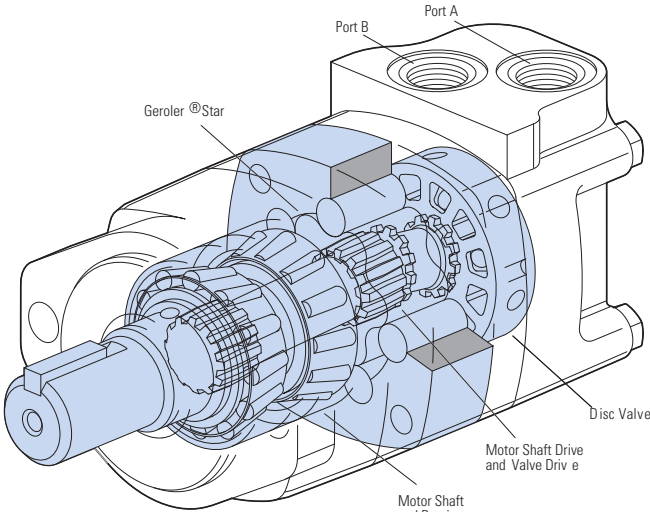


2000 Series

Highlights



Description

The popular 2000 Series provides torque up to 7500 lb-in. This proven design is reliable and durable. Eaton has added options that make the motor more flexible to use in a wide variety of applications. The integral cross-over relief valve is the latest innovation in the 2000 series motors.

2000 Series

Geroler Element	10 Displacements
Flow l/min [GPM]	75 [20] Continuous** 115 [30] Intermittent*
Speed RPM	908 Cont.** 1042 Inter.*
Pressure bar [PSI]	200 [3000] Cont.** 300 [4500] Inter.*
Torque Nm [lb-in]	845 [7470] Cont.** 930 [8225] Inter.*

** Continuous—(Cont.) Continuous rating, motor may be run continuously at these ratings.
* Intermittent—(Inter.) Intermittent operation, 10% of every minute.

Features

- Three zone design for longer life and true bi-directionality.
- Bearings that meet the highest standards of the industry
- Options to optimize performance in every application
- Integrated cross-over relief valve option

Benefits

- Easy to design in a system
- Reliability and performance in tough application
- Compact design of the integrated cross-over relief valve option

Applications

- Skid Steer Attachments
- Swing Motor
- Brush Cutters & Mowers
- Harvesting Equipment
- Directional Boring any place pressure relief protection is optimal for system or motor performance and life
- Turf equipment

C-1



Auger



Boring



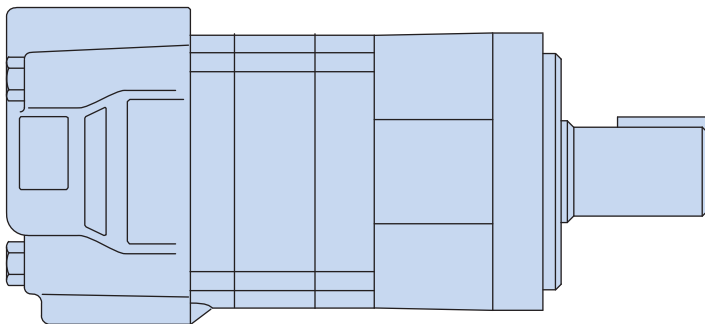
Plastic Injection



Oil and Gas Equipment

2000 Series

Specifications



SPECIFICATION DATA — 2000 SERIES MOTORS

Displ. cm ³ /r [in ³ /r]		80 [4.9]	90 [5.5]	100 [6.2]	130 [8.0]	160 [9.6]	195 [11.9]	245 [14.9]	305 [18.7]	395 [24.0]	490 [29.8]
Max. Speed (RPM)	Continuous	908	836	742	576	477	385	308	246	191	153
	Intermittent	908	1042	924	720	713	577	462	365	287	230
@ Flow											
Flow l/min [GPM]	Continuous	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]
	Intermittent	75 [20]	95 [25]	95 [25]	95 [25]	115 [30]	115 [30]	115 [30]	115 [30]	115 [30]	115 [30]
Torque* Nm [lb-in]	Continuous	235 [2065]	265 [2326]	295 [2630]	385 [3420]	455 [4040]	540 [4780]	660 [5850]	765 [6750]	775 [6840]	845 [7470]
	Intermittent	345 [3035]	390 [3458]	445 [3950]	560 [4970]	570 [5040]	665 [5890]	820 [7250]	885 [7820]	925 [8170]	930 [8225]
Pressure Δ bar [Δ PSI]	Continuous	205 [3000]	205 [3000]	205 [3000]	205 [3000]	205 [3000]	205 [3000]	205 [3000]	205 [3000]	155 [2250]	120 [1750]
	Intermittent	310 [4500]	310 [4500]	310 [4500]	310 [4500]	260 [3750]	260 [3750]	260 [3750]	240 [3500]	170 [2750]	140 [2000]
	Peak	310 [4500]	310 [4500]	310 [4500]	310 [4500]	310 [4500]	310 [4500]	310 [4500]	310 [4500]	205 [3250]	170 [2500]
Weight kg [lb]	Standard or Wheel Mount	9.3 [20.5]	9.3 [20.5]	9.5 [21.0]	9.8 [21.5]	10.0 [22.0]	10.4 [23.0]	10.9 [24.0]	11.3 [25.0]	11.8 [26.0]	12.2 [27.0]
	Bearingless	7.3 [16.0]	7.3 [16.0]	7.5 [16.5]	7.7 [17.0]	7.9 [17.5]	8.4 [18.5]	8.8 [18.5]	9.3 [20.5]	9.8 [21.5]	10.2 [22.5]

Maximum Case Pressure: See case pressure seal limitation graph.

*See shaft torque ratings for limitations.

Note:

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Maximum Inlet Pressure:

310 bar [4500 PSI]
Do not exceed Δ pressure rating (see chart above).

Maximum Return Pressure:

310 bar [4500 PSI] with case drain line installed.
Do not exceed Δ pressure rating (see chart above).

Δ bar [Δ PSI] :

The true pressure difference between inlet port and outlet port

Continuous Rating:

Motor may be run continuously at these ratings

Intermittent Operation:

10% of every minute

Peak Operation:

1% of every minute

Recommended Fluids:

Premium quality, anti-wear type hydraulic oil with a viscosity of not less than 70 SUS at operating temperature.

Recommended System Operating Temp.:

-34°C to 82°C [-30°F to 180°F]

Recommended Filtration:

per ISO Cleanliness Code, 4406: 20/18/13

2000 Series

Performance Data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production.

	Continuous		Peak
	Intermittent		No Operation

80 cm³/r [4.9 in³/r]
ΔPressure Bar [PSI]

	[5 0 0] 35	[100 0] 70	[150 0] 105	[2 00 0] 140	[25 00] 170	[3 00 0] 205	[35 0 0] 240	[4 00 0] 275	[45 0 0] 310
[.25] .95	[2 10] 25 3	[420] 45 1							
[.5] 1.9	[250] 30 17	[5 0 0] 50 8	[740] 85 3						
[1] 3.8	[330] 35 44	[670] 75 40	[990] 110 37	[130 0] 145 34	[1550] 175 28	[180 0] 205 22	[1950] 220 14	[2 110] 240 2	
[2] 7.5	[330] 35 90	[670] 75 85	[995] 110 81	[1310] 150 78	[1580] 180 72	[1840] 210 65	[2 10 0] 235 57	[2365] 265 49	[2630] 295 42
[4] 15	[325] 35 182	[670] 75 176	[10 05] 115 170	[1330] 150 166	[1620] 185 159	[1920] 215 152	[22 0 0] 250 140	[2480] 280 128	[2 765] 310 117
[6] 23	[320] 35 273	[665] 75 267	[101 0] 115 259	[1340] 150 254	[1655] 185 246	[1975] 225 238	[2270] 255 223	[2570] 290 207	[2880] 325 192
[8] 30	[3 10] 35 365	[660] 75 375	[1015] 115 349	[1345] 150 341	[1685] 190 333	[2020] 230 325	[2330] 265 306	[2640] 30 0 286	[2960] 335 266
[10] 38	[3 0 0] 35 456	[650] 75 448	[101 0] 115 439	[1350] 155 429	[170 0] 190 420	[2050] 230 411	[2370] 270 388	[2690] 305 364	[3 01 0] 340 341
[12] 45	[285] 30 547	[640] 70 537	[10 05] 115 530	[1350] 155 516	[1705] 195 507	[2065] 235 497	[2390] 270 470	[27 15] 305 442	[3035] 345 415
[14] 53	[270] 30 638	[625] 70 629	[990] 110 622	[1340] 150 603	[1705] 195 593	[2065] 235 584	[2395] 270 553	[2720] 305 521	[3030] 340 490
[16] 61	[255] 30 729	[6 10] 70 720	[975] 110 714	[1330] 150 689	[1690] 190 679	[2055] 230 670	[2385] 270 635	[27 00] 305 599	[2995] 340 564
[18] 68	[230] 25 818	[590] 65 810	[955] 110 795	[1310] 150 775	[1680] 190 765	[2025] 230 756	[2355] 265 717	[2660] 30 0 677	[2935] 330 638
[20] 76	[2 10] 25 908	[570] 65 901	[930] 105 880	[1290] 145 861	[1645] 185 851	[1985] 225 842	[2305] 260 799	[26 00] 295 755	[2845] 320 712

[570]
65
901 } Torque [lb-in]
Nm
Speed RPM

90 cm³/r [5.5 in³/r]
ΔPressure Bar [PSI]

	[250] 15	[500] 35	[1000] 70	[1500] 105	[2000] 140	[2500] 170	[3000] 205	[3500] 240	[4000] 275	[45 0 0] 310
[.25] .95	[124] 14 5	[233] 26 2	[471] 53 1							
[.5] 1.9	[133] 15 15	[273] 31 13	[555] 63 6	[832] 94 2						
[1] 3.8	[151] 17 39	[358] 40 39	[744] 84 35	[1091] 123 32	[1424] 161 28	[1697] 192 21	[1952] 221 13	[2 189] 247 12	[2368] 268 2	
[2] 7.5	[151] 17 82	[358] 40 80	[744] 84 76	[1099] 124 72	[1439] 163 68	[1737] 196 61	[2 015] 228 50	[2293] 259 38	[2570] 290 29	[2855] 323 20
[4] 15	[151] 17 167	[350] 40 163	[899] 102 158	[1113] 126 152	[1473] 166 148	[180 0] 203 139	[2 132] 241 126	[2454] 277 115	[2775] 314 102	[3 10 0] 350 90
[6] 23	[142] 16 250	[348] 39 245	[736] 83 240	[6 13] 69 233	[1492] 169 227	[1851] 209 218	[2208] 245 203	[2552] 286 191	[2898] 327 176	[3249] 367 161
[8] 30	[133] 15 35	[338] 38 328	[729] 82 329	[1128] 127 314	[1509] 170 306	[1890] 214 295	[2269] 256 281	[2635] 298 266	[3 00 0] 339 249	[3367] 380 231
[10] 38	[124] 14 418	[331] 37 410	[724] 82 404	[1130] 128 395	[1521] 172 385	[1912] 216 373	[2309] 261 361	[2670] 302 342	[3036] 343 322	[3398] 384 302
[12] 45	[106] 12 502	[3 15] 36 493	[7 14] 81 485	[1127] 127 477	[1525] 172 464	[1924] 217 451	[2326] 263 441	[2704] 306 417	[3082] 348 394	[3458] 391 372
[14] 53	[98] 11 585	[298] 34 575	[706] 80 567	[1115] 126 559	[1525] 172 543	[1924] 217 529	[2326] 263 521	[2707] 306 493	[3080] 348 467	[3450] 390 431
[16] 61	[80] 9 670	[285] 32 658	[688] 78 650	[1107] 125 641	[1510] 171 622	[1907] 215 607	[23 11] 261 610	[2697] 305 568	[3070] 347 541	[3432] 388 513
[18] 68	[62] 7 753	[262] 30 740	[673] 76 732	[1087] 123 719	[1490] 168 701	[1892] 214 685	[2281] 258 680	[2662] 301 643	[3030] 342 613	[3381] 382 583
[20] 76	[53] 6 836	[242] 27 822	[644] 73 814	[1045] 118 796	[1447] 163 780	[1850] 209 765	[2246] 254 748	[26 17] 296 719	[2998] 338 686	[33 01] 373 653
[22] 83	[35] 4 920	[231] 26 916	[639] 72 907	[1047] 118 895	[1437] 162 876	[1836] 207 854	[22 18] 251 749	[2599] 294 803	[2981] 337 774	
[24] 91	[18] 2 1003	[204] 23 1000	[6 12] 69 991	[1011] 114 978	[1366] 154 960	[1792] 202 940	[2 182] 231 918	[2573] 291 882	[2963] 335 850	
[25] 95		[195] 22 1042	[594] 67 1033		[1384] 156 1003	[1765] 199 984	[2 173] 246 954	[2564] 290 921		

2000 Series

Performance Data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production.

