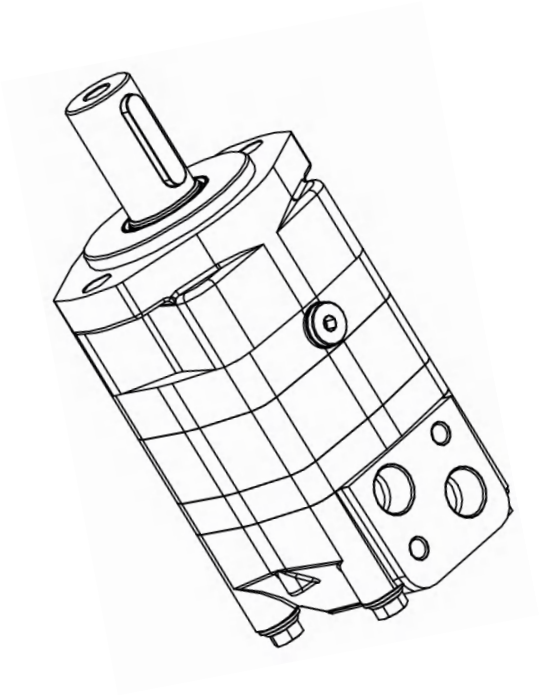
MSY SERIES ORBIT HYDRAULIC MOTOR

CONTENT

The H MSY series Orbit hydraulic motor is an advanced end face flow distribution construction hydraulic motor. This series of motors uses a column mounted rotating stator pair, which has the characteristics of high working pressure, high working efficiency, good overall efficiency retention , and long working life. Multi functional variant design can be carried out based on user needs on the basis of standard construction.



FEATURES

- Adopting advanced stator parameter design, it has low starting pressure, high efficiency, and good retention.
- High work pressure and high output torque. Adopting a tapered roller bearing construction, it has strong bearing capacity for axial and radial loads, allowing the motor to directly drive the working mechanism and expand its usage range.
- Advanced end face flow distribution construction ensures high motor flow distribution accuracy, strong automatic compensation function after wear, ensuring high volumetric efficiency, long motor life, and stable motor speed and load speed characteristics.
- Capable of driving larger loads and achieving higher levels of work pressure.

MAIN TECHNICAL PARAMETERS

- Rated speed and torque refer to the output value under rated flow and pressure.
- Continuous value refers to the maximum value at which the capacity motor can operate continuously.
- Intermittent value refers to the maximum value at which the capacity motor operates for 6 seconds within 1 minute.
- The peak value refers to the maximum value at which the capacity motor operates for 0.6 seconds within 1 minute.

H MSY-125 [121.2cm³/rev.]

Flow (L/min)	Pressure(MPa) 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
75 (Continuous maximum)	43 611	106 597	161 582	231 565	294 547	339 525	374 500
90 (Intermittent maximum)	38 738	101 724	156 707	228 687	290 671	330 653	364 634

H MSY-160 [158.8cm³/rev.]

Flow (L/min)	Pressure(MPa) 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
75 (Continuous maximum)	64 461	144 455	218 447	300 436	376 428	453 419	490 401
90 (Intermittent maximum)	61 550	135 544	208 537	295 527	368 516	438 504	474 494

H MSY-200 [200cm³/rev.]

Flow (L/min)	Pressure(MPa) 3.5	7	10.5	14	17.5	21	22.5
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 (Continuous maximum)	80 363	181 359	279 353	381 349	487 341	578 330	629 321
90 (Intermittent maximum)	70 430	168 427	273 422	372 415	470 411	562 401	628 388

