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NIM 系列/ NIM Series

产品特点 / Product Feature

NIM系列曲轴连杆式低速大扭矩液压马达按照意大利提供的技术和标准进行生产。在此基础上，我们还根据市场的需要不断进行技术改进来提高产品的使用性能。其主要特点：

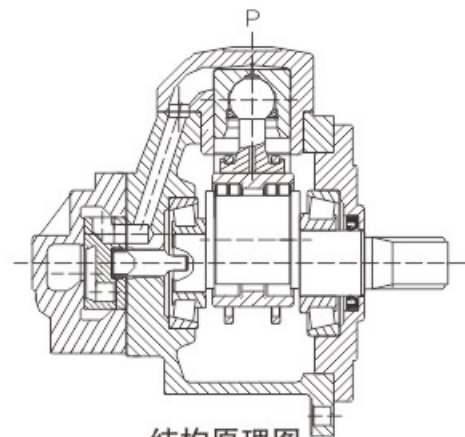
- 1、采用偏心轴及较低激振频率的五活塞结构，具有低噪音的特点；
- 2、起动扭矩大，低速稳定性好，能在很低的速度下平稳运转；
- 3、专利技术的平面补偿配油盘，可靠性好，泄漏少；活塞与柱塞套采用密封环密封，因而具有很高的容积效率；
- 4、曲轴与连杆间由滚柱支承，因而具有很高的机械效率；
- 5、旋转方向可逆，输出轴允许承受一定的径向和轴向外力；
- 6、具有较高的功率质量比，体积重量相对较少。

NIM series product is such kind of low speed high torque motor with crankshaft and connecting rod, produced in strict accordance with the technology and standard of Italy. Meanwhile, we also employ new technology to improve the motor performance according to the market requirements. The main features include:

1. Low noise due to an eccentric crankshaft and low excitation frequency of five-piston design;
2. Revolve steadily under very low speed due to high starting torque and good low-speed stability;
3. Good reliability and less leakage due to the patented flat compensation distributor, special sealing between piston and plunger bushing guarantees higher volumetrical efficiency;
4. High mechanical efficiency due to roller bearing between crankshaft and connecting rod;
5. Reversible rotation, and the output shaft can bear certain external force from both radial and axial directions;
6. High power-mass ratio, small volume and light weight.

结构原理

通压力油的柱塞缸受液压力的作用，在柱塞体上产生推力P。该推力通过连杆作用在曲轴中心，使输出轴旋转，同时配油盘随着一起转动，当柱塞体所在位置到达下死点时，柱塞缸便由配油盘接通回油口，柱塞便被曲轴往上推。此时，做功后的液压油通过配油盘返回油箱。各柱塞体依次接通高低压力油，各柱塞体对输出轴中心所产生的驱动力矩同向相加，使马达输出轴获得连续而平稳的回转扭矩。当改变油流方向时，便可改变马达的旋转方向。如将配油盘转180°装配也可以实现马达的反转。



结构原理图
Structure Graph



计算公式 / Calculation

1、液压马达的实际输出扭矩: $M=0.159 (P_1-P_2) V \cdot \eta_m(N.m)$

式中: P_1 、 P_2 ----- 分别为液压马达的入口和出口压力 (MPa)
 V ----- 液压马达的排量 (ml/r)
 η_m ----- 液压马达机械效率 (%)

2、液压马达输出功率

$$N = \frac{M \cdot n}{9550} (kw) \quad N = \frac{q(P_1-P_2)}{60000} \eta_m \eta_v (kw)$$

式中: n ----- 液压马达转速 (r/min)
 q ----- 输入液压马达的流量 (ml/min)
 η_v ----- 液压马达容积效率 (%)

3、液压马达的转速

$$n = \frac{q}{V} \eta_v (r/min)$$

1、Actual output torque: $M=0.159 (P_1-P_2) V \cdot \eta_m(N.m)$

Where: P_1 、 P_2 ----- Inlet and outlet pressure (MPa)
 V ----- Displacement (ml/r)
 η_m ----- Mechanical efficiency (%)

2、Output power

$$N = \frac{M \cdot n}{9550} (kw) \quad N = \frac{q(P_1-P_2)}{60000} \eta_m \eta_v (kw)$$

Where: n ----- Speed (r/min)
 q ----- Input flow (ml/min)
 η_v ----- Volumetrical efficiency (%)

3、Speed

$$n = \frac{q}{V} \eta_v (r/min)$$

注意事项 / Note

- 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、首次启动前, 必须向液压马达壳体内注满液压油, 以防损坏。
- 4、泄漏: 泄油口应单独地与油箱接通, 一般壳体允许最大压力为0.1Mpa, 用户有特殊要求时, 该型马达 可以改进使之壳体能承受 3-5Mpa压力。
- 5、泄油管的最大水平位置应高于马达壳体的最高水平位置, 以防马达壳体内的油液排空。
- 6、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传动主轴与液压马达的输出轴同心。
- 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、减少液压马达输出轴所受径向、轴向负荷, 可以使液压马达寿命延长。
- 9、该型马达应避免在泵工况下运转。

1. Filtration: the recommended filtration precision for normal industrial use is 25 μ m, and 75 μ m is permitted for low pressure, low speed or intervallic setting.
2. Oil viscosity: the optimum performance could only be obtained under proper oil viscosity between 15-1000cst.
3. Before the first start-up, it must fill hydraulic oil in the hydraulic motor body, to avoid the damage.
4. Leakage: drain port should be connected separately to the tank. Normally the maximum pressure for the motor body is 0.1 Mpa, and it could also be improved to bear 3-5 Mpa, to meet special requirements.
5. The top line of the drain pipe should be higher than that of the motor body, in case emptying oil storage.
6. Installation: motor can be installed in any position with rigid support, When installed, shafts of the motor and its transmission should be concentric.
7. Cleanness: Strictly maintain the cleanness of the oil port, and keep any solid particles away.
8. Release both the radial and axial loads of the output shaft to enable longer life of the motor.
9. NIM motor could not work as a pump.

型号说明 / Description of model

NIM	1	63	B	D31	72°
<p>德创曲轴连杆式低速大扭矩液压马达 DECHUANG crankshaft and connecting rod low speed high torque hydraulic motor</p>					
<p>系列 Series</p>					
<p>名义排量 (ml/r) Nominal displacement(ml/r)</p>					
<p>输出轴形式 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表示安装联接尺寸与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、GM, SI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。</p> <p>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. 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. GM,SI 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.</p>			<p>* 未写明表示马达安装孔位置与样本中图示一致</p> <p>* “左偏”表示在无法兰连接的情况下其中一个安装孔在正下方(即马达安装时的两只角朝下)</p> <p>* “右偏”表示在无法兰连接的情况下其中一个安装孔在正上方(即马达安装时的一只角朝下)</p> <p>* Omit--mounting hole position, same as illustrated</p> <p>* "Left deviation" indicates that one mounting hole is right below it when there is no flange. (I.e.: two corners face downward when installing the motor.)</p> <p>* "Right deviation" indicates that one mounting hole is right above it when there is no flange. (I.e.: one corners face upward when installing the motor.)</p>		
			<p>配油器种类，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23-28页，并在订货时注明。</p> <p>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.</p>		

“左偏” “右偏” 只适用于NIM2-NIM11系列马达，且进出油口处水平位置（与图示一样）

"Left deviation" and "Right deviation" are only applicable for NIM2-NIM11 series of motors, and oil inlet and outlet are horizontal. (Same as illustrated)

