BMSY Series

BMSY Series Orbital Hydraulic Motor

Professional hydraulic components for
mobile machinery and industrial systems.

Category: Orbital Hydraulic Motors
Application:
Compact Mobile Machinery / Industrial Hydraulic Systems

BMSY Series Orbital Hydraulic Motor

BMSY Series Orbital Hydraulic Motor is an advanced disc-distribution hydraulic motor. This series uses a column-mounted gerotor pair and features high working pressure, high efficiency, good efficiency retention, and long service life. Multi-function variants can be designed based on the standard structure according to customer requirements.
Features:
*Advanced gerotor parameter design provides low starting pressure, high efficiency, and good efficiency retention.
*High working pressure and high output torque. The tapered roller bearing structure provides strong axial and radial l oad capacity, allowing the motor to directly drive the working mechanism and expanding its application range.
*Advanced disc-distribution structure ensures high distribution accuracy, strong self-compensation after wear, high volumetric efficiency, long service life, stable speed, and stable load-speed characteristics.
*Capable of driving larger loads with a higher working pressure rating.

Main Technical Parameters

Type		BMSY 80	BMSY 100	BMSY 125	BMSY 160	BMSY 200	BMSY 250	BMSY 315	BMSY 400	BMSY 500
Actual Displacement(cm³/rev.)		81.8	100	121.2	158.8	200	254.5	321.2	400	497
Max. Speed(rpm)	Rated	675	540	432	337	270	216	171	135	110
	Continuous	780	735	606	460	365	285	225	180	145
	Intermittent	970	895	735	560	445	350	277	220	180
Max. Torque(N.m)	Rated	177	218	265	445	520	650	720	775	815
	Continuous	228	288	350	490	600	720	905	890	950
	Intermittent	309	387	465	600	725	900	1030	990	1030
Max. Output Power(KW)	Rated	12	12.4	12.4	12.4	12.4	12.4	11.2	9.6	8.6
	Continuous	16	18	18	18.1	18.1	18	17	11	9
	Intermittent	20	22	23	25	24	23.5	20.2	12	11
Max. Working Pressure Difference(MPa)	Rated	16	16	16	19	19	18	16	14	12
	Continuous	20.5	20.5	20.5	21	21	20	20	16	14
	Intermittent	27.5	27.5	27.5	26	25	25	24	19	15
	Peak	29.5	29.5	29.5	28	27	27	26	21	17.5
Max. Flow(L/min)	Continuous	65	75	75	75	75	75	75	75	75
	Intermittent	80	90	90	90	90	90	90	90	90
Max. Inlet Pressure (MPa)	Rated	21	21	21	21	21	21	21	21	21
	Continuous	25	25	25	25	25	25	25	25	25
	Intermittent	30	30	30	30	30	30	30	30	30

*Rated speed and torque refer to output values under rated flow and pressure.
*Continuous values refer to the maximum values at which this displacement motor can operate continuously.
*Intermittent values refer to the maximum values at which this displacement motor operates for 6 seconds within 1 minute.
*Peak values refer to the maximum values at which this displacement motor operates for 0.6 seconds within 1 minute.

Performance Parameters

BMSY-80 [81.8cm³/rev.]Pressure (MPa)

Max. Continuous | Max. Intermittent

Flow (L/min)	3.5	7	10.5	14	17.5	20.5	22.5
15	35 180	80 174	120 168	158 164	195 158	228 151	249 143
30	35 362	80 352	120 346	158 338	195 330	232 322	260 310
40	35 487	79 480	119 468	155 457	193 446	227 438	250 425
50	30 612	77 603	117 592	153 581	192 572	224 558	248 542
60	28 735	77 726	117 718	153 703	192 687	224 673	243 646
Max. Continuous 65	26 794	75 786	116 773	151 760	188 744	217 722	236 706
Max. Intermittent 80	24 981	72 968	109 955	142 925	176 893	206 870	227 832

BMSY-100 [100cm³/rev.]

Pressure (MPa)

Max. Continuous | Max. Intermittent

Flow (L/min)	3.5	7	10.5	14	17.5	20.5	22.5
15	48 146	95 144	150 139	200 135	250 130	282 120	310 105
30	45 291	94 289	146 278	198 274	250 269	290 258	317 242
40	43 387	89 384	142 374	196 359	248 350	288 335	316 320
50	40 486	88 483	135 473	194 462	247 450	286 430	315 420
60	37 588	88 584	132 574	185 562	244 550	283 538	312 520
Max. Continuous 75	35 740	80 735	130 720	180 705	240 696	279 676	310 653
Max. Intermittent 90	30 850	75 840	124 810	170 787	236 770	271 750	303 747

BMSY-125 [121.2cm³/rev.]Pressure (MPa)

Max. Continuous | Max. Intermittent

Flow (L/min)	3.5	7	10.5	14	17.5	20.5	22.5
15	53 120	115 117	169 114	236 108	297 102	332 94	361 87
30	53 240	115 237	168 232	240 222	303 210	350 195	389 179
40	51 324	114 321	171 301	240 300	303 289	350 272	388 244
50	48 406	101 401	169 393	239 379	303 366	348 352	382 320
60	43 488	109 479	164 468	232 454	296 442	344 416	382 387
Max. Continuous 75	43 611	106 597	161 582	231 565	294 547	339 525	374 500
Max. Intermittent 90	38 738	101 724	156 707	228 687	290 671	330 653	364 634

Torque (N•m)228
Speed (rpm) 687

BMSY-160 [158.8cm³/rev.]

Pressure (MPa)

Max. Continuous | Max. Intermittent

Flow (L/min)	3.5	7	10.5	14	17.5	21	22.5
15	72 90	146 88	222 86	307 82	383 78	449 74	491 56
30	75 183	156 181	232 176	322 171	394 165	470 157	507 148
40	77 244	157 242	235 239	324 231	395 227	468 221	503 206
50	72 304	153 300	232 297	315 289	384 284	459 276	495 264
60	70 3767	147 365	225 359	305 351	382 342	456 336	495 322
Max. Continuous 75	64 461	144 455	218 447	300 436	376 428	453 419	490 401
Max. Intermittent 90	61 550	135 544	208 537	295 527	368 516	438 504	474 494

Continuous
Intermittent

Performance Parameters

BMSY-200 [200cm³/rev.]

Flow (L/min)	Pressure (MPa) 3.5	7	10.5	14	17.5	21	22.5 (Max. Continuous / Max. Intermittent)
15	90 72	185 71	281 69	382 66	486 62	579 58	629 47
30	94 146	196 144	297 139	399 136	504 130	590 124	637 115
40	97 192	199 189	305 186	406 182	513 178	602 173	665 162
50	93 240	197 239	301 234	401 229	508 223	598 216	654 206
60	88 291	191 286	288 279	394 273	498 265	593 255	641 243
75 (Max. Continuous)	80 363	181 359	279 353	381 349	487 341	578 330	629 321
90 (Max. Intermittent)	70 430	168 427	273 422	372 415	470 411	562 401	628 388

BMSY-250 [254.5cm³/rev.]

