection size

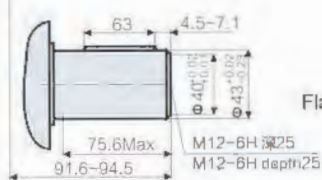
排量 Displacement (ml/r)	195	245	310	390	490	625	985
X1(mm)	187.4	193.0	200.4	209	220.2	234.8	274.6
Y1(mm)	270.1	275.6	283	291.6	302.8	317.5	357.4
X2(mm)	180.4	186.0	193.4	202	213.2	227.8	267.6
Y2(mm)	260.1	265.6	273	281.6	292.8	307.5	347.4

## 车轮马达外形及联接尺寸 Wheel motor's appearance and connection size



平键宽 11.138  
Flat key width  
11.138

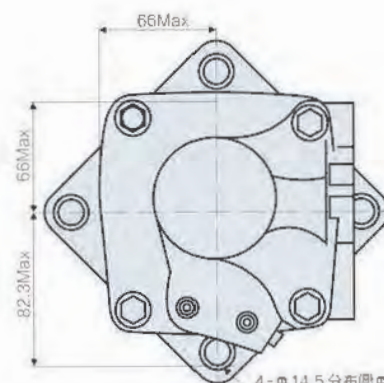
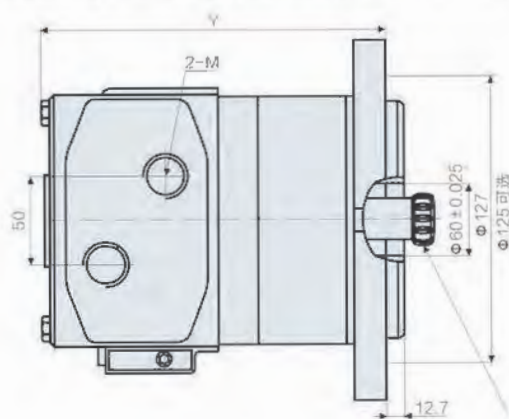
排量 Displacement (ml/r)	195	245	310	395	490	625	985
X1 (mm)	102.6	108.2	115.5	124.3	135.4	150.1	189.8
Y1 (mm)	185.2	190.8	198.2	207.1	218.0	233	272.6



平键宽 12  
Flat key width 12

油口及油口连接尺寸同标准马达  
马达标准旋向同标准马达  
Oil port and oil port connection size are the same as standard motor's  
Motor's standard direction of rotation is the same as standard motor

## 无轴承马达外形及联接尺寸 No bearing motor appearance and connection size



渐开线花键参数  
Parameter of involute spline

径节 Diametral pitch	8.5/17
压力角 Pressure angle	30°
齿数 Number of teeth	12
齿顶圆直径 Tip diameter	Φ38.4 <sup>+0.31/-0.08</sup>
齿根圆直径 Root diameter	Φ31.5 <sup>+0.35/-0.05</sup>
分度圆直径 Reference diameter	5.7 <sup>+0.015/-0.057</sup>
测棒直径 Measuring sticks diameter	Φ4.572
测棒间距 Measuring sticks spacing	42.9 <sup>+0.01/-0.06</sup>

标准油口; 同标准6W马达  
Standard oil port: same as standard 6W motor

排量 Displacement (ml/r)	195	245	310	395	490	625	985
Y (mm)	178	183.6	190.7	199.6	210.8	225.5	265.1

订货参考尺寸及外形图, 根据所选用的马达具体型式从下表中选择对应编号, 本表中仅提供了产品编号的一部份, 当需要的规格查不到时, 请与销售部联系, 标准颜色: 蓝色。

The reference dimension and outside drawing of ordering goods: According to the selected motor specific pattern to choose corresponding numbers from the table. This table only provides a part of the product number. When the needed specification can not be found, please contact with sales department. Standard Colors: blue

## 订货编号 ORDER NUMBER

尺寸规格 Dimensions			排量 Displacement						
法兰 Flange	输出轴 Shaft	油口螺纹 Ports screw thread	195	245	310	390	490	625	985
标准4孔法兰 Φ127止口 Standard four holes flange Φ127 spigot	Φ1.5直轴, 平键9.52 Φ1.5 straight shaft, flat key 9.52	1-5/16-12UNF; 锥口密封 外泄口7/16-20UNF 锥口密封 标准油口面 1-5/16-12UNF; conical port sealing drain port 7/16-20UNF conical port sealing standard oil port surface	112-1064	-1065	-1066	-1067	-1068	-1107	-1069
	Φ40直轴, 平键12 Φ40 straight shaft, flat key 12	G1/2" BSP, 外泄口G1/4" BSP 标准油口面 G1/2" BSP, Drain port G1/4" BSP standard oil port surface	112-1094	-1095	-1096	-1097	-1098	-	-1069
	Φ1.5直轴, 平键9.52 Φ1.5 straight shaft, flat key 9.52	G1/2" BSP, 外泄口G1/4" BSP 标准油口面 G1/2" BSP, Drain port G1/4" BSP standard oil port surface	612-0131	-0132	-0133	-0134	-0135	-0136	-
4孔大法兰 Φ160止口 Four holes large-scale flange Φ160 spigot	花键6D-40×35×10 轴伸119 Spline 6D-40×35×10 shaft extension 119	G1/2" BSP, 外泄口G1/4" BSP 标准油口面 G1/2" BSP, Drain port G1/4" BSP standard oil port surface	620-1041	-1042	-1043	-1044	-1045	-1046	-1047
	花键8D-42×36×7 轴伸105 Spline 8D-42×36×7 shaft extension 105	G1/2" BSP, 外泄口G1/4" BSP 标准油口面 G1/2" BSP, Drain port G1/4" BSP standard oil port surface	620-1091	-1092	-1093	-1094	-1095	-1096	-1097
标准4孔法兰 Φ125止口 Standard four holes flange Φ125 spigot	Φ40直轴 平键12 Φ40 straight shaft, flat key 12	G3/4" BSP, 外泄口G1/4" BSP 标准油口面 G1/2" BSP, Drain port G1/4" BSP standard oil port surface	612-0031	-0032	-0033	-0034	-0035	-0036	-0037
	Φ40直轴 平键12 Φ40 straight shaft, flat key 12	G3/4" BSP, 外泄口G1/4" BSP 标准 G1/2" BSP, Drain port G1/4" BSP standard oil port surface	512-0061	-0062	-0063	-0064	-0065	-0066	-
标准4孔法兰 Φ127止口 Standard four holes flange Φ127 spigot	Φ40直轴 平键12 Φ40 straight shaft, flat key 12	M33×2; 外泄口M14×1.5 标准油口面 M33×2; Drain port M14×1.5 Standard oil port surface	612-0011	-0012	-0013	-0014	-0015	-0016	-0017
	花键8D-42×36×7 轴伸75.6-78 Spline 8D-42×36×7 shaft extension 75.6-78	M33×2; 外泄口M14×1.5 标准油口面 M33×2; Drain port M14×1.5 Standard oil port surface	612-0021	-0022	-0023	-0024	-0025	-0026	-0027
	花键6D-40×35×10 轴伸75.6-78 Spline 6D-40×35×10 shaft extension 75.6-78	M33×2; 外泄口M14×1.5 标准油口面 M33×2; Drain port M14×1.5 Standard oil port surface	612-0031	-0032	-0033	-0034	-0035	-0036	-0037
	Φ1.5直轴 平键9.52 Φ1.5 straight shaft, flat key 9.52	M33×2; 外泄口M14×1.5 标准油口面 M33×2; Drain port M14×1.5 Standard oil port surface	612-0071	-0072	-0073	-0074	-0075	-0076	-0077

尺寸规格 Dimensions			排量 Displacement						
法兰 Flange	输出轴 Shaft	油口螺纹 Ports screw thread	195	245	310	390	490	625	985
标准4孔法兰 Φ125止口 Standard four holes flange Φ125 spigot	Φ40直轴, 平键12 Φ40 straight shaft, flat key 12	M33×2; 外泄口M14×1.5 标准油口面 M33×2, Drain port M14×1.5 Standard oil port surface	612-0151	-0152	-0153	-0154	-0155	-0156	-0157
	Φ40直轴, 平键12 Φ40 straight shaft, flat key 12	M24×1.5; 外泄口M14×1.5 标准油口面 M24×1.5, Drain port M14×1.5 Standard oil port surface	620-0011	-0012	-0013	-0014	-0015	-0016	-0017
4孔大法兰 Φ160止口 Four holes large -scale flange Φ160 spigot	花键8D-40×35×10 轴伸119 Spline 8D-40×35×10 shaft extension 119	M24×1.5; 外泄口M14×1.5 标准油口面 M24×1.5, Drain port M14×1.5 Standard oil port surface	620-1081	-1082	-1083	-1084	-1085	-1086	-1087
	Φ40直轴, 平键12 Φ40 straight shaft, flat key 12	板式连接; 油口Φ14 泄油口1/4" Gasket-mounting; oil port Φ14 drain port 1/4"	620-0121	-0122	-0123	-0124	-0125	-0126	-0127
标准4孔法兰 Φ127止口 Standard four holes flange Φ127 spigot	Φ40直轴, 平键12 Φ40 straight shaft, flat key 12	板式连接; 油口Φ14 无泄油口 Gasket-mounting; oil port Φ14 No drain port 1/4"	612-0091	-0092	-0093	-0094	-0095	-0096	-0097
	花键8D-42×36×7 轴伸75.6-78 Spline 8D-42×36×7 shaft extension 75.6-78	板式连接; 油口Φ14 无泄油口 Gasket-mounting; oil port Φ14 No drain port 1/4"	612-1041	-1042	-1043	-1044	-1045	-1046	-1047
车轮马达 Wheel motor	1.75" 锥轴, 平键11.138 1.75" Tapered shaft, flat key 11.138	M33×2; 外泄口M14×1.5 标准油口面 M33×2, Drain port M14×1.5 Standard oil port surface	612-4121	-4122	-4123	-4124	-4125	-4126	-4127
	Φ40直轴, 平键12 Φ40 straight shaft, flat key 12	G1"; 外泄口M1/4" 标准油口面 G1", Drain port M1/4" Standard oil port surface	113-1082	-1083	-1084	-1085	-1086	-1100	-

