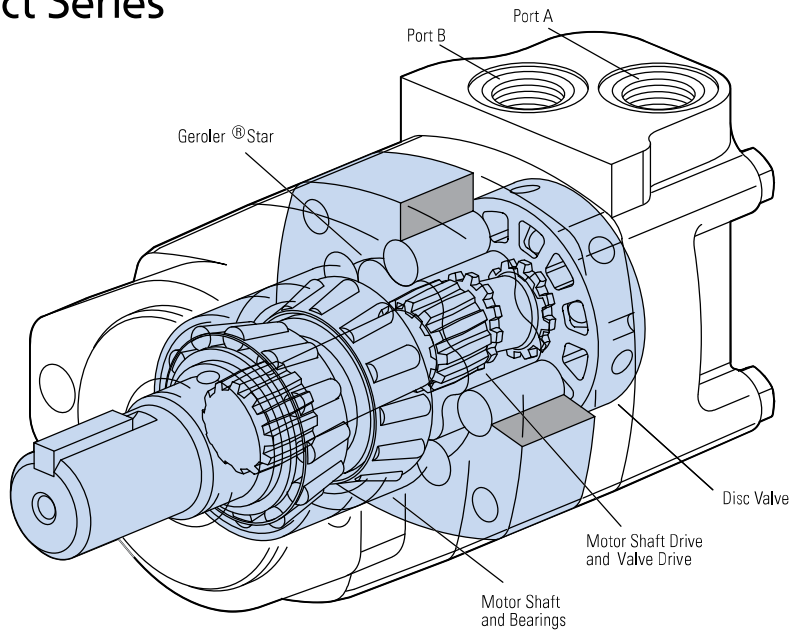


4000 Compact Series

Highlights



Features

- Shuttle Valve with Back-Pressure Relief Valve
- Speed Sensors
- End Ports.

Benefits

- Higher bearing capacity than 2000 Series
- Torque of 4000 Series

Applications

- Skid Steer Loaders
- Fairway Mowers
- Harvesters
- Vehicles where space may be at a premium.

Description

This new compact addition in a family of disc valve hydraulic motors produces the same amount of torque as the current 4000 Series. Yet, it is housed in an envelope similar to its smaller counterpart, the 2000 Series. The unit's intermittent torque rating is 1220 Nm [10800 lb-in]. A variety of mounting options include two 2 bolt mounts (SAE A, SAE B), and four 4 bolt mounts (magneto, standard and wheel mounts.) For added flexibility, the motor can be specified with either the larger size shafts of the 2000 Series of standard output shaft sizes of the 4000 Series, plus one new 1-1/2 inch straight (the small envelope and optional shaft sizes make this motor ideal for vehicles like skid-steer loaders whose hallmark is high power and productivity in a small frame.)

Specifications

Geroler Element	6 Displacements
Flow l/min [GPM]	75 [20] Continuous**
	115 [30] Intermittent*
Speed RPM	464 Cont.**
	699 Inter.*
Pressure bar [PSI]	200 [3000] Cont.**
	300 [4500] Inter.*
Torque Nm [lb-in]	975 [8627] Cont.**
	1218 [10788] Inter.*

** Continuous—(Cont.) Continuous rating, motor may be run continuously at these ratings.

* Intermittent—(Inter.) Intermittent operation, 10% of every minute.



Lawn and Turf



Skid Steer



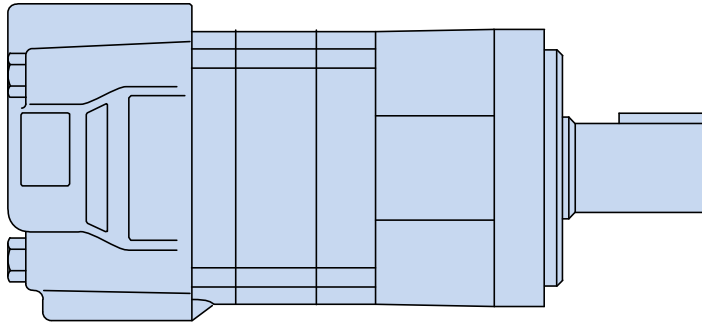
Boom Lift



Harvester

4000 Compact Series

Specifications



SPECIFICATION DATA – 4000 COMPACT SERIES MOTORS

Displ. cm ³ /r [in ³ /r]		160 [9.8]	200 [12.3]	250 [15.4]	325 [19.8]	405 [24.6]	490 [29.8]
Max. Speed (RPM) @ Flow	Continuous	464	375	300	234	188	155
	Intermittent	699	562	450	351	282	232
Flow l/min [GPM]	Continuous	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]
	Intermittent	115 [30]	115 [30]	115 [30]	115 [30]	115 [30]	115 [30]
Torque* Nm [lb-in]	Continuous	510 [4514]	758 [5715]	734 [6500]	793 [7021]	800 [7079]	975 [8627]
	Intermittent	690 [6108]	840 [7436]	935 [8272]	1053 [9320]	921 [8153]	1218 [10778]
Pressure Δ bar [Δ PSI]	Continuous	225 [3000]	225 [3000]	205 [3000]	170 [2500]	140 [2000]	140 [2000]
	Intermittent	310 [4500]	295 [4250]	260 [3750]	240 [3500]	170 [2500]	171 [2500]
	Peak	310 [4500]	310 [4500]	310 [4500]	310 [4500]	275 [4000]	260 [3750]
Weight kg [lb]	Standard or Wheel Mount	10,4 [23.0]	10,9 [24.0]	11,3 [25.0]	11,8 [26.0]	12,2 [27.0]	12,2 [27.0]
	Bearingless	8,4 [18.5]	8,8 [19.5]	9,3 [20.5]	9,8 [21.5]	10,2 [22.5]	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

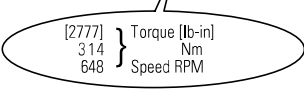
4000 Compact Series

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

		160cm ³ /r [9.8 in ³ /r]																	
		ΔPressure Bar [PSI]																	
		[250]	[500]	[750]	[1000]	[1250]	[1500]	[1750]	[2000]	[2250]	[2500]	[2750]	[3000]	[3250]	[3500]	[3750]	[4000]	[4250]	[4500]
		15	35	50	70	85	105	120	140	155	170	190	205	225	240	260	275	295	310
[0.25]		244	543																
	0.95	28	61																
		4	3																
[0.5]		274	554	854															
	1.9	31	63	96															
		10	8	7															
[1]		274	593	899	1210	1513	1816	2092	2361	2621	2874	3088							
	3.8	31	67	102	137	171	205	236	267	296	325	349							
		22	21	20	19	17	14	12	10	9	7	6							
[2]		301	623	940	1261	1579	1898	2197	2492	2766	3033	3270	3496	3761	4022				
	7.5	34	70	106	143	178	214	248	282	313	343	369	395	425	454				
		40	39	38	36	35	33	31	28	24	20	17	14	10	6				
[4]		305	662	1004	1354	1699	2046	2386	2725	3049	3368	3693	4016	4319	4618	4828	5022		
	15	34	75	113	153	192	231	270	308	344	381	417	454	488	522	545	567		
		87	85	83	81	79	77	74	72	67	63	59	55	49	44	35	27		
[6]		293	659	1003	1357	1705	2056	2399	2741	3074	3405	3751	4098	4417	4732	5023	5308		
	23	33	74	113	153	193	232	271	310	347	385	424	463	499	535	568	600		
		133	131	129	127	124	121	118	114	109	104	99	93	87	80	71	63		
[8]		280	656	1002	1360	1711	2066	2412	2758	3100	3442	3809	4180	4514	4846	5218	5593	5856	6108
	30	32	74	113	154	193	233	273	312	350	389	430	472	510	548	590	632	662	690
		181	179	177	175	172	169	166	162	157	152	145	139	133	127	120	113	104	96
[10]		259	630	978	1348	1701	2061	2408	2755	3102	3450	3806	4163	4500	4835	5191	5547	5784	
	38	29	71	110	152	192	233	272	311	351	390	430	470	508	546	586	627	653	
		228	225	223	220	217	213	209	204	199	193	186	179	172	165	157	150	141	
[12]		238	604	954	1336	1692	2056	2403	2752	3105	3458	3802	4146	4485	4824	5163	5501		
	45	27	68	108	151	191	232	272	311	351	391	430	468	507	545	583	622		
		275	272	269	266	262	258	253	247	241	235	229	223	214	205	197	189		
[14]		210	577	923	1308	1665	2034	2385	2739	3092	3447	3796	4144	4487	4830				
	53	24	65	104	148	188	230	269	310	349	390	429	468	507	546				
		322	319	316	313	308	304	298	293	286	279	272	265	256	247				
[16]		182	550	893	1280	1638	2012	2367	2727	3080	3436	3789	4143	4489	4836				
	61	21	62	101	145	185	227	267	308	348	388	428	468	507	546				
		370	367	363	360	356	351	345	339	332	324	317	309	301	292				
[18]		143	514	853	1247	1601	1973	2329	2692	3045	3401	3756	4114						
	68	16	58	96	141	181	223	263	304	344	384	424	465						
		417	414	410	406	401	397	390	383	375	366	358	350						
[20]		105	478	814	1213	1564	1935	2291	2658	3010	3366	3724	4085						
	76	12	54	92	137	177	219	259	300	340	380	421	462						
		464	461	457	453	448	442	435	428	418	409	400	390						
[22]		433	762	1167	1518	1893	2252	2623	2973	3328	3682	4040							
	83	49	86	132	172	214	254	296	336	376	416	456							
		508	504	500	495	489	482	474	465	456	446	436							
[24]		387	711	1121	1472	1851	2212	2589	2937	3291	3641	3995							
	91	44	80	127	166	209	250	292	332	372	411	451							
		556	552	548	542	537	529	521	513	504	493	483							
[25]		41	77	124	163	206	247	289	329	369									
	95	580	576	572	566	560	552	544	535	526									
[30]		244	546	967	1308	1689	2045	2421	2777	3144									
	114	28	62	109	148	191	231	274	314	355									
		699	695	692	685	678	669	660	648	637									







4000 Compact Series

Performance Data

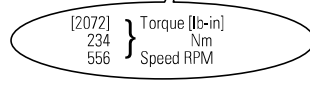
Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

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

	Continuous
	Intermittent
	Peak
	No Operation

200cm³/r [12.3 in³/r]
ΔPressure Bar [PSI]

