

A01

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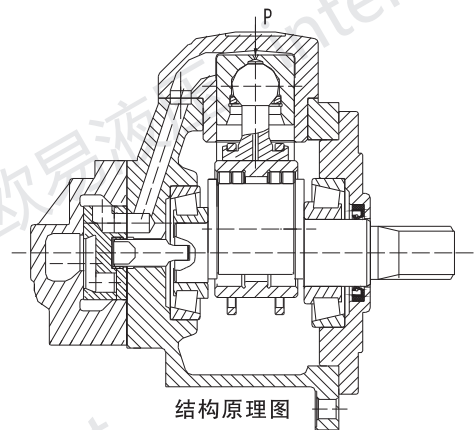
滚柱支承曲轴连杆式液压马达

NHM(S)系列液压马达

产品特点

NHM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。



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，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。

计算公式

- 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：

$$N = \frac{M \cdot n}{9550} \text{ (kW)} \quad N = \frac{q(P_1 - P_2)}{60000} \text{ (kW)}$$

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

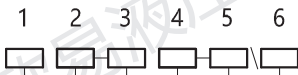
- 3.液压马达的转速：

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

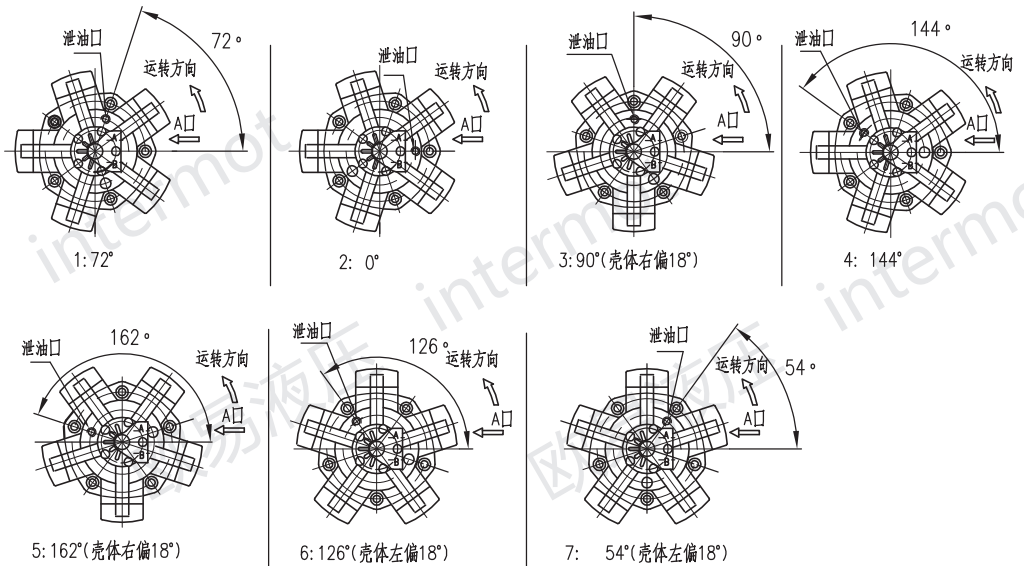
注意事项

- 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.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，泄油管应插入油箱液面以下，壳体允许最大压力为0.1 Mpa。
- 5.泄油管的最高水平位置应高于马达壳体的最高水平位置，以防马达壳体内部的油液排空。
- 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。

产品标识说明



进油口与泄油口的相对位置 (适用五缸) :



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 A20-A29 页,并在订货中注明

输出轴形式

无字母表示标准矩形花键轴

"B" 表示平键轴, 注脚数字表示同摆线液压马达或其他品牌液压马达对应型号安装尺寸相同(带过渡法兰板)

"I" 表示内花键, 注脚数字表示QJM系列安装尺寸相同(带过渡法兰板)

"GM", "SL" 表示安装联接尺寸与意大利SAI公司生产的M\L\GM系列液压马达相同, 注脚数字则表示不同的安装尺寸

(如须更详细尺寸, 请向公司咨询)

名义排量 (ml/r)

系列代号

NHM为英特姆曲轴连杆式低速大扭矩液压马达

NHMS为加强型英特姆曲轴连杆式低速大扭矩液压马达(适用于较高转速工况)

型号举例:

NHM6-450B-D31(G3/4)\72

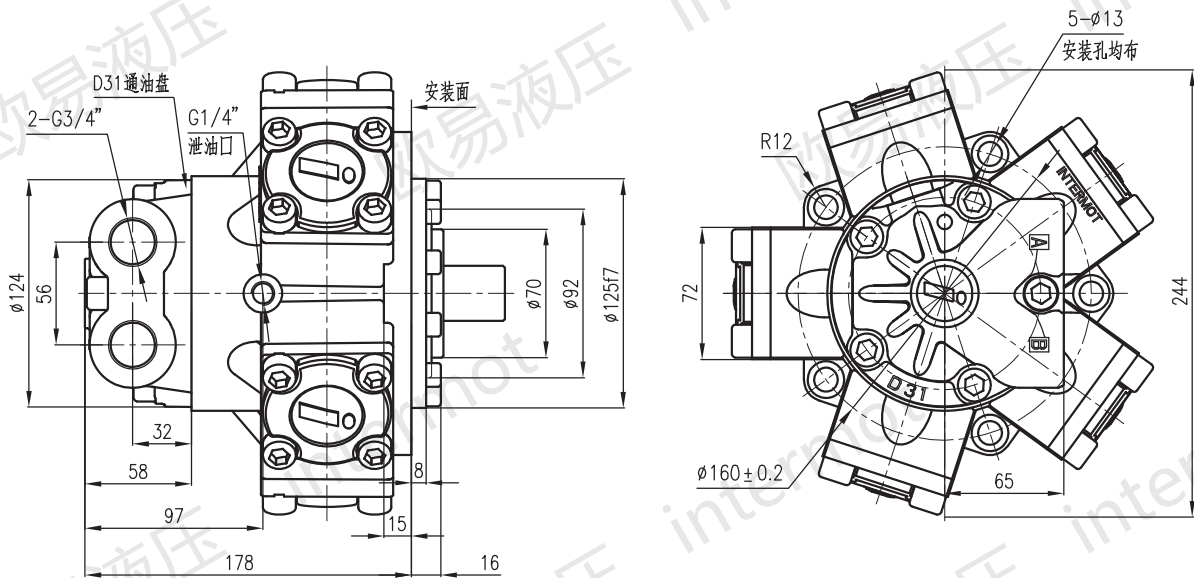
表示NHM6系列低速大扭矩液压马达, 排量为450ml/r、输出轴为B、通油盘为D31(G3/4)、进油口与泄油口相对位置为72°。

NHM型技术性能参数

型号	排量 (ml/r)	额定压力 (MPa)	最高压力 (MPa)	额定扭矩 (N.m)	单位理论扭矩 (N.m/MPa)	转速范围 (r/min)	重量 (kg)
NHM1-63	77	25	32	284	11	15-900	21
NHM1-80	91	25	32	335	13	15-850	
NHM1-100	96	25	32	355	14	15-800	
NHM1-110	113	25	32	419	17	15-800	
NHM1-125	126	20	25	371	19	15-800	
NHM1-140	138	20	25	410	20	15-800	
NHM1-160	159	16	20	376	24	15-700	
NHM1-175	181	16	20	428	27	15-630	
NHM1-200	196	16	20	464	29	15-630	
NHM2-100	113	25	32	419	17	15-800	
NHM2-150	159	25	32	588	24	15-700	
NHM2-175	180	20	25	532	27	15-600	
NHM2-200	207	20	25	611	31	8-600	
NHM2-250	235	16	20	556	35	8-600	
NHM2-280	276	16	20	653	41	8-500	35
NHM3-175	181	25	32	670	27	8-600	
NHM3-200	201	25	32	743	30	8-600	
NHM3-250	254	20	25	752	38	8-500	
NHM3-300	289	20	25	856	43	6-450	
NHM3-350	340	16	20	804	50	6-400	57
NHM3-400	380	16	20	899	56	6-350	
NHM6-400	397	25	32	1469	59	5-500	
NHM6-450	452	25	32	1672	67	5-500	
NHM6-500	491	20	25	1451	73	5-400	
NHM6-600	594	20	25	1756	88	4-400	66
NHM6-700	683	16	20	1616	101	4-350	
NHM6-750	754	16	20	1785	112	4-320	
NHM8-600	617	25	32	2282	91	4-450	
NHM8-700	710	25	32	2626	105	4-400	
NHM8-800	810	20	25	2396	120	4-350	88
NHM8-900	889	20	25	2629	131	3-350	
NHM8-1000	1000	16	20	2366	148	3-300	
NHM11-700	707	25	32	2612	104	4-350	
NHM11-800	784	25	32	2899	116	4-350	
NHM11-900	894	25	32	3306	132	4-350	154
NHM11-1000	981	20	25	2902	145	3-320	
NHM11-1100	1104	20	25	3265	163	3-320	
NHM11-1200	1234	16	20	2919	182	3-320	
NHM11-1300	1301	16	20	3079	192	3-250	
NHM16-1400	1413	25	32	5224	209	2-250	324
NHM16-1500	1528	20	25	4520	226	2-250	
NHM16-1600	1648	20	25	4874	244	2-250	
NHM16-1800	1815	20	25	5367	268	2-250	
NHM16-2000	2035	16	20	4814	301	2-230	
NHM16-2200	2267	16	20	5364	335	2-200	500
NHM16-2400	2444	16	20	5783	361	2-200	
NHM31-2400	2375	20	25	7023	351	2-200	
NHM31-2500	2553	25	32	9438	378	2-200	
NHM31-2800	2683	20	25	7935	397	1-180	
NHM31-3000	3063	20	25	9057	453	1-180	324
NHM31-3150	3218	20	25	9518	476	1-160	
NHM31-3500	3462	16	20	8190	512	1-160	
NHM31-4000	4153	16	20	9825	614	1-140	
NHM31-4500	4522	16	20	10698	669	1-140	
NHM31-5000	4828	16	20	11423	714	1-140	500
NHM70-4600	4604	20	25	13617	681	1-120	
NHM70-5000	4946	20	25	14626	731	1-120	
NHM70-5400	5452	20	25	16125	806	1-120	

以上数据为实验条件下实测所得，仅用于对产品描述及应用参考，因实际使用条件等诸多原因，不视为产品实际应用的性能保证。宁波欧易及英特姆保留对样本中的产品参数、尺寸及其性能进行修改的权利，如有变更，恕不另行通知。版权所有，禁止未经过宁波欧易及英特姆公司书面授权的任何局部或整体内容复制与使用。

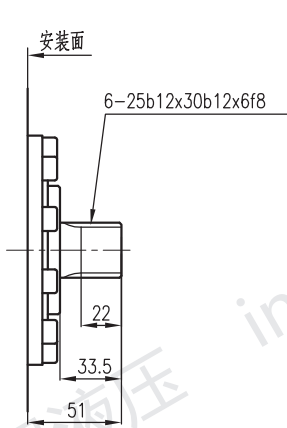
NHM(S)1-63~200 安装联接尺寸图



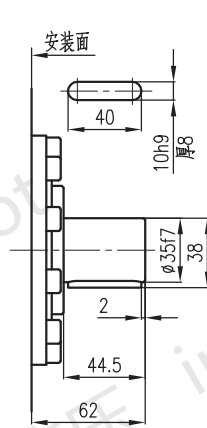
标准外花键: NHM1-**-**

标准平键: NHM1-**-**B

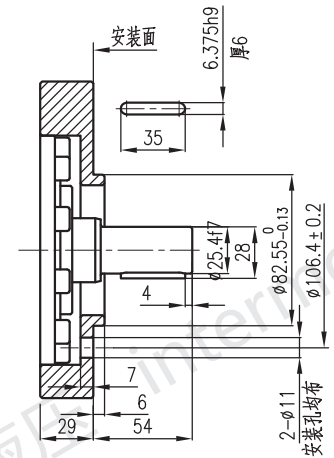
NHM1-**-**B3



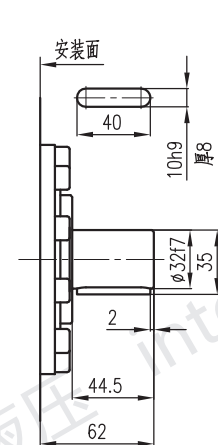
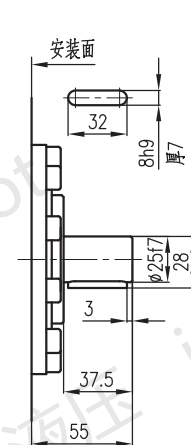
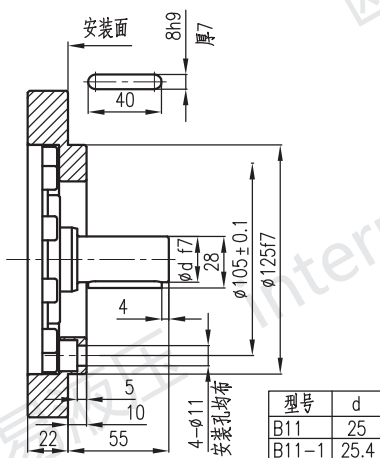
NHM1-**-**B11, B11-1



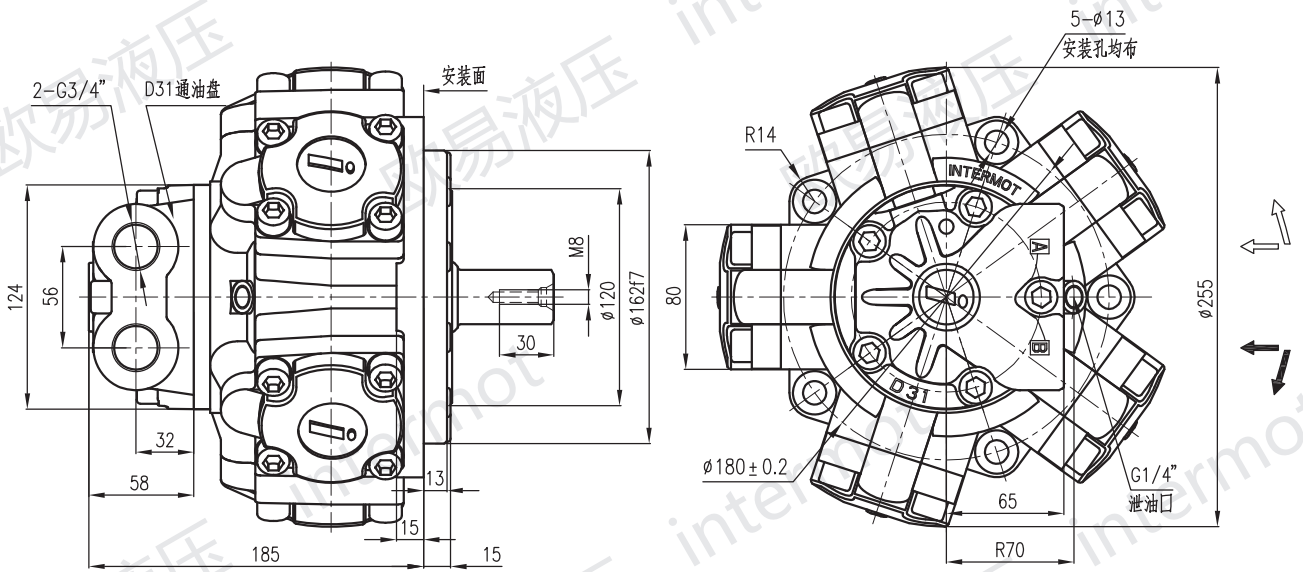
NHM1-**-**B28



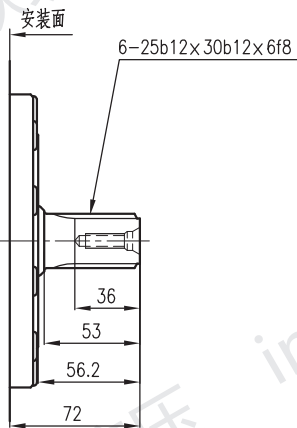
NHM1-**-**B31



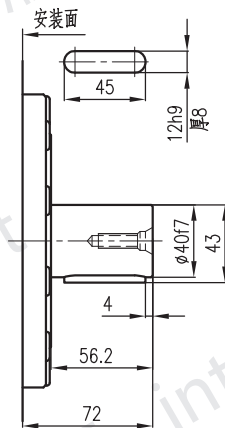
NHM(S)2-100~280 安装联接尺寸图



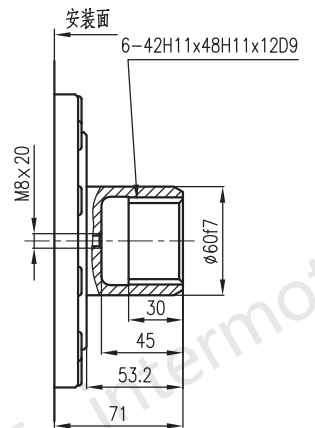
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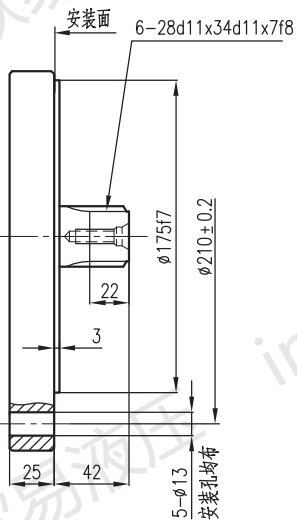
标准平键：NHM2-**B



