



BMSY SERIES HYDRAULIC MOTOR

BMSY new series motor adapt the advanced Geroler gear set designed with disc distribution flow and high pressure. The unit can be supplied the individual variant in operating multifunction in accordance with requirement of applications.

Characteristic feautres:

- * Advanced manufacturing devices for the Geroler gear set, which use low pressure of start-up, provide smooth and reliable operation and high efficiency.
- * The output shaft adapts in tapered roller bearings that permit high axial and radial forces. The case can offers capacities of high pressure and high torque in the wide of applications.
- * Advanced design in disc distribution flow, which can automatically compensate in operating with high volume efficiency and long life , provide smooth and reliable operation.
- * The new series motor is suitable for vehicles with greater loads and pressure drop.

Main Specification

Type		BMSY BMSYS 80	BMSY BMSYS 100	BMSY BMSYS 125	BMSY BMSYS 160	BMSY BMSYS 200	BMSY BMSYS 250	BMSY BMSYS 315	BMSY BMSYS 400	BMSY BMSYS 475
Geometric displacement (cm ³ /rev.)		80.6	100.8	125	154	194	243	311	394	475
Max. speed (rpm)	cont.	800	748	600	470	375	300	240	185	155
	int.	988	900	720	560	450	360	280	225	185
Max. torque (N•m)	cont.	225	290	365	485	586	708	880	880	910
	int.	305	390	480	590	705	860	1000	980	990
Max. output (kW)	cont.	16	18	18	18.1	18.1	18	17	11	9
	int.	20	22	23	25	24	23.8	20.2	12	11
Max. pressure drop (MPa)	cont.	20.5	20.5	20.5	21	21	20	20	16	14
	int.	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)	cont.	65	75	75	75	75	75	75	75	75
	int.	80	90	90	90	90	90	90	90	90
Max. inlet pressure (MPa)	cont.	25	25	25	25	25	25	25	25	25
	int.	30	30	30	30	30	30	30	30	30
Weight (kg)		9.8	10	10.3	10.7	11.1	11.6	12.3	13.2	14.3

* Continuous pressure :Max. value of operating motor continuously.

* Intermittent pressure :Max. value of operating motor in 6 seconds per minute.

* Peak pressure :Max. value of operating motor in 0.6 second per minute.

Performance Data

BMSY80 [80.6cm³/rev.]

Pressure (MPa)

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

BMSY100 [100.8cm³/rev.]

Pressure (MPa)

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

BMSY125 [125cm³/rev.]

Pressure (MPa)

	3.5	7	10.5	14	17.5	20.5	22.5
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Flow (L/min)	Pressure (MPa)						
	3.5	7	10.5	14	17.5	20.5	22.5
15	55	120	176	245	309	345	375
	115	113	110	104	98	90	84
30	55	120	175	250	315	364	404
	231	228	223	214	202	188	172
40	53	118	178	250	315	364	403
	312	309	290	289	278	262	235
50	50	115	176	248	315	362	397
	391	386	378	365	352	339	308
60	45	113	171	241	308	358	397
	469	461	450	437	425	400	372
Max.cont.	45	110	167	240	306	352	389
	588	574	560	544	526	505	481
Max.int.	40	105	162	237	301	343	378
	710	696	680	661	646	628	610

BMSY160 [154cm³/rev.]

Pressure (MPa)

	3.5	7	10.5	14	17.5	21	22.5
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Flow (L/min)	Pressure (MPa)						
	3.5	7	10.5	14	17.5	21	22.5
15	70	142	215	298	372	435	476
	93	91	89	85	80	76	58
30	73	151	225	312	382	456	492
	189	187	181	176	170	162	153
40	75	152	228	314	383	454	488
	252	250	246	239	234	228	212
50	70	148	225	305	372	445	480
	313	310	306	298	293	285	272
60	68	143	218	296	370	442	480
	378	376	370	362	353	346	332
Max.cont.	62	140	211	291	365	439	475
	475	469	461	450	441	432	414
Max.int.	59	131	202	286	357	425	460
	567	561	554	543	532	520	509

TORQUE(N·m) 301
SPEED (r/min) 646

□ cont.
■ int.

Performance Data

BMSY200 [194cm³/rev.]

		Pressure (MPa)						Max.cont. Max.int.		
		3.5	7	10.5	14	17.5	21	22.5		
Flow (L/min)	15	87	179	273	371	471	562	610		
		74	73	71	68	64	60	48		
	30	91	190	288	386	489	572	618		
		150	148	143	140	134	128	119		
	40	94	193	296	394	498	584	645		
		198	195	192	188	183	178	167		
50	90	191	292	389	493	580	634			
	248	246	241	236	230	223	212			
60	85	185	279	382	483	575	622			
	300	295	288	281	273	263	251			
Max.cont.	75	78	176	271	370	472	561	610		
		374	370	364	360	352	340	331		
Max.int.	90	68	163	265	361	456	545	599		
		443	440	435	428	424	413	400		

BMSY250 [243cm³/rev.]

		Pressure (MPa)						Max.cont. Max.int.		
		3.5	7	10.5	14	17.5	20	22.5		
Flow (L/min)	15	110	231	351	462	585	681	778		
		59	58	56	53	50	46	35		
	30	116	236	359	475	597	700	790		
		119	117	114	108	102	92	80		
	40	118	241	363	480	599	706	796		
		162	159	156	150	143	134	121		
50	111	234	352	472	591	693	788			
	203	201	197	191	182	173	158			
60	106	224	345	462	582	685	772			
	244	242	237	230	220	208	194			
Max.cont.	75	101	214	340	454	570	670	760		
		303	299	294	285	272	260	244		
Max.int.	90	93	209	335	447	559	657	749		
		363	359	354	348	340	328	303		

BMSY315 [311cm³/rev.]