Flow (L/min)	Pressure (MPa) 3.5	7	10.5	14	17.5	20	22.5 (Max. Continuous / Max. Intermittent)
15	115 56	242 55	368 53	484 51	613 48	713 44	815 33
30	121 114	247 112	376 109	497 103	625 97	733 88	827 76
40	124 155	252 152	380 149	503 143	627 137	739 128	834 116
50	116 194	245 192	369 188	494 182	619 174	726 165	825 151
60	111 233	235 231	361 226	484 220	610 210	717 199	809 185
75 (Max. Continuous)	106 289	224 285	356 281	475 272	597 260	702 248	796 233
90 (Max. Intermittent)	97 347	219 343	351 338	468 332	585 325	688 313	784 289

BMSY-315 [321.2cm³/rev.]Pressure (MPa)

Flow (L/min)	3.5	7	10.5	14	17.5	20	22.5 (Max. Continuous / Max. Intermittent)
15	153 46	314 46	471 44	633 42	787 40	908 38	1010 26
30	160 92	324 90	480 88	656 86	804 83	913 79	1020 65
40	165 121	331 121	495 117	671 113	822 111	936 105	1030 88
50	160 154	324 152	480 148	659 144	805 140	915 137	1020 124
60	156 161	316 179	468 175	640 170	790 164	915 152	1008 138
75 (Max. Continuous)	151 230	310 229	460 225	633 220	780 217	904 213	998 190
90 (Max. Intermittent)	139 277	293 274	450 269	621 263	764 257	891 249	983 225

BMSY-400 [400cm³/rev.]Pressure (MPa)

Flow (L/min)	3.5	7	10.5	14	16	17.5 (Max. Continuous / Max. Intermittent)
15	189 36	385 35	587 34	791 33	910 31	1001 29
30	193 74	394 72	599 70	803 67	919 64	1006 60
40	198 98	400 96	605 94	809 92	926 89	1013 84
50	194 123	394 121	596 116	797 112	918 107	998 100
60	189 147	394 144	585 140	797 135	918 129	998 120
75 (Max. Continuous)	184 184	378 180	585 174	782 168	905 162	988 151
90 (Max. Intermittent)	179 223	373 228	580 211	778 205	896 196	980 180

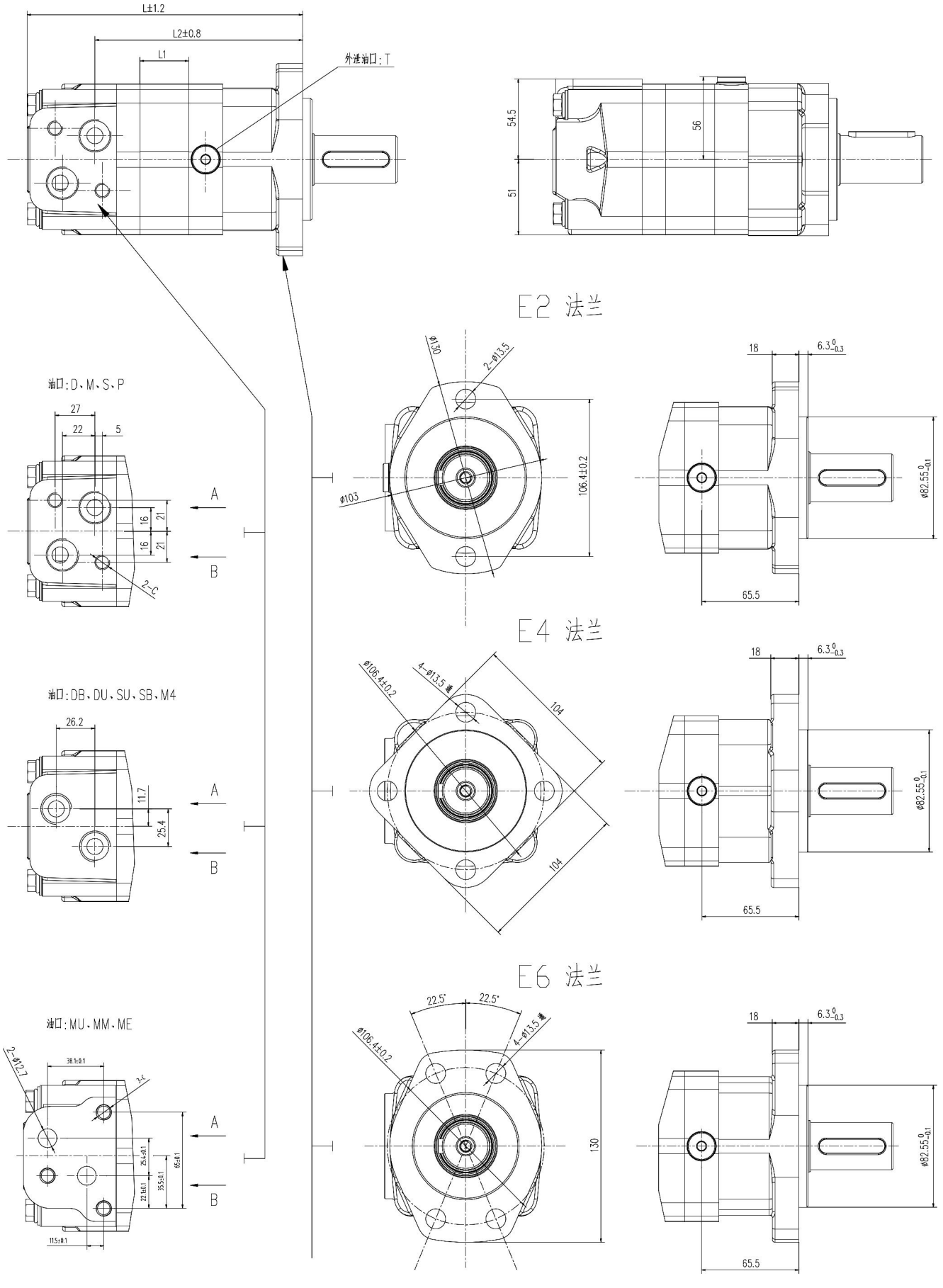
Torque (N•m) 580
Speed (rpm) 211

Continuous
Intermittent

BMSY-500 [497cm³/rev.]
Pressure (MPa)

