



## Low Speed High Torque Orbital Hydraulic Motors 低速大扭矩摆线液压马达

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### BM4 (SMH/STG/SMW) Series Technical Information

### BM4 (SMH/STG/SMW) 系列马达 技术参数



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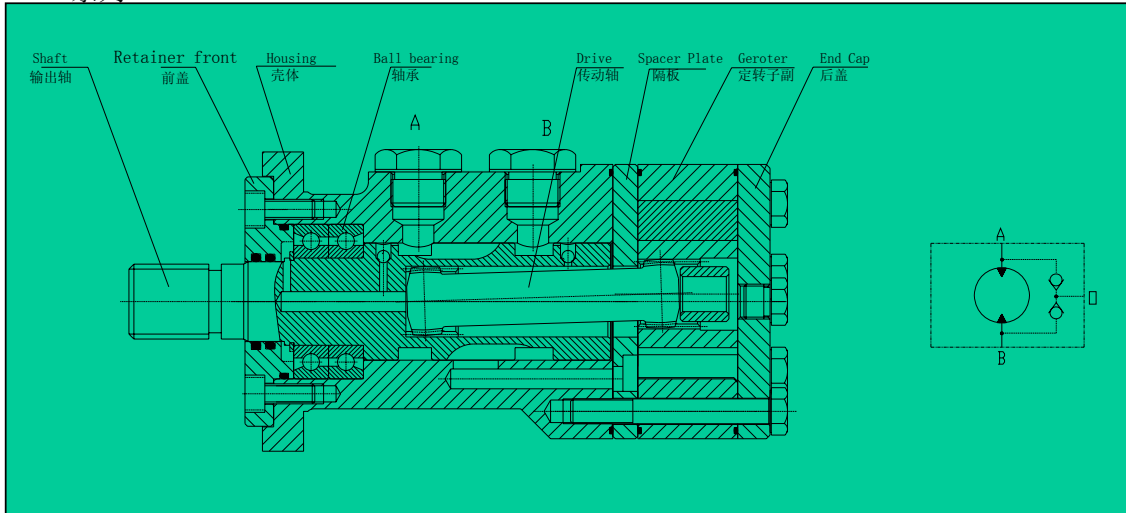
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2014-10

**BM4 Series**

BM4系列



- Design Features
- 结构特点
- Geroler design, including ring, star, needle
- 镶齿式定转子副设计
- Use high pressure capacity shaft seal
- 采用耐高压轴密封
- Direction of shaft rotation and speed can be controlled easily and smoothly
- 可灵活平滑地控制马达的旋转方向和转速
- Big diameter dimension Geroler than SMR
- 定转子副直径尺寸比BM3大
- Able to work under high pressure
- 能承受更高的压力
- Extended motor life
- 超长整机使用寿命
- Extended leak-free performance
- 超长的密封部件使用寿命
- 主要应用于石油，煤炭机械，小型吊车等工程机械。

• Specification Data

BM4轴配流液压马达

•性能参数

Displacement(排量) cc/r		245	310	390	490	630	800	
Max.Speed 最高转速	RPM	Continuous (连续)	320	250	200	160	125	95
		Intermittent (不连续)	350	280	230	200	160	120
Flow 流量	LPM	Continuous (连续)	80	80	80	80	80	80
		Intermittent (不连续)	100	100	100	100	100	100
Torque 扭矩	N. m.	Continuous (连续)	400	500	550	680	780	800
		Intermittent (不连续)	420	520	580	700	800	820
Pressure drop 压力(两油口压差)	Δ Bar	Continuous (连续)	140	140	140	140	140	140
		Intermittent (不连续)	150	150	150	150	150	150
Maximum Case Pressure -- Without Case Drain (不接外泄油口时,壳体最大承受压力) ---90 Bar								

Max. pressure is the allowed pressure at the inlet port. Rated pressure is the working pressure difference between inlet and outlet port.

A simultaneous maximum RPM and maximum pressure NOT recommended

Maximum pressure or maximum RPM operation: 10% of every minute

*Recommended fluids:* Anti-wear type of hydraulic oil. Viscosity recommended

37-73 cSt. Recommended filtration ISO18/13. Maximum operating

temperature recommended 80±C

Special high pressure capacity shaft seal ensures back pressure up to 10 Mpa. Recommended preferable back pressure 5 Mpa. Case drain line is recommended when back pressure higher than 5 Mpa. When case drain line is used, make sure the motor is always filled with oil. The motor life is benefited from a case drain line.

It is highly recommended that the motor runs at 30% of rated pressure for at least one hour before application of full load. Be sure the motor is filled with fluid prior to any load applications.