Continuous

Intermittent

Peak

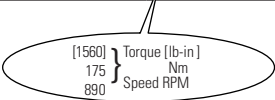
No Operation

130 c3m/r [8.3/0r jin
ΔPressure Bar [PSI]

	[250] 15	[5 0 0] 35	[100 0] 70	[150 0] 105	[2 00 0] 140	[25 00] 170	[3 00 0] 205	[35 0 0] 240	[4 00 0] 275	[45 0 0] 310
[.25] .95	[170] 20 3									
[.5] 1.9	[190] 20 12	[410] 45 8	[870] 100 2							
[1] 3.8	[230] 25 28	[510] 60 27	[1070] 120 23	[1580] 180 19	[2050] 230 16	[2520] 285 13	[2920] 3309 9	[3310] 375 3		
[2] 7.5	[230] 25 56	[510] 60 56	[1080] 120 53	[1600] 180 47	[2090] 235 42	[2580] 290 39	[2930] 330 36	[3320] 375 28	[3640] 410 21	[3990] 450 13
[4] 15	[220] 25 114	[500] 55 113	[1080] 120 111	[1620] 185 104	[2150] 245 97	[2660] 300 95	[3100] 350 92	[3540] 400 85	[3980] 450 77	[4420] 500 70
[6] 23	[220] 25 172	[490] 55 171	[1080] 120 169	[1640] 185 161	[2190] 245 153	[2740] 310 149	[3260] 370 146	[3770] 425 132	[4280] 485 118	[4800] 540 104
[8] 30	[200] 25 230	[480] 55 224	[1080] 120 222	[1650] 185 219	[2220] 250 210	[2780] 315 204	[3310] 375 201	[3840] 435 192	[4360] 495 184	[4890] 550 175
[10] 38	[180] 20 287	[470] 55 286	[1070] 120 282	[1650] 185 276	[2230] 250 269	[2800] 315 261	[3420] 385 255	[3940] 445 243	[4450] 505 231	[4970] 560 219
[12] 45	[160] 20 345	[460] 55 344	[1060] 120 338	[1640] 185 333	[2220] 250 327	[2800] 315 317	[3350] 380 307	[3910] 440 295	[4440] 500 284	[4960] 560 272
[14] 53	[150] 15 403	[440] 50 402	[1030] 115 395	[1620] 185 391	[2220] 250 385	[3000] 340 373	[3350] 380 360	[3910] 440 348	[4440] 500 336	
[16] 61	[130] 15 461	[420] 45 460	[1010] 115 452	[1600] 180 447	[2200] 245 443	[2780] 315 430	[3330] 375 411	[3890] 440 397	[4440] 500 384	
[18] 68	[110] 10 518	[400] 45 517	[990] 110 509	[1580] 180 504	[2160] 245 500	[2750] 310 484	[3300] 375 471	[3860] 435 456	[4410] 500 440	
[20] 76	[90] 10 576	[380] 45 575	[960] 110 568	[1550] 175 560	[2130] 240 551	[2710] 305 539	[3280] 370 524	[3840] 435 508		
[22] 83	[60] 5 634	[350] 40 633	[940] 105 624	[1520] 170 619	[2100] 235 604	[2680] 305 597	[3250] 365 579	[3820] 430 560		
[24] 91	[40] 5 692	[325] 35 691	[920] 105 682	[1490] 170 676	[2070] 235 665	[2650] 300 651	[3220] 365 633	[3780] 425 616		
[25] 95	[20] 1.0 720	[310] 35 719	[900] 100 712	[1480] 165 705	[2050] 230 692	[2630] 300 679	[3200] 360 682	[3700] 420 656		

100 c3m/r [6.3/2r jin
ΔPressure Bar [PSI]

	[250] 15	[500] 35	[1000] 70	[1500] 105	[2000] 140	[2500] 170	[3000] 205	[3500] 240	[4000] 275	[4500] 310
[.25] .95	[140] 15 4	[260] 30 2								
[.5] 1.9	[150] 15 13	[300] 35 9	[620] 70 5	[940] 105 2						
[1] 3.8	[170] 20 35	[390] 45 34	[830] 95 31	[1210] 135 28	[1570] 175 23	[1870] 210 15	[2130] 240 6			
[2] 7.5	[170] 20 73	[390] 45 71	[830] 95 68	[1220] 140 63	[1590] 180 59	[1920] 215 51	[2220] 250 38	[2520] 285 24	[2810] 315 14	[3120] 355 4
[4] 15	[170] 20 148	[380] 45 145	[820] 90 141	[1240] 140 136	[1640] 185 131	[2010] 225 121	[2380] 270 104	[2750] 310 94	[3120] 355 80	[3490] 395 69
[6] 23	[160] 20 222	[380] 40 219	[820] 90 215	[1260] 140 209	[1670] 190 202	[2080] 235 192	[2480] 280 172	[2880] 325 163	[3280] 370 149	[3680] 415 134
[8] 30	[150] 15 297	[370] 40 294	[810] 90 288	[1260] 140 281	[1700] 190 273	[2130] 240 261	[2560] 290 243	[2990] 340 231	[3420] 385 216	[3840] 435 200
[10] 38	[140] 15 371	[368] 40 367	[810] 90 362	[1270] 145 354	[1720] 195 344	[2160] 245 330	[2610] 295 316	[3020] 340 300	[3440] 390 283	[3850] 435 266
[12] 45	[120] 15 445	[350] 40 442	[800] 90 436	[1270] 145 427	[1730] 195 415	[2180] 245 399	[2630] 295 389	[3070] 345 369	[3510] 395 350	[3950] 445 332
[14] 53	[110] 10 519	[330] 35 516	[800] 90 509	[1260] 140 500	[1740] 195 486	[2180] 245 469	[2630] 295 463	[3070] 345 437	[3500] 395 417	[3940] 445 378
[16] 61	[90] 10 594	[320] 35 591	[780] 90 583	[1260] 140 573	[1720] 195 558	[2160] 245 540	[2610] 295 537	[3060] 345 506	[3500] 395 485	[3940] 445 463
[18] 68	[70] 10 668	[300] 35 665	[770] 85 657	[1240] 140 646	[1700] 190 630	[2140] 240 611	[2580] 290 609	[3020] 340 574	[3460] 390 552	[3900] 440 529
[20] 76	[60] 5 742	[280] 30 739	[730] 80 731	[1180] 135 715	[1630] 185 703	[2090] 235 684	[2550] 290 662	[2980] 335 643	[3440] 390 619	[3830] 435 595
[22] 83	[40] 5 816	[260] 30 813	[720] 80 805	[1180] 135 794	[1620] 185 777	[2070] 235 758	[2500] 280 749	[2930] 330 712	[3360] 380 687	
[24] 91	[20] 1.0 890	[230] 25 887	[690] 80 879	[1140] 130 868	[1540] 175 852	[2020] 230 834	[2460] 280 814	[2900] 330 782	[3340] 375 754	
[25] 95		[220] 25 924	[670] 75 916	[1120] 125 905	[1560] 175 890	[1990] 225 873	[2450] 275 846	[2890] 325 817		



2000 Series

Performance Data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production.

	Continuous		Peak
	Intermittent		No Operation

195 c3m/r [11.3/9r] in
ΔPressure Bar [PSI]

	[250] 155	[500] 35	[750] 50	[1000] 70	[1250] 85	[1500] 105	[1750] 120	[2000] 140	[2250] 155	[2500] 170	[2750] 190	[3000] 205	[3250] 225	[3500] 240	[3750] 260
[.25] .95	[240] 25 4	[580] 65 2													
[.5] 1.9	[290] 35 8	[640] 70 6	[990] 110 5	[1340] 150 2											
[1] 3.8	[380] 45 17	[730] 80 16	[1100] 125 15	[1430] 160 14	[1790] 200 13	[2120] 230 11	[2450] 275 9	[2720] 305 7	[2990] 340 5	[3260] 370 4	[3540] 400 3	[3810] 430 2	[4080] 460 2	[4350] 490 1	[4620] 520 1
[2] 7.5	[390] 45 37	[755] 85 35	[1135] 130 34	[1470] 165 33	[1860] 210 32	[2195] 250 31	[2535] 285 28	[2880] 325 26	[3120] 355 24	[3360] 385 21	[3600] 405 20	[4500] 510 19	[4800] 540 17	[5100] 575 14	[5400] 610 14
[4] 15	[405] 45 76	[795] 90 74	[1185] 135 73	[1540] 175 72	[1970] 225 71	[2310] 260 70	[2675] 300 66	[3040] 345 64	[3420] 385 62	[3790] 430 61	[4160] 470 59	[4520] 510 57	[4890] 550 55	[5260] 595 51	[5630] 635 45
[6] 23	[405] 45 115	[815] 90 113	[1220] 140 111	[1590] 180 110	[2035] 230 109	[2395] 270 108	[2780] 315 104	[3170] 360 102	[3560] 400 100	[3940] 445 99	[4320] 490 96	[4700] 530 94	[5070] 570 91	[5450] 615 87	[5830] 660 81
[8] 30	[400] 45 154	[820] 90 151	[1230] 140 149	[1625] 185 148	[2065] 235 147	[2450] 275 146	[2850] 320 143	[3260] 370 140	[3670] 415 137	[4040] 455 135	[4410] 500 132	[4780] 540 130	[5150] 580 127	[5520] 625 123	[5890] 665 117
[10] 38	[380] 45 193	[810] 95 190	[1230] 140 188	[1645] 185 187	[2095] 235 186	[2480] 280 184	[2895] 325 181	[3310] 375 177	[3730] 420 175	[4100] 465 173	[4470] 505 170	[4840] 545 168	[5210] 590 164	[5590] 630 160	
[12] 45	[355] 40 231	[790] 90 229	[1215] 135 227	[1650] 185 226	[2100] 235 224	[2485] 280 221	[2915] 330 219	[3340] 375 218	[3760] 425 215	[4120] 465 211	[4480] 505 208	[4850] 550 204			
[14] 53	[320] 35 269	[765] 85 267	[1190] 135 267	[1645] 185 264	[2090] 235 261	[2475] 280 260	[2915] 330 257	[3350] 380 254	[3770] 425 250	[4130] 465 248	[4480] 505 245	[4860] 550 241			
[16] 61	[290] 30 308	[730] 80 306	[1160] 130 305	[1625] 185 303	[2070] 235 299	[2455] 275 296	[2900] 330 294	[3340] 375 290	[3760] 425 286	[4130] 465 283	[4490] 505 279	[4860] 550 276			
[18] 68	[290] 30 346	[690] 80 345	[1120] 125 345	[1580] 180 342	[2035] 230 337	[2420] 270 334	[2870] 325 333	[3310] 375 327	[3730] 420 321	[4100] 465 315	[4480] 505 308				
[20] 76	[210] 25 385	[650] 75 384	[1080] 120 383	[1550] 175 380	[1995] 225 375	[2380] 270 371	[2830] 320 367	[3270] 370 363	[3690] 415 359	[4070] 460 355	[4450] 500 355				
[22] 83	[170] 20 424	[610] 70 423	[1040] 120 422	[1500] 170 418	[1955] 220 414	[2340] 265 410	[2785] 315 408	[3220] 365 404	[3640] 410 399	[4050] 460 395					
[24] 91	[135] 15 462	[570] 65 461	[1000] 115 460	[1440] 165 457	[1910] 215 453	[2300] 260 449	[3170] 360 441	[3590] 405 436	[3980] 450 432	[3980] 450 432					
[25] 95	[120] 15 484	[550] 60 482	[980] 110 479	[1410] 160 476	[1890] 215 473	[2280] 260 469	[3150] 355 459	[3570] 405 454	[3960] 445 449	[3960] 445 449					
[30] 114		[420] 45 577	[860] 95 575	[1280] 145 571	[1700] 190 567	[2120] 240 562	[2530] 285 556	[2940] 330 550	[3400] 385 542						

160 c3m/r [9.3/6r] in
ΔPressure Bar [PSI]

	[250] 15	[500] 35	[1000] 70	[1500] 105	[2000] 140	[2500] 170	[3000] 205	[3500] 240	[3750] 260
[.25] .95	[200] 25 3								
[.5] 1.9	[240] 25 9	[490] 55 7	[990] 110 5	[1570] 175 3	[2140] 240 1				
[1] 3.8	[280] 30 23	[590] 65 21	[1170] 130 19	[1730] 195 17	[2290] 260 13	[2830] 320 8	[3330] 375 3	[3820] 430 2	[4070] 460 1
[2] 7.5	[300] 35 46	[610] 70 45	[1210] 135 42	[1790] 200 39	[2350] 265 35	[2920] 330 34	[3480] 395 33	[4050] 460 28	[4330] 490 22
[4] 15	[320] 35 93	[630] 70 92	[1260] 140 89	[1890] 215 85	[2530] 285 79	[3170] 360 77	[3820] 430 75	[4460] 505 59	[4780] 540 43
[6] 23	[320] 35 142	[650] 75 140	[1300] 145 137	[1960] 220 131	[2620] 295 124	[3280] 370 118	[3940] 445 113	[4600] 520 104	[4930] 560 96
[8] 30	[310] 35 190	[650] 75 187	[1330] 150 184	[2010] 225 178	[2670] 300 174	[3330] 375 166	[4000] 450 164	[4660] 525 153	[4990] 565 142
[10] 38	[290] 35 237	[640] 70 235	[1340] 150 231	[2030] 230 226	[2680] 305 217	[3310] 385 212	[4030] 455 207	[4700] 530 193	[5030] 570 187
[12] 45	[270] 30 286	[620] 70 283	[1320] 150 279	[2030] 230 274	[2700] 305 265	[3370] 380 254	[4040] 455 246	[4710] 530 235	[5040] 570 224
[14] 53	[240] 25 334	[590] 65 331	[1300] 145 326	[2020] 230 322	[2690] 305 312	[3360] 380 305	[4030] 455 297	[4700] 530 286	
[16] 61	[220] 25 382	[570] 65 378	[1270] 145 374	[1980] 225 369	[2660] 300 360	[3330] 375 349	[4010] 455 339	[4680] 530 326	
[18] 68	[190] 20 429	[540] 60 426	[1240] 140 422	[1960] 220 416	[2640] 300 407	[3320] 375 394	[3990] 450 387		
[20] 76	[170] 20 477	[510] 60 474	[1210] 135 469	[1920] 215 462	[2630] 300 451	[3310] 375 440	[3940] 445 430		
[22] 83	[150] 15 525	[480] 55 522	[1170] 130 517	[1880] 210 510	[2600] 295 501	[3290] 370 484	[3920] 445 473		
[24] 91	[120] 15 572	[450] 50 564	[1150] 130 564	[1860] 210 556	[2570] 290 546	[3260] 370 531	[3900] 440 522		
[25] 95	[90] 10 596	[440] 50 593	[1140] 130 587	[1840] 210 580	[2560] 290 566	[3230] 365 553	[3880] 440 544		
[30] 114		[330] 35 713	[1040] 120 706	[1750] 200 696	[2470] 280 682	[3140] 355 672	[3800] 430 658		

[330]
35
713 } Torque [lb-in]
N·m
Speed RPM

2000 Series

Performance Data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production.