NIM

DGM

QJM

DHMB

DHMC

DCA

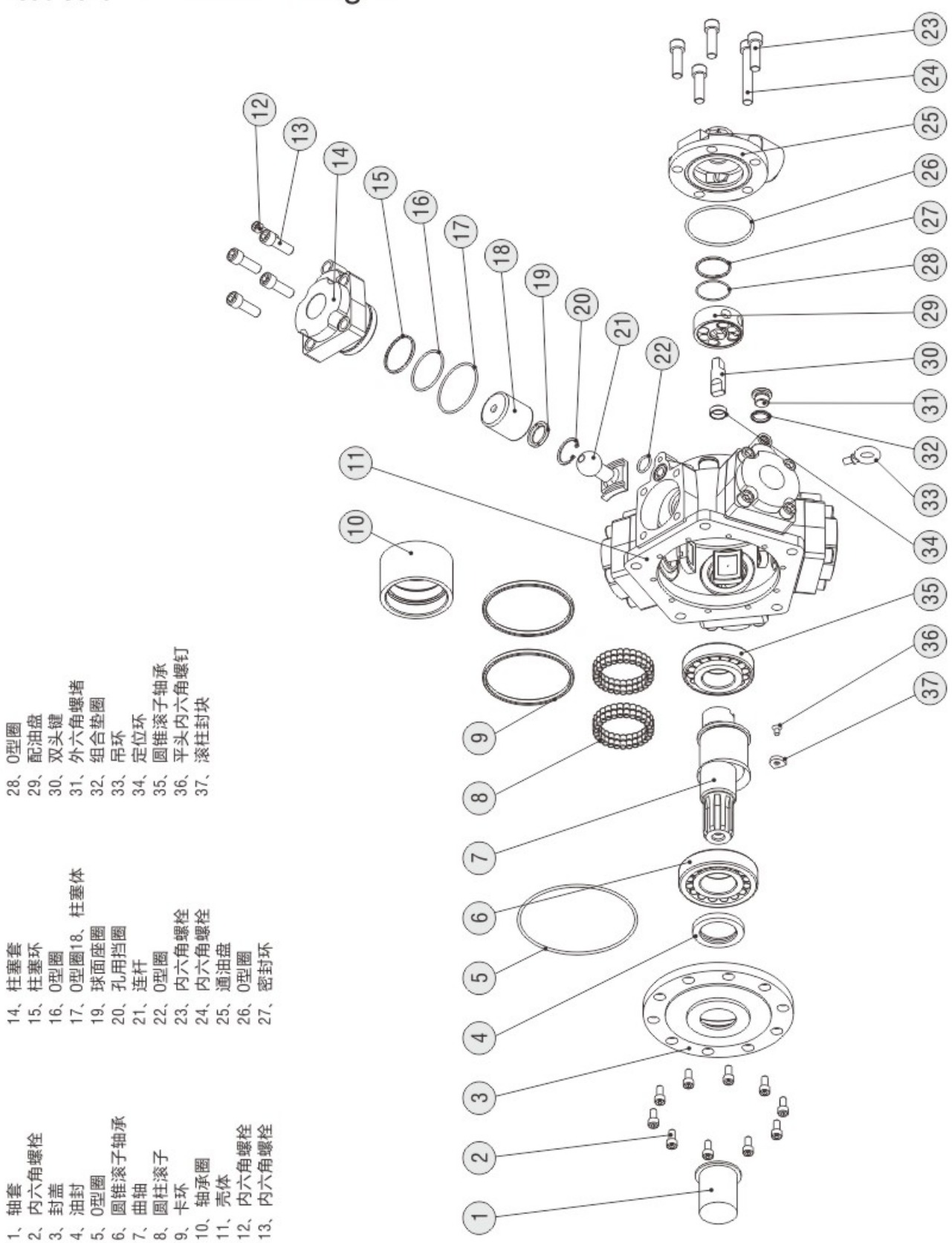
DCB

DMS

DA6V

DA2F

结构图 / Structure diagram

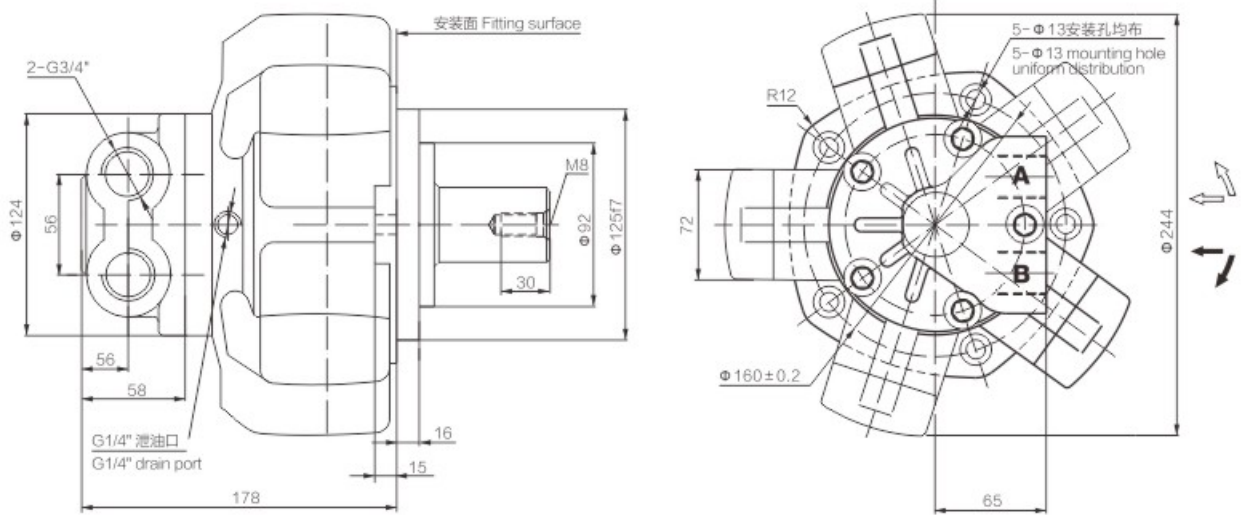


技术参数 / Technical data

型号 Model	理论排量 Theory Displacement	压力/Pressure		扭矩/Torque		最高转速 Max. Speed	额定功率 Rated Power	重量 Weight
		额定压力 Rated Pressure	尖峰压力 Max. Pressure	额定扭矩 Rated Torque	单位扭矩 Unit Torque			
	ml/r	Mpa	Mpa	N.m	N.m/MPa	r/min	KW	Kg
NIM1-63	64	16	22	150	9	450	6	21
NIM1-80	78	16	20	183	11	420	6	
NIM1-100	96	16	20	225	14	350	7	
NIM1-125	126	16	20	295	18	320	8	
NIM1-160	159	14	20	326	23	280	8	
NIM2-100	113	16	22	264	17	350	8	28
NIM2-150	159	16	20	372	23	320	11	
NIM2-175	180	16	20	421	26	320	12	
NIM2-200	206	16	20	482	30	300	13	
NIM2-250	235	14	20	481	34	300	13	
NIM2-280	276	12	18	484	40	280	12	36
NIM3-175	181	16	22	424	26	350	13	
NIM3-200	201	16	20	470	29	320	13	
NIM3-250	254	16	20	594	37	300	16	
NIM3-300	289	14	20	592	42	280	15	
NIM3-350	340	12	18	597	50	250	13	58
NIM3-400	380	12	18	667	56	250	15	
NIM6-400	397	16	22	939	59	320	27	
NIM6-450	452	16	22	1069	67	320	30	
NIM6-500	491	16	22	1162	73	300	31	
NIM6-600	594	16	20	1405	88	280	35	72
NIM6-700	683	16	20	1616	101	250	36	
NIM6-750	754	14	18	1561	111	220	31	
NIM8-600	617	16	20	1444	90	280	36	
NIM8-700	710	16	20	1662	104	260	38	
NIM8-800	810	14	20	1659	118	260	38	95
NIM8-900	889	14	20	1821	130	220	36	
NIM8-1000	1000	12	18	1755	146	200	31	
NIM11-700	682	16	22	1596	101	280	40	
NIM11-800	782	16	22	1830	116	280	46	
NIM11-900	894	16	22	2092	132	280	52	170
NIM11-1000	981	16	20	2296	145	250	51	
NIM11-1100	1104	16	20	2584	163	250	57	
NIM11-1200	1234	14	20	2527	182	220	49	
NIM11-1300	1301	14	18	2664	192	200	47	
NIM16-1400	1413	16	22	3343	209	250	74	298
NIM16-1600	1648	16	22	3899	244	250	87	
NIM16-1800	1814	16	22	4292	268	220	84	
NIM16-2000	2034	14	20	4211	301	200	75	
NIM16-2400	2267	14	18	4693	335	180	75	
NIM31-2500	2553	18	25	6722	373	200	120	550
NIM31-2800	2683	18	25	7064	392	200	126	
NIM31-3000	3063	16	25	7169	448	180	115	
NIM31-3150	3218	16	25	7532	471	180	121	
NIM31-3500	3462	16	22	8103	506	160	115	
NIM31-4000	4152	16	20	9718	607	160	138	830
NIM31-4500	4522	14	20	10584	661	160	151	
NIM31-5000	4828	14	20	9887	706	160	141	
NIM70-5000	4946	16	22	11450	716	125	120	
NIM70-5400	5452	16	22	12622	789	125	132	
NIM70-6000	5984	16	22	13853	866	100	116	830
NIM70-6300	6540	14	20	13248	946	100	111	
NIM70-7000	7122	14	20	14427	1030	100	121	
NIM100-6300	6758	16	22	15301	956	100	128	
NIM100-7000	7390	16	22	16732	1046	100	140	
NIM100-8000	7985	16	20	18079	1130	80	121	830
NIM100-9000	8636	16	20	19553	1222	80	131	
NIM100-10000	10016	14	20	19843	1417	80	133	

郑重申明：以上数据为实测所得，保证使用性能不低于同类系列产品！版板所有

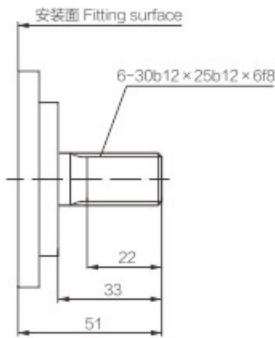
NIM1-63~200 外形及安装尺寸/ NIM1-63~200 Installation Dimensions



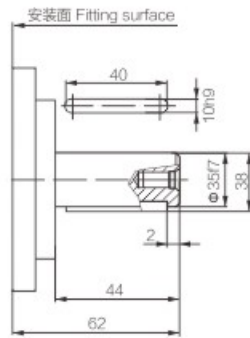
标准外花键
External spline : NIM1-**

标准平键
Standard Paralle Key : NIM1-**B

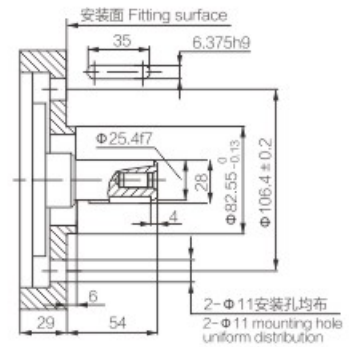
标准内花键
Internal spline : NIM1-**B₃



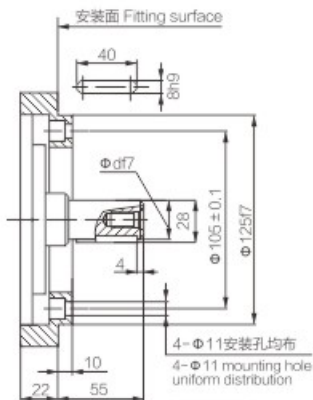
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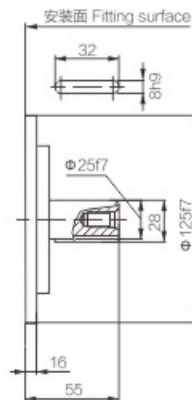
NIM1-**B₁₁ B₁₁-1



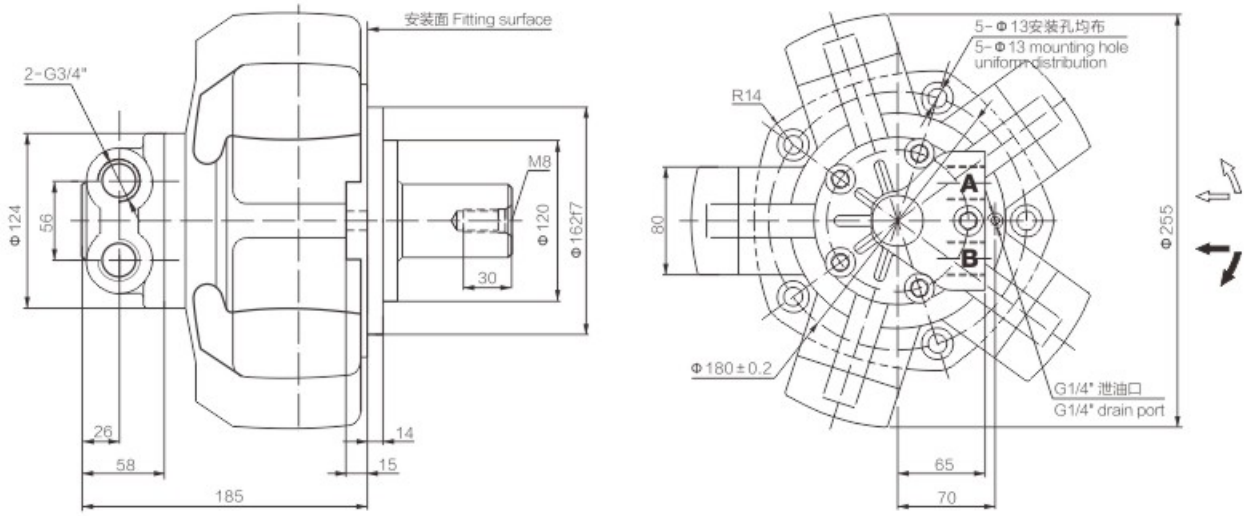
NIM1-**B₃₁



Type	d
B ₁₁	25
B ₁₁ -1	25.4



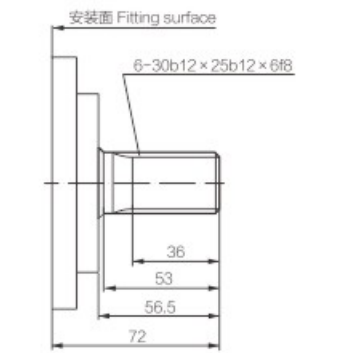
NIM2-100~280 外形及安装尺寸/ NIM2-100~280 Installation Dimensions



