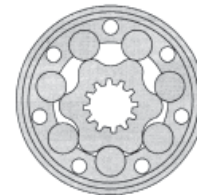
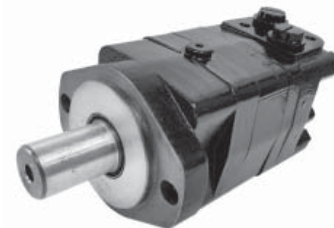




FLUID COMPONENTS, INC.

# Hydraulic Motor Model BMSY



The BMSY series motor adapts the advanced **ROLORTORC™** gear set design with **DISC** distribution flow and high pressure. These motors can be supplied with various options for multifunctional operations in accordance with the application requirements. The output shaft tapered roller bearings permit high axial and radial forces offering a smooth operation during low pressure start up and high pressure operation.

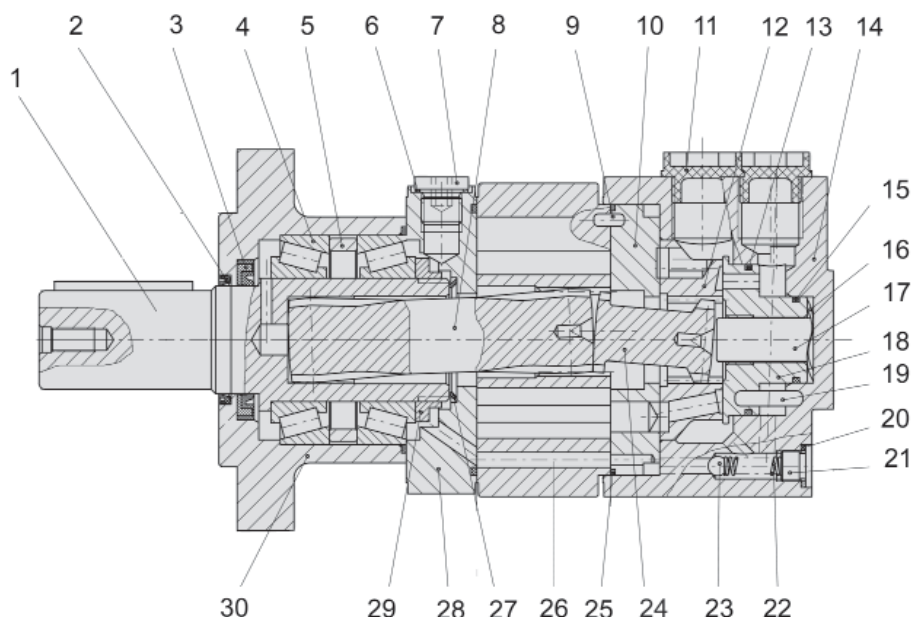
These low weight advanced construction design motors are manufactured in accordance with the requirements of the ISO 9000-2000 quality system.

**\*\* Check out our new higher pressure BMSY shaft seals - see page 78. \*\***

## Technical Specifications

MODEL		BMSY 80	BMSY 100	BMSY 125	BMSY 160	BMSY 200	BMSY 250	BMSY 315	BMSY 400	BMSY 475
<b>Displacement</b> <i>in<sup>3</sup>/rev (cm<sup>3</sup>/rev)</i>		4.92 (81)	6.15 (101)	7.63 (125)	9.39 (154)	11.83 (194)	14.83 (243)	18.97 (311)	24.04 (394)	28.98 (475)
<b>Max Speed</b> <i>rpm</i>	Cont	800	748	600	470	375	300	240	185	155
	Int.	988	900	720	560	450	360	280	225	185
<b>Max Torque</b> <i>in•lbf</i>	Cont	1991	2566	3230	4292	5185	6265	7787	7786	8053
	Int.	2212	2832	3540	4778	5707	7142	8495	8495	8495
<b>Max Differential</b> <i>psi</i>	Cont	2973	2973	2973	3045	3045	2900	2900	2320	2030
	Int.	3265	3265	3265	3265	3265	3265	3265	2563	2175
<b>Max Flow</b> <i>gpm</i>	Cont	17.1	19.81	19.81	19.81	19.81	19.81	19.81	19.81	19.81
	Int.	21.13	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
<b>Weight</b>		23.70 lbs	24.05 lbs	24.75 lbs	25.00 lbs	26.15 lbs	27.35 lbs	28.95 lbs	30.95 lbs	32.80 lbs

