

OVERVIEW

The WS targets agricultural equipment, skid steer attachments, and other applications that require greater torque under demanding conditions. A distinguishing feature of the WS in relation to competitive products is its heavy duty drive link with a larger pitch diameter. This enables the WS to better withstand pressure and torque spikes and is reflected in its intermittent and peak performance ratings. Additional product features include a three zone commutator valve, heavy-duty tapered roller bearings, and case drain with integral internal drain.

FEATURES / BENEFITS

- Ten shaft and six mounting options to meet the most common SAE and European requirements.
- Heavy-duty tapered roller bearings for extra side load capacity.
- Heavy-duty drive link with larger pitch diameter than competitors for greater resistance to pressure and torque spikes.
- Three zone commutator valve for high flow capacity.
- Standard case drain with integral internal drain for extended shaft seal life.

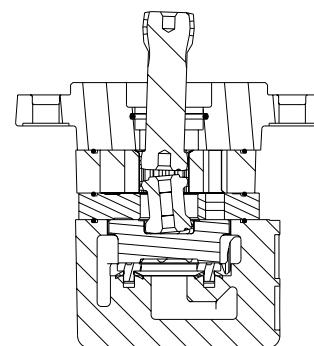
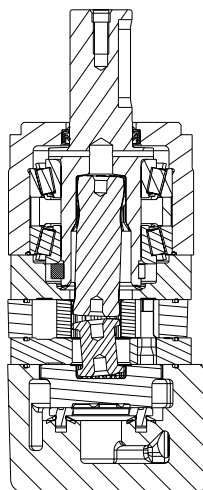
TYPICAL APPLICATIONS

Medium-duty wheel drives, sweepers, grain augers, spreaders, feed rollers, brush drives, mowers, harvesting equipment gear box mounts and more

SERIES DESCRIPTIONS

350/351 - Hydraulic Motor
Compact

350-351 - Hydraulic Motor
Short Motor



SPECIFICATIONS

CODE	Displacement cm ³ [in ³ /rev]	Max. Speed rpm		Max. Flow lpm [gpm]		Max. Torque Nm [lb-in]		Max. Pressure bar [psi]		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
080	79 [4.8]	843	929	68 [18]	76 [20]	230 [2036]	305 [2699]	207 [3000]	276 [4000]	310 [4500]
100	100 [6.1]	756	945	76 [20]	95 [25]	270 [2390]	362 [3204]	207 [3000]	276 [4000]	310 [4500]
110	112 [6.8]	669	837	76 [20]	95 [25]	312 [2761]	418 [3699]	207 [3000]	276 [4000]	310 [4500]
130	129 [7.9]	588	734	76 [20]	95 [25]	370 [3328]	499 [4416]	207 [3000]	276 [4000]	310 [4500]
160	161 [9.8]	471	707	76 [20]	114 [30]	472 [4177]	627 [5549]	207 [3000]	276 [4000]	310 [4500]
200	201 [12.3]	377	566	76 [20]	114 [30]	579 [5124]	765 [6770]	207 [3000]	276 [4000]	310 [4500]
230	229 [14.0]	330	495	76 [20]	114 [30]	655 [5779]	872 [7717]	207 [3000]	276 [4000]	310 [4500]
250	248 [15.1]	305	459	76 [20]	114 [30]	657 [5814]	769 [6806]	190 [2750]	224 [3250]	259 [3750]
320	322 [19.6]	235	352	76 [20]	114 [30]	861 [7620]	1003 [8877]	190 [2750]	224 [3250]	259 [3750]
400	396 [24.2]	191	285	76 [20]	114 [30]	858 [7593]	1048 [9275]	155 [2250]	190 [2750]	224 [3250]
500	495 [30.2]	153	229	76 [20]	114 [30]	851 [7531]	1064 [9416]	121 [1750]	155 [2250]	172 [2500]

► Performance data is typical. Performance of production units varies slightly from one motor to another. Running at intermittent ratings should not exceed 10% of every minute of operation.

DISPLACEMENT PERFORMANCE

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
080		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	207 [3000]	242 [3500]	276 [4000]
79 cm³ [4.8 in³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]	2 [0.5]	18 [159] 23	38 [336] 22	74 [655] 19						
	4 [1]	18 [159] 50	40 [354] 47	77 [682] 42	115 [1018] 38	150 [1328] 30	182 [1611] 23			
	8 [2]	18 [159] 100	39 [345] 96	77 [682] 91	117 [1036] 82	154 [1363] 74	192 [1699] 63	224 [1983] 53		
	15 [4]	18 [159] 187	39 [345] 182	78 [690] 179	118 [1044] 169	156 [1381] 154	194 [1717] 138	230 [2036] 126	260 [2301] 107	
	23 [6]	17 [150] 290	37 [327] 282	77 [682] 272	116 [1027] 264	155 [1372] 248	192 [1699] 229	223 [1974] 217	264 [2337] 193	302 [2673] 168
	30 [8]	16 [142] 379	36 [319] 369	76 [673] 348	117 [1036] 349	155 [1372] 335	194 [1717] 315	224 [1983] 300	266 [2354] 277	304 [2691] 242
	38 [10]	14 [124] 480	34 [301] 468	73 [646] 457	114 [1009] 451	153 [1354] 435	191 [1690] 414	230 [2036] 390	265 [2345] 383	305 [2699] 340
	45 [12]	13 [115] 565	33 [292] 556	72 [637] 544	113 [1000] 537	152 [1345] 518	190 [1682] 496	223 [1974] 477	265 [2345] 447	304 [2691] 424
	53 [14]		30 [266] 655	69 [611] 642	115 [1018] 630	148 [1310] 616	189 [1673] 585	223 [1974] 572	264 [2337] 545	305 [2699] 519
	61 [16]		26 [230] 752	66 [584] 747	103 [912] 736	146 [1292] 705	182 [1611] 678	225 [1991] 650	262 [2319] 644	303 [2682] 600
68 [18]		26 [230] 843	65 [575] 830	106 [938] 825	147 [1301] 798	186 [1646] 769	218 [1929] 768	260 [2301] 753	303 [2682] 682	
76 [20]			61 [540] 929	101 [894] 924	140 [1239] 898	174 [1540] 873	214 [1894] 848	258 [2283] 803	302 [2673] 772	
Rotor Width		Torque - Nm [lb-in], Speed rpm								
15.7 [617]		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
mm [in]		22 [192]	45 [394]	88 [778]	132 [1172]	176 [1556]	219 [1939]	264 [2334]	308 [2728]	351 [3111]
Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]										

		Pressure - bar [psi]						Max. Cont.		Max. Inter.		
100		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	207 [3000]	242 [3500]	276 [4000]		
100 cm³ [6.1 in³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation				
Flow - lpm [gpm]	Max. Cont.	2 [0.5]	14 [124] 19	38 [336] 19	77 [681] 17						20	
		4 [1]	17 [150] 39	42 [372] 39	86 [761] 37	130 [1151] 35	169 [1496] 31	205 [1814] 24			40	
		8 [2]	15 [133] 79	43 [381] 78	89 [788] 76	135 [1195] 73	179 [1584] 68	220 [1947] 61	259 [2292] 52	290 [2567] 35	80	
		15 [4]	14 [124] 148	43 [381] 148	91 [805] 145	136 [1204] 140	181 [1602] 134	224 [1982] 125	267 [2363] 113	308 [2726] 98	150	
		23 [6]	14 [124] 228	43 [381] 228	90 [797] 224	137 [1212] 218	182 [1611] 209	226 [2000] 197	270 [2390] 185	314 [2779] 164	230	
		30 [8]	12 [106] 299	41 [363] 298	88 [779] 294	136 [1204] 286	181 [1602] 275	225 [1991] 262	270 [2390] 246	314 [2779] 226	300	
		38 [10]	10 [89] 372	38 [336] 372	85 [752] 369	132 [1168] 365	178 [1575] 351	223 [1974] 337	269 [2381] 319	315 [2788] 296	380	
		45 [12]		37 [327] 444	84 [743] 435	132 [1168] 434	178 [1575] 419	223 [1974] 403	270 [2390] 384	317 [2805] 361	450	
		53 [14]		35 [310] 525	82 [726] 520	129 [1142] 514	176 [1558] 498	221 [1956] 481	269 [2381] 457	317 [2805] 432	530	
		61 [16]		33 [292] 604	79 [699] 600	126 [1115] 592	172 [1522] 576	218 [1929] 558	266 [2354] 533	314 [2779] 503	610	
Max. Inter.		68 [18]		31 [274] 675	75 [664] 674	123 [1089] 662	169 [1496] 643	216 [1912] 622	263 [2328] 597	313 [2770] 566	680	
		76 [20]		29 [257] 756	71 [628] 754	120 [1062] 742	167 [1478] 723	214 [1894] 700	262 [2319] 673	310 [2744] 640	760	
		83 [22]			69 [611] 825	117 [1035] 813	164 [1451] 794	211 [1967] 769	259 [2292] 743	308 [2726] 708	830	
		91 [24]			65 [575] 905	114 [1009] 893	161 [1425] 853	208 [1841] 823	256 [2266] 823	305 [2699] 781	910	
		95 [25]			62 [549] 945	111 [982] 931	159 [1407] 908	206 [1823] 882	254 [2248] 854	304 [2690] 805	950	
Rotor Width		Torque - Nm [lb-in], Speed rpm										
19.7 [776]		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐										
mm [in]		27 [239]	56 [493]	110 [972]	166 [1465]	220 [1944]	274 [2423]	329 [2916]	385 [3409]	439 [3888]		
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]										

DISPLACEMENT PERFORMANCE

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

		Pressure - bar [psi]						Max. Cont.	Max. Inter.	
110		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	207 [3000]	242 [3500]	276 [4000]
112 cm³ [6.8 in³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation		
Flow - lpm [gpm]	2 [0.5]	22 [195] 17	49 [434] 17	98 [867] 15						
	4 [1]	23 [204] 35	51 [451] 35	102 [903] 34	149 [1319] 32	197 [1743] 29				
	8 [2]	23 [204] 70	51 [451] 70	105 [929] 68	156 [1381] 66	204 [1805] 63	242 [2142] 56	281 [2487] 40	302 [2673] 24	
	15 [4]	22 [195] 133	50 [443] 131	103 [912] 128	156 [1381] 123	207 [1832] 117	256 [2266] 107	304 [2690] 92	345 [3053] 73	371 [3283] 41
	23 [6]	22 [195] 203	48 [425] 202	101 [894] 198	156 [1381] 192	209 [1850] 184	261 [2310] 173	312 [2761] 159	361 [3195] 136	405 [3584] 106
	30 [8]	20 [177] 267	45 [398] 265	100 [885] 260	155 [1372] 252	208 [1841] 242	260 [2301] 231	312 [2761] 215	363 [3213] 192	412 [3646] 159
	38 [10]	19 [168] 337	42 [372] 336	95 [841] 330	153 [1354] 320	205 [1814] 308	258 [2283] 292	312 [2761] 278	363 [3213] 254	415 [3673] 224
	45 [12]	17 [150] 400	42 [372] 399	94 [832] 392	151 [1336] 383	204 [1805] 370	257 [2274] 355	312 [2761] 336	366 [3239] 313	418 [3699] 277
	53 [14]		38 [336] 470	93 [823] 463	148 [1310] 452	201 [1779] 437	254 [2248] 418	309 [2735] 399	364 [3221] 372	418 [3699] 338
	61 [16]		36 [319] 542	90 [797] 534	142 [1257] 524	198 [1752] 509	252 [2230] 489	308 [2726] 465	362 [3204] 438	417 [3690] 407
Max. Cont.	68 [18]		32 [283] 606	87 [770] 598	143 [1266] 586	195 [1726] 571	249 [2204] 549	305 [2699] 525	360 [3186] 497	415 [3673] 461
	76 [20]		28 [248] 669	82 [726] 668	138 [1221] 656	191 [1690] 641	245 [2168] 618	300 [2655] 593	357 [3159] 560	412 [3646] 521
	83 [22]			78 [690] 731	134 [1186] 719	185 [1637] 702	239 [2115] 679	296 [2620] 652	352 [3115] 621	408 [3611] 576
	91 [24]			72 [637] 803	127 [1124] 790	181 [1602] 771	235 [2080] 747	291 [2575] 721	349 [3089] 683	406 [3593] 635
	95 [25]			70 [620] 837	125 [1106] 821	179 [1584] 801	233 [2062] 780	289 [2558] 751	346 [3062] 714	403 [3567] 668
	Rotor Width		Torque - Nm [lb-in], Speed rpm							
		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
22.1 [8.71]		30 [268]	62 [552]	123 [1089]	185 [1641]	246 [2177]	307 [2713]	369 [3266]	431 [3181]	492 [4354]
mm [in]		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

18	Theoretical rpm
36	
71	
134	
205	
268	
339	
402	
473	
545	
607	
679	
741	
813	
848	

		Pressure - bar [psi]						Max. Cont.	Max. Inter.	
130		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	207 [3000]	242 [3500]	276 [4000]
129 cm³ [7.9 in³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation		
Flow - lpm [gpm]	2 [0.5]	23 [204] 15	53 [469] 15							
	4 [1]	24 [212] 30	55 [487] 30	113 [1000] 30	167 [1478] 29	225 [1991] 27				
	8 [2]	25 [221] 61	57 [504] 61	119 [1053] 60	179 [1584] 58	234 [2071] 54	290 [2567] 46	331 [2929] 29		
	15 [4]	26 [230] 115	58 [513] 115	122 [1080] 113	186 [1646] 109	247 [2186] 103	306 [2708] 93	363 [3213] 77	416 [3682] 55	
	23 [6]	25 [221] 177	57 [504] 177	122 [1080] 174	187 [1655] 169	250 [2213] 161	312 [2761] 147	373 [3301] 130	431 [3814] 105	483 [4275] 70
	30 [8]	23 [204] 232	57 [504] 232	120 [1062] 228	186 [1646] 222	250 [2213] 212	313 [2770] 197	376 [3328] 179	437 [3867] 156	494 [4372] 125
	38 [10]	22 [195] 294	54 [478] 294	118 [1044] 290	184 [1628] 283	248 [2195] 273	312 [2761] 257	376 [3328] 237	439 [3885] 212	499 [4416] 182
	45 [12]	20 [177] 348	53 [469] 348	116 [1027] 343	183 [1620] 334	246 [2177] 321	310 [2744] 304	375 [3319] 282	439 [3885] 255	499 [4416] 221
	53 [14]		49 [434] 410	113 [1000] 405	179 [1584] 395	243 [2151] 380	307 [2717] 361	373 [3301] 336	437 [3867] 311	499 [4416] 275
	61 [16]		46 [407] 472	110 [974] 467	176 [1558] 456	240 [2124] 439	304 [2690] 417	370 [3275] 392	435 [3850] 364	497 [4398] 328
Max. Cont.	68 [18]		42 [372] 526	106 [938] 521	172 [1522] 510	236 [2089] 493	300 [2655] 470	366 [3239] 442	432 [3823] 411	495 [4381] 376
	76 [20]		38 [336] 588	102 [903] 583	167 [1478] 572	232 [2053] 553	297 [2628] 527	363 [3213] 499	428 [3788] 467	491 [4345] 423
	83 [22]		33 [292] 642	98 [867] 638	164 [1451] 627	228 [2018] 607	293 [2593] 581	359 [3177] 549	423 [3744] 517	485 [4292] 473
	91 [24]		30 [266] 704	93 [823] 702	158 [1398] 692	222 [1965] 677	288 [2549] 648	354 [3133] 625	421 [3726] 576	483 [4275] 531
	95 [25]		27 [239] 734	91 [805] 733	158 [1398] 720	220 [1947] 703	286 [2531] 672	351 [3106] 639	419 [3708] 602	483 [4275] 559
Rotor Width		Torque - Nm [lb-in], Speed rpm								
		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
25.4 [1.000]		35 [309]	72 [636]	142 [1254]	214 [1890]	283 [2508]	353 [3125]	425 [3761]	497 [4397]	567 [5015]
mm [in]		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

16	Theoretical rpm
31	
62	
116	
178	
233	
295	
349	
411	
473	
527	
589	
643	
705	
736	

DISPLACEMENT PERFORMANCE

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

		Pressure - bar [psi]						Max. Cont.		Max. Inter.	
160		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	207 [3000]	242 [3500]	276 [4000]	
161 cm ³ [9.8 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]		21 [186]	65 [575]								Theoretical rpm
		11	10								
2 [0.5]		29 [257]	67 [593]	140 [1239]	209 [1850]						12
4 [1]		24	24	23	21						25
8 [2]		31 [274]	71 [628]	143 [1266]	214 [1894]	285 [2522]	352 [3115]				50
15 [4]		49	48	47	46	43	36				93
23 [6]		34 [301]	75 [664]	154 [1363]	231 [2044]	306 [2708]	380 [3363]	454 [4018]	519 [4593]		143
30 [8]		92	92	91	88	84	77	64	43		186
38 [10]		32 [283]	75 [664]	155 [1372]	235 [2080]	314 [2779]	390 [3452]	466 [4124]	537 [4752]	604 [5345]	236
45 [12]		142	141	140	139	133	123	108	85	52	280
53 [14]		31 [274]	73 [646]	154 [1363]	234 [2071]	315 [2788]	394 [3487]	472 [4177]	547 [4841]	615 [5443]	329
61 [16]		185	185	184	183	178	166	151	130	99	379
68 [18]		28 [248]	72 [637]	153 [1354]	231 [2044]	311 [2752]	391 [3460]	471 [4168]	548 [4850]	620 [5487]	422
76 [20]		233	231	229	229	223	210	194	175	144	472
83 [22]		25 [221]	67 [593]	151 [1336]	229 [2027]	310 [2744]	391 [3460]	466 [4124]	544 [4814]	624 [5522]	516
91 [24]		280	280	272	269	260	243	227	202	159	565
95 [25]		23 [204]	63 [558]	145 [1283]	227 [2009]	307 [2717]	388 [3434]	467 [4133]	548 [4850]	622 [5505]	590
114 [30]		328	327	320	312	303	288	271	247	216	708
Rotor Width		58 [513]	139 [1230]	221 [1956]	302 [2673]	386 [3416]	468 [4142]	549 [4859]	626 [5540]		
31.8 [1.251]		378	372	366	359	350	328	305	273		
mm [in]		53 [469]	135 [1195]	217 [1920]	298 [2637]	380 [3363]	468 [4142]	549 [4859]	627 [5549]		
		418	412	410	406	389	370	348	312		
		53 [469]	133 [1177]	216 [1912]	296 [2620]	377 [3336]	461 [4080]	544 [4814]	609 [5390]		
		471	467	455	440	423	397	368	348		
		44 [389]	126 [1115]	205 [1814]	282 [2496]	359 [3177]	440 [3894]	523 [4629]	602 [5328]		
		515	514	513	504	491	467	434	384		
		38 [336]	119 [1053]	207 [1832]	284 [2513]	368 [3257]	440 [3894]	521 [4611]	606 [5363]		
		560	556	547	546	532	515	493	461		
		34 [301]	112 [991]	194 [1717]	276 [2443]	365 [3230]	445 [3938]				
		585	580	579	574	555	540				
		94 [832]	177 [1566]	269 [2381]	341 [3018]	418 [3699]					
		707	706	687	676	654					
Torque - Nm [lb-in], Speed rpm		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐									
31.8 [1.251]		44 [386]	90 [794]	177 [1565]	266 [2358]	354 [3130]	441 [3901]	530 [4694]	620 [5488]	707 [6259]	
mm [in]		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]									