# A2F

A2F 系列定量柱塞泵/马达(1~5系列)

A2F Fixed piston pump/motor (1~5 series)



**TILORMS**<sup>®</sup>  
泰勒姆斯



## 产品概述

弯轴结构的轴向柱塞元件，具有固定排量，在开式或闭式回路中用作静液压传动的泵或马达。

当作为泵工作时，流量与驱动转速和排量成正比。  
当作为马达作时，输出转速与流量成正比而与排量成反比。  
输出扭矩随高压侧与低压侧之间的压差而加大。

## 特点

缸体与配油盘采用球面配油，在旋转中能自动对中，圆周速度较小、效率高；  
驱动轴能承受径向负荷；  
噪声低。

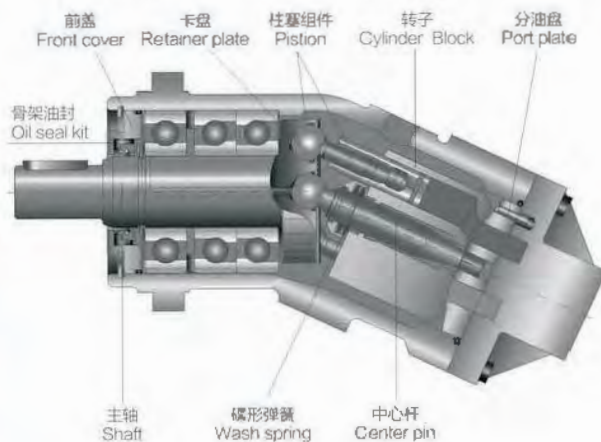
## Product overview

Axial piston unit of bent axis design with fixed displacement, for use as either pump or motor in hydrostatic drivers, in open or closed circuit. If operated as a pump, the flow is proportional to the drive speed and displacement. If operated as a motor, the output speed is proportional to the swept volume and inversely proportional to displacement. The output torque increases with the pressure drop between the high and low pressure sides.

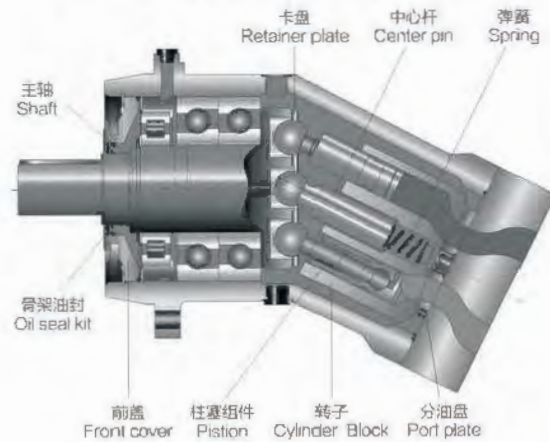
## Features

Cylinder body and oil distribution plate using spherical oil distribution.  
Low peripheral speed and high efficiency.  
Drive shaft capable of accepting radial loading.  
Low noise.

A2F系列1-4 (规格10~225) 剖视图  
A2F series 1-4(size 10~225)section



A2F系列5 (规格200~500) 剖视图  
A2F series 5 (size 200~500)section



### 注意:

为了延长使用寿命，请用户做到：

- 1、任何场合都应保持液压油的清洁度；
- 2、定期更换液压油（工作1000~3000小时或六个月）。

### Note:

To help ensure its longevity, please be careful to:

1. Keep the operating fluid clean anywhere.
2. Change the hydraulic fluid periodically (Operation 1000~3000 hours or six months).

## 型号说明 Type code

**A2F 55 R 2 P 1**

型号 Type  
定量马达/泵  
Fixed displacement motor/Pump

**A2F**

规格 Size      排量 Displacement (Vgmin~Vgmax)

<b>10</b>	(9.6ml/r)
<b>12</b>	(11.6ml/r)
<b>23</b>	(22.7ml/r)
<b>28</b>	(28.1ml/r)
<b>45</b>	(44.3ml/r)
<b>55</b>	(54.8ml/r)
<b>63</b>	(63.0ml/r)
<b>80</b>	(80.0ml/r)
<b>107</b>	(107ml/r)
<b>125</b>	(125ml/r)
<b>160</b>	(160ml/r)
<b>200</b>	(200ml/r)
<b>225</b>	(225ml/r)
<b>250</b>	(250ml/r)
<b>355</b>	(355ml/r)
<b>500</b>	(500ml/r)

### 后盖形式 Rear cover

后盖 Port Plate	<b>1</b>
后盖 Port Plate	<b>2</b>
后盖 Port Plate	<b>3</b>
后盖 Port Plate	<b>4</b>
后盖 Port Plate	<b>5</b>
后盖 Port Plate	<b>6</b>
后盖 Port Plate	<b>7</b>

### 轴伸 Shaft End

平键 Flat key shaft GB 1096-79	<b>P</b>
花键 spline shaft DIN 5480	<b>Z</b>
花键 spline shaft GB 3478.1-83	<b>S</b>

### 系列 Series

系列 Series	规格 Size 10~160	<b>1</b>
系列 Series		<b>2</b>
系列 Series		<b>3</b>
系列 Series		<b>4</b>
系列 Series		<b>5</b>
系列 Series	规格 Size 200~500	

### 旋转方向 Direction of Rotation

(从轴端看) (Viewed on drive shaft)

顺时针 Clock wise	<b>R</b>
逆时针 Anti-clock wise	<b>L</b>
双向 Alternating	<b>W</b>

(不适用于开式回路中的泵) (not for pumps in open circuit)

## 订货示例 Ordering Example

A2F、55、R、2、P、1  
A2F定量马达, 规格55, 顺时针旋转, 2系列, 平键, 1型后盖

A2F、55、R、2、P、1  
Fixed displacement motor A2F, Size55, clockwise rotation, series 2, Flat key shaft, Port plate 1

## 技术参数

- 进口工作压力:**  
 泵: 进油口S、A或B最低压力:  $P_{abs} \text{———} 0.08\text{MPa}$   
 在闭式回路中, 补油压力必须在0.2至0.6MPa之间, 视泵的转速和液压油的粘度而定。  
 马达: A或B口的压力:  
 额定压力  $\text{———} P_n=35\text{MPa}$   
 最高压力  $\text{———} P_{max}=40\text{MPa}$   
 A口和B口压力之和不得超过70MPa (每侧压力最高40MPa)
- 出口工作压力:**  
 泵: 额定压力  $\text{———} P_n=35\text{MPa}$   
 最高压力  $\text{———} P_{max}=40\text{MPa}$
- 最高允许壳体压力(油口T):**  $P_{abs} \text{———} 0.2\text{MPa}$
- 油温范围:**  $-25^{\circ}\text{C} \sim 80^{\circ}\text{C}$
- 粘度范围:**  $T_{min} \text{———} 10\text{mm}^2/\text{s}$   
 $T_{max} \text{———} (\text{短时}) 1000\text{mm}^2/\text{s}$   
 最佳工作粘度:  $16 \sim 25\text{mm}^2/\text{s}$
- 油液选择:** 40号低凝液压油
- 液压油的过滤:** 推荐过滤精度  $10\mu\text{m}$ , 亦可使用  $25 \sim 40\mu\text{m}$  的, 但使用  $10\mu\text{m}$  的可延长使用寿命(降低磨损)。
- 转速范围:** 最低转速没有限制, 若要求旋转高度均匀则最低转速不低于  $50\text{r/min}$ ; 关于最高转速, 请见下页表格。
- 安装位置:** 任选, 泵内必须充满液压油
- 流动方向:**  
 顺时针:  $\text{———}$  逆时针:  
 A到B S到B (开式回路)      B到A S到A (开式回路)
- 符号 Symbols:**



## 规格计算 Calculation of Size:

### 泵 Pump:

输出流量 Output Flow  $Q = \frac{V_g \times n \times \eta_v}{1000}$  [L/min]

输入扭矩 Input Torque  $M = 0.159 \times V_g \times \Delta P / \eta_m$  [N.m]

输入功率 Input Power  $P = \frac{Q \times \Delta P}{60 \times \eta_i}$  [Kw]

### 马达 Motor:

输入流量 Input Flow  $Q = \frac{V_g \times n}{1000 \times \eta_v}$  [L/min]

输出转速 Output Speed  $n = \frac{Q \times 1000 \times \eta_v}{V_g}$  [r/min]

输出扭矩 Input Power  $M = 0.159 \times V_g \times \Delta P \times \eta_m$  [N.m]