Continuous

Intermittent

Peak

No Operation

245 c3m/r [14.3/9r Jin
ΔPressure Bar [PSI]

	[250] 155	[500] 35	[750] 50	[1000] 70	[1250] 85	[1500] 105	[1750] 120	[2000] 140	[2250] 155	[2500] 170	[2750] 190	[3000] 205	[3250] 225	[3500] 240	[3750] 260
[5] 1.9	[410] 45 4	[850] 95 2													
[1] 3.8	[450] 50 14	[930] 105 13	[1420] 160 12	[1850] 210 11	[2320] 260 10	[2780] 315 9	[3250] 365 8	[3650] 410 6	[4100] 465 5	[4540] 515 4	[4980] 560 4	[5430] 615 3	[5870] 665 2	[6310] 715 1	
[2] 7.5	[460] 50 28	[960] 110 28	[1460] 165 27	[1900] 215 26	[2400] 270 20	[2860] 325 23	[3340] 375 22	[3780] 425 20	[4320] 490 19	[4770] 540 18	[5210] 590 17	[5660] 640 15	[6110] 690 14	[6570] 740 12	[6950] 785 10
[4] 15	[470] 55 60	[1000] 115 59	[1540] 175 58	[1980] 225 56	[2510] 285 54	[3010] 340 53	[3480] 395 51	[3980] 450 49	[4450] 505 48	[4910] 555 47	[5380] 610 47	[5850] 660 46	[6320] 715 45	[6780] 765 44	[7250] 820 42
[6] 23	[460] 50 91	[1020] 115 90	[1550] 175 89	[2040] 230 87	[2580] 295 84	[3110] 350 83	[3590] 405 81	[4120] 465 78	[4580] 515 76	[5050] 570 73	[5520] 625 71	[5980] 675 69	[6440] 730 67	[6910] 780 65	
[8] 30	[460] 50 122	[1010] 115 121	[1560] 175 120	[2080] 235 118	[2630] 295 115	[3170] 360 113	[3670] 415 111	[4210] 475 108	[4680] 530 106	[5160] 585 104	[5630] 635 102	[6110] 690 101	[6590] 745 99		
[10] 38	[440] 50 153	[1000] 115 152	[1550] 175 150	[2110] 240 148	[2650] 300 146	[3200] 360 144	[3730] 420 142	[4250] 480 139	[4730] 535 137	[5210] 585 135	[5720] 645 133	[6230] 705 130			
[12] 45	[410] 45 184	[960] 110 183	[1530] 175 182	[2100] 235 180	[2640] 300 177	[3190] 360 175	[3760] 425 173	[4260] 480 170	[4740] 535 168	[5220] 600 165	[5730] 645 162				
[14] 53	[380] 40 215	[910] 105 214	[1500] 170 213	[2080] 235 211	[2600] 295 209	[3160] 355 207	[3760] 425 204	[4230] 480 201	[4710] 530 198	[5190] 585 195					
[16] 61	[340] 40 246	[860] 95 245	[1460] 165 244	[2040] 230 242	[2570] 290 240	[3120] 355 238	[3740] 425 235	[4180] 470 232	[4660] 525 227	[5140] 580 223					
[18] 68	[290] 30 277	[810] 90 276	[1420] 160 275	[2000] 225 273	[2520] 285 271	[3060] 345 269	[3700] 420 266	[4130] 465 263	[4610] 520 258	[5090] 575 253					
[20] 76	[250] 30 308	[800] 90 306	[1350] 155 304	[1910] 215 302	[2460] 280 300	[3010] 340 298	[3630] 410 295	[4110] 465 291	[4610] 520 288						
[22] 83	[200] 25 339	[710] 80 337	[1300] 145 337	[1870] 210 334	[2390] 270 332	[2940] 330 330	[3560] 400 327	[4010] 455 323	[4510] 510 318						
[24] 91	[150] 15 370	[670] 75 369	[1240] 140 367	[1790] 200 364	[2330] 265 362	[2880] 325 360	[3460] 390 357	[3960] 445 353	[4460] 505 344						
[25] 95	[120] 15 385	[660] 75 384	[1210] 135 382	[1750] 200 379	[2300] 265 377	[2860] 325 375	[3410] 385 372	[3950] 445 367	[4470] 505 363						
[30] 114		[520] 60 462	[1080] 120 460	[1620] 185 458	[2180] 245 456	[2720] 305 453	[3260] 370 450	[3790] 430 447							

[3260]
370
450

Torque [lb-in]
Nm
Speed RPM

305 c3m/r [18.3/7r Jin
ΔPressure Bar [PSI]

	[250] 155	[500] 35	[750] 50	[1000] 70	[1250] 85	[1500] 105	[1750] 120	[2000] 140	[2250] 155	[2500] 170	[2750] 190	[3000] 205	[3250] 225	[3500] 240
[5] 1.9	[500] 55 4	[1050] 120 2												
[1] 3.8	[610] 70 12	[1180] 135 11	[1750] 200 11	[2330] 260 10	[2870] 325 10	[3440] 390 9	[3930] 445 8	[4410] 500 6	[4900] 555 3	[5380] 610 1				
[2] 7.5	[620] 70 24	[1210] 135 24	[1800] 205 23	[2400] 270 22	[2970] 335 22	[3510] 395 20	[4050] 460 19	[4600] 520 18	[5140] 580 17	[5680] 640 15	[6220] 705 13	[6750] 765 11	[7290] 825 8	[7820] 885 6
[4] 15	[680] 75 49	[1250] 140 49	[1890] 210 48	[2500] 280 47	[3120] 355 47	[3690] 415 45	[4260] 480 43	[4840] 545 42	[5410] 610 40	[5980] 675 38	[6550] 740 36	[7120] 805 34	[7690] 870 33	
[6] 23	[620] 70 74	[1270] 145 74	[1920] 215 72	[2560] 290 72	[3230] 365 71	[3810] 430 69	[4390] 495 66	[4970] 560 64	[5560] 630 61	[6130] 695 58	[6710] 760 55	[7290] 825 52		
[8] 30	[600] 70 98	[1270] 145 98	[1940] 220 97	[2600] 295 96	[3290] 370 95	[3880] 440 93	[4470] 505 90	[5070] 575 86	[5660] 640 83	[6250] 705 80	[6840] 775 77			
[10] 38	[570] 65 123	[1250] 140 122	[1940] 220 121	[2610] 295 120	[3310] 375 119	[3920] 440 117	[4530] 510 113	[5150] 580 110	[5760] 650 106	[6370] 720 102				
[12] 45	[530] 60 148	[1220] 140 147	[1920] 215 145	[2600] 295 144	[3300] 375 143	[3920] 440 142	[4530] 510 138	[5150] 580 133	[5760] 650 128	[6370] 720 124				
[14] 53	[480] 55 172	[1180] 135 172	[1870] 210 170	[2560] 290 168	[3260] 370 167	[3900] 440 165	[4510] 510 160	[5120] 580 156	[5730] 645 152					
[16] 61	[430] 50 196	[1120] 125 196	[1820] 205 194	[2500] 280 192	[3210] 365 191	[3870] 440 188	[4480] 505 183	[5080] 575 178	[5690] 645 174					
[18] 68	[370] 40 221	[1060] 120 221	[1760] 200 218	[2440] 275 217	[3140] 355 215	[3800] 440 212	[4420] 500 207	[5050] 570 202						
[20] 76	[320] 35 246	[980] 110 245	[1690] 190 243	[2360] 265 241	[3050] 345 239	[3710] 420 236	[4370] 495 231	[5020] 565 226						
[22] 83	[240] 25 271	[920] 105 270	[1620] 185 268	[2300] 260 266	[2990] 340 263	[3560] 400 260	[4190] 475 258	[4820] 545 255						
[24] 91	[180] 20 296	[870] 100 294	[1550] 175 293	[2240] 255 290	[2920] 330 288	[3420] 385 285	[4020] 455 283	[4630] 525 280						
[25] 95	[150] 15 308	[840] 95 307	[1520] 170 305	[2200] 250 303	[2890] 325 300	[3340] 375 298	[3930] 445 295	[4520] 510 293						
[30] 114		[680] 75 365	[1360] 155 362	[2040] 230 360	[2720] 305 357	[3140] 355 356	[3810] 430 352							

2000 Series

Performance Data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production.

	Continuous		Peak
	Intermittent		No Operation

		490 c3m/r [29.3/8r jin] ΔPressure Bar [PSI]							
		[250] 155	[500] 35	[750] 50	[1000] 70	[1250] 85	[1500] 105	[1750] 120	[2000] 140
[.5] 1.9		[670] 75 2	[1600] 180 1						
[1] 3.8		[920] 105 7	[2000] 225 6	[2990] 340 5	[3900] 440 4	[4880] 550 2			
[2] 7.5		[950] 105 14	[2060] 235 13	[3110] 350 12	[4080] 460 10	[5110] 575 9	[6320] 715 7		
[4] 15		[980] 110 30	[2130] 240 29	[3230] 365 28	[4270] 480 27	[5350] 605 26	[6370] 720 24	[7380] 835 22	[7980] 900 20
[6] 23		[980] 110 45	[2120] 240 44	[3230] 365 43	[4300] 485 42	[5370] 605 41	[6420] 725 39	[7470] 845 37	[8225] 930 35
[8] 30		[980] 110 61	[2110] 240 60	[3220] 365 59	[4330] 490 58	[5400] 610 57	[6470] 730 55	[7550] 855 52	
[10] 38		[920] 105 76	[2050] 230 75	[3170] 360 74	[4300] 485 73	[5390] 610 72	[6460] 730 70	[7550] 855 68	
[12] 45		[860] 95 91	[1990] 225 90	[3120] 355 90	[4260] 480 89	[5370] 605 87	[6460] 730 85	[7560] 855 84	
[14] 53		[790] 90 106	[1930] 220 105	[3055] 345 105	[4185] 475 104	[5300] 600 102	[6400] 725 100		
[16] 61		[720] 80 122	[1870] 210 121	[2990] 340 120	[4110] 465 119	[5230] 590 118	[6340] 715 116		
[18] 68		[630] 70 137	[1770] 200 136	[2890] 325 135	[4020] 455 134	[5140] 580 133	[6260] 705 131		
[20] 76		[550] 60 153	[1670] 190 152	[2800] 315 151	[3940] 445 150	[5060] 570 149	[6180] 700 146		
[22] 83		[450] 50 168	[1570] 175 168	[2700] 305 167	[3830] 435 165	[4960] 560 164	[6070] 685 161		
[24] 91		[360] 40 184	[1480] 165 184	[2600] 295 183	[3730] 420 181	[4860] 550 179	[5970] 675 177		
[26] 98		[270] 30 199	[1390] 155 195	[2510] 285 194	[3640] 410 192	[4770] 540 190			
[28] 106			[1260] 140 212	[2370] 270 211	[3520] 400 209	[4630] 525 207			
[30] 114			[1130] 125 230	[2240] 255 229	[3400] 385 227	[4500] 510 224			

395 c3m/r [24.3/0r Jin] ΔPressure Bar [PSI]												
		[250] 155	[500] 35	[750] 50	[1000] 70	[1250] 85	[1500] 105	[1750] 120	[2000] 140	[2250] 155	[2500] 170	[2750] 190
Flow LPM [GPM]	[.5] 1.9	[560] 65 4	[1310] 150 3									
	[1] 3.8	[770] 85 9	[1540] 175 9	[2290] 260 9	[3080] 350 8	[3780] 430 8	[4480] 505 7	[5170] 585 7	[5880] 665 6	[6580] 745 5	[7270] 820 4	[7980] 900 3
	[2] 7.5	[790] 90 18	[1580] 180 18	[2360] 265 18	[3180] 360 17	[3930] 445 17	[4680] 530 16	[5430] 615 15	[6180] 700 14	[6840] 775 13	[7500] 845 11	[8170] 925 10
	[4] 15	[810] 90 37	[1660] 190 37	[2480] 280 37	[3320] 375 36	[4130] 465 36	[4940] 560 35	[5740] 650 34	[6550] 740 33	[7230] 815 31	[7880] 890 28	
	[6] 23	[820] 90 57	[1700] 190 56	[2550] 290 56	[3420] 385 55	[4250] 480 54	[5080] 575 52	[5920] 670 50	[6750] 765 49	[7420] 840 47	[8000] 905 45	
	[8] 30	[820] 90 76	[1700] 190 75	[2580] 290 75	[3460] 390 74	[4300] 485 73	[5130] 580 71	[5960] 675 69	[6800] 770 68			
	[10] 38	[800] 90 95	[1700] 190 94	[2590] 295 94	[3480] 395 93	[4320] 490 92	[5160] 585 90	[6000] 680 88	[6840] 775 86			
	[12] 45	[770] 85 114	[1680] 190 113	[2570] 290 113	[3470] 390 112	[4310] 485 111	[5150] 580 109	[5990] 675 106	[6830] 770 103			
	[14] 53	[740] 85 133	[1640] 185 132	[2530] 285 132	[3430] 390 131	[4280] 485 129	[5120] 580 127	[5960] 675 124				
	[16] 61	[690] 80 153	[1590] 180 152	[2480] 280 152	[3370] 380 150	[4220] 475 149	[5060] 570 146	[5910] 670 144				
	[18] 68	[640] 70 172	[1530] 170 171	[2420] 275 171	[3310] 375 170	[4160] 470 169	[5010] 565 167	[5870] 665 164				
	[20] 76	[580] 65 191	[1470] 165 190	[2370] 270 190	[3260] 370 189	[4110] 465 188	[4960] 560 186	[5820] 660 184				
	[22] 83	[510] 60 210	[1390] 155 209	[2290] 260 209	[3170] 360 208	[4030] 455 207	[4890] 550 206					
[24] 91	[440] 50 230	[1330] 150 229	[2220] 250 228	[3100] 350 227	[3950] 445 225	[4800] 540 224						
[26] 98	[350] 40 249	[1240] 140 248	[2130] 240 247	[3020] 340 246	[3880] 440 244	[4730] 535 242						
[28] 106	[270] 30 268	[1150] 130 267	[2050] 230 265	[2930] 330 264	[3790] 430 261	[4650] 525 259						
[30] 114	[180] 20 287	[1060] 120 286	[1960] 220 284	[2850] 320 283	[3710] 420 281	[4570] 515 277						
[35] 132		[840] 95 335	[1760] 200 334	[2640] 300 333	[3480] 395 332							