		Pressure (MPa)						Max.cont. Max.int.		
		3.5	7	10.5	14	17.5	20	22.5		
Flow (L/min)	15	148	304	456	613	762	879	978		
		48	47	45	43	41	39	27		
	30	155	314	465	635	778	884	988		
		95	93	91	89	86	82	67		
	40	160	321	479	650	796	906	997		
		127	125	121	117	115	109	91		
50	155	314	465	638	780	886	988			
	159	157	153	149	145	142	128			
60	151	306	453	620	765	886	976			
	187	185	181	176	169	157	143			
Max.cont.	75	146	300	445	613	755	875	966		
		238	236	232	227	224	220	196		
Max.int.	90	135	284	436	601	740	863	952		
		286	283	278	272	265	257	232		

BMSY400 [394cm³/rev.]

		Pressure (MPa)						Max.cont. Max.int.	
		3.5	7	10.5	14	16	17.5		
Flow (L/min)	15	186	379	578	779	896	986		
		37	36	35	33	31	29		
	30	190	388	590	791	905	991		
		75	73	71	68	65	61		
	40	195	394	596	797	912	998		
		99	97	95	93	90	85		
50	191	388	587	785	904	983			
	125	123	118	114	109	102			
60	186	388	587	785	904	983			
	149	146	142	137	131	122			
Max.cont.	75	181	372	576	770	891	973		
		187	183	177	171	164	153		
Max.int.	90	176	367	571	766	883	965		
		226	221	214	208	199	183		

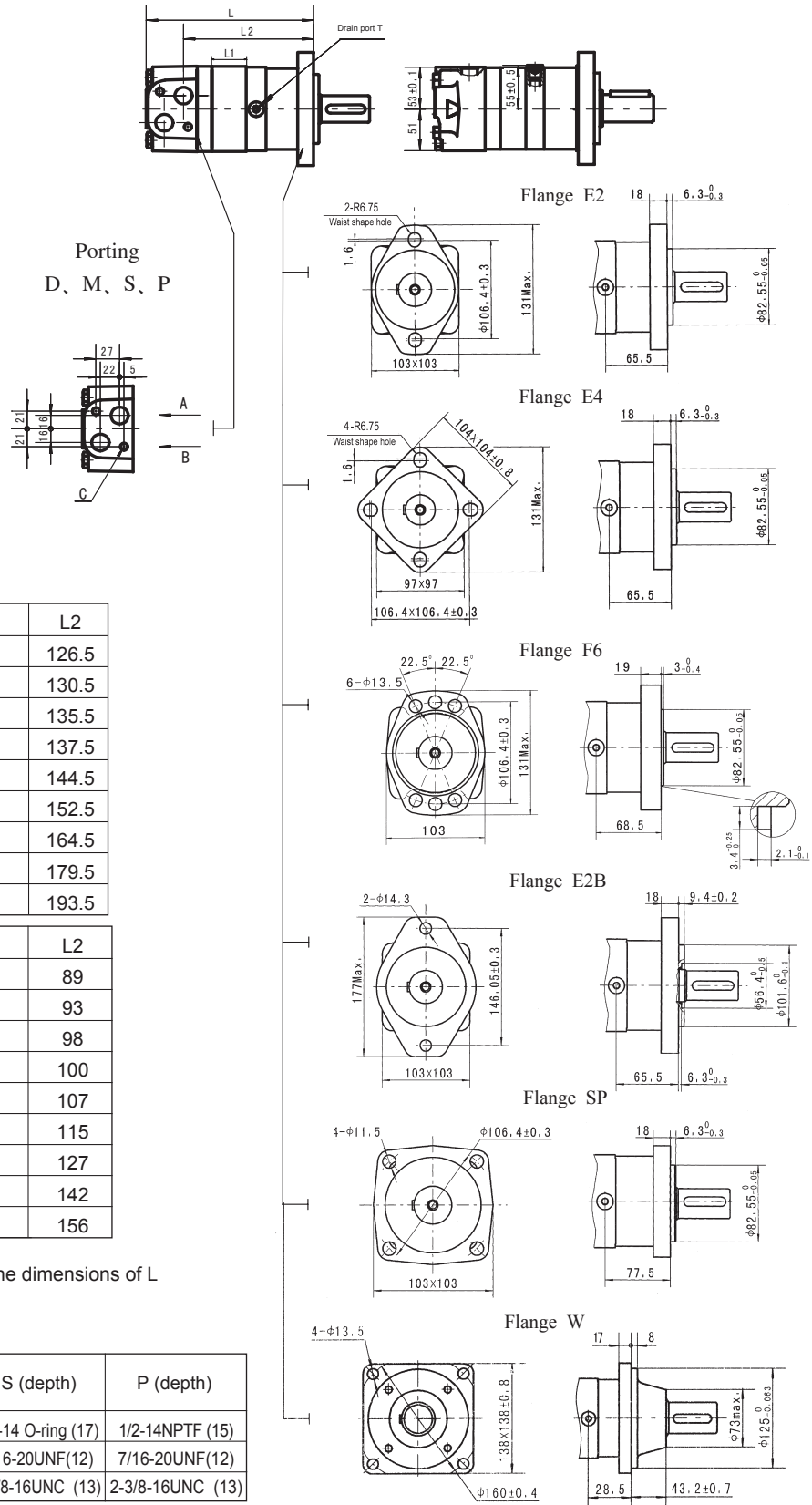
TORQUE (N·m) 766
SPEED (rpm) 208

BMSY475 [475cm³/rev.]

		Pressure (MPa)					Max.cont. Max.int.	
		3.5	7	10.5	14	15		
Flow (L/min)	15	218	439	661	892	995		
		30	29	28	27	25		
	30	223	450	676	910	1002		
		61	60	58	56	53		
	40	228	461	689	927	1017		
		82	80	77	74	68		
50	224	456	682	920	1008			
	103	101	97	92	86			
60	220	451	677	913	998			
	123	121	118	112	105			
Max.cont.	75	212	443	664	901	980		
		155	153	147	140	132		
Max.int.	90	196	421	643	877	959		
		186	184	178	170	157		

□ cont.
■ int.

