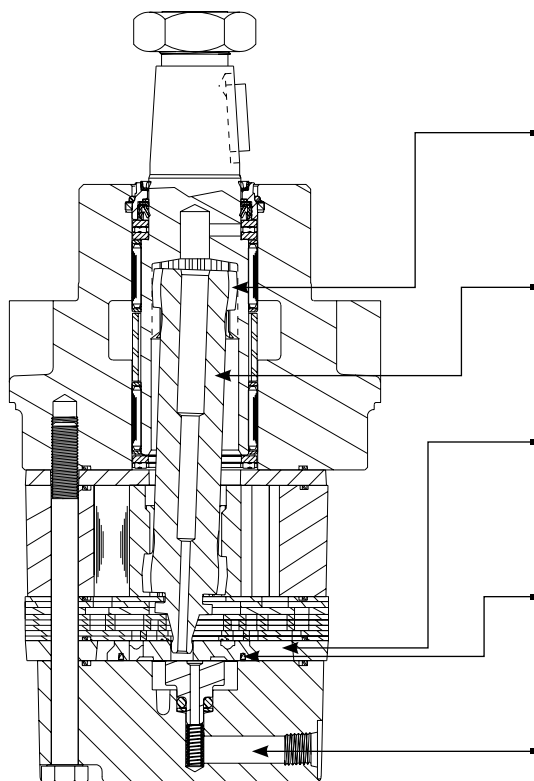




HB

SERIES HYDRAULIC MOTORS

The HB Series motor is the leader in its class, offering high efficiency and durability. The three-zone orbiting valve, laminated manifold and Roller Stator® motor work harmoniously to produce high overall efficiencies over a wide range of operating conditions. The standard case drain increases shaft seal life by reducing internal pressures experienced by the seal. Case oil leakage is also directed across all driveline components, increasing motor life. An internal drain option is also available. At the heart of the motor is a heavy-duty driveline, offering 30% more torque capacity than competitive designs. These features make the HB Series motor the preferred choice for applications requiring peak efficiency for continuous operation.



KEY FEATURES

Forced Drive Link Lubrication reduces wear and promotes longer life from motor.

Heavy-Duty Drive Link is up to 30% stronger than competitive designs for longer life.

Three-Zone Orbiting Valve precisely meters oil to produce exceptional volumetric efficiency.

Rubber Energized Steel Face Seal does not extrude or melt under high pressure or high temperature.

Standard Case Drain increases shaft seal life by reducing pressure on seal.

SPECIFICATIONS

Intermittent Ratings - 10% of Operation Peak Ratings - 1% of Operation

CODE	Displacement cc [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
050	52 [3.2]	680	830	38 [10]	45 [12]	135 [1200]	158 [1400]	207 [3000]	242 [3500]	276 [4000]
080	76 [4.6]	800	950	53 [14]	64 [17]	191 [1700]	222 [1975]	207 [3000]	242 [3500]	276 [4000]
090	89 [5.4]	680	840	61 [16]	76 [20]	225 [2000]	270 [2400]	207 [3000]	242 [3500]	276 [4000]
110	111 [6.8]	680	850	76 [20]	95 [25]	298 [2650]	349 [3100]	207 [3000]	242 [3500]	276 [4000]
125	127 [7.7]	580	740	76 [20]	95 [25]	338 [3000]	394 [3500]	207 [3000]	242 [3500]	276 [4000]
160	164 [10.0]	460	580	76 [20]	95 [25]	448 [3975]	512 [4550]	207 [3000]	242 [3500]	276 [4000]
200	205 [12.5]	370	460	76 [20]	95 [25]	569 [5050]	653 [5800]	207 [3000]	242 [3500]	276 [4000]
250	254 [15.5]	290	370	76 [20]	95 [25]	704 [6250]	799 [7100]	207 [3000]	242 [3500]	276 [4000]
300	293 [17.9]	250	320	76 [20]	95 [25]	811 [7200]	929 [8250]	207 [3000]	242 [3500]	276 [4000]
400	409 [24.9]	180	230	76 [20]	95 [25]	946 [8400]	1019 [9050]	173 [2500]	189 [2750]	207 [3000]