		Pressure - bar [psi]						Max. Cont.		Max. Inter.	
200		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	190 [2750]	207 [3000]	242 [3500]	276 [4000]
201 cm ³ [12.3 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]		40 [354]	87 [770]	189 [1673]	282 [2496]						Theoretical rpm
		19	18	17	15						
4 [1]		44 [389]	97 [858]	192 [1699]	286 [2531]	370 [3275]	456 [4036]				20
8 [2]		39	38	37	36	33					40
15 [4]		45 [398]	99 [876]	198 [1752]	298 [2637]	391 [3460]	481 [4257]	526 [4655]	566 [5009]	645 [5708]	75
23 [6]		74	74	73	71	67	63	60	57	50	114
30 [8]		42 [372]	97 [858]	196 [1735]	296 [2620]	389 [3443]	478 [4230]	523 [4629]	568 [5027]	653 [5779]	149
38 [10]		113	113	112	108	104	98	93	93	80	189
45 [12]		40 [354]	94 [832]	194 [1717]	293 [2593]	388 [3434]	478 [4230]	525 [4646]	568 [5027]	658 [5823]	224
53 [14]		148	147	146	142	136	129	125	121	109	264
61 [16]		36 [319]	91 [805]	191 [1690]	292 [2584]	388 [3434]	483 [4275]	533 [4717]	579 [5124]	672 [5947]	303
68 [18]		188	187	186	181	175	167	162	158	146	338
76 [20]		32 [283]	87 [770]	186 [1646]	288 [2549]	386 [3416]	482 [4266]	532 [4708]	579 [5124]	675 [5974]	378
83 [22]		223	222	221	217	208	198	194	188	175	413
91 [24]		30 [266]	81 [717]	181 [1602]	283 [2505]	382 [3381]	479 [4239]	528 [4673]	576 [5098]	673 [5956]	453
95 [25]		263	262	261	257	248	236	235	224	212	473
114 [30]		27 [239]	72 [637]	172 [1522]	276 [2443]	375 [3319]	473 [4186]	524 [4637]	571 [5053]	667 [5903]	567
		302	301	299	297	288	276	269	263	248	
		66 [584]	167 [1478]	269 [2381]	368 [3257]	466 [4124]	518 [4584]	566 [5009]	664 [5876]	757 [6699]	
		337	336	332	324	312	303	297	279	262	
		58 [513]	157 [1389]	260 [2301]	359 [3177]	457 [4044]	510 [4514]	559 [4947]	656 [5806]	751 [6646]	
		377	375	372	364	353	343	336	320	302	
		50 [443]	153 [1354]	251 [2221]	352 [3115]	449 [3974]	503 [4452]	550 [4868]			
		412	410	408	398	387	377	372			
		41 [363]	145 [1283]	244 [2159]	346 [3062]	445 [3938]	496 [4390]	538 [4761]			
		452	450	448	436	421	415	410			
		139 [1230]	239 [2115]	339 [3000]	438 [3876]	491 [4345]	539 [4770]				
		472	466	456	441	430	423				
		116 [1027]	213 [1885]	313 [2770]	416 [3682]	468 [4142]	512 [4531]				
		566	561	549	531	521	519				
Torque - Nm [lb-in], Speed rpm		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐									
39.4 [1.552]		54 [481]	112 [991]	221 [1954]	333 [2944]	441 [3907]	550 [4870]	608 [5379]	662 [5861]	774 [6852]	883 [7814]
mm [in]		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]									

DISPLACEMENT PERFORMANCE

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

		Pressure - bar [psi]								Max. Cont.	Max. Inter.
230		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]	190 [2750]	207 [3000]	242 [3500]	276 [4000]
229 cm ³ [14.0 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.								Intermittent Ratings - 10% of Operation	
Flow - lpm [gpm]	4 [1]	50 [443] 16	98 [867] 15	198 [1752] 14	310 [2744] 13						
	8 [2]	42 [372] 34	99 [876] 34	204 [1805] 34	316 [2797] 33	416 [3682] 32	510 [4514] 28	552 [4885] 25	594 [5257] 22		
	15 [4]	47 [416] 65	104 [920] 64	214 [1894] 63	325 [2876] 62	426 [3770] 58	526 [4655] 55	580 [5133] 51	626 [5540] 47	721 [6381] 37	
	23 [6]	45 [398] 99	105 [929] 99	218 [1929] 98	331 [2929] 96	438 [3876] 93	544 [4814] 87	598 [5292] 83	649 [5744] 79	752 [6655] 67	843 [7461] 50
	30 [8]	43 [381] 130	103 [912] 129	217 [1920] 127	332 [2938] 125	441 [3903] 121	549 [4859] 116	602 [5328] 111	654 [5788] 106	758 [6708] 39	859 [7602] 76
	38 [10]	40 [354] 165	100 [885] 164	214 [1894] 162	330 [2921] 159	440 [3894] 154	548 [4850] 148	604 [5345] 144	655 [5797] 138	761 [6735] 123	866 [7664] 105
	45 [12]	35 [310] 196	95 [841] 194	211 [1867] 192	328 [2903] 189	438 [3876] 184	546 [4832] 177	604 [5345] 172	656 [5806] 167	764 [6761] 152	869 [7691] 130
	53 [14]	30 [266] 230	90 [797] 230	206 [1823] 227	323 [2859] 223	435 [3850] 217	544 [4814] 210	601 [5319] 204	654 [5788] 197	763 [6753] 183	871 [7708] 113
	61 [16]	28 [248] 265	84 [743] 265	200 [1770] 262	317 [2805] 257	430 [3806] 251	540 [4779] 243	598 [5292] 237	652 [5770] 231	763 [6753] 216	872 [7717] 192
	68 [18]		77 [681] 295	191 [1690] 292	311 [2752] 288	425 [3761] 281	536 [4744] 272	593 [5248] 266	648 [5735] 260	759 [6717] 244	869 [7691] 222
	76 [20]		68 [602] 330	184 [1628] 327	302 [2673] 323	416 [3682] 316	529 [4682] 306	586 [5186] 300	642 [5682] 294		
	83 [22]		58 [513] 361	176 [1558] 358	295 [2611] 353	410 [3629] 346	523 [4629] 336	580 [5133] 329	636 [5629] 323		
	91 [24]		51 [451] 396	167 [1478] 393	285 [2522] 388	400 [3540] 380	513 [4531] 370	571 [5053] 363	627 [5549] 357		
Max. Inter.	95 [25]			164 [1451] 411	250 [2478] 406	395 [3496] 399	507 [4487] 389	564 [4991] 382	622 [5505] 375		
	114 [30]			130 [1151] 495	253 [2239] 489	368 [3257] 480	483 [4275] 467	541 [4788] 460	594 [5257] 452		
Rotor Width											
45.5 [1.791]											
mm [in]											
		Theoretical Torque - Nm [lb-in]									
		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]									

		Pressure - bar [psi]								Max. Cont.	Max. Inter.
250		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	224 [3250]
248 cm³ [15.1 in³] / rev											
		Intermittent Ratings are below and to the right of the BOLD line.								Intermittent Ratings - 10% of Operation	
Flow - lpm [gpm]	4 [1]	51 [481] 15	112 [991] 15	230 [2036] 14							
	8 [2]	53 [469] 31	118 [1044] 31	236 [2089] 30	355 [3142] 28	464 [4106] 23	522 [4620] 19	575 [5089] 15			
	15 [4]	50 [443] 59	119 [1053] 59	239 [2115] 58	361 [3195] 54	476 [4213] 46	531 [4699] 42	586 [5186] 37	644 [5699] 31	696 [6160] 26	740 [6549] 22
	23 [6]	50 [443] 92	115 [1018] 92	237 [2097] 90	360 [3186] 83	476 [4213] 74	525 [4646] 70	585 [5177] 64	640 [5664] 58	697 [6168] 52	751 [6646] 47
	30 [8]	47 [416] 120	111 [982] 120	234 [2071] 117	357 [3159] 110	475 [4204] 101	531 [4699] 93	598 [5292] 87	657 [5814] 78	712 [6301] 72	759 [6717] 71
	38 [10]	42 [372] 152	108 [956] 151	231 [2044] 150	355 [3142] 144	475 [4204] 131	533 [4717] 126	591 [5230] 119	654 [5788] 108	707 [6257] 105	769 [6806] 90
	45 [12]	35 [310] 180	102 [903] 180	225 [1991] 179	351 [3106] 172	469 [4151] 162	528 [4673] 155	585 [5177] 147	647 [5726] 138	704 [6230] 130	755 [6682] 119
	53 [14]	32 [283] 213	92 [814] 213	216 [1912] 212	342 [3027] 205	462 [4089] 193	521 [4611] 187	580 [5133] 181	641 [5673] 170	698 [6177] 163	754 [6673] 152
	61 [16]	29 [257] 245	83 [735] 244	210 [1859] 244	333 [2947] 238	454 [4018] 226	512 [4531] 221	571 [5053] 213	633 [5602] 203	691 [6115] 196	746 [6602] 184
	68 [18]	27 [239] 273	73 [646] 272	200 [1770] 271	323 [2859] 267	445 [3938] 256	504 [4460] 249	563 [4983] 240	623 [5514] 231		
	76 [20]		63 [558] 305	188 [1664] 303	310 [2744] 301	433 [3832] 289	494 [4372] 283	552 [4885] 273	613 [5425] 267		
	83 [22]		57 [504] 334	179 [1584] 334	302 [2673] 328	425 [3761] 314	484 [4283] 307	545 [4823] 297	608 [5381] 286		
	91 [24]		41 [363] 366	171 [1513] 364	291 [2575] 358	413 [3655] 343	476 [4213] 334	534 [4726] 327	596 [5275] 316		
95 [25]		32 [283] 382	160 [1416] 381	280 [2478] 381	401 [3549] 368	463 [4098] 359	524 [4637] 348	584 [5168] 341			
114 [30]			128 [1133] 459	246 [2177] 456	372 [3292] 442	431 [3814] 434	494 [4372] 422	554 [4903] 412			
Rotor Width											
39.4 [1.552]											
mm [in]											
		Torque - Nm [lb-in], Speed rpm									
		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐									
		67 [594]	138 [1223]	272 [2410]	411 [3633]	545 [4821]	612 [5415]	679 [6008]	750 [6637]	817 [7231]	884 [7825]
		Theoretical Torque - Nm [lb-in]									
		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]									

DISPLACEMENT PERFORMANCE

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

		Pressure - bar [psi]										Max. Cont.		Max. Inter.	
		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	224 [3250]				
320															
322 cm ³ [19.6 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.										Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]		68 [602]	145 [1283]												
		11	9												
4 [1]		77 [681]	156 [1381]	311 [2752]	455 [4027]	590 [5222]	640 [5664]								
8 [2]		24	24	23	21	20	19								
15 [4]		77 [681]	160 [1416]	311 [2752]	458 [4053]	594 [5257]	655 [5797]	705 [6239]	770 [6815]	835 [7390]					
23 [6]		46	45	43	40	36	32	28	24	18					
30 [8]		73 [646]	157 [1389]	316 [2797]	478 [4230]	628 [5558]	698 [6177]	768 [6797]	841 [7443]	910 [8054]	975 [8629]				
38 [10]		70	69	68	64	57	53	48	43	38	30				
45 [12]		69 [611]	154 [1363]	316 [2797]	479 [4239]	631 [5584]	705 [6239]	780 [6903]	860 [7611]	929 [8222]	998 [8832]				
53 [14]		92	90	87	83	77	73	68	63	57	49				
61 [16]		64 [566]	150 [1328]	311 [2752]	480 [4248]	631 [5584]	709 [6275]	784 [6938]	861 [7620]	930 [8231]	1000 [8850]				
68 [18]		116	114	111	106	100	96	90	83	79	72				
76 [20]		59 [522]	143 [1266]	305 [2699]	471 [4168]	632 [5593]	705 [6239]	783 [6930]	860 [7611]	934 [8266]	1000 [8850]				
83 [22]		138	136	133	127	119	115	110	105	98	86				
91 [24]		49 [434]	137 [1212]	297 [2628]	463 [4098]	627 [5549]	697 [6168]	778 [6885]	858 [7593]	937 [8292]	1003 [8877]				
95 [25]		162	160	157	151	142	138	132	126	120	113				
114 [30]		41 [363]	128 [1133]	288 [2549]	457 [4044]	616 [5452]	689 [6098]	769 [6806]	847 [7496]						
		187	185	182	175	167	161	156	150						
		35 [310]	120 [1062]	282 [2496]	452 [4000]	609 [5390]	683 [6045]	762 [6744]	841 [7443]						
		210	208	201	192	182	176	170	163						
		26 [230]	113 [1000]	273 [2416]	443 [3921]	603 [5337]	664 [5876]	744 [6584]	830 [7346]						
		235	230	225	216	203	199	192	184						
			99 [876]	262 [2319]	430 [3806]	590 [5222]	660 [5841]	741 [6558]	820 [7257]						
			256	247	240	225	219	212	202						
			85 [752]	246 [2177]	415 [3673]	576 [5098]	654 [5788]	731 [6469]	810 [7169]						
			282	273	267	249	242	233	225						
			76 [673]	241 [2133]	404 [3575]	571 [5053]	648 [5735]	719 [6363]	804 [7115]						
			294	286	281	261	254	246	236						
			44 [389]	204 [1805]	371 [3283]	538 [4761]	602 [5328]	685 [6062]	766 [6779]						
			352	345	337	321	314	304	293						
Rotor Width		Torque - Nm [lb-in], Speed rpm										Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐			
63.5 [2.501]		87 [771]	179 [1587]	354 [3130]	533 [4717]	707 [6259]	794 [7030]	881 [7801]	974 [8618]	1061 [9389]	1148 [10160]				
mm [in]		Theoretical Torque - Nm [lb-in]										Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]			

		Pressure - bar [psi]										Max. Cont.		Max. Inter.	
		17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]				
400															
396 cm ³ [24.2 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.										Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]		78 [690]	180 [1593]												
		9	8												
4 [1]		84 [743]	185 [1637]	380 [3363]	460 [4071]	555 [4912]	640 [5664]								
8 [2]		19	19	18	18	17	15								
15 [4]		84 [743]	185 [1637]	374 [3310]	468 [4142]	559 [4947]	648 [5735]	736 [6514]							
23 [6]		37	36	36	35	34	30	26							
30 [8]		77 [681]	182 [1611]	374 [3310]	469 [4151]	567 [5018]	650 [5753]	747 [6611]	839 [7425]	920 [8142]	1002 [8868]				
38 [10]		57	56	55	53	50	46	41	37	30	24				
45 [12]		76 [673]	181 [1602]	376 [3328]	473 [4186]	575 [5089]	670 [5930]	763 [6753]	854 [7558]	944 [8354]	1043 [9231]				
53 [14]		75	74	71	69	65	61	56	50	43	36				
61 [16]		67 [593]	175 [1549]	375 [3319]	473 [4186]	575 [5089]	671 [5938]	764 [6761]	858 [7593]	951 [8416]	1048 [9275]				
68 [18]		95	94	91	89	84	79	74	68	62	55				
76 [20]		57 [504]	165 [1460]	367 [3248]	467 [4133]	572 [5062]	668 [5912]	762 [6744]	852 [7540]	943 [8346]	1044 [9239]				
83 [22]		113	112	109	106	102	97	90	82	77	69				
91 [24]		44 [389]	154 [1363]	355 [3142]	454 [4018]	560 [4956]	659 [5832]	756 [6691]	851 [7531]	943 [8346]	1032 [9133]				
99 [26]		133	132	130	127	123	118	112	104	96	84				
114 [30]		32 [283]	142 [1257]	343 [3036]	444 [3929]	549 [4859]	647 [5726]	743 [6576]	837 [7407]	932 [8248]					
		153	153	149	146	141	135	129	123	114					
			123 [1089]	332 [2938]	432 [3823]	538 [4761]	635 [5620]	726 [6425]	827 [7319]						
			170	166	162	156	150	145	137						
			106 [938]	316 [2797]	418 [3699]	523 [4629]	619 [5478]	717 [6345]	812 [7186]						
			191	185	181	176	169	162	156						
			100 [885]	299 [2646]	402 [3558]	506 [4478]	601 [5319]	700 [6195]	797 [7053]						
			208	205	201	195	191	183	176						
			69 [611]	277 [2451]	378 [3345]	479 [4239]	579 [5124]	676 [5983]	773 [6841]						
			229	226	223	219	213	206	199						
			46 [407]	257 [2274]	353 [3124]	454 [4018]	555 [4912]	658 [5823]	752 [6655]						
			249	247	245	241	236	228	222						
				210 [1859]	307 [2717]	416 [3682]	517 [4575]	614 [5434]	710 [6284]						
				285	283	279	273	266	259						
Rotor Width		Torque - Nm [lb-in], Speed rpm										Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐			
63.5 [2.501]		107 [948]	221 [1952]	435 [3849]	542 [4797]	655 [5801]	763 [6749]	870 [7698]	977 [8646]	1084 [9594]	1198 [10598]				
mm [in]		Theoretical Torque - Nm [lb-in]										Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]			

DISPLACEMENT PERFORMANCE

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

		Pressure - bar [psi]						Max. Cont.		Max. Inter.	
500		17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	
495 cm³ [30.2 in³] / rev											
Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation											
Flow - lpm [gpm]	8 [2]	110 [974] 15	236 [2089] 15	352 [3115] 15	467 [4133] 14	581 [5142] 14	699 [6186] 13				16
	15 [4]	108 [956] 29	241 [2133] 29	365 [3230] 29	488 [4319] 28	605 [5354] 28	739 [6540] 27	836 [7399] 25			30
	23 [6]	106 [938] 45	240 [2124] 45	366 [3239] 45	488 [4319] 44	610 [5399] 44	738 [6531] 42	851 [7531] 37	961 [8505] 31		46
	30 [8]	98 [867] 60	234 [2071] 60	359 [3177] 60	483 [4275] 59	604 [5345] 58	734 [6496] 56	849 [7514] 52	964 [8531] 45	1063 [9408] 37	61
	38 [10]	87 [770] 76	224 [1982] 76	348 [3080] 76	473 [4186] 75	595 [5266] 74	723 [6399] 71	840 [7434] 67	955 [8452] 61	1063 [9408] 53	77
	45 [12]	76 [673] 90	210 [1859] 90	336 [2974] 90	463 [4098] 89	586 [5186] 88	714 [6319] 85	835 [7390] 80	952 [8425] 73	1064 [9416] 65	91
	53 [14]	60 [531] 106	194 [1717] 106	319 [2823] 106	445 [3938] 105	570 [5045] 104	699 [6186] 101	819 [7248] 96	935 [8275] 88	1050 [9293] 79	107
	61 [16]	40 [354] 122	177 [1566] 122	303 [2682] 121	426 [3770] 121	550 [4868] 120	681 [6027] 117	805 [7124] 106	918 [8124] 106		123
	68 [18]		154 [1363] 136	284 [2513] 136	408 [3611] 135	535 [4735] 134	665 [5885] 131	785 [6947] 126			137
	76 [20]		128 [1133] 153	261 [2310] 153	386 [3416] 152	510 [4514] 150	638 [5646] 147	761 [6735] 142			154
Max. Cont.	83 [22]		108 [956] 167	237 [2097] 167	361 [3195] 166	487 [4310] 165	606 [5363] 163	738 [6531] 157			168
	91 [24]			206 [1823] 183	343 [3036] 182	465 [4115] 180	595 [5266] 175	719 [6363] 170			184
	99 [26]			181 [1602] 199	317 [2805] 198	435 [3850] 196	574 [5080] 191	697 [6168] 184			200
	114 [30]			117 [1035] 229	251 [2221] 229	381 [3372] 226	516 [4567] 221	641 [5673] 214			230
Rotor Width		Torque - Nm [lb-in], Speed rpm									
78.9 [3.105]		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒									
mm [in]		134 [1185]	276 [2440]	410 [3626]	544 [4811]	678 [5996]	819 [7251]	953 [8437]	1087 [9622]	1221 [10807]	
Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]											

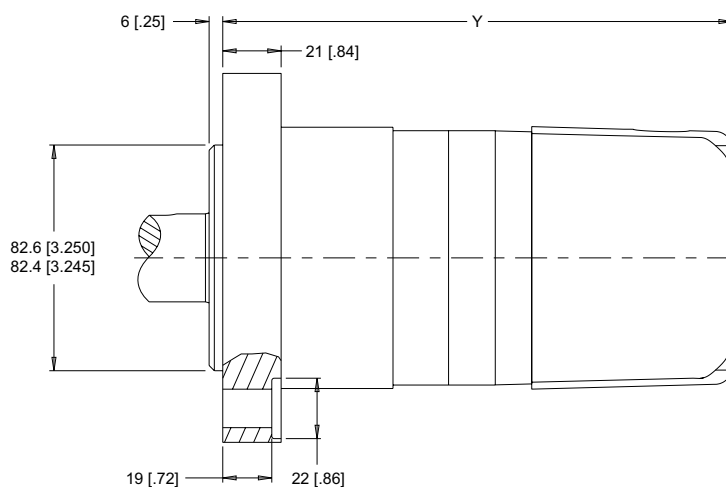
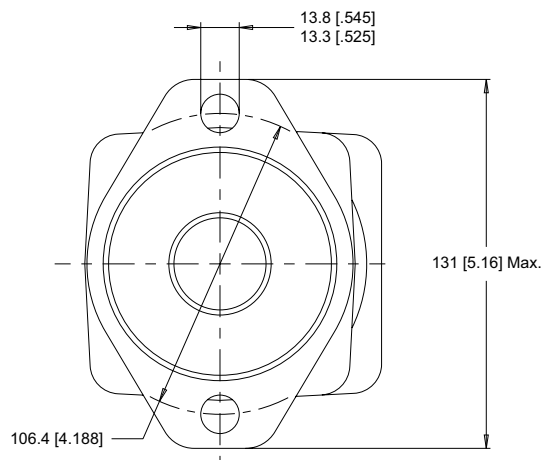
HOUSINGS

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [0.005].