BMSY DIMENSIONS AND MOUNTING DATA



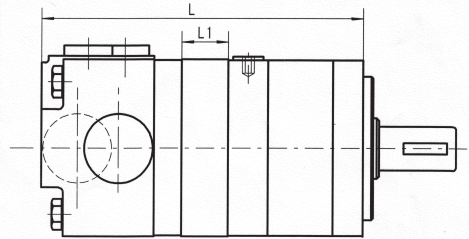
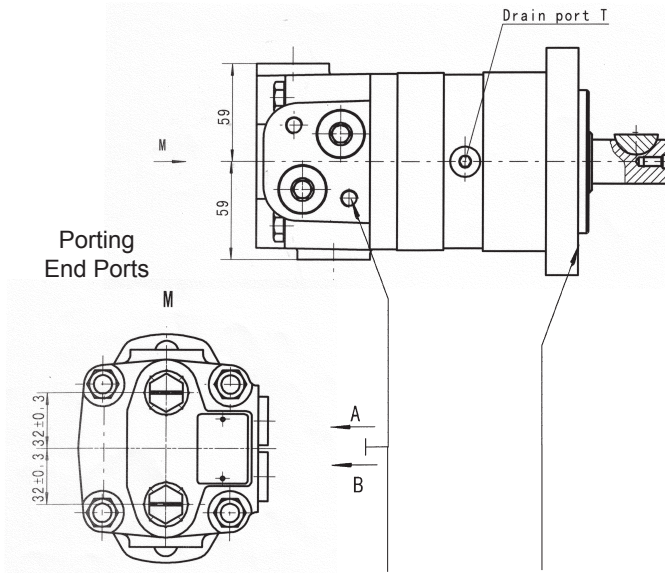
Model	L	L1	L2
BMSY-80	170	16	126.5
BMSY-100	174	20	130.5
BMSY-125	179	25	135.5
BMSY-160	181	27	137.5
BMSY-200	188	34	144.5
BMSY-250	196	42	152.5
BMSY-315	208	54	164.5
BMSY-400	223	69	179.5
BMSY-475	237	83	193.5

Model	L	L1	L2
BMSY-80-W	132.5	16	89
BMSY-100-W	136.5	20	93
BMSY-125-W	141.5	25	98
BMSY-160-W	143.5	27	100
BMSY-200-W	150.5	34	107
BMSY-250-W	158.5	42	115
BMSY-315-W	170.5	54	127
BMSY-400-W	185.5	69	142
BMSY-475-W	199.5	83	156

Note: If the mounting SP is used, the dimensions of L and L2 should plus 12mm.

Code Mounting	D (depth)	M (depth)	S (depth)	P (depth)
P(A,B)	G1/2(15)	M22x1.5(15)	7/8-14 O-ring (17)	1/2-14NPTF (15)
T	G1/4(12)	M14x1.5(12)	7/16-20UNF(12)	7/16-20UNF(12)
C	2-M10(13)	2-M10 (13)	2-3/8-16UNC (13)	2-3/8-16UNC (13)

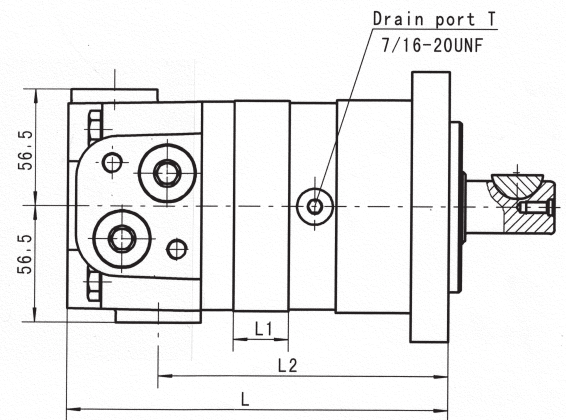
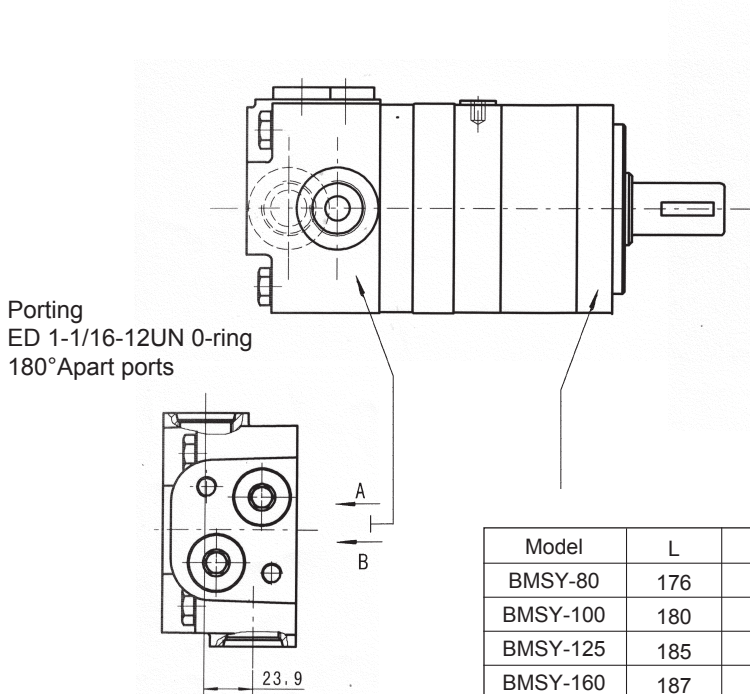
BMSY DIMENSIONS AND MOUNTING DATA



End Ports P(A/B)