[1760]
200
334
 } Torque [lb-in]
Nm
Speed RPM

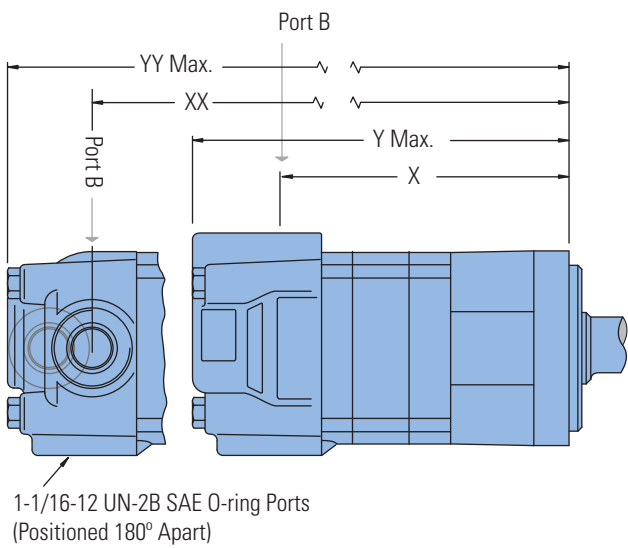
C-1

2000 Series

Dimensions

Standard Mount

Standard Mount

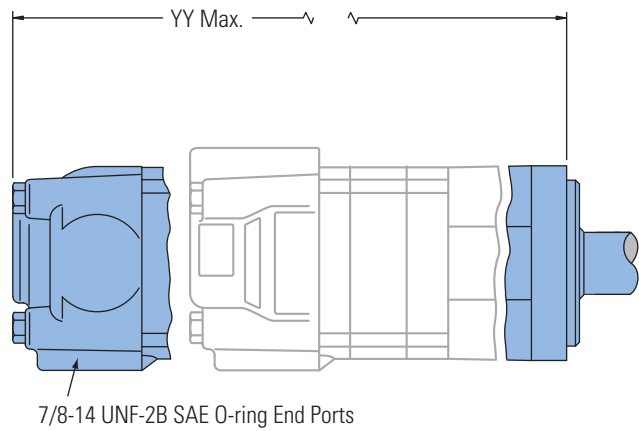


Ports

- 7/8 -14 UNF-2B SAE O-ring Staggered Ports (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- 1 1/16 -12 UN-2B SAE O-ring Ports (Positioned 180° Apart) (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- 7/8 -14 UNF-2B SAE O-ring End Ports (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- G 1/2 (BSP) Staggered Ports (2)
- G 1/4 (BSP) Case Drain Port (1) or
- Manifold Mount
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1)

Standard Rotation Viewed from Shaft End

- Port A Pressurized — CW
- Port B Pressurized — CCW



STANDARD MOUNT MOTOR DIMENSIONS

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]	XX mm [inch]	YY mm [inch]
80 [4.9]	136,9 [5.39]	184,2 [7.25]	139,2 [5.48]	185,4 [7.30]
100 [6.2]	141,5 [5.57]	189,0 [7.44]	143,8 [5.66]	190,3 [7.49]
130 [8.0]	147,9 [5.83]	195,4 [7.69]	150,2 [5.92]	196,6 [7.74]
160 [9.6]	147,9 [5.83]	195,4 [7.69]	150,2 [5.92]	196,6 [7.74]
195 [11.9]	154,7 [6.09]	202,2 [7.96]	157,0 [6.18]	203,2 [8.00]
245 [14.9]	163,7 [6.45]	211,1 [8.31]	166,0 [6.54]	212,4 [8.36]
305 [18.7]	175,1 [6.90]	222,3 [8.75]	177,4 [6.99]	223,5 [8.80]
395 [24.0]	191,0 [7.52]	238,6 [9.39]	193,3 [7.61]	239,8 [9.44]
490 [29.8]	208,4 [8.21]	255,8 [10.07]	210,7 [8.30]	270,1 [10.12]

2000 Series

Dimensions

Standard Mount with
Integral Relief Valve

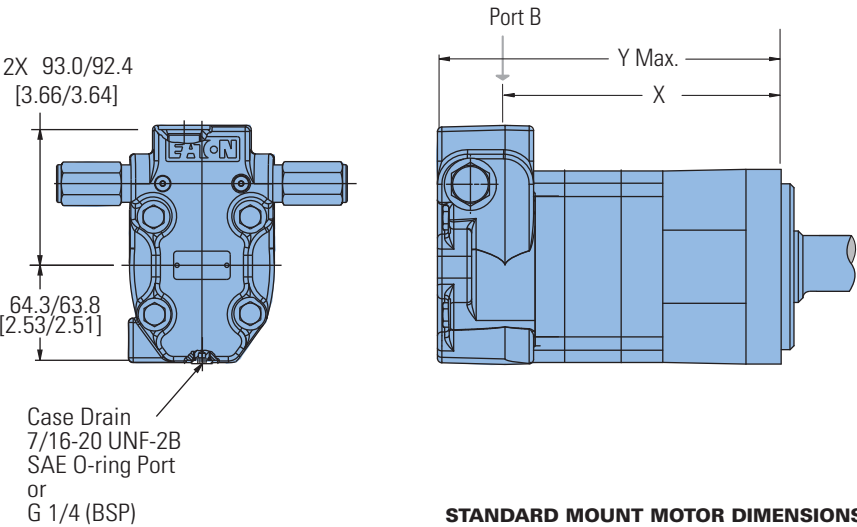
Ports

- 7/8 -14 UNF-2B SAE O-ring Staggered Ports (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- G 1/2 (BSP) Staggered Ports (2)
- G 1/4 (BSP) Case Drain Port (1)

Standard Rotation Viewed from Shaft End

- Port A Pressurized — CW
- Port B Pressurized — CCW

Standard Mount with Integral Relief Valve



STANDARD MOUNT MOTOR DIMENSIONS

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
80 [4.9]	137,0 [5.40]	184,5 [7.26]
100 [6.2]	141,6 [5.58]	189,0 [7.44]
130 [8.0]	147,9 [5.83]	195,4 [7.69]
160 [9.6]	147,9 [5.83]	195,4 [7.69]
195 [11.9]	154,8 [6.10]	202,2 [7.96]
245 [14.9]	163,7 [6.45]	211,1 [8.31]
305 [18.7]	175,1 [6.90]	222,6 [8.76]
395 [24.0]	191,1 [7.53]	238,6 [9.39]
490 [29.8]	208,4 [8.21]	255,8 [10.07]

2000 Series

Dimensions

Wheel Mount

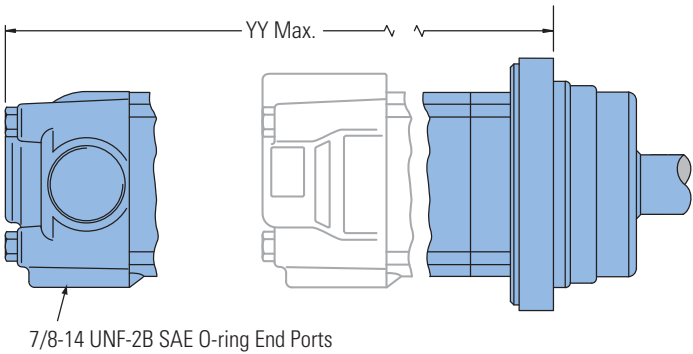
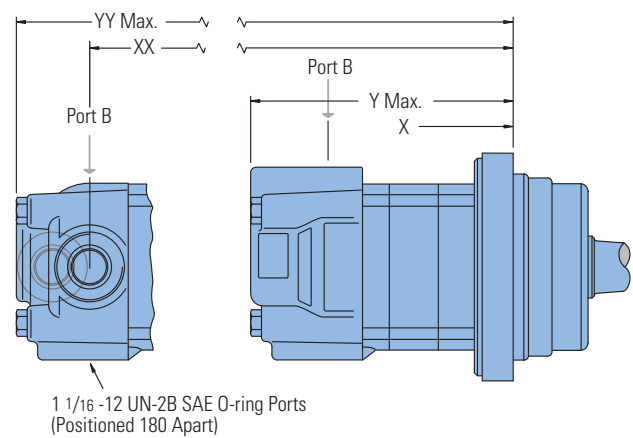
Ports

- 7/8 -14 UNF-2B SAE O-ring Staggered Ports (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- 1 1/16 -12 UN-2B SAE O-ring Ports (Positioned 180° Apart) (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- 7/8 -14 UNF-2B SAE O-ring End Ports (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
- G 1/2 (BSP) Staggered Ports (2)
- G 1/4 (BSP) Case Drain Port (1) or
- Manifold Mount
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1)

Standard Rotation Viewed from Shaft End

- Port A Pressurized — CW
- Port B Pressurized — CCW

Wheel Mount



WHEEL MOUNT MOTOR DIMENSIONS

Displacement	X	Y	XX	YY
cm ³ /r [in ³ /r]	mm [inch]	mm [inch]	mm [inch]	mm [inch]
80 [4.9]	96,8 [3.81]	144,0 [5.67]	99,1[3,90]	145,3 [5.72]
100 [6.2]	101,3 [3.99]	148,9 [5.86]	103,6 [4.08]	150,2 [5.91]
130 [8.0]	107,8 [4.25]	155,2 [6.11]	110,1 [4.34]	156,5 [6.16]
160 [9.6]	107,8 [4.25]	155,2 [6.11]	110,1 [4.34]	156,5 [6.16]
195 [11.9]	114,6 [4.51]	161,8 [6.37]	116,8 [4.60]	163,1 [6.42]
245 [14.9]	123,5 [4.87]	171,0 [6.73]	125,8 [4.96]	172,3 [6.78]
305 [18.7]	135,0 [5.32]	182,1 [7.17]	137,4 [5.41]	183,4 [7.22]
395 [24.0]	150,9 [5.94]	198,4 [7.81]	153,2 [6.03]	199,7 [7.86]
490 [29.8]	168,2 [6.63]	215,7 [8.49]	170,7 [6.72]	217,0 [8.54]

2000 Series

Dimensions

Wheel Mount with Integral
Relief Valve

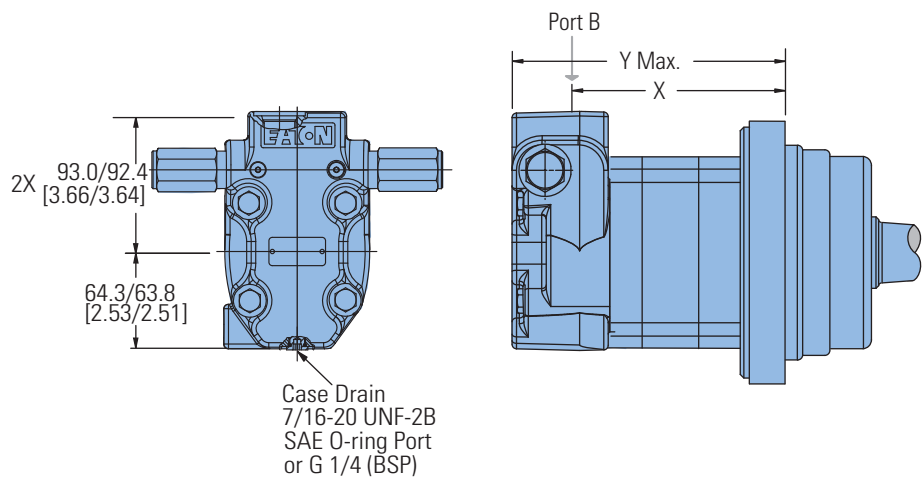
Ports

- 7/8 -14 UNF-2B SAE O-ring Staggered Ports (2)
- 7/16 -20 UNF-2B SAE O-ring Case Drain Port (1)
- G 1/2 (BSP) Staggered Ports (2)
- G 1/4 (BSP) Case Drain Port (1)

Standard Rotation Viewed from Shaft End

- Port A Pressurized — CW
- Port B Pressurized — CCW

Wheel Mount with Integral Relief Valve



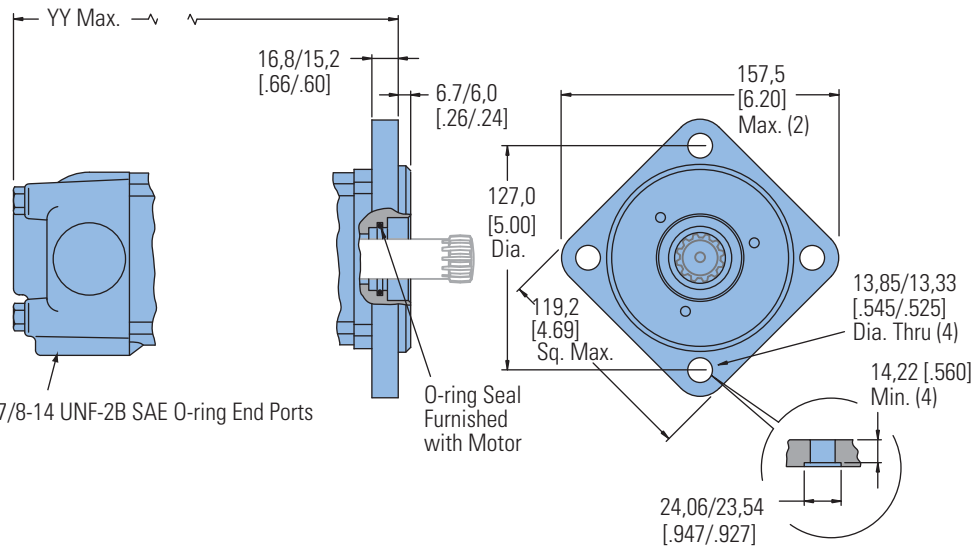
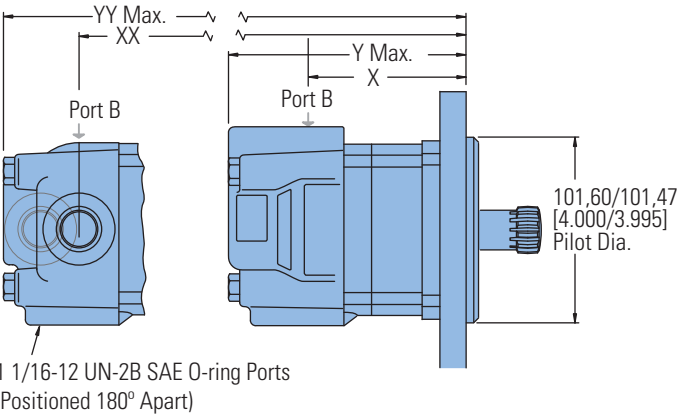
WHEEL MOUNT MOTOR DIMENSIONS

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
80 [4.9]	96,9 [3.82]	144,3 [5.68]
100 [6.2]	101,4 [4.00]	148,9 [5.86]
130 [8.0]	107,8 [4.25]	155,2 [6.11]
160 [9.6]	107,8 [4.25]	155,2 [6.11]
195 [11.9]	114,6 [4.52]	162,1 [6.38]
245 [14.9]	123,5 [4.87]	171,0 [6.73]
305 [18.7]	135,0 [5.32]	182,4 [7.18]
395 [24.0]	151,0 [5.95]	198,4 [7.81]
490 [29.8]	168,2 [6.63]	215,7 [8.49]

2000 Series

Dimensions
Bearingless

Bearingless



Ports

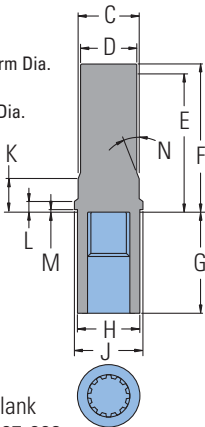
7/8 -14 UNF-2B SAE O-ring Staggered Ports (2)
7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
1 1/16 -12 UN-2B SAE O-ring Ports (Positioned 180° Apart) (2)
7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
7/8 -14 UNF-2B SAE O-ring End Ports (2)
7/16 -20 UNF-2B SAE O-ring Case Drain Port (1) or
G 1/2 (BSP) Staggered Ports (2)
G 1/4 (BSP) Case Drain Port (1) or
Manifold Mount
7/16 -20 UNF-2B SAE O-ring Case Drain Port (1)

Standard Rotation Viewed from Shaft End

Port A Pressurized — CW
Port B Pressurized — CCW

MAT'L

C 35,86 [1.412] Dia.
D 34,04 [1.340] Dia.
E 81,0 [3.19] Min. Full Form Dia.
F 86,1 [3.39] Max.
G 62,10 [2.445] Full Form Dia.
H 38,40 [1.512] Dia.
J 43,7 [1.72] Dia.
K 25,91 [1.020]
L 8,25 [.325]
M 0,89 [.035]
N 15°



Mating Coupling Blank
Eaton Part No. 13307-003

For 2000 Series Bearingless Motor application information contact your Eaton representative (mating coupling blanks available from Eaton Hydraulics).