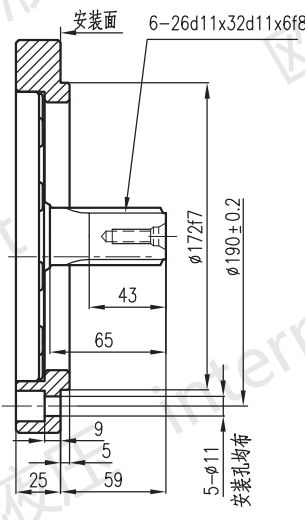
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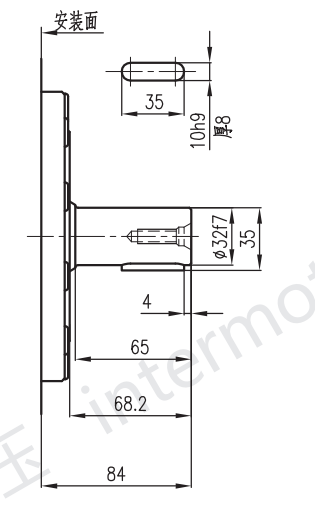
NHM2-**SL1



NHM2-**H1

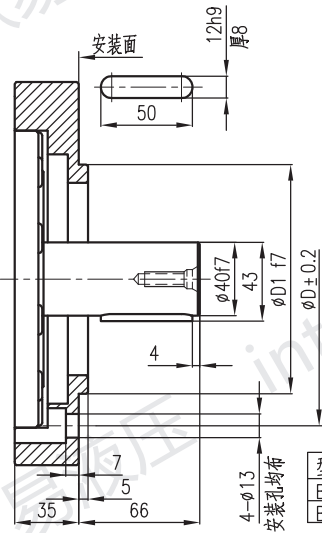


NHM2-**BH1

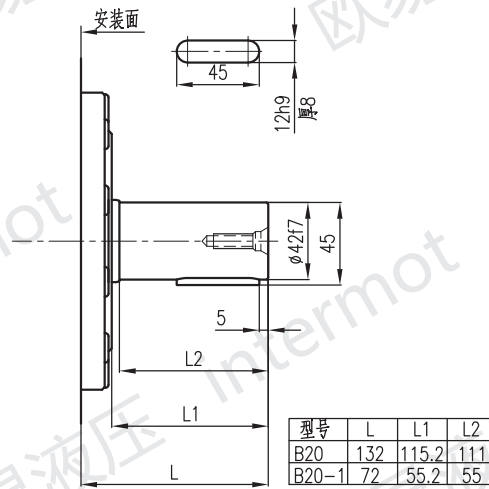


NHM(S)2-100~280 安装联接尺寸图

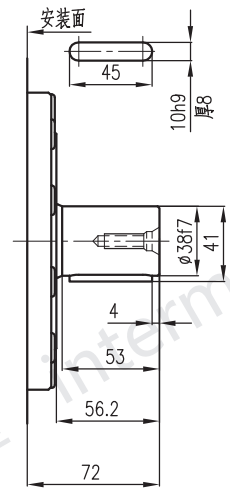
NHM2-**B1、B2



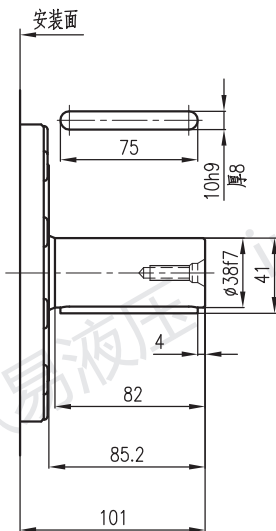
NHM2-**B20、B20-1



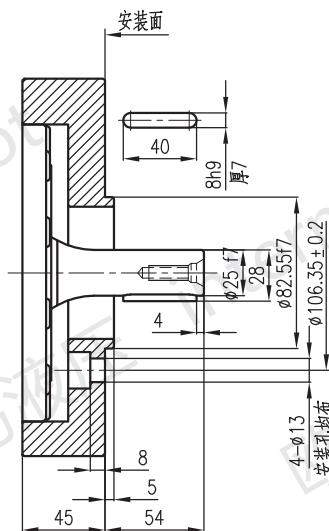
NHM2-**B21



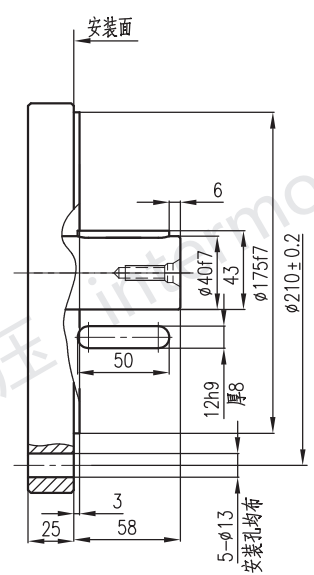
NHM2-**B23



NHM2-**B24



NHM2-**B4-3

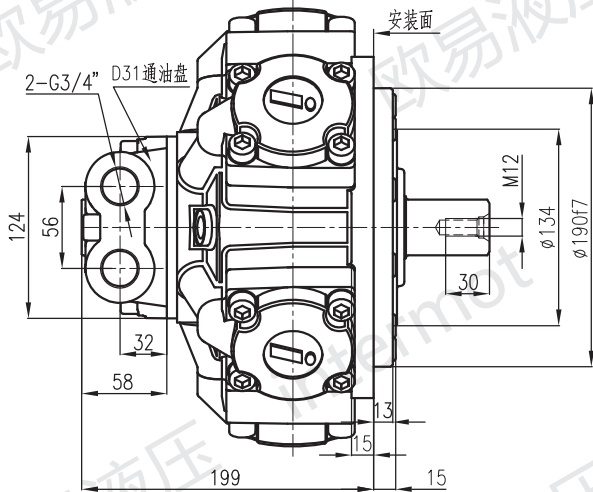


INTERMOT

HYDRAULIC MOTOR

英特姆液压马达

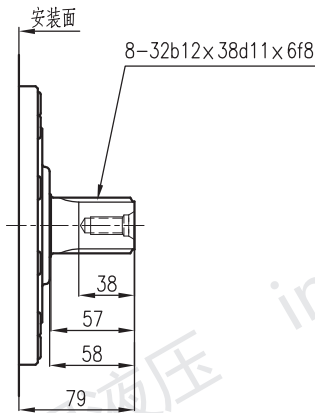
NHM(S)3-175~400 安装联接尺寸图



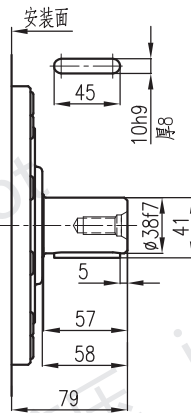
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标准平键: NHM3-**B

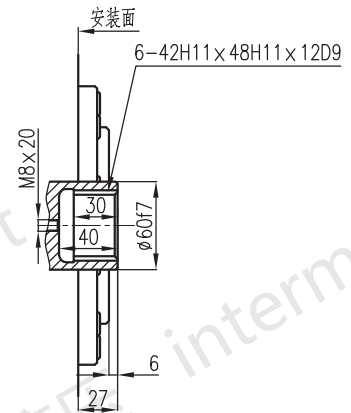
标准内花键: NHM3-**I



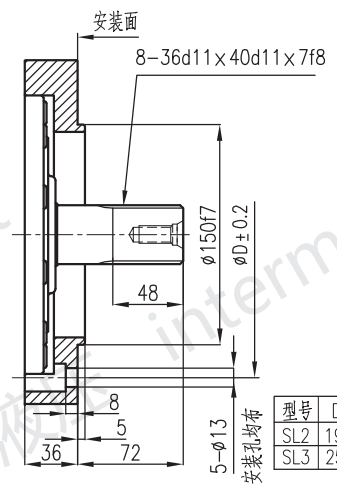
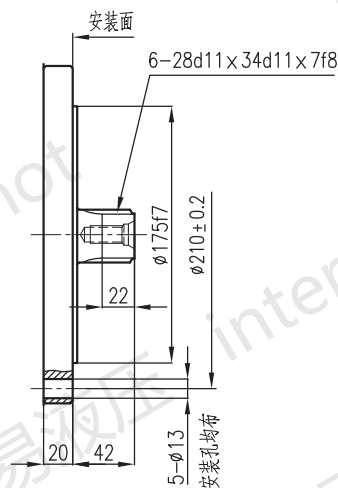
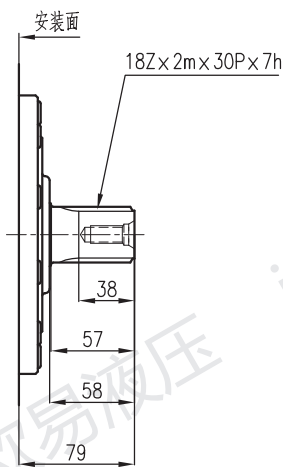
NHM3-**A



NHM3-**SL1



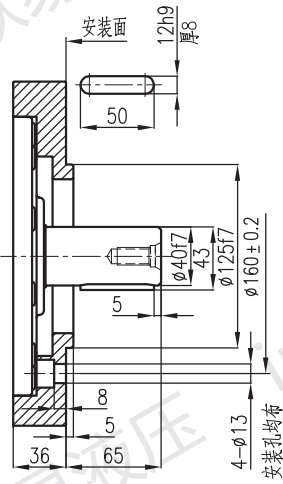
NHM3-**SL2, SL3



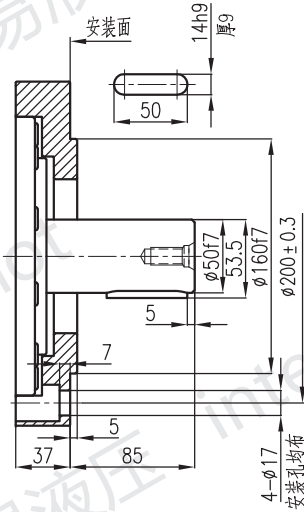
型号	D
SL2	195
SL3	250

NHM(S)3-175~400 安装联接尺寸图

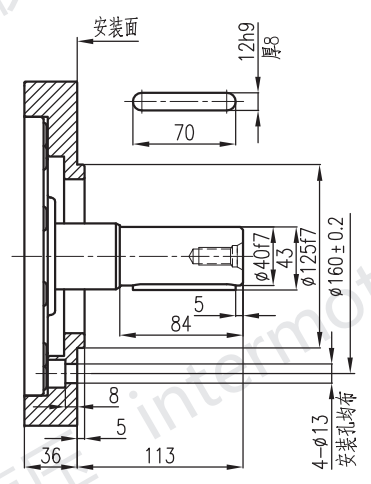
NHM3-**B1



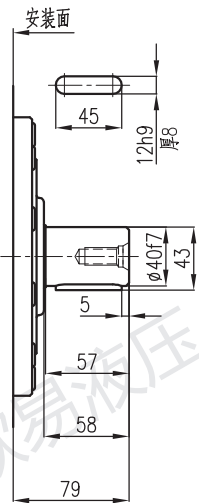
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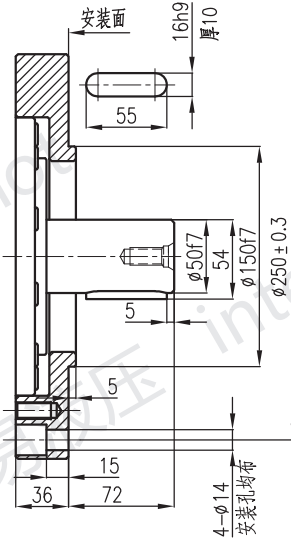
NHM3-**B5