	[250] 15	[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	[4000] 275	[4250] 295
[0.25]	115	504															
0,95	13	57															
[0.5]	4	3															
1,9	268	584	963	1274													
[1]	30	66	109	144													
3,8	8	7	4	3													
[2]	306	721	1104	1516	1913	2243	2397	2772									
[1]	35	81	125	171	216	253	271	313									
7,5	17	16	14	13	12	10	9	6									
[2]	402	841	1218	1647	2107	2478	2826	3238	3954	4451	4755	5127	5407	5569	5855		
[2]	45	95	138	186	238	280	319	366	447	503	537	579	611	629	662		
7,5	35	34	32	31	30	28	27	24	29	26	23	21	17	11	8		
[4]	403	896	1361	1780	2247	2649	3068	3513	3947	4367	4710	5125	5509	5880	6249	6547	6753
[4]	46	101	154	201	254	299	347	397	446	493	532	579	622	664	706	740	763
15	72	70	69	68	66	65	62	60	56	53	50	46	42	37	31	24	19
[6]	385	863	1354	1785	2260	2657	3087	3547	3965	4389	4793	5218	5610	6015	6408	6754	7436
[6]	44	98	153	202	255	300	349	401	448	496	542	590	634	680	724	763	840
23	109	107	106	104	102	100	97	93	90	86	81	77	72	66	60	52	47
[8]	368	831	1347	1790	2273	2665	3106	3581	3982		4876	5311	5712	6151	6567	6961	7334
[8]	42	94	152	202	257	301	351	405	450	498	551	600	645	695	742	786	829
30	147	146	144	142	140	137	134	130	127	122	117	113	108	103	98	91	83
[10]	353	822	1319	1774	2212	2642	3086	3556	3974	4410	4839	5297	5715	6147	6563		
[10]	40	93	149	200	250	299	349	402	449	498	547	598	646	695	742		
38	185	184	181	179	177	174	170	165	161	156	151	146	140	134	129		
[12]	339	813	1291	1758	2151	2620	3067	3530	3965	4408	4802	5283	5718	6144	6568		
[12]	38	92	146	199	243	296	346	399	448	498	543	597	646	694	742		
45	223	222	219	217	214	211	207	202	197	192	186	180	174	167	164		
[14]	282	762	1237	1693	2121	2601	2968	3504	3953	4368	4832	5261	5690				
[14]	32	86	140	191	240	294	335	396	447	493	546	594	643				
53	261	260	257	255	252	248	244	238	233	227	221	214	208				
[16]	224	712	1183	1629	2091	2581	2870	3477	3940	4328	4861	5240	5661				
[16]	25	80	134	184	236	292	324	393	445	489	549	592	640				
61	299	298	296	293	290	286	282	275	269	263	256	249	243				
[18]	200	667	1148	1619	2053	2520	2899	3442	3906	4337	4819	5245	5644				
[18]	23	75	130	183	232	285	328	389	441	490	544	593	638				
68	337	336	334	331	328	324	320	314	307	301	293	285	278				
[20]	176	623	1112	1609	2014	2458	2929	3407	3872	4347	4777	5250	5627				
[20]	20	70	126	182	228	278	331	385	437	491	540	593	636				
76	375	374	372	369	366	363	358	353	346	339	331	322	315				
[22]		565	1053	1530	1934	2387	2868	3347	3804	4254	4698						
[22]		64	119	173	219	270	324	378	430	481	531						
83		412	410	407	404	401	396	390	383	375	367						
[24]		507	994	1450	1855	2316	2806	3287	3737	4162	4618						
[24]		57	112	164	210	262	317	371	422	470	522						
91		449	448	446	443	439	434	427	420	412	403						
[25]		465	950	1411	1820	2276	2768	3233	3688	4116	4493						
[25]		53	107	159	206	257	313	365	417	465	508						
95		468	467	464	462	458	453	446	439	431	423						
[30]		259	726	1214	1645	2072	2577	2961	3443	3889	3866						
[30]		29	82	137	186	234	291	335	389	439	437						
114		562	563	559	555	556	550	545	536	527	521						



4000 Compact Series

Performance Data

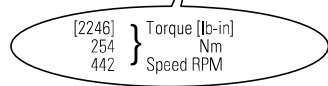
Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

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

	Continuous
	Intermittent
	Peak
	No Operation

250cm³/r [15.4 in³/r]
ΔPressure Bar [PSI]

	[250] 15	[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
[0.5] 1,9	384 43 6	833 94 5													
[1] 3,8	438 49 14	904 102 14	1403 158 13	1887 213 12	2359 267 11	2798 316 9	3221 364 8	3657 413 7	3822 432 4	4326 489 3					
[2] 7,5	492 56 28	1054 119 27	1563 177 26	2081 235 25	2623 296 24	3160 357 23	3717 420 21	4147 469 17	4585 518 16	5070 573 13	5470 618 9	5721 646 7	5962 674 5		
[4] 15	603 68 58	1183 134 56	1771 200 55	2275 257 54	2817 318 52	3364 380 50	3895 440 47	4495 508 44	5005 565 42	5496 621 38	5982 676 35	6500 734 32	7054 797 28	7519 850 24	7941 897 17
[6] 23	587 66 88	1159 131 86	1741 197 84	2329 263 82	2815 318 80	3369 381 77	3951 446 74	4483 506 71	5021 567 67	5555 628 63	6068 686 59	6557 741 55	7131 806 50	7641 863 45	8107 916 38
[8] 30	571 65 118	1135 128 116	1710 193 114	2384 269 112	2813 318 110	3375 381 107	4008 453 103	4471 505 100	5038 569 96	5613 634 92	6154 695 87	6614 747 83	7209 815 78	7763 877 73	8272 935 67
[10] 38	552 62 148	1138 129 146	1671 189 144	2304 260 142	2804 317 139	3361 380 136	3950 446 131	4452 503 127	5006 566 123	5587 631 119	6123 692 113	6612 747 109	7201 814 102		
[12] 45	532 60 178	1140 129 177	1631 184 175	2224 251 173	2796 316 170	3347 378 166	3892 440 161	4434 501 157	4974 562 151	5561 628 146	6093 688 141	6610 747 136	7193 813 129		
[14] 53	441 50 209	1072 121 207	1600 181 205	2207 249 202	2754 311 199	3320 375 195	3888 439 190	4433 501 185	4958 560 179	5529 625 174	6066 685 168	6590 745 162			
[16] 61	349 39 239	1003 113 237	1568 177 235	2190 247 233	2711 306 229	3292 372 225	3884 439 220	4431 501 214	4941 558 208	5496 621 202	6039 682 195	6570 742 189			
[18] 68	306 35 269	940 106 267	1513 171 265	2114 239 263	2653 300 259	3251 367 255	3830 433 250	4380 495 243	4904 554 236	5446 615 230	5984 676 223	6518 736 214			
[20] 76	263 30 300	876 99 298	1458 165 296	2038 230 293	2595 293 290	3210 363 285	3777 427 280	4328 489 272	4867 550 265	5395 610 259	5928 670 251	6471 731 241			
[22] 83		826 93 328	1414 160 326	1991 225 323	2528 286 320	3144 355 315	3709 419 309	4262 482 302	4806 543 295	5354 605 288	5915 668 279				
[24] 91		776 88 359	1370 155 356	1945 220 354	2462 278 350	3079 348 345	3642 411 339	4196 474 332	4745 536 325	5313 600 317	5901 667 308				
[25] 95		732 83 374	1322 149 371	1959 221 369	2426 274 365	3026 342 360	3594 406 354	4153 469 347	4696 531 340	5152 582 333					
[30] 114		509 57 450	1082 122 449	2029 229 445	2246 254 442	2761 312 437	3358 379 430	3939 445 423	4450 503 414	4347 491 413					

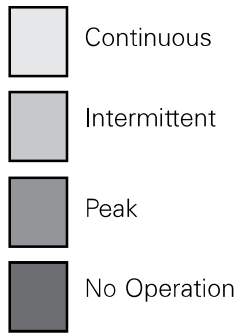


4000 Compact Series

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.



		325cm³/r [19.8 in³/r]													
		ΔPressure Bar [PSI]													
		[250]	[500]	[750]	[1000]	[1250]	[1500]	[1750]	[2000]	[2250]	[2500]	[2750]	[3000]	[3250]	[3500]
		15	35	50	70	85	105	120	140	155	170	190	205	225	240
[0.5]	536	1152													
1,9	61	130													
	5	4													
[1]	555	1220	1900	2559	3222	3862	4522	5061	5580	6106					
3,8	63	138	215	289	364	436	511	572	630	690					
	11	10	10	9	9	8	7	5	3	3					
[2]	643	1349	2025	2712	3378	4051	4696	5335	5889	6366	6876				
7,5	73	152	229	306	382	458	531	603	665	719	777				
	22	21	20	19	19	17	15	13	10	5	3				
[4]	679	1420	2140	2852	3557	4259	4947	5628	6300	6960	7596	8201	8767	9320	
15	77	160	242	322	402	481	559	636	712	786	858	927	991	1053	
	45	44	43	42	40	38	36	33	30	26	23	19	14	11	
[6]	654	1400	2132	2859	3575	4281	4977	5668	6346	7021	7678	8244	8792		
23	74	158	241	323	404	484	562	640	717	793	868	931	993		
	68	67	66	64	62	59	56	53	49	44	40	38	35		
[8]	629	1379	2125	2866	3592	4304	5007	5707	6392	7082	7760	8400			
30	71	156	240	324	406	486	566	645	722	800	877	949			
	92	90	89	87	85	82	79	75	71	66	61	56			
[10]	587	1337	2082	2827	3556	4272	4976	5672	6362	7053					
38	66	151	235	319	402	483	562	641	719	797					
	115	114	112	110	107	103	100	94	90	85					
[12]	546	1295	2040	2787	3520	4240	4944	5638	6332	7023					
45	62	146	230	315	398	479	559	637	715	794					
	139	137	136	134	130	125	121	115	110	105					
[14]	489	1238	1984	2729	3467	4193	4903	5600	6293						
53	55	140	224	308	392	474	554	633	711						
	162	161	159	157	153	148	143	136	131						
[16]	431	1182	1929	2671	3415	4145	4861	5562	6254						
61	49	134	218	302	386	468	549	628	707						
	186	185	183	181	177	171	165	159	153						
[18]	360	1110	1856	2600	3343	4073	4794	5499							
68	41	125	210	294	378	460	542	621							
	210	208	206	204	200	195	189	183							
[20]	288	1038	1784	2529	3271	4001	4726	5436							
76	33	117	202	286	370	452	534	614							
	234	232	230	228	224	220	214	207							
[22]		958	1706	2451	3194	3926	4650	5360							
83		108	193	277	361	444	525	606							
		256	254	251	248	243	237	229							
[24]		878	1628	2373	3116	3850	4574	5285							
91		99	184	268	352	435	517	597							
		279	277	275	271	266	260	252							
[25]		826	1576	2320	3063	3798	4523								
95		93	178	262	346	429	511								
		291	289	287	283	277	271								
[30]		566	1314	2056	2799	3536	4268								
114		64	148	232	316	399	482								
		351	349	346	342	337	332								

[2799] } Torque [lb-in]
 316 } Nm
 342 } Speed RPM

4000 Compact Series

Performance Data

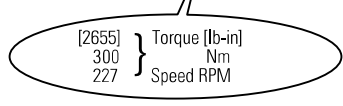
Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

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

	Continuous
	Intermittent
	Peak
	No Operation

405cm³/r [24.6 in³/r]
ΔPressure Bar [PSI]