Flow (L/min)	3.5	7	10.5	14	15 (Max. Continuous / Max. Intermittent)
15	228 29	459 28	692 27	933 26	1041 24
30	233 58	471 57	707 55	952 54	1048 51
40	239 78	482 76	721 74	970 71	1064 65
50	234 98	477 97	714 93	963 88	1055 82
60	230 117	472 116	708 113	955 107	1044 100
75 (Max. Continuous)	222 148	464 146	695 140	943 134	1025 126
90 (Max. Intermittent)	205 178	440 176	663 170	918 162	1003 150

BMSY Mounting and Connection Dimensions



连接形式 / 代号	P(A/B)	T
DU(英)	G1/2(15)	7/16-20UNF 'O'-ring(12)
DB(英)	G1/2(15)	G1/4(12)
M4(英)	M22X1.5(15)	M14X1.5(12)
PU(英)	1/2-14NPTF(15)	7/16-20UNF 'O'-ring(12)
PB(英)	1/2-14NPTF(15)	G1/4(12)
SU(英)	7/8-14UNF 'O'-ring(17)	7/16-20UNF 'O'-ring(12)
SB(英)	7/8-14UNF 'O'-ring(17)	G1/4(12)

连接形式 / 代号	P(A/B)	C	T
D(英)	G1/2(15)	M10(15)	G1/4(12)
M(英)	M22X1.5(15)	M10(15)	M14X1.5(12)
P(英)	1/2-14NPTF(15)	3/8-16UNC(15)	7/16-20UNF 'O'-ring(12)
S(英)	7/8-14UNF 'O'-ring(17)	3/8-16UNC(15)	7/16-20UNF 'O'-ring(12)
MU(英)	ø12.7	3/8-16UNC(15)	7/16-20UNF 'O'-ring(12)
MM(英)	ø12.7	M10(15)	G1/4(12)
ME(英)	M22X1.5(15)	M10(15)	M14X1.5(12)

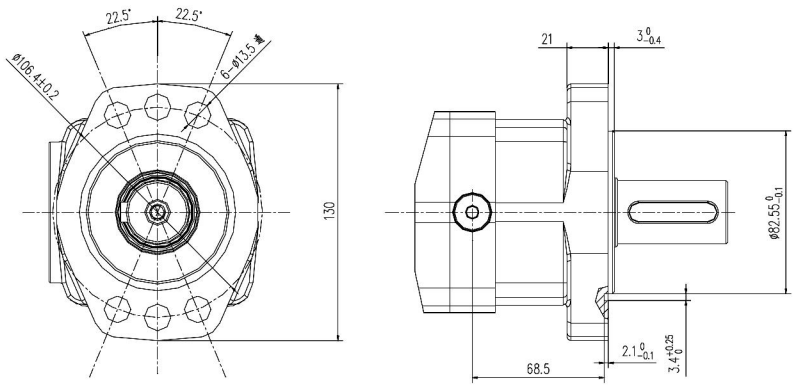
排量(ml/r)	BMSY-80	100	125	160	200	250	315	400	500
L1(mm)	13.5	16	20	26	33	42	53	66	82
L2(mm)	121.2	123.7	127.7	133.7	140.7	149.7	160.7	173.7	189.7
L(mm)	167	169.5	173.5	179.5	186.5	195.5	206.5	219.5	235.5

排量(ml/r)	BMSY-80W	100W	125W	160W	200W	250W	315W	400W	500W
L1(mm)	13.5	16	20	26	33	42	53	66	82
L2(mm)	84.2	86.7	90.7	96.7	103.7	112.7	123.7	136.7	152.7
L(mm)	130	132.5	136.5	142.5	149.5	158.5	169.5	182.5	198.5

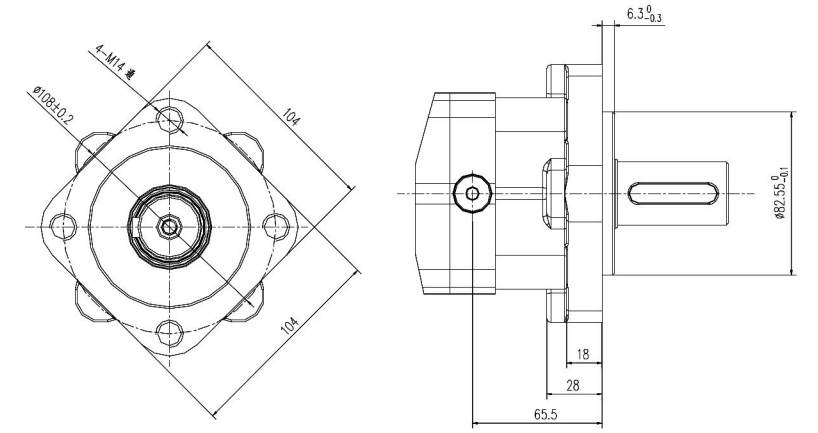
此表中尺寸对应于油口：MU、MM、ME型阀体尺寸

排量(ml/r)	BMSY-80	100	125	160	200	250	315	400	500
L1(mm)	13.5	16	20	26	33	42	53	66	82
L2(mm)	126.7	129.2	133.2	139.2	146.2	155.2	166.2	179.2	195.2
L(mm)	169.5	172	176	182	189	198	209	222	238