Model	L	L1	Model	L	L1
BMSY-80	176	16	BMSY-80-WE	148	16
BMSY-100	180	20	BMSY-100-WE	152	20
BMSY-125	185	25	BMSY-125-WE	157	25
BMSY-160	187	27	BMSY-160-WE	159	27
BMSY-200	194	34	BMSY-200-WE	166	34
BMSY-250	202	42	BMSY-250-WE	174	42
BMSY-315	214	54	BMSY-315-WE	186	54
BMSY-400	229	69	BMSY-400-WE	201	69
BMSY-475	243	83	BMSY-475-WE	215	83

Code	EE-D (depth)	EE-M2 (depth)	EE-S2 (depth)
P(A,B)	G1/2 (15)	M22 x 1.5 (15)	7/8-14 O-ring (17)
T	G1/4 (12)	M14 x 1.5 (12)	7/16-20UNF(12)

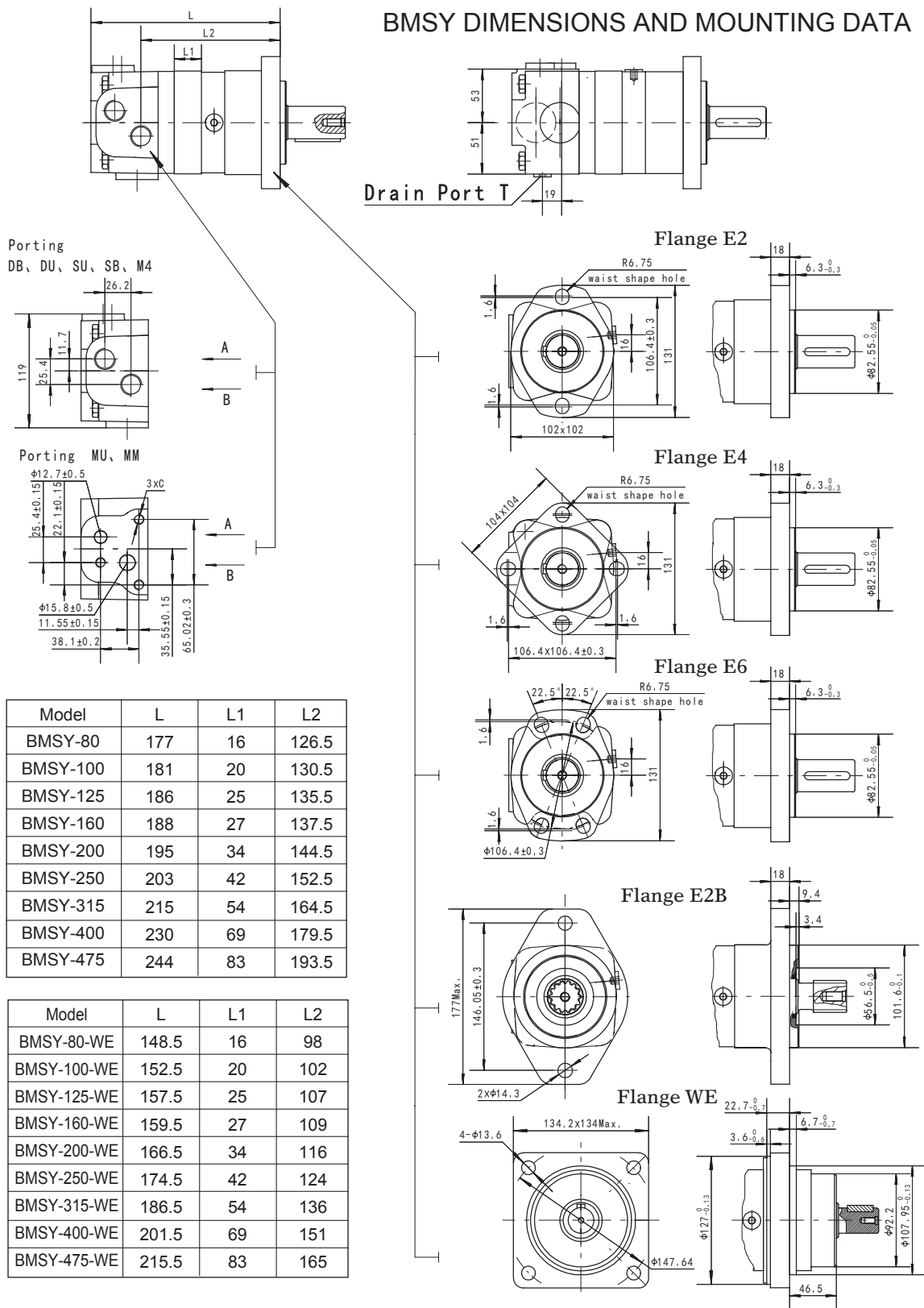


Code	ED (depth)
P(A,B)	1-1/16-12UN (18)
T	7/16-20UNF (12)

Model	L	L1	L2
BMSY-80	176	16	130
BMSY-100	180	20	134
BMSY-125	185	25	139
BMSY-160	187	27	141
BMSY-200	194	34	148
BMSY-250	202	42	156
BMSY-315	214	54	168
BMSY-400	229	69	183
BMSY-475	243	83	197

Model	L	L1	L2
BMSY-80-WE	148	16	102
BMSY-100-WE	152	20	106
BMSY-125-WE	157	25	111
BMSY-160-WE	159	27	113
BMSY-200-WE	166	34	119
BMSY-250-WE	178	42	127
BMSY-315-WE	190	54	139
BMSY-400-WE	205	69	154
BMSY-475-WE	219	83	168