2-HOLE, SAE A MOUNT

A0 End Ports

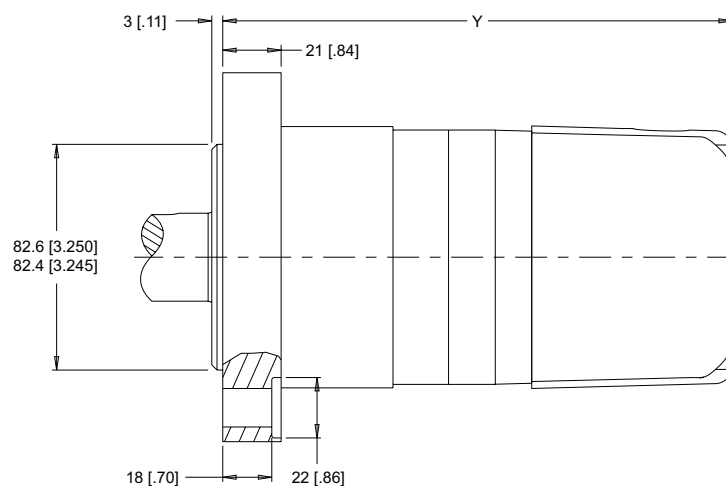
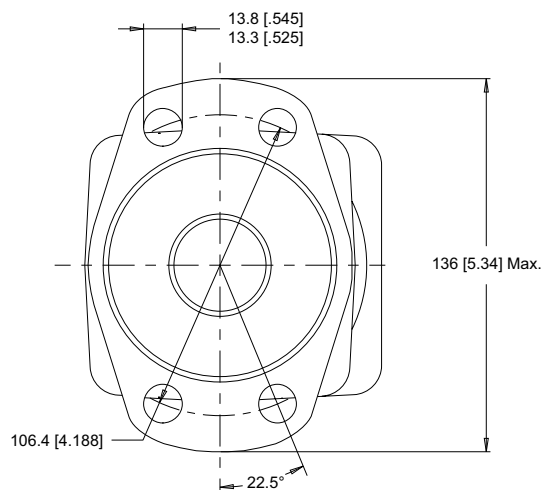
A7 Side Ports



4-HOLE, MAGNETO MOUNT

A2 End Ports

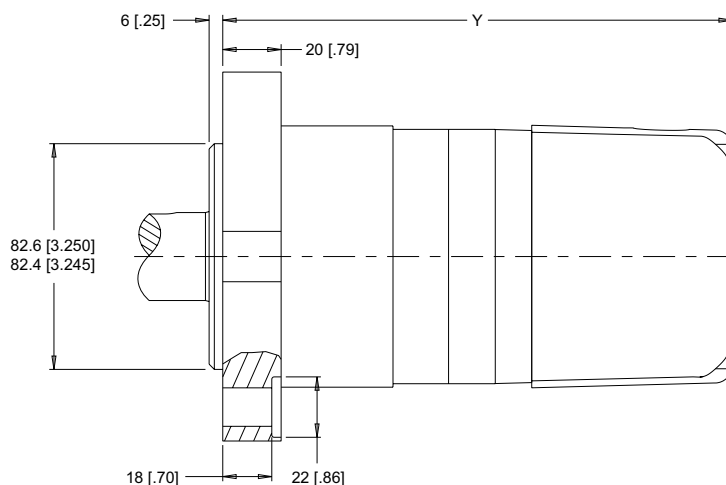
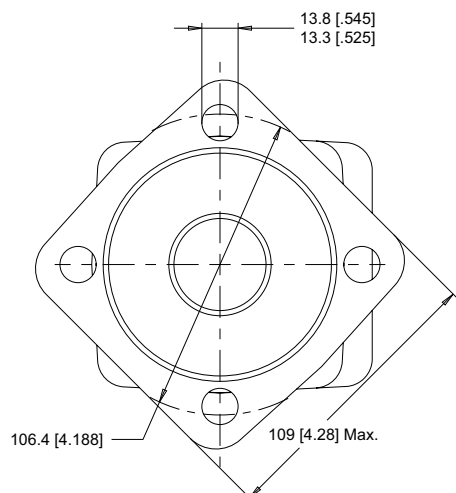
A8 Side Ports



4-HOLE, SAE A MOUNT

AG End Ports

AH Side Ports

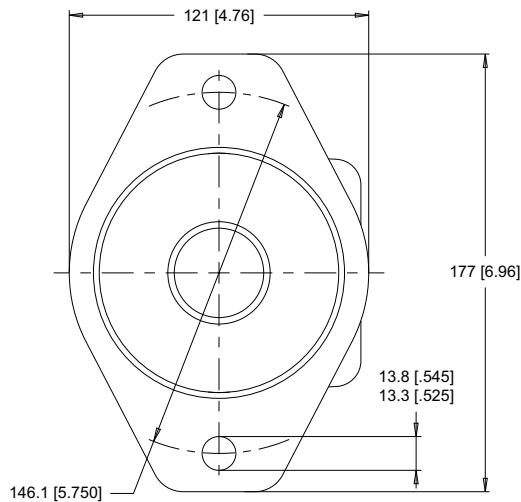


► Dimension Y is charted on page 25.

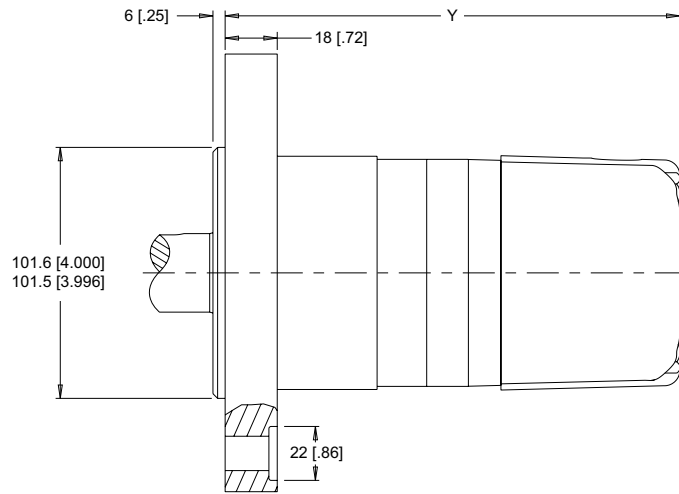
HOUSINGS

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

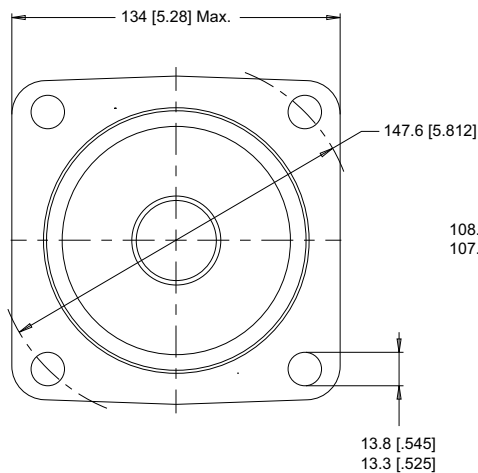
2-HOLE, SAE B MOUNT



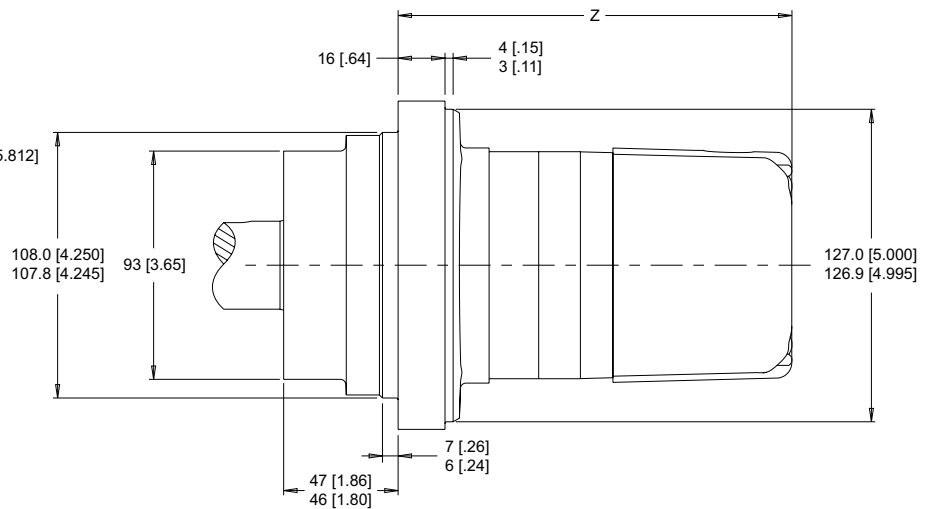
B0 End Ports B7 Side Ports



4-HOLE, 4.25" WHEEL MOUNT



Y2 End Ports Y8 Side Ports



► Dimensions Y & Z are charted on page 11. Porting options listed on pages 12-13.

LENGTH & WEIGHT CHARTS

Dimension Y is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on detailed housing drawings listed on pages 24 & 25.

Y	SAE A & B Mounts	Magneto Mounts	Weight
#	mm [in]	mm [in]	kg [lb]
080	181 [7.12]	185 [7.27]	11.0 [24.2]
100	185 [7.27]	189 [7.42]	11.3 [24.9]
110	187 [7.36]	191 [7.51]	11.4 [25.1]
130	190 [7.49]	194 [7.64]	11.5 [25.3]
160	197 [7.74]	201 [7.89]	11.8 [26.0]
200	204 [8.04]	208 [8.19]	12.2 [26.8]
230	210 [8.28]	214 [8.43]	12.6 [27.7]
250	204 [8.04]	208 [8.19]	12.2 [26.8]
320	228 [8.99]	232 [9.14]	13.5 [29.7]
400	228 [8.99]	232 [9.14]	13.5 [29.7]
500	244 [9.60]	248 [9.75]	14.2 [31.2]

► Add 1.2 kg [2.6 lb] to the weight listed to the right for SAE B mount housings.

Dimension Z is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on the detailed housing drawing above.

Z	Length	Weight
#	mm [in]	kg [lb]
080	141 [5.55]	12.2 [26.9]
100	145 [5.69]	12.5 [27.5]
110	147 [5.78]	12.6 [27.7]
130	150 [5.91]	12.7 [27.9]
160	157 [6.16]	13.0 [28.6]
200	164 [6.46]	13.4 [29.5]
230	170 [6.70]	13.8 [30.4]
250	164 [6.46]	13.4 [29.5]
320	188 [7.41]	14.7 [32.3]
400	188 [7.41]	14.7 [32.3]
500	204 [8.02]	15.4 [33.9]

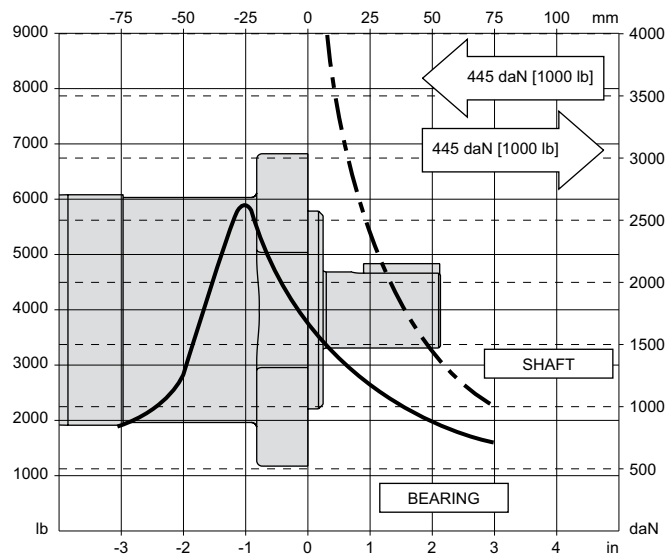
► 350 series motor weights can vary $\pm$ 1kg [2 lb] depending on model configurations such as housing, shaft, endcover, options etc.

TECHNICAL INFORMATION

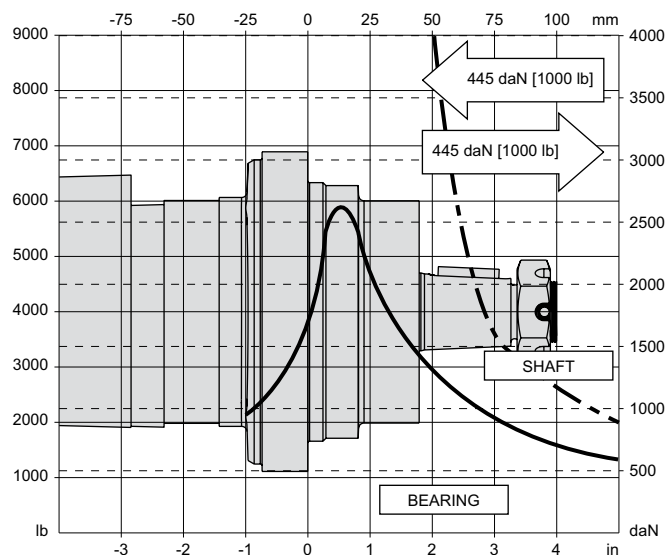
ALLOWABLE SHAFT LOAD / BEARING CURVE

The bearing curve represents allowable bearing loads for a B10 life of 2,000 hours at 100 rpm. The curve includes affects of 1,000 lbs inward/outward net thrust*. Radial loads for speeds other than 100 rpm may be calculated using the multiplication factor on page 8.

SAE A, SAE B & MAGNETO MOUNTS



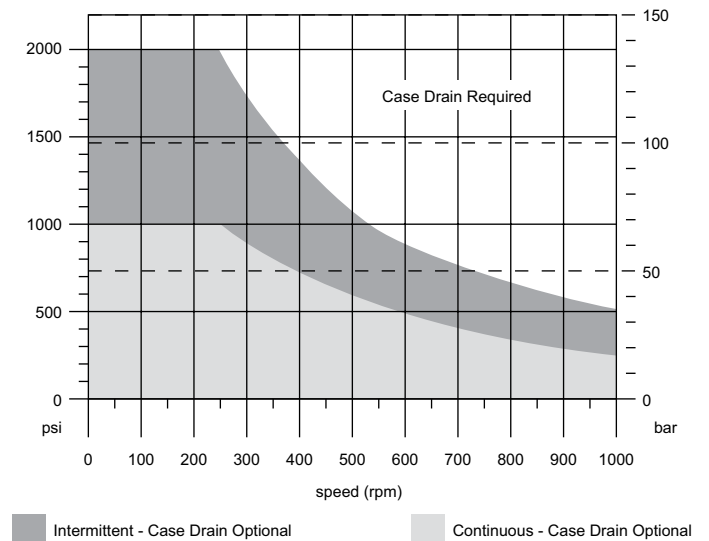
4.25" WHEEL MOUNT



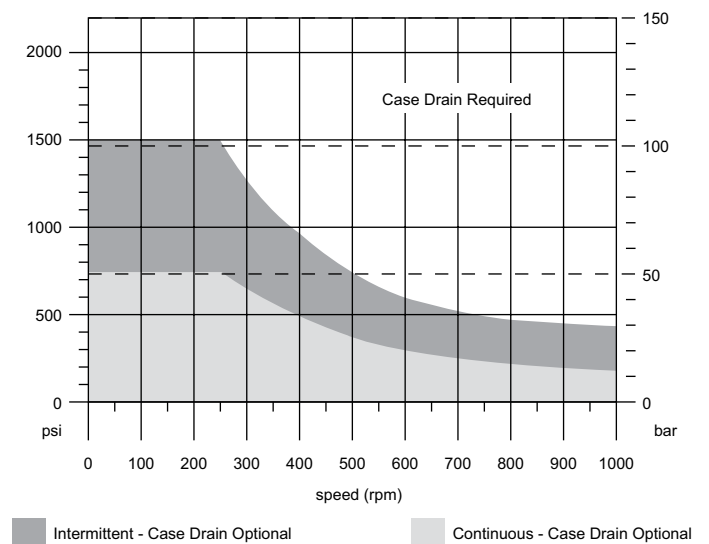
* Case pressure will push outward on the shaft. If case drain line is attached and routed directly to tank, case pressure should be negligible. If case drain line is not attached, case pressure will be nearly the same as motor return pressure. When case pressure is acting, the allowable inward axial load can be increased and the allowable outward axial load must be decreased at a rate of 59 kg / 7 bar [130 lb / 100 psi] for shaft codes 02, 10, 12, 20, 21, 22 & 23. The rate for shaft codes 28 & 31 is 78 kg / 7 bar [175 lb / 100 psi].