*Continuous = maximum of continuous operation. Intermittent = maximum operating range for 6 seconds per minute*

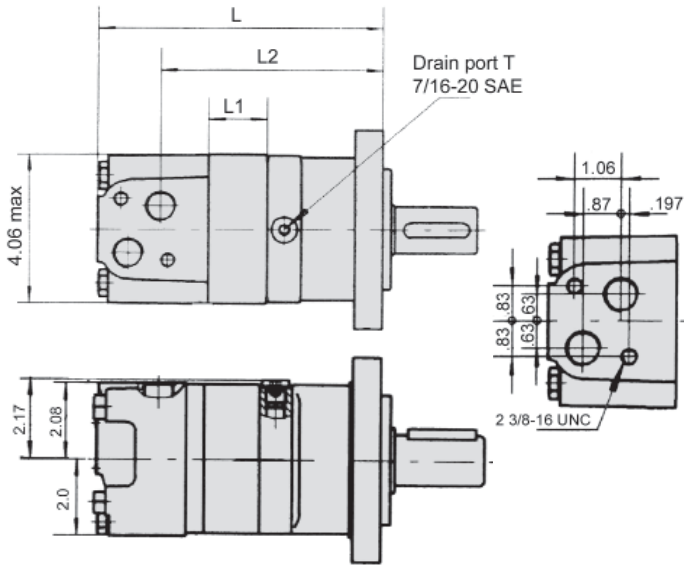


### Diagram Key

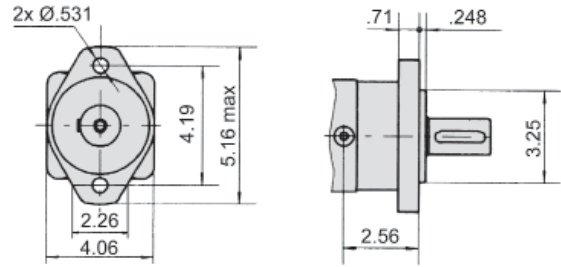
- |                      |                           |
|----------------------|---------------------------|
| 1 Output Shaft       | 16 Balancer Spring        |
| 2 Dust Seal          | 17 Spacer                 |
| 3 Shaft Seal         | 18 Balance Plate          |
| 4 Roller Bearing     | 19 Pin                    |
| 5 Bearing Spacer     | 20 Seal Washer            |
| 6 Seal Washer        | 21 Check Valve Plug       |
| 7 Case Drain Plug    | 22 Check Valve Spring     |
| 8 Drive Link         | 23 Ball Check (steel)     |
| 9 Pin                | 24 Distributor Drive Link |
| 10 Timing Plate      | 25 Body "O" Ring          |
| 11 Shipping Plug     | 26 Rolortorc™ Set         |
| 12 Distributor Plate | 27 Oil Control Ring       |
| 13 "O" Ring          | 28 Drain Manifold         |
| 14 Rear Housing      | 29 Bearing Nut            |
| 15 "O" Ring          | 30 Shaft Housing          |