输出功率 Output Power  $P = \frac{Q \times \Delta P \times \eta_i}{60}$  [Kw]

$V_g$ =最大排量	Max geometric displacement	[ml/r]
$M$ =扭矩	Torque	[N.m]
$\Delta P$ =压差	Differential pressure	[Mpa]
$n$ 转速	Speed	[r/min]
$\eta_v$ =容积效率	Volumetric efficiency	
$\eta_m$ =机械效率	Mechanical-hydraulic efficiency	
$\eta_t$ =总效率	Overall efficiency	

## TECHNICAL DATA

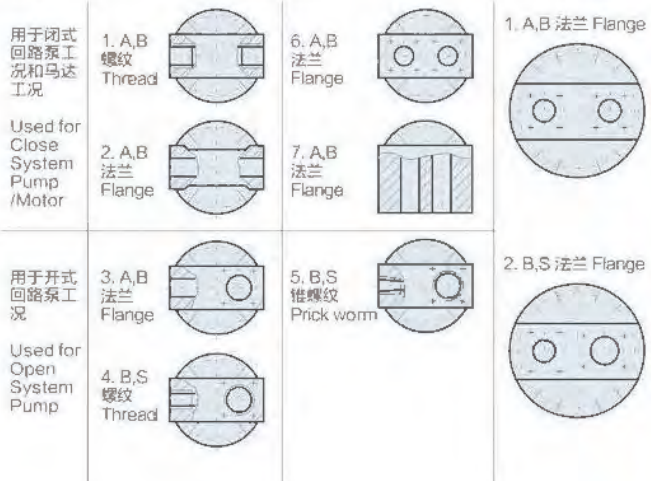
- Inlet Operating Pressure:**  
 Pump: Minimum pressure at ports S, A or B:  $P_{abs} \text{———} 0.08\text{Mpa}$  in closed circuits, the feed pressure must be between  $0.2\text{Mpa}$  and  $0.6\text{Mpa}$ , depending on pump speed and viscosity of hydraulic fluid.  
 Motor: Pressure at port A or B:  
 Nominal pressure  $\text{———} P_n=35\text{MPa}$   
 Peak pressure  $\text{———} P_{max}=40\text{MPa}$   
 The sum of the pressures at ports A and B must not exceed  $70\text{MPa}$  (individual pressure on either side max.  $40\text{MPa}$ )
- Outlet Operating Pressure:**  
 Pump: Nominal pressure  $\text{———} P_n=35\text{MPa}$   
 Peak pressure  $\text{———} P_{max}=40\text{MPa}$
- Maximum permissible case Pressure(at port T):**  $P_{abs} \text{———} 0.2\text{Mpa}$
- Oil Temperature Range:**  $-25^{\circ}\text{C} \sim 80^{\circ}\text{C}$
- Viscosity Range:**  $T_{min} \text{———} 10\text{mm}^2/\text{s}$   
 $T_{max} \text{———} (\text{for short periods}) 1000\text{mm}^2/\text{s}$   
 Optimum Operating Viscosity:  $16 \sim 25\text{mm}^2/\text{s}$
- Fluid Recommendation:** 40 low solidifying
- Filtration of hydraulic fluid:**  
 Recommended filtration  $10\mu\text{m}$ . Coarser filtration of  $25$  to  $40\mu\text{m}$  is acceptable, However longer service life is achieved.
- Speed Range:**  
 No limitation on minimum speed,  
 If high uniformity of rotation is required,  $n_{min}$  should not be less than  $50\text{r/min}$ . See table on page5 for maximum speed.
- Mounting position:** Arbitrarily Choose, the housing must be filled with oil;
- Flow direction:**  
 Clockwise:  $\text{———}$  Anticlockwise:  
 A to B S to B (Open Circuit)      B to A S to A (Open circuit)

## 后盖形式 REAR COVER

### 规格 Size

### 10~160

### 200~500



技术参数表值, 未考虑  $\eta_m$  和  $\eta_v$ , 数据经过圆整。

Technical data theoretical values, without considering  $\eta_m$  and  $\eta_v$ , and the data has rounded off already.

规格 Size		10	12	23	28	45	55	63	80	107	125	160	200	250	355	500	
排量 Displacement $V_g$ (ml/r)		9.4	11.6	22.7	28.1	44.3	54.8	63	80	107	125	160	200	250	355	500	
最高转速 Max Speed $n$ max(r/min)	闭式回路 Close Circuit	7500	6000	5600	4750	4500	3750	4000	2250	3000	3150	3650	2500	2500	2240	2000	
	开式回路 Open Circuit	0.09	4700	3750	3750	2800	2850	2360	2550	2120	1900	2120	1650	1700	1400	1250	1120
	进口压力 Inlet Pressure ( $P_{abs}$ =MPa)时	0.10	5000	4000	4000	3000	3000	2500	2700	2240	2000	2240	1750	1800	1500	1320	1200
最大流量 Max Flow $Q$ max(l/min)	闭式回路 Close Circuit	71	70	127	133	199	206	253	268	321	394	424	500	625	795	1000	
	开式回路 Open Circuit	0.09	43	42	83	76	122	125	156	165	197	257	256	330	340	430	543
	进口压力 Inlet Pressure ( $P_{abs}$ =MPa)时	0.10	46	45	88	82	129	133	165	174	208	272	272	349	364	455	582
最大功率 Max Power $P_{max}$ (Kw)	闭式回路 Close Circuit	41	41	74	78	116	120	147	156	187	230	247	292	365	454	583	
	开式回路 Open Circuit	0.09	25	25	48	44	71	73	91	96	115	150	149	192	198	251	317
	进口压力 Inlet Pressure ( $P_{abs}$ =MPa)时	0.10	27	26	51	48	75	78	96	101	121	159	159	204	212	265	340
电机转速 Electric Motor Speed $n=1450$ r/min	流量 Flow 闭式 Close Circuit	13.6	16.8	32.9	40.7	64.2	79.5	91.3	116	155.2	181.2	232	290	363	515	725	
	Q(l/min) 开式 Open Circuit	13.2	16.3	31.9	39.5	62.3	77.1	88.6	112.5	150.5	175.8	225	281	352	499	703	
	功率 P(Kw) 闭式 Close $\Delta P=35$ MPa 开式 Open	7.9	9.8	19.2	23.7	27.4	46	53	67.7	90	106	135	169	212	300	423	
扭矩 Torque(N.m)	$\Delta P=10$ MPa	15	18	36	44.7	70	87	100	127	170	199	254	318	398	564	795	
	$\Delta P=35$ MPa	52	65	126	156	247	305	351	445	595	696	890	1113	1391	1976	2783	
近似重量 Approx Weight (kg)		5	5	12	12	23	23	33	33	44	63	63	88	88	138	185	



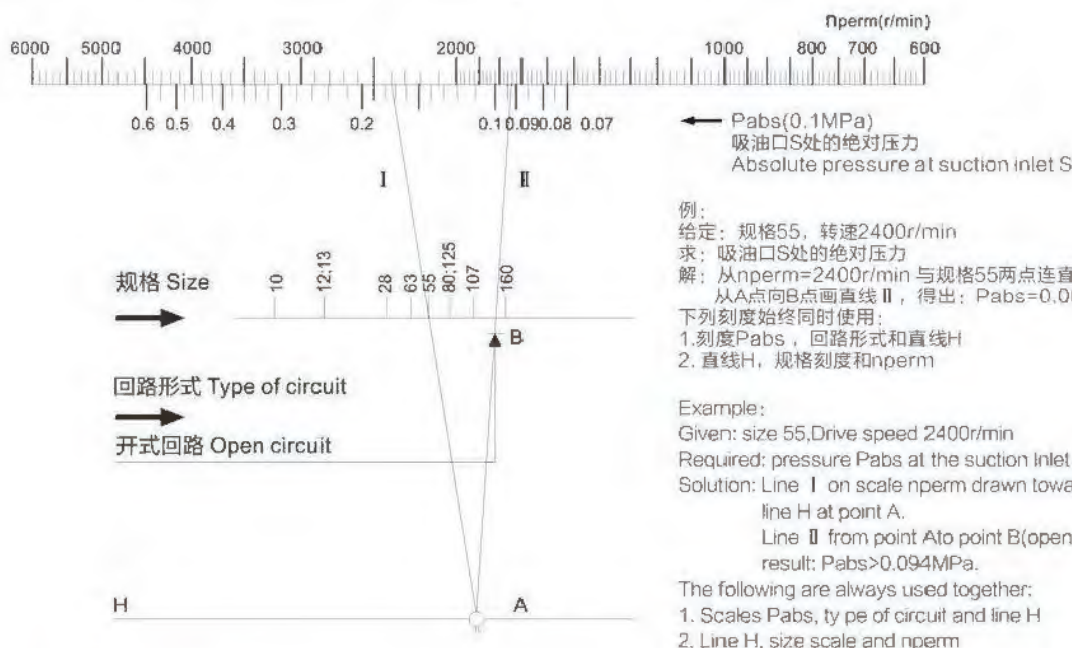
注: 上表数据适用于吸油口S有绝对压力并用矿物油工作时;

Notes: These values are valid provided there is an absolute pressure at suction inlet S and when operated on mineral oil.