PERMISSIBLE SHAFT SEAL PRESSURE

MOTORS WITH SHAFT DIAMETERS 1-1/4" OR LESS



MOTORS WITH SHAFT DIAMETERS LARGER THAN 1-1/4"



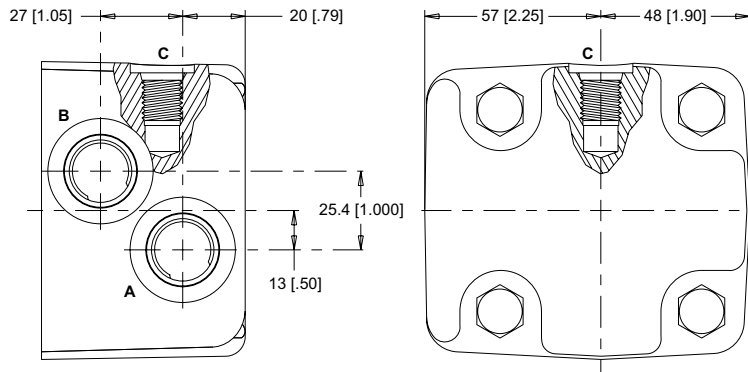
PORTING

SIDE PORTED - OFFSET

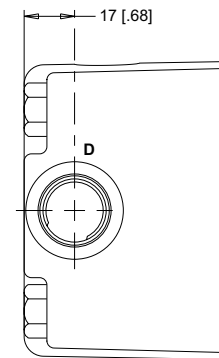
1 Main Ports **A, B:** 7/8-14 UNF
Drain Port **C:** 7/16-20 UNF

2 Main Ports **A, B:** G 1/2
Drain Port **C:** G 1/4

STANDARD



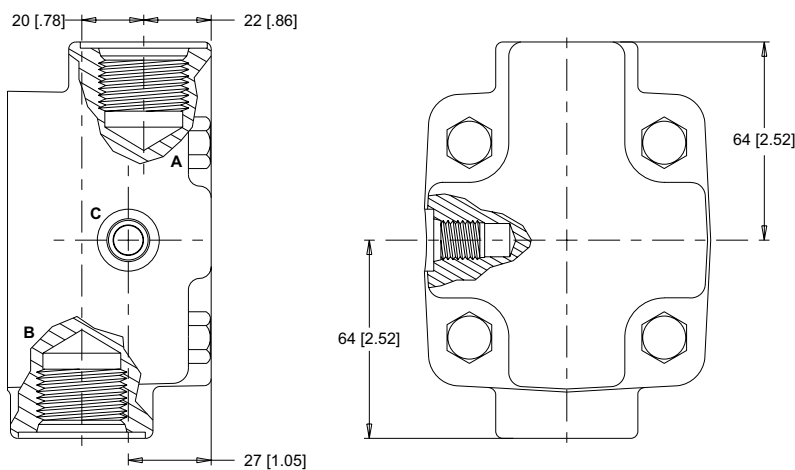
OPTIONAL



D: 10 Series/2-Way Valve Cavity 7/8-14 UNF

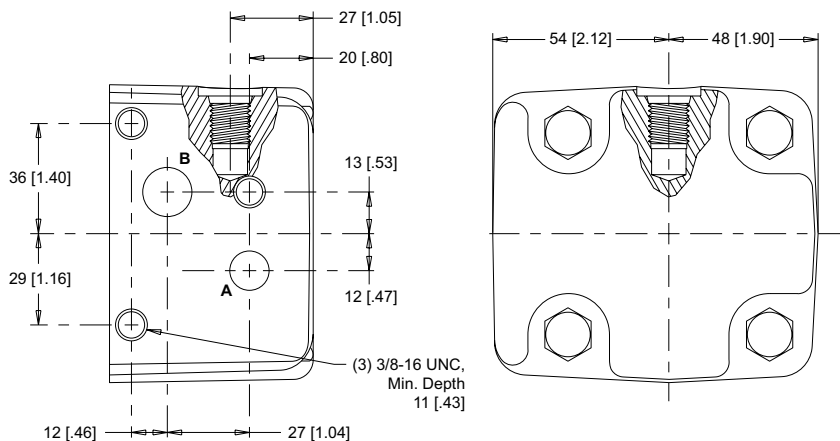
SIDE PORTED - 180° OPPOSED

6 Main Ports **A, B:** 1 1/16-12 UN
Drain Port **C:** 7/16-20 UNF



SIDE PORTED - OFFSET MANIFOLD

B Main Ports **A:** 12.7 [.500] Drilled **B:** 15.9 [.625] Drilled
Drain Port **C:** 7/16-20 UNF

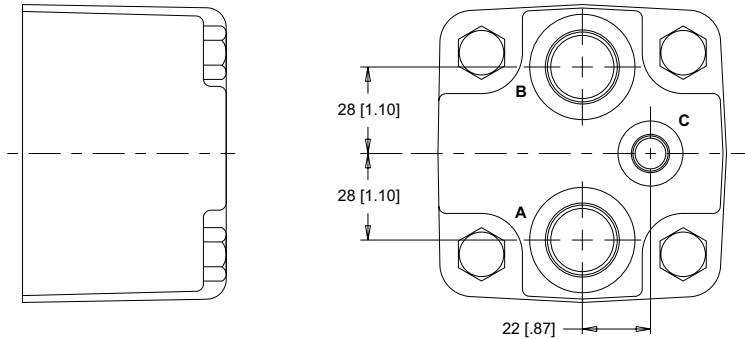


PORTING

END PORTED - ALIGNED

1 Main Ports **A, B:** 7/8-14 UNF
Drain Port **C:** 7/16-20 UNF

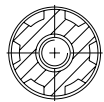
2 Main Ports **A, B:** G 1/2
Drain Port **C:** G 1/4



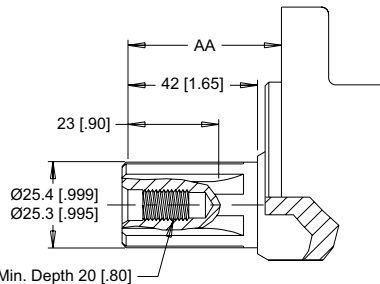
SHAFTS

02 1" 6B Spline

6B Spline
SAE J499 Standard

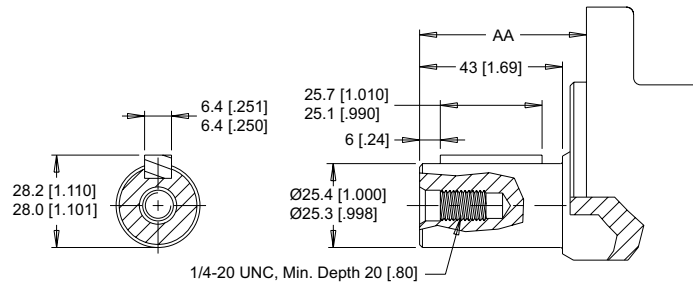


1/4-20 UNC, Min. Depth 20 [.80]



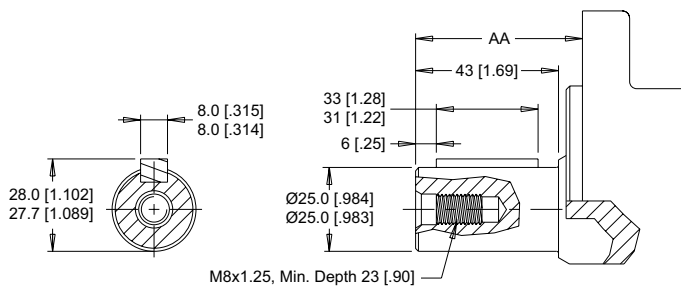
Max. Torque: 678 Nm [6000 lb-in]

10 1" Straight



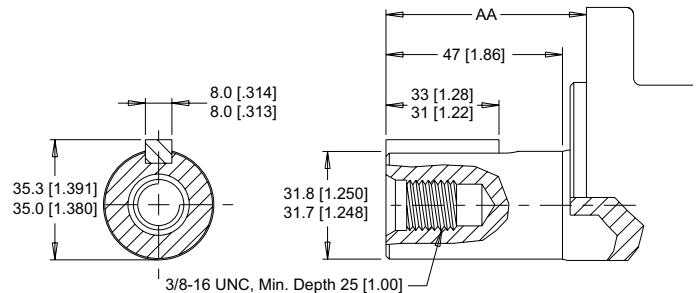
Max. Torque: 655 Nm [5800 lb-in]

12 25mm Straight



Max. Torque: 678 Nm [6000 lb-in]

20 1-1/4" Straight

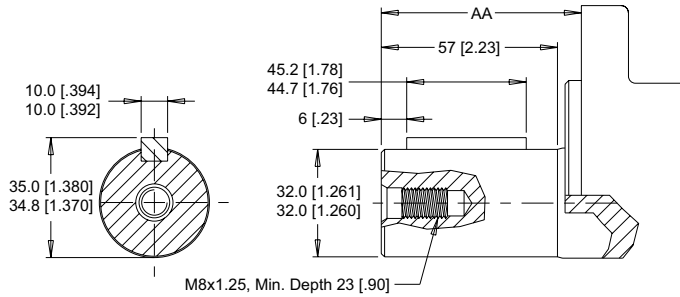


Max. Torque: 881 Nm [7800 lb-in]

► Dimension AA is charted on page 29.

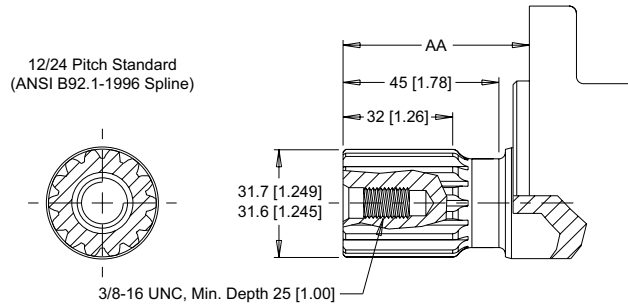
SHAFTS

21 32mm Straight



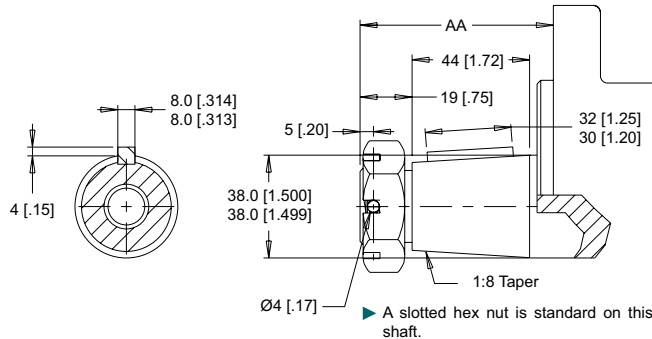
Max. Torque: 881 Nm [7800 lb-in]

23 14 Tooth Spline



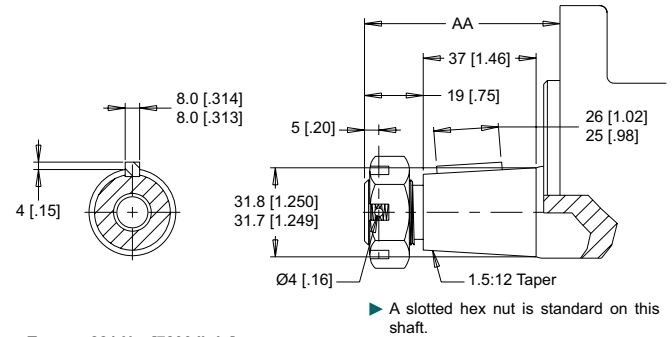
Max. Torque: 881 Nm [7800 lb-in]

31 1-1/2" Tapered



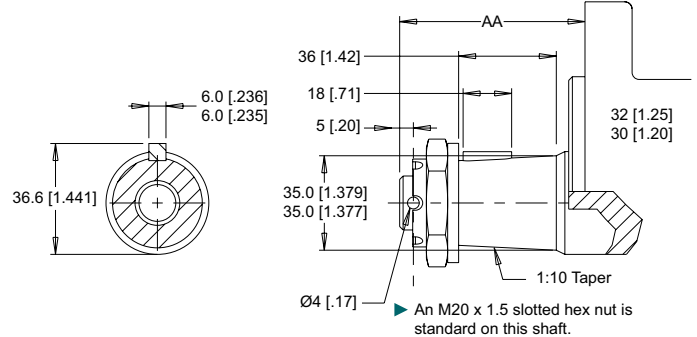
Max. Torque: 881 Nm [7800 lb-in]

22 1-1/4" Tapered



Max. Torque: 881 Nm [7800 lb-in]

28 35mm Tapered



Max. Torque: 881 Nm [7800 lb-in]

MOUNTING / SHAFT LENGTH CHART

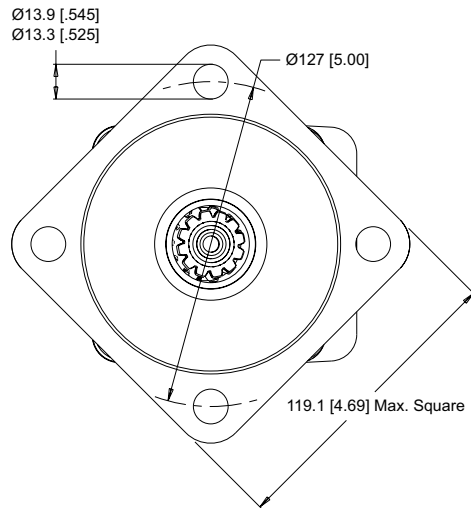
Dimension AA is the overall distance from the motor mounting surface to the end of the shaft and is referenced on detailed shaft drawings above as well as shafts on page 28.

► Shaft lengths vary ± 0.8 mm [0.030 in.]

AA	SAE A & B Mounts	Magneto Mounts	Wheel Mounts
#	mm [in]	mm [in]	mm [in]
02	51 [2.00]	47 [1.85]	91 [3.58]
10	51 [2.00]	47 [1.85]	91 [3.58]
12	51 [2.00]	47 [1.85]	91 [3.58]
20	55 [2.17]	52 [2.03]	96 [3.76]
21	65 [2.54]	61 [2.39]	105 [4.12]
22	64 [2.51]	60 [2.36]	104 [4.09]
23	55 [2.17]	52 [2.03]	96 [3.76]
28	N/A	N/A	107 [4.20]
31	N/A	N/A	123 [4.86]

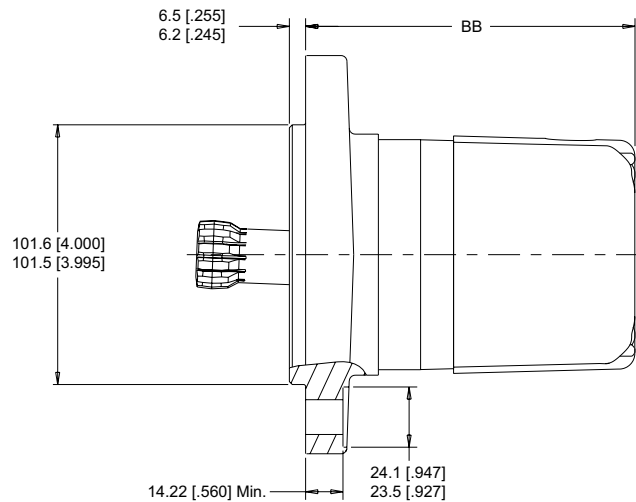
HOUSINGS

4-HOLE, 4.00" PILOT MOUNT



S2 End Ports

S8 Side Ports



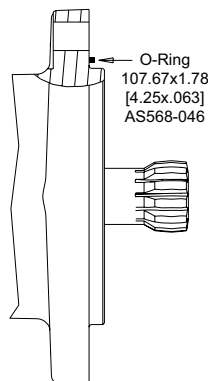
SHAFTS

0B Cardan (For Use With S2 & S8 Mounts)

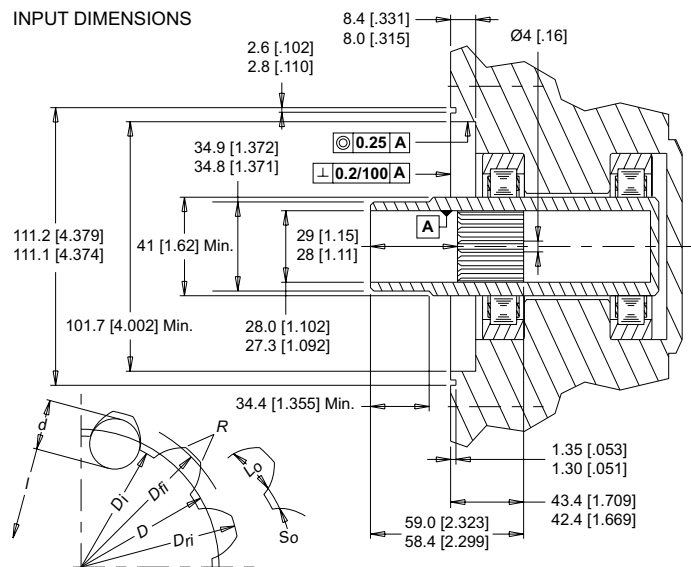
Fillet Root Side Fit

Number of Teeth	12
Pitch	12/24
Pressure Angle	30°
Pitch Diameter D	25.4 [1.000]
Base Diameter	21.997 [.8660]
Major Diameter D_{fj}	27.74 [1.092] - 27.59 [1.086]
Form Diameter (Min.) D_{fi}	26.93 [1.060]
Minor Diameter D_f	23.224 [.9143] - 23.097 [.9093]
Space Width (Circular) L_O^*	
Max. Actual	4.318 [.1700]
Min. Effective	4.216 [.1660]
Fillet Radius R	0.76 [.030] - 0.64 [.025]
Max. Distance Between Pins I	19.190 [.7555] - 19.020 [.7488]
Pin Diameter d	4.496 [.1770]

- The recommended shaft material is SAE 8620 or similar case hardening steel such as 20 MoCr4 (900 N/mm²) hardened to 59 - 62 HRC to a depth of 0.762 - 1.016 [.030 - .040].
*Dimensions apply after heat treatment.



INPUT DIMENSIONS



LENGTH & WEIGHT CHART

Dimension BB is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on the detailed housing drawing above.

BB	Length	Weight
#	mm [in]	kg [lb]
080	124 [4.88]	12.2 [26.8]
100	128 [5.04]	12.5 [27.5]
110	130 [5.14]	12.6 [27.8]
130	134 [5.27]	12.8 [28.2]
160	140 [5.52]	13.3 [29.2]
200	148 [5.82]	13.6 [29.9]
230	154 [6.06]	14.0 [30.8]
250	148 [5.82]	13.6 [29.9]
320	172 [6.77]	15.0 [32.9]
400	172 [6.77]	15.0 [32.9]
500	187 [7.37]	15.8 [34.7]

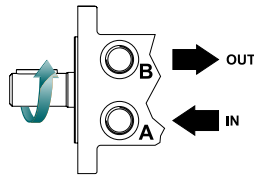
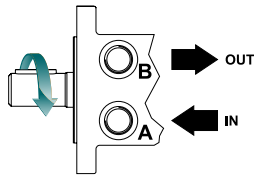
- 350 series short motor weights can vary ± 1kg [2 lb] depending on model configurations such as housing, shaft, endcover, options etc.

ORDERING INFORMATION

1		2		3a			

1. CHOOSE SERIES DESIGNATION

350 Clockwise Rotation

351 Counterclockwise Rotation


► The 350 & 351 series are bi-directional. Reversing the inlet hose will reverse shaft rotation.

2. SELECT A DISPLACEMENT OPTION

080	80 cm ³ /rev	[4.9 in ³ /rev]
100	100 cm ³ /rev	[6.1 in ³ /rev]
110	112 cm ³ /rev	[6.8 in ³ /rev]
130	129 cm ³ /rev	[7.9 in ³ /rev]
160	161 cm ³ /rev	[9.8 in ³ /rev]
200	201 cm ³ /rev	[12.3 in ³ /rev]

230	229 cm ³ /rev	[14.0 in ³ /rev]
250	248 cm ³ /rev	[15.1 in ³ /rev]
320	322 cm ³ /rev	[19.6 in ³ /rev]
400	396 cm ³ /rev	[24.2 in ³ /rev]
500	495 cm ³ /rev	[30.2 in ³ /rev]

3a. SELECT MOUNT TYPE

▼ END MOUNT

A0	2-Hole, SAE A Mount
A2	4-Hole, Magneto Mount
AG	4-Hole SAE A Mount
B0	2-Hole SAE B Mount
S2	4-Hole Short Motor Mount
Y2	4-Hole Wheel Mount

▼ SIDE MOUNT

A7	2-Hole, SAE A Mount
A8	4-Hole, Magneto Mount
AH	4-Hole SAE A Mount
B7	2-Hole SAE B Mount
S8	4-Hole Short Motor Mount
Y8	4-Hole Wheel Mount

3b. SELECT PORT SIZE

▼ END PORT OPTIONS

1	7/8-14 UNF Aligned
2	G 1/2 Aligned

▼ SIDE PORT OPTIONS

1	7/8-14 UNF, Offset
2	G 1/2, Offset
6	1 1/16-20 UN, 180° Opposed
B	Drilled Offset Manifold

► The S2 and S8 Mounts are only available with the 0B cardan shaft.

