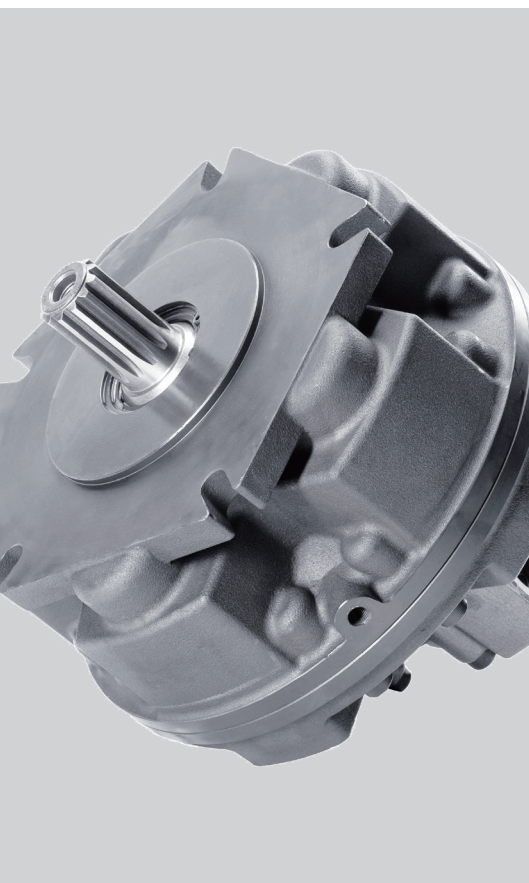


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产品概述/ Product Overview

HM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HM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：

- 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 HM 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；
- 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%)；
- 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)；
- 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动转；
- 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；
- 由于结构简单，设计合理，采用大容量的轴承，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。

HM 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.

Main 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.HM 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.

产品适用范围/ Product Application Range

由于HM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。

As HM 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.

产品标识说明/ Ordering Code

** _ ** _ *** _ *** _ *** _ * _ * _ * _ *
1 2 3 4 5 6 7 8 9 10

1、马达系列代号/Model-HM

2、型号/Type

3、名义排量/Nominal Displacement (ml/r)

4、输出轴形式/Shaft Options

- (1) 无字母表示标准矩形花键轴(以外径定心)
No symbol--standard rectangle spline shaft(the center is up to outside diameter)
- (2) A表示渐开线花键轴 A--Involute spline shaft
- (3) B表示平键轴 B--Parallel key shaft
- (4) I表示内花键(以内径定心) I--female spline

5、通油盘种类/Distributors

订货时若不注明，则按标准配置(见各系列马达外形尺寸图)。如有特殊需要，请参考H-12页，并在订货中注明。
If you have special request of dimensions, please state it in order, or we will treat it as our standard. (distributor options, refer to Page H-12)

6、有无垫块/block

- 1-有垫块 1-with block
- 0-无垫块 0-without block

7、进出油口螺纹/ I / O port thread

标准螺纹可不标。如有特殊需要请参考H-12页，并在订货中说明。
For special thread, please state in your order, or we will treat it as our standard. (thread options, refer to Page H-12)

8、马达转向/Motor steering

- S：顺转 Clockwise direction
- N：逆转 Counter clockwise direction

9、油口角度/Port direction

请参考H-13页，并在订货中说明。
Please refer to page H-13 and state in your order.

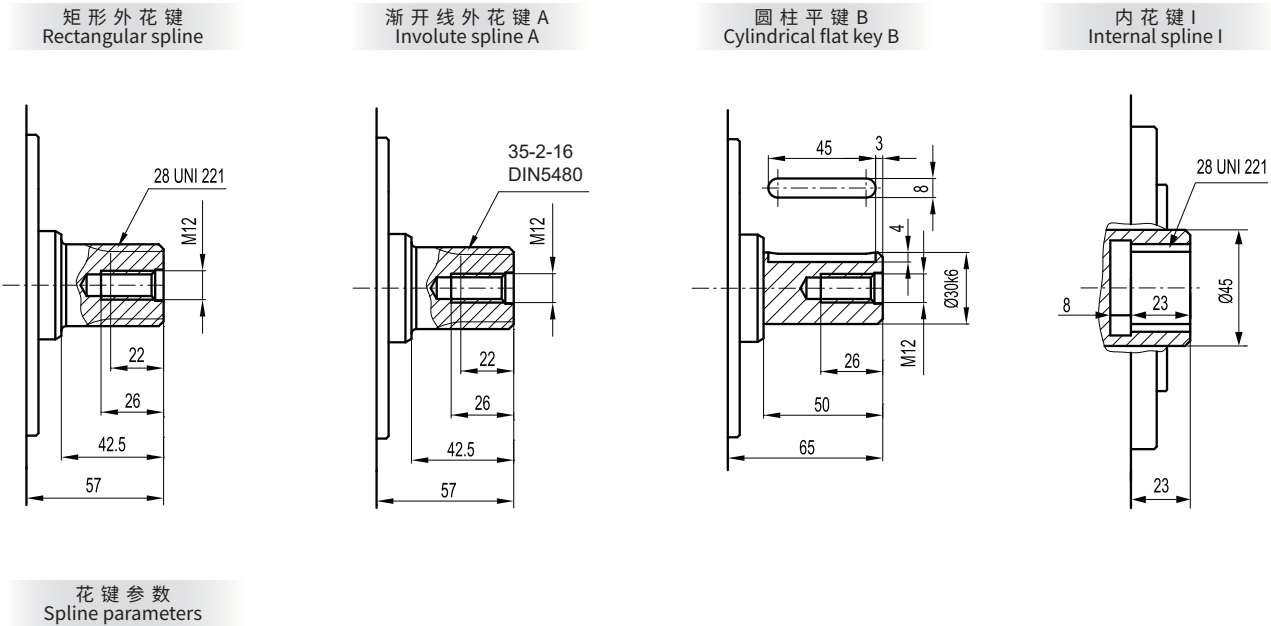
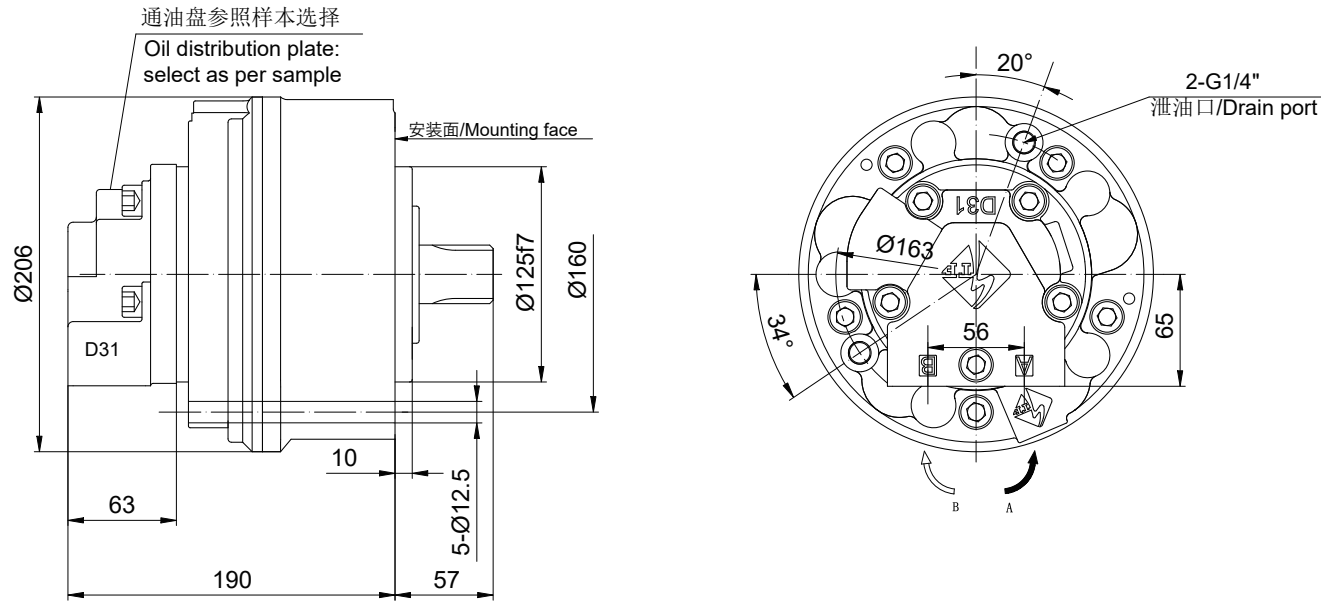
10、其它设计参数/Others