# BMSY Installation Data

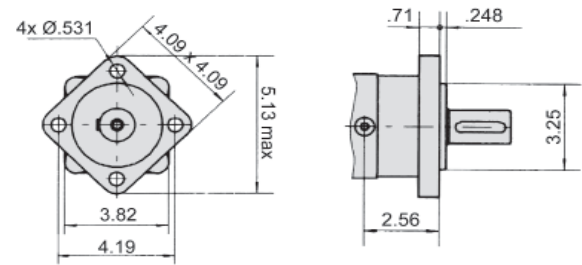
## S Ports - 7/8"-14 SAE



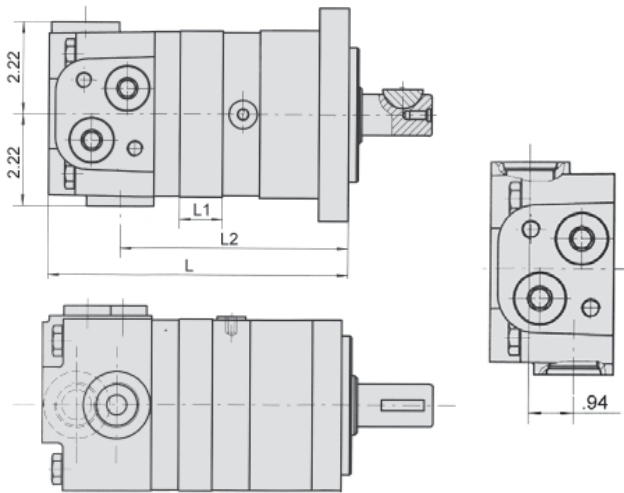
## E2 - SAE "A" 2-Bolt



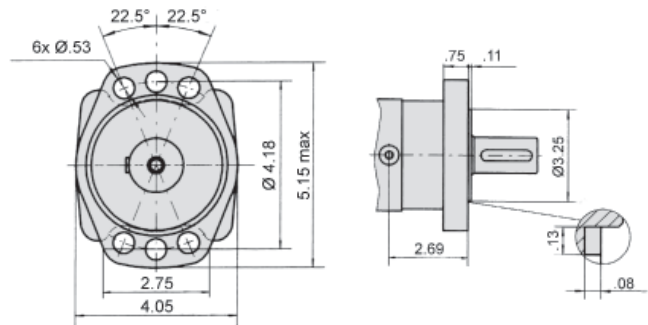
## E4 - SAE "A" 4-Bolt



## ED Ports (180° Apart) - 1 1/16"-12 SAE



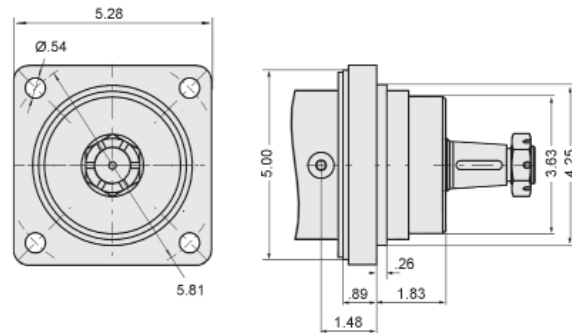
## F6 - 6-Bolt Magneto



**NEW!**

## WE - Wheel Mount (4-bolt)

Drop-in replacement for Char-Lynn 105-XXXX series.

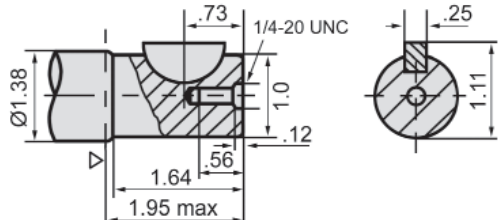


MODEL	L	L1	L2
BMSY 80	6.70"	0.63"	4.98"
BMSY 100	6.85"	0.79"	5.14"
BMSY 125	7.04"	0.98"	5.33"
BMSY 160	7.22"	1.24"	5.49"
BMSY 200	7.57"	1.57"	5.83"
BMSY 250	7.95"	1.97"	6.22"
BMSY 315	8.43"	2.44"	6.69"
BMSY 400	8.82"	2.71"	7.08"
BMSY 475	9.37"	3.26"	7.63"

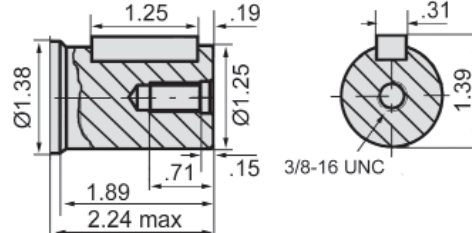
Port	SAE Sizes	NPT Sizes
P (A, B)	7/8 - 14 SAE	1/2 - 14 NPTF
T	7/16 - 20 SAE	7/16 - 20 SAE