3b	4	5	6	7	8		

4. SELECT A SHAFT OPTION

0B	Cardan
02	6B Spline
10	1" Straight
12	25mm Straight
20	1-1/4" Straight

21	32mm Straight
22	1-1/4" Tapered
23	14 Tooth Spline
28	35mm Tapered
31	1-1/2" Tapered

► The 28 and 31 shafts are only available on the AG, AH, Y2 and Y8 mounts.

5. SELECT A PAINT OPTION

A	Black
B	Black, Unpainted Mounting Surface
Z	No Paint

► The S2 and S8 mounts are only available with no paint.

6. SELECT A VALVE CAVITY / CARTRIDGE OPTION

A	None	F	121 bar [1750 psi] Relief
B	Valve Cavity Only	G	138 bar [2000 psi] Relief
C	69 bar [1000 psi] Relief	J	173 bar [2500 psi] Relief
D	86 bar [1250 psi] Relief	L	207 bar [3000 psi] Relief
E	104 bar [1500 psi] Relief		

► Valve cavity is only available on side ports 1 & 2.

7. SELECT AN ADD-ON OPTION

A	Standard
B	Lock Nut
C	Solid Hex Nut

8. SELECT A MISCELLANEOUS OPTION

AA	None
AC	Freeturning Rotor
MA	Mounting Rotated 90°
MB	Freeturning Rotor With Mounting Rotated 90°

► Rotated mounting not available on the 4-Hole SAE A & wheel mounts

OVERVIEW

The WS targets agricultural equipment, skid steer attachments, and other applications that require greater torque under demanding conditions. Additional product features include a three zone commutator valve, heavy-duty tapered roller bearings, and case drain with integral internal drain*. The WS offers numerous housing, displacement and shaft options to meet most common SAE and European requirements.

FEATURES / BENEFITS

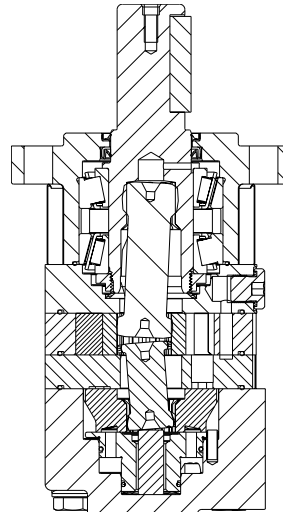
- Twelve shaft and ten mounting options to meet the most common SAE and European requirements.
- Heavy-duty tapered roller bearings for extra side load capacity.
- Three zone commutator valve for high flow capacity.
- Standard case drain with integral internal drain for extended shaft seal life.

TYPICAL APPLICATIONS

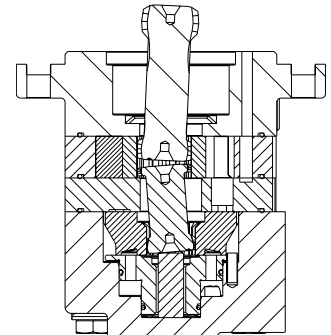
Medium-duty wheel drives, sweepers, grain augers, spreaders, feed rollers, brush drives, mowers, harvesting equipment gear box mounts and more

SERIES DESCRIPTIONS

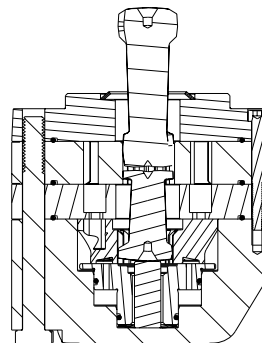
360 - Hydraulic Motor
Standard



360 - Hydraulic Motor
Short



360 - Hydraulic Motor
Ultra Short



SPECIFICATIONS

CODE	Displacement cm ³ [in ³ /rev]	Max. Speed rpm		Max. Flow lpm [gpm]		Max. Torque Nm [lb-in]		Max. Pressure bar [psi]		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
080	80 [4.9]	793	979	65 [17]	80 [21]	234 [2071]	306 [2708]	210 [3050]	275 [3990]	295 [4280]
100	100 [6.1]	744	887	75 [20]	90 [24]	301 [2664]	392 [3470]	210 [3050]	275 [3990]	295 [4280]
125	125 [7.6]	596	711	75 [20]	90 [24]	364 [3222]	478 [4231]	210 [3050]	275 [3990]	295 [4280]
160	160 [9.7]	471	561	75 [20]	90 [24]	466 [4125]	577 [5107]	210 [3050]	260 [3770]	280 [4060]
200	200 [12.2]	377	448	75 [20]	90 [24]	599 [5302]	705 [6240]	210 [3050]	250 [3630]	270 [3920]
230	226 [13.8]	324	389	75 [20]	90 [24]	652 [5771]	812 [7187]	200 [2900]	250 [3630]	270 [3920]
250	250 [15.2]	298	363	75 [20]	90 [24]	703 [6222]	851 [7532]	200 [2900]	250 [3630]	270 [3920]
315	305 [18.6]	240	293	75 [20]	90 [24]	872 [7718]	1024 [9063]	200 [2900]	240 [3480]	260 [3770]
400	393 [24.0]	185	225	75 [20]	90 [24]	910 [8054]	1069 [9462]	160 [2320]	190 [2760]	210 [3050]
500	493 [30.1]	149	180	75 [20]	90 [24]	848 [7506]	1001 [8860]	120 [1740]	140 [2030]	160 [2320]

► Performance data is typical. Performance of production units varies slightly from one motor to another. Running at intermittent ratings should not exceed 10% of every minute of operation.

DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
080		30 [440]	70 [1020]	105 [1520]	140 [2030]	175 [2540]	210 [3050]	225 [3260]	250 [3630]	275 [3990]
80 cm ³ [4.9 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]	5 [1.3]	29 [257] 61	76 [673] 58	116 [1027] 55	156 [1381] 45	194 [1717] 36	222 [1965] 31			
	10 [2.6]	28 [248] 124	73 [646] 118	114 [1009] 110	155 [1372] 99	194 [1717] 87	234 [2071] 73	246 [2177] 67	269 [2381] 60	
	20 [5.3]	27 [239] 246	72 [637] 241	112 [991] 232	152 [1345] 220	191 [1690] 204	232 [2053] 184	248 [2195] 176	278 [2460] 159	303 [2682] 143
	30 [7.9]	24 [212] 368	70 [620] 361	110 [974] 354	150 [1328] 342	190 [1682] 322	231 [2044] 302	248 [2195] 293	276 [2443] 277	306 [2708] 254
	40 [10.6]	23 [204] 493	68 [602] 483	107 [947] 479	146 [1292] 469	189 [1673] 448	229 [2027] 426	247 [2186] 418	277 [2451] 399	303 [2682] 381
	50 [13.2]		66 [584] 607	106 [938] 598	146 [1292] 585	186 [1646] 564	227 [2009] 545	245 [2168] 532		
	65 [17.2]		62 [549] 793	101 [894] 787	141 [1248] 762	182 [1611] 742	225 [1991] 714	238 [2106] 709		
	80 [21.1]		56 [496] 979	97 [858] 966	140 [1239] 941	178 [1575] 920				
Max. Max. Inter. Cont.		Torque - Nm [lb-in], Speed rpm					Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐			
		38 [336]	89 [788]	134 [1186]	178 [1575]	223 [1974]	268 [2372]	287 [2540]	319 [2823]	351 [3107]
Rotor Width 15.6 [614] mm [in]		Theoretical Torque - Nm [lb-in]					Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]			
		62	125	250	375	499	624	811	999	Theoretical rpm

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
100		35 [510]	70 [1020]	105 [1520]	140 [2030]	175 [2540]	210 [3050]	225 [3260]	250 [3630]	275 [3990]
100 cm ³ [6.1 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]	5 [1.3]	47 [416] 49	98 [867] 48	149 [1319] 46	198 [1752] 43	245 [2168] 37	284 [2513] 31	299 [2646] 23		
	10 [2.6]	46 [407] 99	96 [850] 97	148 [1310] 94	199 [1761] 90	249 [2204] 83	297 [2628] 75	316 [2797] 70	349 [3089] 59	372 [3292] 48
	20 [5.3]	45 [398] 197	95 [841] 195	146 [1292] 192	198 [1752] 187	249 [2204] 180	301 [2664] 167	322 [2850] 161	357 [3159] 149	390 [3452] 143
	30 [7.9]	43 [381] 297	93 [823] 295	144 [1274] 292	195 [1726] 288	247 [2186] 280	297 [2628] 263	320 [2832] 259	356 [3151] 246	392 [3469] 227
	40 [10.6]	40 [354] 395	91 [805] 393	142 [1257] 392	193 [1708] 389	244 [2159] 383	295 [2611] 367	317 [2805] 362	354 [3133] 347	389 [3443] 331
	50 [13.2]	37 [327] 495	88 [779] 490	138 [1221] 491	191 [1690] 486	240 [2124] 481	295 [2611] 465	315 [2788] 459		
	60 [15.9]	35 [310] 594	84 [743] 592	136 [1204] 585	187 [1655] 579	238 [2106] 565	289 [2558] 564	311 [2752] 553		
	75 [19.8]	28 [248] 744	78 [690] 739	126 [1115] 743	183 [1620] 726	230 [2036] 712	286 [2531] 698	304 [2690] 691		
Max. Max. Inter. Cont.	90 [23.8]		70 [620] 887	123 [1089] 881	174 [1540] 874	223 [1974] 859				
		Torque - Nm [lb-in], Speed rpm					Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐			
Rotor Width 19.7 [776] mm [in]		55 [493]	111 [986]	167 [1479]	223 [1972]	278 [2465]	334 [2958]	358 [3170]	398 [3521]	438 [3874]
		Theoretical Torque - Nm [lb-in]					Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]			
		50	100	200	300	400	500	600	750	900

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
125		35 [510]	70 [1020]	105 [1520]	140 [2030]	175 [2540]	210 [3050]	225 [3260]	250 [3630]	275 [3990]
125 cm ³ [7.6 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Max. Max. Inter. Cont.	Flow - lpm [gpm]	51 [451] 39	113 [1000] 38	176 [1558] 35	229 [2027] 31	301 [2664] 26	327 [2894] 16			
	10 [2.6]	50 [443] 79	113 [1000] 77	176 [1558] 74	241 [2133] 67	300 [2655] 60	353 [3124] 49	377 [3336] 46	411 [3637] 37	
	20 [5.3]	48 [425] 159	109 [965] 157	174 [1540] 151	238 [2106] 146	301 [2664] 130	364 [3221] 115	386 [3416] 108	431 [3814] 95	475 [4204] 78
	30 [7.9]	46 [407] 239	109 [965] 235	172 [1522] 232	235 [2080] 222	298 [2637] 212	363 [3213] 190	391 [3460] 183	436 [3859] 168	478 [4230] 151
	40 [10.6]	43 [381] 319	106 [938] 314	169 [1496] 311	233 [2062] 302	296 [2620] 291	363 [3213] 268	390 [3452] 260	431 [3814] 248	477 [4221] 229
	50 [13.2]	40 [354] 399	101 [894] 395	167 [1478] 387	233 [2062] 379	296 [2620] 362	363 [3213] 346	387 [3425] 341		
	60 [15.9]	38 [336] 477	100 [885] 472	163 [1443] 466	232 [2053] 457	295 [2611] 441	356 [3151] 433	383 [3390] 422		
	75 [19.8]	28 [248] 596	93 [823] 592	155 [1372] 582	218 [1929] 570	283 [2505] 556	352 [3115] 533	376 [3328] 527		
	90 [23.8]		81 [717] 711	148 [1310] 702	214 [1894] 685	274 [2425] 672				
	Rotor Width	Torque - Nm [lb-in], Speed rpm Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
	19.7 [776] mm [in]	69 [616]	139 [1232]	208 [1849]	278 [2465]	348 [3081]	417 [3698]	447 [3962]	493 [4402]	547 [4842]
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
160		35 [510]	70 [1020]	105 [1520]	140 [2030]	160 [2320]	175 [2540]	210 [3050]	225 [3260]	260 [3770]
160 cm ³ [9.7 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Max. Max. Inter. Cont.	Flow - lpm [gpm]	71 [628] 30	150 [1328] 29	232 [2053] 28	307 [2717] 24	356 [3151] 20	385 [3407] 18			
	10 [2.6]	71 [628] 62	149 [1319] 61	230 [2036] 58	310 [2744] 53	355 [3142] 47	386 [3416] 42	459 [4062] 33	488 [4319] 31	
	20 [5.3]	69 [611] 123	147 [1301] 122	230 [2036] 119	309 [2735] 113	355 [3142] 107	388 [3434] 101	465 [4115] 84	498 [4407] 77	
	30 [7.9]	65 [575] 185	143 [1266] 184	225 [1991] 182	307 [2717] 177	353 [3124] 168	387 [3425] 163	466 [4124] 143	500 [4425] 135	577 [5106] 110
	40 [10.6]	60 [531] 247	138 [1221] 246	220 [1947] 243	303 [2682] 239	349 [3089] 234	383 [3390] 227	463 [4098] 207	497 [4398] 200	574 [5080] 176
	50 [13.2]	55 [487] 308	133 [1177] 307	215 [1903] 304	296 [2620] 296	342 [3027] 291	376 [3328] 285	458 [4053] 265	490 [4337] 258	
	60 [15.9]	47 [416] 372	127 [1124] 368	207 [1832] 366	289 [2558] 361	336 [2974] 354	371 [3283] 348	452 [4000] 328	487 [4310] 318	
	75 [19.8]	36 [319] 468	114 [1009] 467	196 [1735] 466	279 [2469] 455	323 [2859] 449	361 [3195] 442	442 [3912] 422	472 [4177] 415	
	90 [23.8]	24 [212] 561	106 [938] 557	183 [1620] 549	266 [2354] 540	311 [2752] 533				
	Rotor Width	Torque - Nm [lb-in], Speed rpm Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
	25.4 [1.000] mm [in]	89 [789]	178 [1578]	267 [2366]	359 [3156]	407 [3606]	445 [3944]	534 [4733]	573 [5071]	662 [5860]
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
200		35 [510]	70 [1020]	105 [1520]	140 [2030]	160 [2320]	175 [2540]	210 [3050]	225 [3260]	250 [3630]
200 cm ³ [12.2 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]	5 [1.3]	78 [690] 24	191 [1690] 21	289 [2558] 23	383 [3390] 20					
	10 [2.6]	77 [681] 49	191 [1690] 48	292 [2584] 47	382 [3381] 44	448 [3965] 39	487 [4310] 35	573 [5071] 26		
	20 [5.3]	73 [646] 99	189 [1673] 98	291 [2575] 96	393 [3478] 93	451 [3991] 88	494 [4372] 83	591 [5230] 70	632 [5593] 63	694 [6142] 52
	30 [7.9]	71 [628] 149	186 [1646] 147	289 [2558] 146	389 [3443] 145	453 [4009] 137	491 [4345] 133	599 [5301] 119	633 [5602] 111	704 [6230] 95
	40 [10.6]	66 [584] 197	181 [1602] 196	283 [2505] 196	385 [3407] 195	443 [3921] 191	486 [4301] 187	591 [5230] 174	631 [5584] 169	705 [6239] 154
	50 [13.2]	59 [522] 249	176 [1558] 247	277 [2451] 246	378 [3345] 244	438 [3877] 241	481 [4257] 237	582 [5151] 227	625 [5531] 220	
	60 [15.9]	51 [451] 297	168 [1487] 295	269 [2381] 294	371 [3283] 292	428 [3788] 287	474 [4195] 278	571 [5053] 264	611 [5407] 256	
	75 [19.8]	40 [354] 371	154 [1363] 377	256 [2266] 375	352 [3115] 369	409 [3620] 362	454 [4018] 355	556 [4921] 338	601 [5319] 327	
	90 [23.8]	26 [230] 448	139 [1230] 444	238 [2106] 448	338 [2991] 436	398 [3523] 429				
Rotor Width		Torque - Nm [lb-in], Speed rpm								
31.8 [1.252] mm [in]		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
		111 [986]	222 [1972]	334 [2958]	445 [3944]	509 [4508]	557 [4930]	668 [5917]	716 [6339]	795 [7044]
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

		Pressure - bar [psi]					Max. Cont.		Max. Inter.	
230		35 [510]	70 [1020]	95 [1380]	125 [1810]	140 [2030]	155 [2250]	175 [2540]	200 [2900]	225 [3260]
226 cm ³ [13.8 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.					Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]	5 [1.3]	113 [1000] 21	232 [2053] 20	320 [2832] 19						
	10 [2.6]	112 [991] 42	228 [2018] 41	321 [2841] 40	419 [3708] 37	465 [4115] 36	518 [4584] 34	569 [5036] 33	651 [5761] 30	
	20 [5.3]	111 [982] 86	227 [2009] 85	315 [2788] 83	415 [3673] 78	461 [4080] 75	514 [4549] 72	582 [5151] 69	652 [5770] 65	735 [6505] 61
	30 [7.9]	108 [956] 128	223 [1974] 126	311 [2752] 124	412 [3647] 119	463 [4098] 116	512 [4531] 113	576 [5098] 108	658 [5823] 102	738 [6531] 97
	40 [10.6]	103 [912] 171	220 [1947] 169	306 [2708] 166	410 [3629] 161	460 [4071] 158	510 [4514] 153	572 [5062] 148	651 [5761] 142	729 [6452] 136
	50 [13.2]	97 [858] 216	214 [1894] 215	296 [2620] 213	407 [3602] 206	446 [3947] 203	503 [4452] 199	571 [5053] 192		
	60 [15.9]	89 [788] 259	212 [1876] 256	290 [2567] 253	399 [3531] 247	440 [3894] 244	496 [4390] 239	554 [4903] 234		
	75 [19.8]	76 [673] 324	190 [1682] 321	275 [2434] 320	388 [3434] 310	425 [3761] 309	481 [4257] 304	546 [4832] 300		
	90 [23.8]	56 [496] 389	174 [1540] 386	257 [2274] 383	361 [3195] 378	411 [3637] 374				
Rotor Width		Torque - Nm [lb-in], Speed rpm								
45.4 [1.787] mm [in]		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
		126 [1115]	251 [2222]	341 [3018]	449 [3974]	503 [4452]	557 [4930]	628 [5558]	718 [6355]	808 [7152]
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

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DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]								Max. Cont.		Max. Inter.	
250		35 [510]	70 [1020]	95 [1380]	125 [1810]	140 [2030]	155 [2250]	175 [2540]	200 [2900]	225 [3260]	250 [3630]		
250 cm ³ [15.2 in ³] / rev													
Intermittent Ratings are below and to the right of the BOLD line.													
Intermittent Ratings - 10% of Operation													
Flow - lpm [gpm]	5 [1.3]	115 [1018] 19											20
	10 [2.6]	116 [1027] 39	239 [2115] 38	331 [2929] 37	439 [3885] 35	481 [4257] 33	532 [4708] 31	595 [5266] 27					40
	20 [5.3]	114 [1009] 79	239 [2115] 78	330 [2921] 76	438 [3876] 73	491 [4345] 70	546 [4832] 67	619 [5478] 62	703 [6222] 54	778 [6885] 45	851 [7531] 38		80
	30 [7.9]	110 [974] 119	236 [2089] 118	329 [2912] 117	437 [3868] 115	489 [4328] 112	543 [4806] 109	618 [5469] 103	704 [6230] 93	790 [6992] 78			120
	40 [10.6]	106 [938] 159	232 [2053] 158	323 [2859] 155	430 [3806] 154	486 [4301] 153	539 [4770] 150	624 [5522] 145	702 [6213] 133	793 [7018] 124			160
	50 [13.2]	100 [885] 198	225 [1991] 197	318 [2814] 194	429 [3797] 195	480 [4248] 193	530 [4691] 191	609 [5390] 185					200
	60 [15.9]	91 [805] 239	215 [1903] 237	311 [2752] 240	414 [3664] 235	470 [4160] 234	524 [4637] 233	594 [5257] 223					240
	75 [19.8]	78 [690] 298	206 [1823] 295	293 [2593] 295	405 [3584] 292	453 [4009] 291	507 [4487] 285	581 [5142] 277					300
90 [23.8]	59 [522] 359	184 [1628] 357	272 [2407] 363	384 [3398] 353	422 [3735] 350								360
Max. Max. Inter. Cont.	Rotor Width	Torque - Nm [lb-in], Speed rpm											
		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐											
	39.4 [1.551]	139 [1232]	278 [2465]	378 [3346]	497 [4402]	557 [4930]	616 [5458]	696 [6163]	795 [7043]	895 [7924]	994 [8804]		
mm [in]		Theoretical Torque - Nm [lb-in]											
Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]													