**050**

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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52 cc [3.2 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Max. Max. Inter. Cont.	Flow - lpm [gpm]	2 [0.5]	7 [66] 36	18 [158] 31	38 [314] 26	51 [447] 21	66 [587] 9				Theoretical rpm
		4 [1]	9 [77] 72	19 [164] 69	38 [335] 65	57 [505] 63	71 [631] 33	87 [772] 32	98 [866] 9		
		8 [2]	9 [75] 142	19 [164] 140	39 [342] 135	59 [521] 133	78 [690] 122	95 [840] 102	109 [964] 77	123 [1086] 57	
		15 [4]	8 [68] 288	19 [164] 286	38 [340] 285	57 [507] 284	78 [688] 265	99 [872] 245	112 [993] 211	129 [1145] 189	
		23 [6]			36 [319] 431	56 [492] 427	76 [669] 416	97 [859] 396	114 [1009] 347	134 [1182] 321	
		30 [8]			34 [304] 577	53 [467] 572	73 [646] 568	95 [841] 543	113 [1001] 488	134 [1183] 463	
		38 [10]				51 [451] 699	71 [628] 683	92 [810] 665	111 [978] 634	133 [1174] 604	
		45 [12]				48 [427] 847	68 [606] 825	88 [781] 798	111 [980] 980		

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐

Theoretical Torque - Nm [lb-in]

14 [127]	29 [255]	58 [510]	86 [764]	115 [1019]	144 [1274]	173 [1529]	202 [1783]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

080

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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76 cc [4.6 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Max. Max. Inter. Cont.	Flow - lpm [gpm]	2 [0.5]	14 [127] 25	30 [262] 24	61 [543] 21	91 [806] 18	120 [1062] 17	145 [1285] 11	169 [1496] 11	191 [1693] 9	Theoretical rpm
		4 [1]	16 [140] 50	32 [286] 50	63 [559] 43	95 [839] 43	124 [1099] 34	151 [1340] 32	178 [1579] 32	203 [1796] 31	
		8 [2]	16 [139] 100	32 [280] 100	64 [563] 99	97 [857] 92	129 [1139] 87	157 [1390] 79	187 [1652] 78	211 [1865] 77	
		15 [4]	14 [127] 200	31 [275] 200	65 [572] 199	99 [872] 191	131 [1155] 181	160 [1420] 174	186 [1643] 160	216 [1911] 154	
		23 [6]	13 [113] 301	30 [262] 300	63 [557] 297	96 [853] 295	130 [1149] 284	160 [1420] 271	186 [1646] 253	218 [1930] 245	
		30 [8]	10 [91] 401	27 [243] 400	61 [536] 398	93 [826] 390	127 [1125] 384	159 [1409] 372	187 [1654] 346	220 [1945] 339	
		38 [10]		24 [212] 502	58 [511] 500	89 [790] 499	123 [1087] 498	156 [1379] 485	185 [1638] 443	213 [1883] 433	
		45 [12]		20 [177] 602	54 [482] 601	87 [767] 600	120 [1060] 597	164 [1451] 540	193 [1711] 526	228 [2021] 510	
		53 [14]		14 [127] 690	50 [445] 689	84 [741] 688	124 [1098] 658	155 [1369] 644	185 [1640] 631	217 [1918] 613	
		61 [16]									

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐

Theoretical Torque - Nm [lb-in]

21 [183]	41 [366]	83 [732]	124 [1099]	166 [1465]	207 [1831]	248 [2197]	290 [2564]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