# BMSY Drive Shaft Data

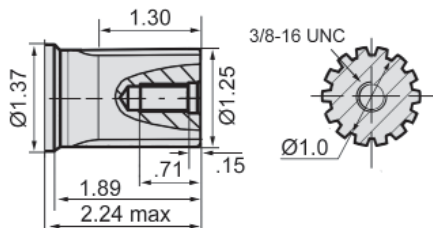
**K - 1" Woodruff Key**



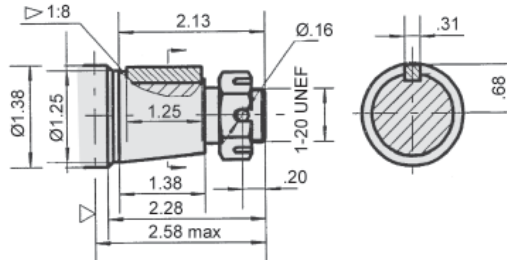
**G - 1 1/4" Parallel Key**



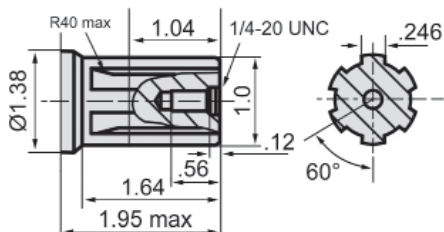
**F - 1 1/4" - 14 DP Spline**



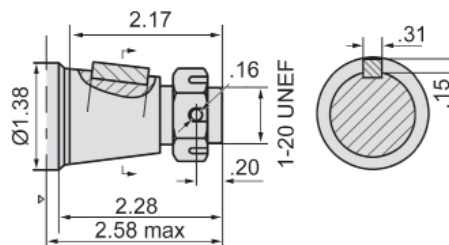
**T3 - 1 1/4" Tapered**



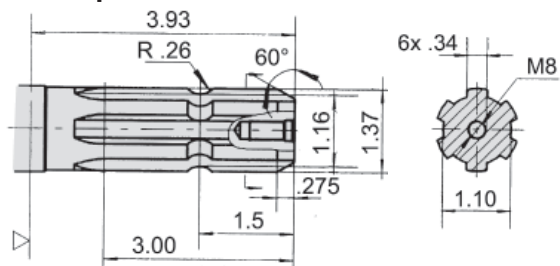
**S1 - SAE 6B Spline**



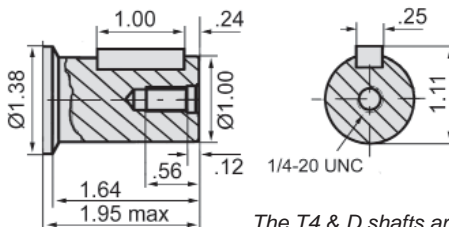
**T4 - 1 1/4" Tapered**



**SL - 6 Spline PTO**



**D - 1" Parallel Key**



The T4 & D shafts are only available with the Wheel Mount (WE).

**Ordering Example:** **Model** **BMSY** - **Frame Size** **200** **Flange** **E2** - **Drive Shaft** **K** - **Ports** **S** - **Options**

Model	Frame Size	Mounting Flange**	Drive Shaft**	Port Size	Options
BMSY	80 (4.92) 100 (6.15) 125 (7.63) 160 (9.59) 200 (11.84) 250 (15.40) 315 (19.20) 400 (24.04) 475 (28.98)	E2 = SAE "A" 2 Bolt E4 = SAE "A" 4-Bolt F6 = Magneto WE = Wheel Mount	K = 1" Woodruff Key G = 1 1/4" Parallel Key S1 = SAE 6B Spline T3 = 1 1/4" Tapered F = 1 1/4" - 14 DP Spline SL* = 6 Spline PTO D*** = 1" Parallel Key T4*** = 1 1/4" Tapered	S = 7/8" - 14 SAE ED = Side Ports 1 1/16-12 SAE	F* = Free Running

\* Special order  
\*\* Additional flange and drive shaft options available please consult factory.  
\*\*\* The T4 & D shafts are only available with the Wheel Mount (WE).

Seal kits for BMSY Motors are available for purchase. Order seal kit using item description: "BMSY Seal Kit".