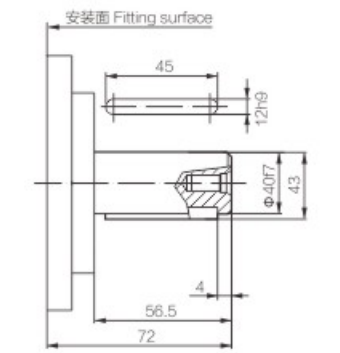
标准外花键
External spline : NIM2-**

标准平键
Standard Paralle Key : NIM2-**B

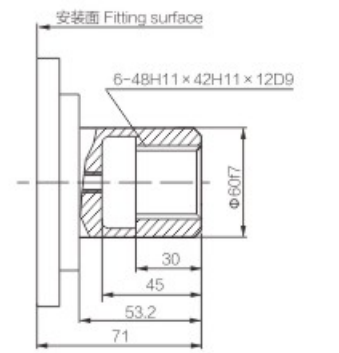
标准内花键
Internal spline : NIM2-**I



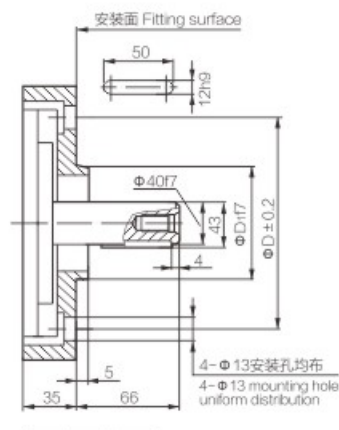
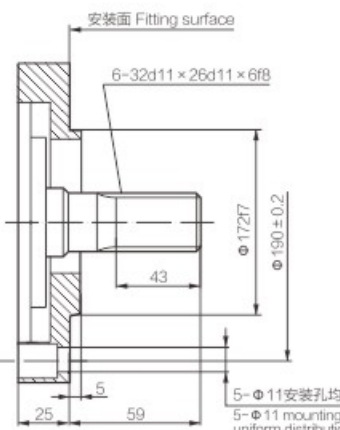
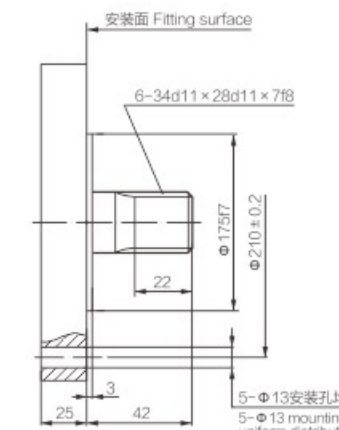
NIM2-**SL1



NIM2-**H1



NIM2-**B1, B2



Type	D	D1
B.	160	125
B.	127	100

NIM
DGM
CJM
DHMB
DHMC
DCA
DCB
DMS
DA6V
DA2F

NIM

DGM

QJM

DHMB

DHMC

DCA

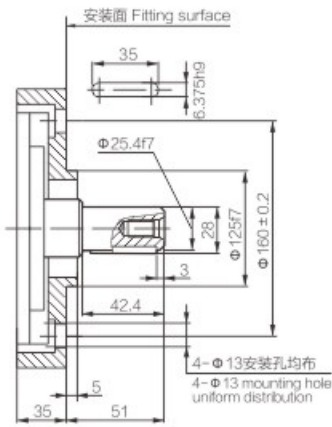
DCB

DMS

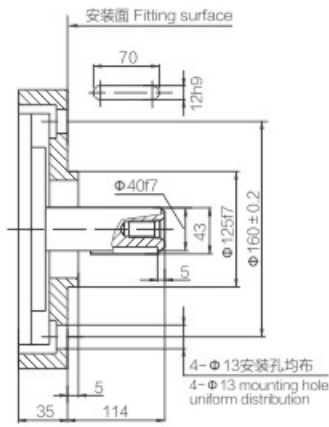
DA6V

DA2F

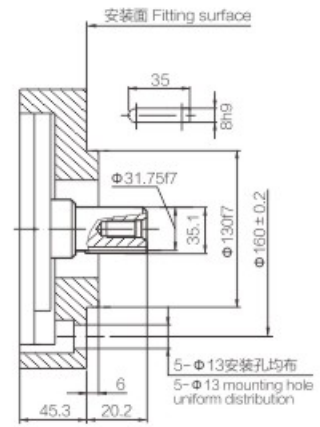
NIM2-**B3



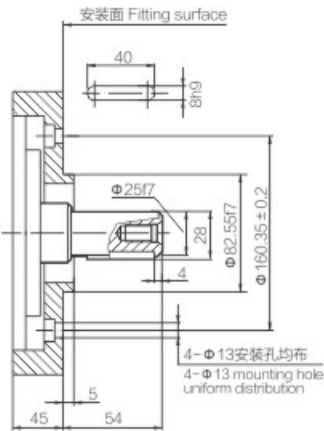
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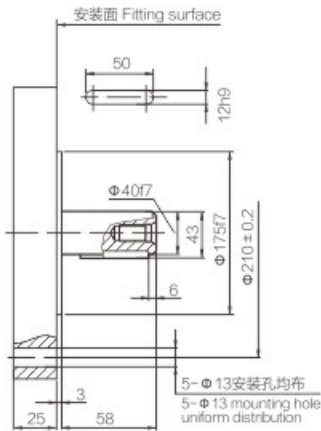
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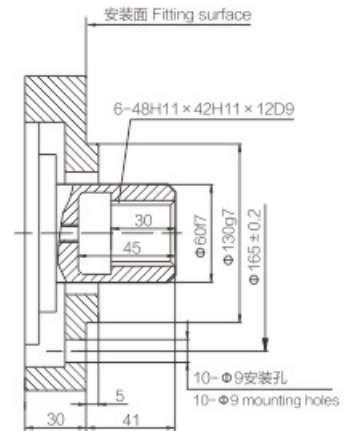
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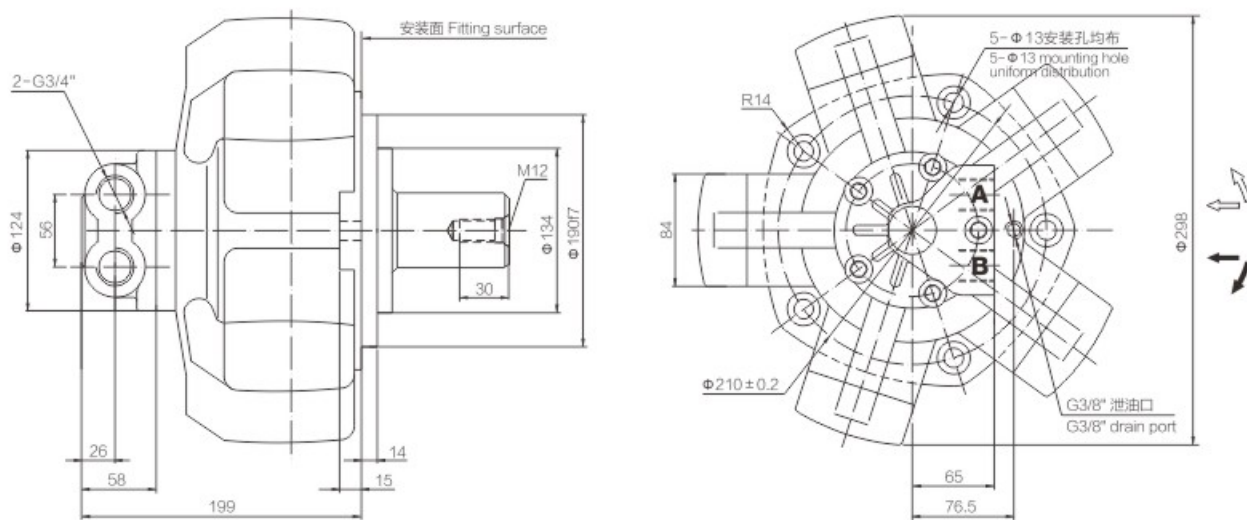
NIM2-**B43



NIM2-**l01, l02



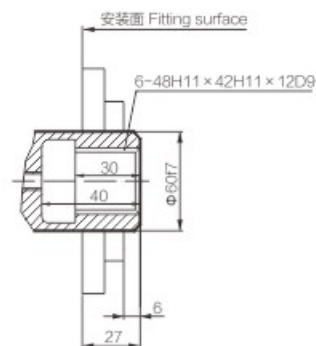
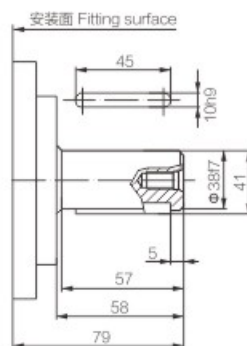
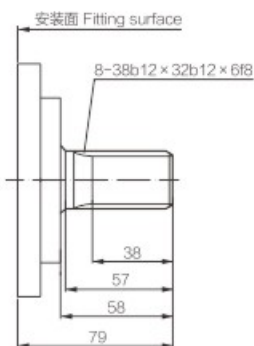
NIM3-175~400 外形及安装尺寸/ NIM3-175~400 Installation Dimensions