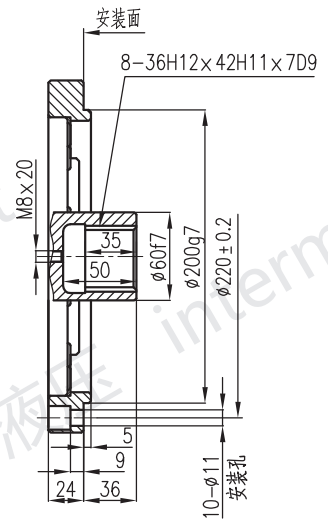
NHM3-**B32



NHM3-**B44

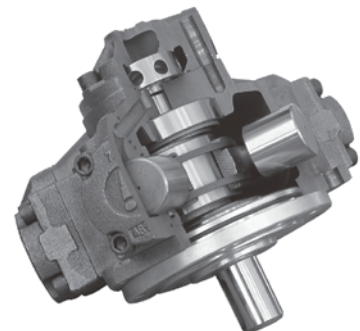


NHM3-**I1A1

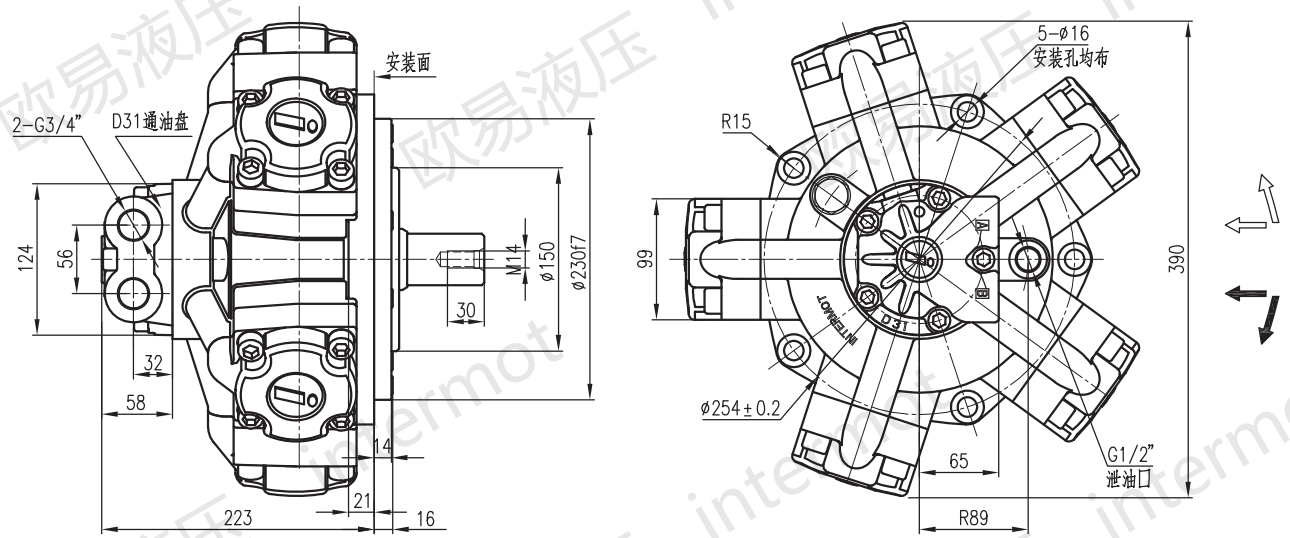


INTERMOT
HYDRAULIC MOTOR

英特姆液压马达



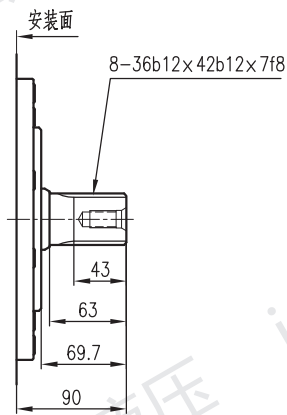
NHM(S)6-400~750 安装联接尺寸图



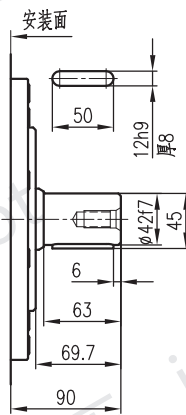
标准外花键: NHM6-**

标准平键: NHM6-**B

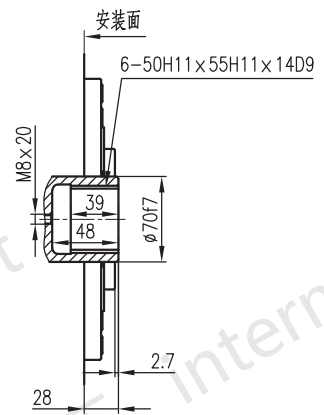
标准内花键: NHM6-**I1



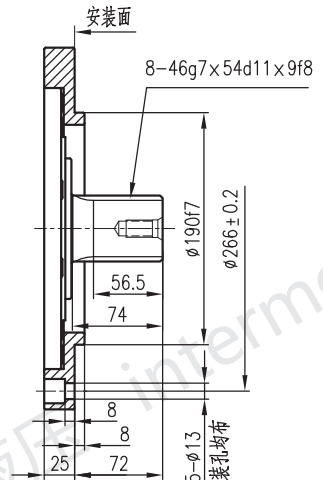
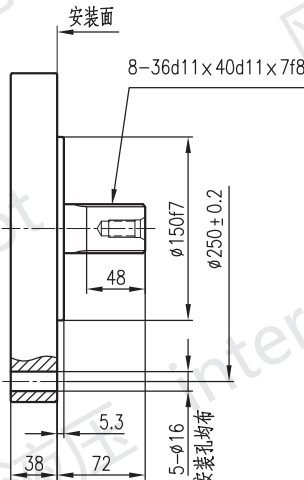
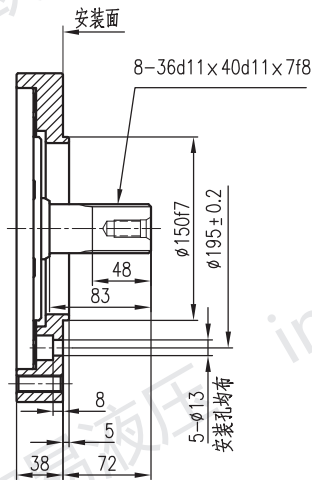
NHM6-**SL2



NHM6-**SL3

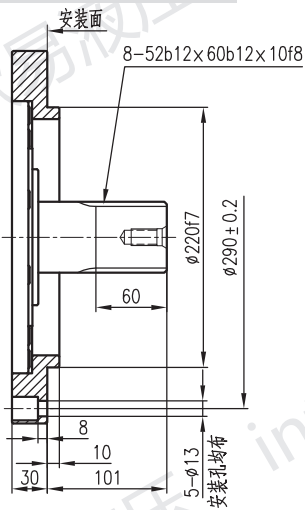


NHM6-**N

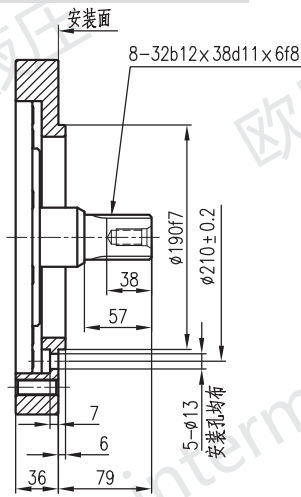


NHM(S)6-400~750 安装联接尺寸图

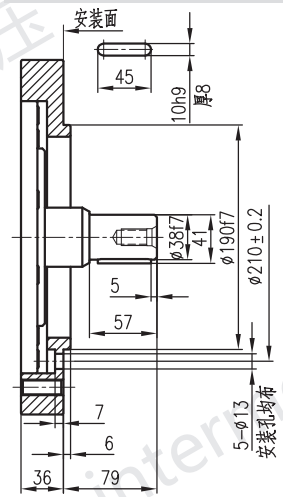
NHM6-**-N1



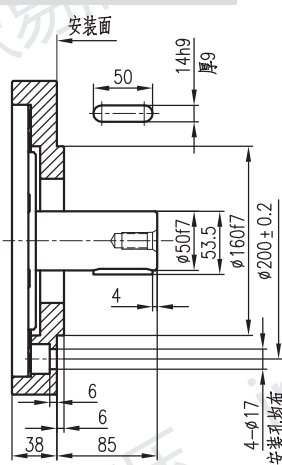
NHM6-**-3M



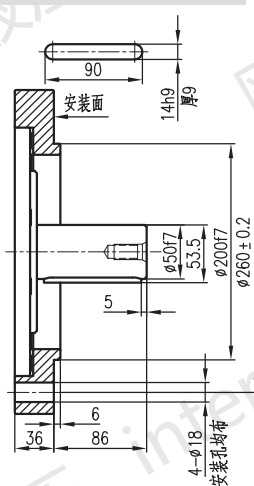
NHM6-**-B-3M



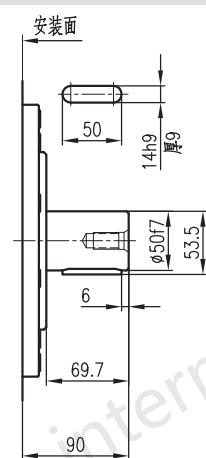
NHM6-**-B2



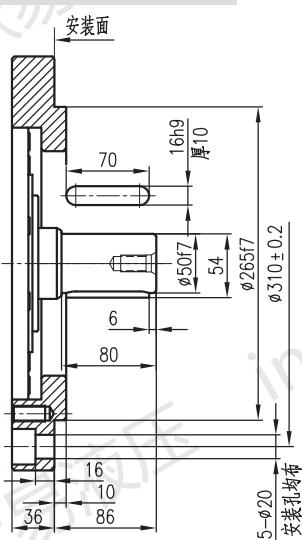
NHM6-**-B13



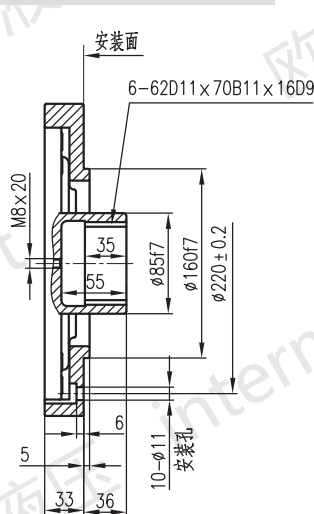
NHM6-**-B33



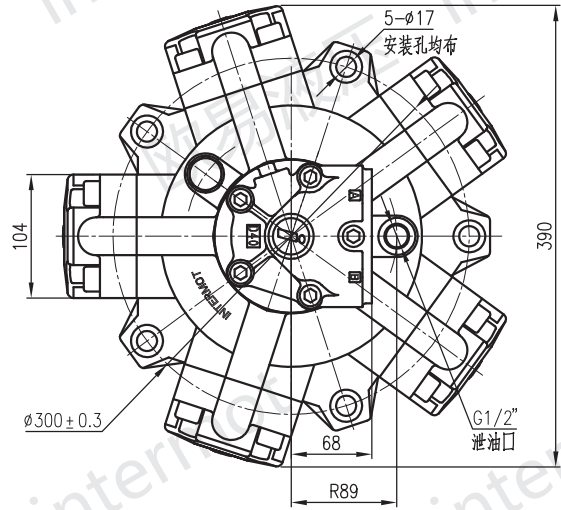
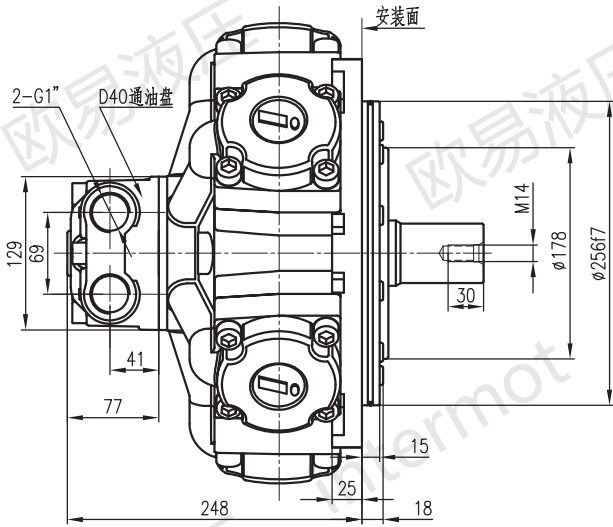
NHM6-**-B45