技术参数/ Technical Data

型号 Type	理论排量 Displacement	扭矩/Torque			尖峰压力 Peak Pressure	单位扭矩 Unit Torque	连续转速 Speed Range	最高转速 Max.Speed
		16MPa	20MPa	25MPa				
	ml/r	N.m			MPa	N.m/MPa	r/min	r/min
HM05—60	59	150	188	235	31.5	9.4	700	1000
HM05—75	74	188	236	295	31.5	11.8	700	1000
HM05—90	86	219	274	343	31.5	13.7	700	1000
HM05—110	115	292	366	458	31.5	18.3	650	900
HM05—130	129	328	410	513	31.5	20.5	650	900
HM05—150	151	384	480	600	31.5	24	650	900
HM05—170	166	422	528	660	31.5	26.4	600	800
HM05—200	191	486	608	760	28	30.4	600	800
HM1—100	99	246	308	385	31.5	15.4	550	1000
HM1—150	154	384	480	600	31.5	24	550	1000
HM1—175	172	428	536	670	31.5	26.8	550	900
HM1—200	201	502	628	785	31.5	31.4	550	800
HM1—250	243	608	760	950	31.5	38	450	700
HM1—300	290	723	904	1130	31.5	45.2	350	650
HM1—320	314	784	980	1225	28	49	350	600
HM1—350	340	864	1080	1350	28	54	350	600
HM2—200	192	480	600	750	31.5	30	550	800
HM2—250	251	627	784	980	31.5	39.2	550	800
HM2—300	304	760	950	1188	31.5	47.5	500	750
HM2—350	347	867	1084	1355	31.5	54.2	500	750
HM2—420	425	1060	1326	1658	31.5	66.3	450	750
HM2—500	493	1230	1538	1923	31.5	76.9	450	700
HM2—600	565	1412	1766	2208	30	88.3	450	700
HM2—630	623	1556	1946	2433	28	97.3	400	650
HM3—425	426	1062	1328	1660	31.5	66.4	500	650
HM3—500	486	1212	1516	1895	31.5	75.8	450	600
HM3—600	595	1484	1856	2320	31.5	92.8	450	575
HM3—700	690	1728	2160	2700	31.5	108	400	500
HM3—800	792	1984	2480	3100	31.5	124	400	500
HM3—900	873	2176	2720	3400	31.5	136	350	400
HM3—1000	987	2464	3080	3850	28	154	300	350
HM4—600	616	1537	1922	2403	31.5	96.1	400	550
HM4—800	793	1984	2480	3100	31.5	124	350	550
HM4—900	904	2256	2820	3525	31.5	141	325	450
HM4—1000	1022	2560	3200	4000	31.5	160	300	400
HM4—1100	1116	2784	3480	4350	31.5	174	275	400
HM4—1300	1316	3280	4100	5125	28	205	225	350
HM5—800	807	2016	2520	3150	31.5	126	325	450
HM5—1000	1039	2592	3240	4050	31.5	162	300	450
HM5—1200	1185	2960	3700	4625	31.5	185	300	400
HM5—1300	1340	3344	4180	5225	31.5	209	300	400
HM5—1450	1462	3648	4560	5700	31.5	228	275	350
HM5—1600	1634	4064	5080	6350	31.5	254	250	300
HM5—1800	1816	4528	5660	7075	31.5	283	250	300
HM5—2000	2007	5008	6260	7825	31.5	313	200	250
HM6—1700	1690	4224	5280	6600	31.5	264	250	400
HM6—2100	2127	5312	6640	8300	31.5	332	225	350
HM6—2500	2513	6272	7840	9800	31.5	392	200	300
HM6—3000	3041	7600	9500	11875	31.5	475	175	250

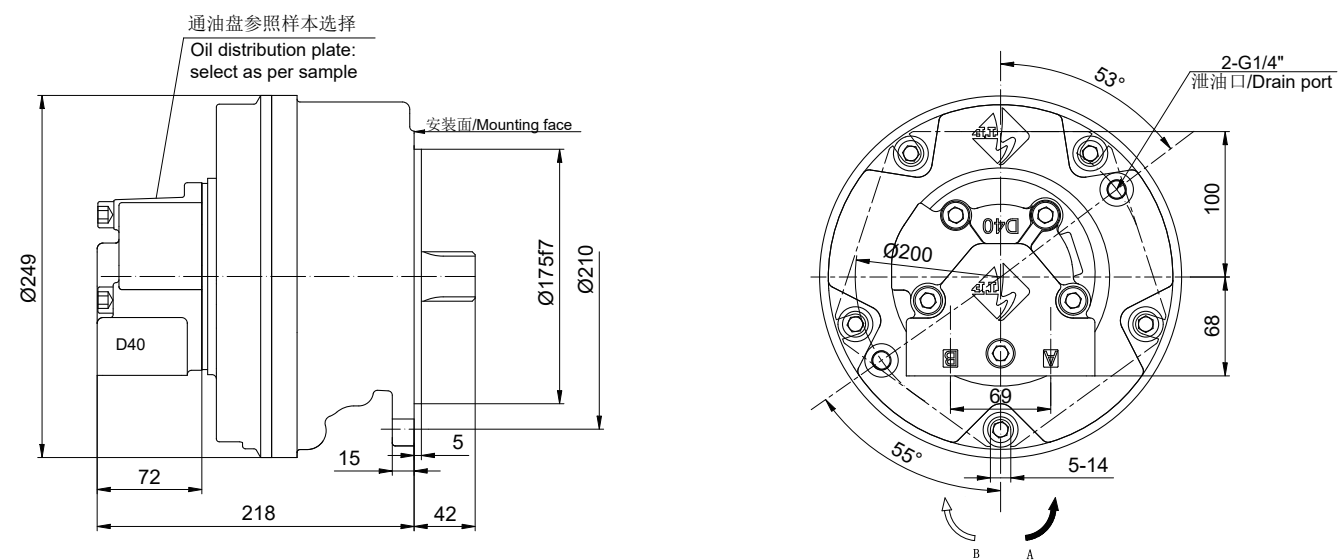
HM05 外形及安装尺寸/ HM05 Installation Dimensions