•不连续压力是指马达进口允许承受的压力,连续压力指两油口连续工作时的压力差

•马达不允许同时在最大转速和最大压力的工况下使用

•不连续运行工况 --- 指马达在此工况下每分钟运行不超过10%

•推荐液压油:粘度为37-73cSt,过滤精度:ISO18/13,系统最高温度不超过80℃

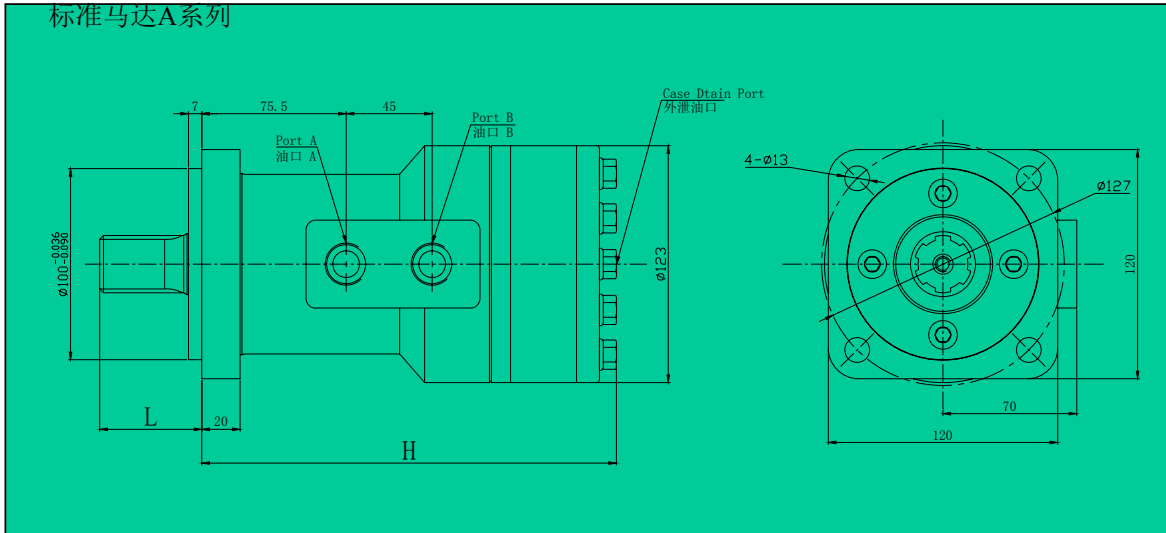
•轴密封可承受10Mpa的背压,推荐马达背压不要超过5Mpa,超过5Mpa时,建议接外泄油管。马达在运行前和运行中,应保证腔体内始终充满液压油,以使马达得到良好的润滑和冷却

•强烈建议马达在满负荷运行前先以30%的负荷运行约1小时,以使马达得到充分的磨合

•BM4 Series Dimensions  
BM4 系列连接尺寸

Standard Motor A Series

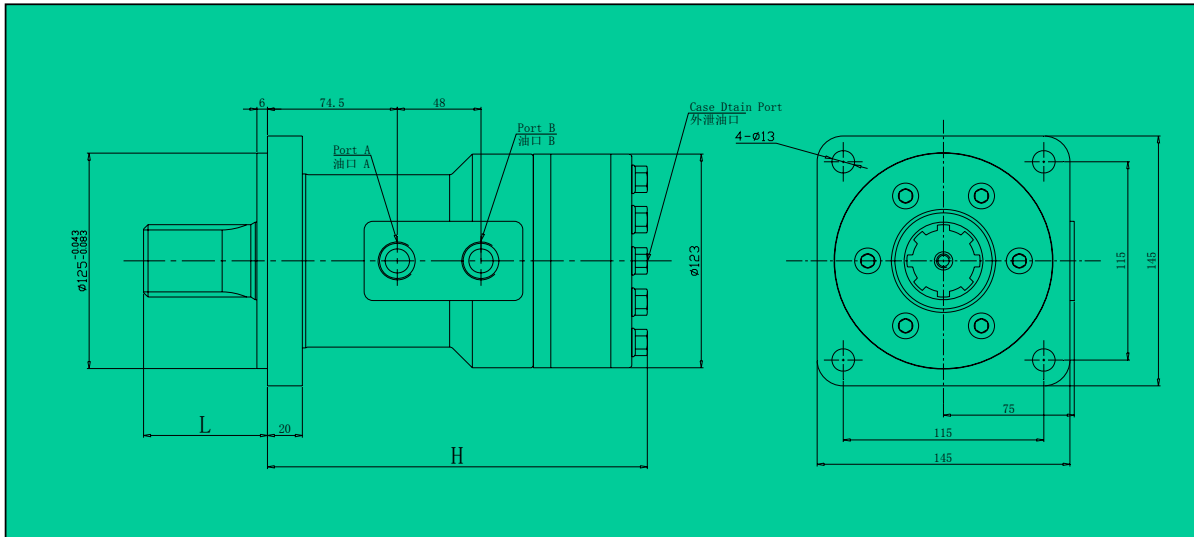
标准马达A系列



Standard Rotation: Viewed From Shaft End, Port A Pressurized --- CW, Port B Pressurized --- CCW