Note:

After machining blank, part must be hardened per Eaton specification.

BEARINGLESS MOTOR DIMENSIONS

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]	XX mm [inch]	YY mm [inch]
80 [4.9]	79,0 [3.11]	126,5 [4.98]	81,3 [3.20]	127,8 [5.03]
100 [6.2]	83,5 [3.29]	131,4 [5.17]	85,8 [3.38]	132,6 [5.22]
130 [8.0]	89,9 [3.54]	137,7 [5.42]	92,2 [3.63]	139,0 [5.47]
160 [9.6]	89,9 [3.54]	137,7 [5.42]	92,2 [3.63]	139,0 [5.47]
195 [11.9]	96,8 [3.81]	144,3 [5.68]	99,0 [3.90]	145,5 [5.73]
245 [14.9]	105,6 [4.16]	153,5 [6.04]	107,9 [4.25]	154,7 [6.09]
305 [18.7]	117,1 [4.61]	164,6 [6.48]	119,4 [4.70]	165,9 [6.53]
395 [24.0]	133,1 [5.24]	180,9 [7.12]	135,4 [5.33]	182,1 [7.17]
490 [29.8]	150,3 [5.92]	198,2 [7.80]	152,7 [6.01]	199,3 [7.85]

2000 Series

Dimensions

Bearingless with Integral
Relief Valve

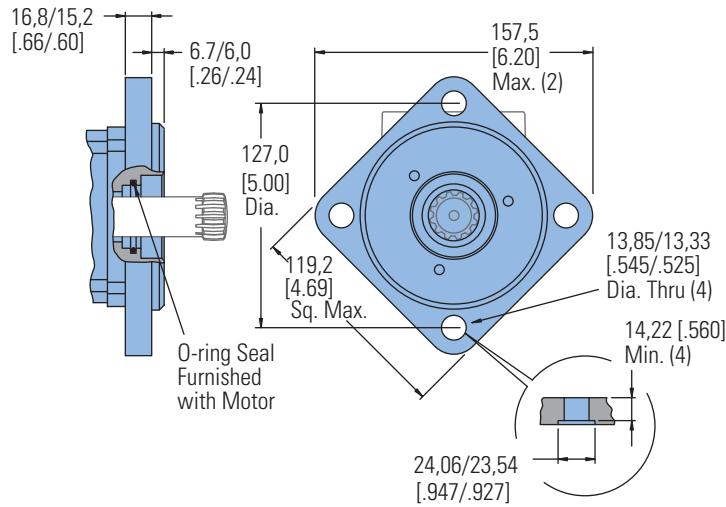
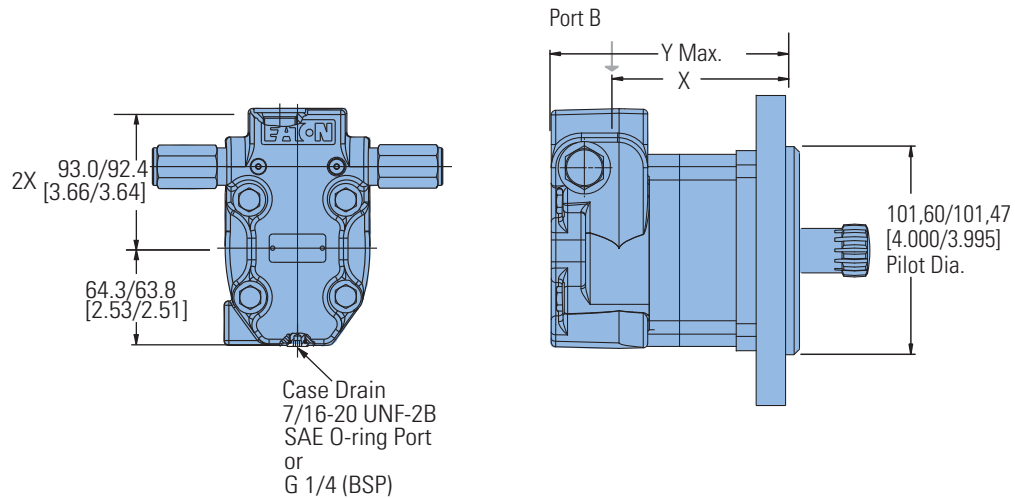
Ports

7/8 -14 UNF-2B SAE O-ring Staggered Ports (2)
7/16 -20 UNF-2B SAE O-ring Case Drain Port (1)
G 1/2 (BSP) Staggered Ports (2)
G 1/4 (BSP) Case Drain Port (1)

Standard Rotation Viewed from Shaft End

Port A Pressurized — CW
Port B Pressurized — CCW

Bearingless with Integral Relief Valve



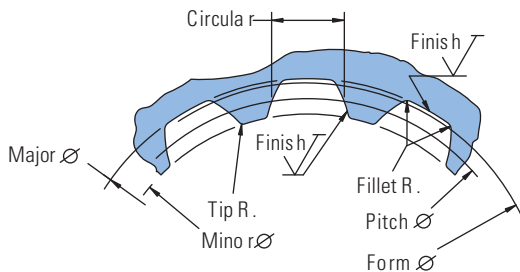
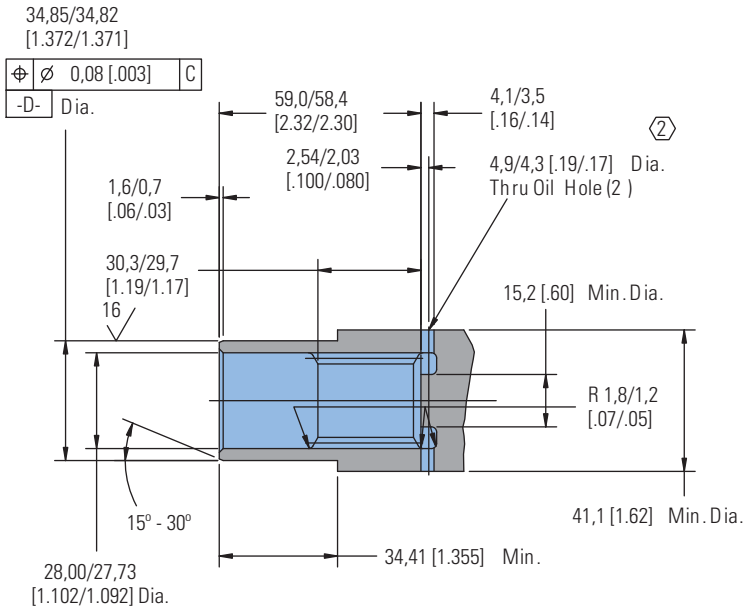
BEARINGLESS MOTORS DIMENSIONS

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
80 [4.9]	79,0 [3.11]	126,8 [4.99]
100 [6.2]	83,5 [3.29]	131,4 [5.17]
130 [8.0]	89,9 [3.54]	137,7 [5.42]
160 [9.6]	89,9 [3.54]	137,7 [5.42]
195 [11.9]	96,8 [3.81]	144,6 [5.69]
245 [14.9]	105,6 [4.16]	153,5 [6.04]
305 [18.7]	117,1 [4.61]	164,9 [6.49]
395 [24.0]	133,1 [5.24]	180,9 [7.12]
490 [29.8]	150,3 [5.92]	198,2 [7.80]

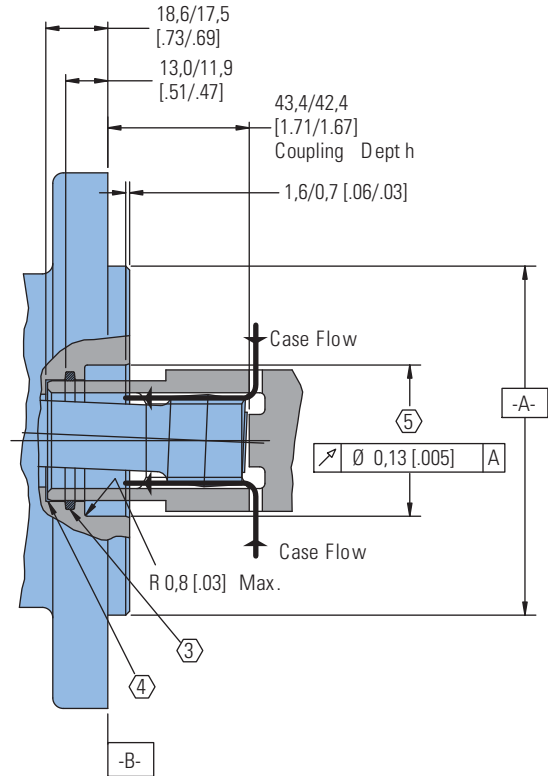
2000 Series

Installation Information

Bearingless



- 1 Internal spline in mating part to be per spline data. Specification material to be ASTM A304, 8620H vacuum degassed alloy steel carbonize to a hardness of 59-62 HRc with case depth (to 50HRc) of 0,076 -1,02 [0.030 -0.040]. Dimensions apply after heat treat.
- 2 Mating part to have critical dimensions as shown. Oil holes must be provided and open for proper oil circulation.
- 3 Seal to be furnished with motor for proper oil circulation thru splines.
- 4 Some means of maintaining clearance between shaft and mounting flange must be provided.
- 5 Counterbore designed to adapt a standard sleeve bearing 35,010 -35,040 [1.3784 -1.3795] I.D. by 44,040 -44,070 [1.7339 -1.7350] O.D. (Oilite Bronze Sleeve Bearing AAM3544-22).



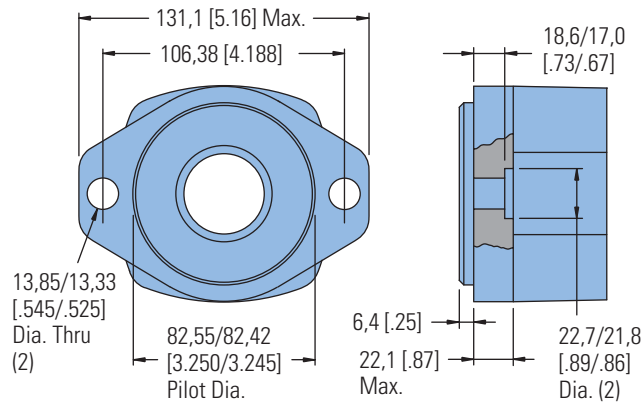
Spline Pitch.....	12/24
Pressure Angle.....	30°
Number of teeth.....	12
Class of Fit.....	Ref. 5
Type of Fit.....	Side
Side Pitch Diameter.....	Ref. 25,400000 [1.0000000]
Base Diameter.....	Ref. 21,997045 [0.8660254] Ⓢ 0,21 [0.008] D
Major Diameter.....	(27,74 [1.092] Max. 27,59 [1.086] Min.)
Minor Diameter.....	23,097 - 23,224 [0.9093 - .9143]
Form Diameter, Min.	29,93 [1.060]
Fillet Radius.....	0,64 - 0,76 [0.025 - .030]
Tip Radius.....	0,25 - 0,38 [0.010 - .015]
Finish.....	1,6 (63)
Involute Profile Variation.....	+0,000 -0,025 [+0.0000 -0.0010]
Total Index Variation	0,038 [0.0015]
Lead Variation	0,013 [0.0005]
Circular Space Width:	
Maximum Actual.....	4,318 [0.1700]
Minimum Effective	4,216 [0.1660]
Maximum Effective	Ref. 4,270 [0.1681]
Minimum Actual	Ref. 4,247 [0.1672]
Dimension Between Two Pins.....	Ref. 19,020 - 19,190 [0.7488 - .7555]
Pin Diameter	4,496 [0.1770] Pins to Have 3,38 [0.133]
Wide Flat for Root Clearance	

2000 Series

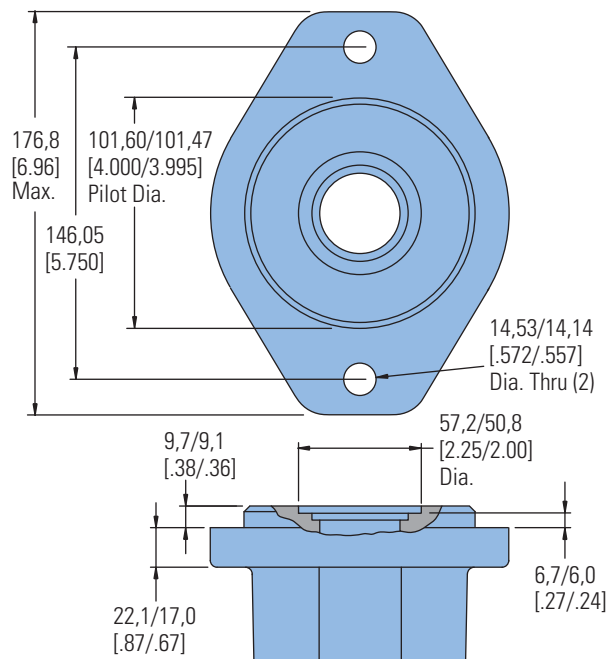
Dimensions

Mounting Options

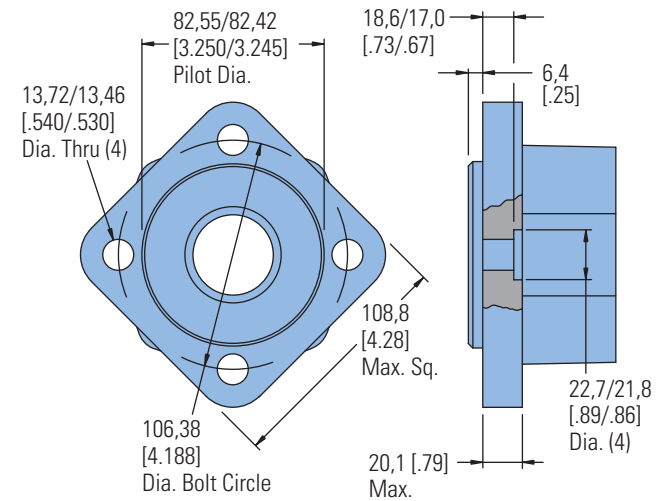
SAE A – Two Bolt (Standard Motor)