	[250]	[500]	[750]	[1000]	[1250]	[1500]	[1750]	[2000]	[2250]	[2500]
	15	35	50	70	85	105	120	140	155	170
[0.5]	719	1458								
1,9	81	165								
	3	2								
[1]	777	1631	2423	3148	3690					
3,8	88	184	274	356	417					
	8	7	5	4	3					
[2]	853	1812	2596	3375	4179	4845	5375	5841	6501	
7,5	96	205	293	381	472	547	607	660	735	
	17	15	14	12	11	9	8	3	2	
[4]	878	1859	2687	3667	4554	5388	6232	7004	7660	8153
15	99	210	304	414	515	609	704	791	865	921
	35	34	32	30	28	25	23	19	16	11
[6]	882	1836	2716	3680	4577	5388	6269	7079	7856	
23	100	207	307	416	517	609	708	800	888	
	54	52	51	48	46	42	39	35	31	
[8]	885	1813	2746	3694	4600	5388	6307	7153	8052	
30	100	205	310	417	520	609	713	808	910	
	73	72	70	68	65	62	58	55	50	
[10]	810	1736	2693	3639	4540	5390	6310	7151	7994	
38	92	196	304	411	513	609	713	808	903	
	92	90	89	86	84	80	75	71	67	
[12]	735	1660	2640	3584	4480	5391	6314	7149		
45	83	188	298	405	506	609	713	808		
	111	110	108	106	103	98	93	88		
[14]	661	1622	2560	3512	4412	5330	6242	7059		
53	75	183	289	397	498	602	705	798		
	130	128	127	124	121	117	112	108		
[16]	587	1585	2480	3440	4343	5268	6170			
61	66	179	280	389	491	595	697			
	149	147	146	143	141	137	131			
[18]	492	1472	2379	3333	4270	5190	6084			
68	56	166	269	377	482	586	687			
	168	167	165	162	160	156	150			
[20]	397	1359	2279	3226	4197	5112	5999			
76	45	153	257	365	474	578	678			
	188	186	184	182	179	175	170			
[22]		1264	2194	3124	4093	5008	5904			
83		143	248	353	462	566	667			
		205	203	201	198	193	188			
[24]		1169	2110	3023	3989	4904	5810			
91		132	238	342	451	554	656			
		224	222	220	216	212	207			
[25]		1106	2049	2961	3929	4851	5766			
95		125	231	335	444	548	651			
		233	232	229	226	222	217			
[30]		790	1744	2655	3634	4587	5543			
114		89	197	300	411	518	626			
		282	280	277	274	270	266			







4000 Compact Series

Performance Data

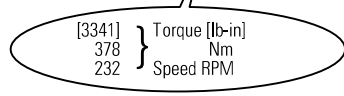
Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

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

	Continuous
	Intermittent
	Peak
	No Operation

Flow LPM [GPM]

		490cm ³ /r [29.8 in ³ /r] ΔPressure Bar [PSI]									
		[250] 15	[500] 35	[750] 50	[1000] 70	[1250] 85	[1500] 105	[1750] 120	[2000] 140	[2250] 155	[2500] 170
[0.5]	375	1669									
1,9	42	189									
	3	3									
[1]	525	1762	2945	3965	5099	5926	6715	7503			
3,8	59	199	333	448	576	670	759	848			
	7	7	6	6	6	5	4	3			
[2]	639	2108	3287	4169	5416	6570	7188	8295	8959		
7,5	72	238	371	471	612	742	812	937	1012		
	14	14	13	13	11	11	9	6	5		
[4]	981	2201	3333	4574	5558	6634	7694	8627	9567	10399	
15	111	249	377	517	628	750	869	975	1081	1175	
	30	29	29	28	27	26	24	21	18	13	
[6]	1049	2218	3332	4584	5604	6670	7711	8713	9698	10588	
23	119	251	376	518	633	754	871	984	1096	1196	
	45	45	44	43	42	40	38	35	31	26	
[8]	1118	2236	3331	4593	5650	6705	7727	8798	9828	10778	
30	126	253	376	519	638	758	873	994	1110	1218	
	61	60	60	59	58	56	54	51	48	44	
[10]	1060	2230	3304	4503	5607	6693	7721	8836			
38	120	252	373	509	633	756	872	998			
	76	76	75	75	73	72	69	66			
[12]	1003	2223	3276	4413	5564	6680	7715	8874			
45	113	251	370	499	629	755	872	1003			
	92	91	91	90	89	88	85	82			
[14]	858	2127	3136	4320	5496	6542	7653				
53	97	240	354	488	621	739	865				
	108	107	107	106	105	103	100				
[16]	713	2030	2997	4226	5428	6403	7590				
61	81	229	339	477	613	723	858				
	124	123	122	122	121	119	115				
[18]	631	1907	2935	4133	5330	6339	7431				
68	71	215	332	467	602	716	840				
	139	139	138	137	136	134	130				
[20]	548	1784	2872	4041	5232	6275	7362				
76	62	202	325	457	591	709	832				
	155	154	153	153	152	150	148				
[22]		1669	2704	3928	5048	6124	7208				
83		189	306	444	570	692	814				
		170	169	169	168	166	164				
[24]		1553	2536	3816	4864	5972	7055				
91		175	287	431	550	675	797				
		186	185	185	184	182	179				
[25]		1469	2475	3737	4810	5909	6959				
95		166	280	422	543	668	786				
		193	193	193	192	190	187				
[30]		1047	2172	3341	4538	5592	6482				
114		118	245	378	513	632	732				
		232	232	232	231	229	227				



4000 Compact Series

Dimensions

Standard Mount

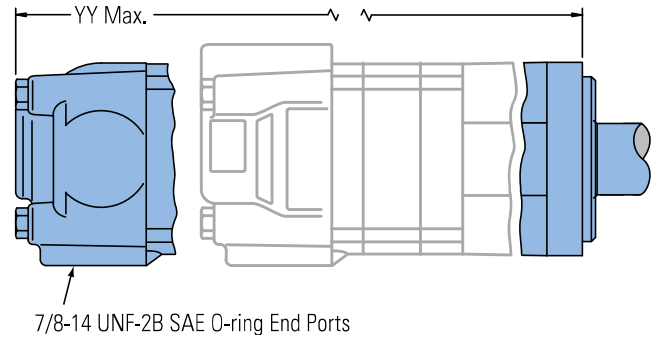
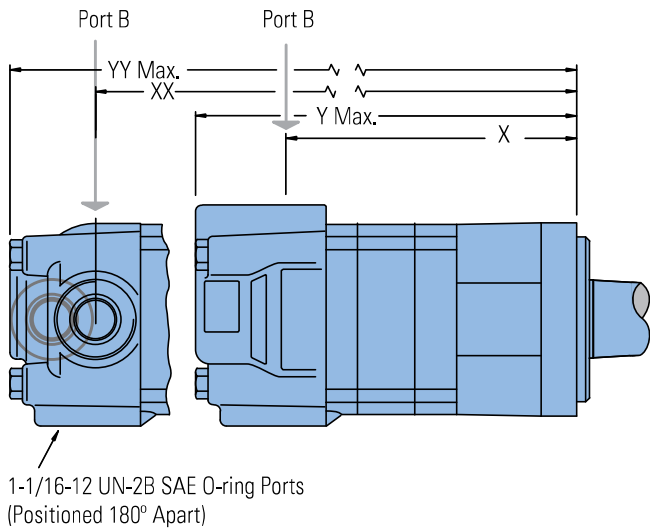
Ports

- 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



C-2

STANDARD MOUNT MOTOR DIMENSIONS

Displacement	X	Y	XX	YY
cm ³ /r [in ³ /r]	mm [inch]	mm [inch]	mm [inch]	mm [inch]
160 [9.8]	154,7 [6.09]	201,9 [7.95]	157,0 [6.18]	203,3 [8.00]
200 [12.3]	163,8 [6.45]	211,1 [8.31]	166,1 [6.54]	212,3 [8.36]
250 [15.4]	175,3 [6.90]	222,5 [8.76]	177,5 [6.99]	223,8 [8.81]
325 [19.8]	191,0 [7.52]	238,5 [9.39]	193,3 [7.61]	239,8 [9.44]
405 [24.6]	208,5 [8.21]	255,8 [10.07]	210,8 [8.30]	257,0 [10.12]
490 [29.8]	208,5 [8.21]	255,8 [10.07]	210,8 [8.30]	257,0 [10.12]

4000 Compact Series

Dimensions

Wheel Mount

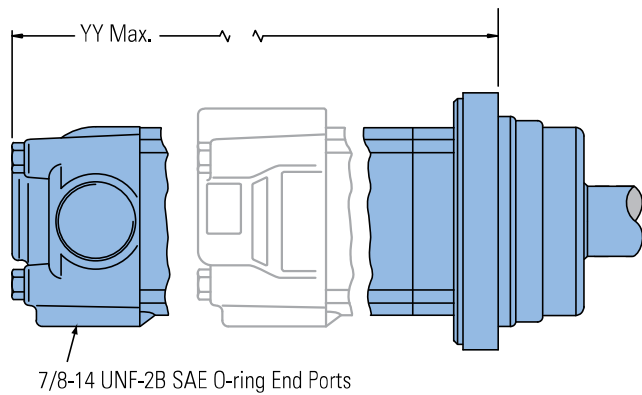
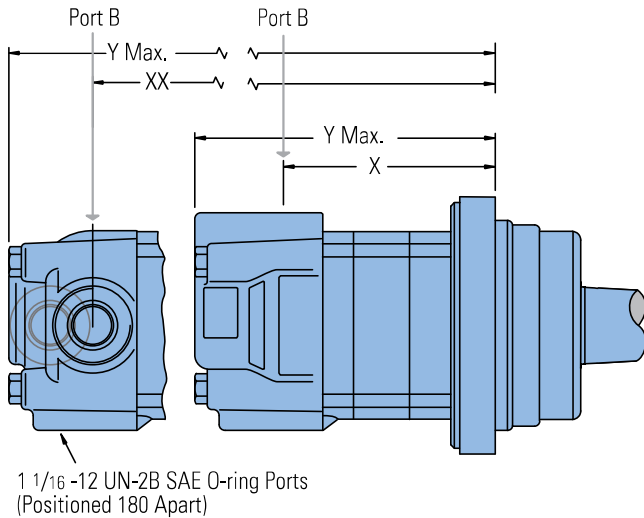
Ports

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]
160 [9.8]	114,6 [4.51]	161,8 [6.37]	114,6 [4.51]	161,8 [6.37]
200 [12.3]	123,7 [4.87]	170,9 [6.73]	123,7 [4.87]	170,9 [6.73]
250 [15.4]	135,1 [5.32]	182,4 [7.18]	135,1 [5.32]	182,4 [7.18]
325 [19.8]	150,9 [5.94]	198,4 [7.81]	150,9 [5.94]	198,4 [7.81]
405 [24.6]	168,4 [6.63]	215,6 [8.49]	168,4 [6.63]	215,6 [8.49]
490 [29.8]	168,4 [6.63]	215,6 [8.49]	168,4 [6.63]	215,6 [8.49]

4000 Compact Series

Dimensions

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

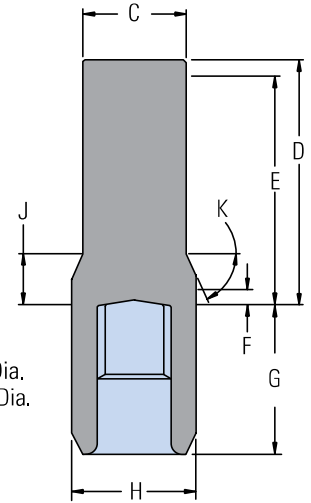
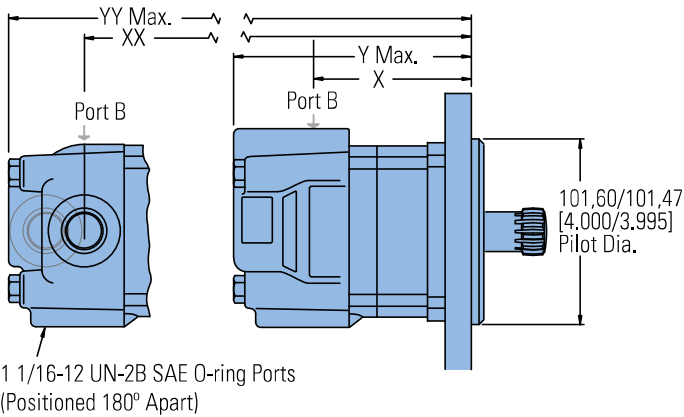
- Port A Pressurized — CW
- Port B Pressurized — CCW

For 4000 bearingless motor application information, contact your Eaton representative (mating coupling blanks available from Eaton Hydraulics).