标准外花键 : NIM3-**
External spline : NIM3-**

标准平键 : NIM3-**B
Standard Parallel Key : NIM3-**B

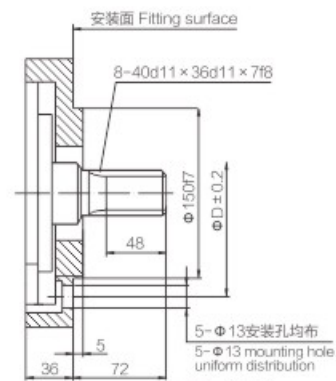
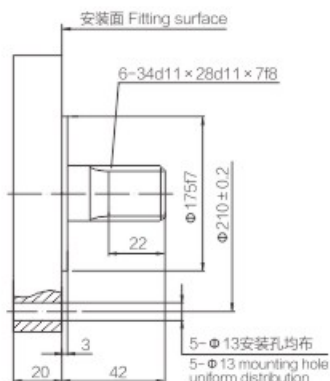
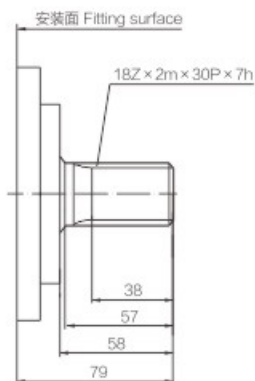
标准内花键 : NIM3-**I
Internal spline : NIM3-**I



渐开线花键 : NIM3-**A
Involute spline : NIM3-**A

NIM3-**SL₁

NIM3-**SL₂, SL₃



Type	D
SL ₂	195
SL ₃	250

NIM

DGM

QJM

DHMB

DHMC

DCA

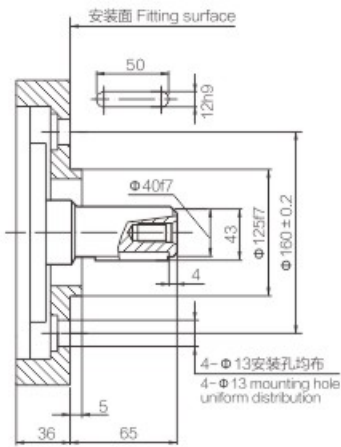
DCB

DMS

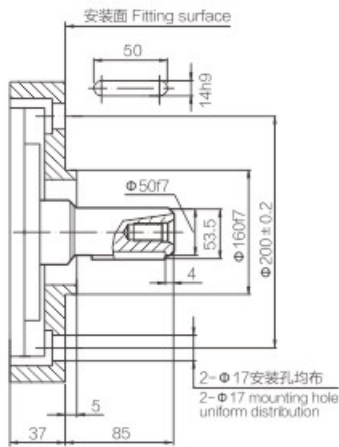
DA6V

DA2F

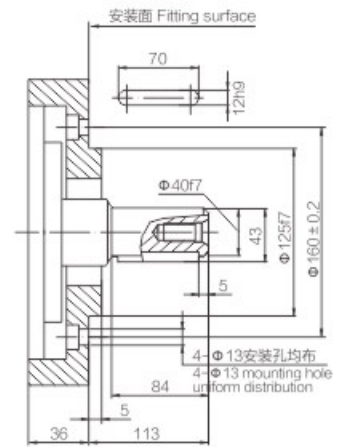
NIM3-**B1



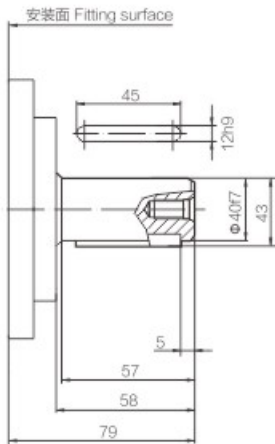
NIM3-**B2



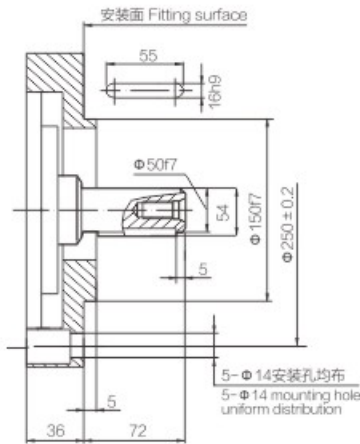
NIM3-**B5



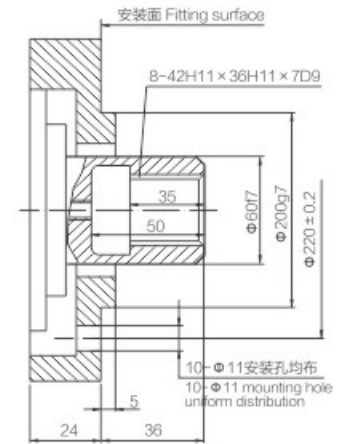
NIM3-**B32



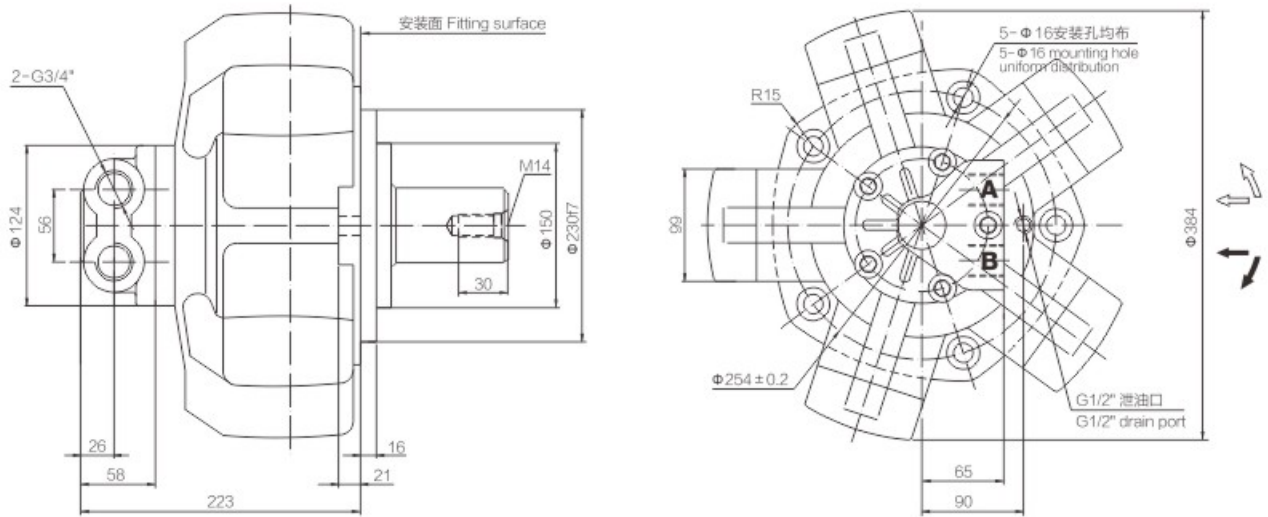
NIM3-**B44



NIM3-**I1A1



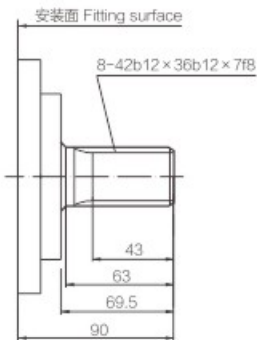
NIM6-400~750 外形及安装尺寸/ NIM6-400~750 Installation Dimensions



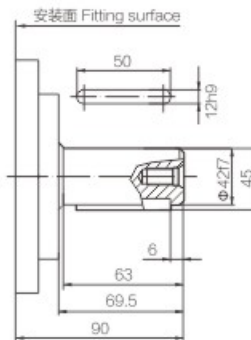
标准外花键
External spline : NIM6-**

标准平键
Standard Paralle Key : NIM6-**B

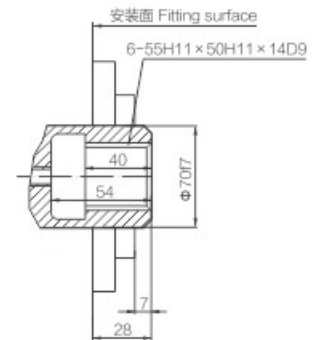
标准内花键
Internal spline : NIM6-**I



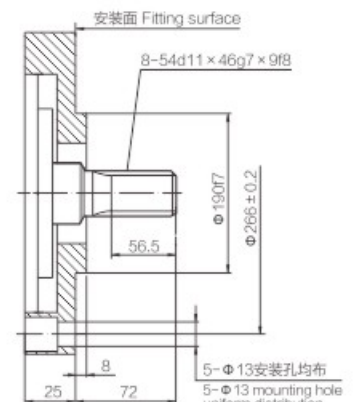
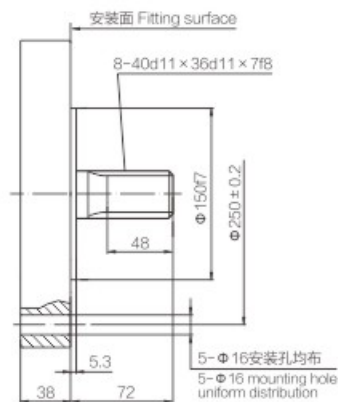
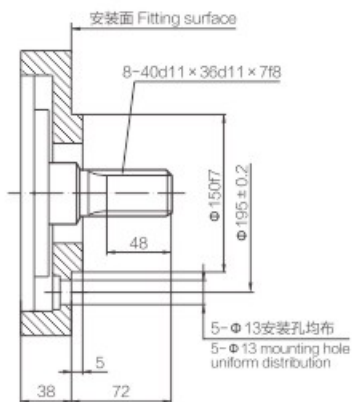
NIM6-**SL2