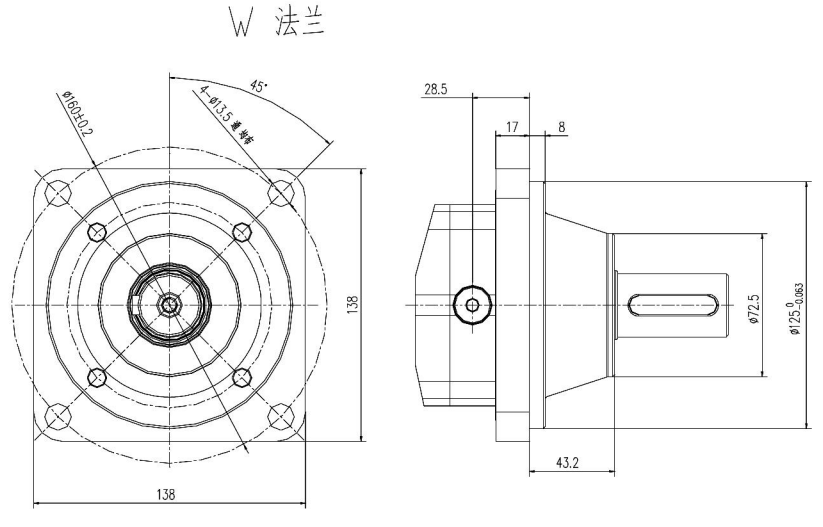
F6 法兰



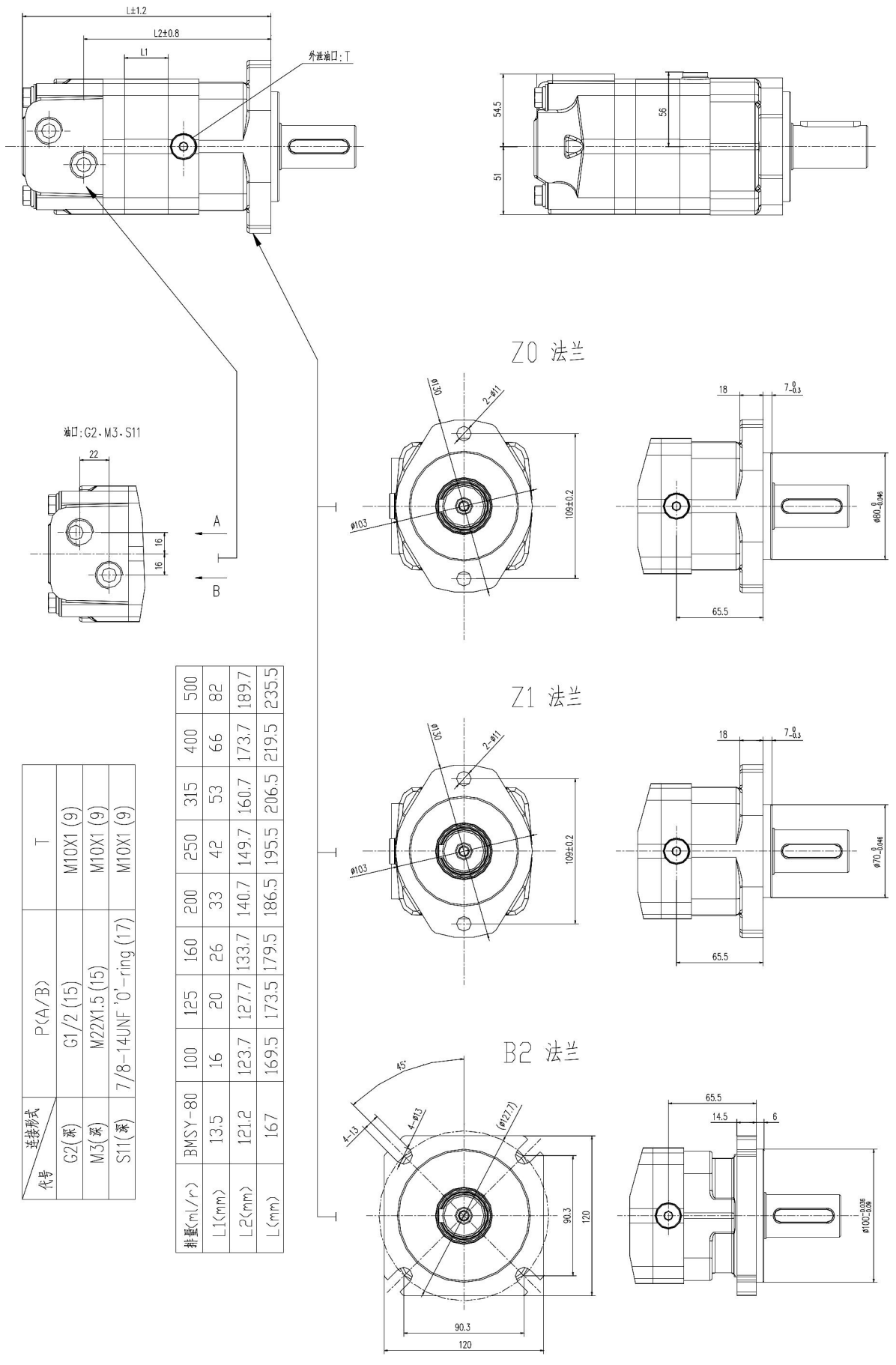
EB4 法兰



W 法兰



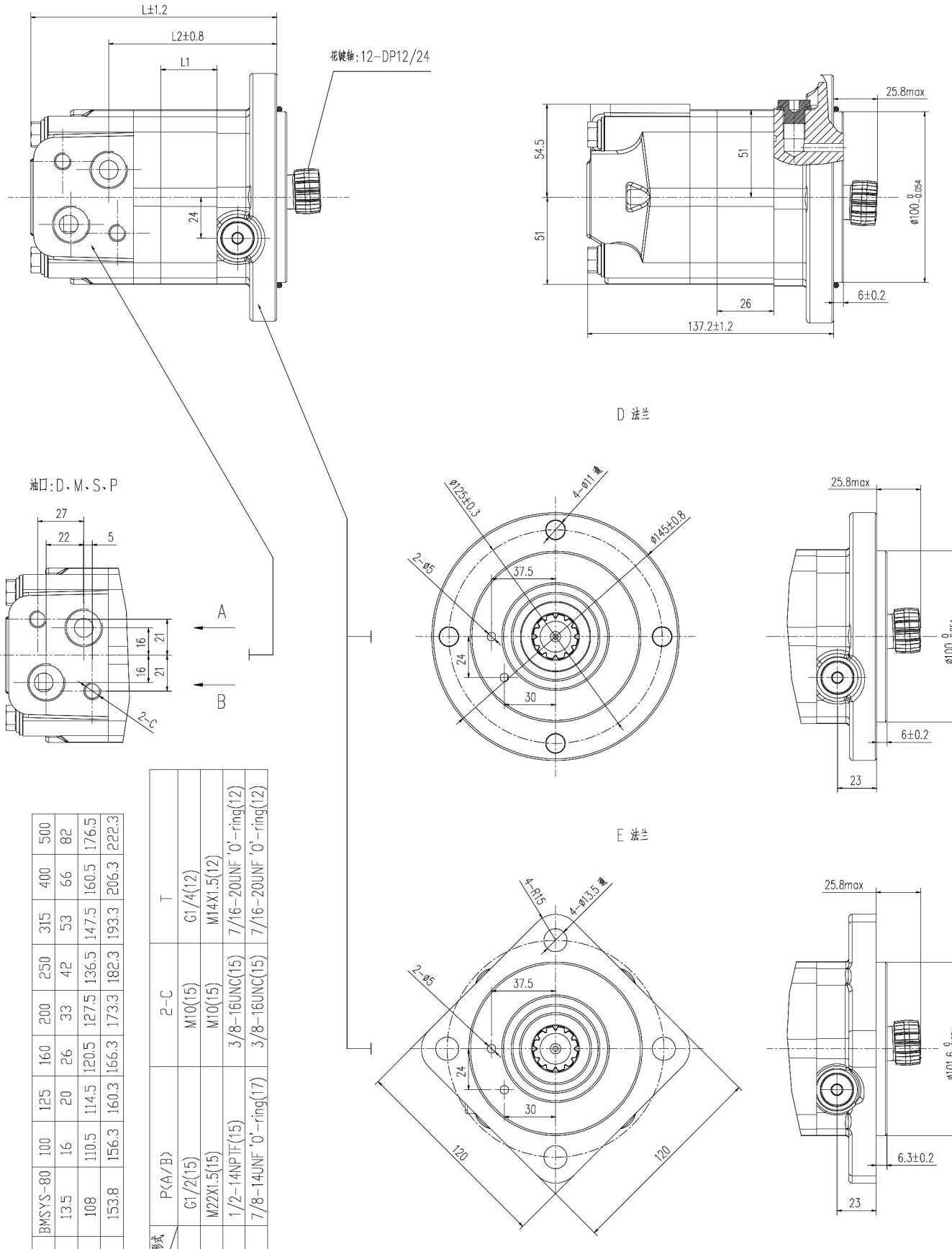
BMSY Mounting and Connection Dimensions



连接形式 / 代号	P(A/B)	T
G2(深)	G1/2 (15)	M10X1 (9)
M3(深)	M22X1.5 (15)	M10X1 (9)
S11(深)	7/8-14UNF 'O'-ring (17)	M10X1 (9)

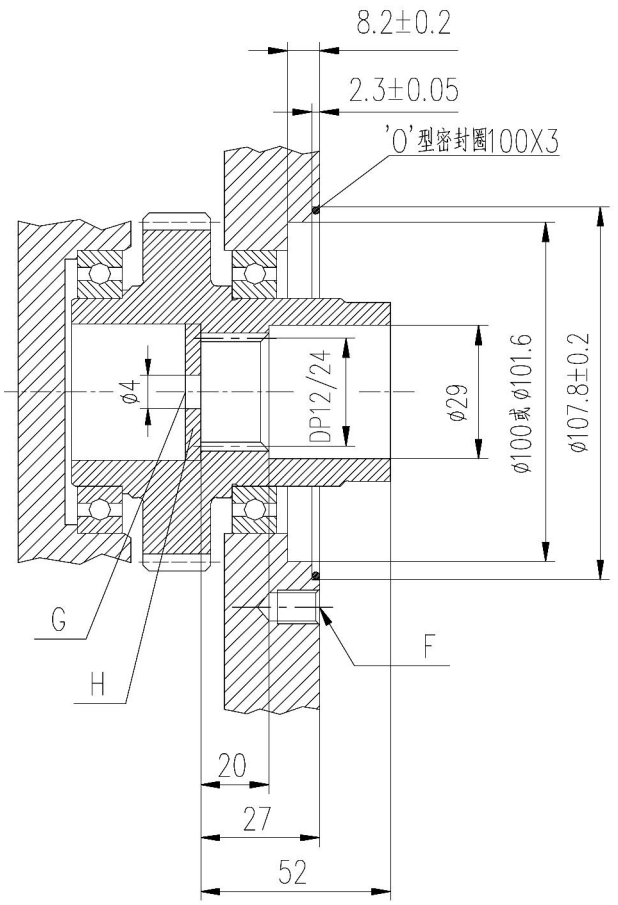
排量(ml/r)	BMSY-80	100	125	160	200	250	315	400	500
L1(mm)	13.5	16	20	26	33	42	53	66	82
L2(mm)	121.2	123.7	127.7	133.7	140.7	149.7	160.7	173.7	189.7
L(mm)	167	169.5	173.5	179.5	186.5	195.5	206.5	219.5	235.5