Torque (N•m) 273
Speed (rpm) 422

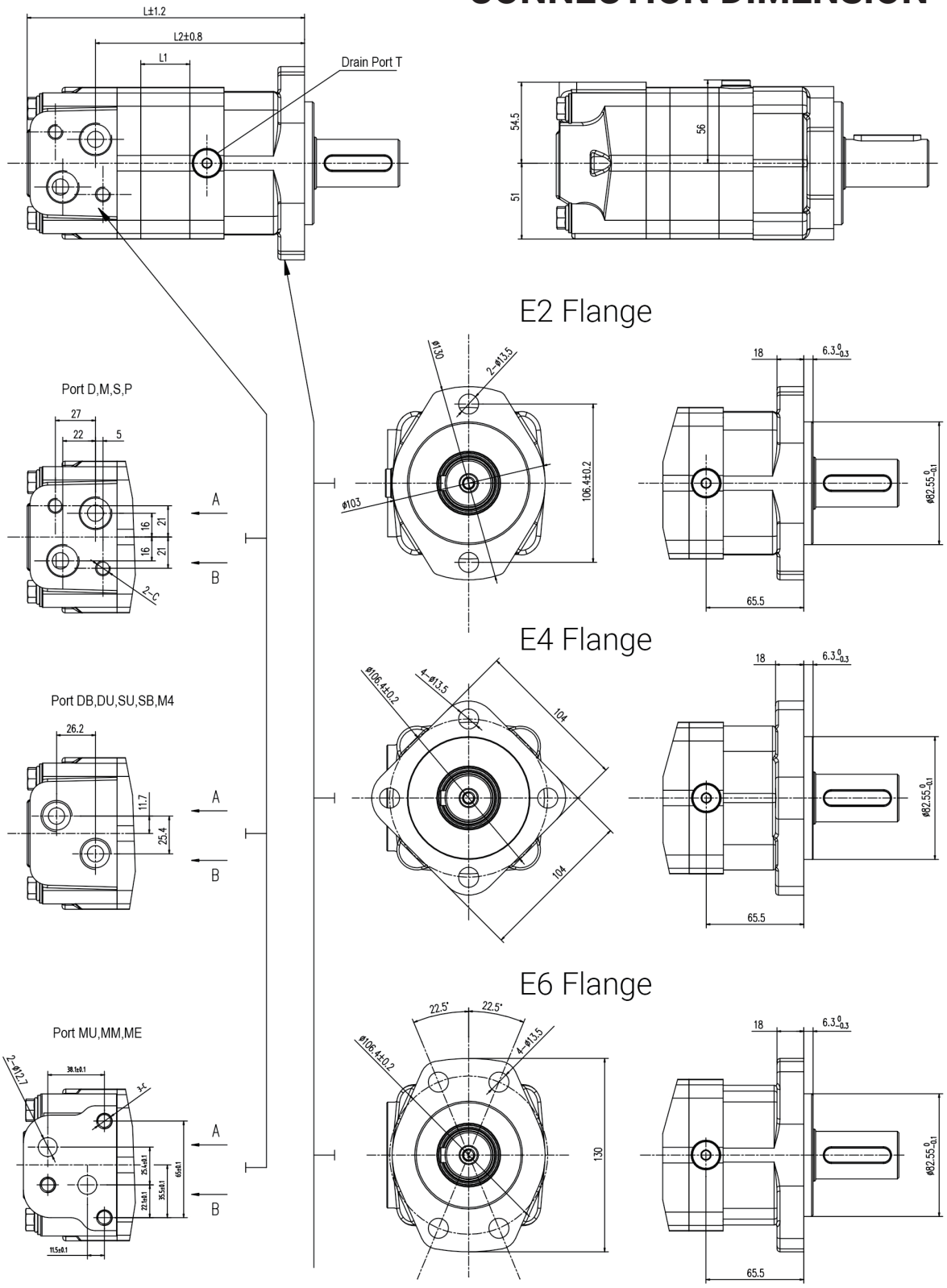
H MSY-250 [254.5cm³/rev.]

Flow (L/min)	Pressure(MPa) 3.5	7	10.5	14	17.5	20	22.5
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 (Continuous maximum)	106 289	224 285	356 281	475 272	597 260	702 248	796 233
90 (Intermittent maximum)	97 347	219 343	351 338	468 332	585 325	688 313	784 289

Continuous
Intermittent

H MSY INSTALLATION

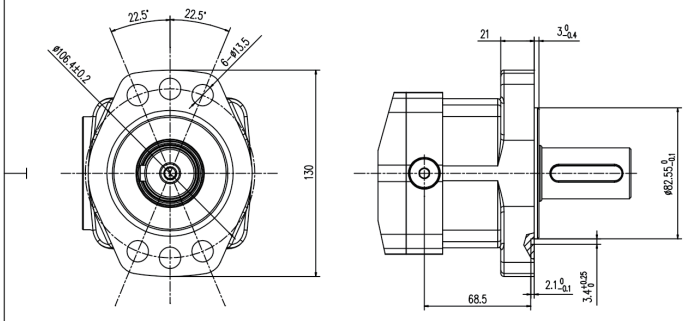
CONNECTION DIMENSION



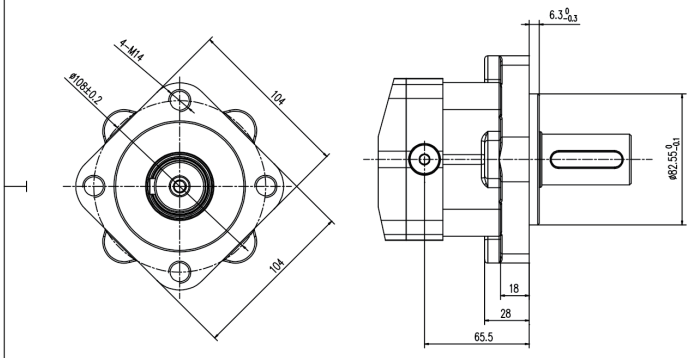
Code \ Connection method	P(A/B)	2-C	T
D (Depth)	G1/2(15)	M10(15)	G1/4(12)
M (Depth)	22X1.5(15)	M10(15)	M14X1.5(12)
P (Depth)	1/2-14NPTF(15)	3/8-16UNC(15)	7/16-20UNF'O'-ring(12)
S (Depth)	7/8-14UNF'O'-ring(17)	3/8-16UNC(15)	7/16-20UNF'O'-ring(12)
MU (Depth)	Ø12.7		7/16-20UNF'O'-ring(12)
MM (Depth)	Ø12.7		G1/4(12)
ME (Depth)	22X1.5(15)		M14X1.5(12)