NIM6-**SL3



NIM6-**N



NIM

DGM

QJM

DHMB

DHMC

DCA

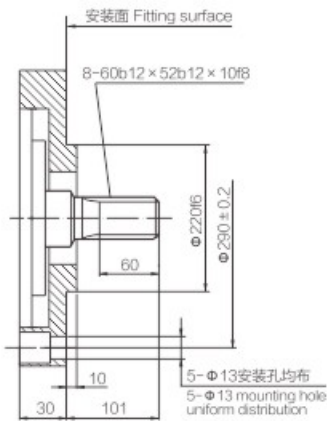
DCB

DMS

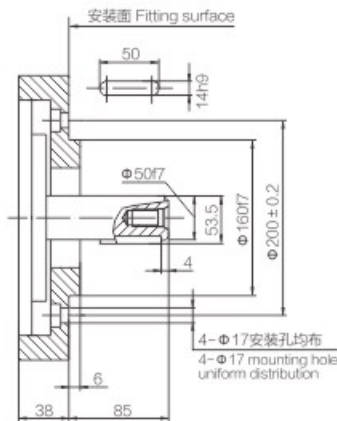
DA6V

DA2F

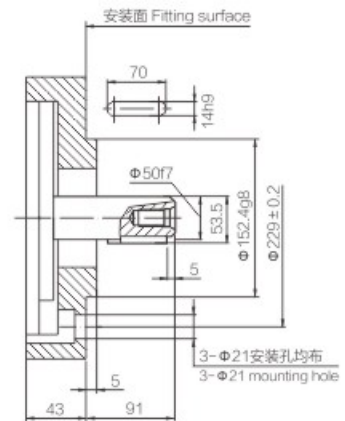
NIM6-**N₁



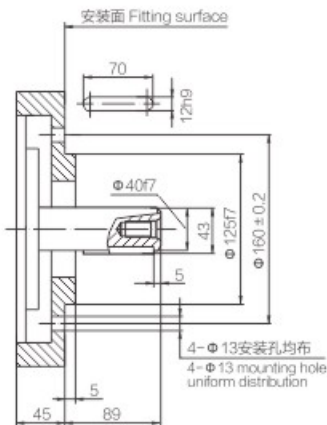
NIM6-**B₂



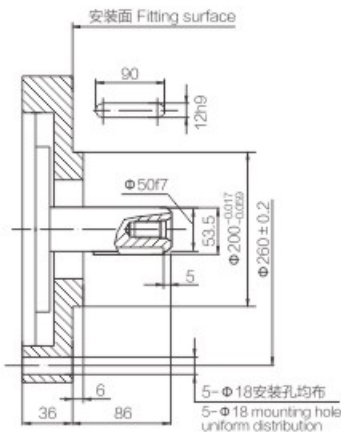
NIM6-**B₄



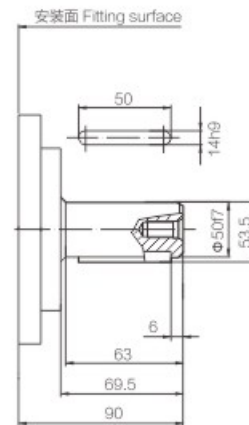
NIM6-**B₅



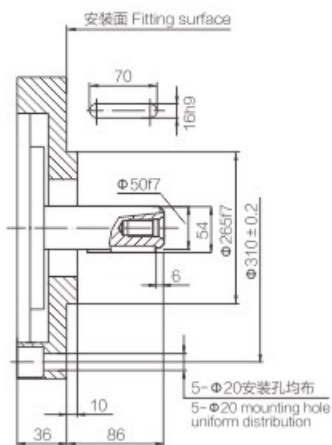
NIM6-**B₁₃



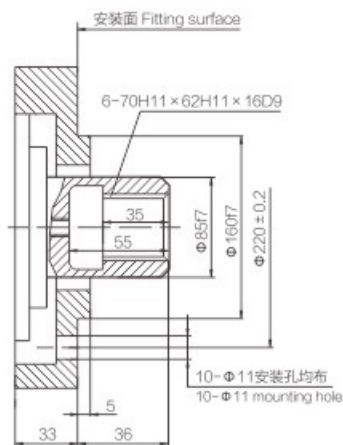
NIM6-**B₃₃



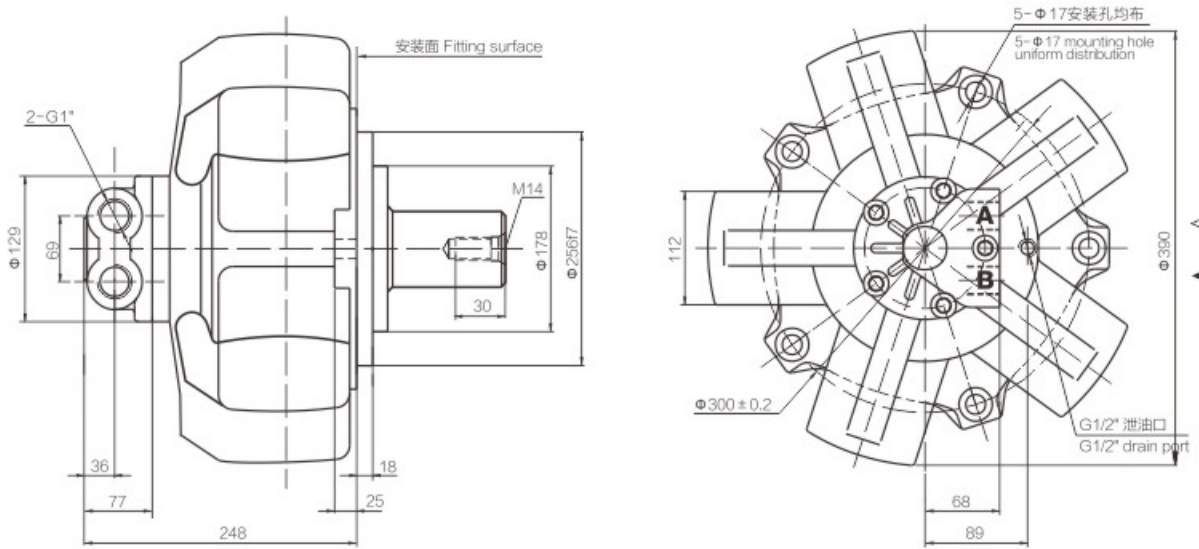
NIM6-**N₄₅



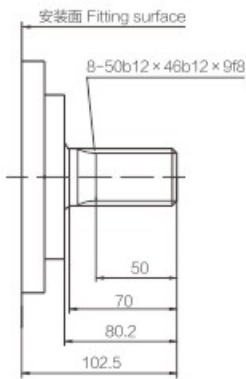
NIM6-**I₁₁



NIM8-600~1000 外形及安装尺寸/ NIM8-600~1000 Installation Dimensions

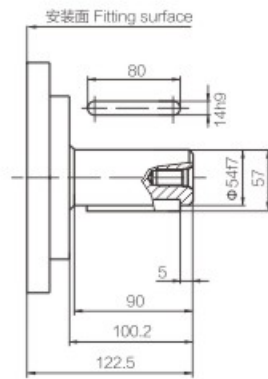


标准外花键
External spline : NIM8-**



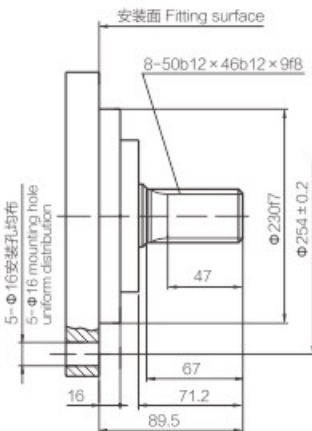
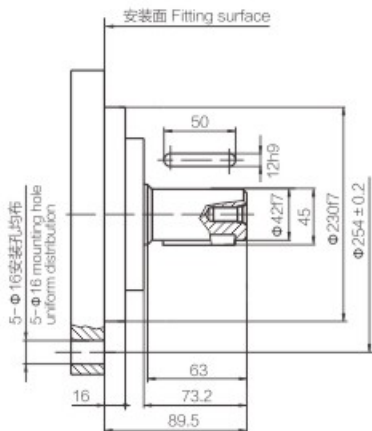
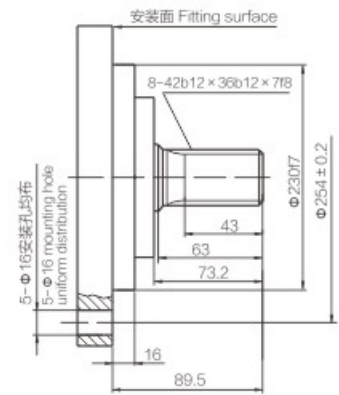
NIM8-**6MB

标准平键
Standard Paralle Key : NIM8-**B



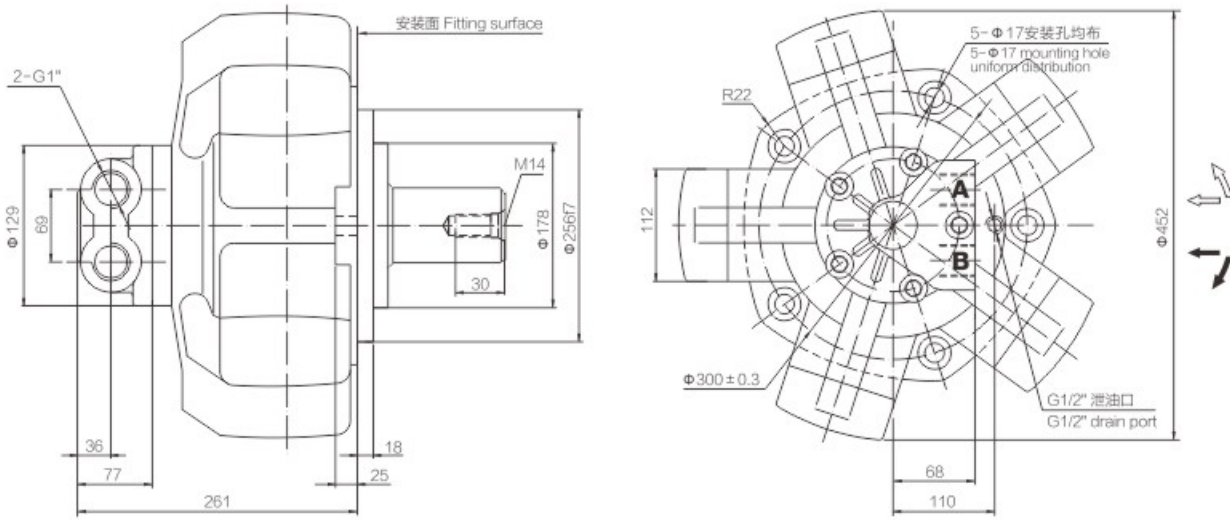
NIM8-**a2

NIM8-**6M



- NIM
- DGM
- CJM
- DHMB
- DHMC
- DCA
- DCB
- DMS
- DA6V
- DA2F

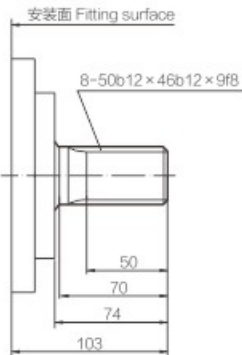
NIM11-700~1300 外形及安装尺寸/ NIM11-700~1300 Installation Dimensions