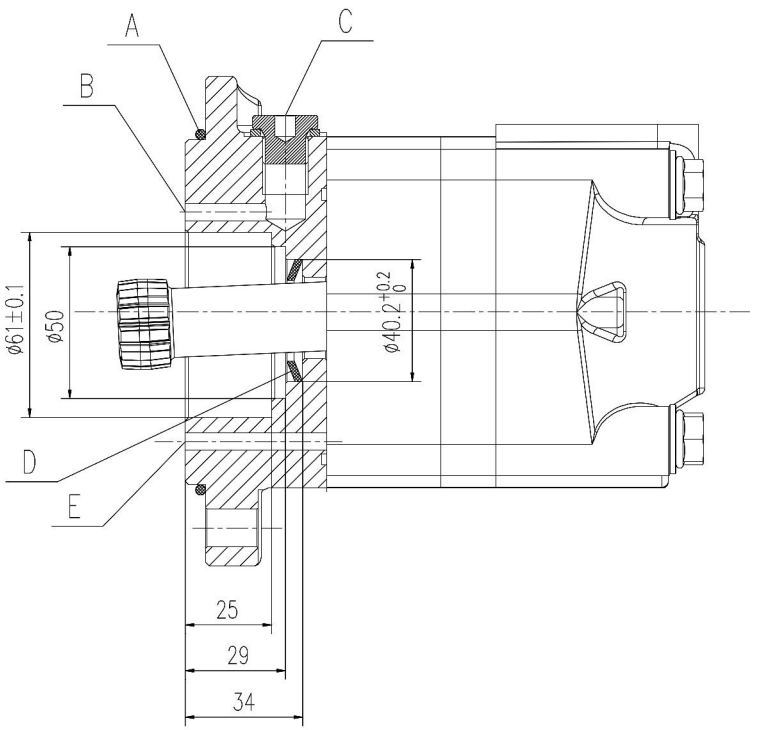
BMSY Mounting and Connection Dimensions



排量(ml/r)	BMSYS-80	100	125	160	200	250	315	400	500
L1(mm)	13.5	16	20	26	33	42	53	66	82
L2(mm)	108	110.5	114.5	120.5	127.5	136.5	147.5	160.5	176.5
L(mm)	153.8	156.3	160.3	166.3	173.3	182.3	193.3	206.3	222.3

代号 \ 连接形式	P(A/B)	2-C	T
D(深)	G1/2(15)	M10(15)	G1/4(12)
M(深)	M22X1.5(15)	M10(15)	M14X1.5(12)
P(深)	1/2-14NPTF(15)	3/8-16UNC(15)	7/16-20UNF 'O'-ring(12)
S(深)	7/8-14UNF 'O'-ring(17)	3/8-16UNC(15)	7/16-20UNF 'O'-ring(12)