## 诺模图 NOMOGRAPH

允许转速  $n_{perm}$  可由诺模图确定。在马达工况, 闭式回路或补油工况的允许转速也适合于开式回路。当进口压力  $P_{abs} > 0.1$ MPa 时开式回路(自吸工况)的允许转速可以提高, 但当  $P_{abs} < 0.1$ MPa 时必须降低。

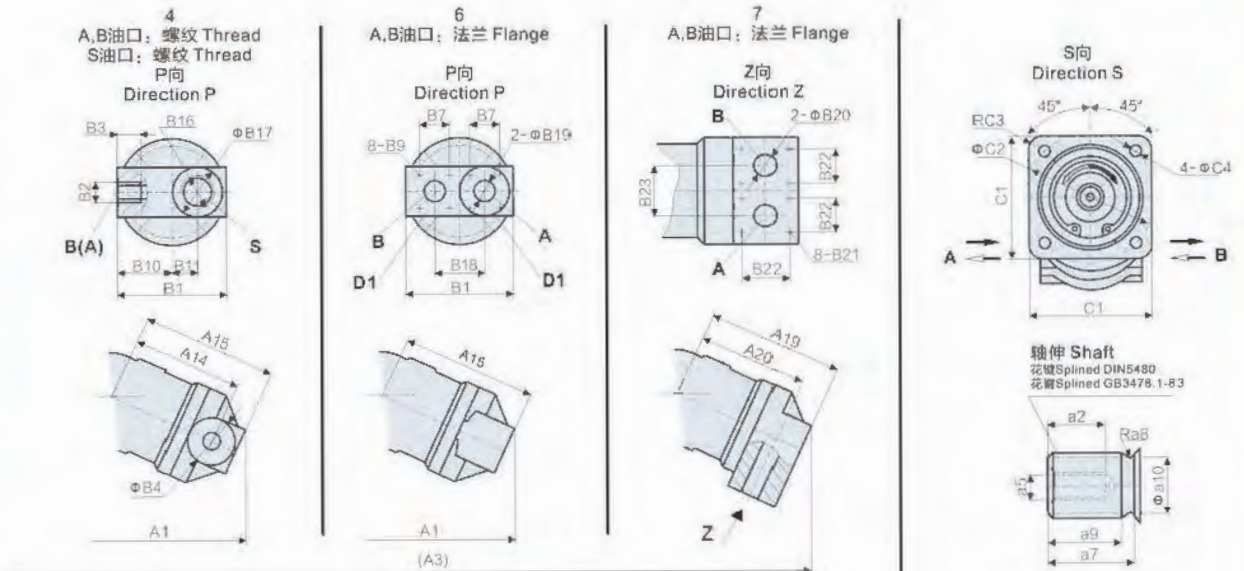
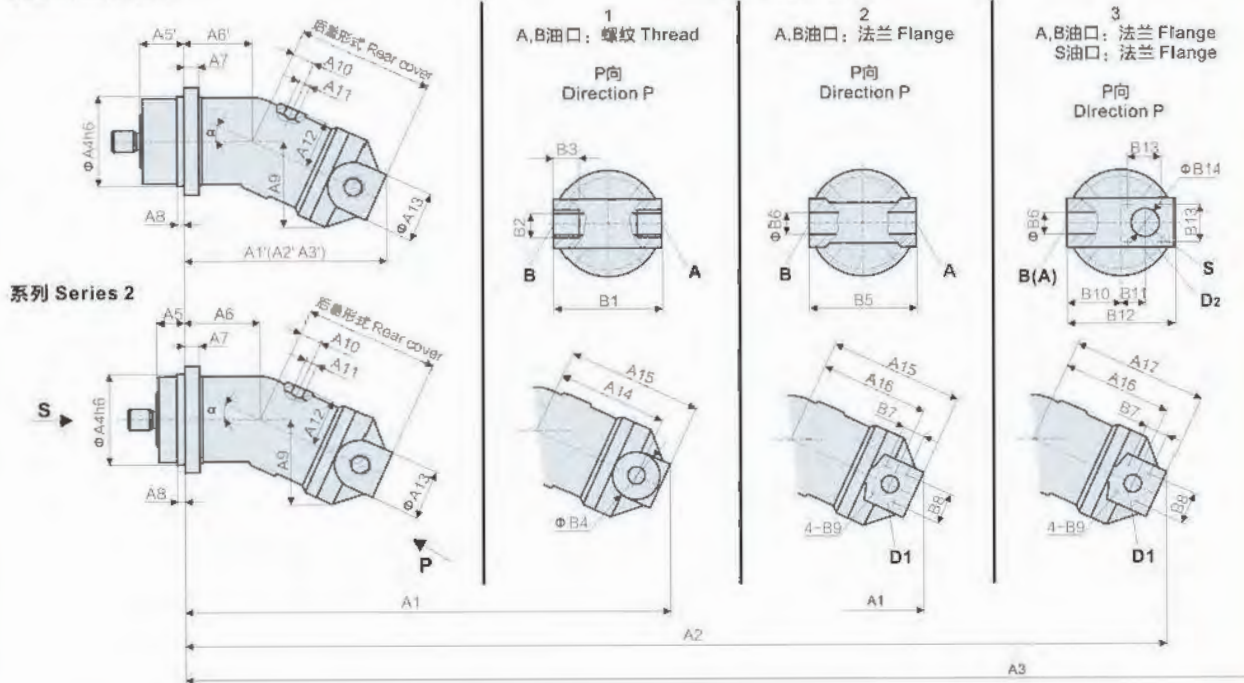
Permissible speed  $n_{perm}$  can be determined from the nomograph. In motor operation the permissible speed for closed circuit system and boosted operation are also valid for open circuit system. When suction pressure  $P_{abs} > 0.1$ MPa, the permissible speed can be increased in open circuits (Self-suction operation). But when suction pressure  $P_{abs} < 0.1$ MPa, the permissible speed must be reduced.



## 元件外形尺寸 系列1-4规格 10-160 Unit Dimensions Series 1-4 size 10-160

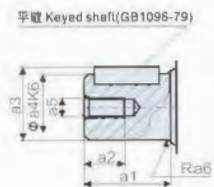
系列 Series 1,3,4

后盖形式 Rear cover



**注:** 1. A1、A2 和 A3 的尺寸只适用于系列 2, 对系列 1,3,4 的对应值由下式求出:  
A1'=A1-(A6-A6'); A2'=A2-(A6-A6'); A3'=A3-(A6-A6').  
2. 除上述结构形式外, 还可以根据客户特殊需要时现有产品进行改制。

Notes: 1. The dimensions of A1, A2, A3 are only valid for series 2. The parallel dimensions of the three above mentioned positions for series 1, 3 and 4 can be calculated according to the follows formula: A1'=A1-(A6-A6'); A2'=A2-(A6-A6'); A3'=A3-(A6-A6').  
2. Besides above mentioned structures, we can adjust the design of the present product according to the customers' special needs.



## 元件外形尺寸 系列1-4规格 10-160 Unit Dimensions Series 1-4 size 10-160

规格 Size		系列 Series	后盖形式 Rear cover	A1		A2		A3		A4	A5	A6	A5'	A6'	A7	A8	A9	
α 20°	α 25°			α 20°	α 25°	α 20°	α 25°	α 20°	α 25°									α 20°
10	12	2.4	1.4	174	172	-	-	-	-	80	20	62	40	42	12.5	8	69	75
23	28	2.3	1,2,4	223	218	-	-	-	-	100	25	75	50	50	16	8	88	95
45	55	1.2	1,2,3,6	292	289	286	284	-	-	125	32	108	63	77	20	10	110	118
63	80	1,2	1,2,3	350	348	345	342	-	-	140	32	137	83	86	23	10	126	140
87	107	1,2	1,2,3,7	360	356	353	348	358	353	160	40	130	80	90	25	12	138	149
125	160	2	1,2,3,7	422	417	417	410	408	420	180	40	156	-	-	28	10	159	173.5

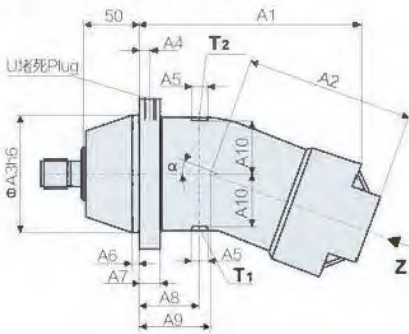
规格 Size		A10	A11	A12	A13	A14	A15	A16	A17	A18		A19	A20	B1	B2	B2	B4
α 20°	α 25°									α 20°	α 25°						
10	12	14	M12×1.5	40	-	90	112	-	-	-	-	-	-	89	M22×1.5	14	40
23	28	25	M16×1.5	50	-	118	145	118	-	-	-	-	-	106	M27×2	16	47
45	55	31.5	M18×1.5	63	-	151	183	151	178	-	-	-	-	132	M33×2	18	53
63	80	36	M18×1.5	77	-	174	213	174	208	-	-	-	-	156	M42×2	20	63
87	107	40	M18×1.5	80	-	190	230	190	225	185	200	230	195	165	M42×2	20	66
125	160	45	M22×1.5	93	-	212	262	212	257	204	220	252	212	195	M48×2	22	70