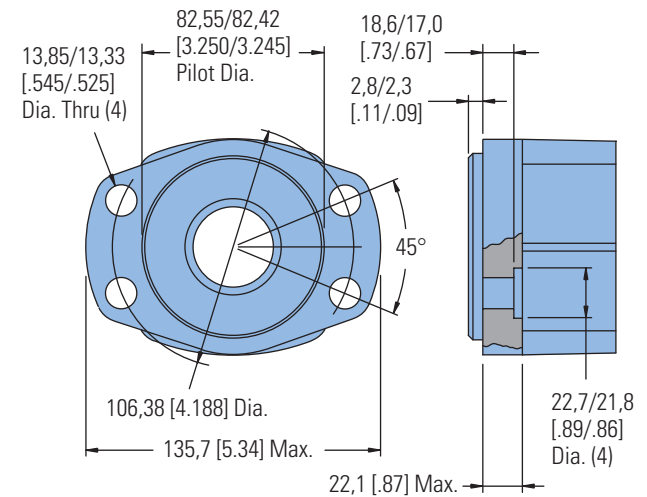
SAE B – Two Bolt



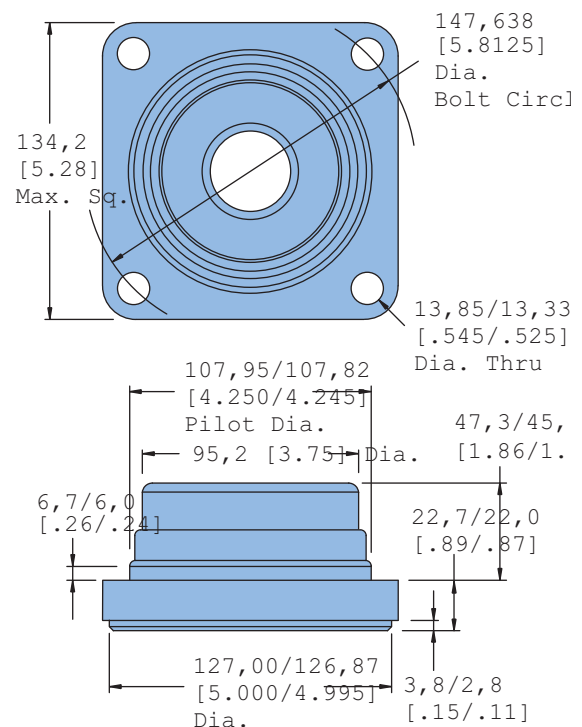
Four Bolt



Four Bolt Magneto



Four Bolt (Wheel Motor)

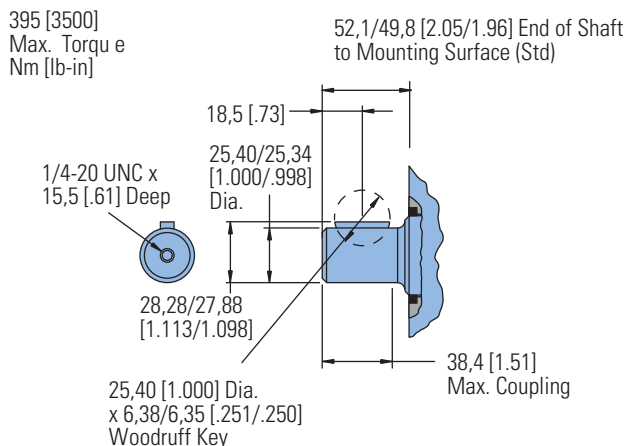


2000 Series

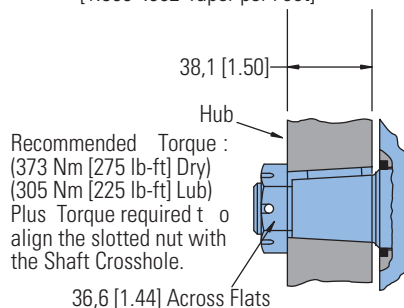
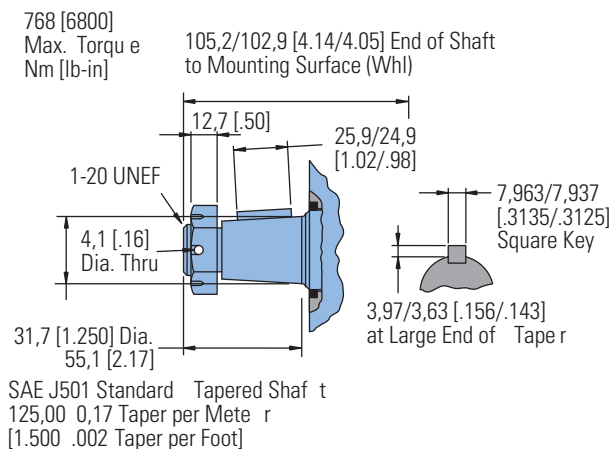
Dimensions

Shafts

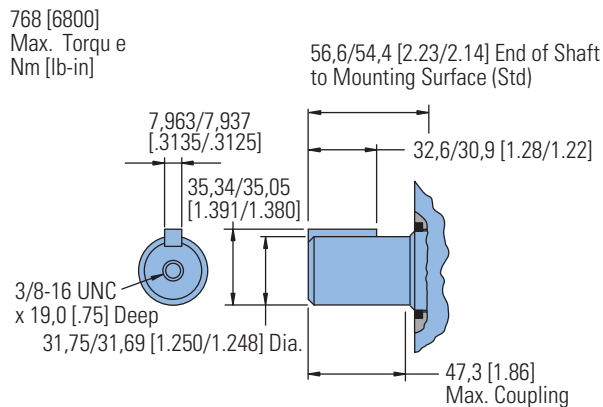
1 Inch Straight



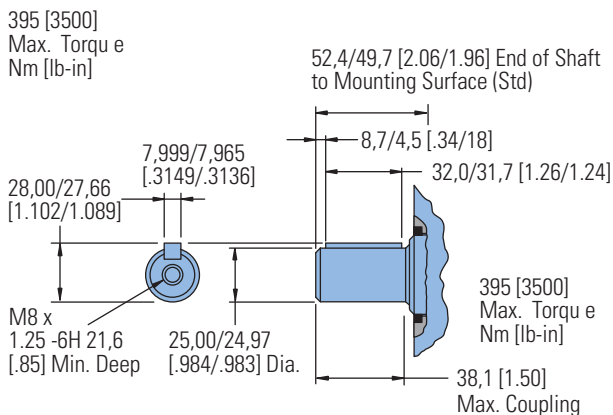
1 1/4 Inch Tapered



1 1/4 Inch Straight



25 mm Straight

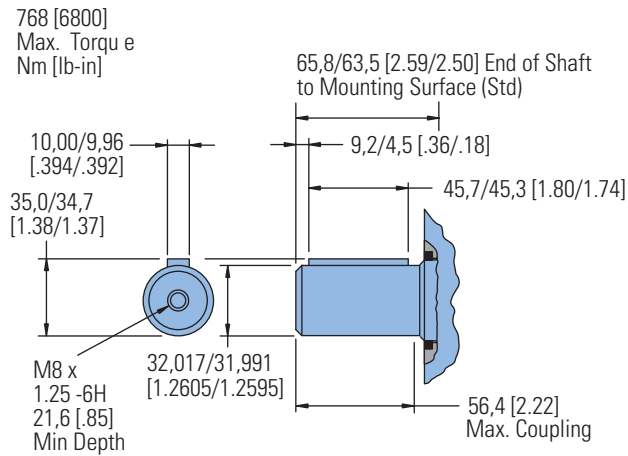


2000 Series

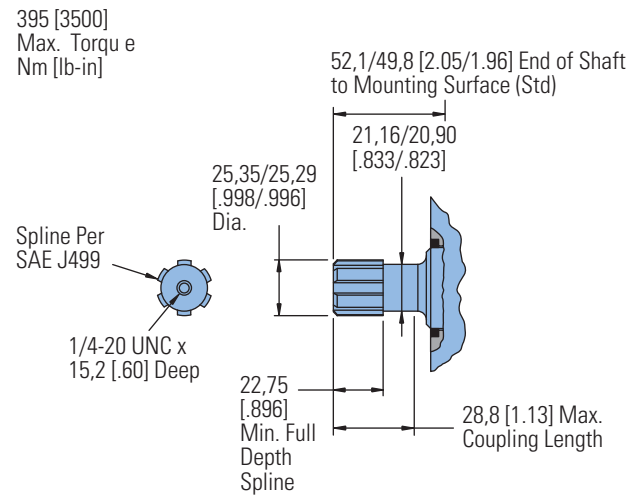
Dimensions

Shafts

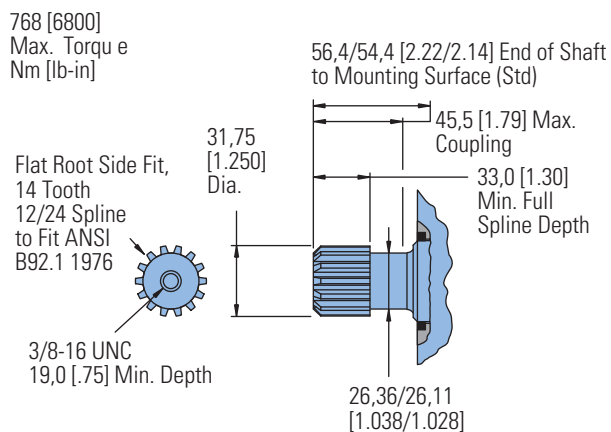
32 mm Straight



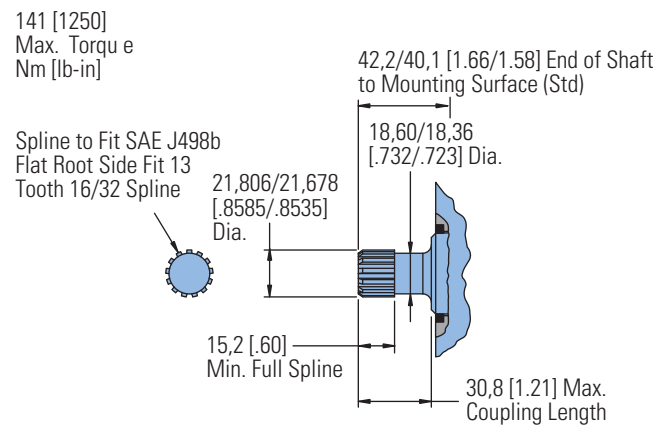
SAE 6B Splined



1 1/4 -14 Tooth Splined



13 Tooth Splined



C-1

2000 Series

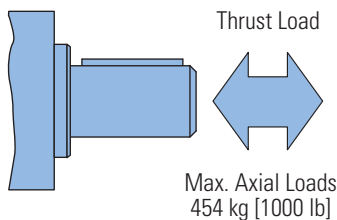
Shaft Side Load Capacity

These curves indicate the radial load capacity on the motor shaft at various locations with an allowable external thrust load of 454 kg [1000 lb].

Note:

Case pressure will increase the allowable inward thrust load and decrease the allowable outward thrust load. Case pressure will push outward on the shaft at 61 kg/7 Bar [135 lb/100 PSI].

Each curve is based on B 10 bearing life (2000



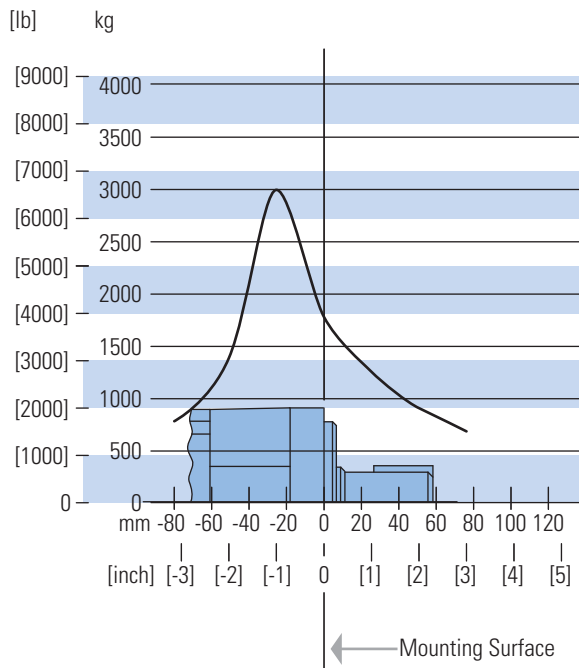
hours of 12,000,000 shaft revolutions at 100 RPM) at rated output torque.

To determine radial load at speeds other than 100 RPM, multiply the load values given on the bearing curve by the factors in the chart below.

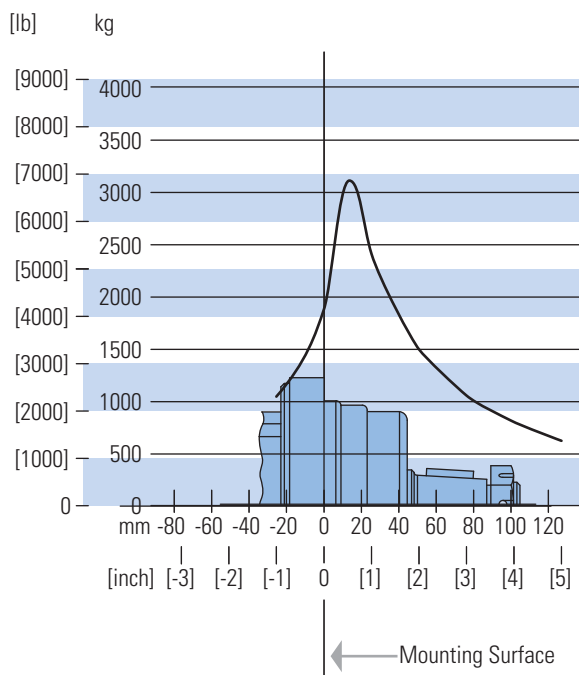
RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

For 3,000,000 shaft revolutions or 500 hours—Increase these shaft loads 52%.