090

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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89 cc [5.4 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	12 [106] 21	26 [231] 19	69 [609] 17	100 [889] 15	142 [1259] 13	174 [1537] 10	206 [1826] 7	232 [2049] 5	22	Theoretical rpm
	4 [1]		30 [264] 41	68 [605] 38	107 [947] 34	146 [1296] 30	180 [1596] 27	212 [1875] 26	242 [2142] 23	43	
	8 [2]		33 [291] 84	71 [629] 79	108 [958] 73	149 [1323] 67	183 [1620] 66	221 [1956] 60	251 [2223] 59	86	
	15 [4]			72 [636] 167	113 [1003] 158	153 [1351] 149	188 [1664] 143	225 [1990] 141	260 [2300] 135	172	
	23 [6]			72 [633] 252	112 [995] 243	151 [1340] 233	187 [1654] 227	226 [1996] 222	260 [2304] 218	257	
	30 [8]			68 [598] 339	109 [960] 331	151 [1340] 317	188 [1660] 309	227 [2012] 301	263 [2326] 300	343	
	38 [10]				108 [959] 416	150 [1328] 403	188 [1667] 391	229 [2024] 381	270 [2393] 370	428	
	45 [12]				109 [961] 505	153 [1356] 490	195 [1728] 475	232 [2049] 462	271 [2398] 448	514	
	53 [14]				145 [1287] 590	190 [1678] 578	213 [1886] 558	241 [2135] 544	282 [2495] 530	599	
	61 [16]				134 [1190] 677	187 [1654] 660	192 [1701] 644	227 [2007] 629	269 [2384] 610	685	
Max. Inter.	68 [18]					136 [1201] 748	189 [1675] 729	240 [2122] 719		770	
	76 [20]					136 [1205] 835	174 [1536] 819	216 [1916] 806		856	

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒

Theoretical Torque - Nm [lb-in]

24 [215]	49 [430]	97 [860]	146 [1290]	194 [1720]	243 [2150]	291 [2580]	340 [3010]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

110

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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111 cc [6.8 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	12 [106] 16	39 [347] 16	88 [777] 14	135 [1199] 11	182 [1609] 9	223 [1977] 8	273 [2420] 6	304 [2690] 5	17	Theoretical rpm
	4 [1]	16 [142] 33	42 [374] 33	97 [857] 31	146 [1290] 27	199 [1763] 21	246 [2179] 19	293 [2592] 18	329 [2916] 16	34	
	8 [2]		42 [372] 67	98 [866] 64	148 [1313] 59	201 [1782] 49	249 [2204] 46	297 [2629] 44	345 [3050] 43	68	
	15 [4]			94 [835] 134	149 [1320] 126	201 [1777] 117	251 [2223] 110	302 [2674] 104	348 [3083] 104	136	
	23 [6]			93 [819] 202	148 [1312] 196	201 [1775] 186	250 [2215] 177	302 [2671] 167	348 [3078] 163	204	
	30 [8]			89 [785] 269	145 [1287] 267	199 [1760] 258	249 [2204] 247	299 [2648] 267	352 [3114] 229	272	
	38 [10]			83 [738] 339	139 [1232] 336	194 [1718] 327	244 [2163] 315	296 [2617] 304	349 [3086] 292	340	
	45 [12]			82 [723] 407	145 [1281] 406	209 [1853] 397	291 [2578] 386	315 [2786] 368	343 [3031] 360	408	
	53 [14]			74 [654] 475	129 [1143] 473	183 [1621] 466	238 [2103] 451	287 [2539] 441	349 [3085] 426	476	
	61 [16]				143 [1261] 542	199 [1763] 536	251 [2224] 523	301 [2666] 510	363 [3213] 492	544	
Max. Cont.	68 [18]				120 [1059] 609	179 [1586] 603	233 [2058] 593	284 [2510] 580	347 [3071] 561	612	
	76 [20]				107 [944] 678	160 [1419] 677	217 [1918] 661	268 [2374] 645	327 [2896] 627	680	
	83 [22]				93 [824] 746	157 [1393] 743	206 [1823] 735	257 [2271] 714		748	
	91 [24]				86 [762] 813	139 [1234] 810	197 [1744] 803	250 [2214] 783		816	
Max. Inter.	95 [25]				77 [678] 847	132 [1171] 844	191 [1694] 835	243 [2154] 828		850	