Note:

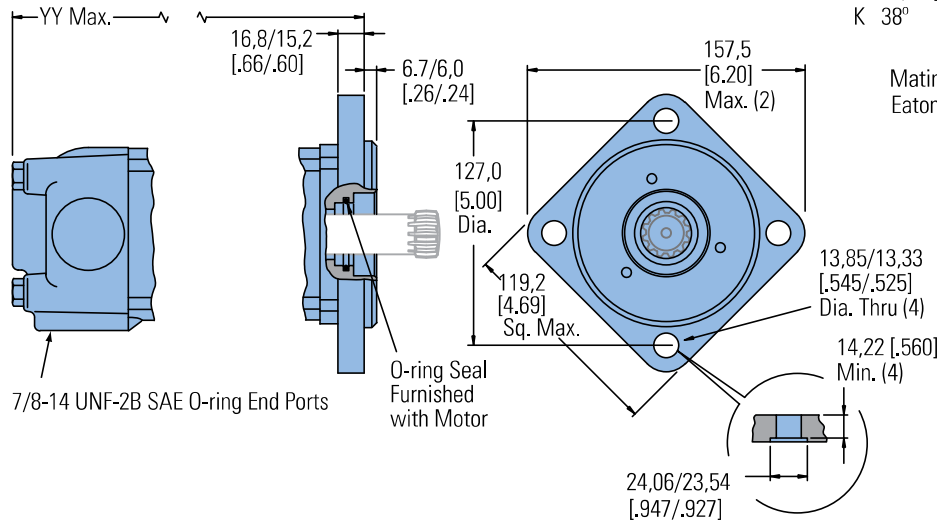
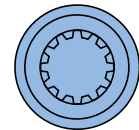
After machining blank, part must be hardened per Eaton specification.

Bearingless



- C 47,2 [1.86] Dia.
- D 112,5 [4.43] Max.
- E 107,4 [4.23] Full Form Dia.
- F 7,4 [.29] Min. Full Form Dia.
- G 68,8 [2.71] Max.
- H 56,9 [2.24] Dia.
- J 18,29 [.720]
- K 38°

Mating Coupling Blank
Eaton Part No. 12745-003



BEARINGLESS MOTOR DIMENSIONS

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]	XX mm [inch]	YY mm [inch]
160 [9.8]	96,8 [3.81]	144,3 [5.68]	99,1 [3.90]	145,5 [5.73]
200 [12.3]	105,7 [4.16]	153,4 [6.04]	108,0 [4.25]	154,7 [6.09]
250 [15.4]	117,1 [4.61]	164,8 [6.49]	119,4 [4.70]	166,1 [6.54]
325 [19.8]	133,1 [5.24]	180,8 [7.12]	135,4 [5.33]	182,1 [7.17]
405 [24.6]	150,4 [5.92]	198,1 [7.80]	152,7 [6.01]	199,4 [7.85]
490 [29.8]	150,4 [5.92]	198,1 [7.80]	152,7 [6.01]	199,4 [7.85]

4000 Compact 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 0,76 - 1,02 [.030 - .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.

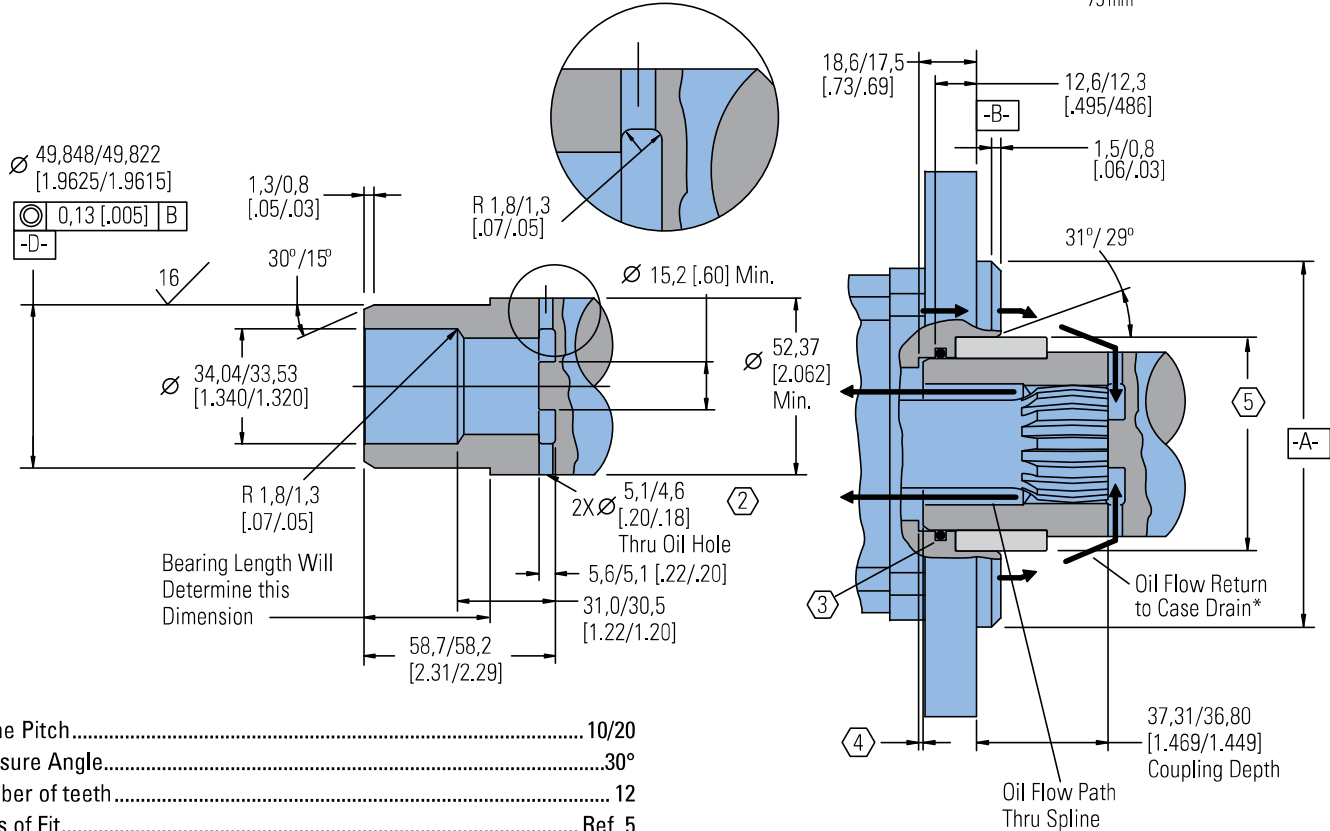
3 Seal to be furnished with motor for proper oil circulation thru splines.

4 Some means of maintaining clearance between shaft and mounting flange must be provided.

5 Counterbore designed to adapt to a standard sleeve bearing 50,010 - 50,040 [1.9689 - 1.9700] ID by 60,050 - 60,080 [2.3642 - 2.3653] (Oilite bronze sleeve bearing) Source: Beemer Precision Inc. www.oilite.com, 1-800-836-2340 AAM 50 mm ID - 60 mm OD Length Determined by the Customer.

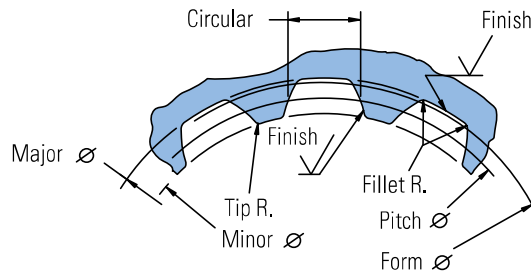
Stock Bearing Lengths:

- 35 mm
- 50 mm
- 60 mm
- 70 mm
- 75 mm



Spline Pitch.....	10/20
Pressure Angle.....	30°
Number of teeth.....	12
Class of Fit.....	Ref. 5
Type of Fit.....	Side
Pitch Diameter.....	Ref. 30,480000 [1.2000000] \nearrow 0,20 [.008] D
Base Diameter.....	Ref. 26,396455 [1.0392305]
Major Diameter.....	(33,43 [1.316] Max. 33,23 [1.308] Min.)
Minor Diameter.....	28,40 - 25,58 [1.118 - 1.125]
Form Diameter, Min.....	32,59 [1.283]
Fillet Radius.....	0,63 - 0,76 [.025 - .030]
Tip Radius.....	0,26 - 0,51 [.010 - .020]
Finish.....	1,6 (63)
Involute Profile Variation.....	+0,000 -0,025 [+0.0000 - .0010]
Total Index Variation.....	0,038 [.0015]
Lead Variation.....	0,013 [.0005]
Circular Space Width:	
Maximum Actual.....	5,045 [.1986]
Minimum Effective.....	4,995 [.1951]
Maximum Effective.....	Ref. 5,009 [.1972]
Minimum Actual.....	Ref. 4,986 [.1963]
Dimension Between Two Pins.....	Ref. 22,783 - 22,929 [.8970 - .9027]
Pin Diameter.....	5,334 [.2100] Pins to Have 3,73 [.147]