BMSY DIMENSIONS AND MOUNTING DATA

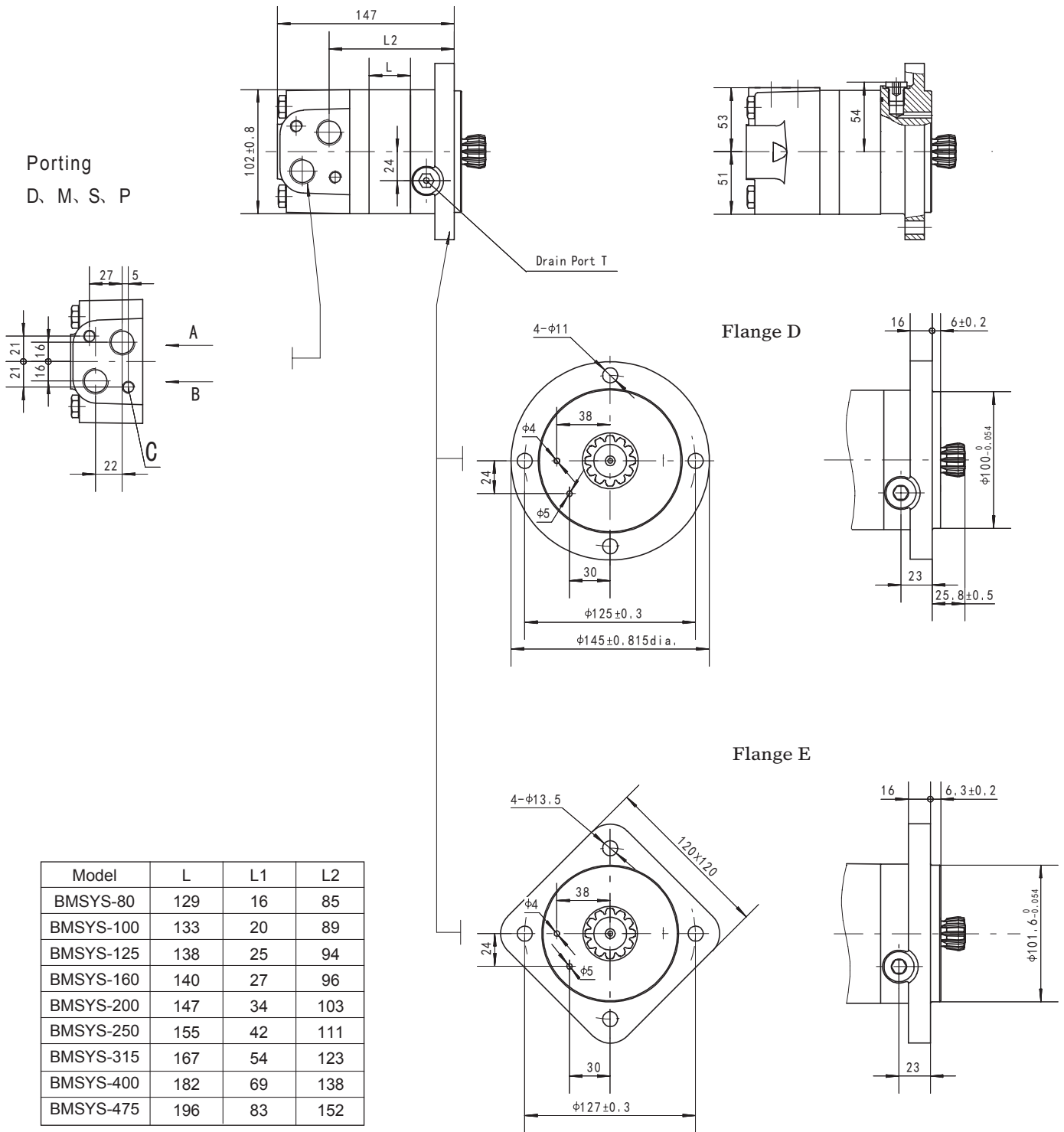


Model	L	L1	L2
BMSY-80	177	16	126.5
BMSY-100	181	20	130.5
BMSY-125	186	25	135.5
BMSY-160	188	27	137.5
BMSY-200	195	34	144.5
BMSY-250	203	42	152.5
BMSY-315	215	54	164.5
BMSY-400	230	69	179.5
BMSY-475	244	83	193.5

Model	L	L1	L2
BMSY-80-WE	148.5	16	98
BMSY-100-WE	152.5	20	102
BMSY-125-WE	157.5	25	107
BMSY-160-WE	159.5	27	109
BMSY-200-WE	166.5	34	116
BMSY-250-WE	174.5	42	124
BMSY-315-WE	186.5	54	136
BMSY-400-WE	201.5	69	151
BMSY-475-WE	215.5	83	165

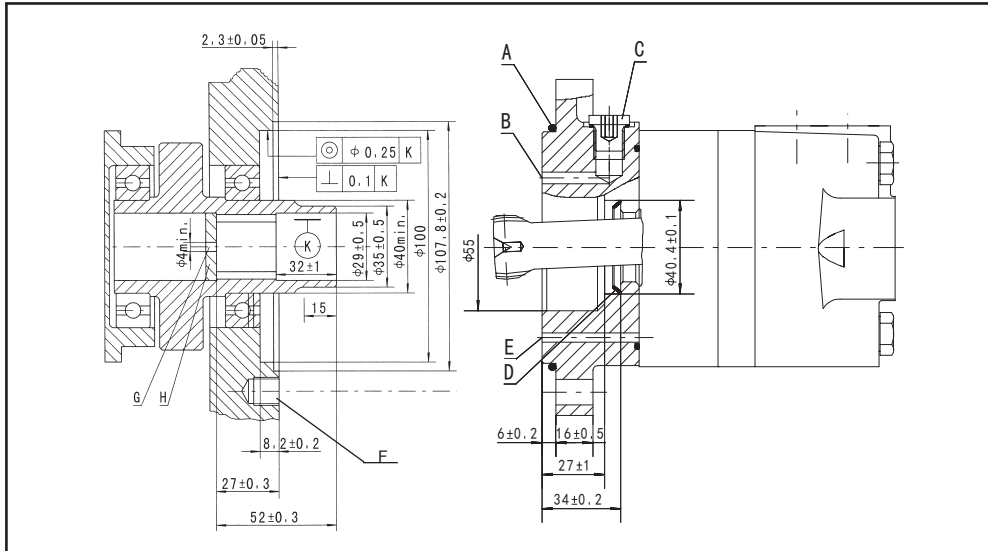
Code	DB(depth)	DU (depth)	SU (depth)	SB (depth)	M4 (depth)	MU	MM
P(A,B)	G1/2(15)	G1/2(15)	7/8-14O-ring(17)	7/8-14O-ring(17)	M22x1.5(15)	Φ12.7,Φ15.8	Φ12.7,Φ15.8
T	G1/4(12)	7/16-20UNF(12)	7/16-20UNF(12)	G1/4(12)	M14x1.5(12)	7/16-20UNF(12)	G1/4(12)
C						3/8-16UNC	M10