000/I00 28 UNI 221(6-28-34) DIN5463				A00/I01 35-2-16 DIN5480			
	d1	$\Phi 28.0^{+0.021}_{+0}$	H7		d0	$\Phi 32.0$	
	d2	$\Phi 34.1^{+0.390}_{+0}$	H13		d1	$\Phi 35.0^{+0.020}_{+0}$	H14
	A	$7.0^{+0.028}_{+0.013}$	F7		d2	$\Phi 31.0^{+0.160}_{+0}$	H11
	d3	$\Phi 28.0^{+0.007}_{-0.020}$	g6		A	$\Phi 3.5$	
	d4	$\Phi 34.0^{+0}_{-0.620}$	h14		da	$\Phi 27.711^{+0.130}_{+0}$	H11
	B	$7.0^{+0.013}_{-0.028}$	f7		d3	$\Phi 34.6^{+0}_{-0.160}$	h11
					d4	$\Phi 30.6^{+0}_{-0.620}$	h14
					B	$\Phi 4.0$	
					db	$\Phi 39.000$	f8



HM1 外形及安装尺寸/ HM1 Installation Dimensions

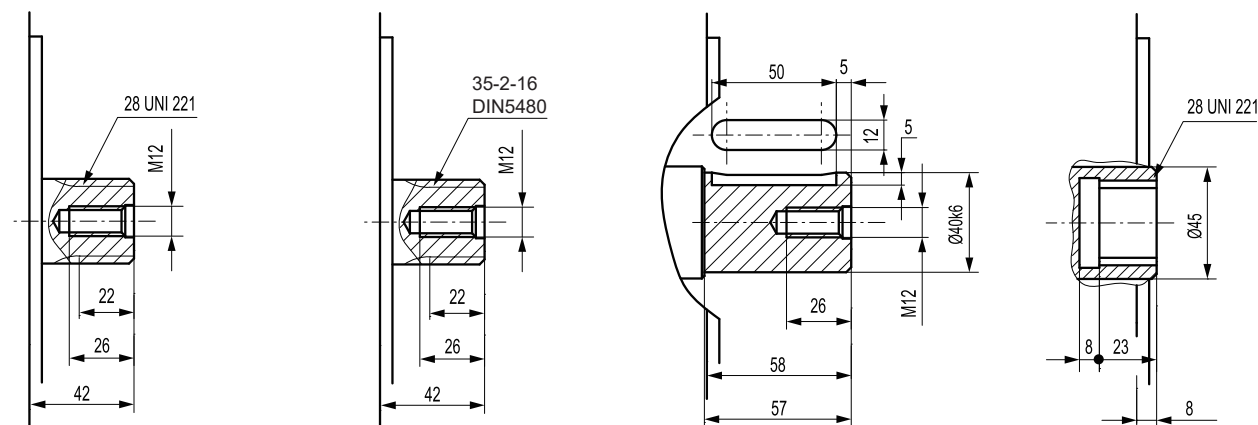


矩形外花键
Rectangular spline

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

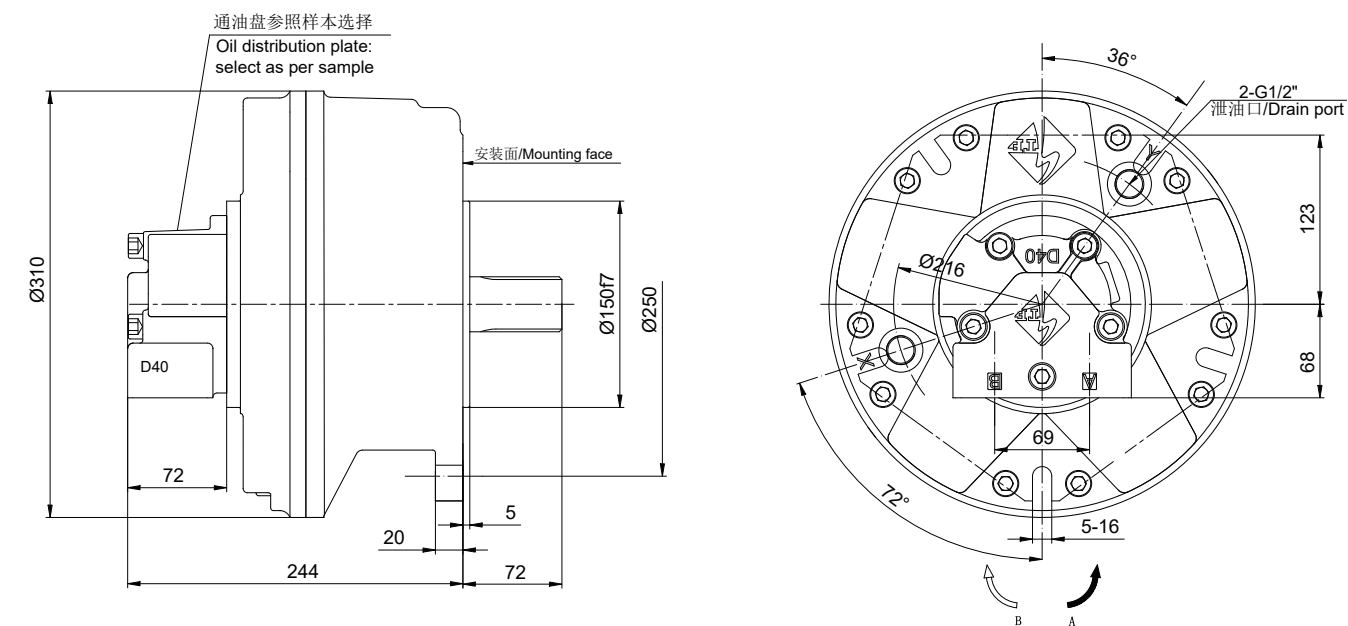


花键参数
Spline parameters

000/I00	28 UNI 221(6-28-34) DIN5463	A00/I01	35-2-16 DIN5480
	d1 $\Phi 28.0^{+0.021}_{+0}$ H7		d0 $\Phi 32.0$
	d2 $\Phi 34.1^{+0.390}_{+0}$ H13		d1 $\Phi 35.0^{+0.620}_{+0}$ H14
	A $7.0^{+0.028}_{+0.013}$ F7		d2 $\Phi 31.0^{+0.160}_{+0}$ H11
	d3 $\Phi 28.0^{+0.007}_{-0.020}$ g6		A $\Phi 3.5$
	d4 $\Phi 34.0^{+0}_{-0.620}$ h14		da $\Phi 27.711^{+0.130}_{+0}$ H11
	B $7.0^{+0.013}_{-0.028}$ f7		d3 $\Phi 34.6^{+0}_{-0.160}$ h11
			d4 $\Phi 30.6^{+0}_{-0.620}$ h14
			B $\Phi 4.0$
			db $\Phi 39.000$ f8