Wide Flat for Root Clearance

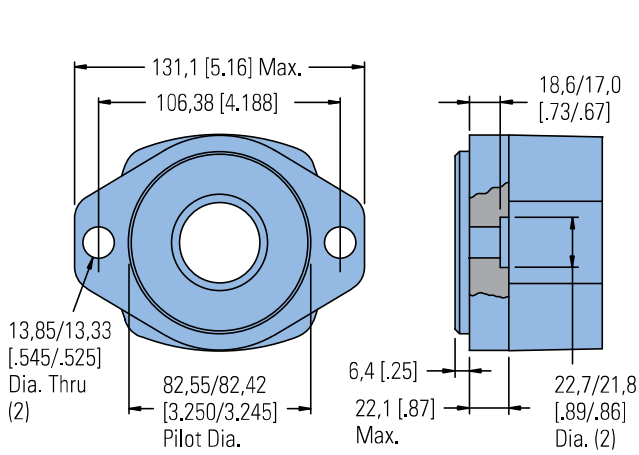


4000 Compact Series

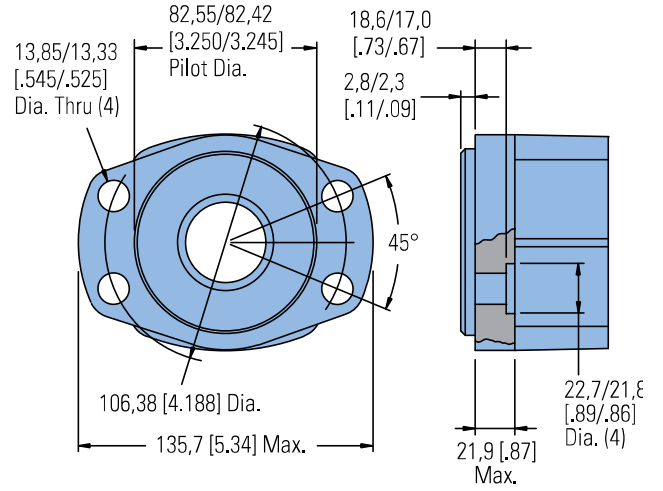
Dimensions

Mounting Options

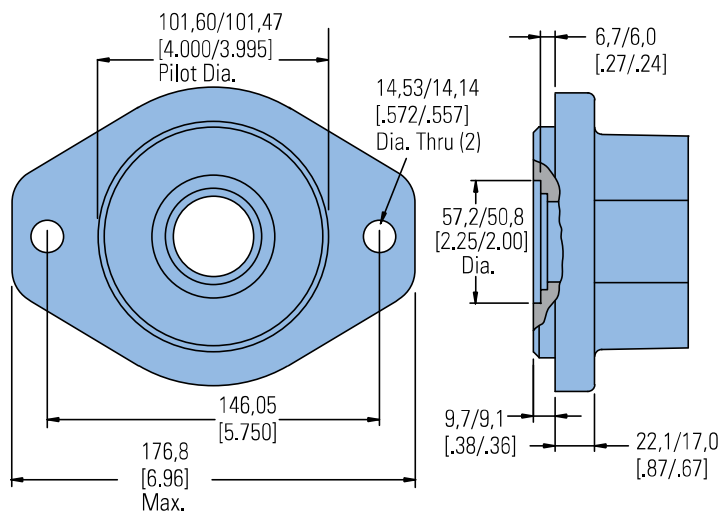
SAE A – Two Bolt (Standard Motor)



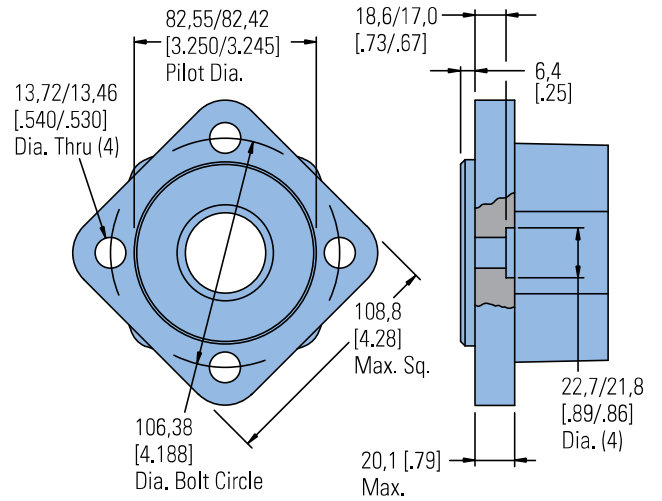
Four Bolt Magneto



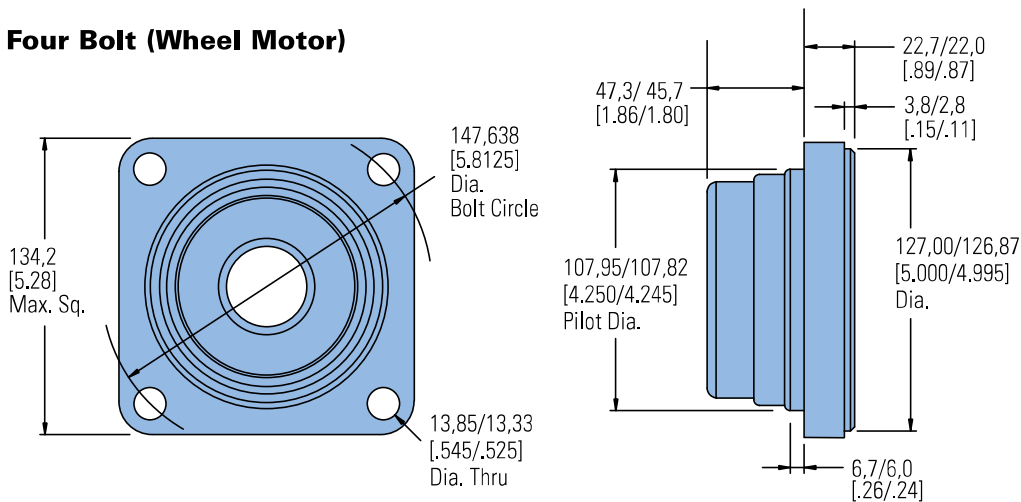
Two Bolt SAE B



Four Bolt



Four Bolt (Wheel Motor)



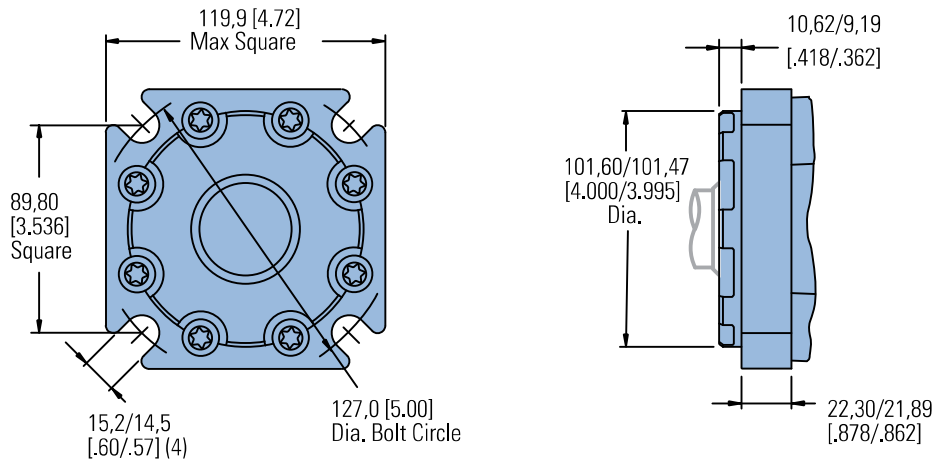
C-2

4000 Compact Series

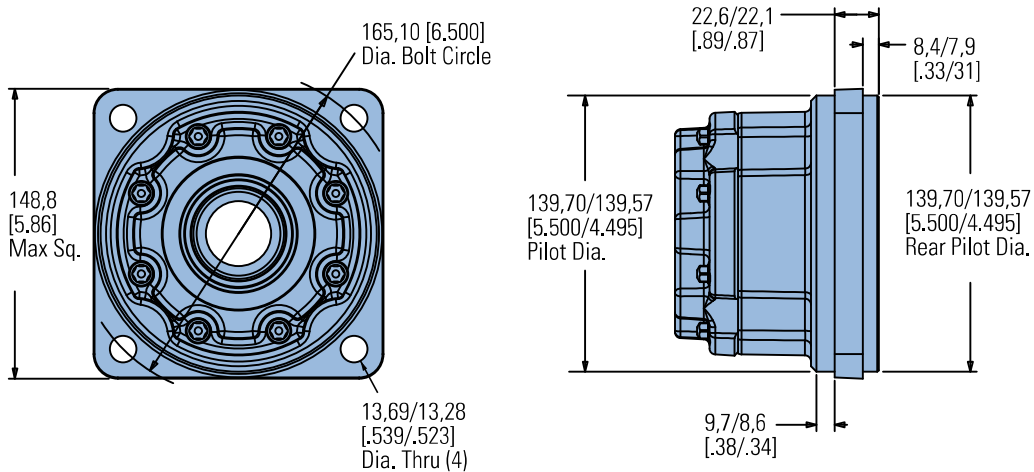
Dimensions

Mounting Options for use with Enhanced Bearings

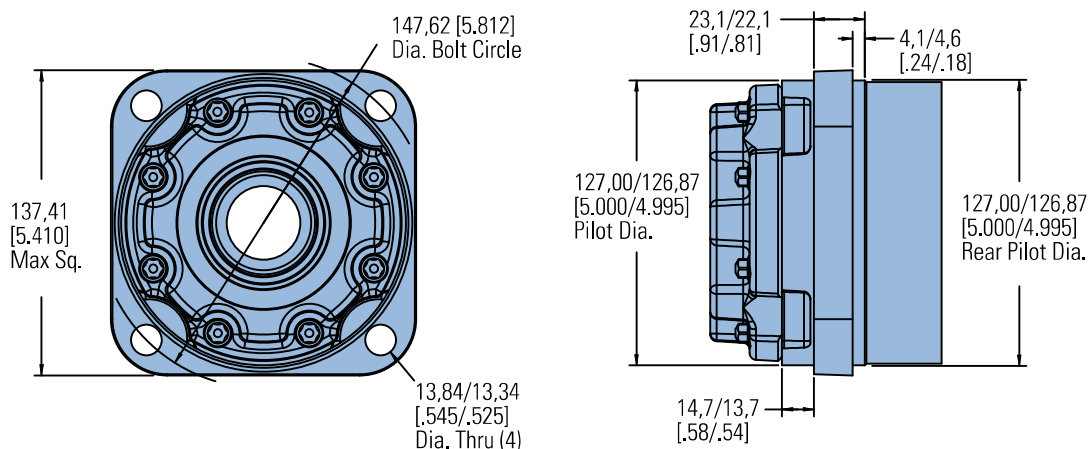
Standard Flange- Similar to SAE B type



Four Bolt (Wheel Motor)



Four Bolt (Wheel Motor- Short)