Standard Motor
Straight and Splined Shafts



Wheel Motor
Tapered Shaft



2000 Series

Case Pressure and Case Porting

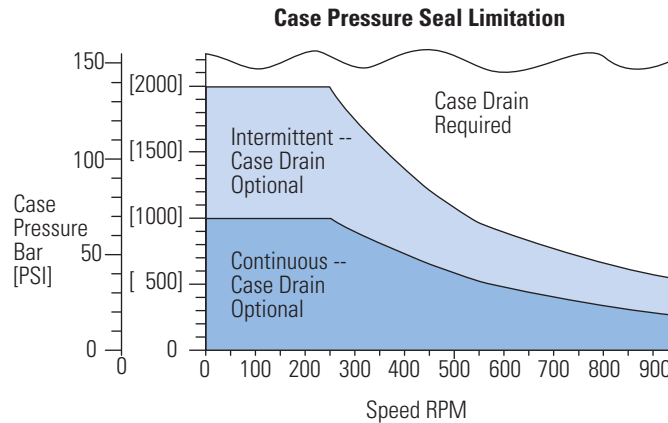
Char-Lynn 2000 Series motors are durable and have long life as long as the recommended case pressure is not exceeded. Allowable case pressure is highest at low shaft speeds. Consequently, motor life will be shortened if case pressure exceeds these ratings (acceptability may vary with application). Determine if an external case drain is required from the case pressure seal limitation chart.

Case Porting Advantage

Contamination Control — flushing the motor case.

Cooler Motor — exiting oil draws motor heat away.

Extend Motor Seal Life — maintain low case pressure with a preset restriction in the case drain line.

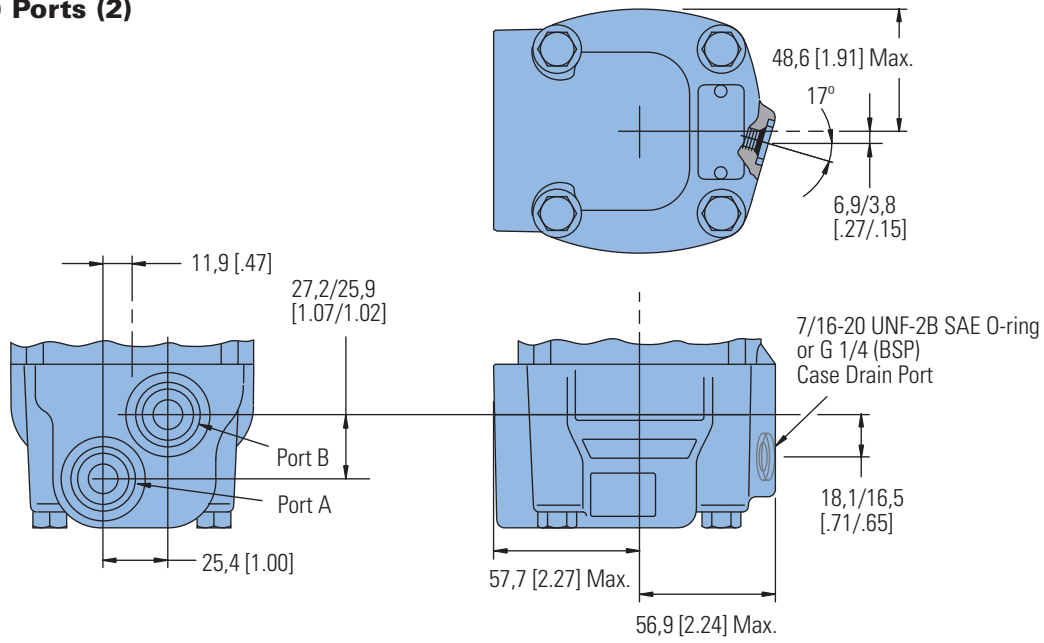


2000 Series

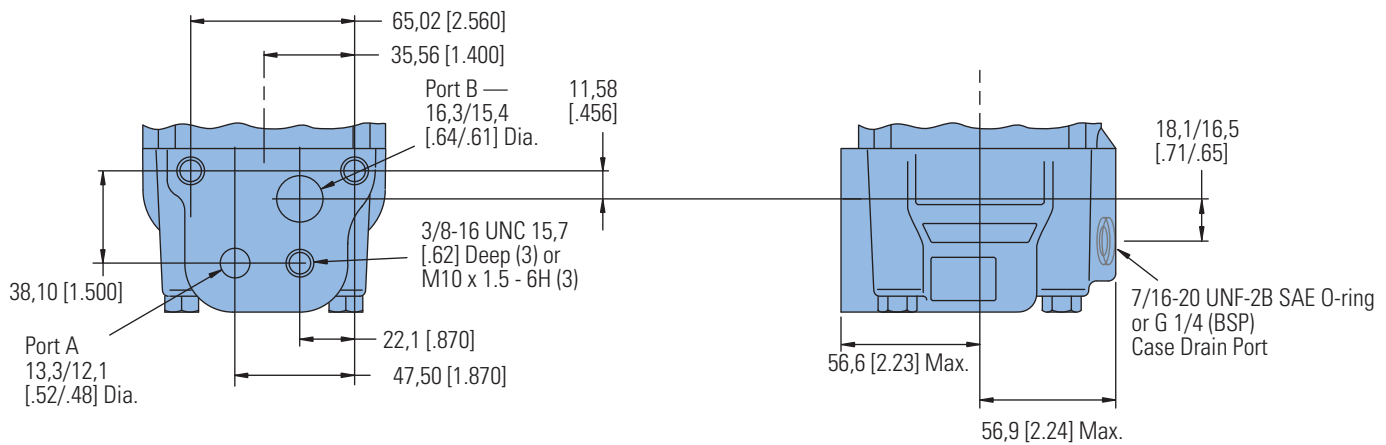
Dimensions

Ports

7/8-14 UNF-2B SAE O-ring Ports (2) or G 1/2 (BSP) Ports (2)



Manifold Mount

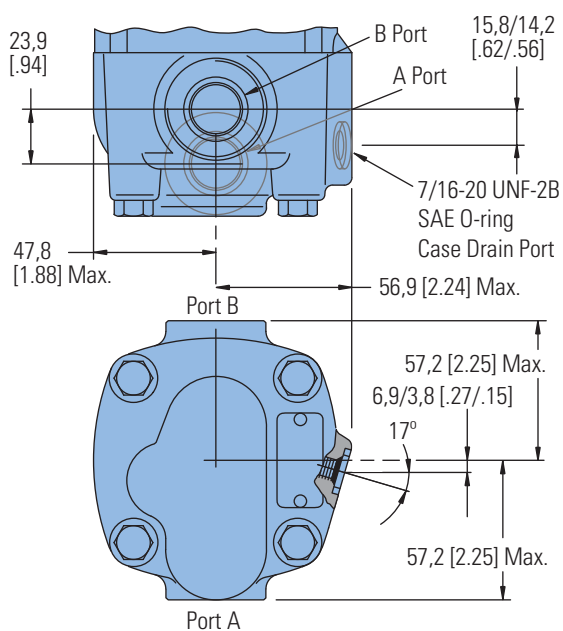


2000 Series

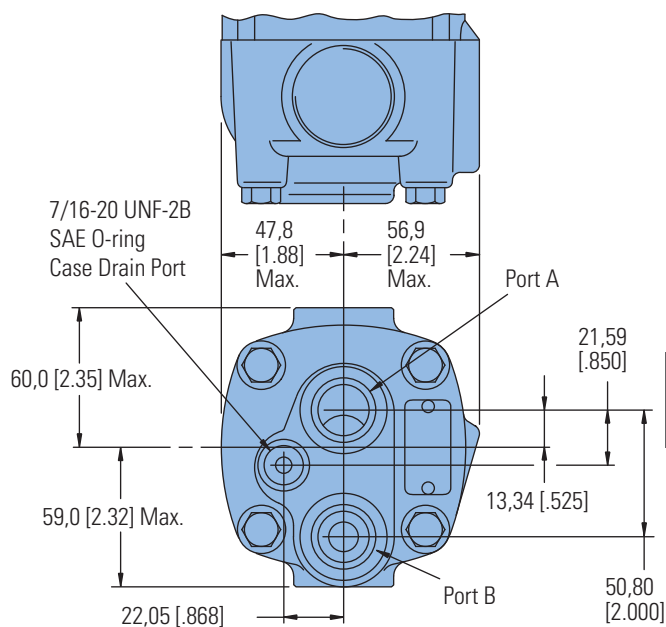
Dimensions

Ports

1-1/16-12 UN-2B SAE O-ring Ports (2) Positioned 180° Apart



7/8-14 UNF-2B SAE O-ring End Ports (2)



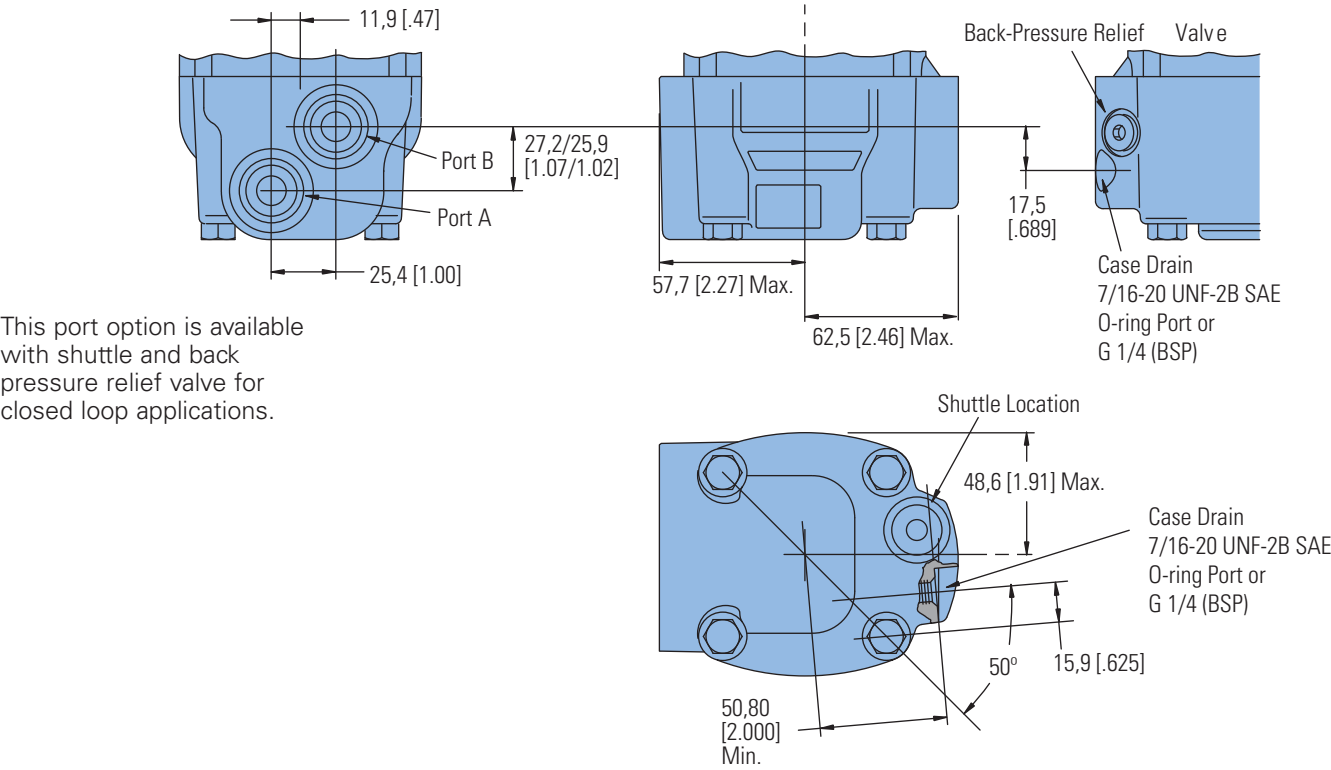
C-1

2000 Series

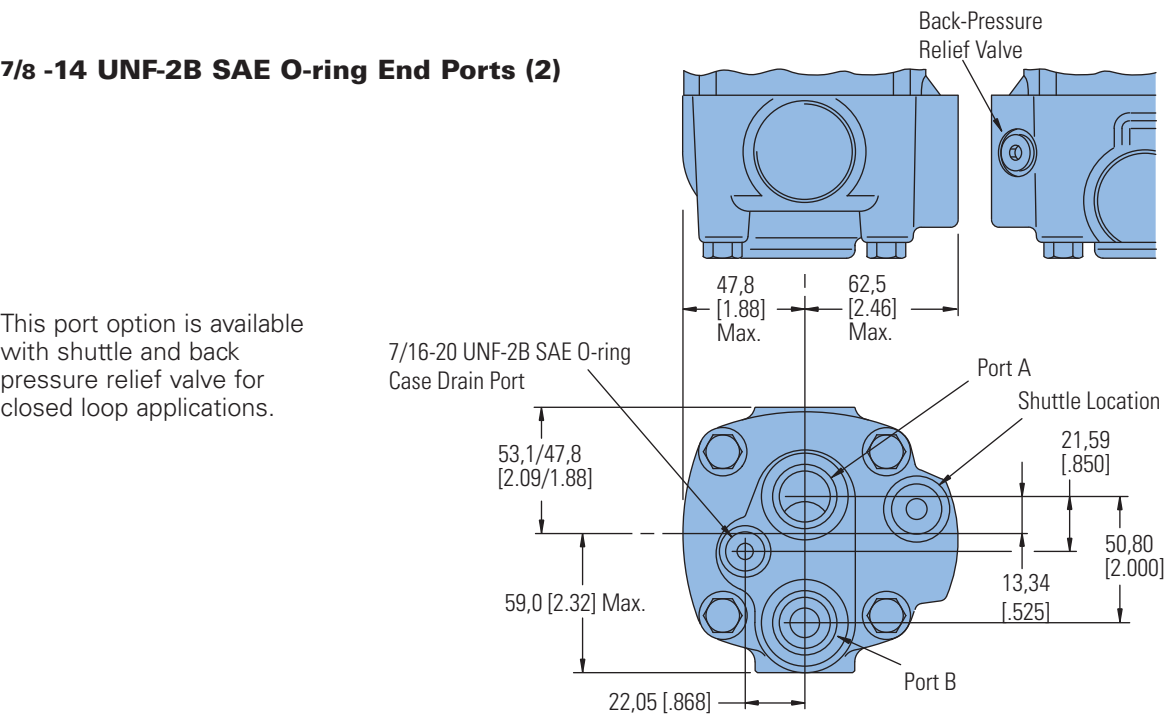
Dimensions

Ports with Shuttle

7/8 -14 UNF-2B SAE O-ring Ports (2) or G 1/2 (BSP) Ports (2)



7/8 -14 UNF-2B SAE O-ring End Ports (2)



2000 Series

Product Numbers

Note:

For 2000 Series Motors with a configuration **Not Shown** in the charts below: Use model code number system on the next page to specify product in detail.