Displacement(ml/r)	H MSY-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

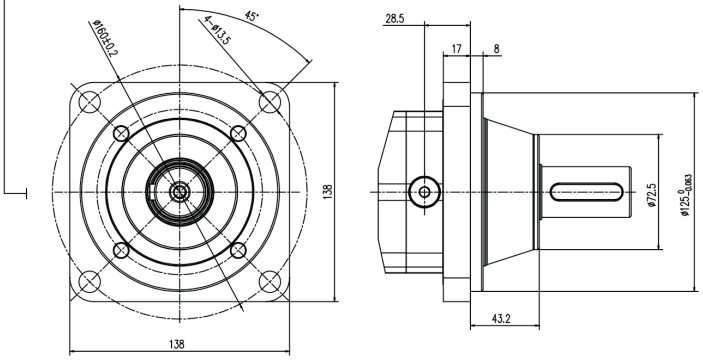
F6 Flange



EB4 Flange

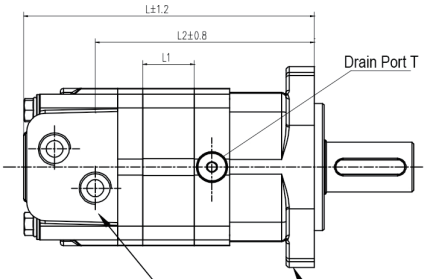


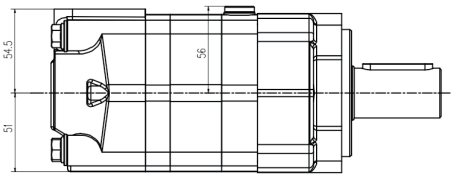
W Flange



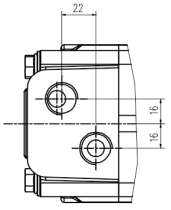
Code \ Connection method	P(A/B)	T
DU (Depth)	G1/2(15)	7/16-20UNF'O'-ring(12)
DB (Depth)	G1/2(15)	G1/4(12)
M4 (Depth)	22X1.5(15)	M14X1.5(12)
PU (Depth)	1/2-14NPTF(15)	7/16-20UNF'O'-ring(12)
PB (Depth)	1/2-14NPTF(15)	G1/4(12)
SU (Depth)	7/8-14UNF'O'-ring(17)	7/16-20UNF'O'-ring(12)
SB (Depth)	7/8-14UNF'O'-ring(17)	G1/4(12)

The size in this table corresponds to the oil port: MU, MM, ME type valve body size									
Displacement(ml/r)	H MSY-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

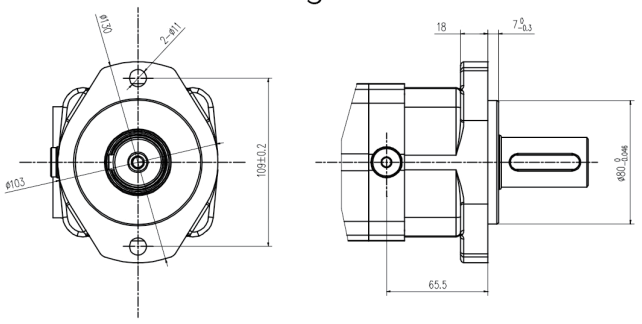




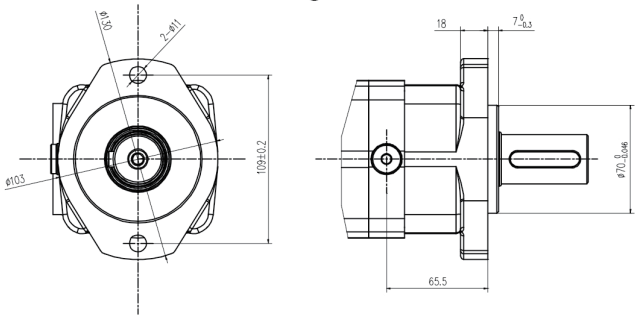
Port G2,M3,S1



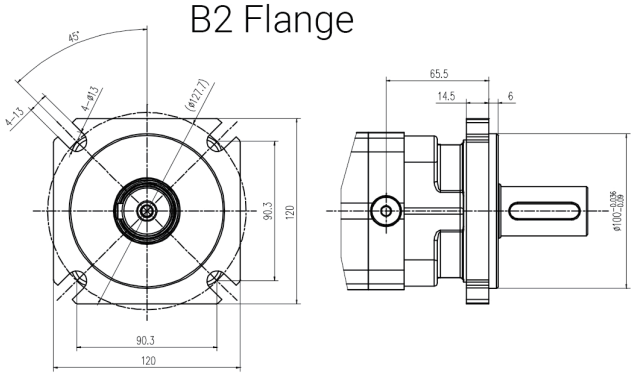
Z0 Flange



Z1 Flange

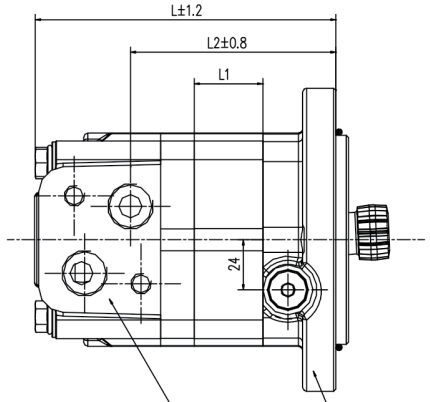


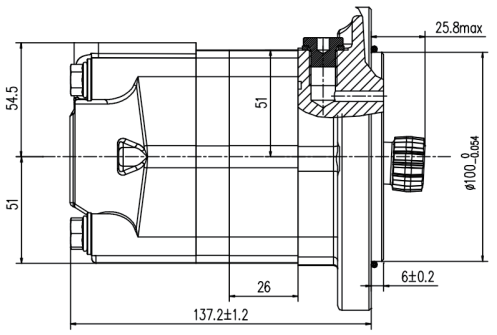
B2 Flange



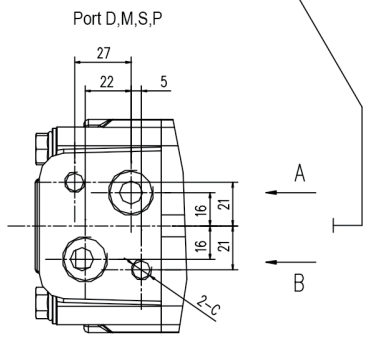
Connection method / Code	P(A/B)	T
G2 (Depth)	G1/2(15)	M10X1(9)
M3 (Depth)	22X1.5(15)	M10X1(9)
S1 (Depth)	7/8-14UNF'O'-ring(17)	M10X1(9)