HM2 外形及安装尺寸/ HM2 Installation Dimensions

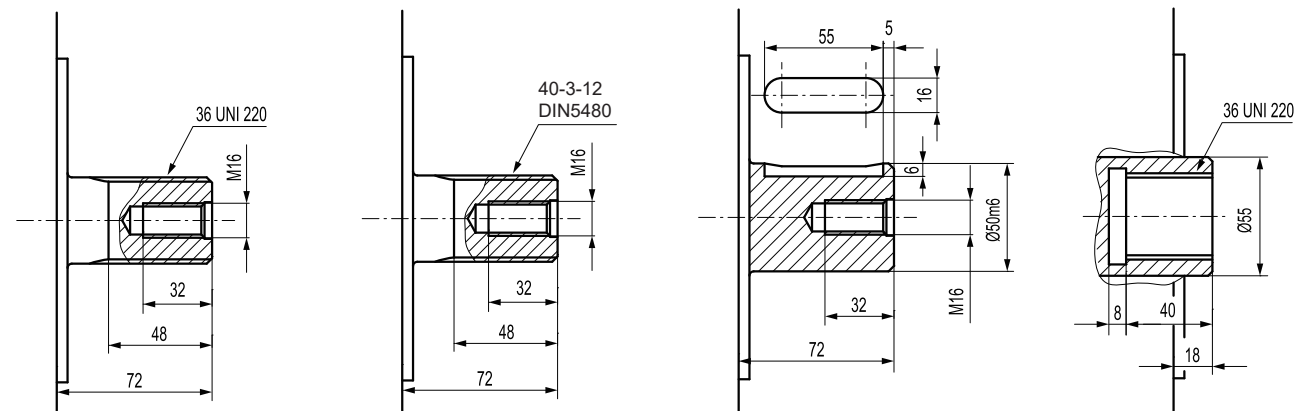


矩形外花键
Rectangular spline

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

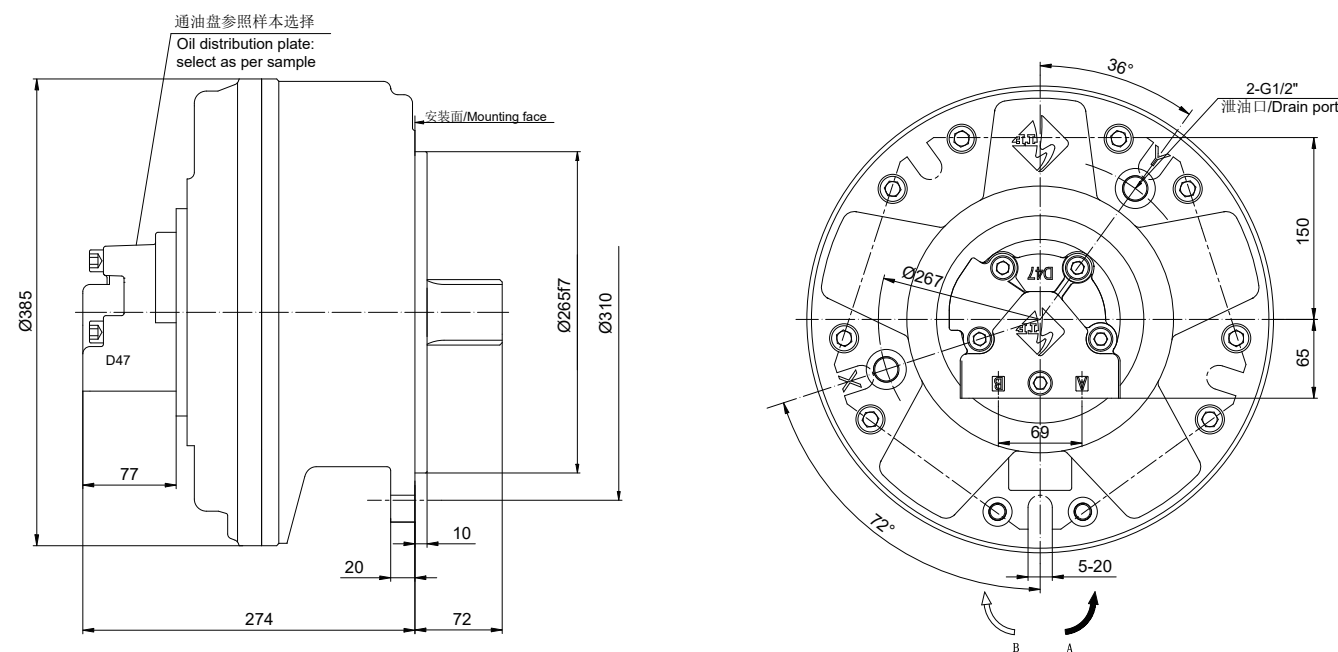


花键参数
Spline parameters

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	d1 $\Phi 36.0^{+0.025}_{+0}$ H7		d0 $\Phi 36.0$
	d2 $\Phi 40.0^{+0.460}_{+0}$ H13		d1 $\Phi 40.0^{+0.620}_{+0}$ H14
	A $7.0^{+0.028}_{+0.013}$ F7		d2 $\Phi 34.0^{+0.160}_{+0}$ H11
	d3 $\Phi 36.0^{+0.009}_{-0.025}$ g6		A $\Phi 5.25$
	d4 $\Phi 40.0^{+0}_{-0.620}$ h14		da $\Phi 28.964$ H11
	B $7.0^{+0.013}_{-0.028}$ f7		d3 $\Phi 39.4^{+0}_{-0.160}$ h11
			d4 $\Phi 33.4^{+0}_{-0.620}$ h14
			B $\Phi 6.0$
			db $\Phi 45.989$ f8