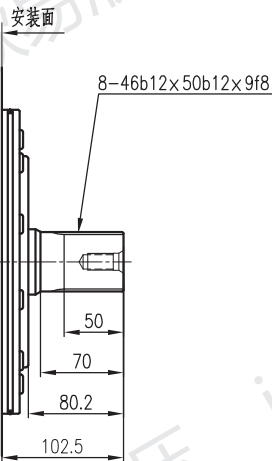
NHM6-**-I11



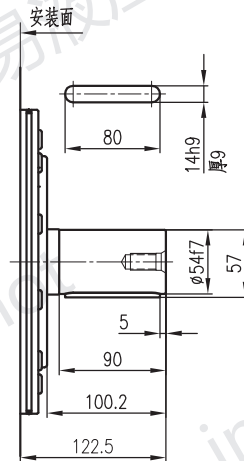
NHM(S)8-600~1000 安装联接尺寸图



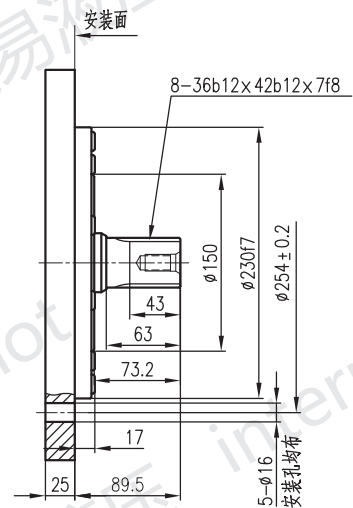
标准外花键: NHM8-**



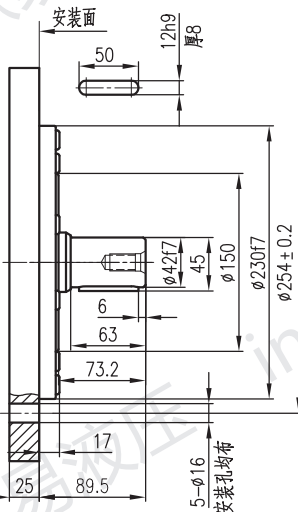
标准平键: NHM8-**B



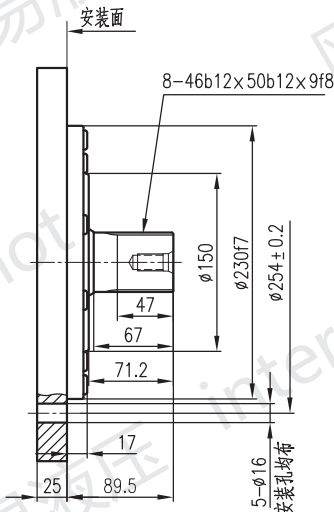
NHM8-**-6M



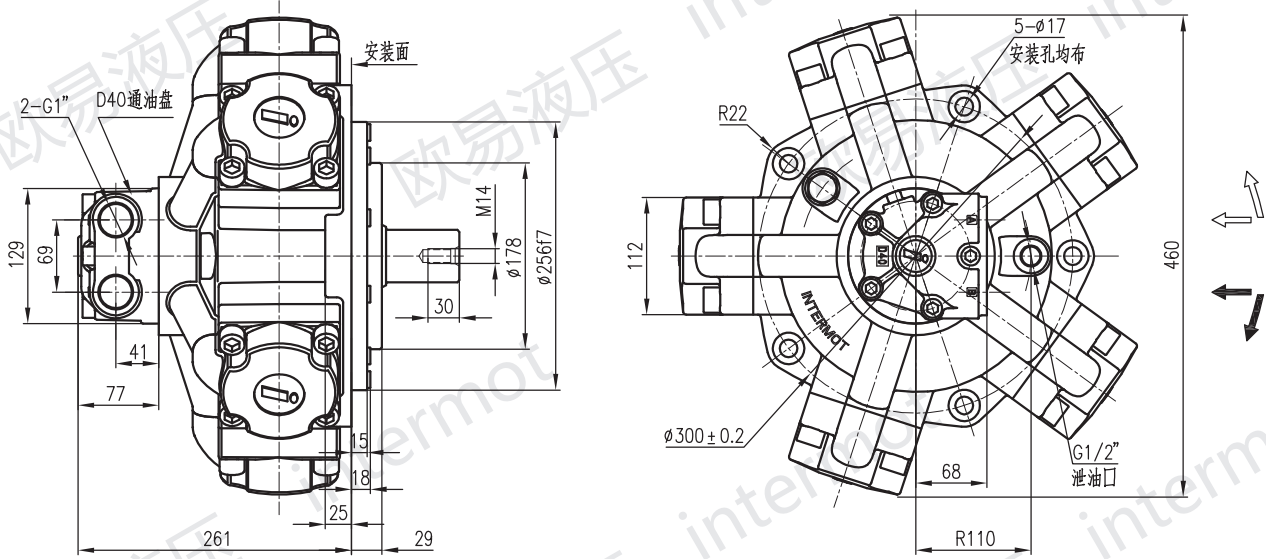
NHM8-**B-6M



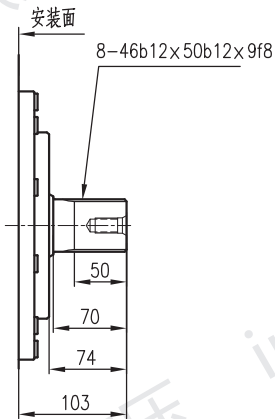
NHM8-**A2



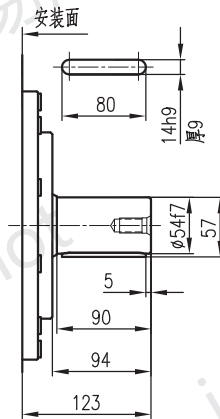
NHM(S)11-700~1300 安装联接尺寸图



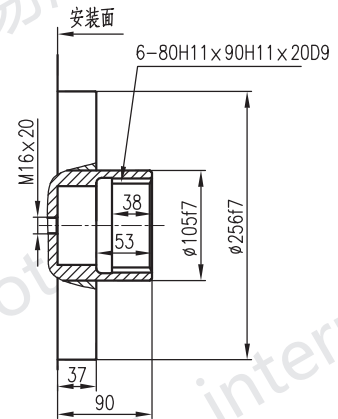
标准外花键: NHM11-**



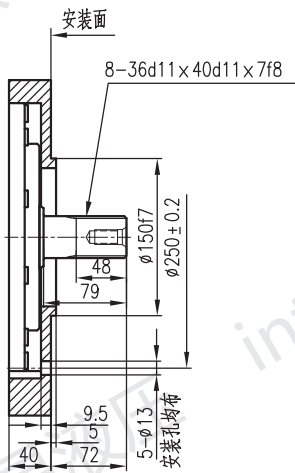
标准平键: NHM11-**B



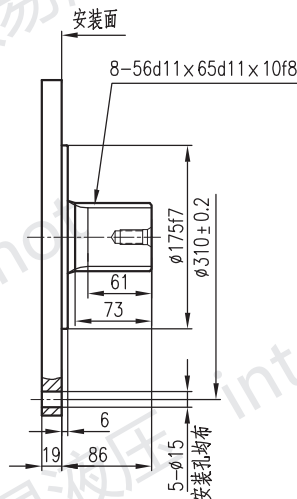
标准内花键: NHM11-**I



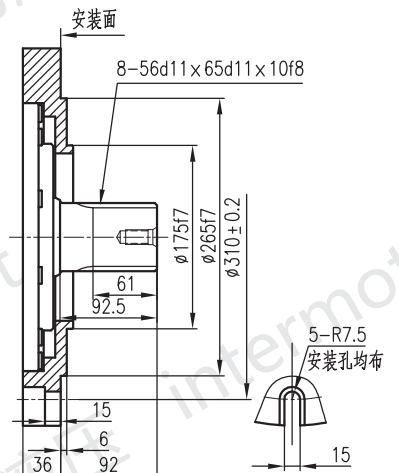
NHM11-**SL3



NHM11-**SL4

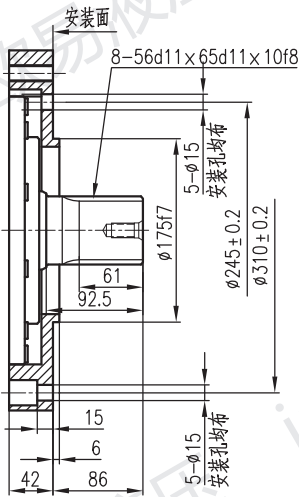


NHM11-**SL5

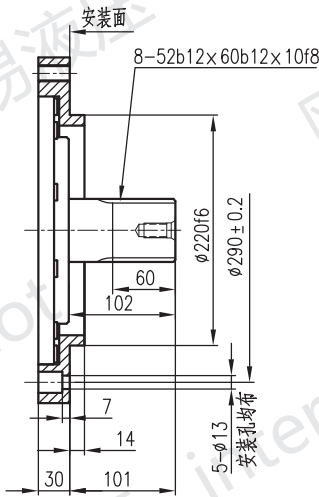


NHM(S)11-700~1300 安装联接尺寸图

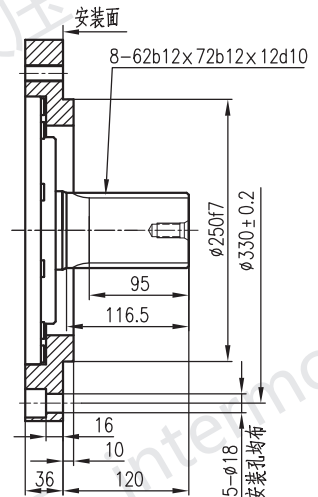
NHM11-**-SM4



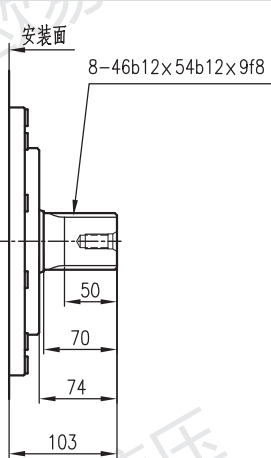
NHM11-**-N1K2



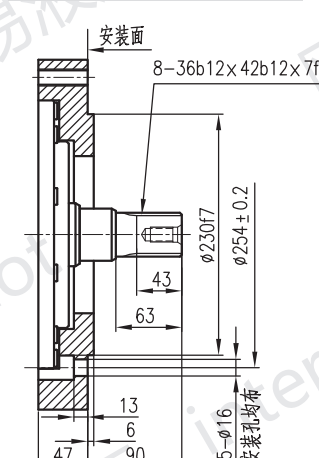
NHM11-**-K



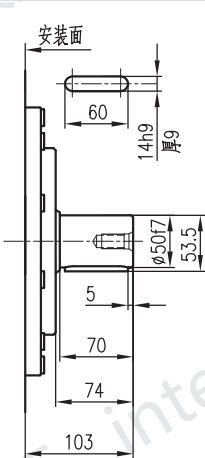
NHM11-**-A1



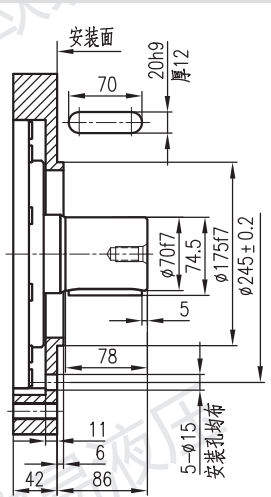
NHM11-**-6M



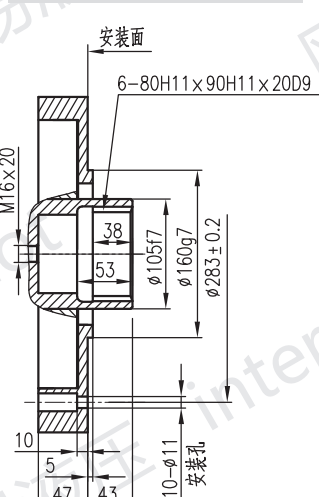
NHM11-**-H4B



NHM11-**-SM4B

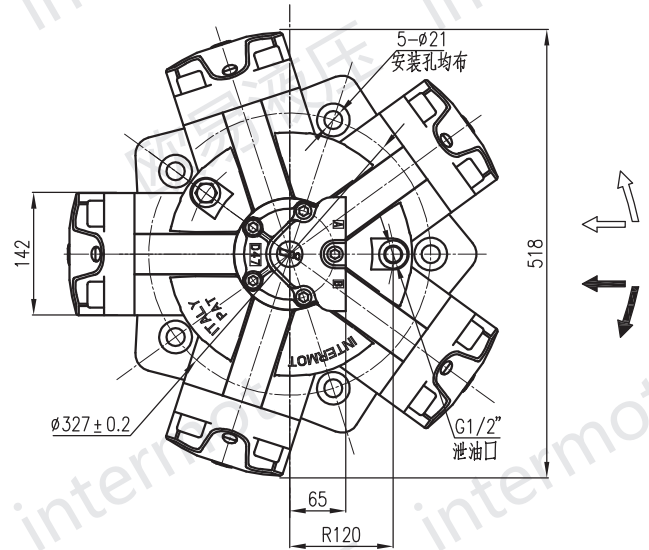
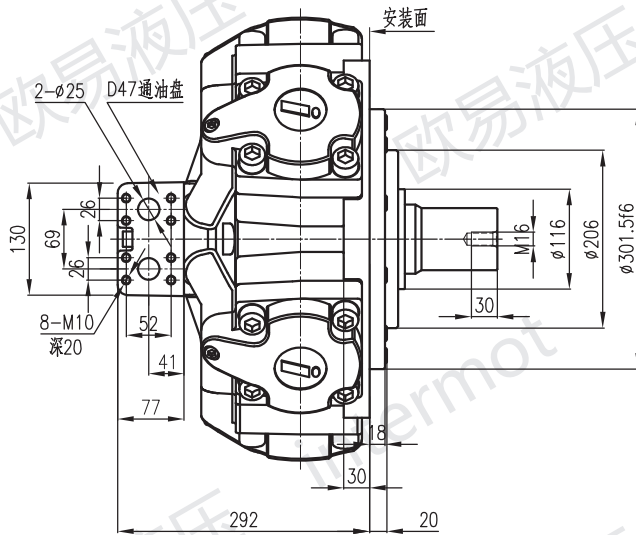


NHM11-**-I21

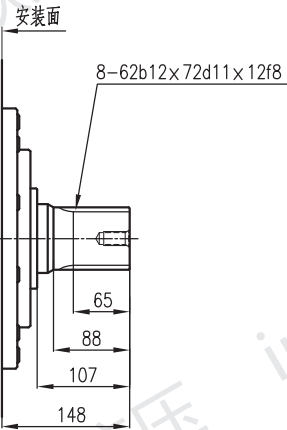


- NHM
- GHM
- FMB
- FMC
- F
- CM
- EPMZ

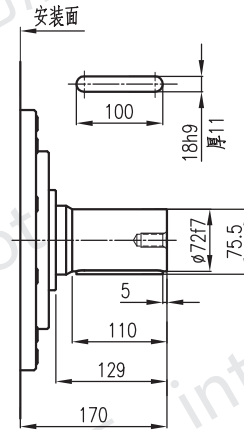
NHM(S)16-1400~2400 安装联接尺寸图



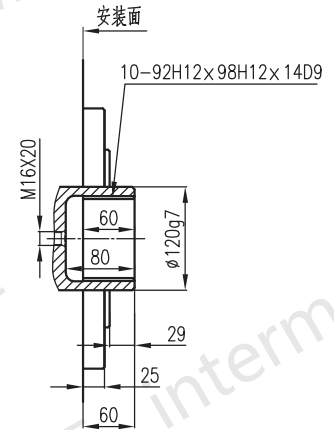
标准花键: NHM16-**



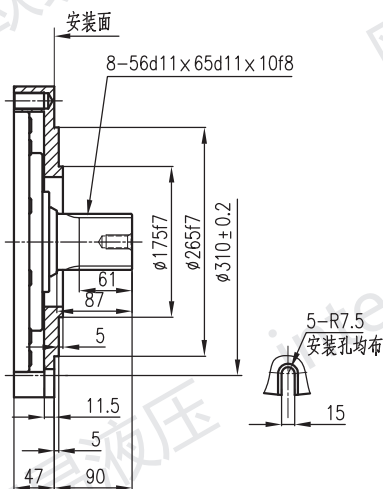
标准平键: NHM16-**B



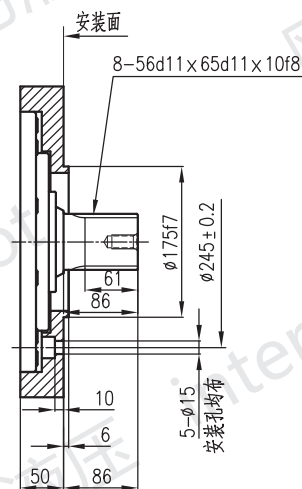
标准内花键: NHM16-**I



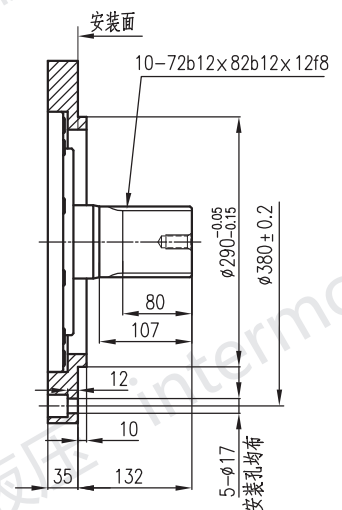
NHM16-**SL5



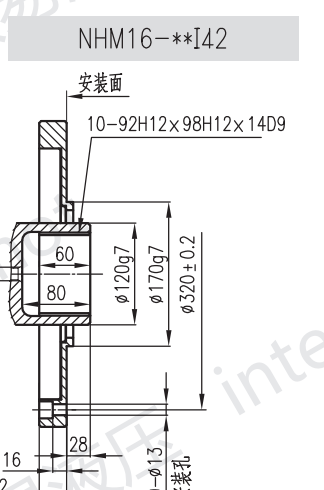
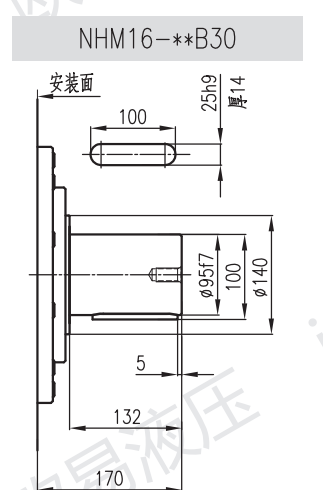
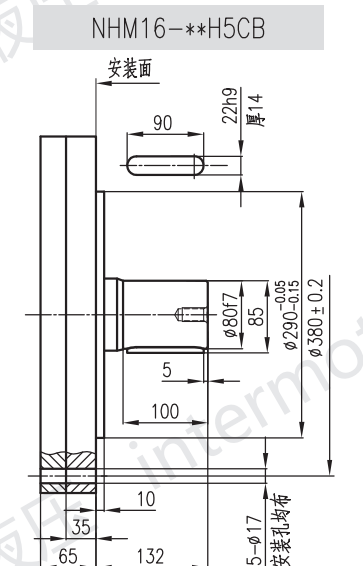
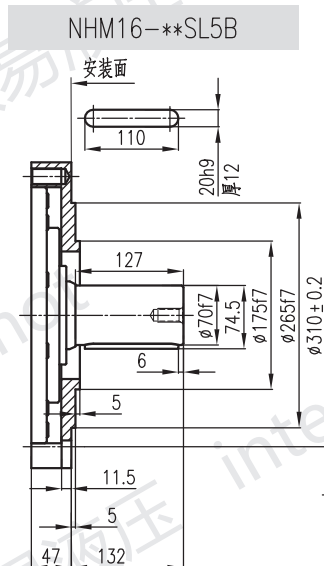
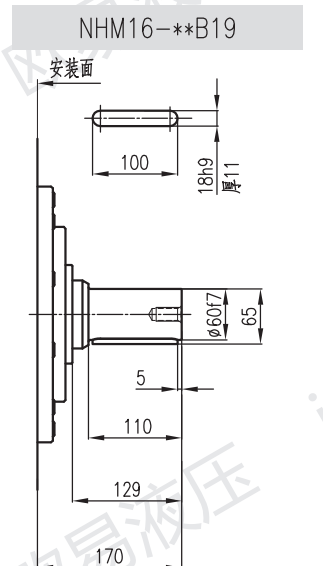
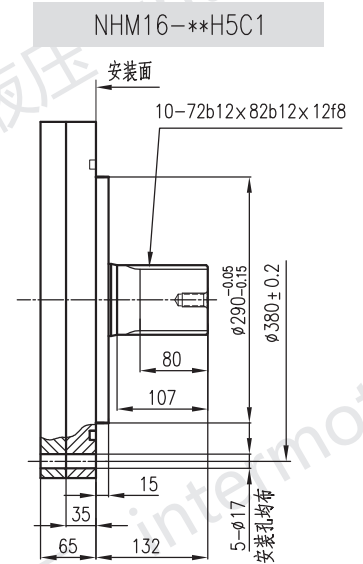
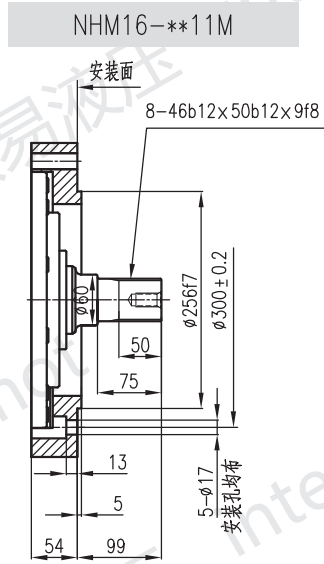
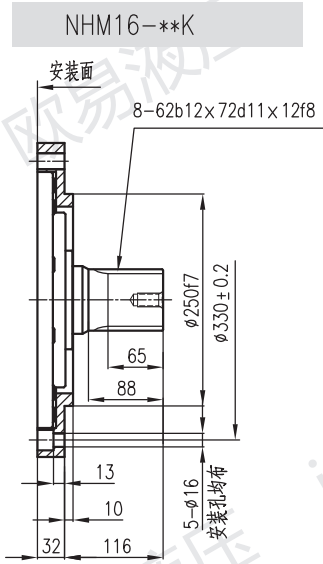
NHM16-**SM4