		Pressure - bar [psi]								Max. Cont.		Max. Inter.	
315		35 [510]	70 [1020]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]	200 [2900]	225 [3260]	240 [3480]		
305 cm³ [18.6 in³] / rev		Intermittent Ratings are below and to the right of the BOLD line.								Intermittent Ratings - 10% of Operation			
Flow - lpm [gpm]	5 [1.3]	147 [1301] 15	310 [2744] 14	426 [3770] 13								16	Theoretical rpm
	10 [2.6]	153 [1354] 32	308 [2726] 30	441 [3903] 29	527 [4664] 25	600 [5310] 23	670 [5930] 20					33	
	20 [5.3]	151 [1336] 64	304 [2690] 62	441 [3903] 60	530 [4691] 57	610 [5399] 52	705 [6239] 46					66	
	30 [7.9]	146 [1292] 94	303 [2682] 92	439 [3885] 92	532 [4708] 88	617 [5460] 83	700 [6196] 76	764 [6761] 73	872 [7717] 65	980 [8673] 64	1024 [9062] 59	98	
	40 [10.6]	139 [1230] 127	295 [2611] 125	431 [3814] 124	520 [4602] 121	613 [5425] 117	701 [6205] 111	766 [6779] 105	883 [7815] 95	940 [8319] 94		131	
	50 [13.2]	130 [1151] 160	288 [2549] 158	423 [3744] 156	514 [4549] 153	604 [5345] 149	694 [6143] 144	759 [6717] 139				164	
	60 [15.9]	126 [1115] 191	277 [2451] 191	417 [3690] 187	506 [4478] 186	594 [5257] 182	684 [6054] 174	749 [6629] 168				197	
	75 [19.8]	99 [876] 240	258 [2283] 237	394 [3487] 237	483 [4275] 234	573 [5071] 226	651 [5762] 222					246	
	90 [23.8]	74 [655] 293	231 [2044] 293	371 [3283] 284	460 [4071] 281	543 [4806] 276						295	
Rotor Width		Torque - Nm [lb-in], Speed rpm											Theoretical Torque - Nm [lb-in]
49.2 [1.937]		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐											
mm [in]		170 [1505]	339 [3000]	485 [4293]	582 [5151]	679 [6010]	776 [6868]	848 [7506]	970 [8585]	1091 [9656]	1163 [10294]		
		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]											

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DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]						Max. Cont.	Max. Inter.
		30 [440]	60 [870]	80 [1160]	105 [1520]	120 [1740]	140 [2030]	160 [2320]	175 [2540] 190 [2760]
400									
393 cm ³ [24.0 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation	
Flow - lpm [gpm]	5 [1.3]	167 [1478] 12	352 [3115] 12						
	10 [2.6]	176 [1531] 24	345 [3053] 23	461 [4080] 22	606 [5363] 21				
	20 [5.3]	170 [1505] 49	342 [3027] 48	463 [4098] 47	610 [5399] 46	695 [6151] 43	809 [7160] 39	910 [8054] 33	987 [8735] 29
	30 [7.9]	163 [1443] 74	337 [2982] 73	456 [4036] 73	605 [5354] 71	691 [6115] 69	806 [7134] 64	916 [8107] 58	990 [8762] 45 1069 [9461] 39
	40 [10.6]	153 [1354] 98	327 [2894] 98	445 [3938] 98	593 [5248] 96	681 [6027] 95	799 [7072] 90	911 [8062] 82	982 [8691] 69
	50 [13.2]	142 [1257] 123	317 [2805] 123	435 [3850] 122	575 [5089] 121	667 [5903] 120	787 [6966] 115		
	60 [15.9]	131 [1159] 149	301 [2664] 148	419 [3708] 147	566 [5009] 146	653 [5779] 144	774 [6851] 140		
	75 [19.8]	100 [885] 185	276 [2443] 185	393 [3478] 184	541 [4788] 183	628 [5558] 181			
	90 [23.8]	72 [637] 224	247 [2186] 222	360 [3186] 221	511 [4522] 220				
	Max. Max. Inter. Cont.								
Rotor Width									
63.5 [2.500]									
mm [in]									
		Torque - Nm [lb-in], Speed rpm							
		Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%							
		187 [1655]	375 [3319]	500 [4426]	656 [5806]	750 [6638]	875 [7745]	1000 [8851]	1093 [9674] 1187 [10506]
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]							

		Pressure - bar [psi]						Max. Cont.	Max. Inter.
		25 [360]	50 [730]	80 [1160]	90 [1300]	105 [1520]	120 [1740]	140 [2030]	
500									
493 cm ³ [30.1 in ³] / rev		Intermittent Ratings are below and to the right of the BOLD line.						Intermittent Ratings - 10% of Operation	
Flow - lpm [gpm]	10 [2.6]	191 [1690] 19	355 [3142] 18						
	20 [5.3]	175 [1549] 39	354 [3133] 39	571 [5053] 36	646 [5717] 34	760 [6726] 31			
	30 [7.9]	164 [1451] 59	344 [3044] 58	565 [5000] 56	637 [5637] 55	743 [6576] 52	848 [7506] 48	1001 [8859] 38	
	40 [10.6]	147 [1301] 79	333 [2947] 78	551 [4876] 77	623 [5514] 76	730 [6461] 74	833 [7373] 70		
	50 [13.2]	136 [1204] 99	317 [2805] 99	537 [4752] 96	610 [5399] 95	717 [6345] 93	830 [7346] 86		
	60 [15.9]	118 [1044] 119	302 [2673] 118	523 [4629] 116	597 [5283] 114	704 [6230] 110			
	75 [19.8]	94 [832] 148	270 [2390] 149	490 [4337] 145	566 [5009] 143	674 [5965] 141			
	90 [23.8]	55 [487] 179	237 [2097] 180	457 [4044] 175	530 [4691] 174				
	Max. Max. Inter. Cont.								
	Rotor Width								
	78.8 [3.102]								
	mm [in]								
		Torque - Nm [lb-in], Speed rpm							
		Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%							
		196 [1735]	392 [3470]	627 [5550]	706 [6249]	823 [7284]	941 [8329]	1098 [9718]	
		Theoretical Torque - Nm [lb-in] Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]							

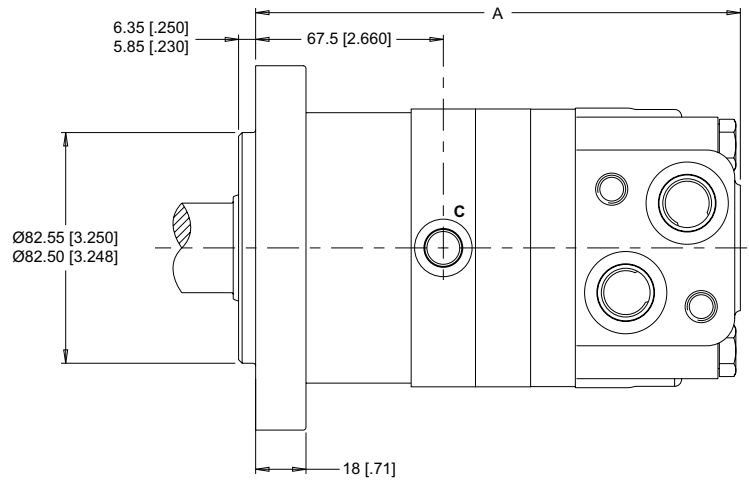
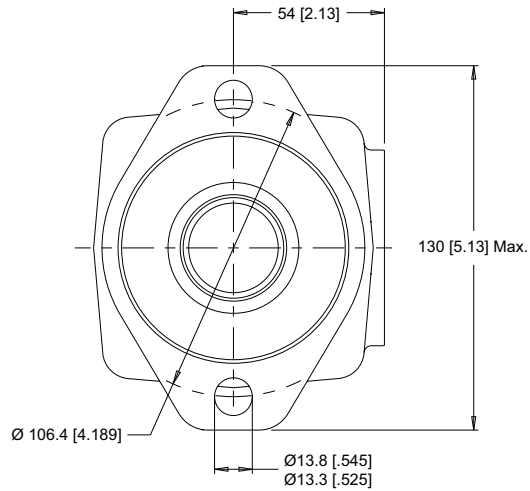
► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 7.

HOUSINGS

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [0.005].

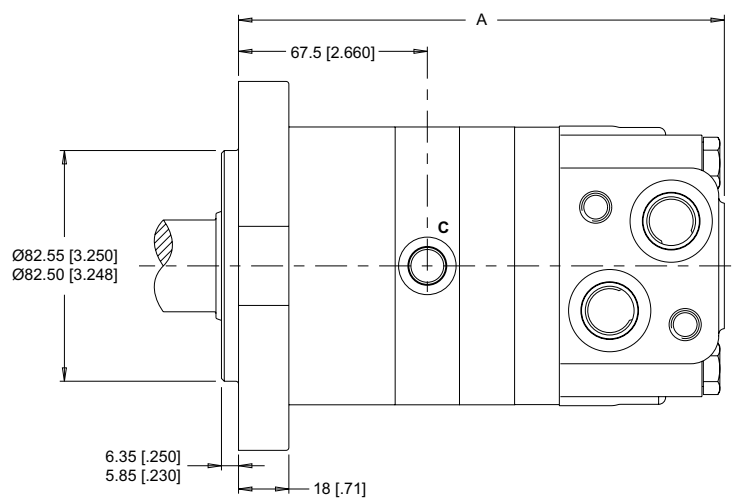
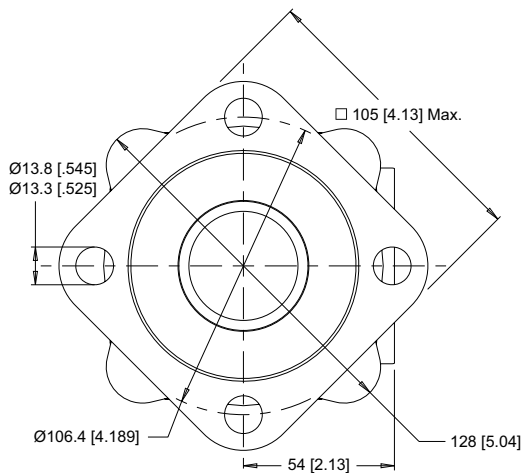
2-HOLE, SAE A MOUNT

A7 Side Ports



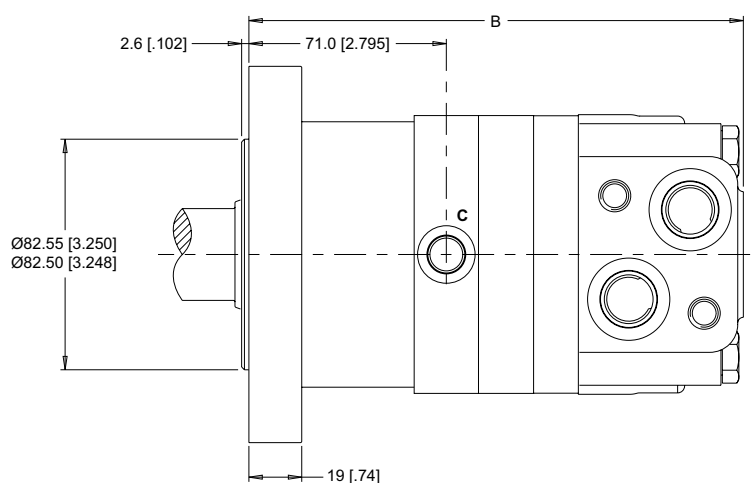
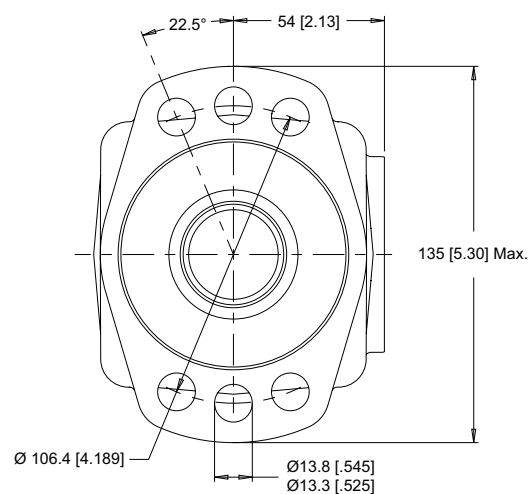
4-HOLE, SAE A MOUNT

AH Side Ports



6-HOLE, MAGNETO MOUNT

AT Side Ports



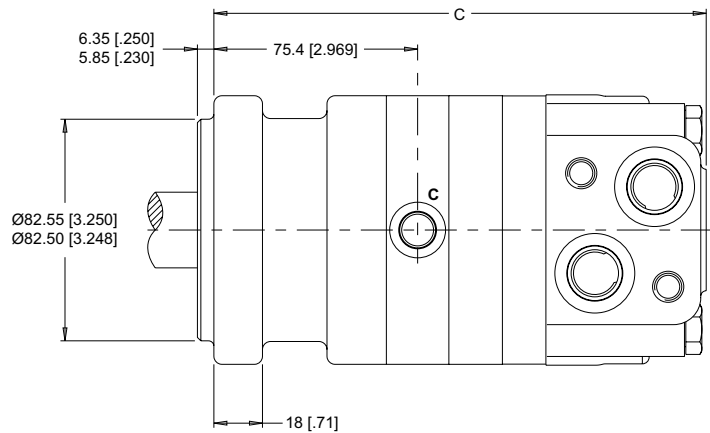
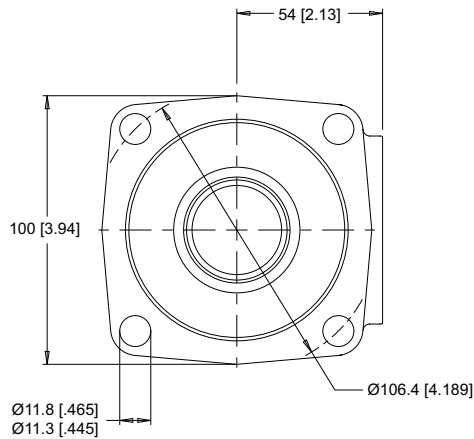
► Dimension A & B are charted on page 41.

HOUSINGS

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

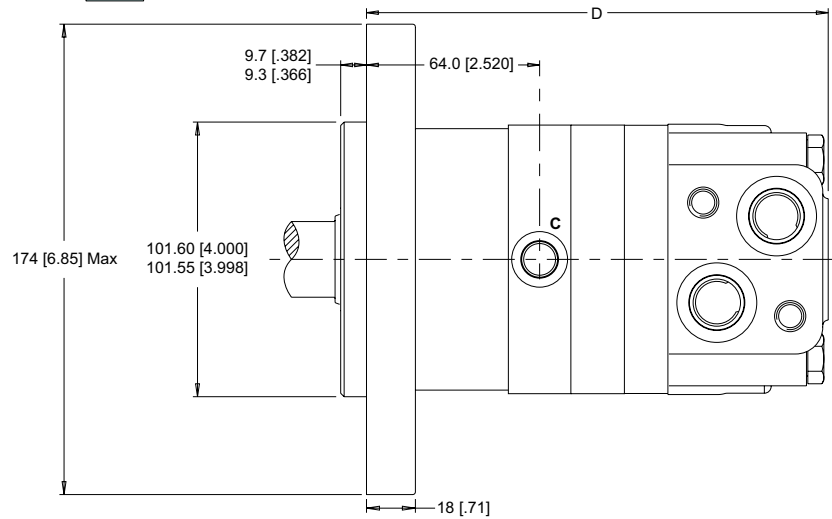
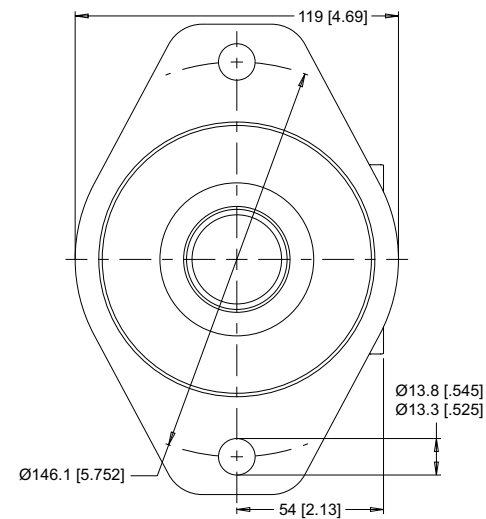
4-HOLE, SQUARE EURO MOUNT

AU Side Ports



2-HOLE, SAE B MOUNT

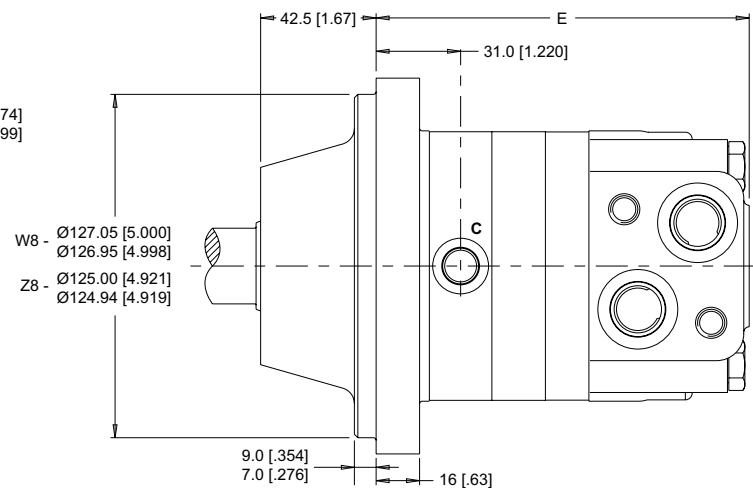
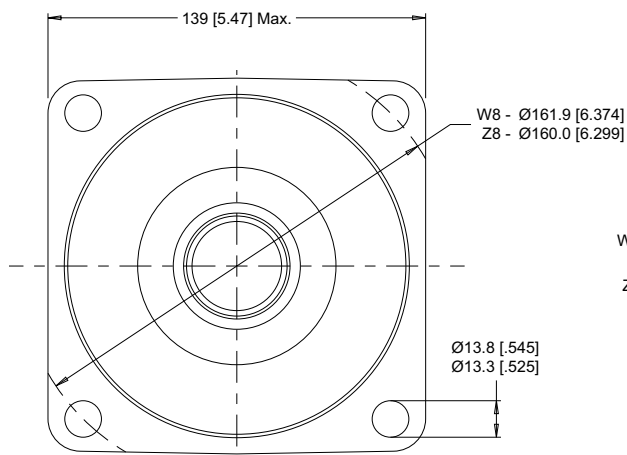
B7 Side Ports



4-HOLE, WHEEL MOUNT

W8 Side Ports - 5" Pilot

Z8 Side Ports - 125mm Pilot



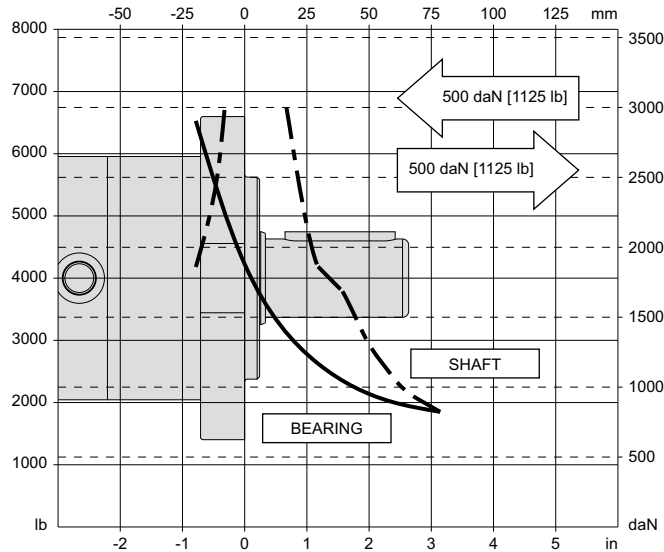
► Dimension C, D & E are charted on page 41.