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒

Theoretical Torque - Nm [lb-in]

31 [271]	61 [541]	122 [1083]	184 [1624]	245 [2166]	306 [2707]	367 [3248]	428 [3790]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

**125**

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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127 cc [7.7 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	14 [127]	44 [394]	109 [961]	159 [1408]	217 [1922]	267 [2364]	313 [2766]	355 [3146]	Theoretical rpm
	4 [1]	16 [138]	45 [401]	108 [952]	167 [1475]	226 [2004]	278 [2459]	332 [2936]	367 [3245]	
	8 [2]	29	49 [432]	108 [953]	165 [1462]	231 [2046]	286 [2528]	332 [2941]	387 [3421]	
	15 [4]	59	49 [430]	107 [949]	167 [1479]	229 [2024]	284 [2513]	342 [3023]	392 [3467]	
	23 [6]	119	102 [902]	166 [1473]	223 [1973]	279 [2473]	337 [2985]	393 [3477]	45	
	30 [8]	179	100 [888]	160 [1420]	222 [1968]	287 [2541]	337 [2987]	391 [3459]	19	
	38 [10]	239	95 [841]	154 [1359]	217 [1919]	273 [2413]	332 [2940]	387 [3428]	21	
	45 [12]	299	83 [738]	147 [1304]	207 [1831]	267 [2361]	329 [2914]	406 [3590]	23	
	53 [14]	359	82 [727]	146 [1293]	204 [1801]	268 [2375]	332 [2935]	419 [3704]	25	
	61 [16]	419	69 [608]	168 [1484]	198 [1756]	258 [2287]	327 [2895]	386 [3419]	27	
	68 [18]	473	193 [1704]	214 [1894]	278 [2460]	360 [3188]	386 [3412]	438	29	
	76 [20]	517	205 [1815]	245 [2164]	290 [2567]	344 [3040]	408 [3606]	453	31	
Max. Cont.	83 [22]	577	151 [1336]	201 [1781]	260 [2298]	320 [2832]			33	
	91 [24]	640	85 [751]	151 [1334]	218 [1930]	284 [2516]			35	
	95 [25]	705	79 [697]	139 [1227]	209 [1853]	270 [2387]			37	
Max. Inter.		736		723	694	669			39	

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐

Theoretical Torque - Nm [lb-in]

35 [307]	69 [613]	139 [1226]	208 [1839]	277 [2452]	346 [3065]	416 [3678]	485 [4291]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

160

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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164 cc [10.0 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	24 [216]	61 [538]	143 [1267]	213 [1881]	287 [2536]	351 [3106]	411 [3640]	470 [4159]	Theoretical rpm
	4 [1]	11	67 [596]	145 [1287]	215 [1899]	291 [2578]	355 [3145]	425 [3758]	493 [4366]	
	8 [2]	23	66 [588]	148 [1306]	224 [1983]	301 [2666]	366 [3241]	441 [3904]	508 [4493]	
	15 [4]	46	66 [588]	146 [1291]	226 [2002]	313 [2769]	375 [3318]	451 [3990]	516 [4569]	
	23 [6]	119	62 [551]	146 [1295]	224 [1986]	307 [2718]	379 [3358]	449 [3975]	515 [4553]	
	30 [8]	137	137	136	134	125	119	108	106	
	38 [10]	184	142 [1258]	221 [1954]	299 [2644]	376 [3329]	447 [3952]	520 [4603]	599	
	45 [12]	230	132 [1169]	216 [1909]	289 [2558]	371 [3282]	448 [3961]	520 [4598]	600	
	53 [14]	277	129 [1144]	208 [1842]	284 [2510]	357 [3161]	436 [3862]	512 [4529]	601	
	61 [16]	323	117 [1040]	202 [1788]	275 [2438]	353 [3124]	427 [3781]	509 [4508]	602	
	68 [18]	369	103 [913]	187 [1659]	275 [2431]	338 [2994]	418 [3698]	496 [4392]	603	
	76 [20]	415	91 [803]	175 [1553]	257 [2278]	325 [2874]	405 [3587]	480 [4246]	604	
Max. Cont.	83 [22]	461	169 [1499]	246 [2176]	328 [2906]	397 [3514]	477 [4223]	557	605	
	91 [24]	507	131 [1157]	218 [1928]	300 [2655]	378 [3344]			606	
	95 [25]	553	121 [1073]	208 [1844]	291 [2577]	365 [3229]			607	
Max. Inter.		577		573	571	557			608	