BMSYS DIMENSIONS AND MOUNTING DATA



Code	D (depth)	M (depth)	S (depth)	P (depth)
P(A,B)	G1/2(15)	M22x1.5(15)	7/8-14O-ring(17)	1/2-14NPTF(15)
T	G1/4(12)	M14x1.5(12)	7/16-20UNF(12)	7/16-20UNF(12)
C	2-M10(13)	2-M10(13)	2-3/8-16UNC(13)	2-3/8-16UNC(13)

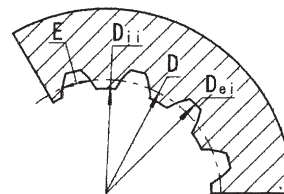
BMSYS DIMENSIONS AND MOUNTING DATA



- A: O-ring:100x3
- B: External drain channel
- C: Drain connection G 1/4;12 mm deep
- D: Conical seal ring
- E: Internal drain channel
- F: M10;min. 15mm deep
- G: Oil circulation hole
- H: Hardened stop plate

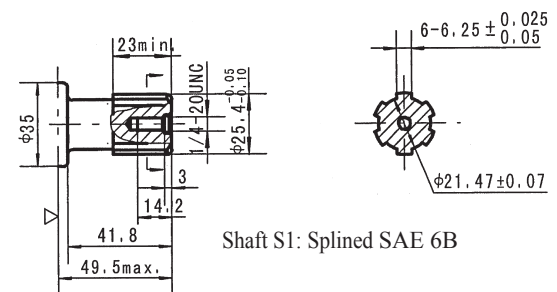
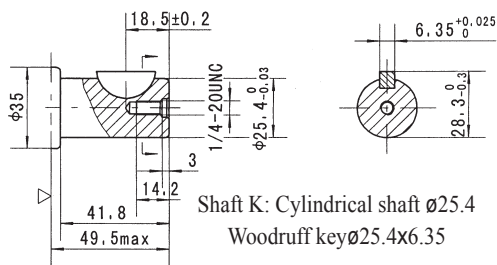
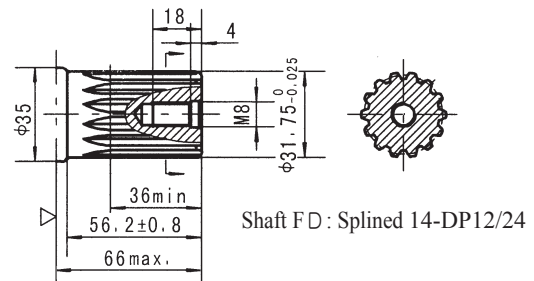
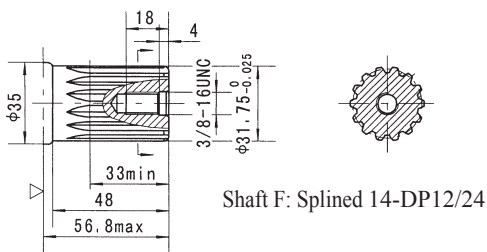
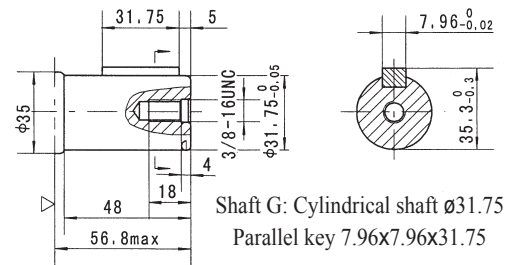
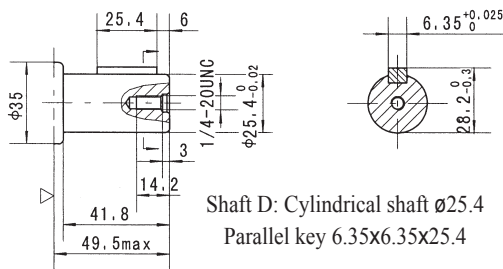
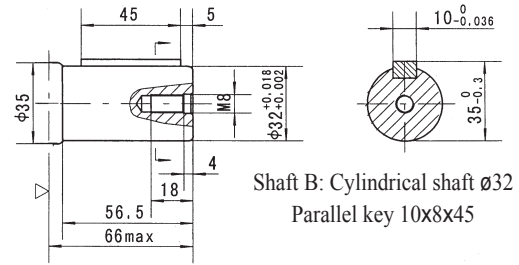
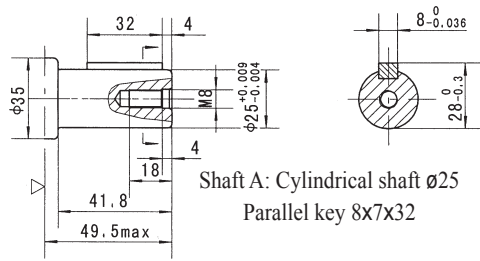
INTERNAL SPLINE DATA FOR THE ATTACHED COMPONENT

Fillet Root Side Fit		mm
Number of Teeth	Z	12
Diametral Pitch	DP	12/24
Pressure Angle	α_D	30°
Pitch Dia.	D	ø25.4
Major Dia.	D_{ei}	ø28 ⁰ _{-0.1}
Minor Dia.	D_{ii}	ø23 ^{+0.033} ₀
Space Width [Circular]	E	4.308±0.02