Use digit prefix — 104-, 105-, or 106- plus four digit number from charts for complete product number— Example 106-1043.

Orders will not be accepted without three digit prefix.

MOUNTING	SHAFT	PORT SIZE	DISPL. cm ³ /r [in ³ /r] / PRODUCT NUMBER									
			80 [4.9]	90* [5.5]	100 [6.2]	130 [8.0]	160 [9.6]	195 [11.9]	245 [14.9]	305 [18.7]	395 [24.0]	490 [29.8]
2 Bolt SAE A Flange	1 Inch Straight	7/8 -14 O-ring Staggered	104-1001	—	-1002	-1003	-1004	-1005	-1006	-1007	-1143	—
		1 1/16 -12 O-ring 180° Apart	104-1037	—	-1038	-1039	-1040	-1041	-1042	-1043	-1044	—
	1 1/4 Inch Straight	7/8 -14 O-ring Staggered	104-1022	—	-1023	-1024	-1025	-1026	-1027	-1028	-1228	-1420
		1 1/16 -12 O-ring 180° Apart	104-1061	—	-1062	-1063	-1064	-1065	-1066	-1067	-1068	-1421
	1 1/4 Inch 14 T Splined	7/8 -14 O-ring Staggered	104-1029	—	-1030	-1031	-1032	-1033	-1034	-1035	-1229	-1422
		1 1/16 -12 O-ring 180° Apart	104-1087	—	-1088	-1089	-1090	-1091	-1092	-1093	-1094	-1423
2 Bolt SAE B Flange	1 1/4 Inch Straight	7/8-14 O-ring Staggered	104-1200	—	-1201	-1202	-1203	-1204	-1205	-1206	-1207	—
	1 1/4 Inch Involute SAE C Splined	7/8 -14 O-ring Staggered	104-1208	—	-1209	-1210	-1211	-1212	-1213	-1214	-1215	—
	1 Inch SAE 6B Splined	7/8 -14 O-ring Staggered	104-1193	—	-1194	-1195	-1196	-1197	-1198	-1199	—	—
	7/8 Inch SAE B Splined	7/8 -14 O-ring Staggered	104-1216	—	-1217	-1218	-1219	-1220	—	—	—	—
Standard with 4 Bolt Flange	32 mm Straight	G 1/2 (BSP))	104-1384	—	-1385	-1386	-1387	-1388	-1389	-1390	-1391	—
	1 1/4 Inch 14 T Splined	G 1/2 (BSP)	104-1376	—	-1377	-1378	-1379	-1380	-1381	-1382	-1383	—
Wheel Motor	1 1/4 Inch Straight	7/8 -14 O-ring Staggered	105—	—	—	—	—	—	—	—	—	-1148
		1 1/16 -12 O-ring 180° Apart	105—	—	—	—	—	—	—	—	—	-1149
	32 mm Straight	G 1/2 (BSP)	105-1134		-1135	-1136	-1137	-1138	-1139	-1140	-1141	—
	1 1/4 Inch Tapered	7/8 -14 O-ring Staggered	105-1001	—	-1002	-1003	-1004	-1005	-1006	-1007	-1060	-1152
		1 1/16 -12 O-ring 180° Apart	105-1071	—	-1072	-1073	-1074	-1075	-1076	-1077	-1078	—
	1 1/4 Inch 14 T Splined	7/8 -14 O-ring Staggered	105-1029	—	-1030	-1031	-1032	-1033	-1034	-1035	-1096	—
1 1/16 -12 O-ring 180° Apart		105-1079	—	-1080	-1081	-1082	-1083	-1084	-1085	-1086	—	
Bearingless		7/8 -14 O-ring Staggered	106-1008	—	-1009	-1010	-1011	-1012	-1013	-1014	-1015	-1047
		G 1/2 (BSP)	106-1038	—	-1039	-1040	-1041	-1042	-1043	-1044	-1045	—

*New Release

106-1044

Motors with Corrosion Protection

MOUNTING	SHAFT	PORT SIZE	DISPL. cm ³ /r [in ³ /r] / PRODUCT NUMBER									
			80 [4.9]	90* [5.5]	100 [6.2]	130 [8.0]	160 [9.6]	195 [11.9]	245 [14.9]	305 [18.7]	395 [24.0]	490 [29.8]
2 Bolt SAE A Flange	1 inch Straight	7/8 -14 O-ring Staggered	104-1528	—	-1529	-1530	-1531	-1532	-1533	-1534	-1519	-1535
	1 1/4 Inch Straight	7/8 -14 O-ring	104-1516	—	-1536	-1537	-1538	-1539	-1452	-1479	-1509	-1489

*New Release

2000 Series

Model Code

M	0 2		**			**		**		**		**		*	**		1	*	**		0 0		**		**		AA		F
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

1 Product

M – 2000 Series Motor

2, 3 Product Series

02 – 2000 Series Motor

4, 5, 6 Displacement

049 – 80.6 cm³/r [4.92]
 055 – 90.6 cm³/r [5.53 in³/r]
062 – 101.6 cm³/r [6.20 in³/r]
 080 – 130.6 cm³/r [7.97 in³/r]
096 – 158.1 cm³/r [9.65 in³/r]
 119 – 194.8 cm³/r [11.89 in³/r]
149 – 244.3 cm³/r [14.91 in³/r]
 187 – 306.6 cm³/r [18.71 in³/r]
240 – 393.8 cm³/r [24.03 in³/r]
 298 – 489.0 cm³/r [29.84 in³/r]

7, 8 Mounting Type

AB – Wheel, 4 Bolt: 108.0
[4.25] Pilot Dia. 13.59 [5.35]
Dia. Holes on 147.6 [5.81] Dia.
Bolt Circle. 127.0 [5.00] Dia.
Rear Mount Pilot
AC – Standard, 2 Bolt: 82.6
[3.25] Pilot Dia. 13.59 [5.35]
Dia. Holes on 106.4 [4.19]
Dia. Bolt Circle. SAE A

AD – Bearingless (w/ Leakage Slots), 4 Bolt: 101.6 [4.00] Pilot Dia. 13.59 [5.35] Dia. Holes on 127.0 [5.00] Dia. Bolt Circle

AF – Standard, 2 Bolt: 101.6 [4.00] Pilot Dia. 14.35 [5.65] Dia. Holes on 146.0 [5.75] Dia. Bolt Circle. SAE B

AH – Standard, 4 Bolt: 82.6
[3.25] Pilot Dia. 13.59 [5.35]
Dia. Holes on 106.4 [4.19]
Dia. Bolt Circle

AJ – Standard (Magneto),
4 Bolt: 82.6 [3.25] Pilot Dia.
13.59 [5.35] Dia. Holes on
106.4 [4.19] Dia. Bolt Circle.
2.79 [1.10] Pilot Length

AL - Wheel (European), 4 Bolt: 125 [4.92] Pilot Dia. 13.79 [5.43] Dia. Holes on 159.99 [6.299] Dia. Bolt Circle
 AP – Wheel, 4 Bolt: 108.0 [4.25] Pilot Dia. 13.59 [5.35] Dia. Holes on 147.6 [5.81] Dia. Bolt Circle. 127.0 [5.00] Dia. Rear Mount Pilot. Spigot Reduced to 88.9 [3.50] Dia. by 25.4 [1.00] Depth.

AZ – Bearingless (w/ Leakage Slots), 4 Bolt: 100.0 [3.94] Pilot Dia. 11.0 [4.3] Dia. Holes on 125.0 [4.92] Dia Bolt Circle (European)

9, 10 Output Shaft

00 – None (Bearingless)
01 – 25.40 [1.000] Dia.
Straight Shaft with 1/4-
20UNC-2B Thread in End, 6.35
[.250] Wide x 25.40 [1.000]
Dia. Woodruff Key
02 – 31.75 [1.250] Dia.
Straight Shaft with .375-
16UNC-2B Thread in End,
7.938 [.3125] Sq x 31.75
[1.250] Straight Key
03 – 31.75 [1.250] Dia. .125:1
Tapered Shaft per SAE J501
with/1.000-20 UNEF-2A
Threaded Shaft End and
Slotted Hex Nut, 7.938 [.3125]
Sq x 25.40 [1.0] Straight Key
04 – 31.75 [1.250] Dia. Flat
Root Side Fit, 14 Tooth, 12/24
DP 30° Involute Spline w/
.375-16UNC-2B Thread in End,
33.0 [1.30] Min. Full Spline
Length

05 – 25.40 [1.000] Dia. 6B Spline per SAE J499 with .250-20UNC-2B Thread in End, 22.76 [.896] Min. Full Spline Length

07 – 22.22 [.875] Dia. Flat Root Side Fit, 13 Tooth, 16/32 DP 30° SAE B Involute Spline, 15.2 [.60] Min. Full Spline Length

16 – 32.00 [1.260] Dia.
Straight Shaft with M8 x
1.25-6H Thread in End, 9.982
[.3930] W x 7.995 [.3132] H x
45.00 [1.772] L Key
 17 – 31.75 [1.250] Dia. Straight Shaft With 3/8 -16 UNC-2B Thread in End, 7.938 [.3125] Sq x 31.75 [1.250] Straight Key, Corrosion Resistant (Seal area to shaft end)

18 – 31.75 [1.250] Dia. .125:1 Tapered Shaft per SAE J501 with 1.000-20UNEF-2A Threaded Shaft End and Slotted Hex Nut, 7.938 [.3125] Sq x 25.40 [1.000] Straight Key, Corrosion Resistant (Under seal area only)

19 – 25.00 [.984] Dia. Straight Shaft with M8 x 1.25-6H Thread in End, 7.982 [.3142] W x 6.954 [.2738] H x 31.82 [1.254] L Key

28 – 32.00 [1.260] Dia. 10:1 Tapered Shaft Per ISO R775 with M10 X 1.50-6H Thread in End, 6.00 [.236] Sq. x 50.00 [1.968] Key

39 – None (Bearingless)
 European Spline
 41 – 35.00 [1.378] Dia. 10:1 Tapered Shaft Per ISO R775 with M20 x 1.5-6g Threaded Shaft End and Slotted Hex Nut, 6.00 [.236] Sq. X 20.00 [.787] Key

42 – 35.00 [1.378] Dia. Straight Shaft with M8 x 1.25-6H Thread in End, 9.982 [.3930] W x 7.995 [.3132] H x 45.00 [1.772] L Key

11, 12 Ports
AA – .875-14 UNF-2B SAE
O-ring Ports - Staggered
Ports
 AB – 12.70 [.500] and 15.88 [.625] Dia. Manifold Ports with 3 x .375-16 UNC-2B Port Block Mounting Holes
 AC – .875-14 UNF-2B SAE O-ring Ports - Ports Oriented 180° to each other
 AE – 12.70 [.500] And 15.88 [.625] Dia. Manifold Ports with 3 x M10 x 1.5-6H Port Block Mounting Holes
AF – 1.0625-12 UN-2B SAE
O-ring Ports - Ports Oriented
180° to each other
AG – G-1/2 BSP Straight THD
Ports - Staggered Ports
 AN – G-1/2 BSP Straight THD Ports - End Ported
 AR – .875-14 UNF-2B SAE O-ring Ports - End Ported, Cast Boss Removed
 AS – G-1/2 Bsp Straight THD Ports - Staggered Port with 2 x M10 x 1.5-6H Port Block Mounting Holes - European

13, 14 Case Flow Options
 Shuttles available with port code AA only)
01 – .4375-20 UNF-2B SAE
O-Ring Port
02 – G 1/4 BSP Straight THD
Port
 09 – Reverse Flow Shuttle Valve w/ G-1/4 BSP Straight THD Port, .062 Dia. Shuttle Flow Orifice
 13 – Reverse Flow Shuttle Valve w/ .4375-20 UNF-2B SAE O-Ring Port, .062 Dia. Shuttle Flow Orifice

15 Low Pressure Relief

0 – None

A – Set at 4.5 bar [65 lbf/in²]
 B – Set at 15.2 bar [220 lbf/in²]
 C – Set at 20.7 bar [300 lbf/in²]
 E – Set at 11.03 bar [160 lbf/in²]

16, 17 Pressure/Flow Option

Integral Cross-Over Relief Valve:

00 – None

30 – Set at 103.4 bar [1500 lbf/in²]
 31 – Set at 120.6 bar [1750 lbf/in²]
 32 – Set at 137.9 bar [2000 lbf/in²]
 33 – Set at 155.1 bar [2250 lbf/in²]
 34 – Set at 172.4 bar [2500 lbf/in²]
 35 – Set at 189.6 bar [2750 lbf/in²]
 36 – Set at 206.8 bar [3000 lbf/in²]

18 Geroler Option

1 – Standard

19 Seal Options

0 – Standard

1 – Viton
 2 – Viton Shaft Seal
 4 – Seal Guard

20, 21 Accessories

00 – None

AD – M 12 Threaded Connector, Digital Speed Pickup (30 Pulse)
 AE – M 12 Threaded Connector, Long Body Digital Speed and Direction Pickup (1 = Power Supply, Pin 2 = Output Signal 1, Pin 3 = Common, Pin 4 = Output Signal 2)

22, 23 Special Features (Hardware)

00 – None

24, 25 Special Features (Assembly)

00 – None

AB – Reverse Rotation
 AE – Flange Rotated 45 Degrees

26, 27 Paint/Packaging

AA – No Paint, Indiv. Box
AB – Low Gloss Black Primer,
Indiv. Box

28, 29 Customer ID

AA – None

30 Design Code

F – Sixth