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐

Theoretical Torque - Nm [lb-in]

45 [398]	90 [796]	180 [1592]	270 [2389]	360 [3185]	450 [3981]	540 [4777]	630 [5573]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

**200**

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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205 cc [12.5 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	4 [1]	8 [2]	15 [4]	23 [6]	30 [8]	38 [10]	45 [12]	53 [14]	61 [16]	68 [18]	76 [20]	83 [22]	91 [24]	95 [25]
Max. Cont.															
Max. Inter.															

35 [314] 9	83 [734] 9	179 [1581] 8	267 [2365] 7	353 [3121] 6	443 [3921] 5	505 [4469] 4	579 [5120] 3
37 [325] 18	81 [721] 18	186 [1642] 17	287 [2536] 14	301 [2665] 13	452 [4004] 11	540 [4777] 9	611 [5406] 8
39 [349] 36	89 [790] 36	199 [1759] 35	295 [2610] 31	386 [3412] 27	473 [4185] 24	554 [4904] 21	643 [5687] 20
38 [338] 73	87 [766] 73	191 [1689] 72	292 [2586] 68	386 [3417] 61	480 [4252] 53	574 [5077] 49	661 [5849] 46
	84 [742] 110	185 [1635] 109	287 [2542] 106	382 [3380] 98	480 [4247] 89	570 [5046] 81	657 [5817] 74
		176 [1556] 147	279 [2468] 144	376 [3327] 136	479 [4243] 123	571 [5051] 112	658 [5827] 104
		166 [1471] 184	268 [2374] 182	368 [3256] 173	467 [4131] 162	556 [4923] 151	651 [5761] 141
		154 [1361] 221	257 [2275] 219	360 [3185] 214	460 [4069] 200	558 [4939] 187	650 [5751] 176
		147 [1304] 258	245 [2165] 256	355 [3141] 250	441 [3906] 238	539 [4773] 224	640 [5666] 213
		123 [1089] 295	235 [2083] 290	333 [2949] 286	429 [3797] 277	523 [4628] 264	624 [5519] 242
		112 [993] 331	220 [1943] 327	302 [2669] 323	414 [3665] 319	527 [4659] 303	616 [5451] 289
			197 [1745] 369	310 [2740] 365	395 [3499] 360	492 [4353] 343	596 [5273] 331
			172 [1525] 405	282 [2496] 401	386 [3420] 395	480 [4252] 382	
			157 [1390] 442	265 [2341] 441	369 [3269] 438	453 [4005] 425	
			139 [1229] 460	252 [2234] 458	349 [3087] 456	447 [3955] 444	

Theoretical rpm	10	19	37	74	111	148	185	222	259	296	333	370	407	444	462
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Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒

Theoretical Torque - Nm [lb-in]

56 [498]	112 [995]	225 [1990]	337 [2986]	450 [3981]	562 [4976]	675 [5971]	787 [6967]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

250

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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254 cc [15.5 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	4 [1]	8 [2]	15 [4]	23 [6]	30 [8]	38 [10]	45 [12]	53 [14]	61 [16]	68 [18]	76 [20]	83 [22]	91 [24]	95 [25]
Max. Cont.															
Max. Inter.															