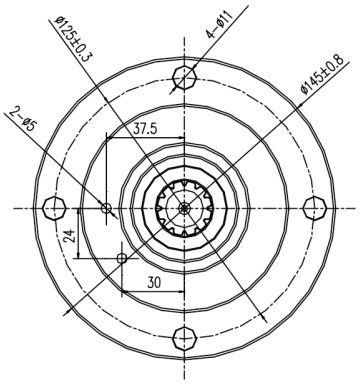
Displacement(ml/r)	H MSY-80	100	125	160	200	250	315	400	500
L1(mm)	13.5	16	20	26	33	42	53	66	82
L2(mm)	121.2	123.7	127.7	133.7	140.7	149.7	160.7	173.7	189.7
L(mm)	167	169.5	173.5	179.5	186.5	195.5	206.5	219.5	235.5

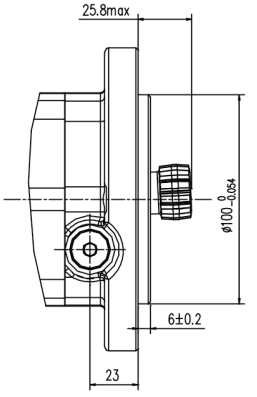




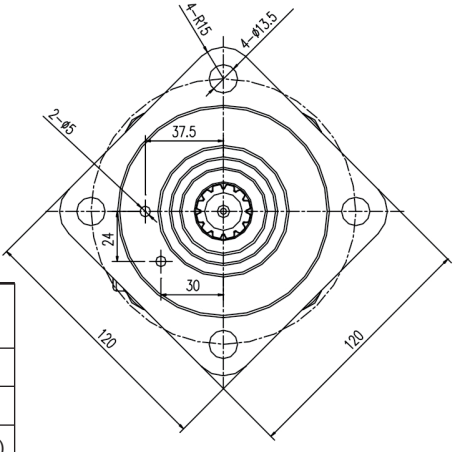
D Flange

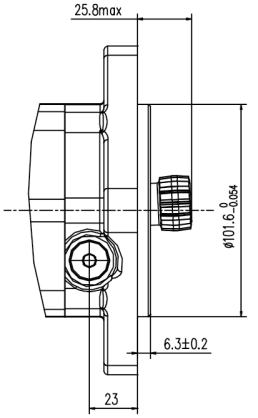






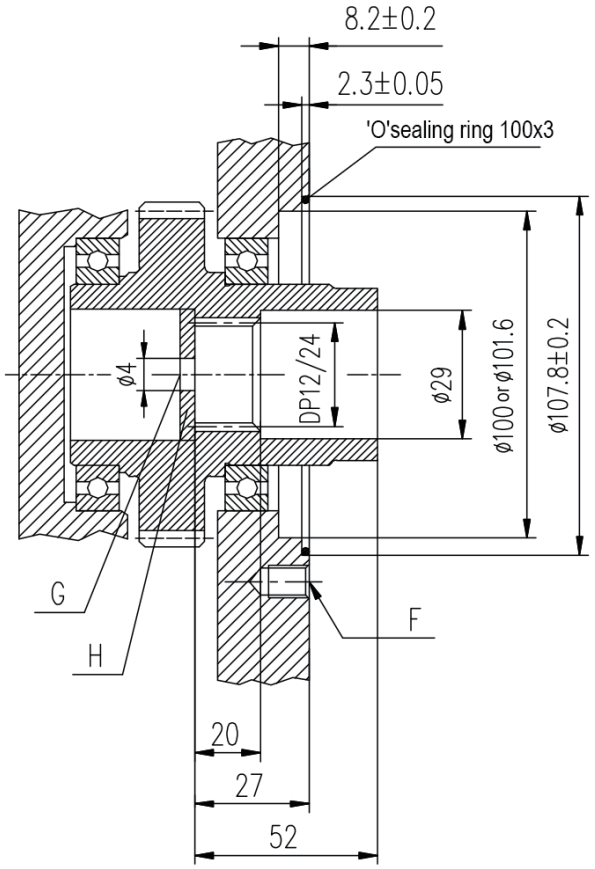
E Flange

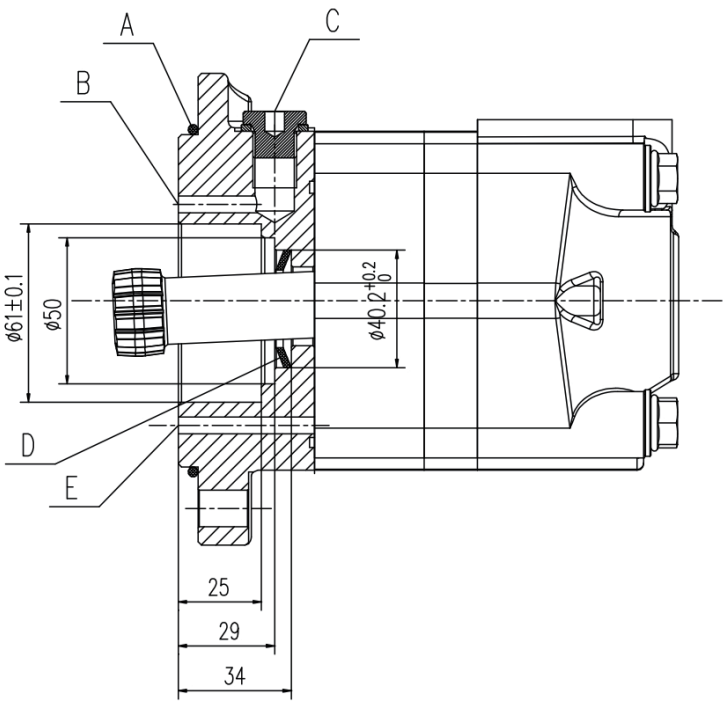




Connection method / Code	P(A/B)	2-C	T
D (Depth)	G1/2(15)	M10(15)	G1/4(12)
M (Depth)	22X1.5(15)	M10(15)	M14X1.5(12)
P (Depth)	1/2-14NPTF(15)	3/8-16UNC(15)	7/16-20UNF'O'-ring(12)
S (Depth)	7/8-14UNF'O'-ring(17)	3/8-16UNC(15)	7/16-20UNF'O'-ring(12)

Displacement(ml/r)	H MSY-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