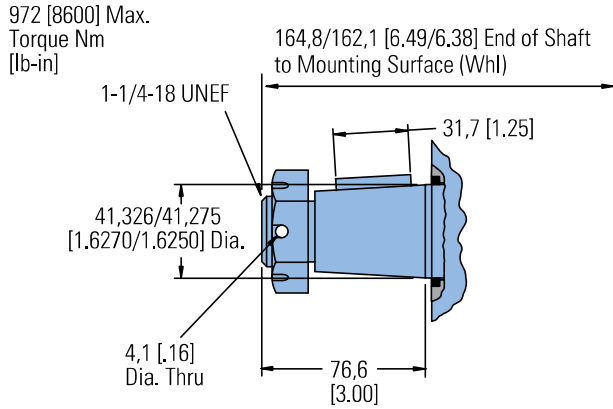


4000 Compact Series

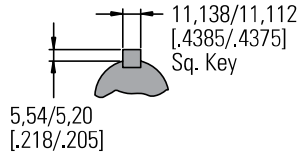
Dimensions

Shafts

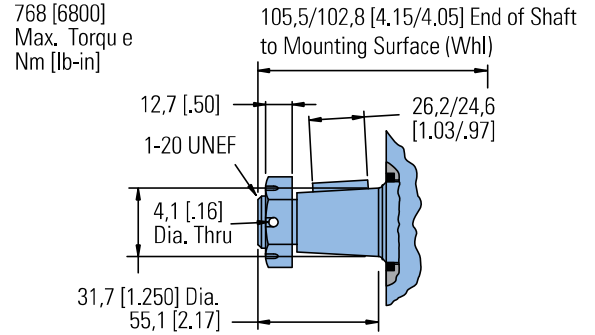
1-5/8 Inch Tapered



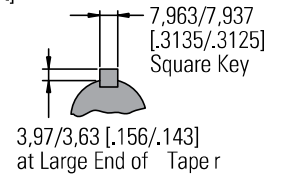
SAE J501 Standard Tapered Shaft
125,00 0,17 Taper per Meter
[1.500±.002 Taper per Foot]



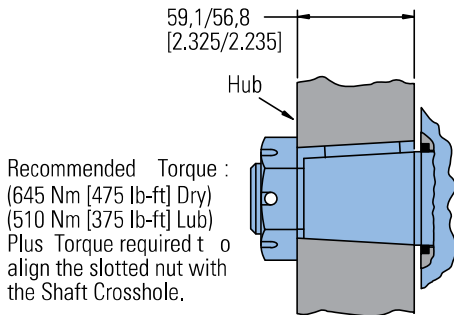
1-1/4 Inch Tapered



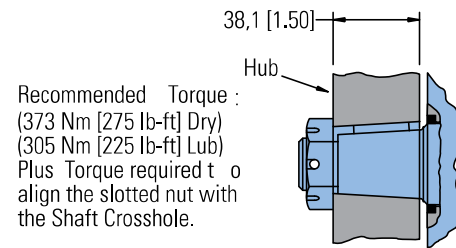
SAE J501 Standard Tapered Shaft
125,00 0,17 Taper per Meter
[1.500±.002 Taper per Foot]



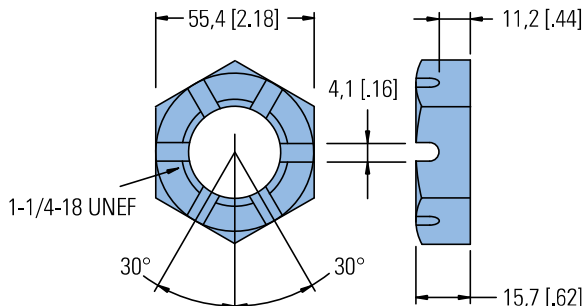
Tapered Shaft Hub Data



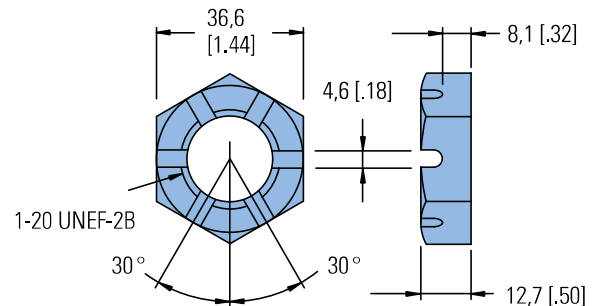
Tapered Shaft Hub Data



Slotted Hexagon Nut



Slotted Hexagon Nut

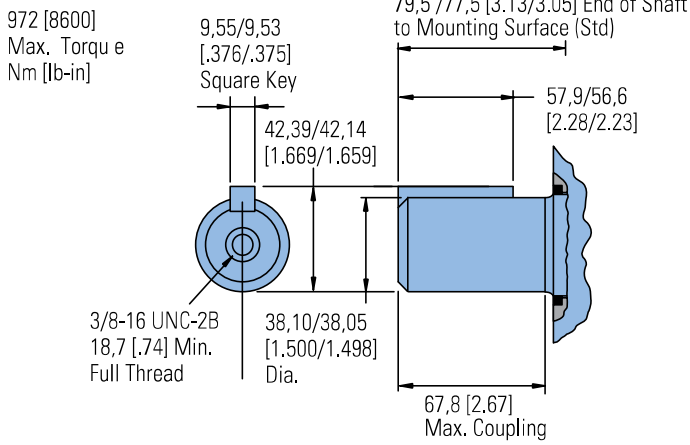


4000 Compact Series

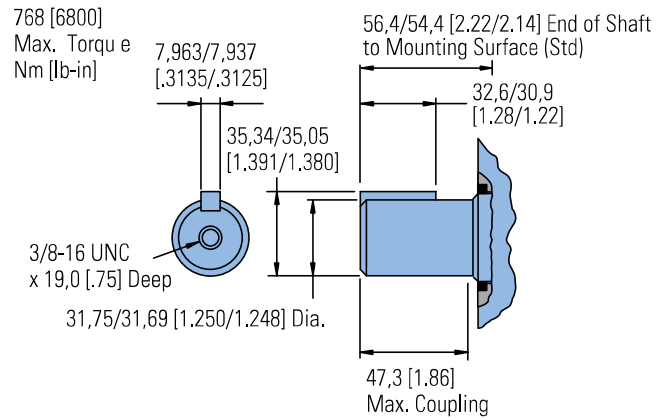
Dimensions

Shafts

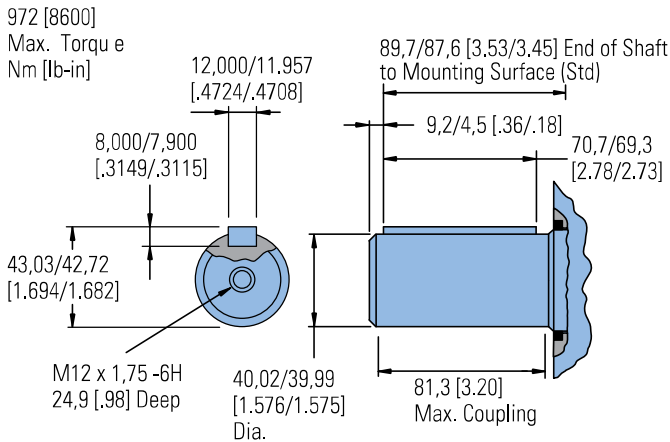
1-1/2 Inch Straight



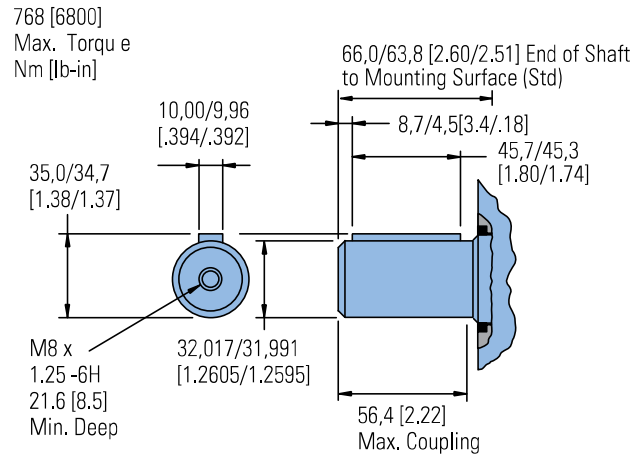
1-1/4 Inch Straight



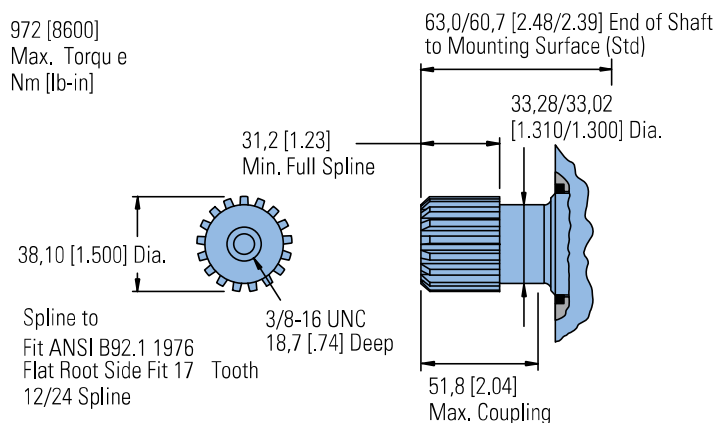
40 mm Straight



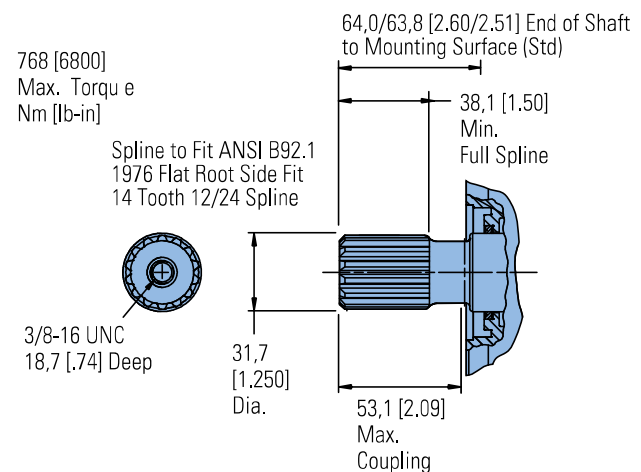
32 mm Straight



1-1/2 Inch 17 Tooth Straight



1-1/4 Inch 14 Tooth Splined



4000 Compact Series

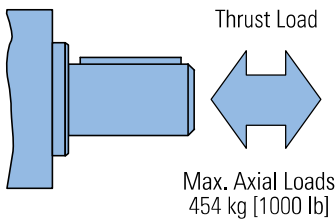
Shaft Side Load Capacity

These curves indicate the radial load capacity on the motor shafts) 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 94 kg/7 Bar [208 lb/100 PSI].

Each curve is based on B 10 bearing life (2000



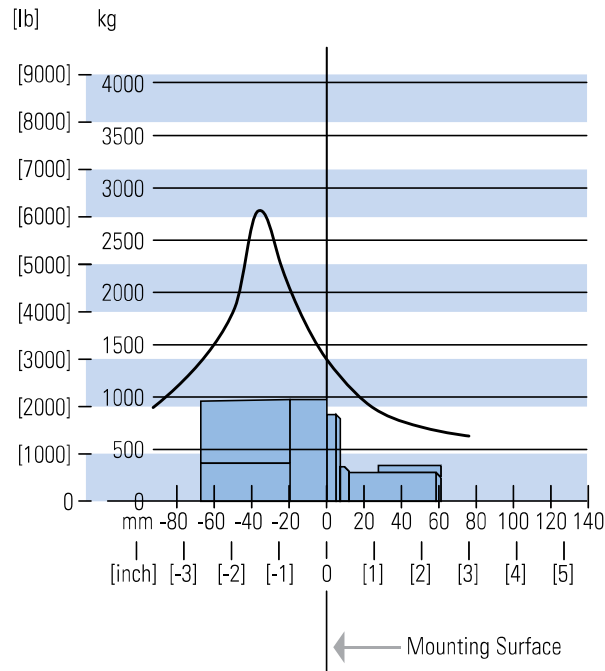
hours of 12,000,000 shaft revolutions at 100 RPM) at rated output torque.