马达标准旋转方向: 面对输出轴轴端, A油口进油, 顺时针旋转, B油口进油, 逆时针旋转

Standard Motor B Series

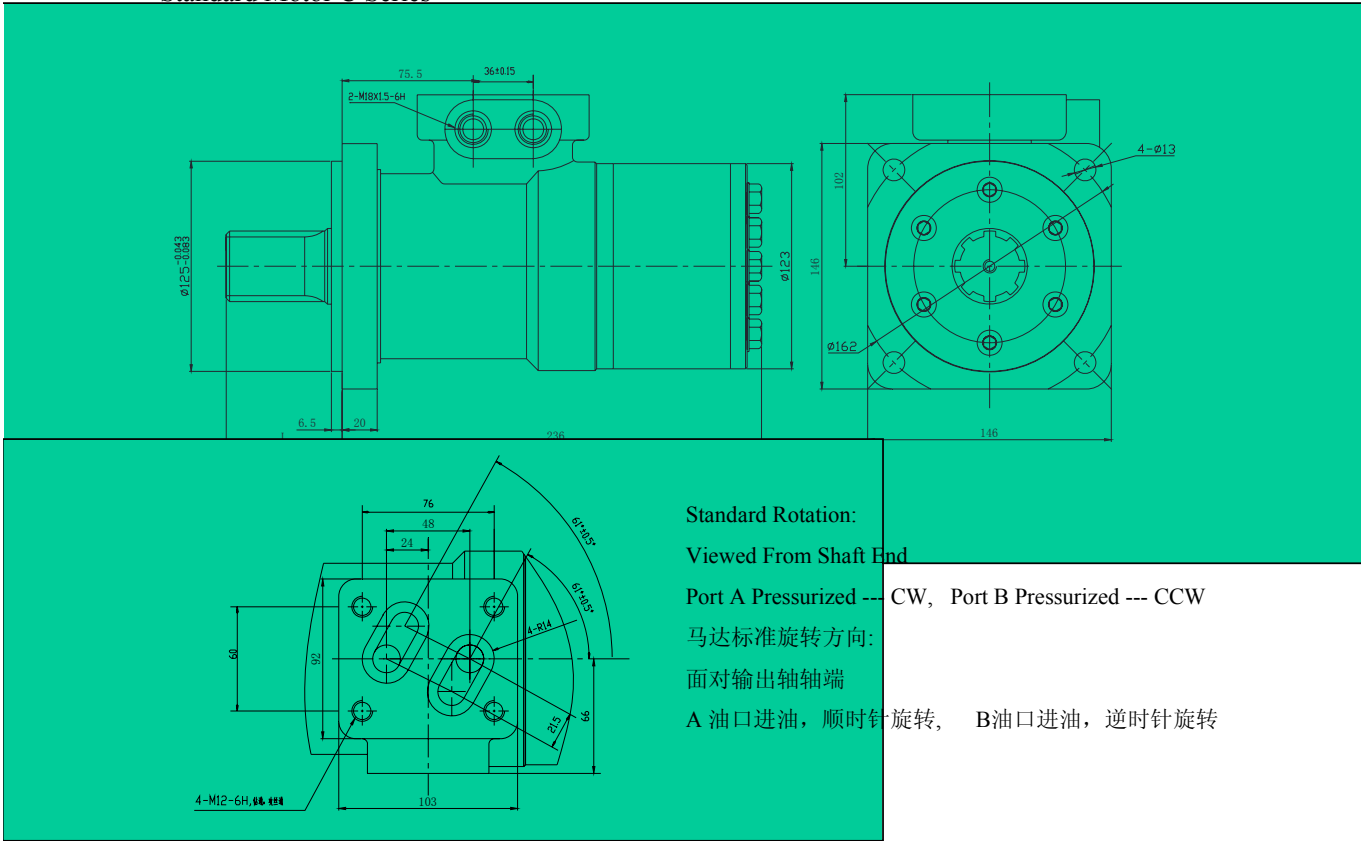


Standard Rotation: Viewed From Shaft End, Port A Pressurized --- CW, Port B Pressurized --- CCW

马达标准旋转方向: 面对输出轴轴端, A油口进油, 顺时针旋转, B油口进油, 逆时针旋转

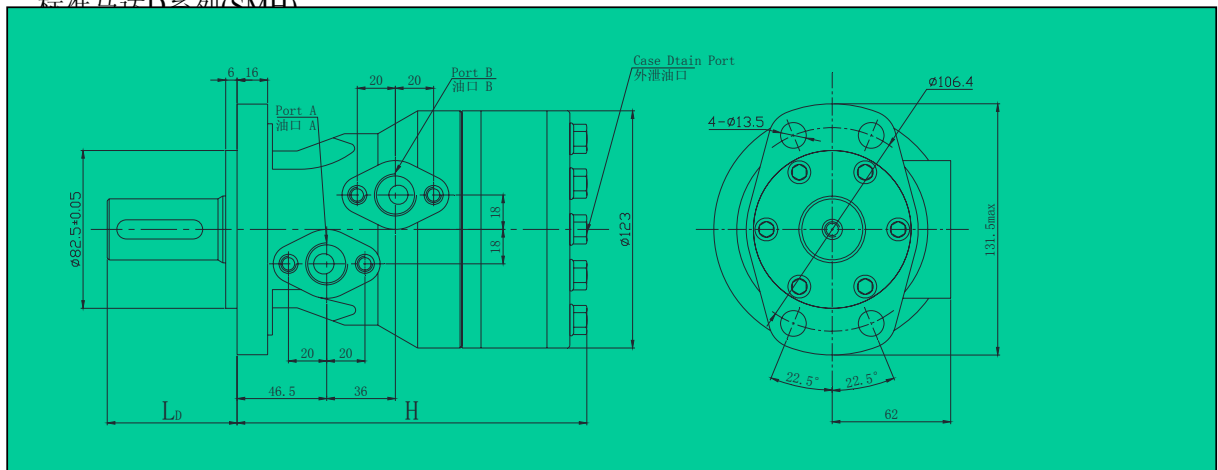
Standard Motor C Series

BM4 轴配流液压马达



Standard Motor D Series(SMH)