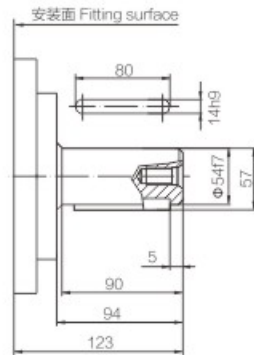
标准外花键 : NIM11-**
External spline : NIM11-**

标准平键 : NIM11-**B
Standard Paralle Key : NIM11-**B

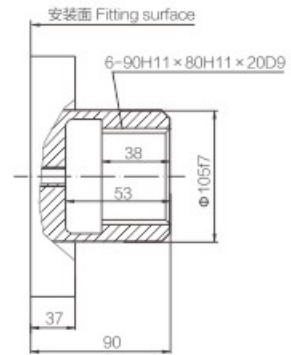
标准内花键 : NIM11-**I
Internal spline : NIM11-**I



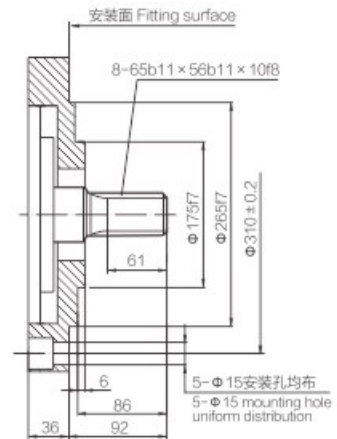
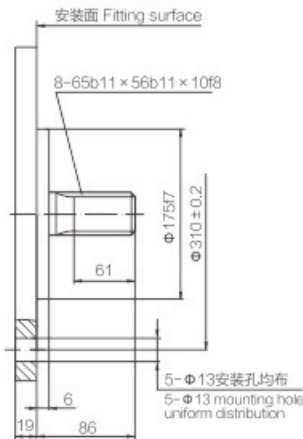
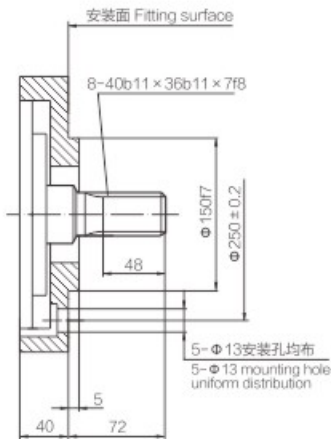
NIM11-**SL3

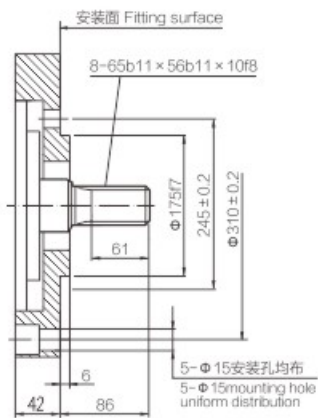
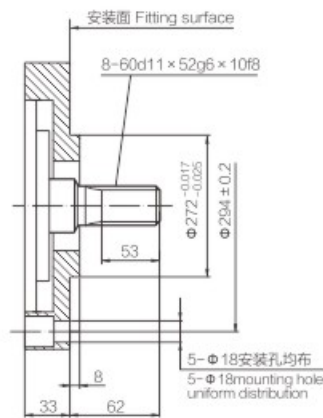
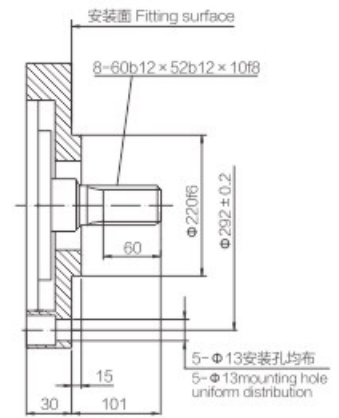
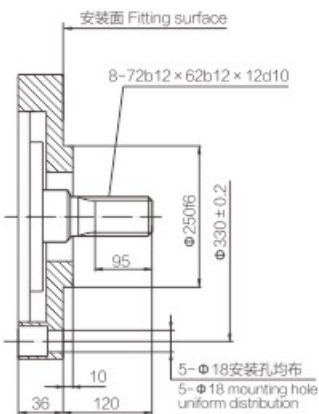
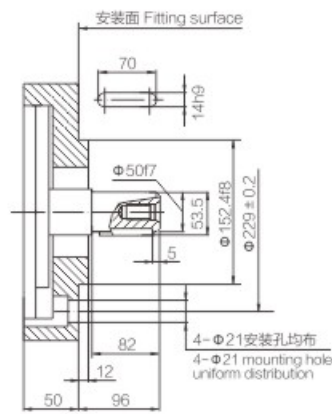
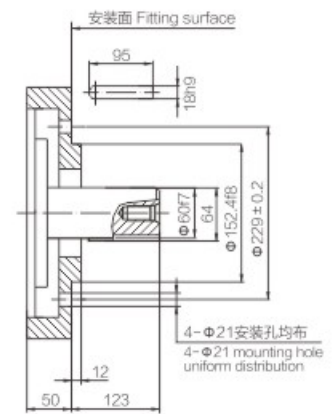
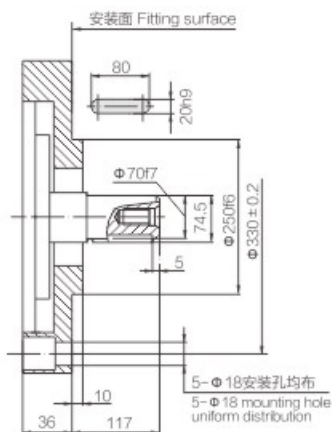
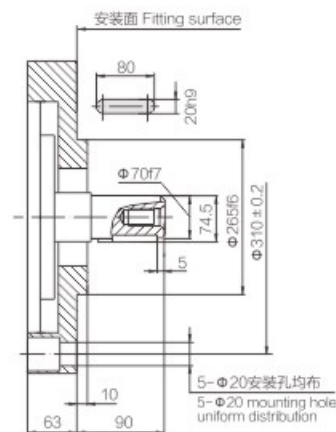
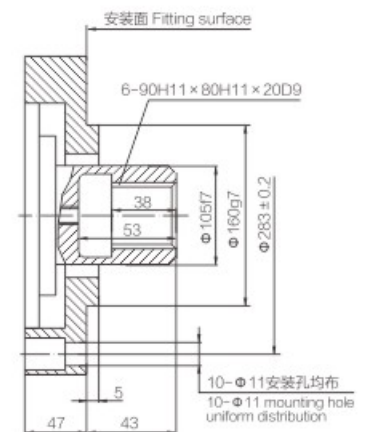


NIM11-**SL4

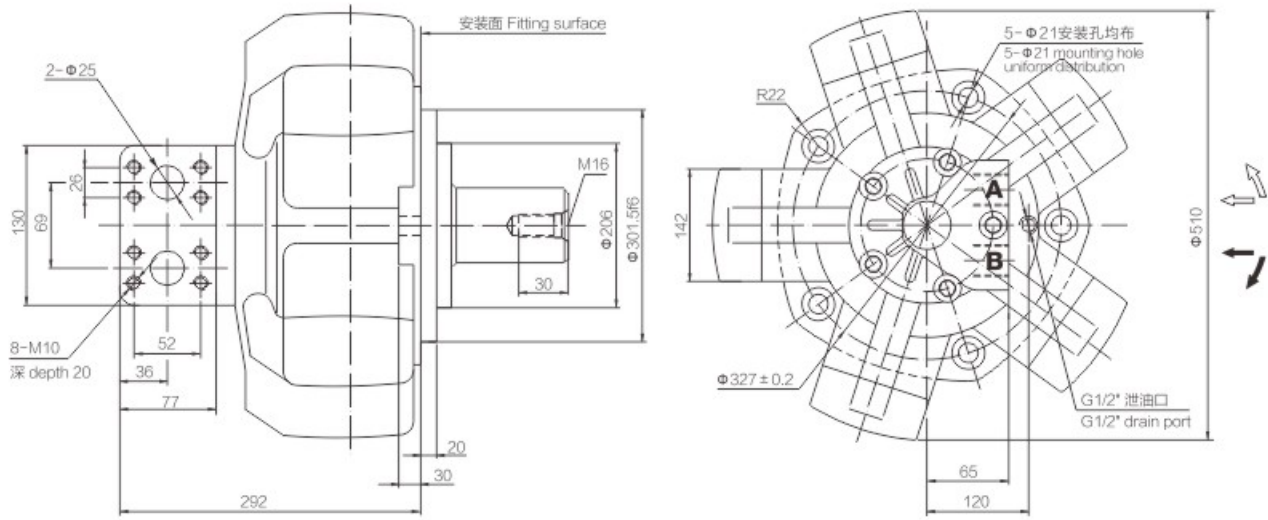


NIM11-**SL5



NIM11-SM4**

NIM11-N**

NIM11-N1**

NIM11-K**

NIM11-B4**

NIM11-B6**

NIM11-B3s**

NIM11-B4s**

NIM11-I21**

NIM
DGM
CJM
DHMB
DHMC
DCA
DCB
DMS
DA6V
DA2F

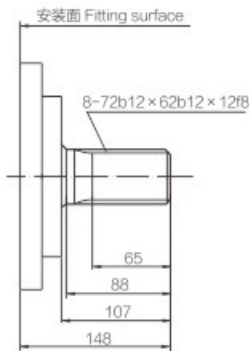
NIM16-1400~2400 外形及安装尺寸/ NIM16-1400~2400 Installation Dimensions