规格 Size		B5	B6	B7	B8	B9	深 depth	B10	B11	B12	B13	B14	B15	深 depth	B16	深 depth	B17	B18	B19	B20
α 20°	α 25°																			
10	12	-	-	-	-	-	-	44.5	18	-	-	-	-	-	M33×2	18	42	-	-	-
23	28	120	13	18.2	40.5	M8	15	53	25	-	-	-	-	M42×2	20	48	-	-	-	
45	55	126	19	23.8	50.8	M10	15	63	29	129	48	50	M10	13	-	-	-	67	20	-
63	80	150	25	27.8	57.1	M12	15	75	35.5	153	60	56	M12	15	-	-	-	-	-	
87	107	160	25	27.8	57.1	M12	17	80	35.5	162.5	60	56	M12	18	-	-	-	-	-	25
125	160	190	32	31.8	66.7	M14	19	95	42.2	192.5	75	70	M16	20	-	-	-	-	-	39

规格 Size		B21	深 depth	B22	B23	C1	C2	C3	C4	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10
α 20°	α 25°																		
10	12	-	-	-	-	95	100	10	9	40	18	22.5	20	M6	0.8	34	2	22	16.7
23	28	-	-	-	-	118	125	12	11	50	19	27.9	25	M8	0.8	43	1.2	28	21.5
45	55	-	-	-	-	150	160	16	13.5	60	28	33	30	M12	1.5	35	1.5	28	25
63	80	-	-	-	-	165	180	16	13.5	70	28	38	35	M12	1.6	40	1.5	33	30
87	107	M12	25	50	78	190	200	20	17.5	80	28	43	40	M12	1.6	45	2	37.5	35
125	160	M12	25	50	78	210	224	20	17.5	90	36	48.5	45	M16	2.5	50	2.5	43	40

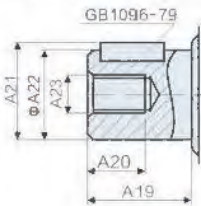
规格 Size		SEA 法兰 SEAFlang D1 D2		平键 Flat key shaft GB1096-79		花键 Spline Shaft DIN5480		花键 Spline Shaft GB3478-83		重量 Weight (kg)
α 20°	α 25°									
10	12	-	-	键Key6×32		W20×1.25×14×9g		EXT14Z×1.25×30R×5f		5
23	28	1/2"	1/2"	键Key8×40		W25×1.25×18×9g		EXT18Z×1.25×30R×5f		12
45	55	3/4"	13/4"	键Key8×50		W30×2×14×9g		EXT14Z×2m×30R×5f		23
63	80	1"	2"	键Key10×56		W35×2×16×9g		EXT16Z×2m×30R×5f		33
87	107	1"	2"	键Key12×63		W40×2×18×9g		EXT18Z×2m×30R×5f		44
125	160	1 1/4"	2 3/4"	键Key14×70		W45×2×21×9g		EXT21Z×2m×30R×5f		210

## 元件外形尺寸 Unit Dimensions Series 5

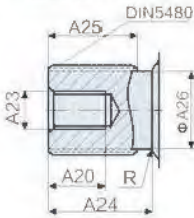


轴伸 Shaft extension

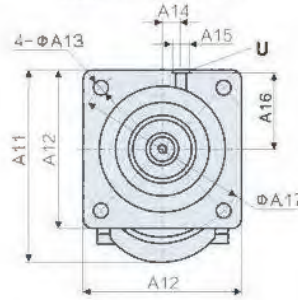
**P** 平键 Flat key shaft



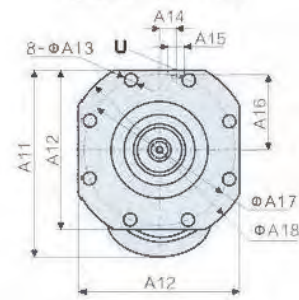
**Z** 花键 Spline shaft



规格 Size: 200-500

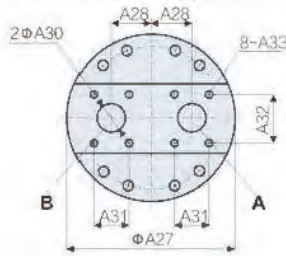


规格 Size: 355-500

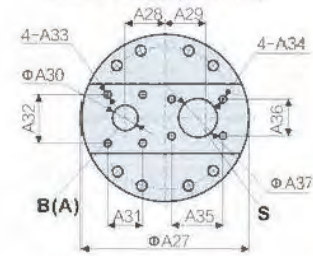


后盖 (Z向) End Plate (Direction Z)

1 用于马达工况和泵工况(闭式回路)  
Used for Motor and Pump (Closed Circuit)



2 用于泵工况(开式回路)  
Used for Pump (Open Circuit)



A,B 油口: 法兰42MPa(见尺寸表A38)  
A,B Port: Flange 42MPa(See From A38)  
A,B 工作管 Operation  
S 吸油管 Suction  
T1 漏油管 Drain Port  
T2 泄油管 Drain Port  
U 冲油管(轴承) Clear port(Bearing)

A,B 油口: 法兰42MPa(见尺寸表A38)  
逆时针旋转时, 后盖2旋转180°  
S 油口: 法兰42MPa(尺寸表A39)  
规格200-355: 17.5MPa, 规格500: 14MPa

A,B Port: Flange 42MPa(See From A38)  
S Port: Flange 42MPa(See From A38)  
When rotation with anti-clockwise, The end plate will be rotary 180°  
Size 200-355: 17MPa, Size 500: 14MPa.

## 系列5规格 200-500元件外形尺寸表 Series 5 Size 200-500 Table Of Unit Dimensions

规格 Size	α	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16
200	21°	368	232	224	13	M22×1.5	9	25	120	134	107	300	252	22	70	M14×1.5	122
250	26.5°	370	232	224	13	M22×1.5	9	25	120	134	107	314	252	22	70	M14×1.5	122
355	26.5°	422	260	280	14	M33×2	15	28	142	160	128	380	335	18	35	M14×1.5	166
500	26.5°	462	283	315	15	M33×2	15	30	155	175	142	420	375	22	35	M18×1.5	180

规格 Size	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	A33
200	280	/	82	36	53.5	50k6	M16	58	47	45	216	55	45	32	31.8	66.7	M14
250	280	/	82	36	53.5	50k6	M16	58	47	45	216	55	45	32	31.8	66.7	M14
355	320	360	105	42	64	60m6	M20	82	69	55	245	60	50	40	36.6	79.4	M16
500	360	400	105	42	74.5	70m6	M20	82	67	62.5	270	65	55	40	36.6	79.4	M16

规格 Size	depth	A34	depth	R	A35	A36	A37	A38	A39	平键 Keyed Shaft GB1096-79	花键 Spline Shaft DIN5480	重量 Weight (kg)
200	22	M12	18	1.2	88.9	50.8	63	11/4"	2 1/2"	键Key 14×80	W50×2×24×9g	88
250	22	M12	18	1.2	88.9	50.8	63	11/4"	2 1/2"	键Key 14×80	W50×2×24×9g	88
355	24	M12	18	1.6	88.9	50.8	63	11/4"	2 1/2"	键Key 18×100	W60×2×28×9g	138
500	24	M16	24	1.6	106.4	62	75	1 1/2"	3"	键Key 20×100	W70×3×22×9g	185

## 型号说明 Type code

**A2F 90 W 6.1 Z 2**

型号 Type  
定量泵/马达  
Fixed displacement pump/motor

**A2F**

规格 Size      排量 Displacement (Vgmin~Vgmax)

修改系列  
Revised Series

**12**

**23**

**28**

**56**

**80**

**107**

**160**

标准系列  
Standard Series

**16**

**32**

**45**

**63**

**90**

**125**

**180**

后盖形式 Rear cover

**1**

用于马达和泵工况 (闭式回路)  
Used for motor/pump  
(close circuit)

**2**

**3**

**4**

用于泵工况 (开式回路)

Used for pump (open circuit)

**5**

**6**

轴伸 Shaft extension

(见元件外形尺寸) (viewed unit dimensions)

花键 splines shaft DIN 5480

**Z**

**A**

平键 Flat key shaft GB 1096-79

**P**

**B**

系列 Series

系列 Series

**6.1**

旋转方向 Direction of Rotation

(从轴端看) (Viewed on drive shaft)

顺时针 Clock wise

**R**

逆时针 Anti-clock wise

**L**

双向 Alternation

**W**

(仅用于马达) (only used for motor)

## 订货示例 Ordering Example

A2F、90、W、6.1、Z、2

A2F定量马达, 规格90, 双向旋转, 6.1系列, 花键轴, 2型后盖

A2F、90、W、6.1、Z、2

Fixed displacement motor A2F, Size 90, Alternation rotation, series 6.1, Splined shaft, End plate 2.