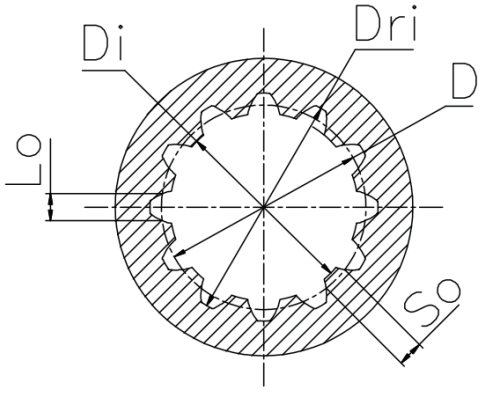




A = 'O'sealing ring 100x3
B = Exhaust channel
C = Grain depth of 12mm
D = Disc seal ring
E = Insulation channel
F = 15mm Depth
G = Oil gallery
H = Sclerosis baffle

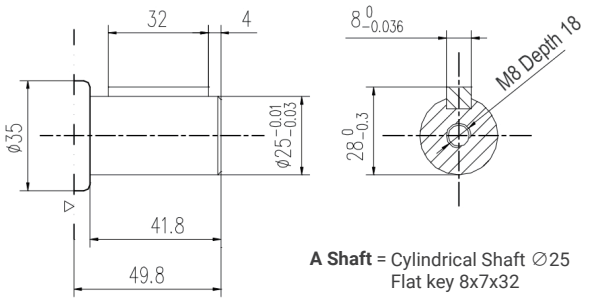
User design internal spline parameter table
Internal spline parameter criteria ANS B92.1-1970

Diametral pitch	dp	12/24
Number of teeth	Z	12
Angle	α	30°
Pitch diameter	D	25.4
OD	Dri	$28\ ^{0}_{-0.1}$
ID	Di	$23\ ^{+0.033}_{0}$
Space width	Lo	4.308±0.02
Tooth thickness	So	2.341±0.02

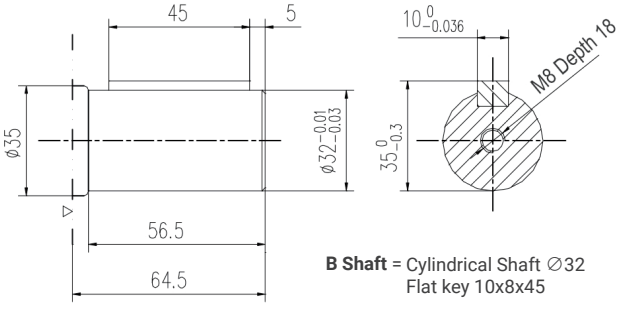


BMSY SHAFT EXTENSION

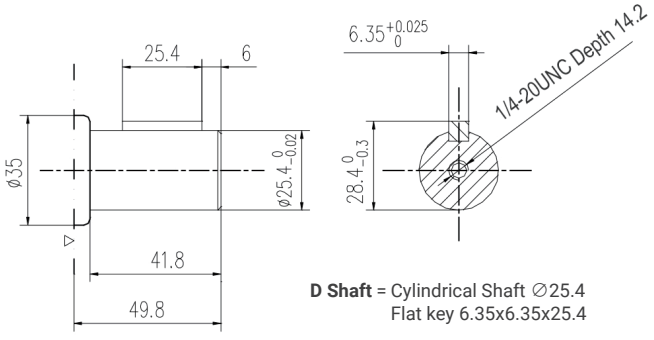
CONNECTION DIMENSION



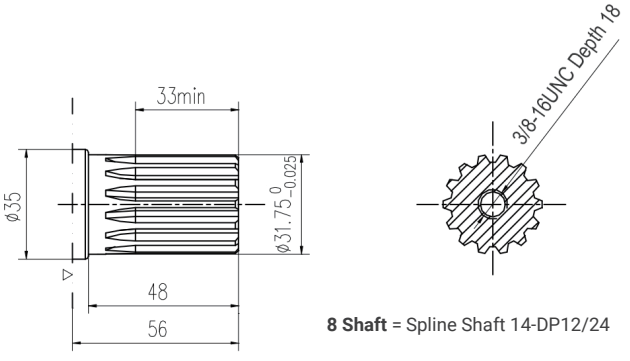
A Shaft = Cylindrical Shaft ∅25
Flat key 8x7x32