TECHNICAL INFORMATION

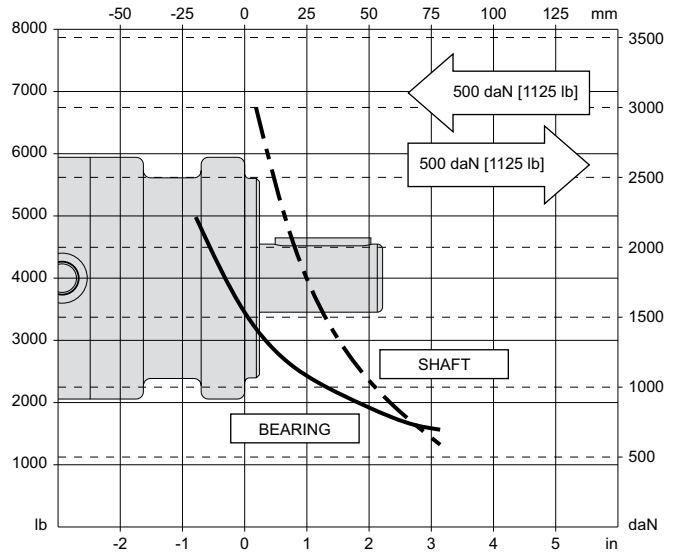
ALLOWABLE SHAFT LOAD / BEARING CURVE

The bearing curve represents allowable bearing loads for a B10 life of 2,000 hours at 100 rpm. Radial loads for speeds other than 100 rpm may be calculated using the multiplication factor table on page 8.

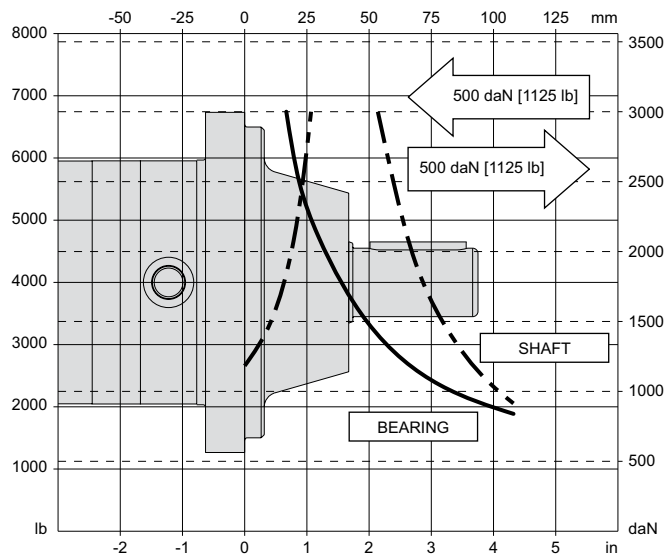
SAE A, SAE B & MAGNETO MOUNTS



SQUARE EURO MOUNT



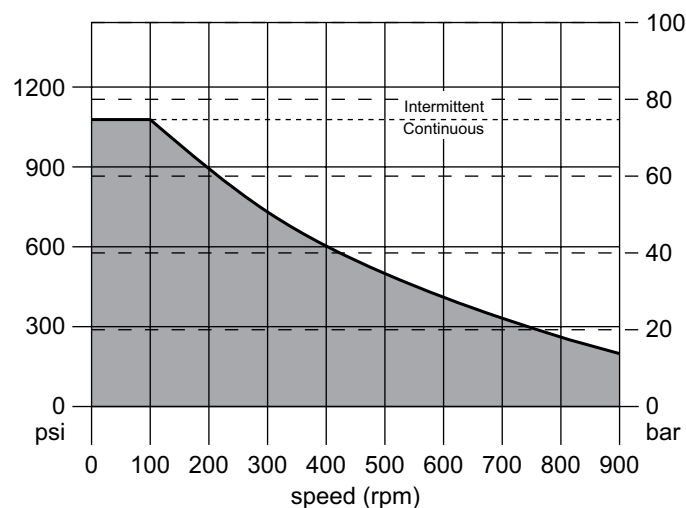
WHEEL MOUNTS



► Case pressure will push outward on the shaft. If case drain line is attached and routed directly to tank, case pressure should be negligible. If case drain line is not attached, case pressure will be nearly the same as motor return pressure. When case pressure is acting, the allowable inward axial load can be increased and the allowable outward axial load must be decreased at a rate of 88 kg / 7 bar [194 lb / 100 psi].

TECHNICAL INFORMATION

PERMISSIBLE SHAFT SEAL PRESSURE



LENGTH & WEIGHT CHARTS

The following charts list the overall motor length from the rear of the motor to the mounting flange surface and are referenced on detailed housing drawings listed on pages 38 & 39.

A	Length	Weight
#	mm [in]	kg [lb]
080	170 [6.69]	10.2 [22.5]
100	174 [6.85]	10.5 [23.2]
125	174 [6.85]	10.5 [23.2]
160	180 [7.09]	11.0 [24.3]
200	186 [7.32]	11.4 [25.1]
230	200 [7.87]	12.2 [26.9]
250	193 [7.60]	11.9 [26.2]
315	203 [8.00]	12.4 [27.3]
400	218 [8.58]	13.3 [29.3]
500	233 [9.17]	14.2 [31.3]

B	Length	Weight
#	mm [in]	kg [lb]
080	173 [6.81]	10.2 [22.5]
100	177 [6.97]	10.5 [23.2]
125	177 [6.97]	10.5 [23.2]
160	183 [7.20]	11.0 [24.3]
200	189 [7.44]	11.4 [25.1]
230	203 [7.99]	12.2 [26.9]
250	197 [7.76]	11.9 [26.2]
315	207 [8.15]	12.4 [27.3]
400	221 [8.70]	13.3 [29.3]
500	236 [9.29]	14.2 [31.3]

C	Length	Weight
#	mm [in]	kg [lb]
080	178 [7.01]	10.1 [22.3]
100	182 [7.17]	10.4 [22.9]
125	182 [7.17]	10.4 [22.9]
160	187 [7.36]	10.9 [24.0]
200	194 [7.64]	11.3 [24.9]
230	208 [8.19]	12.1 [26.7]
250	201 [7.91]	11.8 [26.0]
315	211 [8.31]	12.3 [27.1]
400	225 [8.86]	13.2 [29.1]
500	240 [9.45]	14.1 [31.1]

D	Length	Weight
#	mm [in]	kg [lb]
080	166 [6.54]	11.2 [24.7]
100	170 [6.69]	11.5 [25.4]
125	170 [6.69]	11.5 [25.4]
160	176 [6.93]	12.0 [26.5]
200	182 [7.17]	12.4 [27.3]
230	196 [7.72]	13.2 [29.1]
250	190 [7.48]	12.9 [28.4]
315	200 [7.87]	13.4 [29.5]
400	214 [8.43]	14.3 [31.5]
500	229 [9.02]	15.2 [33.5]

E	Length	Weight
#	mm [in]	kg [lb]
080	133 [5.24]	11.0 [24.3]
100	137 [5.39]	11.3 [24.9]
125	137 [5.39]	11.3 [24.9]
160	143 [5.63]	11.8 [26.0]
200	149 [5.87]	12.2 [26.9]
230	163 [6.42]	13.0 [28.7]
250	157 [6.18]	12.7 [28.0]
315	167 [6.57]	13.2 [29.1]
400	181 [7.13]	14.1 [31.1]
500	196 [7.72]	15.0 [33.1]

► 360 series motor weights can vary $\pm$ 1kg [2 lb] depending on model configurations such as housing, shaft, endcover, options etc.

PORTING

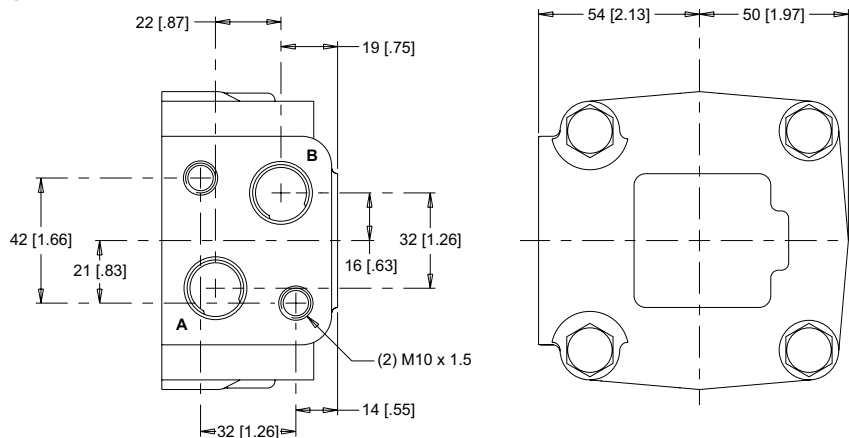
SIDE PORTED - OFFSET MANIFOLD

1 Main Ports **A, B:** 7/8-14 UNF
Drain Port **C:** 7/16-20 UNF

3 Main Ports **A, B:** G 1/2
Drain Port **C:** G 1/4

4 Main Ports **A, B:** M22x1.5
Drain Port **C:** M14x1.5

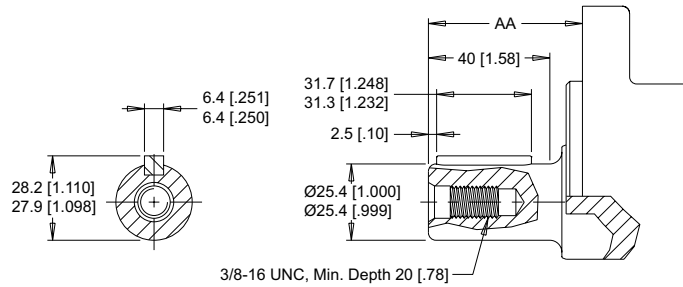
STANDARD



► Drain port C is referenced on housing drawings listed on pages 38, 39 and 45.

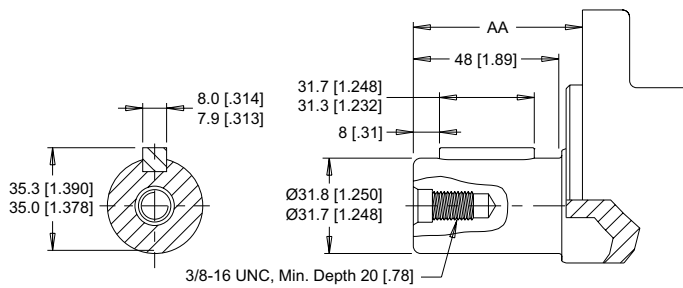
SHAFTS

10 1" Straight



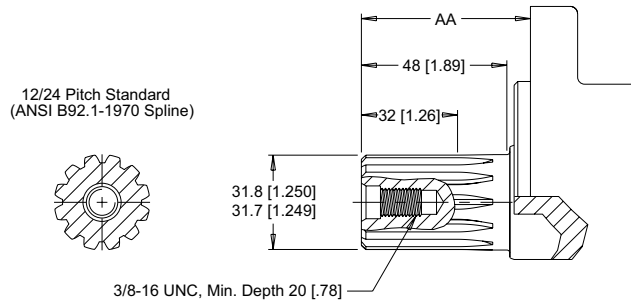
Max. Torque: 655 Nm [5800 lb-in]

20 1-1/4" Straight



Max. Torque: 881 Nm [7800 lb-in]

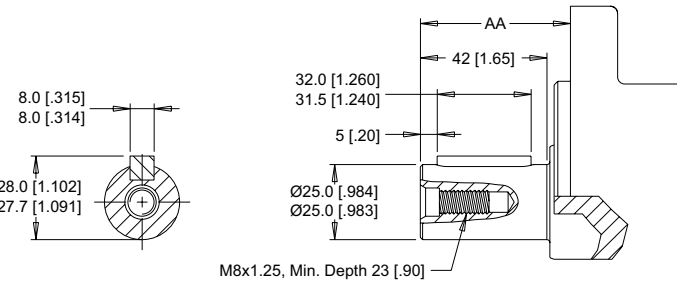
23 14 Tooth Spline



Max. Torque: 881 Nm [7800 lb-in]

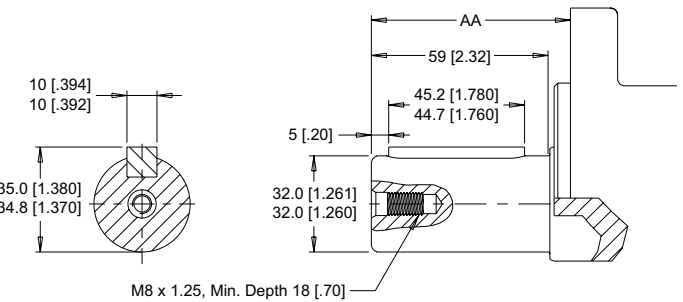
► Dimension AA is charted on page 44.

12 25mm Straight



Max. Torque: 678 Nm [6000 lb-in]

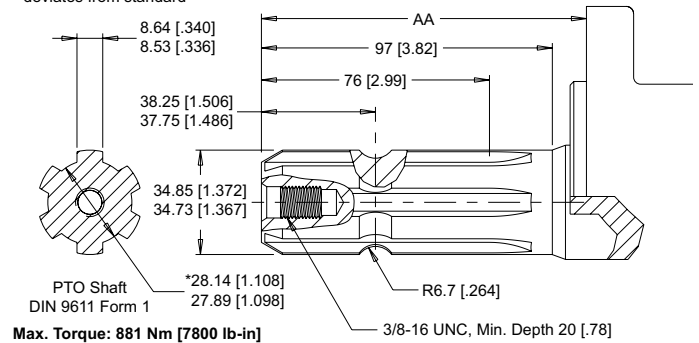
21 32mm Straight



Max. Torque: 881 Nm [7800 lb-in]

78 1-3/8" 6B Spline PTO

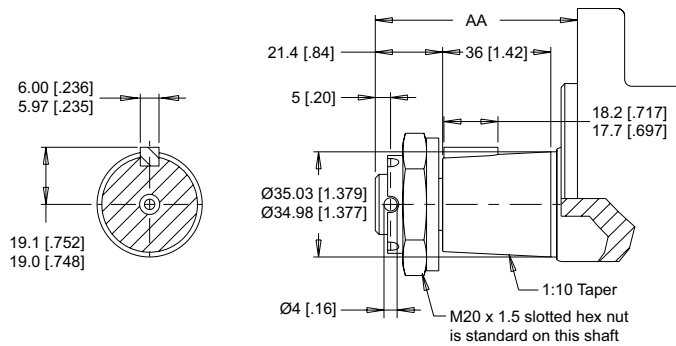
* deviates from standard



Max. Torque: 881 Nm [7800 lb-in]

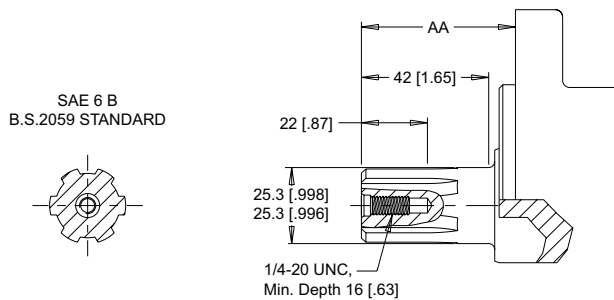
SHAFTS

N4 35mm Tapered



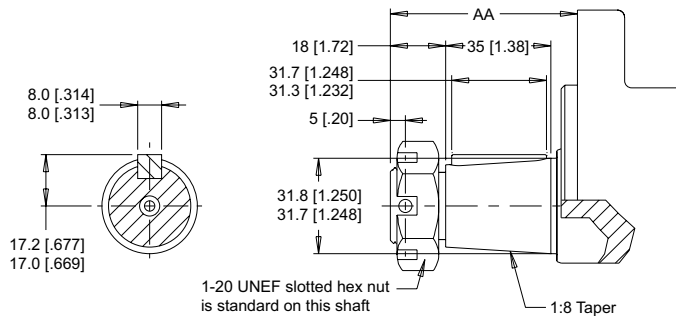
Max. Torque: 881 Nm [7800 lb-in]

G4 1" 6B Spline



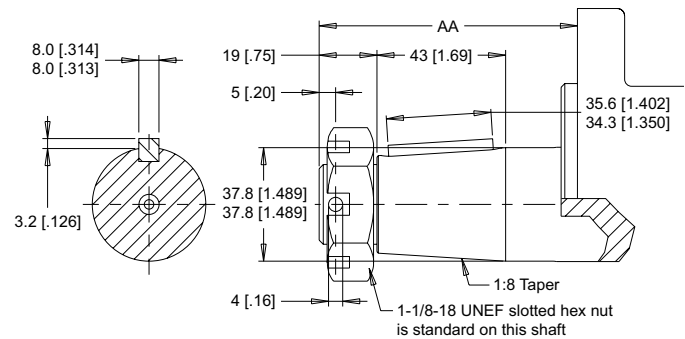
Max. Torque: 678 Nm [6000 lb-in]

N5 1-1/4" Tapered



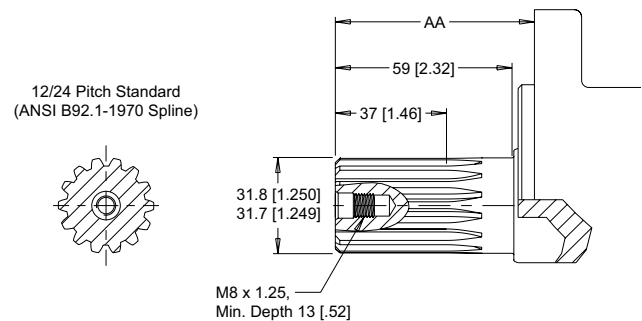
Max. Torque: 881 Nm [7800 lb-in]

31 1-1/2" Tapered



Max. Torque: 881 Nm [7800 lb-in]

N3 1-1/4" 14 Tooth Spline



Max. Torque: 881 Nm [7800 lb-in]

MOUNTING / SHAFT LENGTH CHART

Dimension AA is the overall distance from the motor mounting surface to the end of the shaft and is referenced on detailed shaft drawings above as well as shafts on page 43.