NHM16-**N



NHM(S)16-1400~2400 安装联接尺寸图



NHM

GHM

FMB

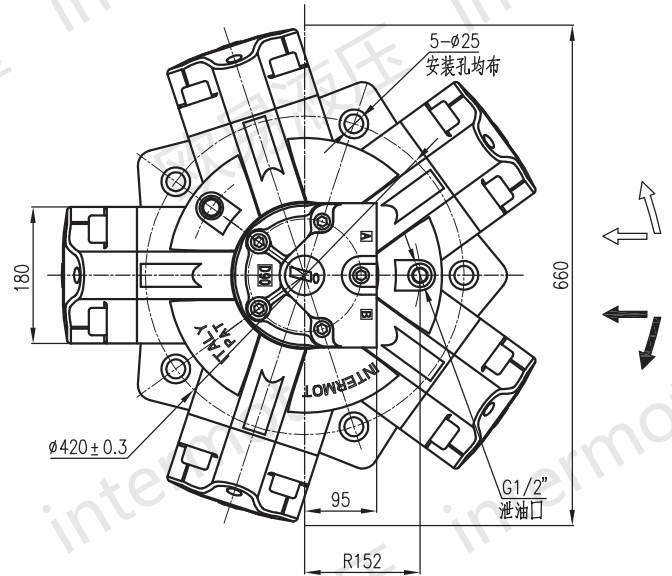
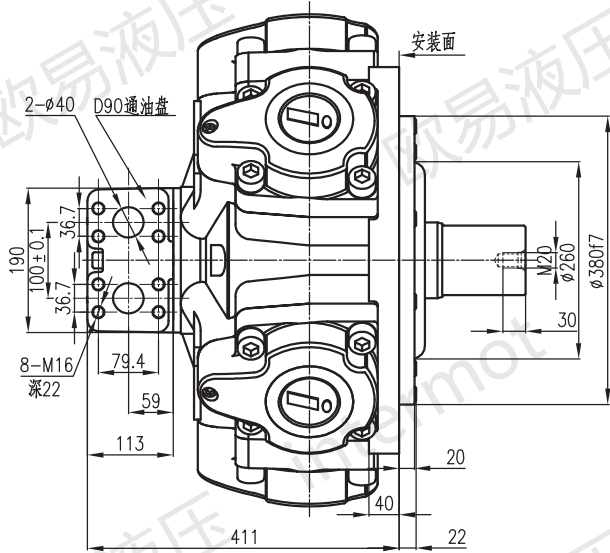
FMC

F

CM

EPMZ

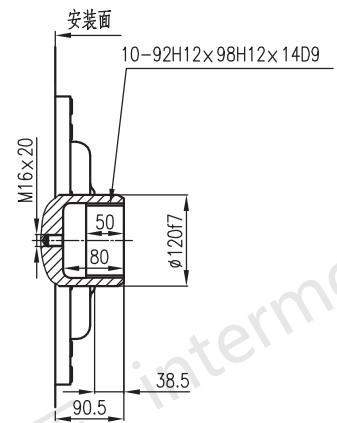
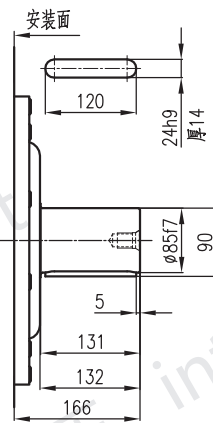
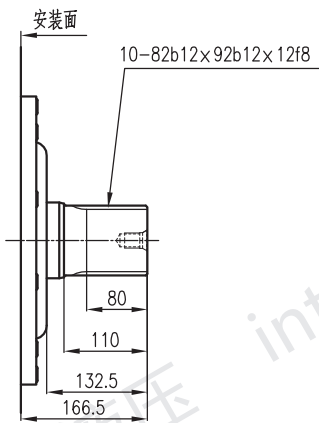
NHM(S)31-2500~5000 安装联接尺寸图



标准外花键: NHM31-**

标准平键: NHM31-**B

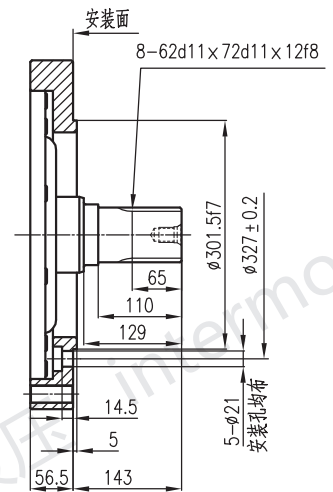
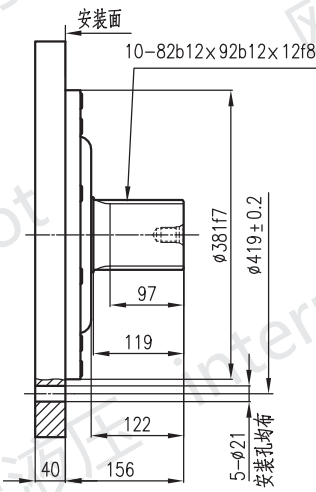
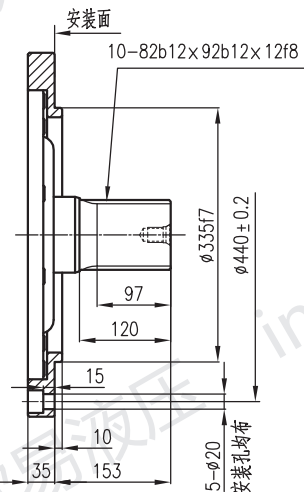
标准内花键: NHM31-**I



NHM31-**N2

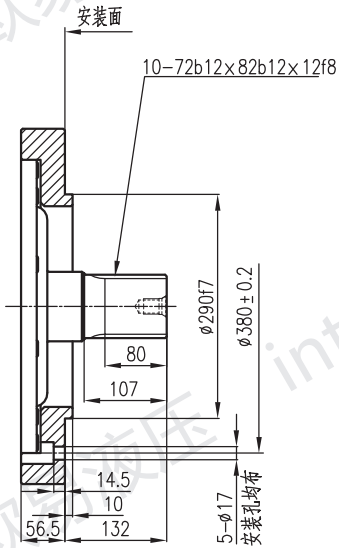
NHM31-**H6

NHM31-**-16M

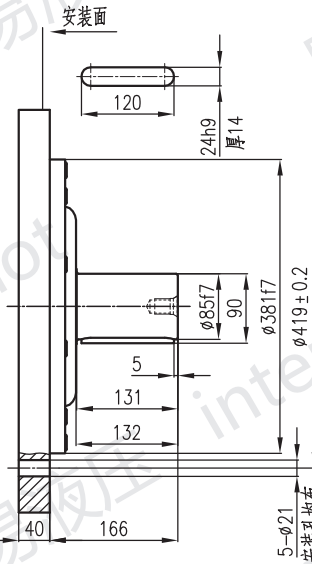


NHM(S)31-2500~5000 安装联接尺寸图

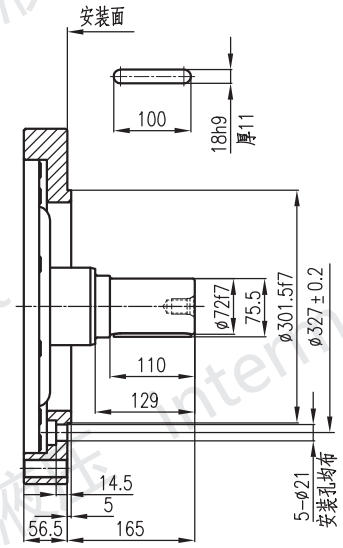
NHM31-**-H5C



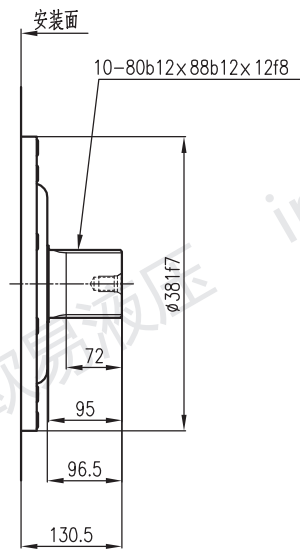
NHM31-**-H6B



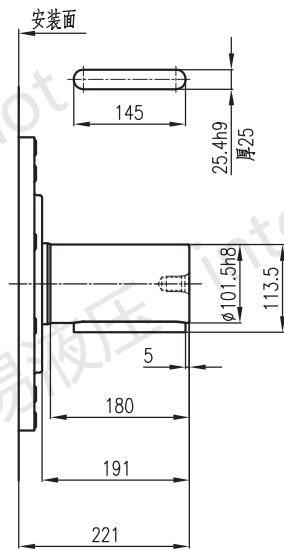
NHM31-**-B0-16M



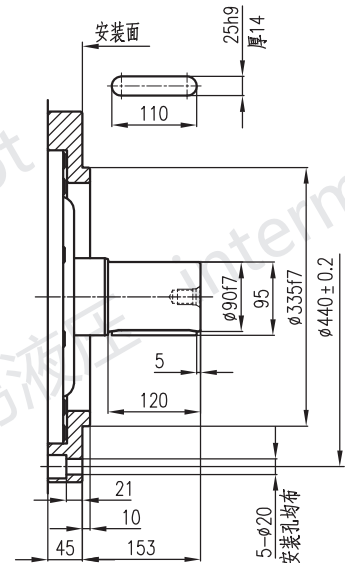
NHM31-**-SL7



NHM31-**-B10

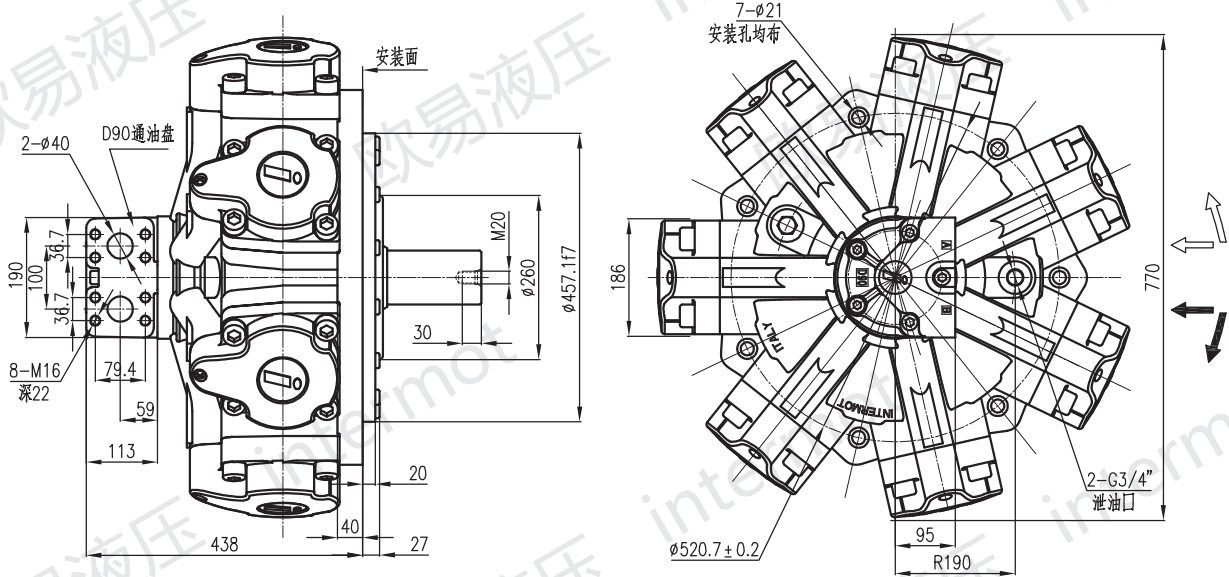


NHM31-**-B49



INTERMOT
HYDRAULIC MOTOR
英特姆液压马达

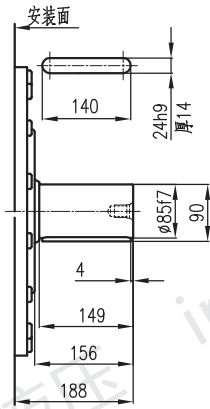
NHM(S)70-4600~5400 安装联接尺寸图



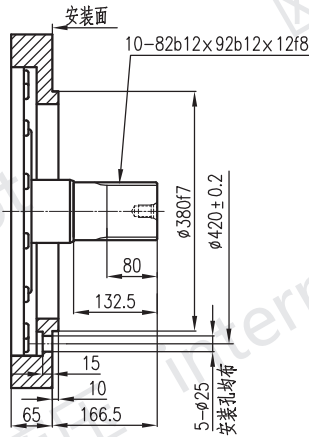
标准平键: NHM70-**-B

NHM70-**-A1

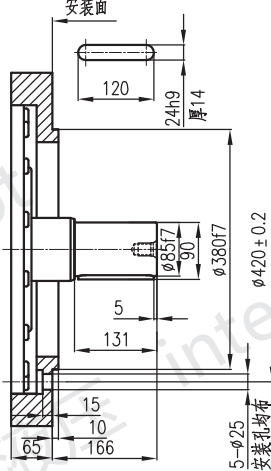
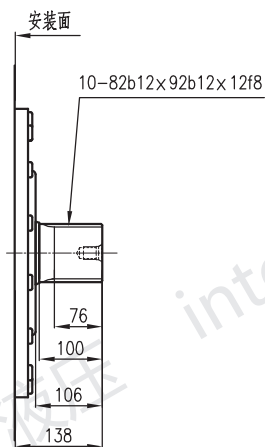
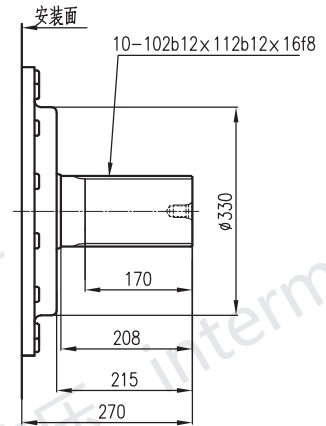
NHM70-**-A3