HM3 外形及安装尺寸/ HM3 Installation Dimensions

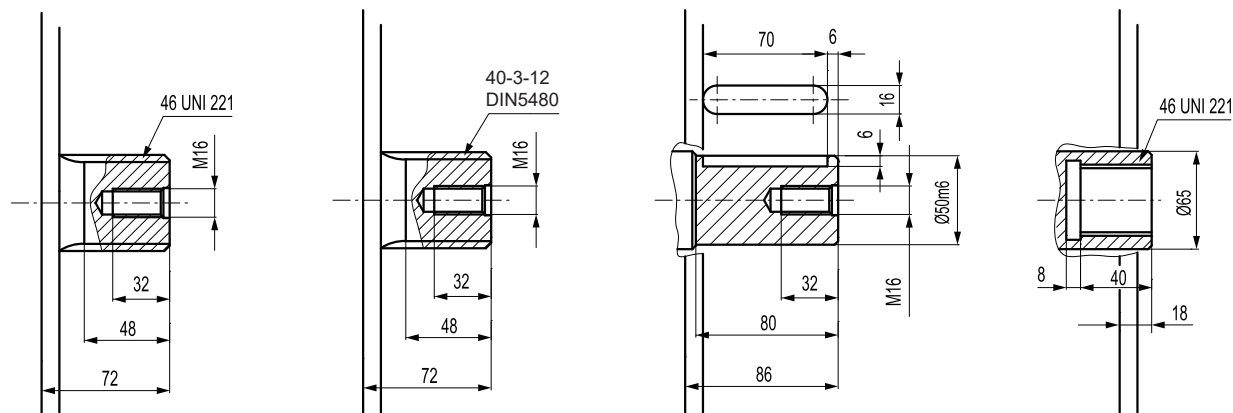


矩形外花键
Rectangular spline

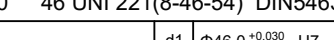
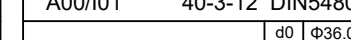
渐开线外花键 A
Involute spline A

圆柱平键 B
Cylindrical flat key B

内花键 I
Internal spline I



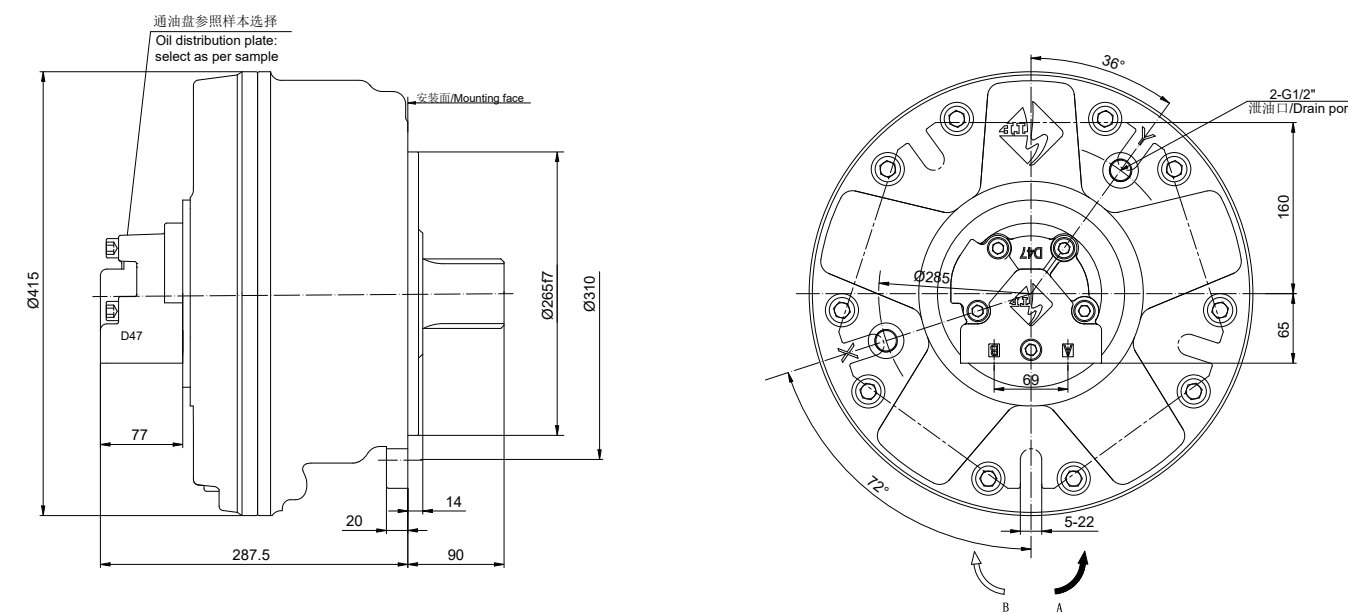
花键参数 Spline parameters

000/100 46 UNI 221(8-46-54) DIN5463		A00/I01 40-3-12 DIN5480	
	d1	$\Phi 46.0^{+0.030}_{+0}$	H7
	d2	$\Phi 54.0^{+0.460}_{+0}$	H13
	A	$9.0^{+0.028}_{+0.013}$	F7
	d3	$\Phi 46.0^{+0.009}_{-0.025}$	g6
	d4	$\Phi 54.0^{+0.100}_{-0.290}$	d11
	B	$9.0^{+0.013}_{-0.028}$	f7
	d0	$\Phi 36.0$	
	d1	$\Phi 40.0^{+0.620}_{+0}$	H14
	d2	$\Phi 34.0^{+0.160}_{+0}$	H11
	A	$\Phi 5.25$	
	da	$\Phi 28.964$	H11
	d3	$\Phi 39.4^{+0.160}_{-0.111}$	h11
	d4	$\Phi 33.4^{+0.160}_{-0.620}$	h14
	B	$\Phi 6.0$	
	db	$\Phi 45.989$	f8