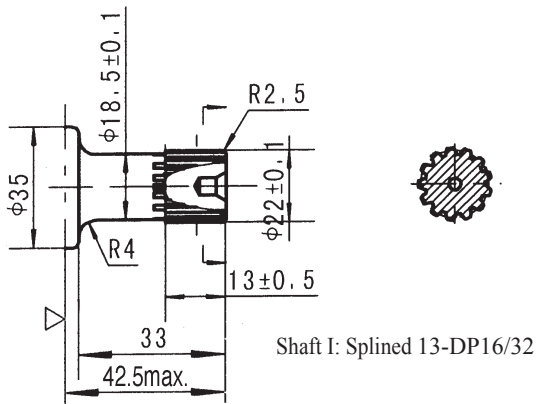
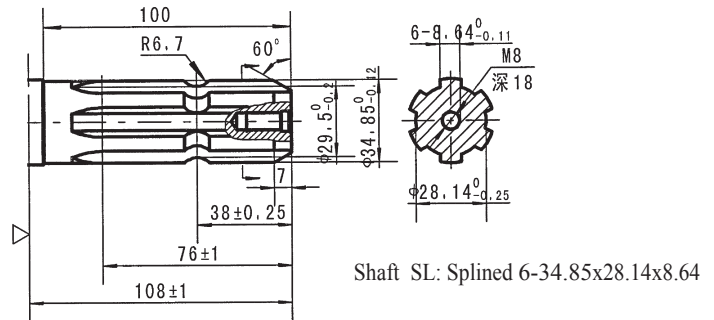
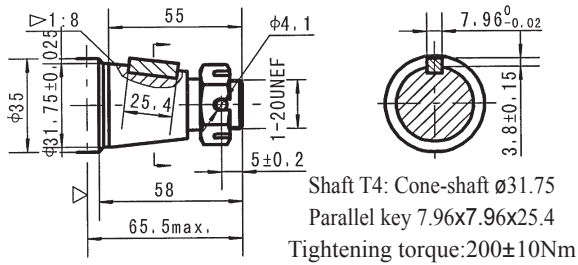
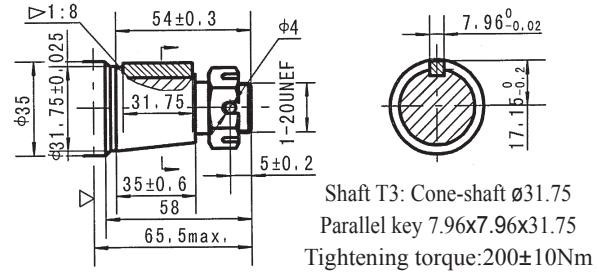
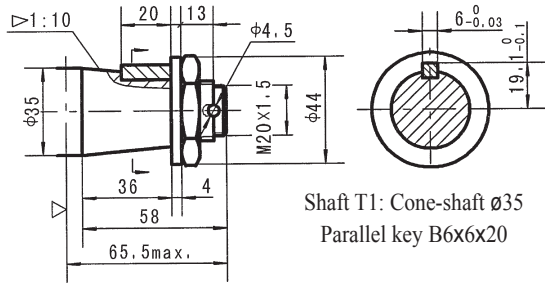
Hardening Specification: HRC 62±2
Effective case depth 0.7±0.2

SHAFT EXTENSIONS FOR BMSY MOTORS



▷ Motor Mounting Surface(Dimension corresponding mounting E2, by analogy with others)

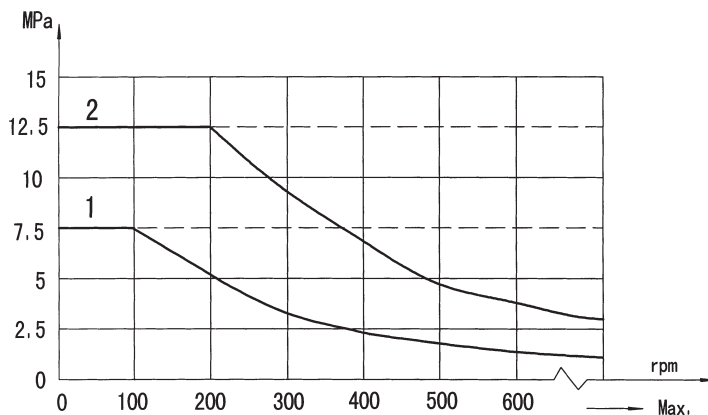
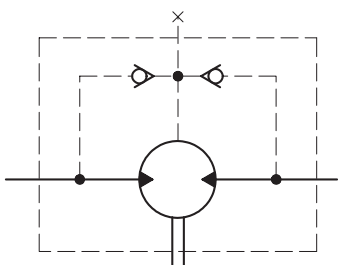
SHAFT EXTENSIONS FOR BMSY MOTORS



- ▷ Motor Mounting Surface(Dimension corresponding mounting E2, by analogy with others)
Note:Mounting SP is the same with shaft mode T1、D、B、F and G.

BMSY Series Hydraulic Motor

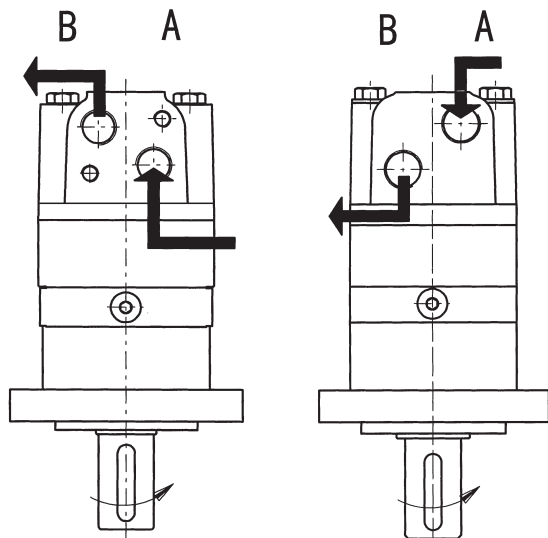
Permissible shaft seal pressure



Note: 1. Chart for standard shaft seal;
2. Chart for high pressure shaft seal.