NHM70-**-A6



NHM70-**-B1

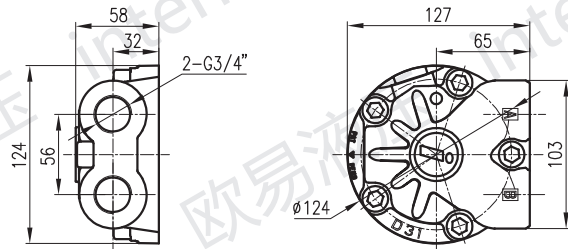


通油盘

标准通油盘

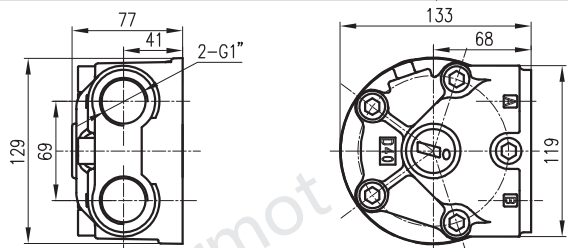
D31

此通油盘的油口为G3/4"，适用于NHM1\NHM2
\NHM3\NHM6系列马达



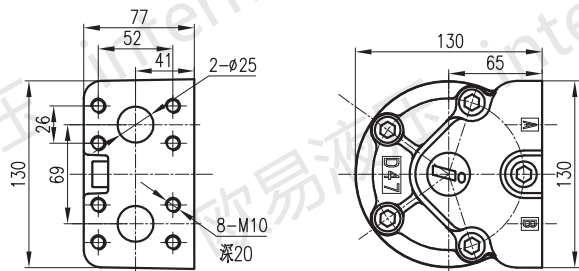
D40

此通油盘的油口为G1"，适用于NHM8\NHM11
系列马达及小排量马达高速运转工况



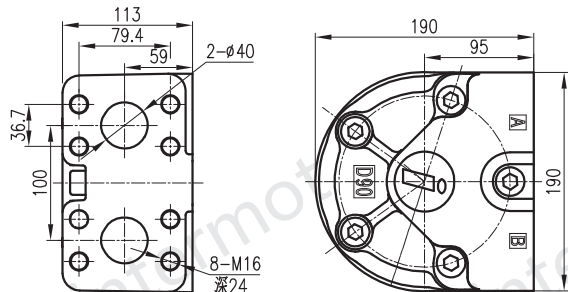
D47

此通油盘的油口为φ25的法兰连接型式，适用于
NHM16系列马达



D90

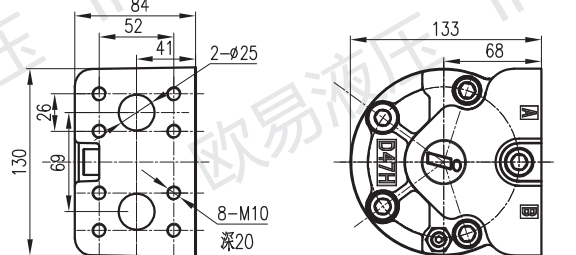
大流量通油盘，油口为φ40的法兰连接型式，适用于
NHM31\NHM70系列马达



内冲洗通油盘

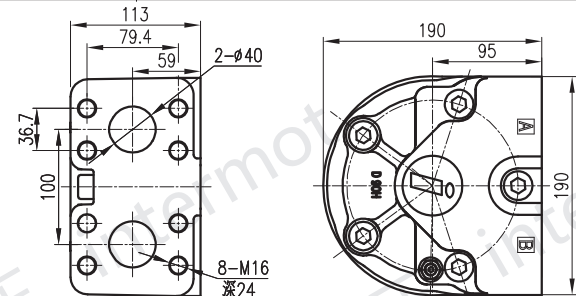
D47H

此通油盘的油口为φ25的法兰连接型式，适用于
NHMH6/NHMH8/NHMH11/NHMH16/系列马达
(仅用于单向旋转的工况)



D90H

大流量通油盘，油口为φ40的法兰连接型式，适用于
NHMH31\NHMH70系列马达
(仅用于单向旋转的工况)



*如果马达需长时间在较高转速下在运转,建议选用内冲洗通油盘,详细资料可联系本公司。
*同一系列马达可选用不同型号的通油盘,详细资料可联系本公司。

NHM

GHM

FMB

FMC

F

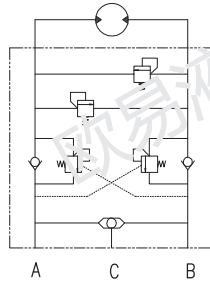
CM

EPMZ

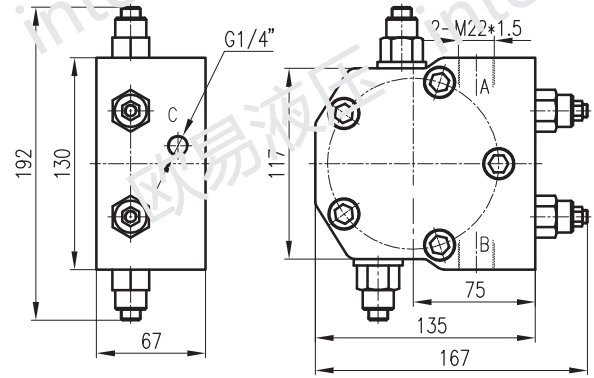
集成式通油盘

D60221

双向平衡阀
双向过载阀
梭阀
额定压力 25MPa
额定流量 35L/min

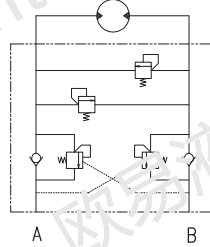


A口进油, 马达顺时针转(从轴端看)

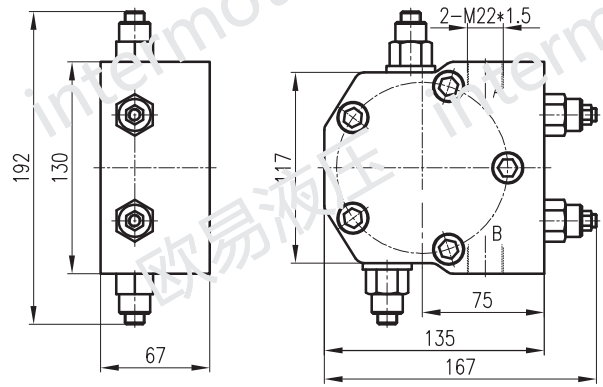


D60220

双向平衡阀
双向过载阀
额定压力 25MPa
额定流量 35L/min

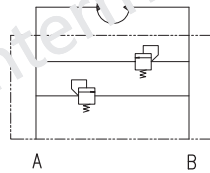


A口进油, 马达顺时针转(从轴端看)

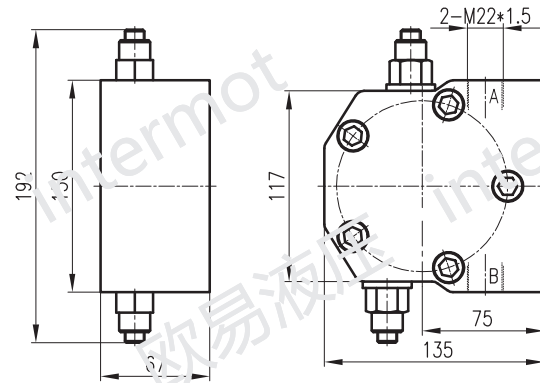


D6002

双向过载阀
额定压力 25MPa
额定流量 35L/min
A口进油, 马达
顺时针转(从轴端看)

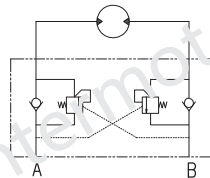


A口进油, 马达顺时针转(从轴端看)

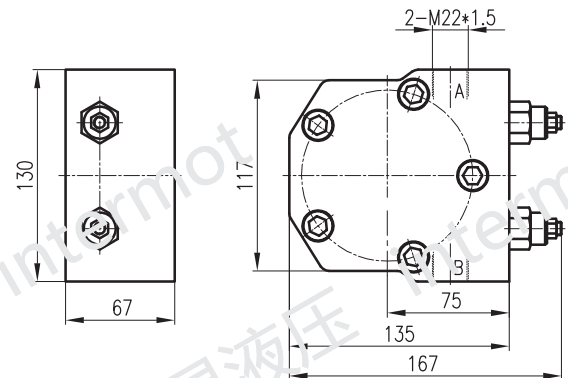


D602

双向平衡阀
额定压力 25MPa
额定流量 35L/min
A口进油, 马达
顺时针转(从轴端看)

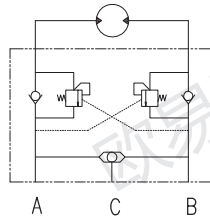


A口进油, 马达顺时针转(从轴端看)

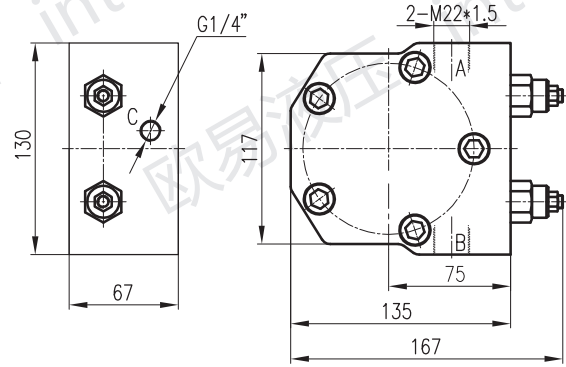


集成式通油盘

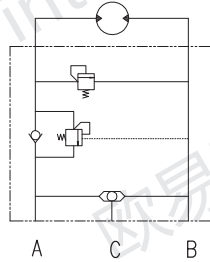
D60201
双向平衡阀
梭阀
额定压力 25MPa
额定流量 35L/min



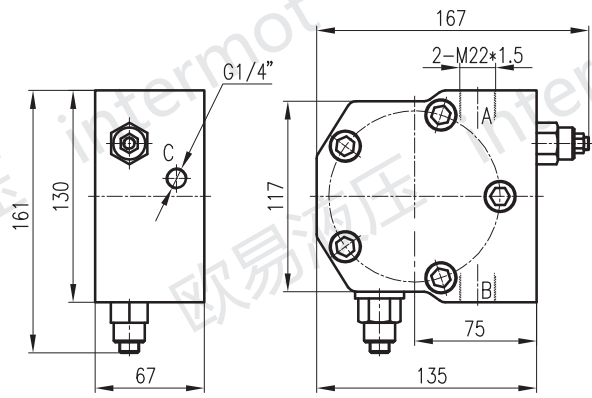
A口进油, 马达顺时针转(从轴端看)



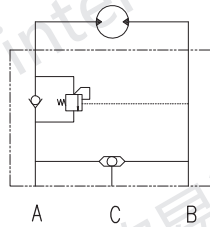
D60111
单向平衡阀
单向过载阀
梭阀
额定压力 25MPa
额定流量 35L/min



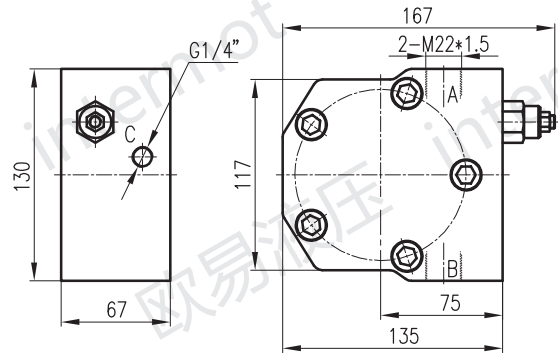
A口进油, 马达顺时针转(从轴端看)



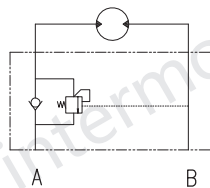
D60101
单向平衡阀
梭阀
额定压力 25MPa
额定流量 35L/min



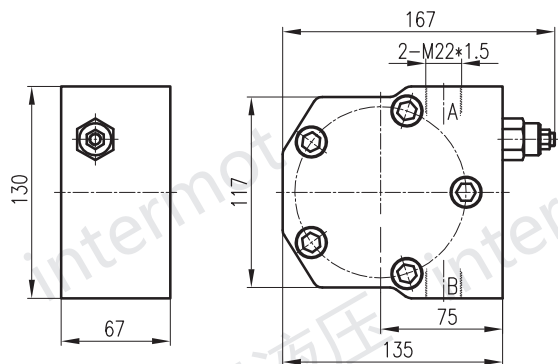
A口进油, 马达顺时针转(从轴端看)



D601
单向平衡阀
额定压力 25MPa
额定流量 35L/min



A口进油, 马达顺时针转(从轴端看)



NHM

GHM

FMB

FMC

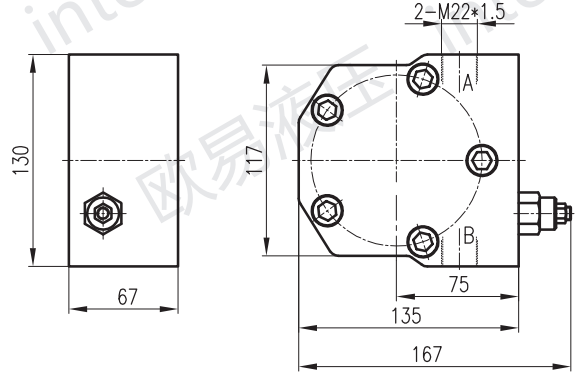
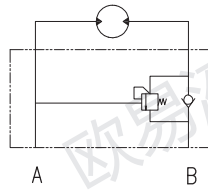
F

CM

EPMZ

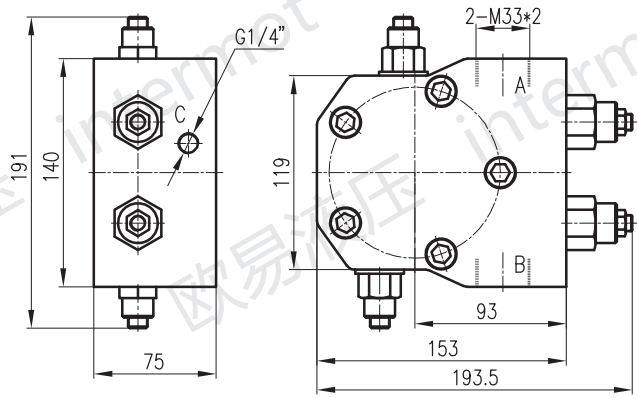
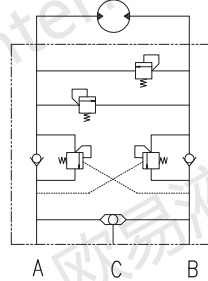
集成式通油盘

D601-1
单向平衡阀
额定压力 25MPa
额定流量 35L/min



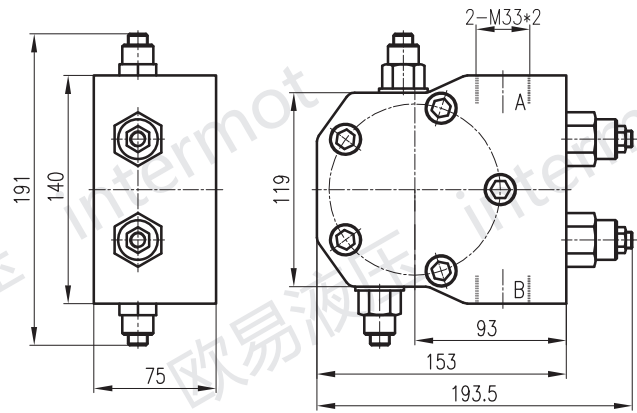
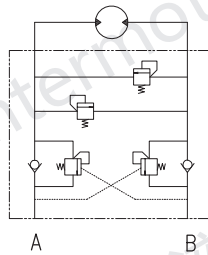
A口进油, 马达顺时针转(从轴端看)