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.

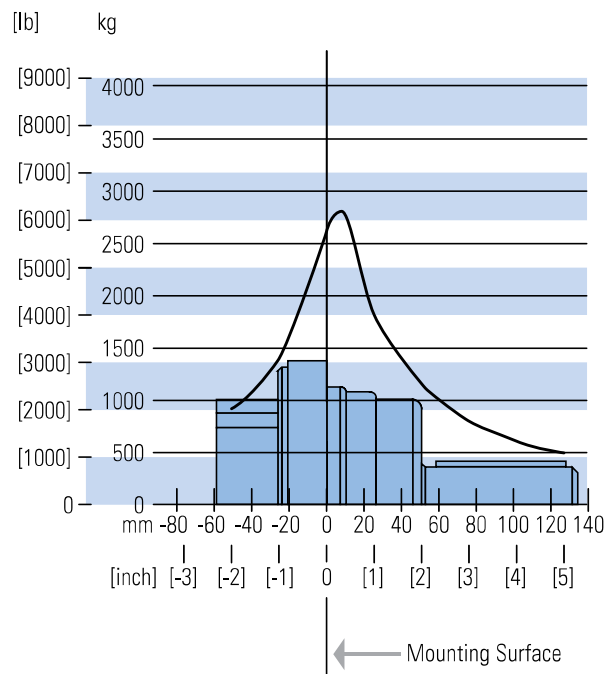
RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

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

Standard Mount- All shaft options 1-1/4 inch and larger



Wheel Mount- All shaft options 1-1/4 inch and larger



4000 Compact Series

Case Pressure and Case Port

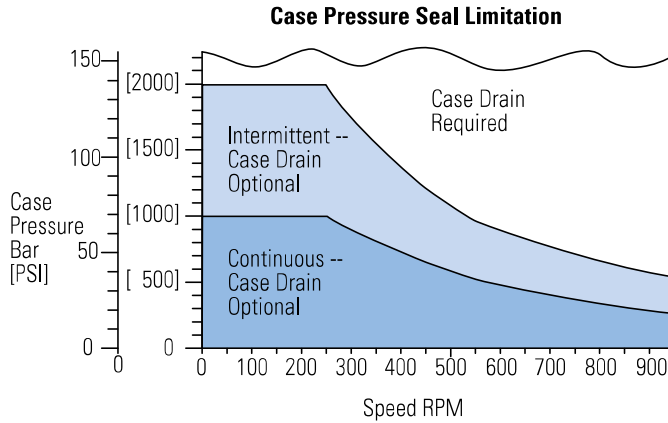
Char-Lynn 4000 Compact Series motors are durable and have long life as long as the recommended case pressure is not exceeded. Allowable case pressure is highest at low shaft speeds. Consequently, motor life will be shortened if case pressure exceeds these ratings (acceptability may vary with application). Determine if an external case drain is required from the case pressure seal limitation charts.

Case Porting Advantage

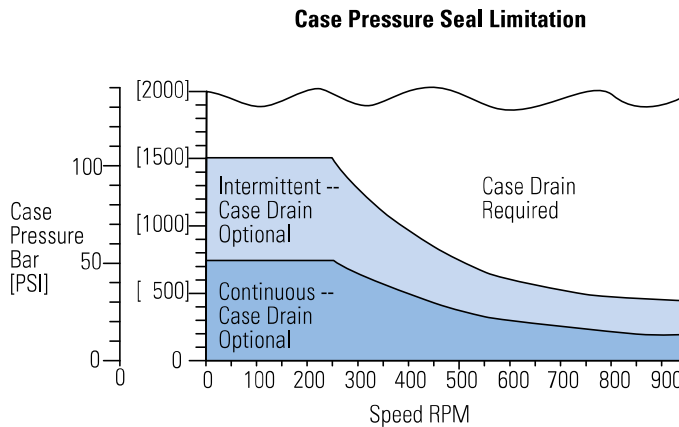
Contamination Control — flushing the motor case.

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.



All Shaft options 1-1/4 inch and smaller.



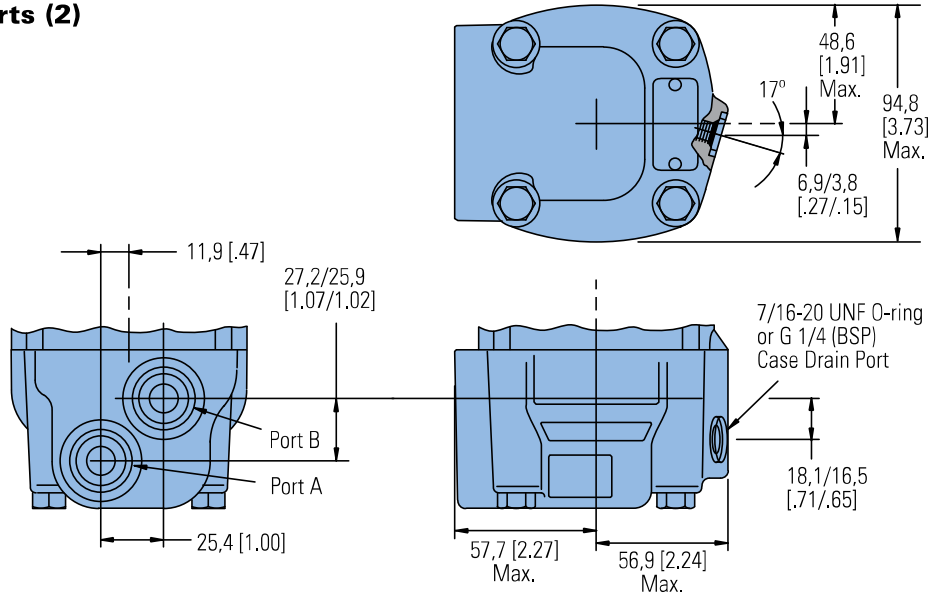
All Shaft options larger than 1-1/4 inch.