HM4 系列/ HM4 Serie

HM4 外形及安装尺寸/ HM4 Installation Dimensions

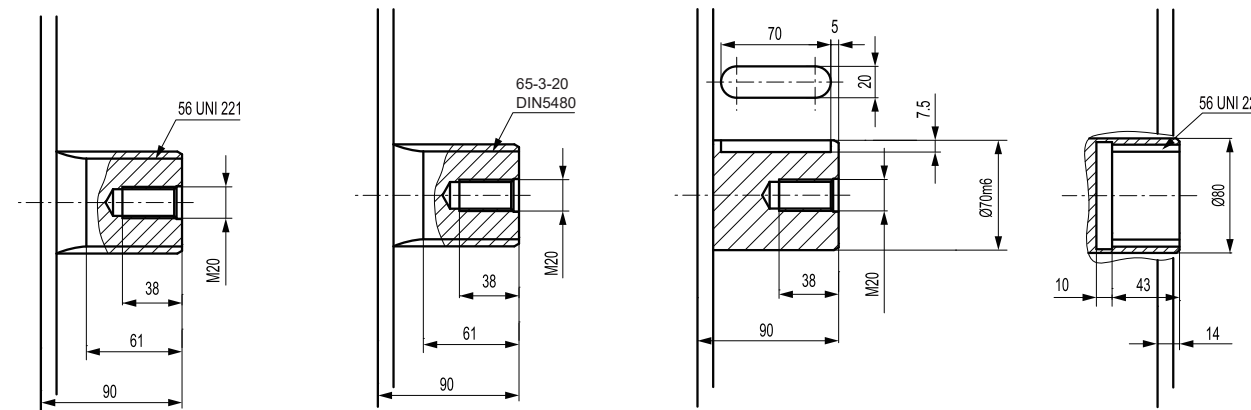


矩形外花键
Rectangular spline

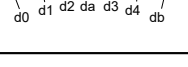
渐开线外花键 A
Involute spline A

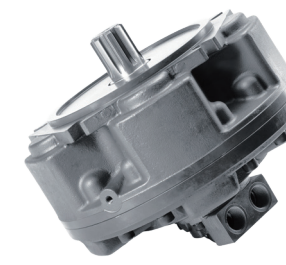
圆柱平键 B
Cylindrical flat key B

内花键 I
Internal spline I

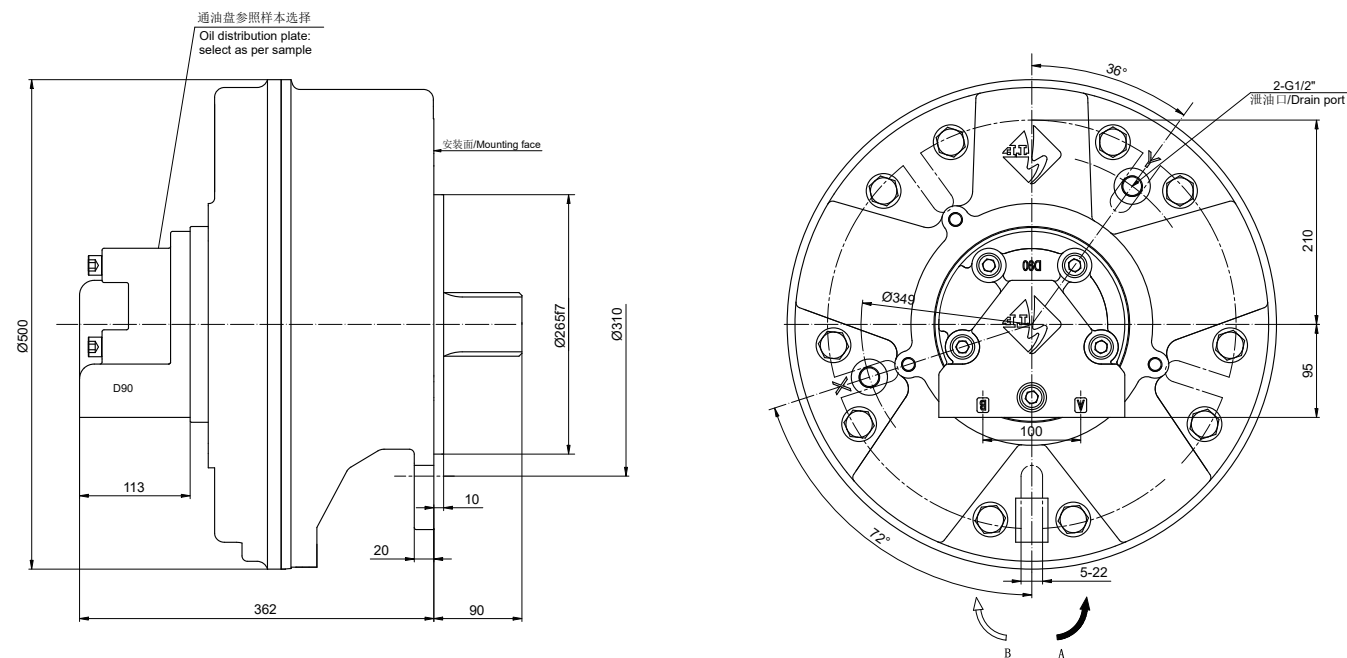


花键参数 Spline parameters

	A00/I01 65-3-20 DIN 5480	A01/I02 55-2-26 DIN 5482	A02/I03 55-3-17 DIN 5480	000/I00 56 UNI 221(8-56-6)
	d0 $\Phi 60.0$	$\Phi 52.0$	$\Phi 51.0$	d1 $\Phi 56.0^{+0.030}_{+0}$ H7
	d1 $\Phi 65.0^{+0.740}_{+0}$ H14	$\Phi 55.0^{+0.300}_{+0}$ H12	$\Phi 55.0^{+0.740}_{+0}$ H14	d2 $\Phi 65.0^{+0.190}_{+0}$ H11
	d2 $\Phi 59.0^{+0.190}_{+0}$ H11	$\Phi 50.0^{+0.160}_{+0}$ H11	$\Phi 49.0^{+0.160}_{+0}$ H11	A $10.0^{+0.028}_{+0.013}$ F7
	A $\Phi 5.25$	$\Phi 3.5$	$\Phi 5.25$	d3 $\Phi 56.0^{+0.010}_{-0.029}$ g6
	da $\Phi 54.101$ H11	$\Phi 46.902$ H10	$\Phi 43.807$ H11	d4 $\Phi 65.0^{+0.190}_{-0.290}$ d11
	d3 $\Phi 64.4^{+0.190}_{-0.190}$ h11	$\Phi 54.5^{+0.190}_{-0.190}$ h11	$\Phi 54.4^{+0.190}_{-0.190}$ h11	B $10.0^{+0.013}_{-0.028}$ f7
	d4 $\Phi 58.4^{+0.740}_{-0}$ h14	$\Phi 49.0^{+0.300}_{-0}$ h12	$\Phi 48.4^{+0.740}_{-0.620}$ h14	
	B $\Phi 6.0$	$\Phi 3.5$	$\Phi 6.0$	
	db $\Phi 70.999$ f8	$\Phi 56.953$ e9	$\Phi 60.873$ f8	