Standard direction of shaft rotation: Standard

When facing shaft end of motor, shaft to rotate:
Clockwise when port "A" is pressurized.
Counter-clockwise port "B" is pressurized.



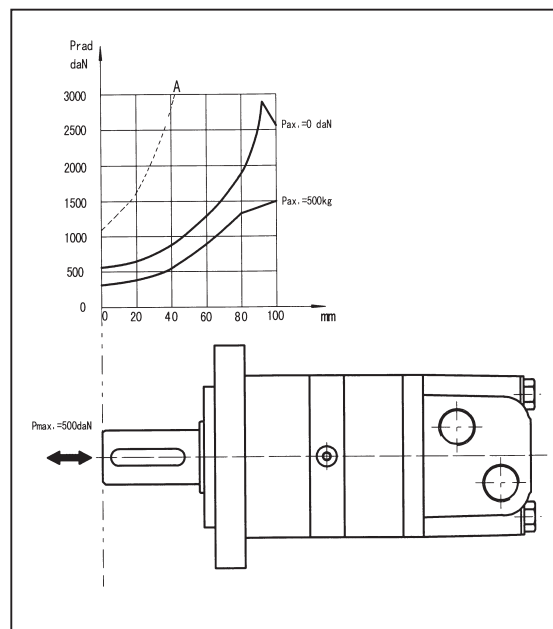
In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

Oil flow in drain line

The table shows the Max. oil flow in the drain line at a return pressure less than 0.5-1MPa.

Pressure drop (MPa)	Viscosity (mm ² /s)	Oil flow in the drain line (L/min.)
14	20	1.5
	35	1
21	20	3
	35	2

Axial and Radial forces



The output shaft runs in tapered bearings that permit high axial and radial forces, Curve "A" shows max radial shaft load, Any shaft loads exceeding the values quoted in the curve will involve a risk of breakage, The two other curves apply to a B10 bearing life of 3000 hours at 200 RPM.

Order Information

Pos.1	2	3	4	5	6	7	8
Code	Disp.	Flange	Output Shaft	Port and Drain Port	Rotation Direction	Paint	Unusually Function
S	E2	2-Ø13.5 Rhomb-flange Ø106.4, pilot Ø82.5×6.3	A Shaft Ø25.4, parallel key 8×7×32	EE-D G1/2, G1/4	Standard	Blue	Standard
	E4	4-Ø13.5 Rhomb-flange Ø106.4, pilot Ø82.5×6.3	B Shaft Ø32, parallel key 10×8×45	EE-M 2M22×1.5, M14×1.5			
	E6	4-Ø13.5 Rhomb-flange Ø106.4, pilot Ø82.5×6.3	D Shaft Ø25.4, parallel key 6.35×6.35×25.4	EE-S2 7/8-14UNF O-ring, 7/16-20 UNF			
	F6	6-Ø13.5 Rhomb-flange Ø106.4, pilot Ø82.5×6.3	F Shaft Ø31.75, parallel key 6.35×6.35×25.4	D G1/2 Manifold Mount			
	W	4-Ø13.5 Wheel-flange Ø160, pilot Ø125×8	FD Long Shaft Ø31.75, splined key 14-DP12/24	2-M10, G1/4			
	80	6-Ø13.5 Rhomb-flange Ø106.4, pilot Ø82.5×6.3	FE Shaft Ø31.75, splined key 14-DP12/24	1-1/16-12UN O-ring, 7/16-20 UNF			
	100	4-Ø13.5 Wheel-flange Ø160, pilot Ø125×8	G Shaft Ø31.75, splined key 14-DP12/24	G1/2, G1/4			
	125	2-Ø14.3 Rhomb-flange Ø146.05, pilot Ø101.6×9.4	K Shaft Ø25.4, Woodruff key Ø25.4×6.35	7/8-14UNF O-ring, G1/4			
	160	4-Ø11.5 Square-flange Ø106.4, pilot Ø101.6×9.4	T4 Cone-shaft Ø31.75, parallel key 7.96×7.96×25.4	7/8-14UNF O-ring, 7/16-20 UNF			
	200	4-Ø13.5 Wheel-flange Ø147.6, pilot Ø107.95×6.4	SL shaft Ø34.85, Splined key 6-34.85×28.14×8.64	M22×1.5, M14×1.5			
	250	4-Ø13.5 Wheel-flange Ø147.6, pilot Ø107.95×6.4	T1 Cone-shaft Ø35, parallel key B6×6×20	M4 M22×1.5, M14×1.5			
	315	4-Ø13.5 Wheel-flange Ø147.6, pilot Ø107.95×6.4	T3 Cone-shaft Ø31.75, parallel key 7.96×7.96×31.75	MU 1/2", 5/8" Crosshole Manifold 3×3/8-16UNC, 7/16-20UNF			
	400	4-Ø11 Circle-flange Ø125, pilot Ø100×6	S Shaft Ø25.4, splined key 13-DP16/32	MM 1/2", 5/8" Crosshole Manifold 3×M10, G1/4			
	475	4-Ø13.5 Circle-flange Ø127, pilot Ø101.6×6.3	I Shaft Ø25.4, splined key 12-DP12/24	M M22×1.5 Manifold Mount			
	S	D	4-Ø11 Circle-flange Ø125, pilot Ø100×6	Omit			
E		4-Ø13.5 Circle-flange Ø127, pilot Ø101.6×6.3	Omit	7/8-14UNF O-ring, 7/16-20 UNF	Omit	Black	Free Running

Note: When the table is used, please fill the code of left rows in the table and give us, which the code information is consists of construction, displacement, mounting flange, output shaft and ports. The information of mounting flange, output shaft and ports are the same as BMS series. The SP flange afflies to shafts of T1, D, B, F, G. If the specification is not in the table or you have specific requirements, please contact us.

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