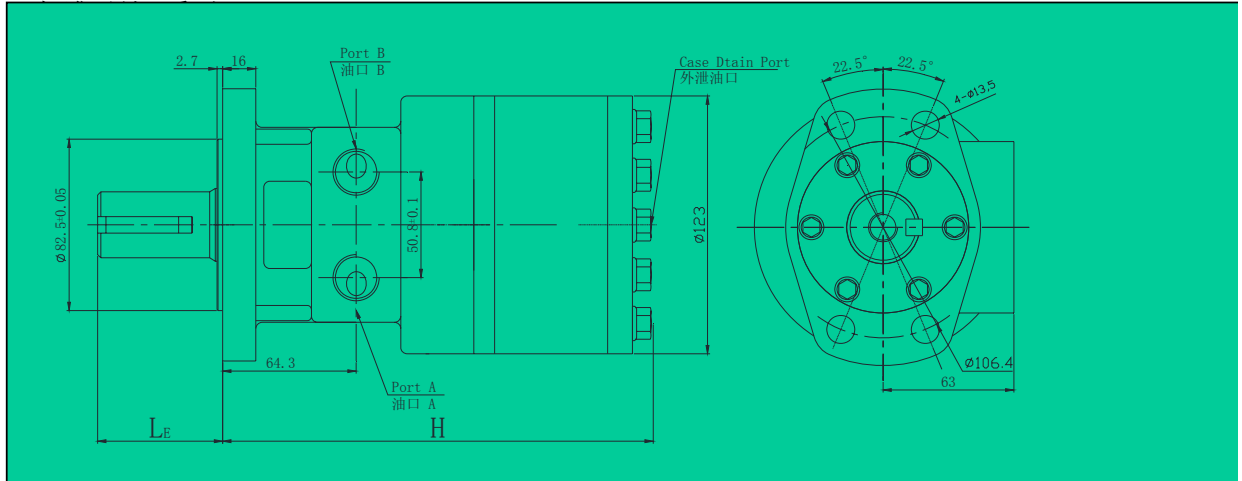
标准马达D系列(SMD)



Standard Rotation: Viewed From Shaft End, Port A Pressurized --- CW, Port B Pressurized --- CCW

马达标准旋转方向: 面对输出轴轴端, A 油口进油, 顺时针旋转, B 油口进油, 逆时针旋转

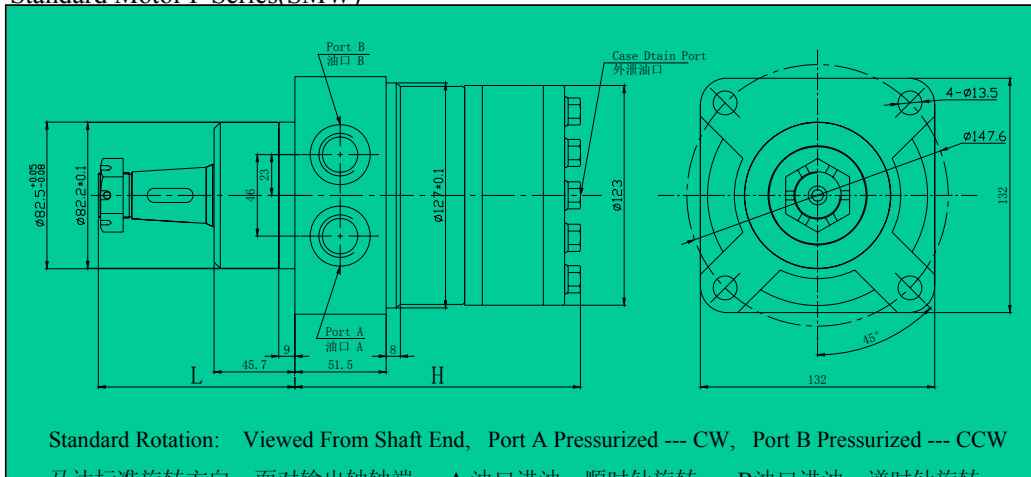
Standard Motor E Series(STG)



Standard Rotation: Viewed From Shaft End, Port A Pressurized --- CW, Port B Pressurized --- CCW

马达标准旋转方向: 面对输出轴轴端, A 油口进油, 顺时针旋转, B油口进油, 逆时针旋转

Standard Motor F Series(SMW)