# BMSY Flow Data

<b>BMSY 80</b>		<b>4.92 in<sup>3</sup>/rev (80.6 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2576</b>	<b>2973</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	310	708	1062	1398	1726	2017	2204	
		180 rpm	174 rpm	168 rpm	164 rpm	158 rpm	151 rpm	143 rpm	
	<b>7.93</b>	310	708	1062	1398	1726	2053	2301	
		362 rpm	352 rpm	346 rpm	338 rpm	330 rpm	322 rpm	310 rpm	
	<b>10.57</b>	310	699	1053	1372	1708	2009	2213	
		487 rpm	480 rpm	468 rpm	457 rpm	446 rpm	438 rpm	425 rpm	
	<b>13.21</b>	266	681	1035	1354	1699	1982	2195	
		612 rpm	603 rpm	592 rpm	581 rpm	572 rpm	558 rpm	542 rpm	
	<b>15.85</b>	248	681	1035	1354	1699	1982	2150	
735 rpm		726 rpm	718 rpm	703 rpm	687 rpm	673 rpm	646 rpm		
<b>17.17</b> <i>Max Cont.</i>	230	664	1026	1336	1663	1920	2088		
	794 rpm	786 rpm	773 rpm	760 rpm	744 rpm	722 rpm	706 rpm		
<b>21.13</b> <i>Max Int.</i>	217	637	964	1256	1557	1823	2009		
	981 rpm	968 rpm	955 rpm	925 rpm	893 rpm	870 rpm	832 rpm		

<b>BMSY 100</b>		<b>6.15 in<sup>3</sup>/rev (100.8 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2576</b>	<b>2973</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	425	841	1328	1770	2213	2495	2744	
		146 rpm	144 rpm	139 rpm	135 rpm	130 rpm	120 rpm	105 rpm	
	<b>7.93</b>	398	832	1292	1752	2213	2566	2805	
		291 rpm	289 rpm	278 rpm	274 rpm	269 rpm	258 rpm	242 rpm	
	<b>10.57</b>	381	788	1492	1735	2195	2549	2797	
		387 rpm	384 rpm	374 rpm	359 rpm	350 rpm	335 rpm	320 rpm	
	<b>13.21</b>	354	779	1195	1717	2186	2531	2788	
		486 rpm	483 rpm	473 rpm	462 rpm	450 rpm	430 rpm	420 rpm	
	<b>15.85</b>	327	779	1168	1657	2159	2504	2761	
588 rpm		584 rpm	574 rpm	562 rpm	550 rpm	538 rpm	520 rpm		
<b>19.81</b> <i>Max Cont.</i>	310	708	1151	1593	2124	2469	2744		
	740 rpm	735 rpm	720 rpm	705 rpm	696 rpm	676 rpm	653 rpm		
<b>23.77</b> <i>Max Int.</i>	266	664	1097	1505	2089	2398	2682		
	850 rpm	840 rpm	810 rpm	787 rpm	770 rpm	750 rpm	747 rpm		

<b>BMSY 125</b>		<b>7.63 in<sup>3</sup>/rev (125 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2576</b>	<b>2973</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	487	1062	1558	2168	2735	3053	3319	
		115 rpm	113 rpm	110 rpm	104 rpm	98 rpm	90 rpm	84 rpm	
	<b>7.93</b>	487	1062	1549	2213	2787	3221	3575	
		231 rpm	228 rpm	223 rpm	214 rpm	202 rpm	188 rpm	172 rpm	
	<b>10.57</b>	469	1044	1575	2213	2787	3221	3566	
		312 rpm	209 rpm	290 rpm	289 rpm	278 rpm	262 rpm	235 rpm	
	<b>13.21</b>	443	1020	1558	2195	2787	3203	3513	
		391 rpm	386 rpm	378 rpm	365 rpm	352 rpm	339 rpm	308 rpm	
	<b>15.85</b>	398	1000	1513	2133	2726	3168	3513	
469 rpm		461 rpm	450 rpm	437 rpm	425 rpm	400 rpm	372 rpm		
<b>19.81</b> <i>Max Cont.</i>	398	974	1478	2724	2708	3115	3442		
	588 rpm	574 rpm	560 rpm	544 rpm	526 rpm	505 rpm	481 rpm		
<b>23.77</b> <i>Max Int.</i>	354	938	1434	2097	2664	6035	3345		
	710 rpm	696 rpm	680 rpm	661 rpm	646 rpm	628 rpm	610 rpm		