43 [381] 7	104 [924] 6	221 [1955] 6	339 [3001] 5	449 [3974] 3	551 [4872] 1		
50 [439] 14	115 [1014] 14	240 [2128] 13	361 [3196] 11	466 [4128] 9	574 [5080] 7	668 [5907] 4	
51 [455] 29	115 [1014] 29	245 [2167] 28	369 [3262] 26	479 [4236] 22	604 [5342] 17	712 [6303] 13	800 [7082] 9
48 [428] 59	105 [930] 58	242 [2145] 57	371 [3286] 56	493 [4363] 51	619 [5480] 41	741 [6555] 33	847 [7496] 25
42 [368] 89	110 [969] 88	234 [2069] 88	367 [3252] 87	487 [4313] 82	626 [5542] 69	747 [6611] 58	847 [7492] 48
	92 [818] 119	223 [1978] 118	357 [3159] 117	490 [4332] 115	622 [5508] 101	744 [6587] 87	846 [7490] 76
	80 [712] 149	209 [1849] 148	342 [3025] 147	472 [4176] 141	605 [5353] 129	717 [6345] 114	844 [7472] 104
		199 [1757] 178	329 [2915] 176	455 [4022] 174	581 [5142] 165	703 [6225] 147	833 [7375] 127
		182 [1640] 208	310 [2743] 206	443 [3919] 205	567 [5017] 197	711 [6296] 176	817 [7227] 158
		164 [1456] 238	294 [2603] 235	438 [3873] 233	552 [4886] 227	674 [5960] 205	804 [7114] 191
		145 [1285] 268	270 [2393] 266	402 [3560] 263	530 [4694] 259	661 [5846] 245	784 [6939] 222
		122 [1083] 298	255 [2256] 295	380 [3359] 292	511 [4519] 289	627 [5547] 277	757 [6697] 252
			221 [1955] 326	353 [3124] 323	484 [4279] 319	607 [5368] 307	
			201 [1775] 357	336 [2973] 355	461 [4082] 353	599 [5297] 342	
			184 [1627] 371	313 [2768] 368	442 [3915] 365	575 [5088] 360	

Theoretical rpm	8	15	30	60	90	120	150	179	209	239	269	299	328	358	373
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Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒

Theoretical Torque - Nm [lb-in]

70 [617]	139 [1234]	279 [2468]	418 [3702]	558 [4936]	697 [6170]	837 [7404]	976 [8639]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



300

Pressure - bars [psi]

Max. Cont. Max. Inter.

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]
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293 cc [17.9 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	61 [543] 6	118 [1044] 5	261 [2311] 5	388 [3433] 4					7
	4 [1]	59 [521] 12	140 [1237] 12	271 [2397] 11	414 [3666] 11	546 [4833] 8	681 [6025] 5			13
	8 [2]	61 [541] 25	128 [1134] 25	281 [2490] 24	425 [3761] 23	562 [4970] 19	693 [6128] 14	820 [7259] 10	915 [8095] 4	26
	15 [4]	52 [461] 51	128 [1130] 51	275 [2436] 50	427 [3782] 50	578 [5119] 44	715 [6327] 32	827 [7317] 25	956 [8457] 19	52
	23 [6]		115 [1017] 77	266 [2351] 76	406 [3592] 75	557 [4931] 70	706 [6250] 55	840 [7435] 43	945 [8361] 37	78
	30 [8]		107 [951] 103	251 [2223] 102	407 [3598] 101	538 [4759] 96	691 [6117] 82	832 [7359] 66	948 [8393] 52	104
	38 [10]		88 [779] 129	229 [2026] 127	393 [3475] 126	528 [4672] 122	672 [5950] 109	826 [7307] 90	959 [8487] 74	130
	45 [12]			217 [1923] 154	368 [3256] 153	504 [4457] 150	663 [5864] 133	800 [7076] 112	931 [8239] 97	155
	53 [14]			201 [1782] 180	347 [3067] 178	510 [4513] 173	646 [5713] 161	798 [7060] 140	921 [8149] 114	181
	61 [16]			168 [1491] 206	324 [2865] 204	472 [4180] 201	621 [5492] 188	764 [6765] 171	917 [8112] 142	207
	68 [18]			143 [1266] 232	298 [2638] 230	427 [3783] 227	591 [5234] 220	745 [6591] 198	878 [7773] 176	233
Max. Cont.	76 [20]			114 [1013] 258	283 [2501] 256	443 [3916] 254	597 [5284] 247	717 [6344] 227	849 [7512] 206	259
	83 [22]				246 [2179] 282	397 [3512] 280	559 [4943] 274	681 [6023] 257		284
	91 [24]				181 [1601] 309	357 [3159] 306	502 [4442] 304	642 [5684] 294		310
Max. Inter.	95 [25]				166 [1466] 321	323 [2858] 319	491 [4347] 318	630 [5577] 300		323