## 技术数据 TECHNICAL DATA

### • 规格计算 Calculation of Size:

泵 Pump: 输出流量 Output Flow  $Q = \frac{V_g \times \eta \eta_v}{1000}$  [L/min]

输入扭矩 Input Torque  $M = 0.159 \times V_g \times \Delta P / \eta_m$  [N.m]

输入功率 Input Power  $P = \frac{Q \times \Delta P}{60 \times \eta_i}$  [Kw]

马达 Motor: 输入流量 Input Flow  $Q = \frac{V_g \times \eta}{1000 \times \eta_v}$  [L/min]

输出转速 Output Speed  $n = \frac{Q \times 1000 \times \eta_v}{V_g}$  [r/min]

输出扭矩 Input Power  $M = 0.159 \times V_g \times \Delta P \times \eta_m$  [N.m]

输出功率 Output Power  $P = \frac{Q \times \Delta P \times \eta_i}{60}$  [Kw]

$V_g$  = 最大排量 Max geometric displacement [ml/r]  
 $M$  = 扭矩 Torque [N.m]  
 $\Delta P$  = 压差 Differential pressure [Mpa]  
 $n$  转速 Speed [r/min]  
 $\eta_v$  = 容积效率 Volumetric efficiency  
 $\eta_m$  = 机械效率 Mechanical-hydraulic efficiency  
 $\eta_i$  = 总效率 Overall efficiency

## 标准系列

### • 进口工作压力:

泵: 进口口S、A或B最低压力: Pabs ————— 0.08MPa  
 在闭式回路中, 补油压力必须在0.2至0.6MPa之间, 视泵的转速和液压油的粘度而定。

马达: A或B口的压力:

轴伸A花键轴符合DIN5480标准  
 额定压力 ————— Pn=40MPa  
 最高压力 ————— Pmax=45MPa  
 轴伸B平键轴按GB1096-79标准  
 额定压力 ————— Pn=35MPa  
 最高压力 ————— Pmax=40MPa

### • 出口工作压力:

泵: A或B口的压力:

轴伸A花键轴符合DIN5480标准  
 额定压力 ————— Pn=40MPa  
 最高压力 ————— Pmax=45MPa  
 轴伸B平键轴按GB1096-79标准  
 额定压力 ————— Pn=35MPa  
 最高压力 ————— Pmax=40MPa

## Standard Series

### • Inlet Operating Pressure:

Pump: Minimum pressure at ports S, A or B: Pabs ————— 0.08Mpa  
 In closed circuits, the feed pressure must be between 0.2Mpa and 0.6Mpa, depending on pump speed and viscosity of hydraulic fluid.  
 Motor: Pressure at port A or B:

Shaft end A Splined shaft DIN5480  
 Nominal pressure ————— Pn=40MPa  
 Peak pressure ————— Pmax=45MPa  
 Shaft end B Keyed shaft GB1096-79  
 Nominal pressure ————— Pn=35MPa  
 Peak pressure ————— Pmax=40MPa

### • Outlet Operating Pressure:

Pump: Pressure at port A or B:

Shaft end A Splined shaft DIN5480  
 Nominal pressure ————— Pn=40MPa  
 Peak pressure ————— Pmax=45MPa  
 Shaft end B Keyed shaft GB1096-79  
 Nominal pressure ————— Pn=35MPa  
 Peak pressure ————— Pmax=40MPa

## 修改系列

### • 进口工作压力:

泵: 进口口S、A或B最低压力: Pabs ————— 0.08MPa  
 在闭式回路中, 补油压力必须在0.2至0.6MPa之间, 视泵的转速和液压油的粘度而定。

马达: A或B口的压力:

轴伸Z 花键轴符合DIN5480标准  
 额定压力 ————— Pn=35MPa  
 最高压力 ————— Pmax=40MPa  
 轴伸P 平键轴按GB1096-79标准  
 额定压力 ————— Pn=35MPa  
 最高压力 ————— Pmax=40MPa

### • 出口工作压力:

泵: A或B口的压力:

轴伸Z 花键轴符合DIN5480标准  
 额定压力 ————— Pn=35MPa  
 最高压力 ————— Pmax=40MPa  
 轴伸P 平键轴按GB1096-79标准  
 额定压力 ————— Pn=35MPa  
 最高压力 ————— Pmax=40MPa

## Revised Series

### • Inlet Operating Pressure:

Pump: Minimum pressure at ports S, A or B: Pabs ————— 0.08Mpa  
 In closed circuits, the feed pressure must be between 0.2Mpa and 0.6Mpa, depending on pump speed and viscosity of hydraulic fluid.  
 Motor: Pressure at port A or B:

Shaft end Z Splined shaft DIN5480  
 Nominal pressure ————— Pn=35MPa  
 Peak pressure ————— Pmax=40MPa  
 Shaft end P Keyed shaft GB1096-79  
 Nominal pressure ————— Pn=35MPa  
 Peak pressure ————— Pmax=40MPa

### • Outlet Operating Pressure:

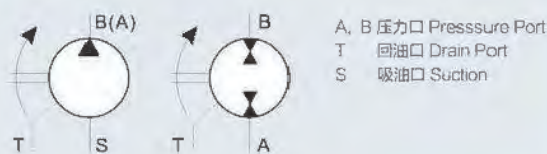
Pump: Pressure at port A or B:

Shaft end Z Splined shaft DIN5480  
 Nominal pressure ————— Pn=35MPa  
 Peak pressure ————— Pmax=40MPa  
 Shaft end P Keyed shaft GB1096-79  
 Nominal pressure ————— Pn=35MPa  
 Peak pressure ————— Pmax=40MPa

## 技术数据

- 最高允许壳体压力(油口T): Pabs ———— 1MPa
- 油温范围: -25℃~80℃
- 粘度范围: T<sub>min</sub> ———— 10mm<sup>2</sup>/s  
T<sub>max</sub> ———— (短时) 1000mm<sup>2</sup>/s
- 最佳工作粘度: 16~25mm<sup>2</sup>/s
- 油液选择: 40号低凝液压油
- 液压油的过滤: 推荐过滤精度10μm, 亦可使用25~40μm的, 但使用10μm的可延长使用寿命(降低磨损)。
- 转速范围: 最低转速没有限制, 若要求旋转高度均匀则最低转速不低于50r/min。
- 安装位置: 任选, 泵内必须充满液压油。
- 流动方向:  
顺时针: 逆时针:  
A到B S到B (开式回路) B到A S到A (开式回路)

### 符号 Symbols:

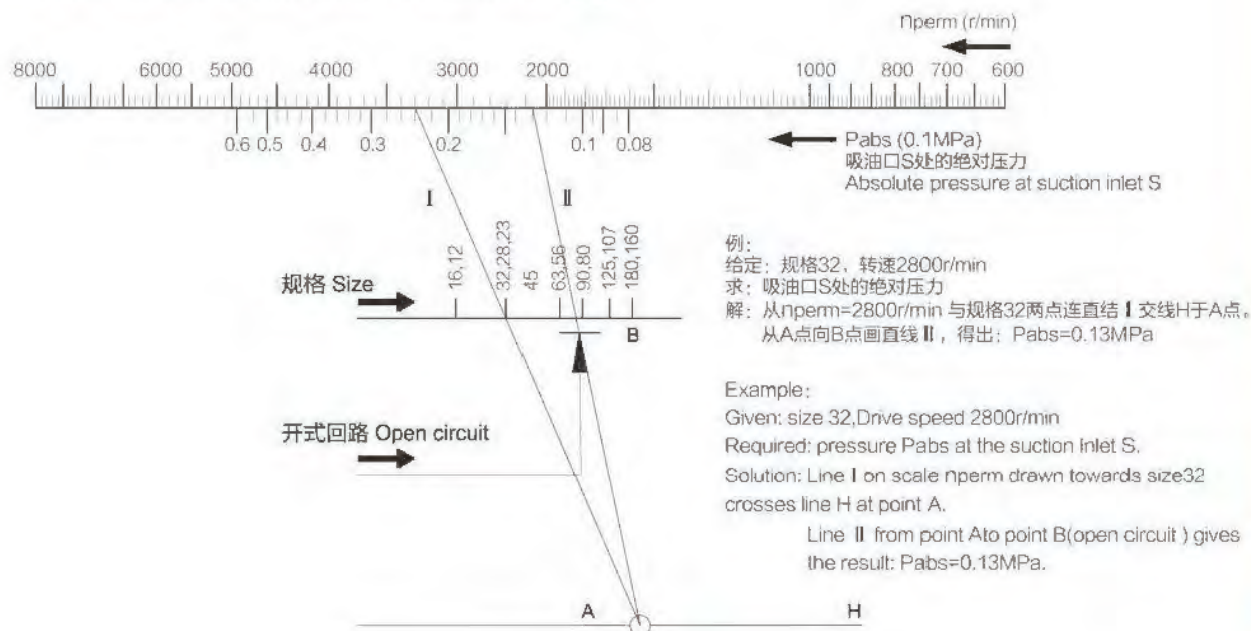


## TECHNICAL DATA

- Maximum permissible case Pressure(at port T):Pabs ———— 1Mpa
- Oil Temperature Range: -25℃~80℃
- Viscosity Range: T<sub>min</sub> ———— 10mm<sup>2</sup>/s  
T<sub>max</sub> ———— (for short periods)1000mm<sup>2</sup>/s
- Optimum Operating Viscosity: ———— 16~25mm<sup>2</sup>/S
- Fluid Recommendation: 40 low solidifing
- Filtration of hydraulic fluid:  
Recommended filtration 10 μm. Coarser filtration of 25 to 40 μ m is acceptable, However longer service life is achieved.
- Speed Range:  
No limitation on minimum speed,  
If high uniformity of rotation is required, n<sub>min</sub> should not be less than50r/min.
- Mounting position: Arbitrarily Choose, the housing must be filled with oil;
- Flow direction:  
Clockwise: Anticlockwise:  
A to B S to B(Open Circuit) B to A S to A(Open circuit)

## 诺模图 NOMOGRAPH

允许转速  $\eta_{perm}$  可由诺模图确定。  
Permissible speed  $\eta_{perm}$  can be determined from the nomograph.



技术参数表值, 未考虑  $\eta_m$  和  $\eta_v$ , 数据经过圆整。

Technical data theoretical values, without considering  $\eta_m$  and  $\eta_v$ , and the data has rounded off already.