<b>BMSY 160</b>		<b>9.39 in<sup>3</sup>/rev (154 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2576</b>	<b>3045</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	620	1257	1904	2639	3295	3852	4216	
		93 rpm	91 rpm	89 rpm	85 rpm	80 rpm	76 rpm	58 rpm	
	<b>7.93</b>	646	1337	1992	2763	3383	4038	4357	
		189 rpm	187 rpm	181 rpm	176 rpm	170 rpm	162 rpm	153 rpm	
	<b>10.57</b>	664	1346	2019	2781	3392	4021	4322	
		252 rpm	250 rpm	246 rpm	239 rpm	234 rpm	228 rpm	212 rpm	
	<b>13.21</b>	620	1310	1992	2701	3294	3941	4251	
		313 rpm	310 rpm	306 rpm	298 rpm	293 rpm	285 rpm	272 rpm	
	<b>15.85</b>	575	1266	1930	2621	3277	3914	4251	
378 rpm		376 rpm	370 rpm	362 rpm	353 rpm	346 rpm	332 rpm		
<b>19.81</b> <i>Max Cont.</i>	549	1239	1868	2577	3232	3888	4207		
	475 rpm	469 rpm	461 rpm	450 rpm	441 rpm	432 rpm	414 rpm		
<b>23.77</b> <i>Max Int.</i>	522	1160	1789	2533	3159	3764	4074		
	567 rpm	561 rpm	554 rpm	543 rpm	532 rpm	520 rpm	509 rpm		

<b>BMSY 200</b>		<b>11.8 in<sup>3</sup>/rev (194 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2576</b>	<b>3045</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	771	1585	2737	3286	4171	4977	5403	
		74 rpm	73 rpm	71 rpm	68 rpm	64 rpm	60 rpm	48 rpm	
	<b>7.93</b>	806	1682	2550	3418	4331	5066	5473	
		150 rpm	148 rpm	143 rpm	140 rpm	134 rpm	128 rpm	119 rpm	
	<b>10.57</b>	832	1709	2621	3489	4410	5172	5712	
		198 rpm	195 rpm	192 rpm	188 rpm	183 rpm	178 rpm	167 rpm	
	<b>13.21</b>	797	1691	2586	3445	4366	5137	5615	
		248 rpm	246 rpm	241 rpm	236 rpm	230 rpm	223 rpm	212 rpm	
	<b>15.85</b>	752	1638	2471	3383	4277	5092	5509	
300 rpm		295 rpm	288 rpm	281 rpm	273 rpm	263 rpm	251 rpm		
<b>19.81</b> <i>Max Cont.</i>	690	1558	2400	3277	4180	4968	5402		
	374 rpm	370 rpm	364 rpm	360 rpm	352 rpm	340 rpm	331 rpm		
<b>23.77</b> <i>Max Int.</i>	602	1443	2347	3197	4038	4827	5305		
	443 rpm	440 rpm	435 rpm	428 rpm	424 rpm	413 rpm	400 rpm		

<b>BMSY 250</b>		<b>14.8 in<sup>3</sup>/rev (243 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2576</b>	<b>2900</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	974	2045	3108	4091	5181	6031	6890	
		59 rpm	58 rpm	56 rpm	53 rpm	50 rpm	46 rpm	35 rpm	
	<b>7.93</b>	1027	2090	3179	4207	5287	6199	6997	
		119 rpm	117 rpm	114 rpm	108 rpm	102 rpm	92 rpm	80 rpm	
	<b>10.57</b>	1045	2134	3215	4251	5305	6253	7050	
		162 rpm	159 rpm	156 rpm	150 rpm	143 rpm	134 rpm	121 rpm	
	<b>13.21</b>	983	2072	3117	4180	5234	6137	6979	
		203 rpm	201 rpm	197 rpm	191 rpm	182 rpm	173 rpm	158 rpm	
	<b>15.85</b>	929	1947	3055	4091	5154	6067	6837	
244 rpm		242 rpm	237 rpm	230 rpm	220 rpm	208 rpm	194 rpm		
<b>19.81</b> <i>Max Cont.</i>	841	1895	3011	4021	5048	5934	6731		
	303 rpm	299 rpm	294 rpm	285 rpm	272 rpm	260 rpm	244 rpm		
<b>23.77</b> <i>Max Int.</i>	797	1851	2967	3959	4951	5819	6633		
	363 rpm	359 rpm	354 rpm	348 rpm	340 rpm	328 rpm	303 rpm		