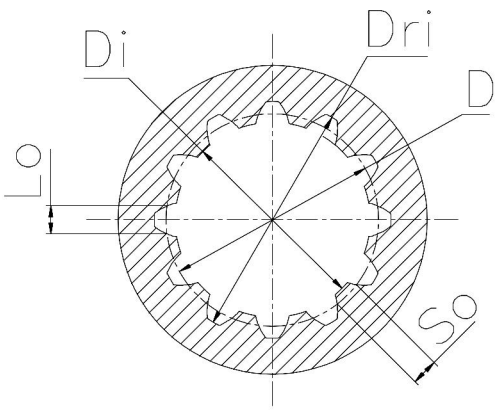




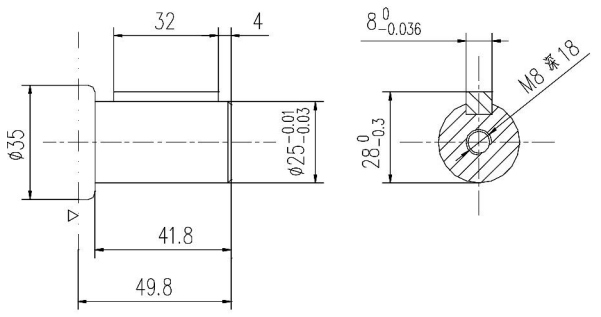
A：'O'型密封圈100X3
B：外泄油通道
C：泄油口螺纹深度 12mm
D：碟型密封圈
E：内泄油通道
F：15mm深
G：回油孔
H：硬化挡板

用户设计内花键孔参数表
内花键参数标准　ANS B92.1-1970

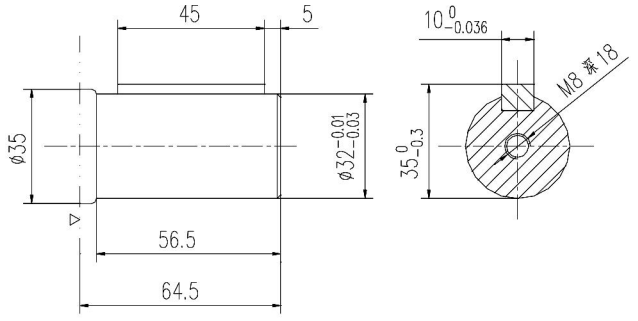
径节 dp	12/24
齿数 Z	12
压力角 α	30°
分度圆直径 D	25.4
大径 Dri	$28_{-0.1}^{0}$
小径 Di	$23_{0}^{+0.033}$
齿槽宽 Lo	4.308±0.02
齿厚 So	2.341±0.02