## 标准系列 Standard Series

规格 Size				16	32	45	63	90	125	180
输入(输出)排量 Output(Input) Displacement		Vg ml/r		16.0	32.0	45.6	63.0	90.0	125.0	180.0
最高转速 Max. speed	闭式 Closed circuit	$\Pi_{max}$ r/min		6000	4750	4250	3750	3350	3000	2650
	开式系统 Open circuit	在 0.09MPa ①	$\Pi_{o0.09}$ r/min	2980	2370	2120	1890	1705	1515	1375
		在 0.10MPa ①	$\Pi_{o0.10}$ r/min	3150	2500	2240	2000	1800	1600	1450
最大输出 (输入)流量 Max. output (Input) flow	闭式 Closed circuit	Qmax l/min		96	152	194	236	302	375	477
	开式系统 Open circuit	在 0.09MPa ②	$\Pi_{o0.09}$ l/min	47	74	95	117	150	186	243
		在 0.10MPa ②	$\Pi_{o0.10}$ l/min	49	78	100	123	159	196	256
最大功率 Max. power $\Delta P=40MPa$ 花键轴 (Splined shaft end)	闭式 Closed circuit	Qmax Pmax kw		64	101	129	157	201	250	318
	开式系统 Open circuit	在 0.09MPa ②	Po0.09 kw	32	51	65	79	102	126	165
		在 0.10MPa ②	Po0.10 kw	33	53	68	84	108	133	174
最大功率 Max. Power $\Delta P=35MPa$ (Keyed shaft end)	闭式 Closed circuit	Qmax Pmax kw		56	89	113	138	176	219	278
	开式系统 Open circuit	在 0.09MPa ②	Po0.09 kw	28	44	57	69	89	110	145
		在 0.10MPa ②	Po0.10 kw	29	47	60	74	95	117	152
电机转速 Drive speed $n_e=1450r/min$	(输出) 输入流量 Output(Input) Flow	闭式 Closed	Q l/min	23	46	66	91	130	181	261
	功率 Power $\Delta P=40MPa$ $\Delta P=35MPa$	开式 Open ②	Q l/min	22.7	45	65	90	128	178	256
		闭式+开式系统 Closed+Open	P kw	15	31	44	61	87	121	174
扭矩 Torque	$\Delta P=10MPa$	M N.m	25.4	50.9	72.5	100.2	143.1	198.8	286.2	
	$\Delta P=40MPa$	Mmax N.m	101.8	203.5	290	400.7	572.4	795	1144.8	
	$\Delta P=35MPa$	Mmax N.m	89	178	253.8	350.6	500.9	695.6	1001.7	
转动惯量 Moment of inertia about drive axis	J kgm <sup>2</sup>	0.0004	0.0012	0.0024	0.0042	0.0072	0.0116	0.022		
重量 Weight	m kg	6	9.5	13.5	18	23	32	45		

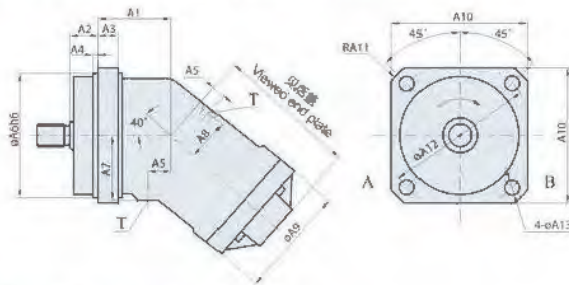
## 修改系列 / Revised Series

规格 Size				12	23	28	56	80	107	160
输出(输入)排量 Output(Input) Displacement		Vg ml/r		12.0	22.9	28.1	56.1	80.4	106.7	160.4
最高转速 Max. speed	闭式 close circuit	$\Pi_{max}$ r/min		6000	4750	4750	3750	3350	3000	2650
	开式系统 Open circuit	在 0.09MPa ①	$\Pi_{o0.09}$ r/min	2980	2370	2370	1890	1705	1515	1375
		在 0.10MPa ①	$\Pi_{o0.10}$ r/min	3150	2500	2500	2000	1800	1600	1450
最大输出 输入流量 Max. Output (Input) Flow	闭式 close circuit	Qmax l/min		72	109	133	210	269	320	425
	开式系统 Open circuit	在 0.09MPa ②	$\Pi_{o0.09}$ l/min	35	53	65	104	134	158	216
		在 0.10MPa ②	$\Pi_{o0.10}$ l/min	37	56	69	110	142	167	228
最大功率 Max. Power $\Delta P=35MPa$	闭式 close circuit	Qmax Pmax kw		42	64	78	123	157	187	248
	开式系统 Open circuit	在 0.09MPa ②	Po0.09 kw	21	32	39	62	80	94	129
		在 0.10MPa ②	Po0.10 kw	22	33	41	65	85	99	136
电机转速 Drive speed $n_e=1450r/min$	(输出) 输入流量 Output(Input) Flow	闭式 Closed	Q l/min	17	33	41	81	117	155	233
	功率 Power $\Delta P=35MPa$	开式 Open ②	Q l/min	17	33	40	80	114	152	228
		闭式+开式系统 Closed+Open	P kw	10	19	24	47	68	90	136
扭矩 Torque	$\Delta P=10MPa$	M N.m	19	36	45	89	128	170	255	
	$\Delta P=35MPa$	Mmax N.m	67	127	156	312	447	594	893	
转动惯量 Moment of inertia about Drive axis	J kgm <sup>2</sup>	0.0004	0.0012	0.0012	0.0042	0.0072	0.0116	0.0220		
重量 Weight	m kg	6	9.5	9.5	18	23	32	45		

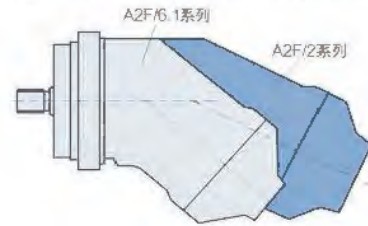
注: 所示数值是在吸油口S处的对应绝对压力, 及采用矿物油的情况下成产。用98%的容积效率计算所得。

Notes: The values given are valid for absolute pressure at suction inlet S and for operation on mineral oils. Calculated at 2% volumetric loss.

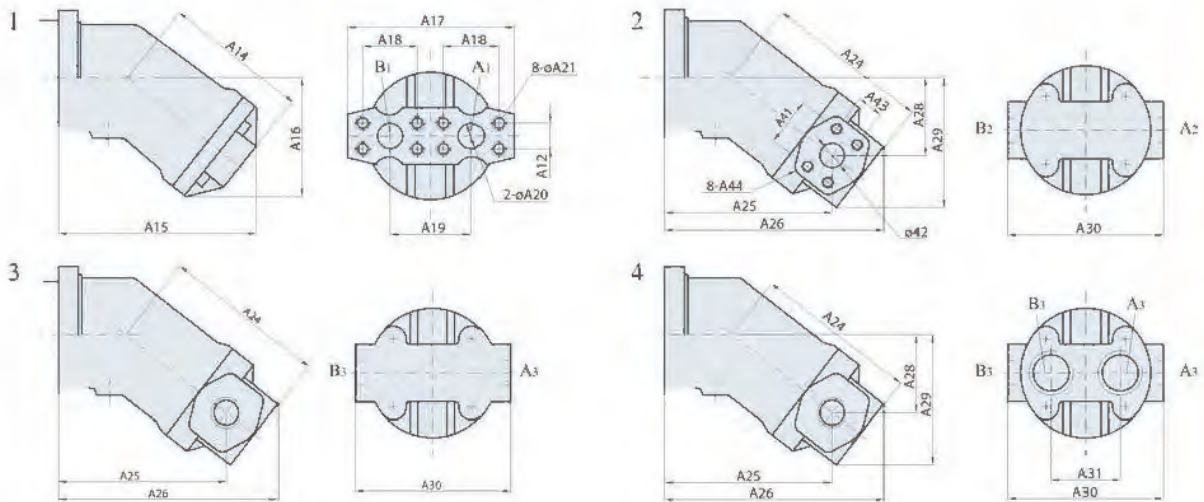
## 元件外形尺寸 Unit Dimensions



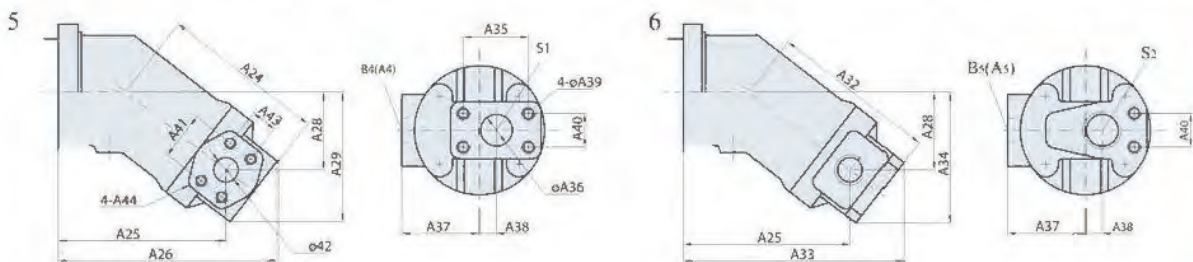
A2F/6.1系列与A2F/2系列外形尺寸对比  
A2F series 6.1 and A2F series 2 comparison