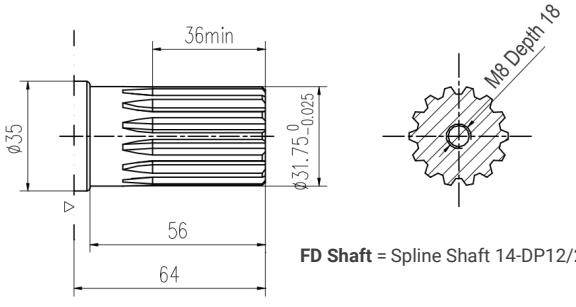
B Shaft = Cylindrical Shaft ∅32
Flat key 10x8x45



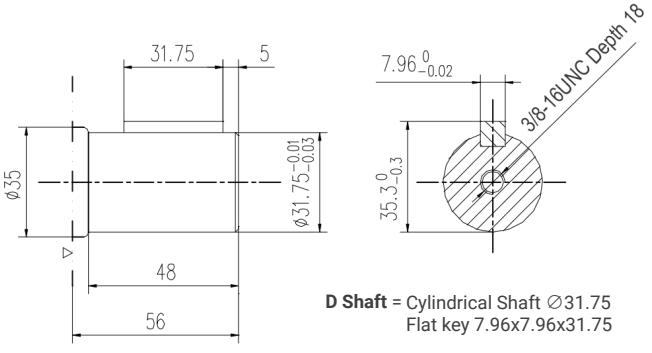
D Shaft = Cylindrical Shaft ∅25.4
Flat key 6.35x6.35x25.4



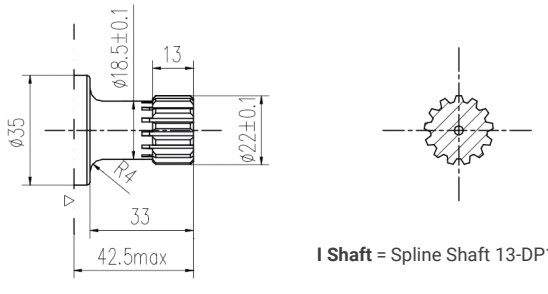
8 Shaft = Spline Shaft 14-DP12/24



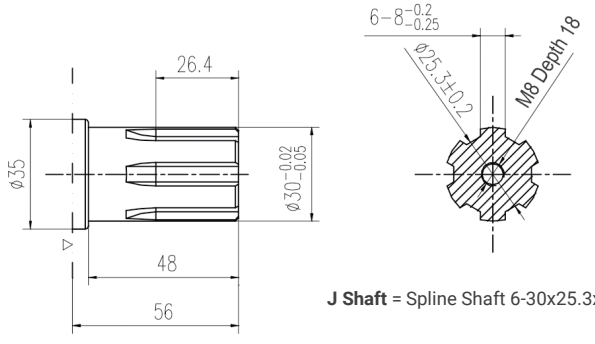
FD Shaft = Spline Shaft 14-DP12/24



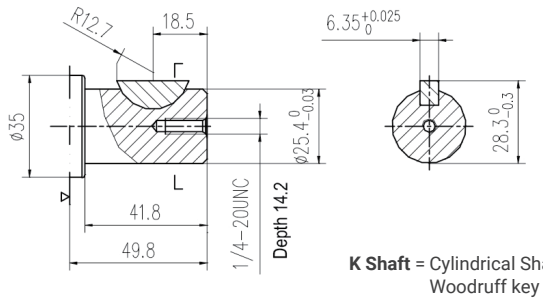
D Shaft = Cylindrical Shaft ∅31.75
Flat key 7.96x7.96x31.75



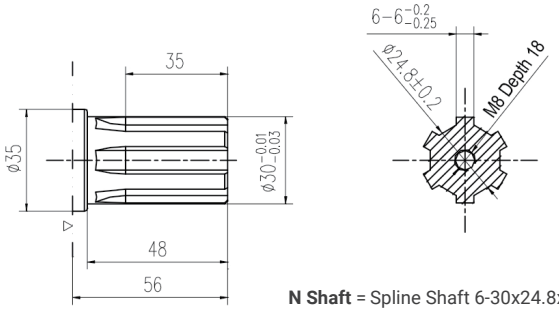
I Shaft = Spline Shaft 13-DP16/32



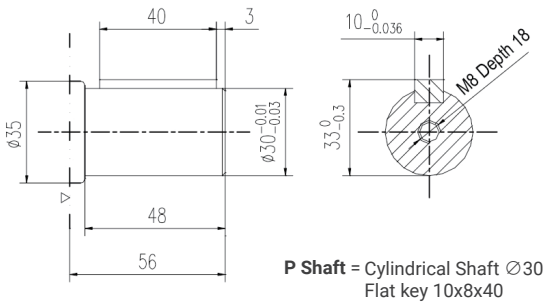
J Shaft = Spline Shaft 6-30x25.3x8



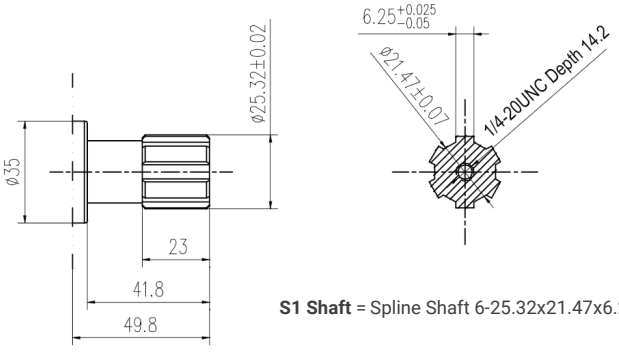
K Shaft = Cylindrical Shaft ∅25.4
Woodruff key 25.4x6.35