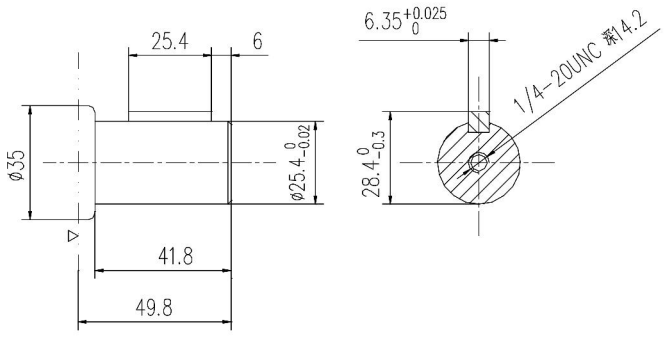
BMSY Shaft Extension Dimensions



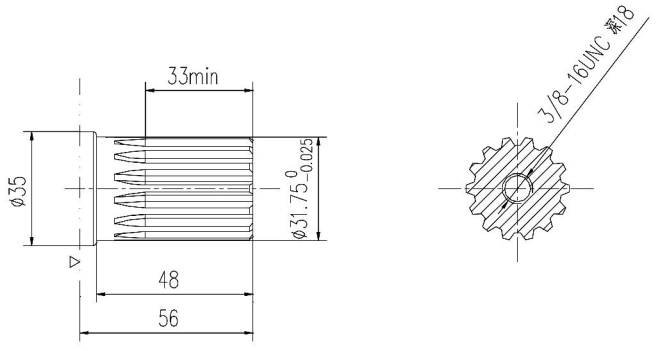
A轴：圆柱轴ø25，平键 8X7X32



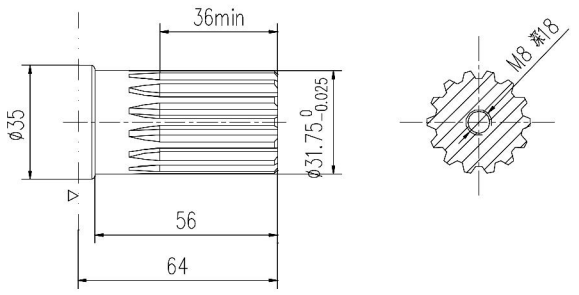
B轴：圆柱轴ø32，平键 10X8X45



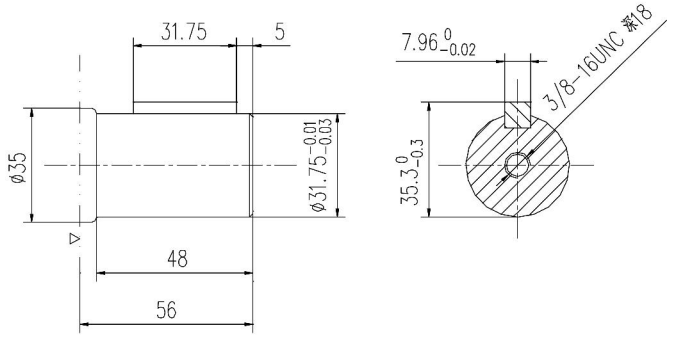
D轴：圆柱轴 ø25.4，平键 6.35X6.35X25.4



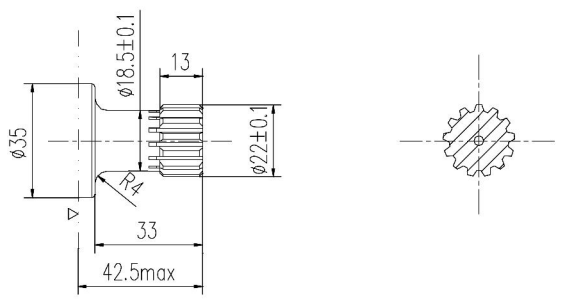
F轴：花键轴 14-DP12/24



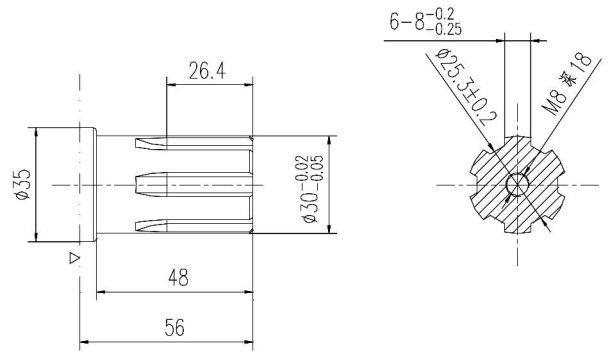
FD轴：花键轴 14-DP12/24



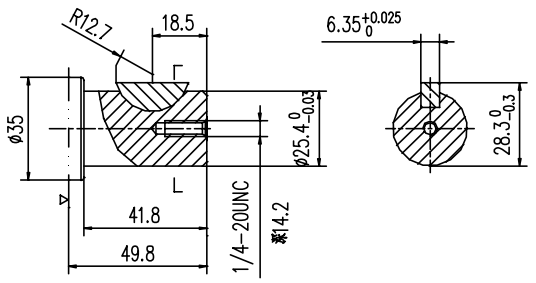
G轴：圆柱轴 ø31.75，平键 7.96X7.96X31.75



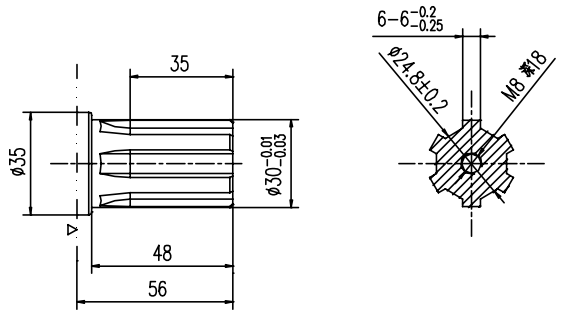
I轴：花键轴 13-DP16/32



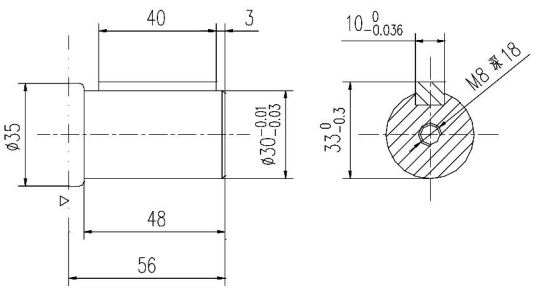
J轴：花键轴 6-30X25.3X8



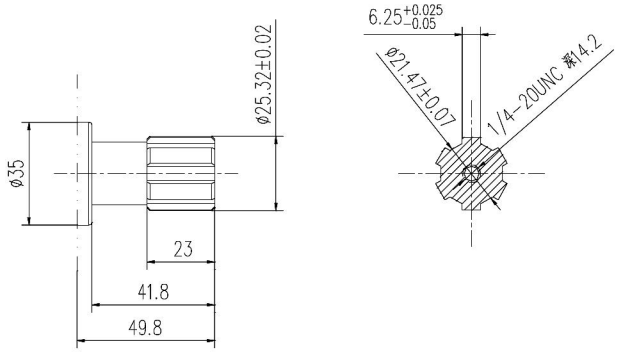
K轴：圆柱轴 ø25.4，半圆键 ø25.4X6.35



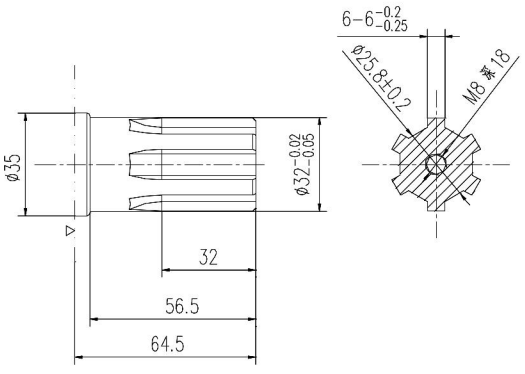
N轴：花键轴 6-30X24.8X6



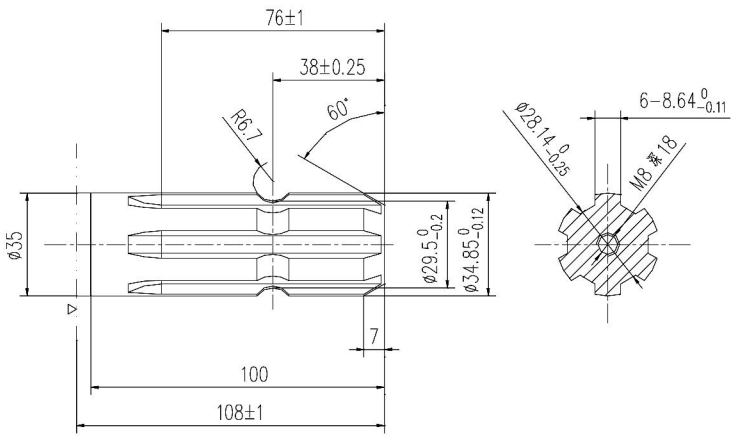
P轴：圆柱轴 ø30，平键 10X8X40



S1轴：花键轴 6-25.32X21.47X6.25



Z轴：花键轴 6-32X25.8X6

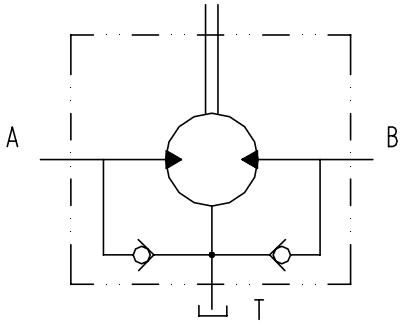


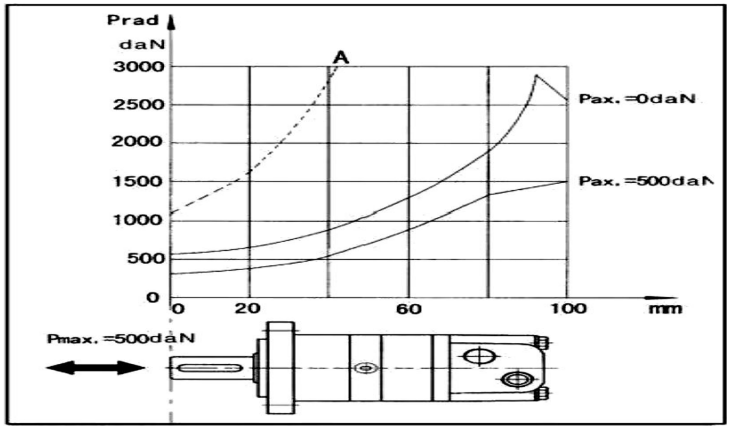
SL轴：花键轴 6-34.85X28.14X8.64

▷ 马达止口安装面（对应于E2法兰，其他方式类推）

BMSY Series Orbital Hydraulic Motor

Allowable Pressure on Output Shaft Seal

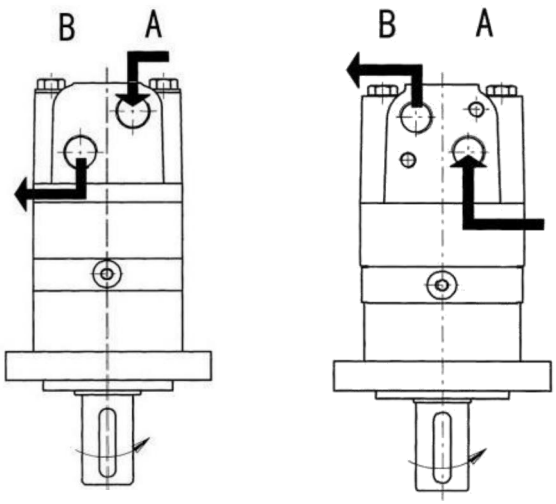




When used without an external drain line, the pressure on the output shaft seal is slightly higher than the return line pressure. When an external drain line is used, the output shaft seal pressure is the same as the drain line pressure.

Standard Output Shaft Rotation Direction

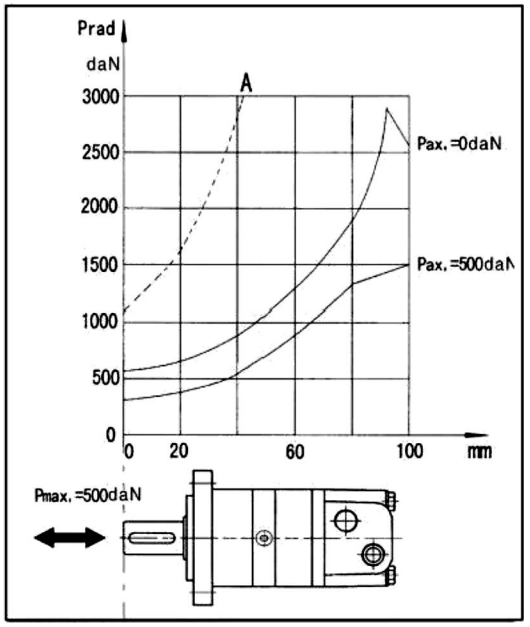
Facing the motor shaft extension, when port A is supplied with high-pressure oil, the output shaft rotates clockwise; otherwise, it rotates counterclockwise.



Drain Port Leakage Flow
The table below lists the max. drain port leakage flow for standard motors when return pressure at the drain port is below 0.5 to 1 MPa.

Working Pressure Difference (MPa)	Oil Kinematic Viscosity (mm²/s)	Drain Port Leakage Flow (L/min)
14	20	1.5
	35	1
21	20	3
	35	2

Axial Force / Radial Force



Curve A indicates the max. radial load. To ensure bearing life B10 (200 rpm, 3000 h), use axial/radial loads below the thick line.

Ordering Information

1	2	3	4	5	6	7	8
BMSY –	–	–	–	–	–	–	–

POS.1	2	3		4		5		6		7		8	
Structure Code	Displacement	Flange / Pilot		Shaft Extension		Oil Port		Rotation Direction		Paint Option		Special Function	
BMS	80	E2	2-φ13.5 , Diamond Flange, Pilotφ82.5X6.3	A	Straight Shaftφ25, L=41.8, Parallel Key8X7X32, M8	D	G1/2,G1/4,2-M10	None	Standard	00	Unpainted	None	Standard