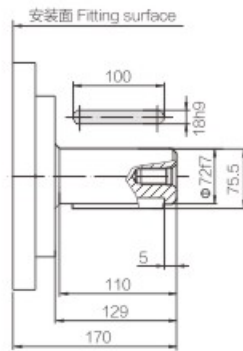
标准外花键
External spline : NIM16-**

标准平键
Standard Paralle Key : NIM16-**B

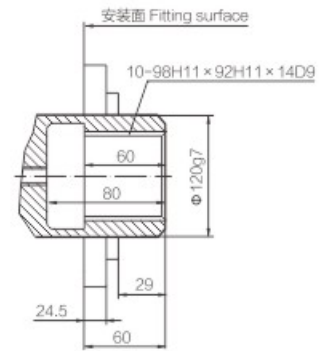
标准内花键
Internal spline : NIM16-**I



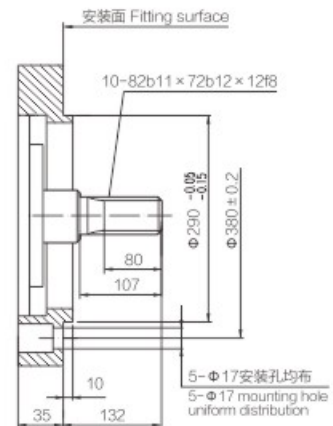
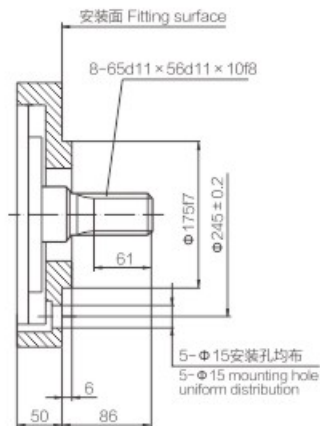
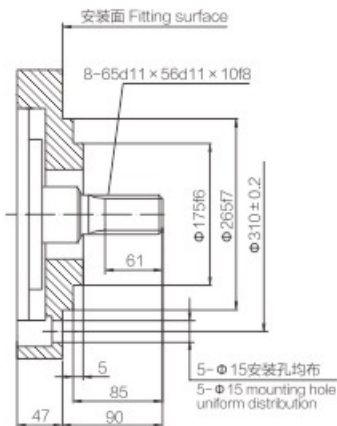
NIM16-**SL5

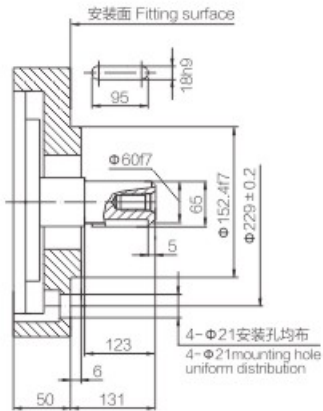
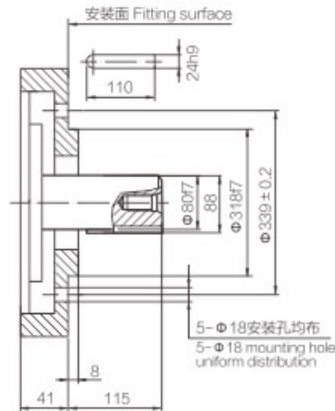
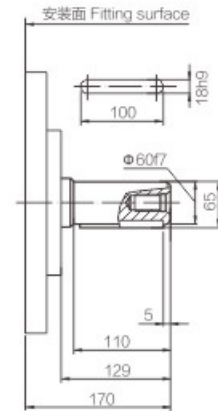
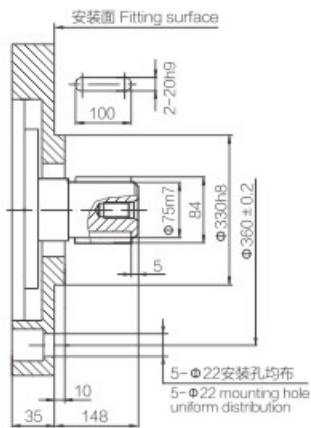
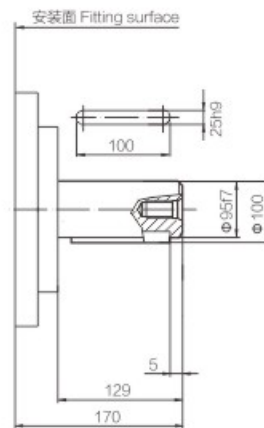
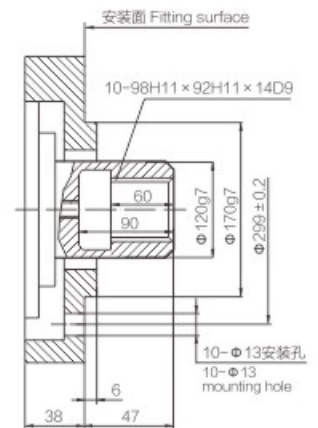
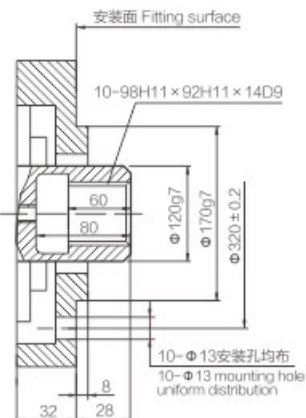


NIM16-**SM4



NIM16-**N



NIM16-B6**

NIM16-B17**

NIM16-B19**

NIM16-D**

NIM16-B30**

NIM16-I32**

NIM16-I42**


NIM

DGM

CJM

DHMB

DHMC

DCA

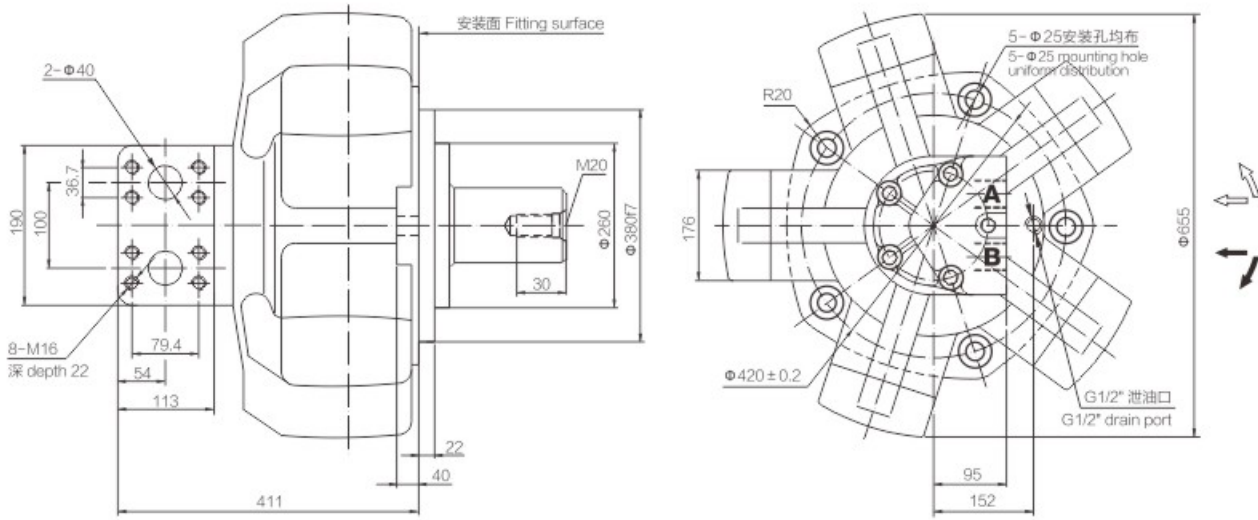
DCB

DMS

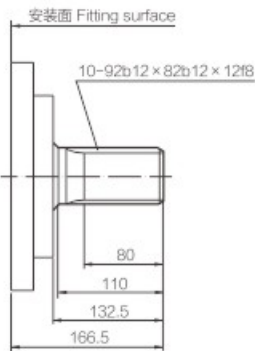
DA6V

DA2F

NIM31-2500~5000 外形及安装尺寸/ NIM31-2500~5000 Installation Dimensions

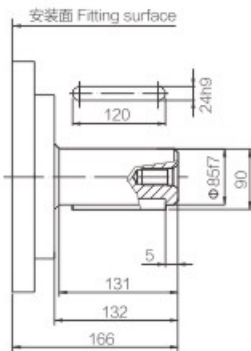


标准外花键 : NIM31-**
External spline : NIM31-**



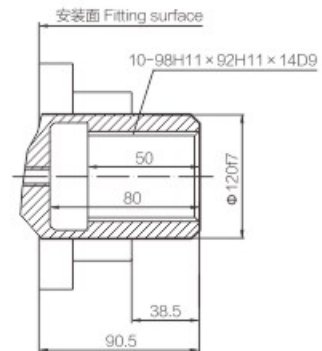
NIM31-**SL7

标准平键 : NIM31-**B
Standard Paralle Key : NIM31-**B

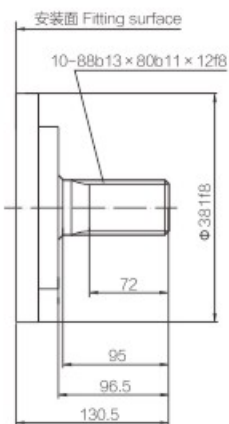


NIM31-**NST

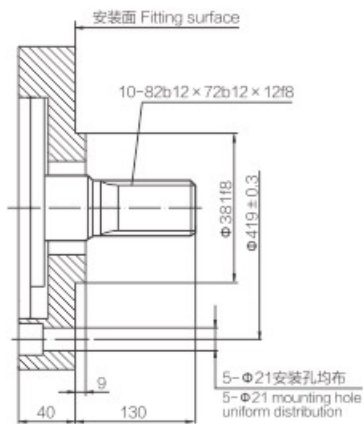
标准内花键 : NIM31-**I
Internal spline : NIM31-**I