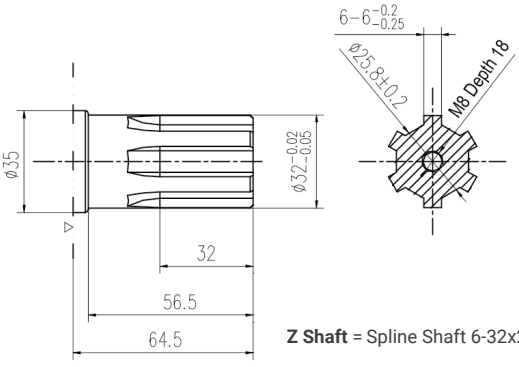
N Shaft = Spline Shaft 6-30x24.8x6



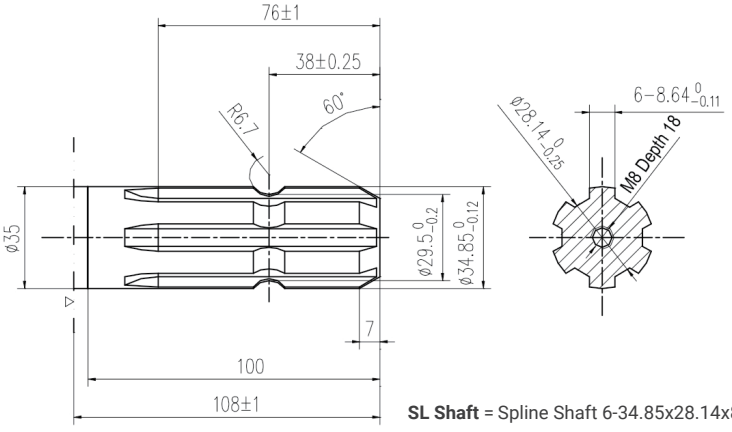
P Shaft = Cylindrical Shaft ∅30
Flat key 10x8x40



S1 Shaft = Spline Shaft 6-25.32x21.47x6.25



Z Shaft = Spline Shaft 6-32x25.8x6

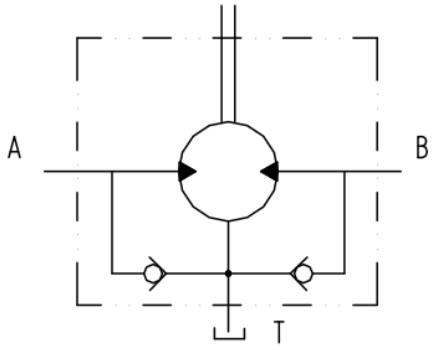


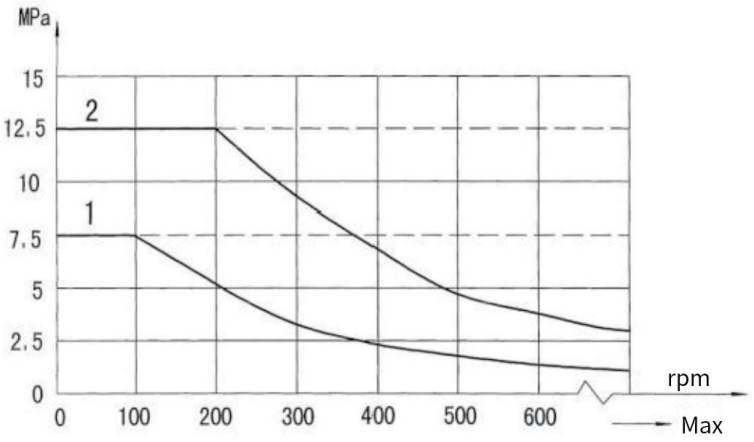
SL Shaft = Spline Shaft 6-34.85x28.14x8.64

▷ Motor stop mounting surface (Corresponding to E2 flange, Other methods and so on)

BMSY SERIES ORBIT HYDRAULIC MOTOR

The allowable pressure that the output shaft sealing ring can withstand

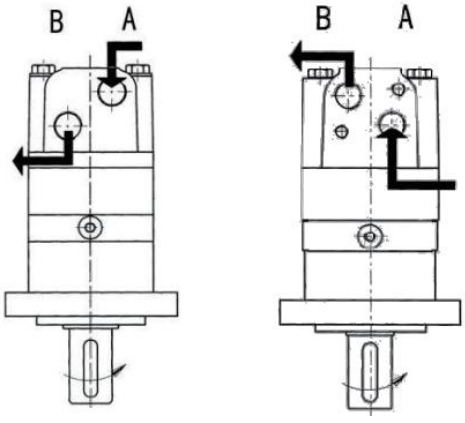




In the use of non-leakage oil pipes, the pressure on the output shaft sealing ring is slightly higher than the pressure in the return oil pipeline. When using an external leakage oil pipe, the pressure on the output shaft sealing ring is the same as the pressure in the external leakage oil pipe.

The rotation direction of the output shaft

When facing the direction of motor shaft extension, when the A port is high-pressure oil, the output shaft rotates clockwise.On the contrary, rotate counterclockwise.