D120221
双向平衡阀
双向过载阀
梭阀
额定压力 25MPa
额定流量 70L/min



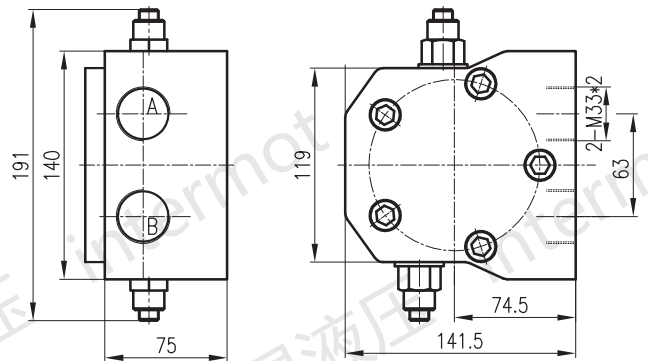
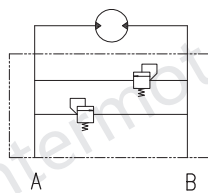
A口进油, 马达顺时针转(从轴端看)

D120220
双向平衡阀
双向过载阀
额定压力 25MPa
额定流量 70L/min



A口进油, 马达顺时针转(从轴端看)

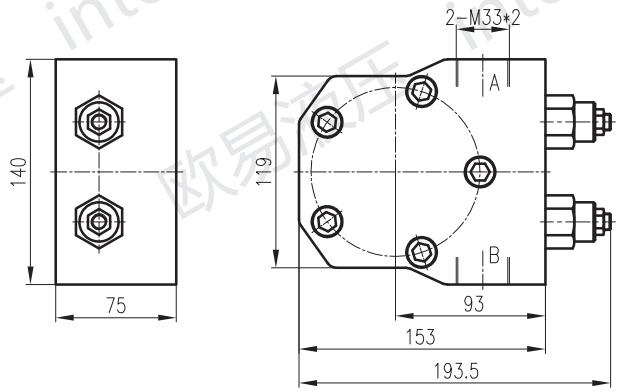
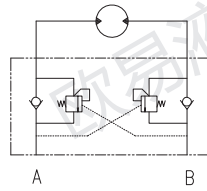
D12002
双向过载阀
额定压力 25MPa
额定流量 70L/min



A口进油, 马达顺时针转(从轴端看)

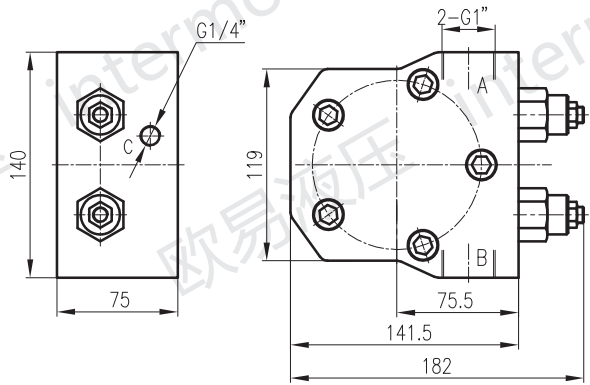
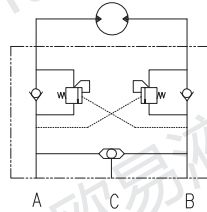
集成式通油盘

D1202
双向平衡阀
额定压力 25MPa
额定流量 70L/min



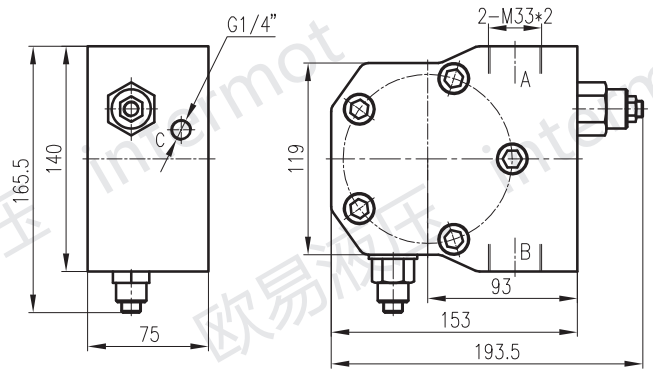
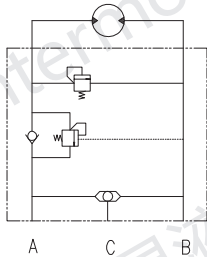
A口进油, 马达顺时针转(从轴端看)

D120201
双向平衡阀
梭阀
额定压力 25MPa
额定流量 70L/min



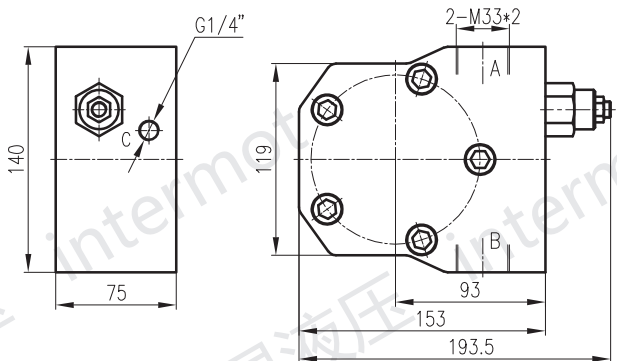
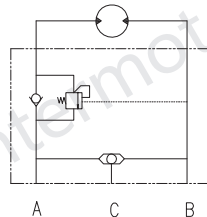
A口进油, 马达顺时针转(从轴端看)

D120111
单向平衡阀
单向过载阀
梭阀
额定压力 25MPa
额定流量 70L/min



A口进油, 马达顺时针转(从轴端看)

D120101
单向平衡阀
梭阀
额定压力 25MPa
额定流量 70L/min



A口进油, 马达顺时针转(从轴端看)

NHM

GHM

FMB

FMC

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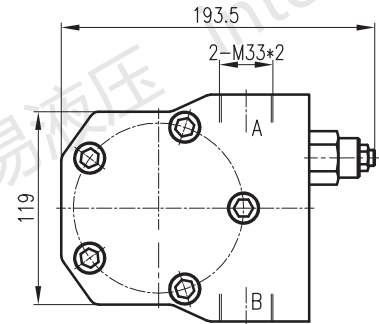
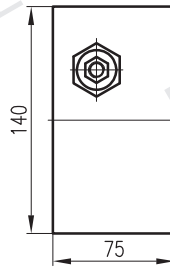
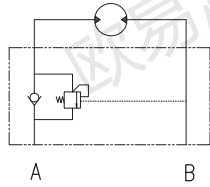
CM

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集成式通油盘

NHM

D1201
单向平衡阀
额定压力 25MPa
额定流量 70L/min

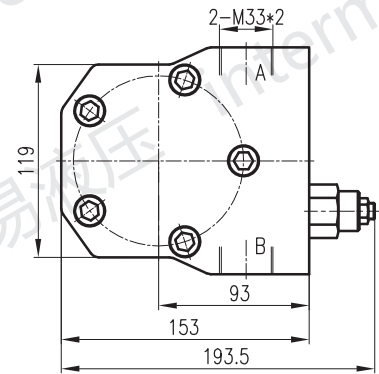
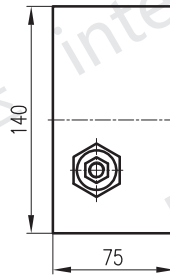
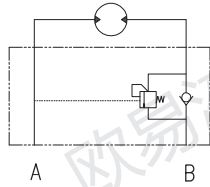


A口进油, 马达顺时针转(从轴端看)

GHM

FMB

D1201-1
单向平衡阀
额定压力 25MPa
额定流量 70L/min

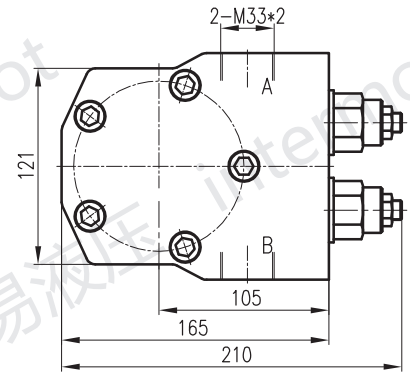
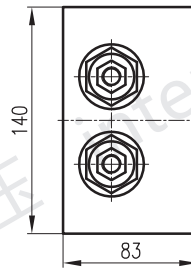
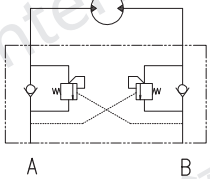


A口进油, 马达顺时针转(从轴端看)

FMC

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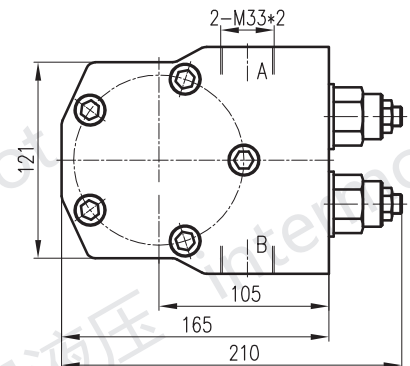
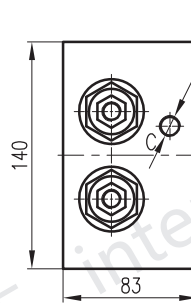
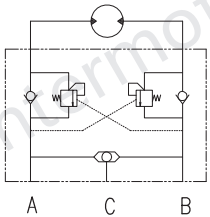
D2402
双向平衡阀
额定压力 25MPa
额定流量 140L/min



A口进油, 马达顺时针转(从轴端看)

CM

D240201
双向平衡阀
梭阀
额定压力 25MPa
额定流量 140L/min

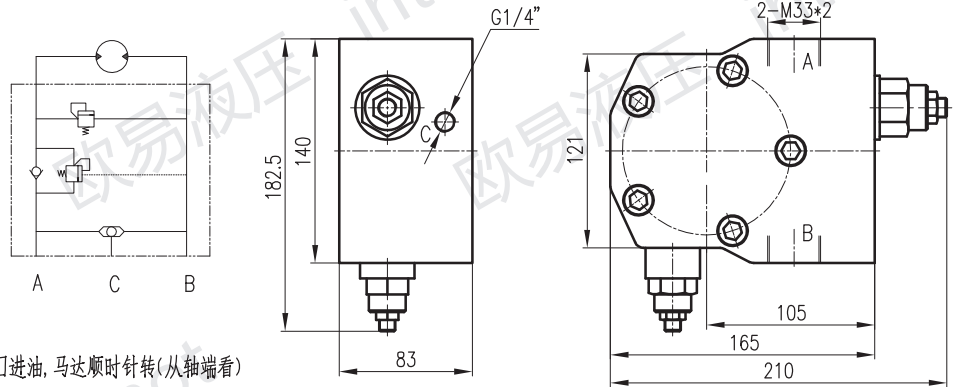


A口进油, 马达顺时针转(从轴端看)

EPMZ

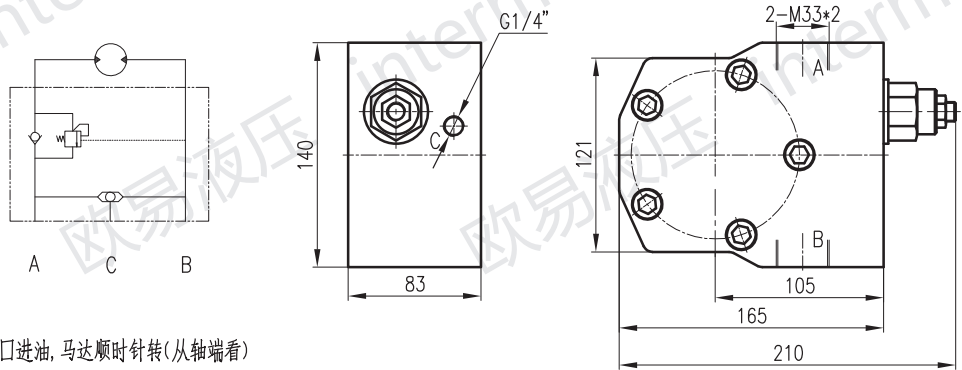
集成式通油盘

D240111
单向平衡阀
单向过载阀
梭阀
额定压力 25MPa
额定流量 140L/min



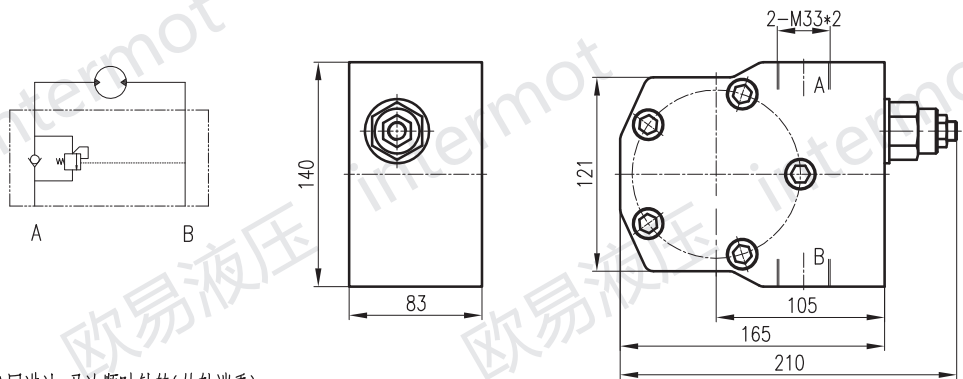
A口进油, 马达顺时针转(从轴端看)

D240101
单向平衡阀
梭阀
额定压力 25MPa
额定流量 140L/min



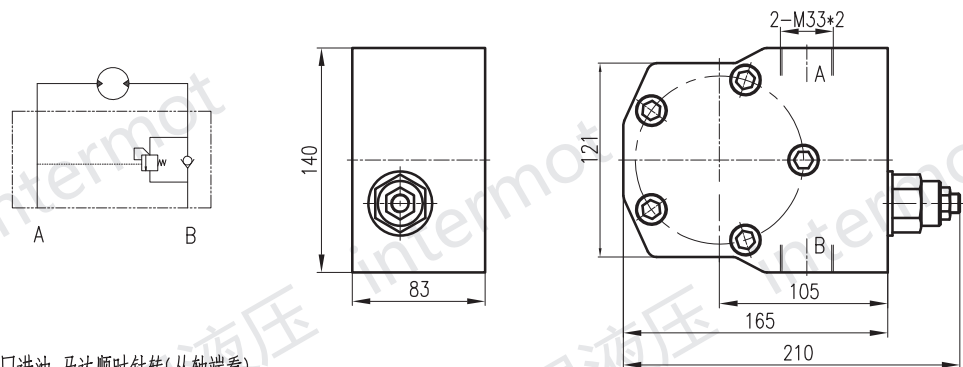
A口进油, 马达顺时针转(从轴端看)

D2401
单向平衡阀
额定压力 25MPa
额定流量 140L/min



A口进油, 马达顺时针转(从轴端看)

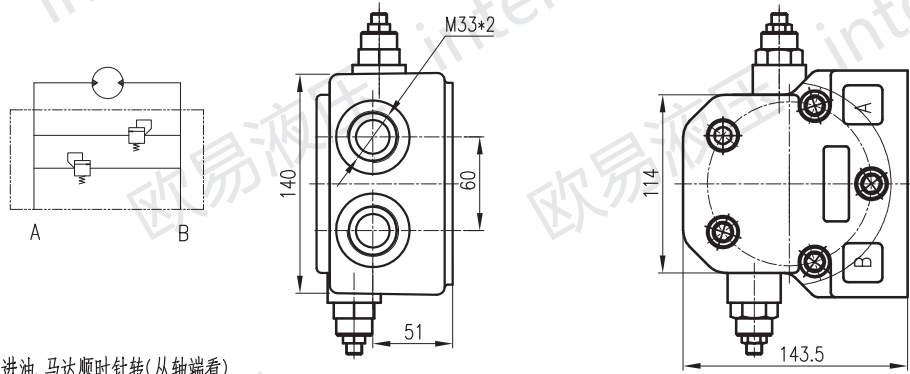
D2401-1
单向平衡阀
额定压力 25MPa
额定流量 140L/min



A口进油, 马达顺时针转(从轴端看)