HM5 外形及安装尺寸/ HM5 Installation Dimensions

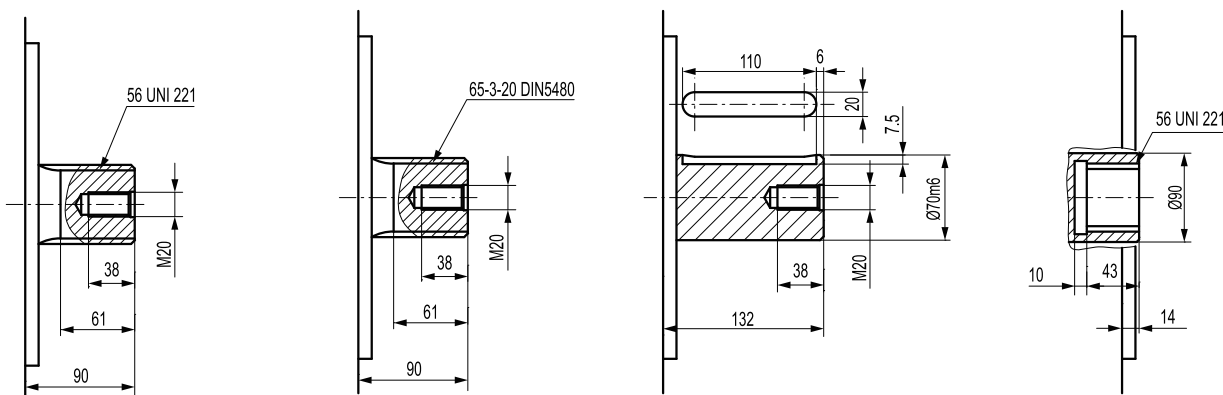


矩形外花键
Rectangular spline

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

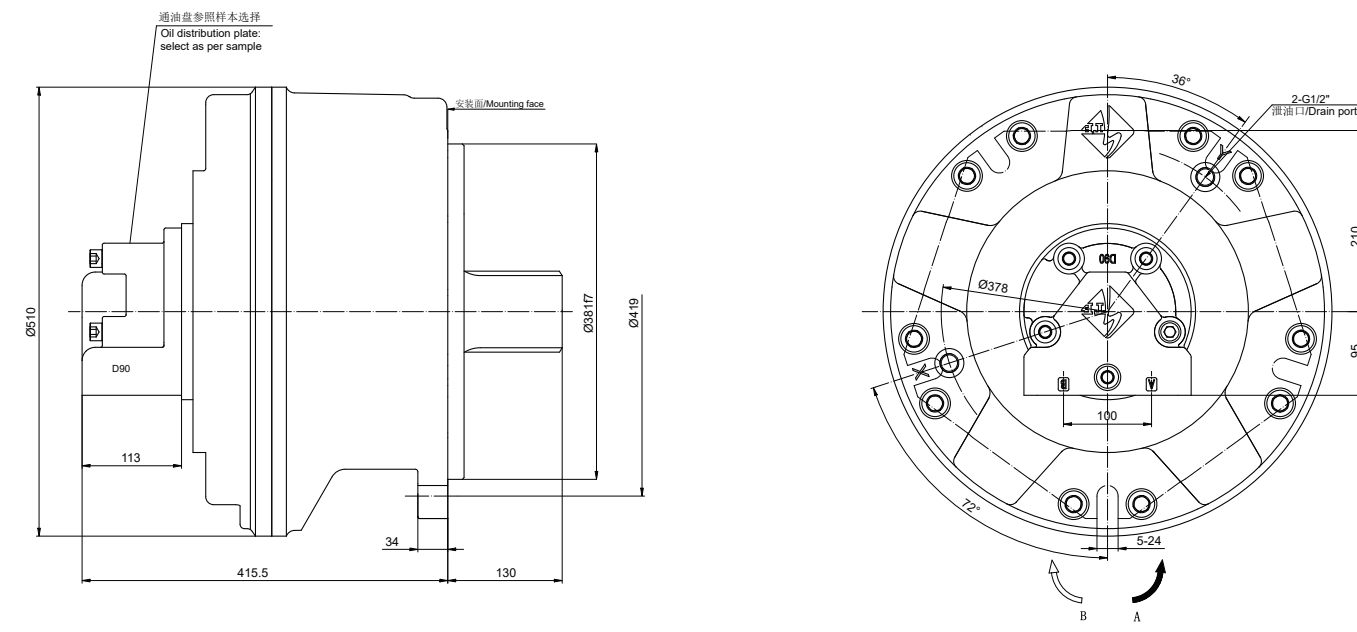


花键参数
Spline parameters

	A00/I01 65-3-20 DIN 5480	A01/I02 55-2-26 DIN 5482	A02/I03 55-3-17 DIN 5480	000/I00 56 UNI 221(8-56-65)
d0	Φ60.0	Φ52.0	Φ51.0	d1 Φ56.0 ^{+0.030} ₋₀ H7
d1	Φ65.0 ^{+0.740} ₋₀ H14	Φ55.0 ^{+0.300} ₋₀ H12	Φ55.0 ^{+0.740} ₋₀ H14	d2 Φ65.0 ^{+0.190} ₋₀ H11
d2	Φ59.0 ^{+0.190} ₋₀ H11	Φ50.0 ^{+0.160} ₋₀ H11	Φ49.0 ^{+0.160} ₋₀ H11	A 10.0 ^{+0.028} _{-0.013} F7
A	Φ5.25	Φ3.5	Φ5.25	d3 Φ56.0 ^{+0.015} _{-0.025} g6
da	Φ54.101 H11	Φ46.902 H10	Φ43.807 H11	d4 Φ65.0 ^{+0.105} _{-0.290} d11
d3	Φ64.4 ^{-0.190} ₋₀ h11	Φ54.5 ^{-0.190} ₋₀ h11	Φ54.4 ^{-0.190} ₋₀ h11	B 10.0 ^{-0.013} _{-0.028} f7
d4	Φ58.4 ^{-0.740} ₋₀ h14	Φ49.0 ^{-0.300} ₋₀ h12	Φ48.4 ^{-0.620} ₋₀ h14	
B	Φ6.0	Φ3.5	Φ6.0	
db	Φ70.999 f8	Φ56.953 e9	Φ60.873 f8	