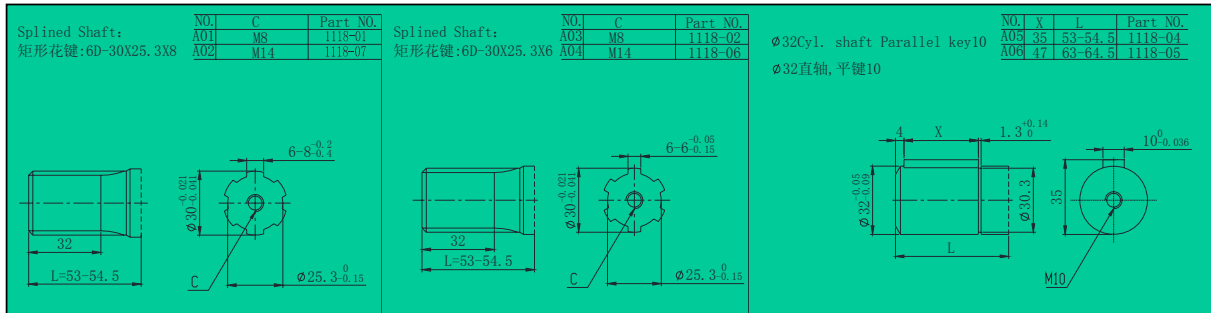
Standard Rotation: Viewed From Shaft End, Port A Pressurized --- CW, Port B Pressurized --- CCW

马达标准旋转方向: 面对输出轴轴端, A 油口进油, 顺时针旋转, B油口进油, 逆时针旋转

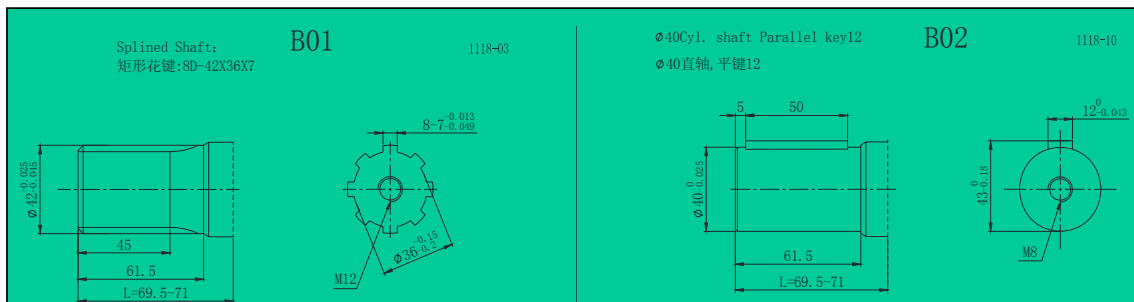
Displ. 排量 cc/r		245	310	390	490	630	800
A Series	A系列	211	219	227	238	253	273
B Series	B系列	213	221	229	240	255	275
C Series	C系列	213	221	229	240	255	275
D Series	D系列	179	187	195	206	221	241
E Series	E系列	181	189	197	208	223	243
F Series	F系列	156	164	172	183	198	218

Dimensions ---Shafts A Series  
A系列马达输出轴尺寸

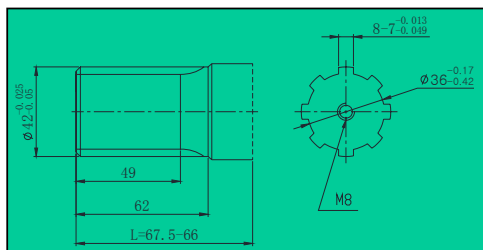
BM4轴配流液压马达



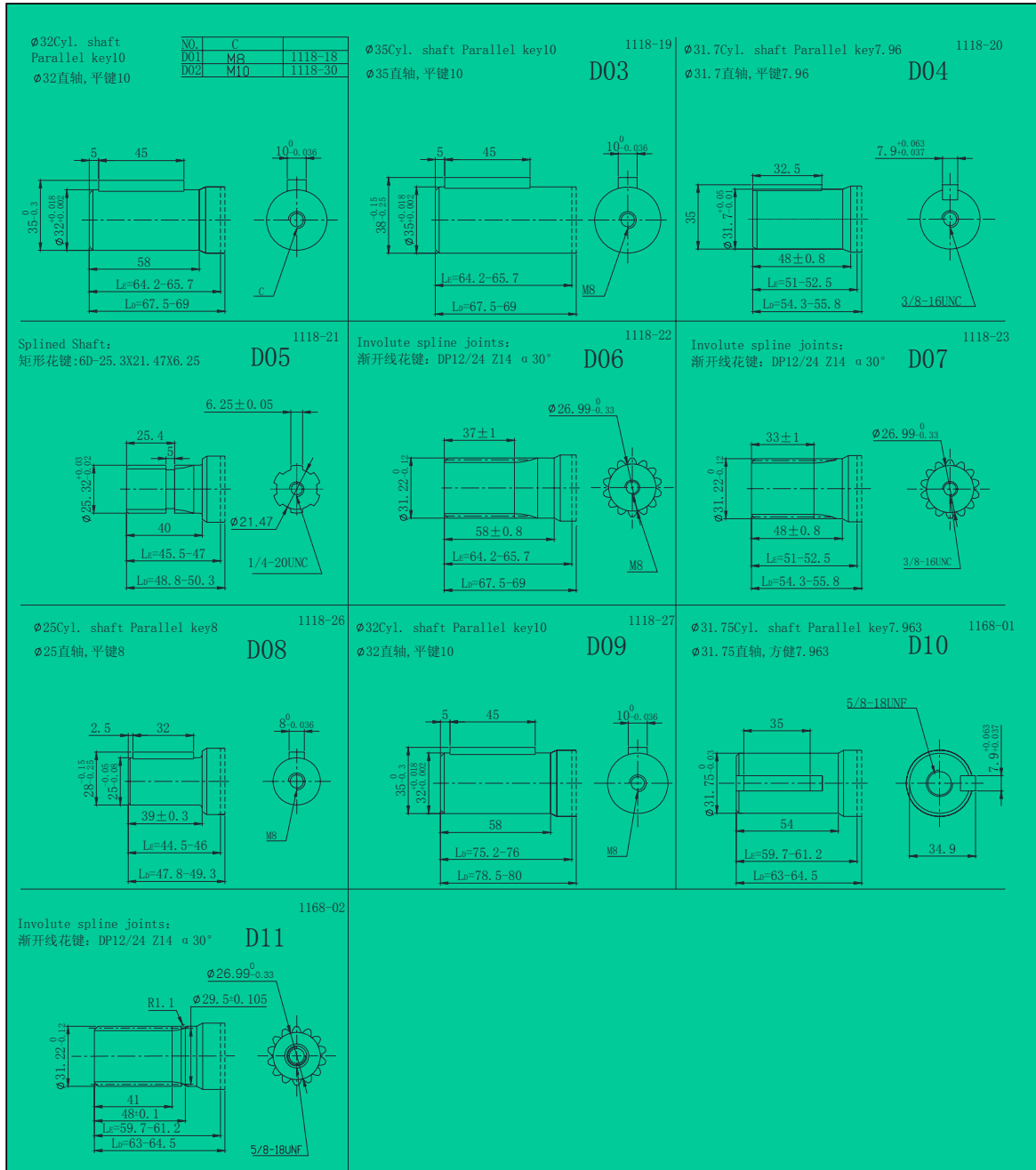
Dimensions ---Shafts B Series  
B系列马达输出轴尺寸