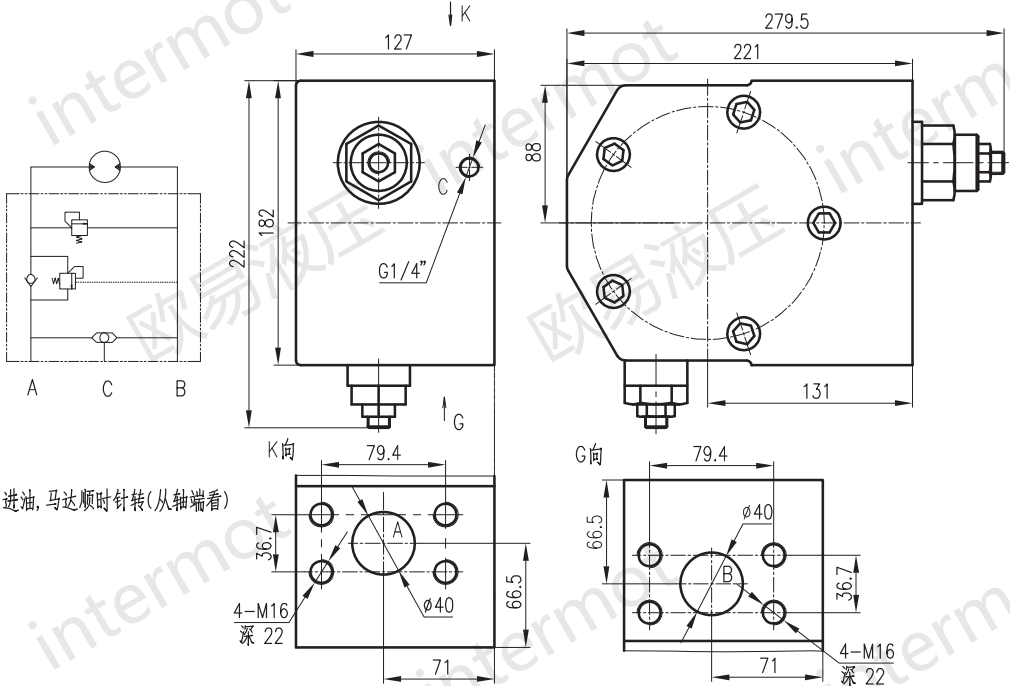
集成式通油盘

D24002
双向过载阀
额定压力 25MPa
额定流量 140L/min



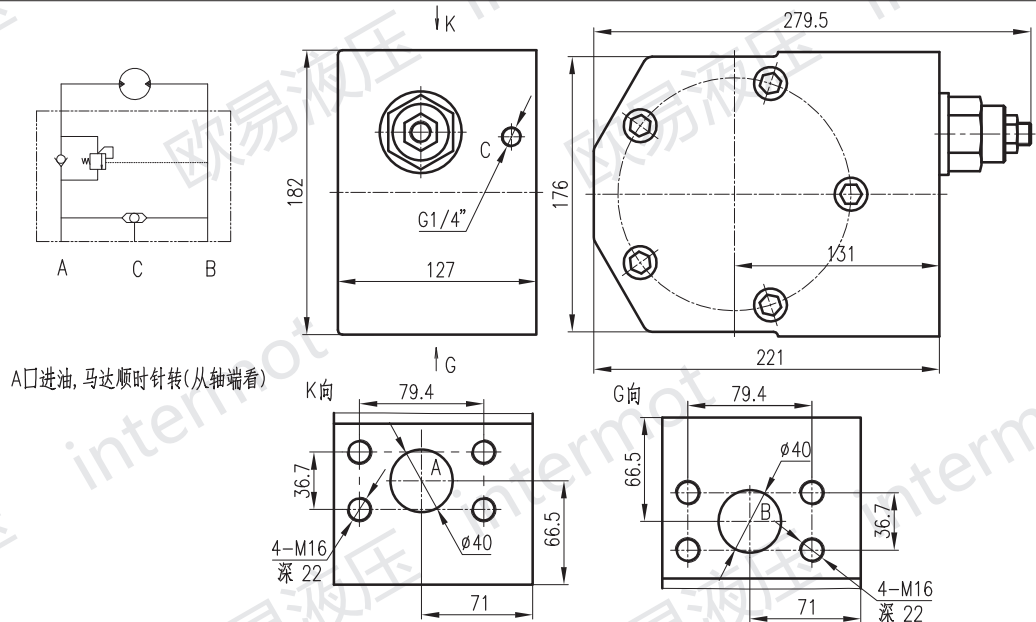
A口进油, 马达顺时针转(从轴端看)

D480111
单向平衡阀
单向过载阀
梭阀
额定压力 25MPa
额定流量 300L/min



A口进油, 马达顺时针转(从轴端看)

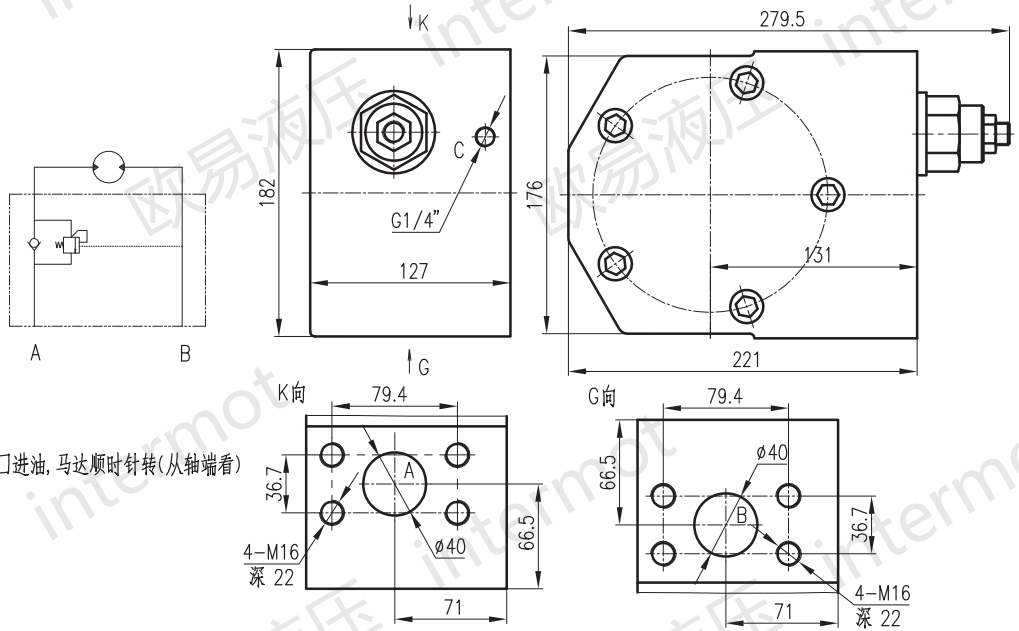
D480101
单向平衡阀
梭阀
额定压力 25MPa
额定流量 300L/min



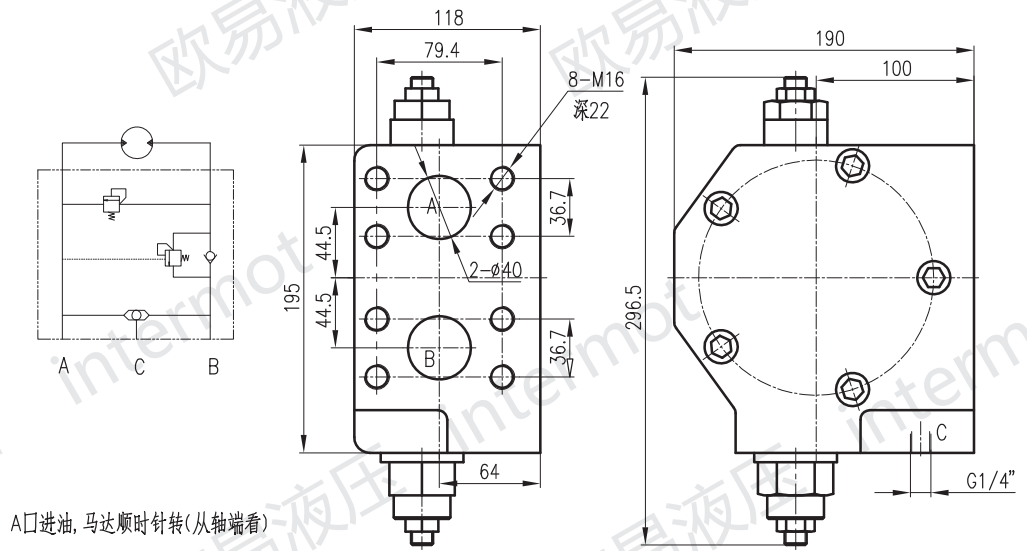
A口进油, 马达顺时针转(从轴端看)

集成式通油盘

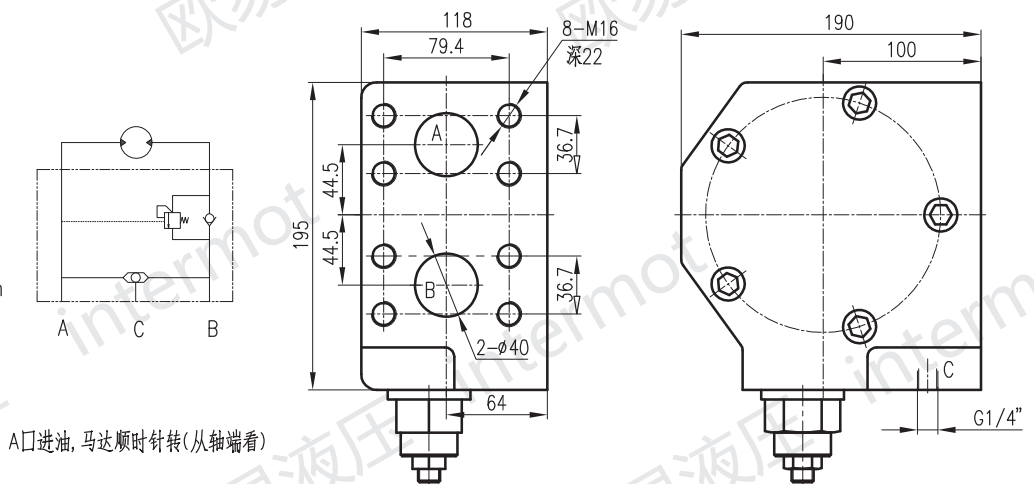
D4801
单向平衡阀
额定压力 25MPa
额定流量 300L/min



D480111(B)
单向平衡阀
单向过载阀
梭阀
额定压力 25MPa
额定流量 300L/min



D480101(B)
单向平衡阀
梭阀
额定压力 25MPa
额定流量 300L/min



NHM

GHM

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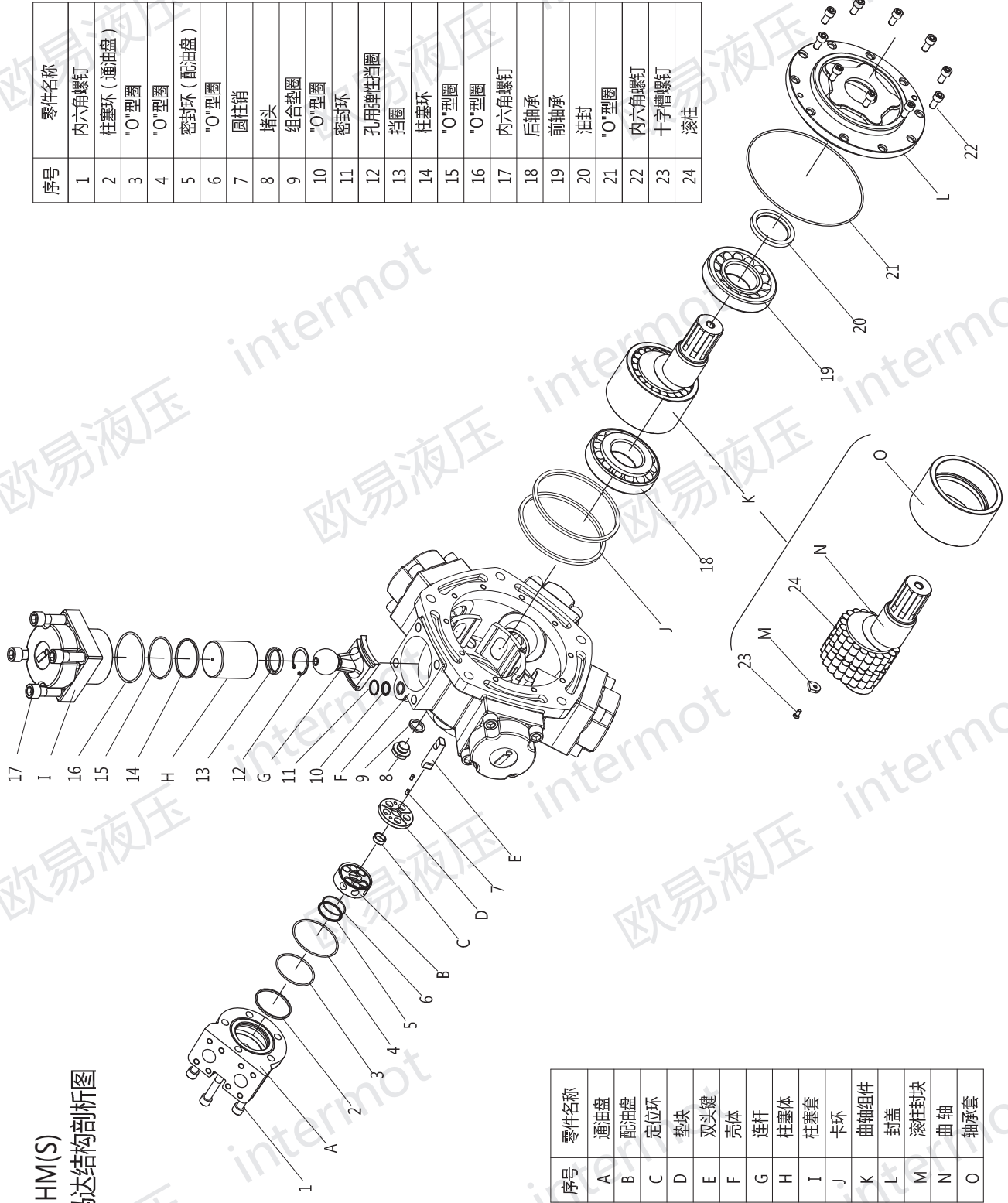
FMC

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NHM(S)
马达结构剖析图



序号	零件名称
1	内六角螺钉
2	柱塞环 (通油盘)
3	"O"型圈
4	"O"型圈
5	密封环 (配油盘)
6	"O"型圈
7	圆柱销
8	堵头
9	组合垫圈
10	"O"型圈
11	密封环
12	孔用弹性挡圈
13	挡圈
14	柱塞环
15	"O"型圈
16	"O"型圈
17	内六角螺钉
18	后轴承
19	前轴承
20	油封
21	"O"型圈
22	内六角螺钉
23	十字槽螺钉
24	滚柱

序号	零件名称
A	通油盘
B	配油盘
C	定位环
D	垫块
E	双头键
F	壳体
G	连杆
H	柱塞体
I	柱塞套
J	卡环
K	曲轴组件
L	封盖
M	滚柱封块
N	曲轴
O	轴承套