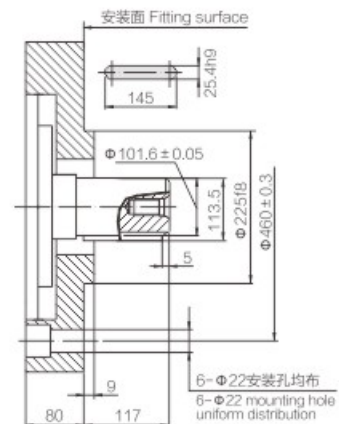
NIM31-**B8



NIM31-**SL7

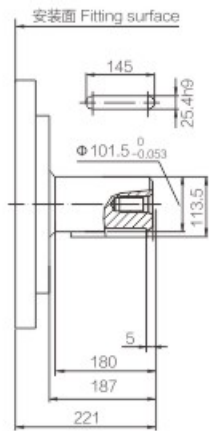


NIM31-**NST

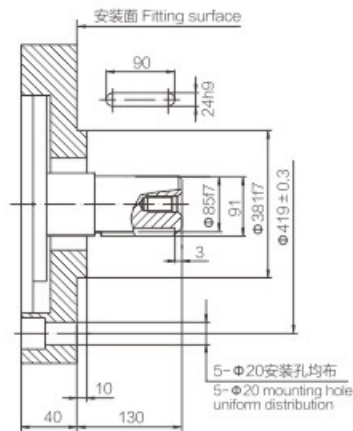


NIM31-**B8

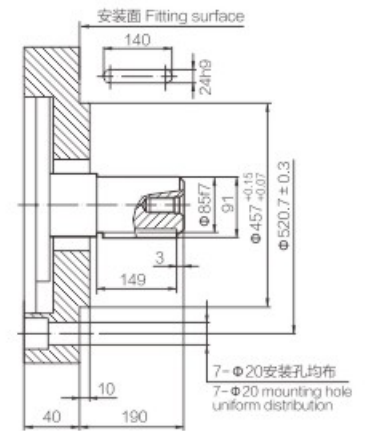
NIM31-**B10



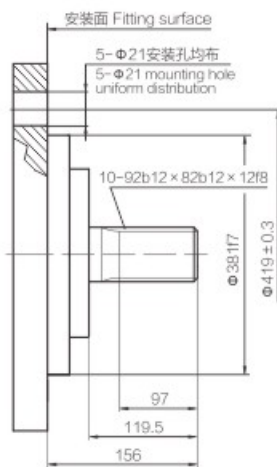
NIM31-**B21



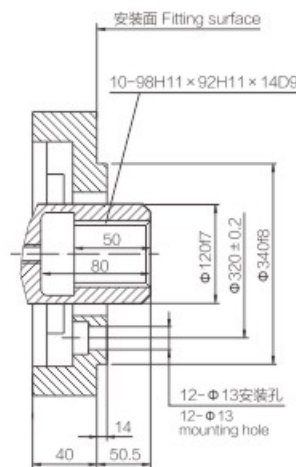
NIM31-**B22



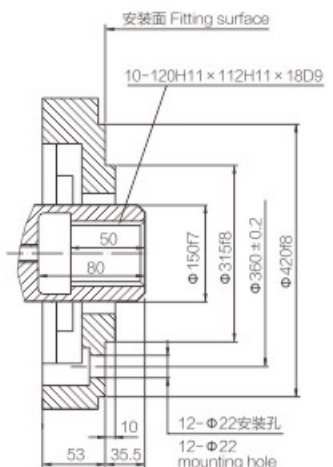
NIM31-**H6



NIM31-**I53



NIM31-**I52



NIM

DGM

CJM

DHMB

DHMC

DCA

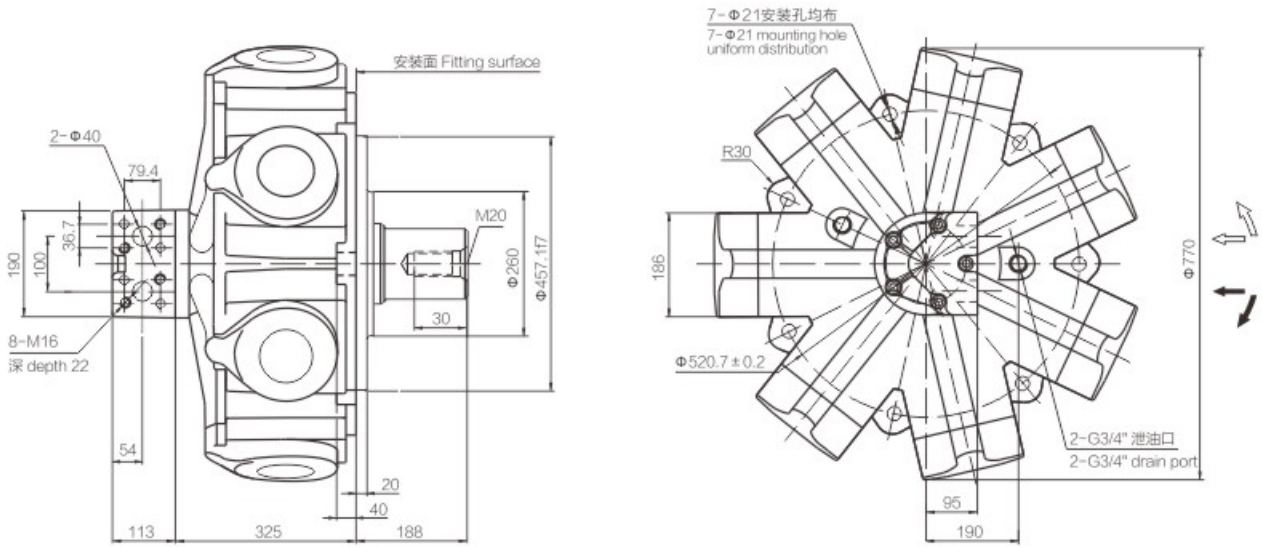
DCB

DMS

DA6V

DA2F

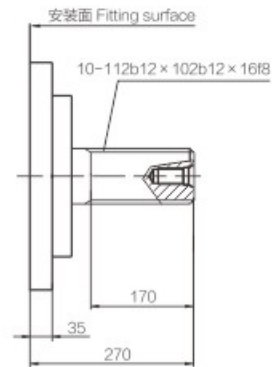
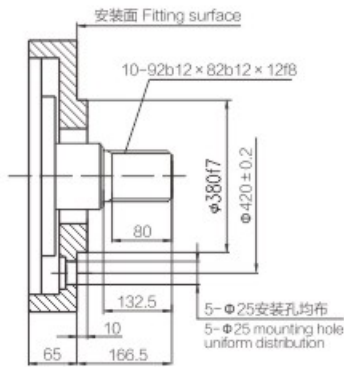
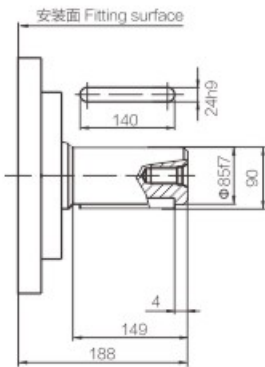
NIM70-5000~7000 外形及安装尺寸/ NIM70-5000~7000 Installation Dimensions



标准平键 : NIM70-**
Standard Paralle Key

NIM70-**a1

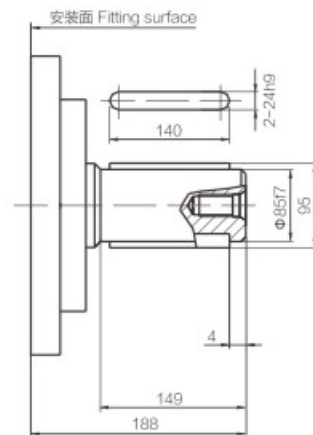
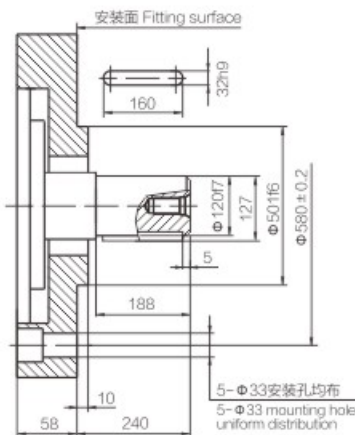
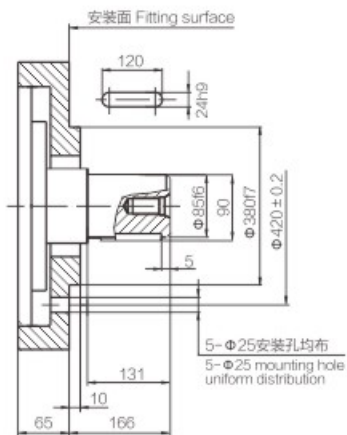
NIM70-**a3



NIM70-**B1

NIM70-**B2

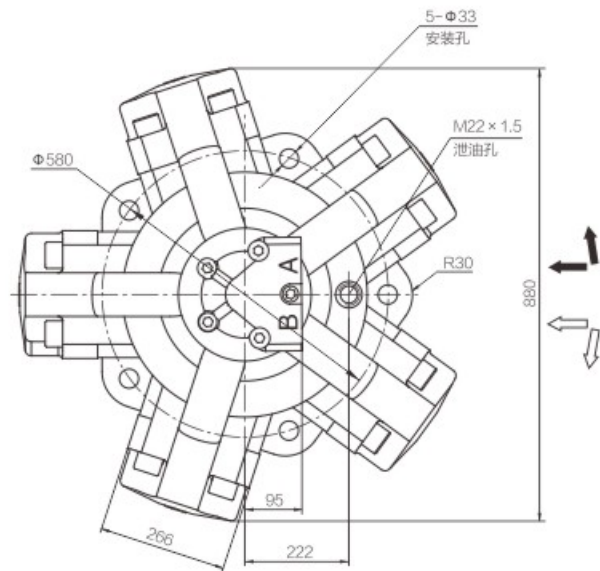
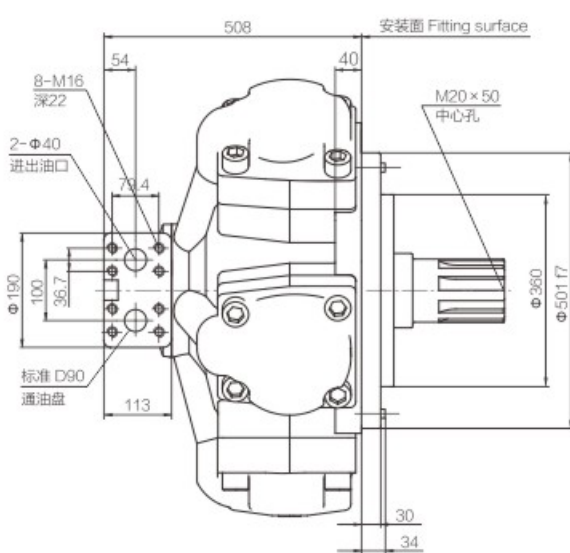
NIM70-**Bc



NIM100 系列/ NIM100 Series



NIM100-6300~10000 外形及安装尺寸/ NIM100-6300~10000 Installation Dimensions



标准外花键 : NIM100-**A
External spline : NIM100-**A

标准平键 : NIM100-**B
Standard Paralle Key : NIM100-**B

标准内花键 : NIM100-**I
Internal spline : NIM100-**I