Dimensions ---Shafts C Series  
C系列马达输出轴尺寸



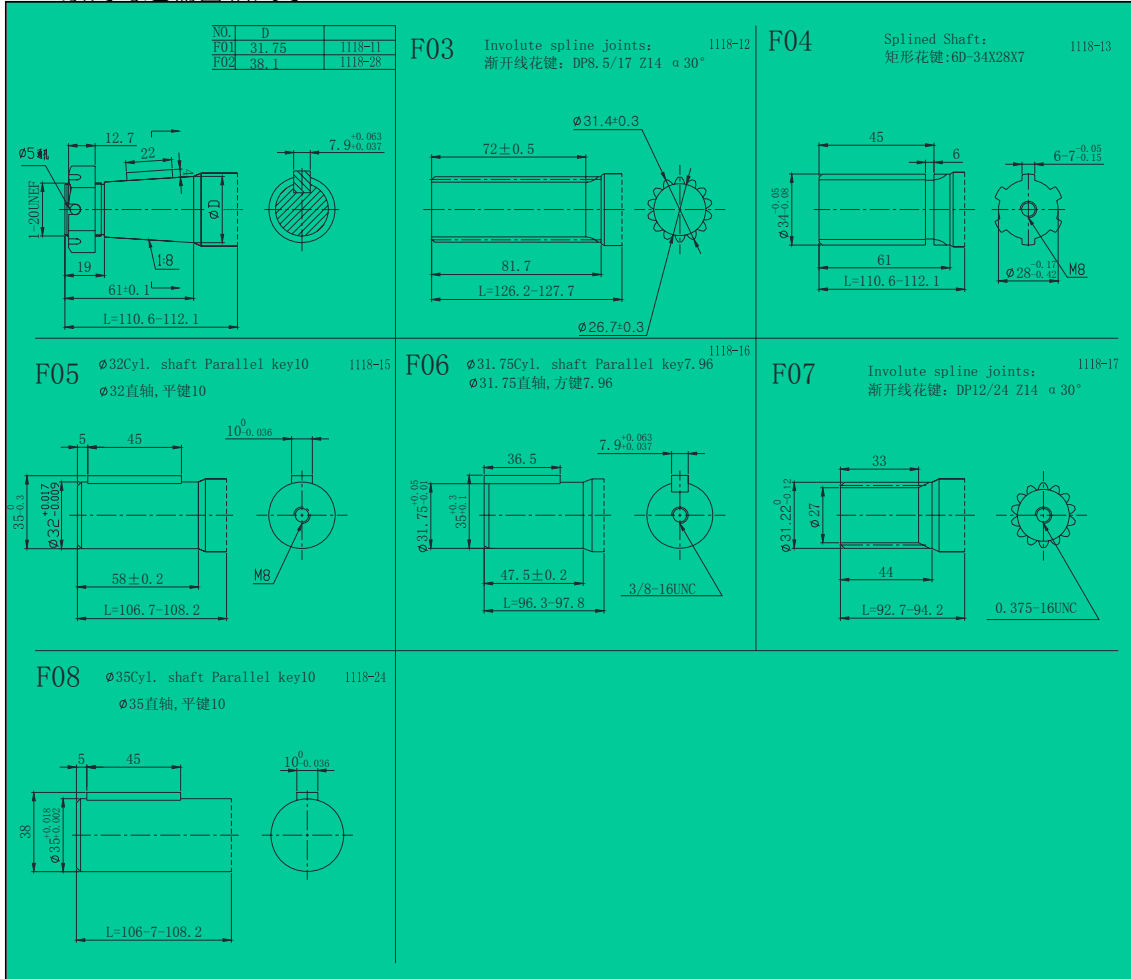
Dimensions ---Shafts D & E Series  
D&E系列马达输出轴尺寸