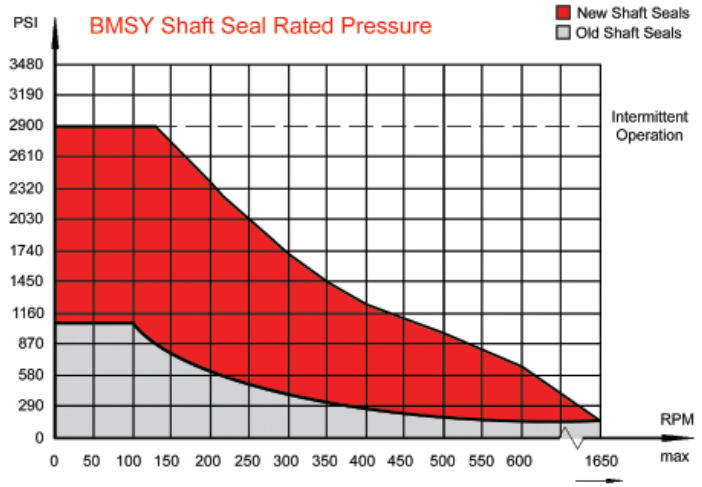
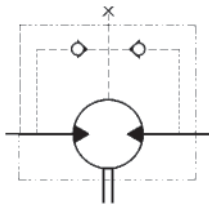
<b>BMSY 315</b>		<b>18.9 in<sup>3</sup>/rev (311 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>	
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2538</b>	<b>2900</b>	<b>3308</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>							
	<b>3.96</b>	1310	2692	4038	5429	6749	7785	8662	
		48 rpm	47 rpm	45 rpm	43 rpm	41 rpm	39 rpm	27 rpm	
	<b>7.93</b>	1372	2781	4118	5624	6890	7829	8750	
		95 rpm	93 rpm	91 rpm	89 rpm	86 rpm	82 rpm	67 rpm	
	<b>10.57</b>	1417	2843	4242	5757	7050	8024	8830	
		127 rpm	125 rpm	121 rpm	117 rpm	115 rpm	109 rpm	91 rpm	
	<b>13.21</b>	1372	2781	4118	5650	6908	7847	8750	
		159 rpm	157 rpm	153 rpm	149 rpm	145 rpm	142 rpm	128 rpm	
	<b>15.85</b>	1337	2710	4012	5491	6695	7847	8644	
187 rpm		185 rpm	181 rpm	176 rpm	169 rpm	157 rpm	143 rpm		
<b>19.81</b> <i>Max Cont.</i>	1293	2657	3941	5429	6681	7743	8549		
	238 rpm	236 rpm	232 rpm	227 rpm	224 rpm	220 rpm	196 rpm		
<b>23.77</b> <i>Max Int.</i>	1194	2513	3858	5318	6549	7637	8425		
	286 rpm	283 rpm	278 rpm	272 rpm	265 rpm	257 rpm	232 rpm		