4000 Compact Series

Dimensions

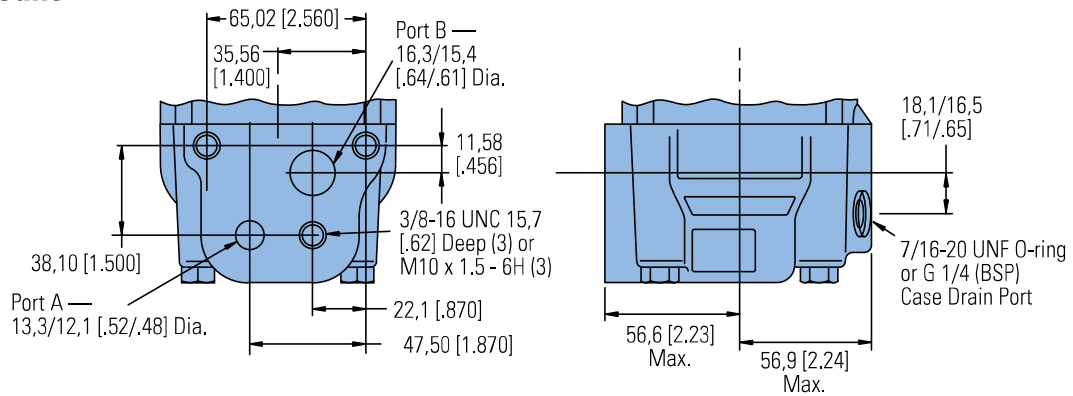
Ports

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



C-2

Manifold Mount

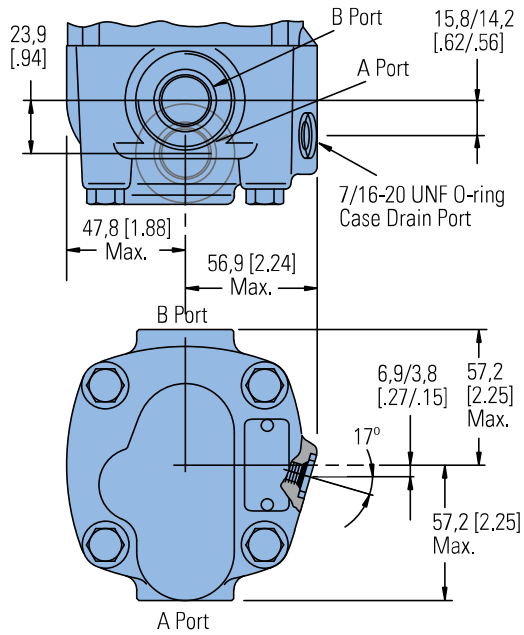


4000 Compact Series

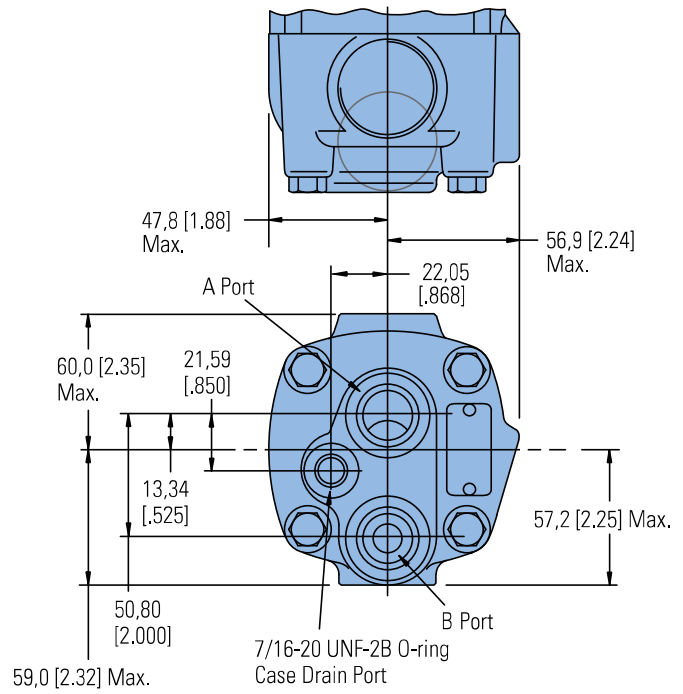
Dimensions

Ports

1-1/16-12 O-ring Ports (2) Positioned 180 Apart



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

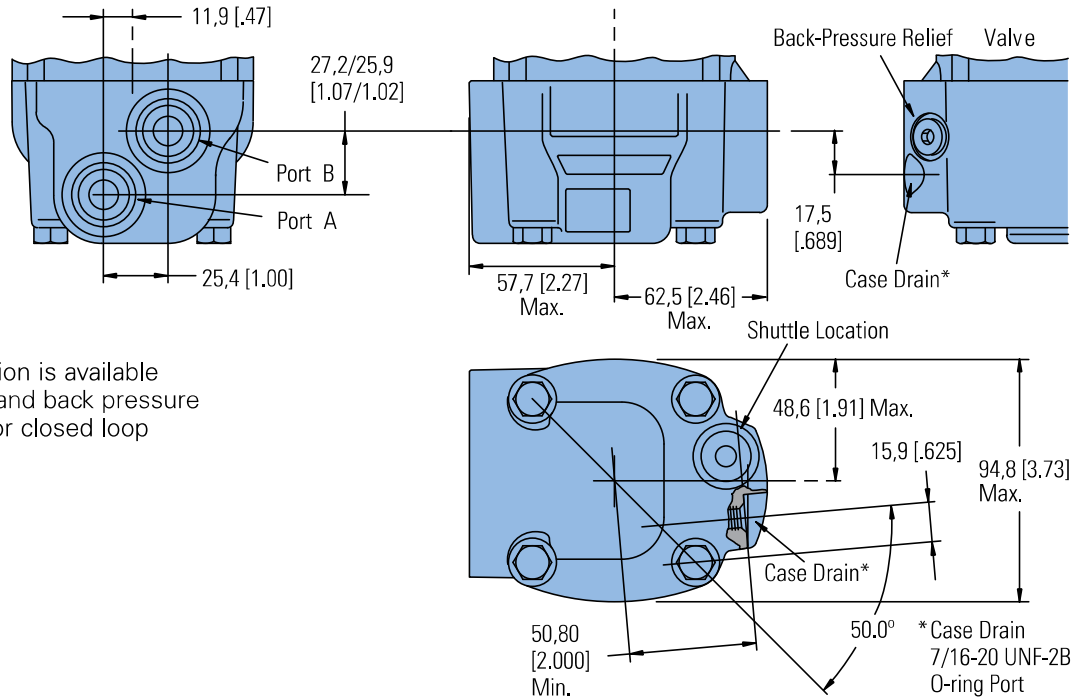


4000 Compact Series

Dimensions

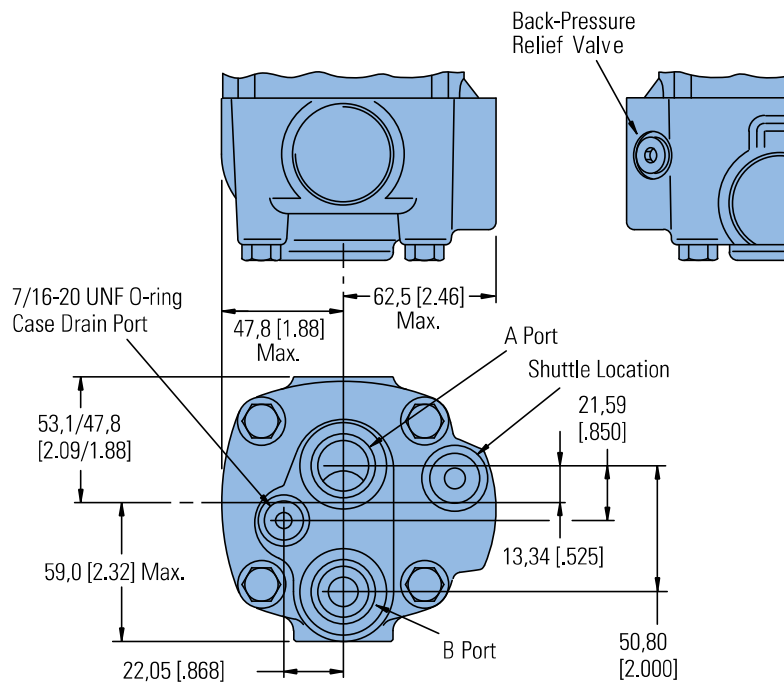
Ports with Shuttle

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



This port option is available with shuttle and back pressure relief valve for closed loop applications.

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

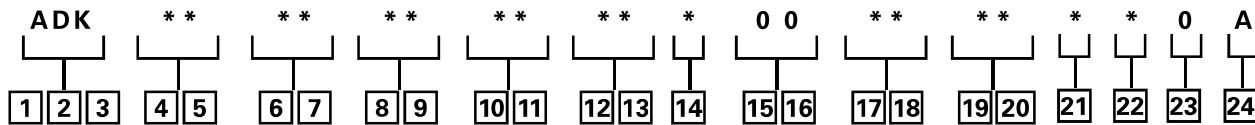


This port option is available with shuttle and back pressure relief valve for closed loop applications.

4000 Compact Series

The following 24-digit coding system has been developed to identify all of the configuration options for the 4000 Compact Series motor. Use this model code to specify a motor with the desired features. All 24 digits of the code must be present when ordering. You may want to photocopy the matrix below to ensure that each number is entered in the correct box.

Model Code



1, 2, 3 Product Series
ADK – 4000 Compact Series Motor

4, 5 Displacement
 cm³/r [in³/r]

10 – 160 [9.8]
 12 – 200 [12.3]
 15 – 250 [15.4]
 20 – 325 [19.8]
 25 – 405 [24.6]
 30 – 490 [29.8]

6, 7 Mounting Type

AB – 4 Bolt (Wheel) 108,0 [4.25] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 147,6 [5.81] Dia. B.C. 127,0 [5.00] Dia. Rear Mount Pilot

AC – 2 Bolt SAE A (Std.) 82,5 [3.25] Pilot Dia and 13,59 [.535] Dia. Mtg. Holes on 106,4 [4.19] Dia. B.C.

AE – 4 Bolt (Bearingless) 101,6 [4.00] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 127,0 [5.00] Dia. B.C.

AF – 2 Bolt SAE B (Std.) 101,6 [4.00] Pilot Dia. and 14,35 [.565] Dia. Mtg. Holes on 146,0 [5.75] Dia. B.C.

AH – 4 Bolt (Standard) 82,5 [3.25] Pilot Dia. and 14,59 [.535] Dia. Mounting Holes on 106,4 [4.19] Dia. B.C.

AJ – 4 Bolt Magneto (Std.) 82,6 [3.25] Pilot Dia. and 13,59 [.535] Dia. Mtg. Holes on 106,4 [4.19] Dia. B.C. 2,79 [1.10] Pilot Length

AP – 4 Bolt (wheel compatible for Hayes Brake) 107,9 [4.25] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 147,6 [5.81] Dia. B.C. with Turned Down Housing to 88,9 [3.50] Dia.

AG – 4 Bolt (Wheel - Short) 91,9 [3.62] Pilot Dia. 14,35 [.565] Dia. Holes on 147,6 [5.81] Dia. Bolt Circle with O-ring Groove

AT – 2 Bolt (Standard) 101,6 [4.00] Pilot Dia. 13,59 [.535] Dia. Holes on 146,0 [5.75] Dia. Bolt Circle (Similar to SAE B)

BB* – 4 Bolt (SAE B) (Standard) 101,6 [4.00] Pilot Dia. and 14,7 [.58] Dia. Mounting Slots on 127,0 [5.00] Dia. Bolt Circle

BE* – 4 Bolt (Wheel) 139,7 [5.50] Front and Rear Pilot Dia. and 13,49 [.531] Dia. Mounting Holes on 165,1 [6.50] Dia. Bolt Circle

BG* – 4 Bolt (Wheel-Short) 127,0 [5.00] Front and Rear Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 147,62 [5.812] Dia. Bolt Circle

8, 9 Output Shaft

00 – None (Bearingless)
 02 – 1 1/4 inch Dia. Straight with 3/8 -16 Thread in end, 7,938 [.3125] Sq. x 31,75 [1.250] Straight Key

03 – 1 1/4 inch Dia. .125 : 1 Tapered Shaft Per SAE J501 with 1-20 UNEF -2A Threaded Shaft end, and slotted Hex Nut, 7,938 [.3125] Sq. x 25,40 [1.000] Straight Key

04 – 31,75 [1.250] Dia. Flat Root Side Fit, 14 tooth, 12/24 DP 30° Involute Spline with .375-16 UNC-2B Thread in End, 33,0 [1.30] Minimum Full Spline Length

06 – 1 1/4 inch Dia. Splined 14T with 38,1 [1.50] Min. Full Spline Length and 53,1 [2.09] Max. Coupling Length

08 – 40 mm Dia. Straight (with Straight Key) M12 x 1,75 - 6H Thread in end

10 – 32 mm dia. Straight (with Straight Key) M8 x 1,25 -6H Thread in end, and 56,4 [2.22] Max. Coupling Length

11 – 1 1/2 inch Dia. Straight (with Straight Key) 3/8 -16 Thread in end

17 – 28,22 [1.111] Dia. Flat Root Side Fit, 17 Tooth, 16/32 DP 30° Involute Spline, 28.58 [1.125] Minimum Full Spline Length

98 – 1 5/8 inch Dia. Tapered with Straight Key and 1 1/4 -18 UNEF Slotted Hex. Nut
 99 – 1 1/2 inch Dia. Splined 17T with 31,2 [1.23] Min. Full Spline Length

10, 11 Ports

AA – 7/8 -14 UNF -2B SAE O-ring (Staggered)

AB – 12,70 [.500] and 15,88 [.625] Dia. Ports (Manifold) and 3x 3/8 -16 UNC Port Block Mounting Holes

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

AE – 12,70 [.500] and 15,88 [.625] Dia. Ports (Manifold) and 3 x M10 x 1,5-6H Port Block Mounting Holes

AG – G 1/2 BSP Straight Thread ports (Staggered)

AH – 1 1/16 - 12 UN-2B O-Ring ports (Positioned 180° Apart)

AJ – .750-16 UNF-2B SAE O-ring Ports – Ports Oriented 180° to each other
BA – .875-14 UNF-2B SAE O-ring Ports – Port B Recessed 11.4 [.45] from Port A – End Ports – Cast Boss Removed

12, 13 Case Flow Options

00 – None

01 – 7/16 -20 UNF -2B SAE O-ring Port (Case Drain)

02 – G 1/4 (BSP) Straight Thread Port (Case Drain)

* These mounting options are available with shaft options 08, 11, 98 and 99.

14 – Reverse Flow Shuttle Valve with G 1/4 (BSP) Straight Thread Port (Case Drain)

14 Back-Pressure Relief Valve

0 – None

A – Set at 4,5 bar [65 PSI] (for Manual Pumps)

15, 16 Valve Options

00 – None

17, 18 Accessories

00 – None

AA – Seal Guard

AF – M12 Threaded Connector Digital Speed Sensor (Two 30 Pulse per rev. signals in quadrature)

AG – M12 Threaded Connector Digital Speed Sensor (One 60 Pulse per rev. speed signal and one directional signal)

19, 20 Special Features (Hardware)

00 – None

01 – Viton Seals

21 Special Features (Assembly)

0 – None

A – Flange Rotated 90°

B – Reverse Rotation

22 Paint/ Special Packaging

0 – No Paint, Individual Box

A – Low Gloss Black Primer, Individual Box

23 Eaton Assigned Code when Applicable

0 – None

24 Eaton Assigned Design Code

A – First Code

Feature in **bold** are preferred and allow for shorter lead time.