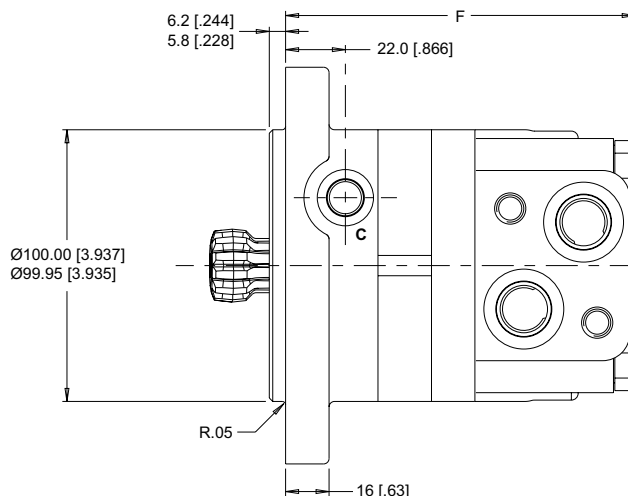
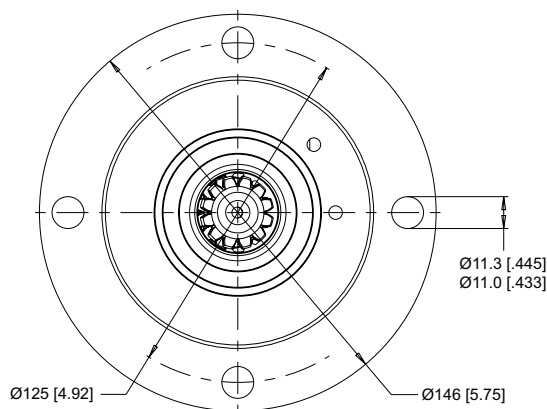
AA	SAE A Mounts	Magneto Mounts	Sq. Euro Mounts	SAE B Mounts	Wheel Mounts
#	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]
10	52 [2.05]	48 [1.89]	44 [1.73]	55 [2.17]	88 [3.46]
12	51 [2.01]	47 [1.85]	43 [1.69]	54 [2.13]	87 [3.43]
20	57 [2.24]	53 [2.09]	49 [1.93]	60 [2.36]	93 [3.66]
21	67 [2.63]	63 [2.48]	59 [2.32]	70 [2.76]	103 [4.06]
23	57 [2.24]	53 [2.09]	49 [1.93]	60 [2.36]	93 [3.66]
31	86 [3.39]	83 [3.27]	79 [3.11]	90 [3.54]	123 [4.84]
78	109 [4.29]	105 [4.13]	101 [3.98]	112 [4.41]	145 [5.71]
G4	52 [2.05]	48 [1.89]	44 [1.73]	55 [2.17]	88 [3.46]
N3	67 [2.63]	63 [2.48]	59 [2.32]	70 [2.76]	103 [4.06]
N4	67 [2.63]	63 [2.48]	59 [2.32]	70 [2.76]	103 [4.06]
N5	63 [2.48]	59 [2.32]	55 [2.17]	66 [2.60]	99 [3.90]

► Shaft lengths vary ± 0.8 mm [0.030 in.]

HOUSINGS

4-HOLE, SHORT MOTOR MOUNT

SH Side Ports



► Porting options listed on pages 42.

SHAFTS

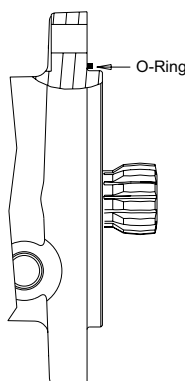
00 Cardan (For Use With The SH Mount)

Fillet Root Side Fit

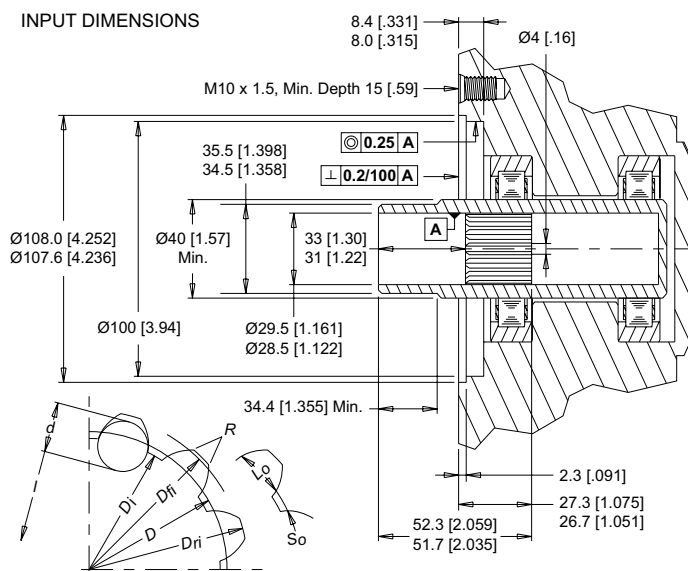
Number of Teeth	12
Pitch	12/24
Pressure Angle	30°
Pitch Diameter D	25.4 [1.000]
Major Diameter D_{ri}	28.0 [1.10] - 27.9 [1.096]
Form Diameter (Min.) D_{fi}	27.6 [1.09]
Minor Diameter D_i	23.033 [9068] - 23.0 [9055]
Space Width (Circular) L_o^*	4.328 [1.704] - 4.288 [1.688]
Tooth Thickness (Circular) S_o	2.341 [0.9217]
Fillet Radius R min	0.2 [0.008]
Max. Distance Between Pins l	17.77 [7.00] - 17.62 [6.94]
Pin Diameter d	4.836 [1.9034] - 4.834 [1.9026]

Internal involute spline data per ANSI B92.1-1970, class 5 (corrected $m \cdot X = 0.8$; $m = 2.1166$)

► The recommended shaft material is SAE 8620 or similar case hardening steel such as 20 MoCr4 (900 N/mm²) hardened to 59 - 62 HRC to a depth of 0.762 - 1.016 [0.030 - .040].
*Dimensions apply after heat treatment.



INPUT DIMENSIONS



LENGTH & WEIGHT CHART

Dimension F is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on the detailed housing drawing listed above.

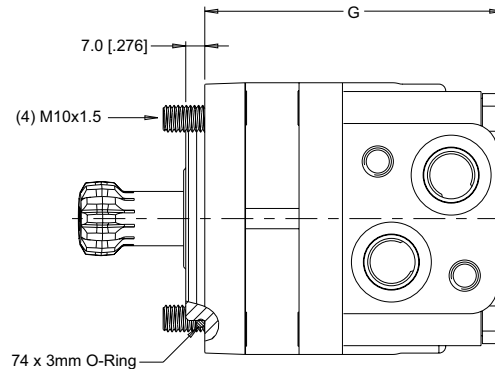
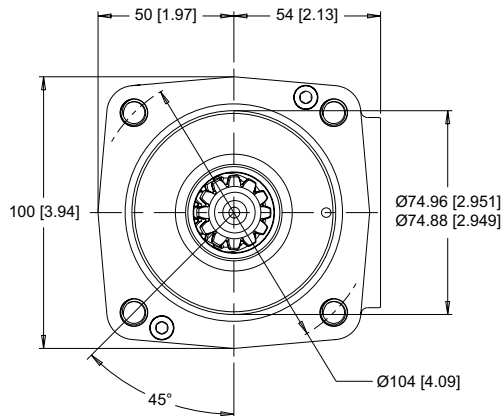
F	Length	Weight
#	mm [in]	kg [lb]
080	125 [4.92]	7.8 [17.2]
100	129 [5.08]	8.1 [17.9]
125	129 [5.08]	8.1 [17.9]
160	134 [5.28]	8.6 [19.0]
200	141 [5.55]	9.0 [19.8]
230	155 [6.10]	9.8 [21.6]
250	148 [5.83]	9.5 [20.9]
315	158 [6.22]	10.0 [22.0]
400	173 [6.81]	10.9 [24.0]
500	188 [7.40]	11.8 [26.0]

► 360 series short motor weights can vary $\pm$ 1 kg [2 lb] depending on model configurations such as housing, shaft, endcover, options etc.

HOUSINGS

4-HOLE, ULTRA SHORT MOTOR MOUNT

U8 Side Ports



► Porting options listed on pages 42.

SHAFTS

00 Cardan (For Use With The U8 Mount)

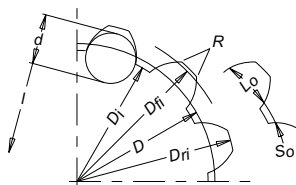
Fillet Root Side Fit

Number of Teeth	12
Pitch	12/24
Pressure Angle	30°
Pitch Diameter D	25.4 [1.000]
Major Diameter D_{rj}	28.0 [1.10] - 27.9 [1.096]
Form Diameter (Min.) D_{fi}	27.6 [1.09]
Minor Diameter D_i	23.033 [0.9068] - 23.0 [0.9055]
Space Width (Circular) L_o^*	4.328 [0.1704] - 4.288 [0.1688]
Tooth Thickness (Circular) S_o	2.341 [0.09217]
Fillet Radius R min	0.2 [0.008]
Max. Distance Between Pins l	17.77 [0.700] - 17.62 [0.694]
Pin Diameter d	4.836 [0.19034] - 4.834 [0.19026]

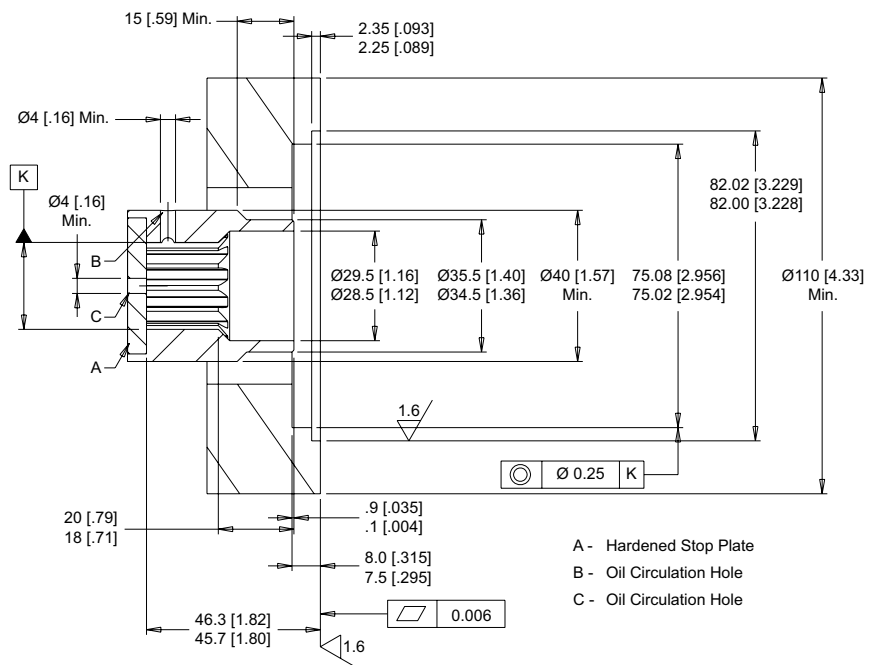
Internal involute spline data per ANSI B92.1-1970,
class 5 (corrected $m \cdot X = 0.8$; $m = 2.1166$)

► The recommended shaft material is SAE 8620 or similar case hardening steel such as 20 MoCr4 (900 N/mm²) hardened to 59 - 62 HRC to a depth of 0.762 - 1.016 [0.030 - .040].

*Dimensions apply after heat treatment.



INPUT DIMENSIONS



- A - Hardened Stop Plate
- B - Oil Circulation Hole
- C - Oil Circulation Hole

LENGTH & WEIGHT CHART

Dimension G is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on the detailed housing drawing listed above.

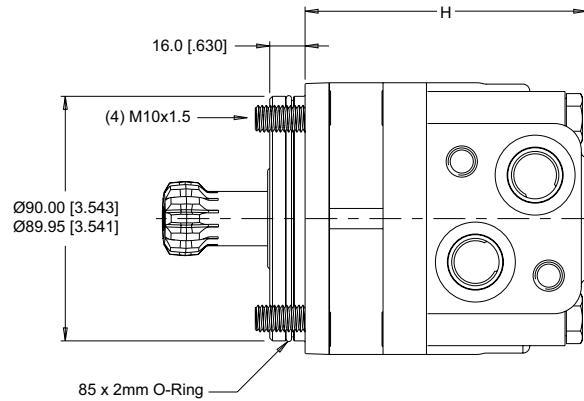
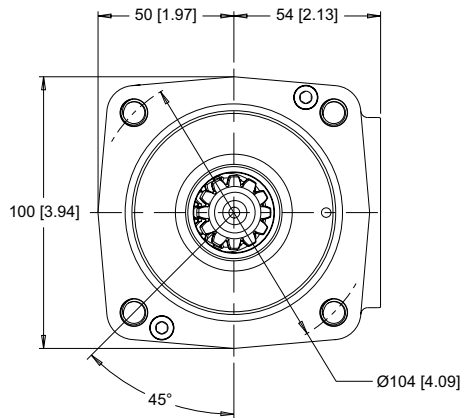
► 360 series ultra short motor weights can vary ± 1 kg [2 lb] depending on model configurations such as housing, shaft, endcover, options etc.

G	Length	Weight
#	mm [in]	kg [lb]
080	106 [4.16]	6.3 [13.9]
100	110 [4.32]	6.6 [14.6]
125	110 [4.32]	6.6 [14.6]
160	115 [4.54]	7.1 [15.7]
200	122 [4.79]	7.5 [16.5]
250	129 [5.09]	8.0 [17.6]

HOUSINGS

4-HOLE, ULTRA SHORT MOTOR MOUNT

V8 Side Ports



► Porting options listed on pages 42.

SHAFTS

00 Cardan (For Use With The V8 Mount)

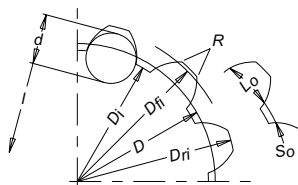
Fillet Root Side Fit

Number of Teeth.....	12
Pitch	12/24
Pressure Angle	30°
Pitch Diameter D	25.4 [1.000]
Major Diameter D_{r1}	28.0 [1.10] - 27.9 [1.096]
Form Diameter (Min.) D_{f1}	27.6 [1.09]
Minor Diameter D_i	23.033 [.9068] - 23.0 [.9055]
Space Width (Circular) L_o^*	4.328 [.1704] - 4.288 [.1688]
Tooth Thickness (Circular) S_o	2.341 [.09217]
Fillet Radius R min	0.2 [.008]
Max. Distance Between Pins I	17.77 [.700] - 17.62 [.694]
Pin Diameter d	4.836 [.19034] - 4.834 [.19026]

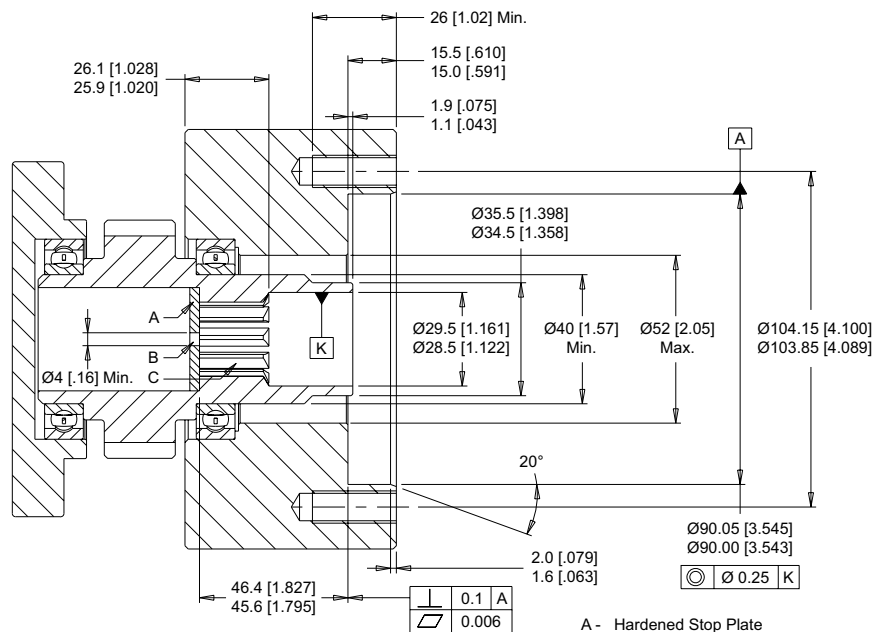
Internal involute spline data per ANSI B92.1-1970,
class 5 (corrected $m \cdot X = 0.8$; $m = 2.1166$)

► The recommended shaft material is SAE 8620 or similar case hardening steel such as 20 MoCr4 (900 N/mm²) hardened to 59 - 62 HRC to a depth of 0.762 - 1.016 [.030 - .040].

*Dimensions apply after heat treatment.



INPUT DIMENSIONS



A - Hardened Stop Plate
B - Oil Circulation Hole
C - Internal Spline
Dp 12/24 ANSI B92.1-76

LENGTH & WEIGHT CHART

Dimension H is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on the detailed housing drawing listed above.

H	Length	Weight
#	mm [in]	kg [lb]
080	100 [3.92]	6.3 [13.9]
100	104 [4.08]	6.6 [14.6]
125	104 [4.08]	6.6 [14.6]
160	109 [4.31]	7.1 [15.7]
200	116 [4.56]	7.5 [16.5]
250	123 [4.86]	8.0 [17.6]

▶ 360 series ultra short motor weights can vary $\pm 1\text{kg}$ [2 lb] depending on model configurations such as housing, shaft, endcover, options etc.

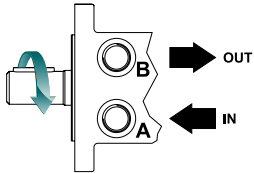
ORDERING INFORMATION

1		2		3a			

3b	4	5	6	7	8		

1. CHOOSE SERIES DESIGNATION

360 Clockwise Rotation



► The 360 series is bi-directional. Reversing the inlet hose will reverse shaft rotation.

2. SELECT A DISPLACEMENT OPTION

080	80 cm ³ /rev [4.9 in ³ /rev]	230	226 cm ³ /rev [13.8 in ³ /rev]
100	100 cm ³ /rev [6.1 in ³ /rev]	250	250 cm ³ /rev [15.2 in ³ /rev]
125	125 cm ³ /rev [7.6 in ³ /rev]	315	305 cm ³ /rev [18.6 in ³ /rev]
160	160 cm ³ /rev [9.7 in ³ /rev]	400	393 cm ³ /rev [24.0 in ³ /rev]
200	200 cm ³ /rev [12.2 in ³ /rev]	500	493 cm ³ /rev [30.1 in ³ /rev]

3a. SELECT MOUNT TYPE

▼ SIDE MOUNT

A7	2-Hole, SAE A Mount
AT	6-Hole, Magneto Mount
AH	4-Hole, SAE A Mount
AU	4-Hole, Square Euro Mount
B7	2-Hole, SAE B Mount
SH	4-Hole, Short Motor Mount
U8	4-Hole, Ultra Short (75mm Pilot)
V8	4-Hole, Ultra Short (90mm Pilot)
W8	4-Hole, Wheel Mount (5" Pilot)
Z8	4-Hole, Wheel Mount (125mm Pilot)

3b. SELECT PORT SIZE

▼ SIDE PORT OPTIONS

1	7/8-14 UNF Offset Manifold
3	G 1/2 Offset Manifold
4	M22x1.5 Offset Manifold

► The SH, U8 and V8 Mounts are only available with the 00 cardan shaft.

4. SELECT A SHAFT OPTION

00	Cardan	31	1-1/2" Tapered
10	1" Straight	78	1-3/8" 6B Spline PTO
12	25mm Straight	G4	1" 6B Spline
20	1-1/4" Straight	N3	14 Tooth Spline, M8 Tap
21	32mm Straight	N4	35mm Tapered
23	14 Tooth Spline, 3/8" Tap	N5	1-1/4" Tapered

► The cardan shaft is only available with the SH, U8 and V8 Mounts.

5. SELECT A PAINT OPTION

A	Black
B	Black, Unpainted Mounting Surface
Z	No Paint

► The SH, U8 and V8 mounts are only available with no paint.

6. SELECT A VALVE CAVITY / CARTRIDGE OPTION

A	None
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7. SELECT AN ADD-ON OPTION

A	Standard
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8. SELECT A MISCELLANEOUS OPTION

AA	None
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