	100	E4	4-φ13.5 , Square Flange, Pilotφ82.5X6.3	B	Straight Shaftφ32, L=56, Parallel Key10X8X45, M8	M	M22X1.5,M14X1.5,2-M10	R	Reverse	None	BluePaint		
	125	EB4	4-M14 , PCDφ108 , Square Flange, Pilotφ82.5X6.3	D	Straight Shaftφ25.4, L=41.8, Parallel Key6.35X6.35X25.4, 1/4-20UNC	S	7/8-14UNF 'O'-ring,7/16-20UNF 'O'-ring,2-3/8-16UNC			B	BlackPaint		
	160	E6	4-φ13.5 , Diamond Flange, Pilotφ82.5X6.3	F	Involute Spline Shaftφ31.75,L=48,14-DP12/24, 3/8-16UNC	S1	7/8-14UNF 'O'-ring,7/16-20UNF 'O'-ring,2-M10			S	SilverGray Paint		
	200	F6	6-φ13.5 , Diamond Flange, Pilotφ82.5X2.8	FD	Involute Spline Shaftφ31.75,L=56.2,14-DP12/24, M8	P	1/2-14NPT,7/16-20UNF 'O'-ring,2-3/8-16UNC						
	250	W	4-φ13.5 , Wheel Flangeφ160 , Pilotφ125X8	K	Straight Shaftφ25.4 , L=41.8, Woodruff Keyφ25.4X6.35, 1/4-20UNC	DB	G1/2,G1/4						
	315	B2	4-φ13 , Square Flangeφ127.7 , Pilotφ100X6	S1	Straight-sided Spline Shaft6-25.32X21.47X6.25, L=41.8, 1/4-20UNC	DU	G1/2,7/16-20UNF 'O'-ring						
	400			I	Involute Spline Shaftφ22,L=33,13-DP16/32	SB	7/8-14UNF 'O'-ring,G1/4						
	500			G	Straight Shaftφ31.75, L=48, Parallel Key7.96X7.96X31.75, 3/8-16UNC	SU	7/8-14UNF 'O'-ring,7/16-20UNF 'O'-ring						
				SL	Straight-sided Spline Shaft6-34.85X28.14X8.64, L=100, M8	M4	M22X1.5,M14X1.5						
				P	Straight Shaftφ30, L=48, Parallel Key10X8X40, M8	PB	1/2-14NPT,G1/4						
				J	Straight-sided Spline Shaft6-30X25.3X8, L=48, M8	PU	1/2-14NPT,7/16-20UNF 'O'-ring						
				N	Straight-sided Spline Shaft6-30X24.8X6, L=48, M8								
				Z	Straight-sided Spline Shaft6-32X26X6, L=56.5, M8	G2	G1/2,M10X1						
						M3	M22X1.5,M10X1						
						S11	7/8-14UNF 'O'-ring,M10X1						

Note: Select codes for motor structure, displacement, mounting flange, shaft extension and inlet/outlet ports from the shaded positions on the left and send them in the above format. Contact us for unlisted specifications or special requirements.

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For product selection, quotation and OEM/ODM inquiries, please contact us.

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Ningjin County, Xingtai City
Hebei Province, China

WHEN SENDING AN INQUIRY, PLEASE INCLUDE:

1. Product model
2. Thread size / connection type
3. Required pressure and flow rate
4. Quantity
5. Application or equipment model