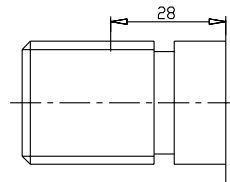
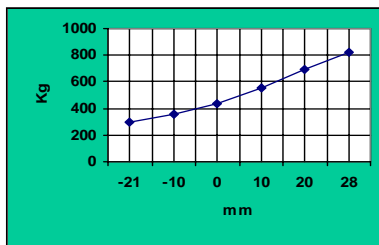


Dimensions ---Shafts F Series  
F系列马达输出轴尺寸

BM4轴配流液压马达



Shaft Side Load Capacity BM4 Series  
BM4系列马达输出轴侧向载荷能力



**Order Information**

Flange&Pilot	Shaft	Port	Displacement cc/r					
			245	310	390	490	630	800
120X120 Flange 4-φ13 Hole Pilot φ100 (A)	6D-30X26X6 (A3)	2-M22X1.5 No Case Drain	151m1122	1123	1124	1125	1126	1127
145X145 Flange 4-φ13 Hole Pilot φ125 (B)	8D-42X36X7 (B1)		151m1182	1183	1184	1185	1186	1187
120X120 Flange 4-φ13 Hole Pilot φ100 (A)	Straight φ32, Flat10X35 (A6)	2-M22X1.5 Case Drain M14X1.5	151m1192	1193	1194	1195	1196	1197
	Straight φ32, Flat10X45 (A5)		151m1172	1173	1174	1175	1176	1177
4 Bolt Rhomb (D)	Straight φ32, Flat10X45 (D1)	Staggerred Port 2- G1/2,Case DrainG1/4	152m0002	0003	0004	0005	0006	0007
	Straight φ35, Flat10X45 (D3)		152m0102	0103	0104	0105	0106	0107
	Straight φ35, Flat10X45(D3)	Staggerred Port2-7/8- 14UNF,Case Drain M14X1.5	152m0112	0113	0114	0115	0116	0117
	Straight φ31.75, Flat7.96 (D4)	Staggerred Port2-7/8- 14UNF,Case Drain 7/16-20UNF	152m0222	0223	0224	0225	0226	0227
145X145 Flange 4-φ13 Hole Pilot φ125(C)	8D-42X36X7 (C1)	Manifold Mount 4- M12, Side Port 2- M18X1.5	153m1112	1113	1114	1115	1116	1117
4 Bolt Rhomb (E)	Straightφ31.75, Flat7.96 (D10)	Aligned Port 2-7/8- 14UNF,Case Drain7/16-20UNF	154m0002	0003	0004	0005	0006	0007
	Splined 14-DP12/24 (D11)		154m0012	0013	0014	1115	0116	0117

**订货信息**

安装法兰	输出轴	油口形式	排量cc/r					
			245	310	390	490	630	800
120x120四方法 兰,止口100(A)	花键轴6D- 30X26X6 (A3)	直油口M22X1.5 内泄	151m1122	1123	1124	1125	1126	1127
145x145四方法 兰,止口125(B)	花键轴8D- 42X36X7 (B1)		151m1182	1183	1184	1185	1186	1187
120x120四方法 兰,止口100(A)	直轴 φ 32, 平键 10X35 (A6)	直油口M22X1.5 外泄油 口M14X1.5	151m1192	1193	1194	1195	1196	1197
	直轴 φ 32, 平键 10X45 (A5)		151m1172	1173	1174	1175	1176	1177
4孔菱形法兰 (D)	直轴 φ 32, 平键 10X45 (D1)	油口2-G1/2交错油口, 外泄G1/4	152m0002	0003	0004	0005	0006	0007
	直轴 φ 35, 平键 10X45 (D3)		152m0102	0103	0104	0105	0106	0107
	直轴 φ 35, 平键 10X45 (D3)	油口2-7/8-14UNF交错 油口,外泄M14X1.5	152m0112	0113	0114	0115	0116	0117
	直轴 φ 31.75, 方 键7.96 (D4)	油口2-7/8-14UNF交错 油口,外泄7/16-20UNF	152m0222	0223	0224	0225	0226	0227
145x145四方法 兰,止口125(C)	花键轴8D- 42X36X7 (C1)	4-M12 板式连接, 侧油 口2-M18X1.5	153m1112	1113	1114	1115	1116	1117
4孔菱形法兰 (E)	直轴 φ 31.75, 方 键7.96 (D10)	油口2-7/8-14UNF横直 油口,外泄7/16-20UNF (D11)	154m0002	0003	0004	0005	0006	0007
	14齿渐开线花键 (D11)		154m0012	0013	0014	1115	0116	0117

**Model Code for BM4 Series Motors**  
**BM4系列马达型号编码**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B	M	4												

Position 1,2,3 --- BM4/SMH/STG/SMW Series Motor

第1, 2, 3位数字, 表示BM4/SMH/STG/SMW系列马达

Position 4,5 ----Displacement, cc/r

第5, 6位数字, 表示马达排量

- 01 ---- 245
- 02 ---- 310
- 03 ---- 390
- 04 ---- 490
- 05 ---- 630
- 06 ---- 800