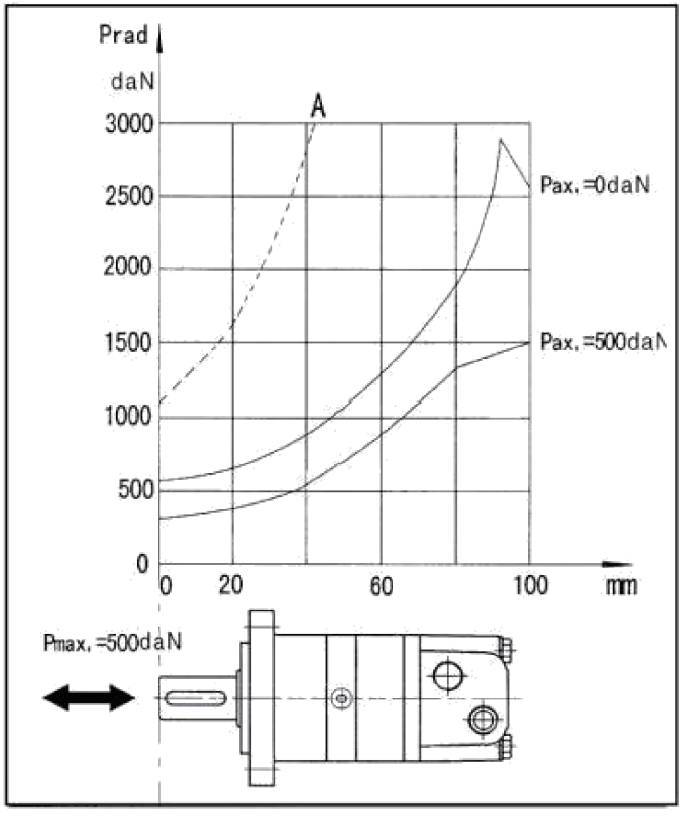


Flow rate of drain port

The following table shows the standard configuration motor. When the pressure of the oil return pipe is less than 0.5 to 1MPa, the maximum flow rate of drain port.

Operating differential pressure (MPa)	Oil kinematic viscosity (mm^2/s)	Flow rate of drain port (L/min)
14	20	1.5
	35	1
21	20	3
	35	2

Axial force, radial force



The A curve represents the maximum radial force load. It is recommended that users use axial and radial loads below the coarse line to ensure bearing life B_{10} (at 200rpm, 3000h operation).

ORDERING DETAILS

H MSY

Position Displacement

Displacement CC/R
80, 100, 125, 160, 200, 250, 315, 400, 500

Flange and Pilot

E2 = 2-φ13.5 Diamond-flange, pilot φ82.5x6.3mm
E4 = 4-φ13.5 Square-flange, pilot φ82.5x6.3mm
EB4 = 4-M14 Pitch-Circeφ108, Square-flange, pilot φ82.5x6.3mm
E6 = 4-φ13.5 Diamond-flange, pilot φ82.5x6.3mm
F6 = 6-φ13.5 Diamond-flange, pilot φ82.5x2.8mm
W = 4-φ13.5 Wheel-flangeφ160, pilot φ125x8mm
B2 = 4-φ13 Square-flangeφ127.7, pilot φ100x6mm

Shaft

A = Straight shaft φ25, Lenght 41.8, parallel key 8x7×32, M8
B = Straight shaft φ32, Lenght 56, parallel key 10x8×45, M8
D = Straight shaft φ25.4, Lenght 41.8, parallel key 6.35x6.35×25.4, 1/4-20UNC
F = Involute spline shaft φ31.75, Lenght 48, 14-DP12/24, 3/8-16UNC
FD = Involute spline shaft φ31.75, Lenght 56.2, 14-DP12/24, M8
K = Straight shaft φ25.4, Lenght 41.8, Woodruff key φ25.4x6.35, 1/4-20UNC
S1 = Rectangular splined shaft 6-25.32x21.47x6.25, Lenght 41.8, 1/4-20UNC
I = Involute spline shaft φ22, Lenght 33, 13-DP16/32
G = Straight shaft φ31.75, Lenght 48, parallel key 7.96x7.96×31.75, 3/8-16UNC
SL = Rectangular splined shaft 6-34.85x28.14x8.64, Lenght 100, M8
P = Straight shaft φ30, Lenght 48, parallel key 10x8×40, M8
J = Rectangular splined shaft 6-30x25.3x8, Lenght 48, M8
N = Rectangular splined shaft 6-30x24.8x6, Lenght 48, M8
Z = Rectangular splined shaft 6-32x26x6, Lenght 56.5, M8

Special function

A = Standard

Paint Color

S = Silver Gery
Omit = Blue
B = Black
00 = No Paint

Rotation Direction

Omit = Standard
R = Opposite

Ports and drain port

D = G1/2,G1/4,2-M10
M = M22X1.5,M14X1.5,2-M10
S = 7/8-14UNF 'O'-ring,7/16-20UNF 'O'-ring,2-3/8-16UNC
S1 = 7/8-14UNF 'O'-ring,7/16-20UNF 'O'-ring,2-M10
P = 1/2-14NPT,7/16-20UNF 'O'-ring,2-3/8-16UNC
DB = G1/2,G1/4
DU = G1/2,7/16-20UNF 'O'-ring
SB = 7/8-14UNF 'O'-ring,G1/4
SU = 7/8-14UNF 'O'-ring,7/16-20UNF 'O'-ring
M4 = M22X1.5,M14X1.5
PB = 1/2-14NPT,G1/4
PU = 1/2-14NPT,7/16-20UNF 'O'-ring
G2 = G1/2,M10X1
M3 = M22X1.5,M10X1
S1 = 7/8-14UNF 'O'-ring,M10X1