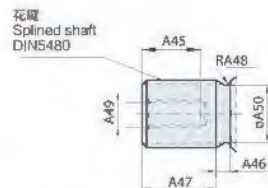
后盖形式1~4用于马达和泵(闭式系统)  
End plates 1~4 are used for motor and pump(closed circuit)



后盖形式5、6用于泵(开式系统)图示为右旋,当左旋时后盖5、6旋180°安装  
End plates 5, 6 are used for pump(open circuit). Graph is clockwise rotation, for anti-clockwise, end plates 5, 6 are rotation 180°

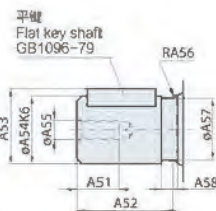


### 轴伸结构 Shaft extension



花键轴伸  
Splined shaft

A 额定压力 $P_n=40\text{MPa}$ , 最高压力 $P_{max}=45\text{MPa}$ ;  
Z 额定压力 $P_n=35\text{MPa}$ , 最高压力 $P_{max}=40\text{MPa}$ ;  
A Nominated pressure  $P_n=40\text{MPa}$ , Peak pressure  $P_{max}=45\text{MPa}$ ;  
Z Nominated pressure  $P_n=35\text{MPa}$ , Peak pressure  $P_{max}=40\text{MPa}$ ;



平键轴伸  
Flat key shaft

B 额定压力 $P_n=35\text{MPa}$ , 最高压力 $P_{max}=40\text{MPa}$ ;  
P 额定压力 $P_n=35\text{MPa}$ , 最高压力 $P_{max}=40\text{MPa}$ ;  
B Nominated pressure  $P_n=35\text{MPa}$ , Peak pressure  $P_{max}=40\text{MPa}$ ;  
P Nominated pressure  $P_n=35\text{MPa}$ , Peak pressure  $P_{max}=40\text{MPa}$ ;

A2F6.1 series

## 元件外形尺寸 Unit Dimensions Series 5

规格 Size		后盖 End platd	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14
标准系列 Standard series	修改系列 Revised series															
16	12	--3,4-6	64.5	20	12	6	5	80	53.5	41.5	85	95	10	100	9	-
32	23;28	1,2,3,4,5,6	60.7	25	18	8	19	100	55.5	48.5	106	118	12	125	11	121
45		1,2,3,4,5-	60.3	32	20	12	18	125	63	52	118	150	16	160	13.5	138
63	56	1,2,3,4,5-	67.5	32	20	10	18	125	70	56	128	150	16	160	13.5	149.5
90	80	1,2,3,4,5-	78.5	32	20	10	15	140	83	61	138	165	16	180	13.5	162.5
125	107	1,2,3,4,5-	82.8	40	23	10	18	160	85	67	150	190	20	200	17.5	186.5
180	160	1,2,3,4,5-	93	40	25	10	19.5	180	95.5	77.5	180	210	20	224	17.5	208

规格 Size		后盖 End platd	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27
标准系列 Standard series	修改系列 Revised series														
16	12	--3,4-6	-	-	-	-	-	-	-	-	-	108	130.5	159.9	-
32	23;28	1,2,3,4,5,6	173	106	115	40.5	59	13	M8深15	18.2	-	137	144	190	-
45		1,2,3,4,5-	187	119	147	50.8	75	19	M10深17	23.8	-	155	155	207	-
63	56	1,2,3,4,5-	206	130	147	50.8	75	19	M10深17	23.8	-	166.5	171	225	-
90	80	1,2,3,4,5-	233	145	166	57.2	84	25	M12深17	27.8	-	189.5	196	257	-
125	107	1,2,3,4,5-	252	159	194	66.7	99	32	M14深19	31.8	-	-	213	-	-
180	160	1,2,3,4,5-	294	188	194	66.7	99	32	M14深19	31.8	-	233	237	294	-

规格 Size		后盖 End platd	A28	A29	A30	A31	A32	A33	A34	A35	A36	A37	A38	A39	A40
标准系列 Standard series	修改系列 Revised series														
16	12	--3,4-6	55.5	85	85	36	108	167.5	93.5	-	-	42.5	16	-	-
32	23;28	1,2,3,4,5,6	70	117	120	58	141	193	120	47.6	19	60	14	M10深17	122.2
45		1,2,3,4,5-	80	133	128	58	155	207	133	52.4	25	63.5	20	M10深17	26.2
63	56	1,2,3,4,5-	87	142	136	58	166.5	225	142	52.4	25	68	23	M10深17	26.2
90	80	1,2,3,4,5-	99	162	160	64	189.5	225	160	58.7	32	73	25	M12深17	30.2
125	107	1,2,3,4,5-	110	181	178	71	222	275	173	69.9	38	89	20	M12深20	35.7
180	160	1,2,3,4,5-	121	188	202	71	233	294	188	69.9	38	101	15	M12深20	35.7

规格 Size		A41	A42	A43	A44	A45	A46	A47	A48	A49	A50	A51	A52	A53	A54	A55	A56	A57	A58
标准系列 Standard series	16	-	-	-	-	22	26	28	1.6	M10	21.8	22	40	28	25	M10	21	24.6	2.5
	32	40.5	13	18.2	M8深15	22	8	35	1.6	M10	25	22	50	33	30	M10	0.8	-	-
	45	50.8	19	23.8	M10深17	28	8	35	1.6	M12	25	28	60	33	30	M12	0.8	-	-
	63	50.8	19	23.8	M10深17	28	8	40	1.6	M12	30	28	60	38	35	M12	1	34.5	2.5
	90	57.2	25	27.8	M12深17	36	8	45	2.5	M16	35	36	70	43	40	M16	1	39.6	2.5
	125	66.7	32	31.8	M14深19	36	8	50	2.5	M16	40	36	80	48.5	45	M16	1.6	-	-
	180	66.7	32	31.8	M14深19	36	11	55	4	M16	45	36	90	35.5	50	M16	2.5	-	-
修改系列 Revised series	12	-	-	-	-	16	12	34	1.2	M6	16.8	16	40	22.5	20	M6	1	19.6	2.5
	23	40.5	13	18.2	M8深15	19	15	43	1.6	M8	21.8	19	50	28	25	M8	0.8	-	-
	28	40.5	13	18.2	M8深15	19	15	43	1.6	M8	21.8	19	50	28	25	M8	0.8	-	-
	56	50.8	19	23.8	M10深17	28	8	35	1.6	M12	25	28	60	33	30	M12	1.6	-	-
	80	57.2	25	27.8	M12深17	28	8	40	1.6	M12	30	28	70	38	35	M12	1.6	-	-
	107	57.2	25	27.8	M12深17	28	8	45	2.5	M12	35	28	80	43	40	M12	1.6	-	-
	160	66.7	32	31.8	M8深19	36	8	50	2.5	M16	40	36	90	48.5	45	M16	2.5	-	-

# A2F6.1

信任源自真诚服务!  
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	规格 Size	连接油口 Port							花键 Splined shaft DIN5480	平键 Flat key shaft GB1096-79	
		A1B1	A2B2	A3B3	A4B4	A5B5	S1	S2			T
标准系列 Standard series	16	-	-	M22×1.5	-	M22×1.5	-	M32×2	M12×1.5	W25×1.25×18×9g	键key8×32
	32	SAE1/2"	SAE1/2"	M27×2	SAE1/2"	M27×2	SAE3/4"	M42×2	M16×1.5	W30×2×14×9g	键key8×40
	45	SAE3/4"	SAE3/4"	M33×2	SAE3/4"	-	SAE1"	-	M18×1.5	W30×2×14×9g	键key8×50
	63	SAE3/4"	SAE3/4"	M33×2	SAE3/4"	-	SAE1"	-	M18×1.5	W35×2×16×9g	键key10×50
	90	SAE1"	SAE1"	M42×2	SAE1"	-	SAE1 1/4"	-	M18×1.5	W40×2×18×9g	键key12×56
	125	SAE1 1/4"	SAE1 1/4"	M48×2	SAE1 1/4"	-	SAE1 1/4"	-	M18×1.5	W45×2×24×9g	键key14×63
	180	SAE1 1/4"	SAE1 1/4"	M48×2	SAE1 1/4"	-	SAE1 1/2"	-	M22×1.5	W50×2×24×9g	键key14×70
修改系列 Revised series	12	-	-	M22×1.5	-	M22×1.5	-	M33×2	M12×1.5	W25×1.25×14×9g	键key6×32
	23	SAE1/2"	SAE1/2"	M27×2	SAE1/2"	M27×2	SAE3/4"	M42×2	M16×1.5	W25×1.25×18×9g	键key8×40
	28	SAE1/2"	SAE1/2"	M27×2	SAE1/2"	M27×2	SAE3/4"	M42×2	M16×1.5	W25×1.25×18×9g	键key8×40
	56	SAE3/4"	SAE1/4"	M33×2	SAE3/4"	-	SAE1"	-	M18×1.5	W30×2×14×9g	键key8×50
	80	SAE1"	SAE1"	M42×2	SAE1"	-	SAE1 1/4"	-	M18×1.5	W35×2×16×9g	键key10×56
	107	SAE1 1/4"	SAE1"	M42×2	SAE1"	-	SAE1 1/2"	-	M18×1.5	W40×2×18×9g	键key12×63
	160	SAE1 1/4"	SAE1 1/4"	M48×2	SAE1 1/4"	-	SAE1 1/2"	-	M22×1.5	W45×2×21×9g	键key14×70