Position 6 ----Motor Type

第4位数字, 表示马达类型

- A ---- 4Bolt 120X120 Flange, pilotΦ100; 4孔法兰, 120X120, 止口Φ100
- B ---- 4Bolt 145X145 Flange, pilotΦ125; 4孔法兰145X145,止口Φ125
- C ---- 4Bolt 145X145 Flange, pilotΦ125; 4孔法兰145X145,止口Φ125
- D ---- 4Bolt Rhomb Flange, pilotΦ82.55; 4孔菱形法兰,止口Φ82.55
- E ---- 4Bolt Rhomb Flange, pilotΦ82.55; 4孔菱形法兰,止口Φ82.55
- F ---- 4-Bolt wheel motor flange; 4孔车轮法兰

Position 7, 8, 9 ---- Output Shaft

第7, 8, 9位数字, 表示输出轴尺寸

- A01 ---- Square Spline矩形花键6D-30X25.3X8-32, M8.
- A02 ---- Square Spline矩形花键6D-30X25.3X8-32, M14.
- A03 ---- Square Spline矩形花键6D-30X25.3X6-32, M8.
- A04 ---- Square Spline矩形花键6D-30X25.3X6-32, M14.
- A05 ---- Φ32Cylindrical shaft, parallelkey10X35; Φ32直轴平键10X35, M10
- A06 ---- Φ32Cylindrical shaft, parallelkey10X47; Φ32直轴平键10X47, M10
- B01 ---- Square Spline矩形花键8D-42X36X7-45, M12.
- B02 ---- Φ40Cylindrical shaft, parallelkey12X50; Φ40直轴平键12X50.M8
- C01 ---- Square Spline矩形花键8D-42X36X7-49, M8.
- D01 ---- Φ32Cylindrical shaft, parallelkey10X45; Φ32直轴平键10X45, M8
- D02 ---- Φ32Cylindrical shaft, parallelkey10X45; Φ32直轴平键10X45, M12
- D03 ----Φ35Cylindrical shaft, parallelkey10X45; Φ35直轴平键10X45, M8
- D04 ---- Φ1.25 In Cylindrical shaft, parallelkey7.96X32;  
Φ31.75直轴平键7.96X32, 3/8-16UNC

- D05 ---- Square Spline矩形花键6D-25.3X21.47X6.25-25.4, 1/4-20UNC
- D06 ---- Spline花键14-DP 12/24, M8.
- D07 ---- Spline花键14-DP 12/24, 3/8-16UNC
- D08 ----  $\Phi 25$  Cylindrical shaft, parallelkey8X32;  $\Phi 25$ 直轴平键8X32, M8
- D09 ----  $\Phi 32$  Cylindrical shaft, parallelkey10X45;  $\Phi 32$ 直轴平键10X45, M8
- D10 ----  $\Phi 1.25$  In Cylindrical shaft, parallelkey7.96X35;  
 $\Phi 1.75$ 直轴方键 7.96X35, 5/8-18UNF
- D11 ---- Spline花键14-DP 12/24, 5/8-18UNF
- F01 ----  $\Phi 1.25$  In Tapered Spline1:8;  $\Phi 31.75$ 锥度轴, 锥度1:8
- F02 ----  $\Phi 38.1$  Tapered Spline1:8;  $\Phi 38.1$ 锥度轴, 锥度1:8
- F03 ---- Involute Spline渐开线花键14-DP 8.5/17,
- F04 ---- Square Spline矩形花键6D-34X28X7-45, M8.
- F05 ----  $\Phi 32$  Cylindrical shaft, parallelkey10X45;  $\Phi 32$ 直轴平键10X45, M8
- F06 ----  $\Phi 1.25$  In Cylindrical shaft, parallelkey7.96X35;  
 $\Phi 31.75$ 直轴方键7.96X35, 3/8-16UNC
- F07 ---- Involute Spline渐开线花键14-DP 12/24, 3/8-16UNC
- F08 ----  $\Phi 35$  Cylindrical shaft, parallelkey10X45;  $\Phi 35$ 直轴方键10X45

Position 10 ---- Port, 第10位数字, 表示油口尺寸

- A----M22X1.5-6H
- B----7/8-14UNF-2B “O”-ring
- C----G1/2(BSP)
- D----1/2-14NPTF
- E----PT(RC)1/2

Position 11 ---- Case drain Port, 第11位数字, 表示泄油口尺寸

NO.	Case Drain泄油口	Part Code
A	NO (无)	3318-01
B	M14x1.5	3318-02
C	7/16-20UNF	3318-03
D	G1/4	3318-04
E	M10x1	3318-05

Position 12 ---- Paint, 第12位数字, 表示喷漆要求

- 0 - No Paint 不喷漆
- 1 - Blue 喷标准蓝漆
- 2 - Black 喷标准磷化黑漆
- 3 - Others, Please Note on PO 其它要求, 请下单时注明

Position 13 ---- Motor Rotation 第13位数字, 表示马达旋转方向

- Viewed From Shaft End 面对输出轴轴端
- A - Port A Pressurized CW A油口进压力油, 顺时针旋转
- B - Port A Pressurized CCW A油口进压力油, 逆时针旋转