<b>BMSY 400</b>		<b>24.04 in<sup>3</sup>/rev (394 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2354</b>	<b>2576</b>		
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>						
	<b>3.96</b>	1646	3354	5115	6894	7930	8726	
		37 rpm	36 rpm	35 rpm	33 rpm	31 rpm	29 rpm	
	<b>7.93</b>	1681	3433	5221	7000	8009	8770	
		75 rpm	73 rpm	71 rpm	68 rpm	65 rpm	61 rpm	
	<b>10.57</b>	1725	3486	5035	7053	8071	8832	
		99 rpm	97 rpm	95 rpm	93 rpm	90 rpm	85 rpm	
	<b>13.21</b>	1690	3433	5194	6947	8000	8699	
		125 rpm	123 rpm	118 rpm	114 rpm	109 rpm	102 rpm	
	<b>15.85</b>	1646	3433	5194	6947	8000	8699	
149 rpm		146 rpm	142 rpm	137 rpm	131 rpm	122 rpm		
<b>19.81</b> <i>Max Cont.</i>	1601	3292	5097	6814	7885	8611		
	187 rpm	183 rpm	177 rpm	171 rpm	164 rpm	153 rpm		
<b>23.77</b> <i>Max Int.</i>	1557	3247	5053	6779	7814	8540		
	226 rpm	221 rpm	214 rpm	208 rpm	199 rpm	183 rpm		

<b>BMSY 475</b>		<b>28.9 in<sup>3</sup>/rev (475 cm<sup>3</sup>/rev)</b>					<i>Max Cont.</i>	<i>Max Int.</i>
<b>Pressure (psi →)</b>	<b>515</b>	<b>1030</b>	<b>1546</b>	<b>2060</b>	<b>2207</b>			
<b>FLOW</b>	<b>(gpm ↓)</b>	<b>Torque (in·lbf) Speed Specification</b>						
	<b>3.96</b>	1929	3885	5849	7894	8805		
		30 rpm	29 rpm	28 rpm	27 rpm	25 rpm		
	<b>7.93</b>	1973	3982	5982	8053	8867		
		61 rpm	60 rpm	58 rpm	56 rpm	53 rpm		
	<b>10.57</b>	2017	4079	6097	8203	9000		
		82 rpm	80 rpm	77 rpm	74 rpm	68 rpm		
	<b>13.21</b>	1982	4035	6035	8142	8920		
		103 rpm	101 rpm	97 rpm	92 rpm	86 rpm		
	<b>15.85</b>	1947	3991	5991	8080	8832		
123 rpm		121 rpm	118 rpm	112 rpm	105 rpm			
<b>19.81</b> <i>Max Cont.</i>	1876	3920	5876	7973	8673			
	155 rpm	153 rpm	147 rpm	140 rpm	132 rpm			
<b>23.77</b> <i>Max Int.</i>	1734	3725	5690	7761	8487			
	186 rpm	184 rpm	178 rpm	170 rpm	157 rpm			

# BMSY Technical Data

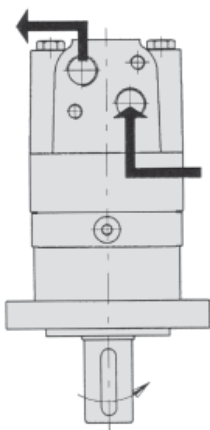
## Shaft Seal Rated Pressure



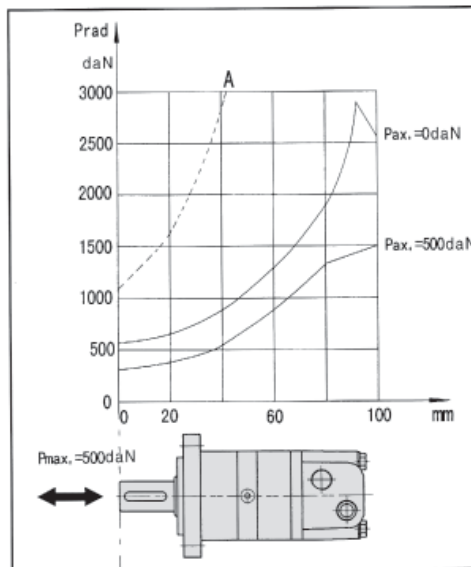
## Case Drain

In applications without a motor drain line, the pressure exerted on the shaft seal is marginally in excess of the return line pressure. When the drain line is used, the pressure exerted on the shaft seal is equal to the return line pressure.

## Shaft Rotation Direction



Axial and Radial forces



The output shaft runs 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 risk of breakage. The two other curves apply to a B10 bearing life of 3000 hours at 200 rpm.