HM6 外形及安装尺寸/ HM6 Installation Dimensions

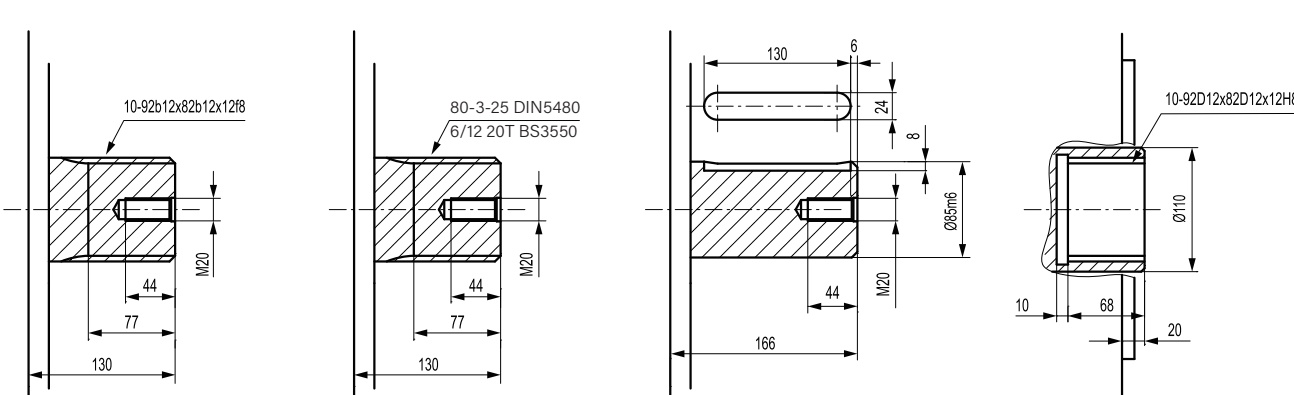


矩形外花键
Rectangular spline

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

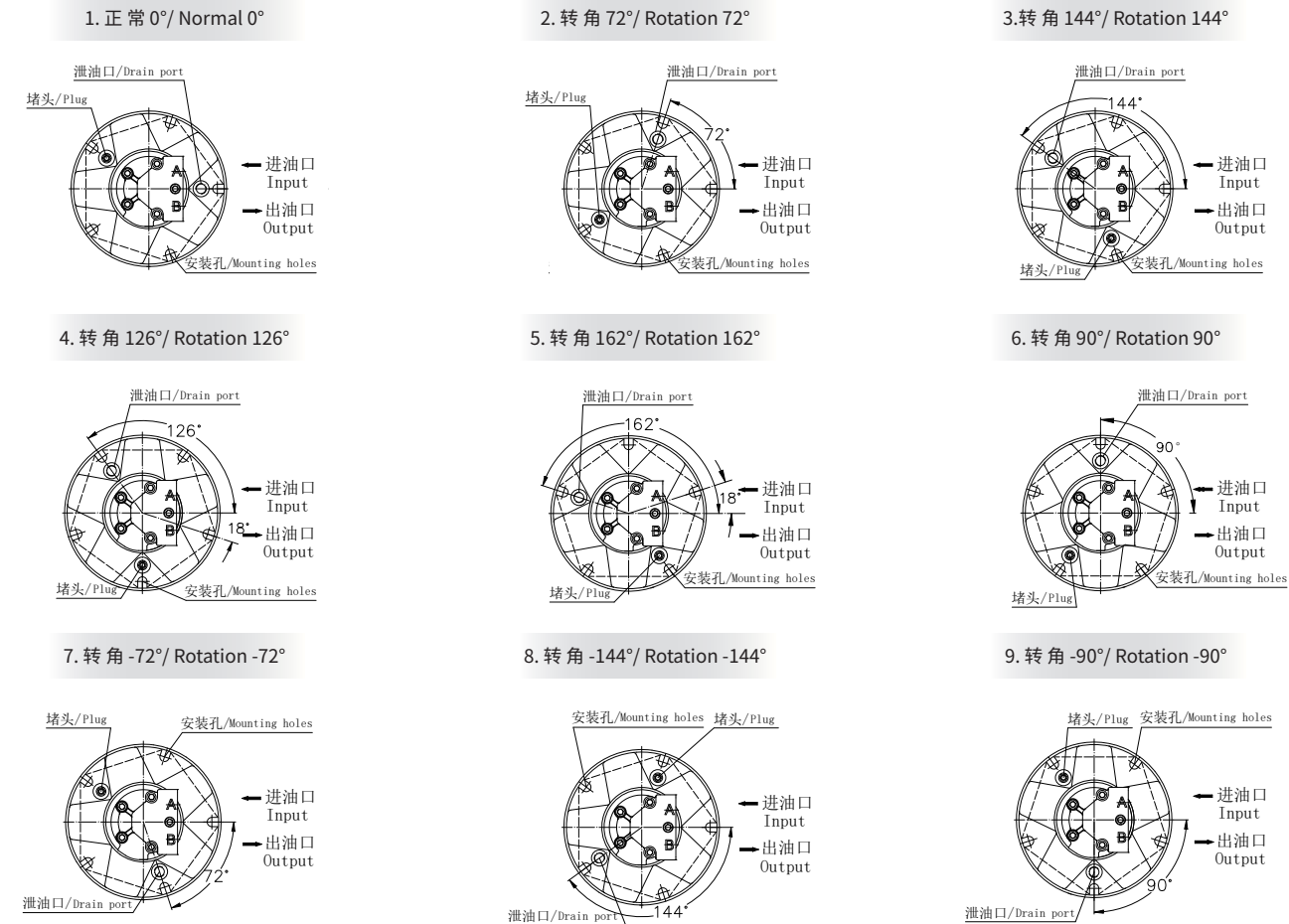
	A00/I02 80-3-25 DIN 5480	A01 6/12"pitch Z20 BS3550
d0	Φ75.0	d0 Φ84.6
d1	Φ80.0 ^{+0.740} ₋₀ H14	d3 Φ88.0 ^{-0.047} _{-0.170}
d2	Φ74.0 ^{+0.190} ₋₀ H11	d4 Φ80.0 ^{-0.480} _{-0.070}
A	Φ5.25	B Φ8.120
da	Φ69.900 H9	db Φ97.0 ^{+0.082} _{-0.030}
d3	Φ79.4 ^{-0.190} ₋₀ h11	
d4	Φ73.4 ^{-0.740} ₋₀ h14	
B	Φ6.0	
db	Φ85.90 f8	



通油盘种类/ Types of Oil Pans

型号 Type	标准螺纹 Standard Thread	可选用螺纹 Thread	适用产品 Product	尺寸 Dimension
D31	G3/4"	G1" Z3/4" Z1" ZG3/4" ZG1" M27x2 M33x2	HM05 HM1 HM2 HM3 HM4 HM5	
D40	G1"	G3/4" Z3/4" Z1" ZG3/4" ZG1" M27x2 M33x2	HM05 HM1 HM2 HM3 HM4 HM5	
D47	Ø25	加连接块后螺纹 Thread with Spacer Z3/4" ZG3/4" G3/4" G1" Z1" ZG1" M27x2 M33x2	HM05 HM1 HM2 HM3 HM4 HM5	
D90	Ø40	加连接块后螺纹 Thread with Spacer M33x2 M42x2 G1" ZG1" Z1" Ø30以上Ø60以下的管插孔	HM4 HM5 HM6	

油口角度/ Angle of Oil Port



注意事项 / Notes

- 首次启用前须向液压马达壳腔注满液压油以避免马达壳腔干磨损坏，注油时优先选用上方泄油口。
- 泄漏管路压力严禁超过3bar，管路应尽量缩短以降低流阻，泄油管管径不得小于12mm，接头连接时控制螺纹拧紧长度，防止损坏零件。
- 泄油管最高点应高于马达壳体最高水平位置，使油液充分润滑壳腔内零件，延长马达使用寿命。
- 马达可任意方位安装，支架需牢固可靠，并保证连接马达的传动轴与马达输出轴同心。
- 油口连接时严禁混入灰尘、铁屑等杂质。
- 避免马达输出轴承受径向和轴向负载，延长马达使用寿命。

- Before initial startup, the housing chamber of the hydraulic motor must be fully filled with hydraulic oil to prevent drygrinding damage. The upper drain port shall be preferentially used for oil filling.
- The pressure of the leakage line must not exceed 3 bar, The line shall be as shortas possible to reduce flow resistance, The inner diameter of the drain line shall not be less than 12 mm. Control the thread tighteninglength during joint connection to avoid component damage.
- The highest point of the drain line shall be higher than the top horizontallevel of the motor housing to ensure sufficient lubrication of internal components in the housing chamber and extend the service life of the motor.
- The motor can be installed in any orientation. The mounting bracket shall be firm and reliable, and the transmission shaft connected to the motor shall be concentric with the motor outout shaft.
- No impurities such as dust or iron chips shall be allowed to enter during port connection.
- Avoid radial and axial loads on the motor output shaft to prolong the service life of the motor.