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐

Theoretical Torque - Nm [lb-in]

81 [713]	161 [1425]	322 [2850]	483 [4275]	644 [5701]	805 [7126]	966 [8551]	1127 [9976]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

400

Pressure - bars [psi]

Max. Cont. Peak

17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]
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409 cc [24.9 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	85 [757] 4	193 [1710] 4	367 [3248] 3	534 [4721] 2					5
	4 [1]	88 [776] 9	185 [1640] 8	383 [3386] 8	580 [5129] 6	745 [6590] 4	899 [7954] 1			10
	8 [2]	86 [762] 18	196 [1734] 18	394 [3487] 17	586 [5184] 15	764 [6763] 11	927 [8204] 5			19
	15 [4]	85 [749] 37	188 [1661] 36	404 [3571] 35	602 [5325] 32	796 [7047] 24	962 [8517] 18	1108 [9804] 9		38
	23 [6]	71 [629] 55	180 [1593] 55	387 [3428] 54	596 [5274] 49	787 [6969] 39	978 [8653] 28	1141 [10094] 20		56
	30 [8]		165 [1462] 74	373 [3299] 73	595 [5264] 69	792 [7010] 58	966 [8552] 44	1149 [10167] 31		75
	38 [10]		143 [1269] 92	356 [3150] 90	581 [5144] 88	782 [6923] 79	974 [8617] 62	1156 [10231] 45		93
	45 [12]		122 [1076] 111	333 [2950] 109	545 [4823] 107	749 [6624] 98	957 [8470] 83	1143 [10116] 61		112
	53 [14]		95 [842] 129	313 [2774] 128	521 [4607] 126	717 [6344] 117	931 [8235] 103	1131 [10007] 78		130
	61 [16]			282 [2493] 147	496 [4385] 145	685 [6063] 141	919 [8131] 121	1100 [9733] 100		149
	68 [18]			244 [2156] 166	453 [4009] 165	681 [6023] 158	871 [7708] 142	1071 [9478] 121		167
Max. Cont.	76 [20]			197 [1741] 185	420 [3713] 183	650 [5756] 179	838 [7417] 166	1051 [9302] 145		186
	83 [22]			164 [1448] 203	378 [3344] 201	588 [5200] 198	810 [7171] 186			205
	91 [24]				333 [2947] 222	559 [4945] 220	750 [6640] 211			223
Max. Inter.	95 [25]				303 [2682] 231	539 [4773] 228	764 [6760] 221			232

Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐

Theoretical Torque - Nm [lb-in]

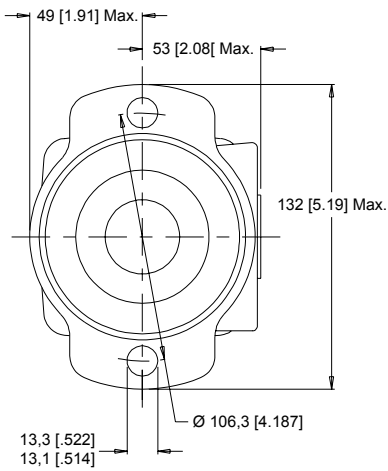
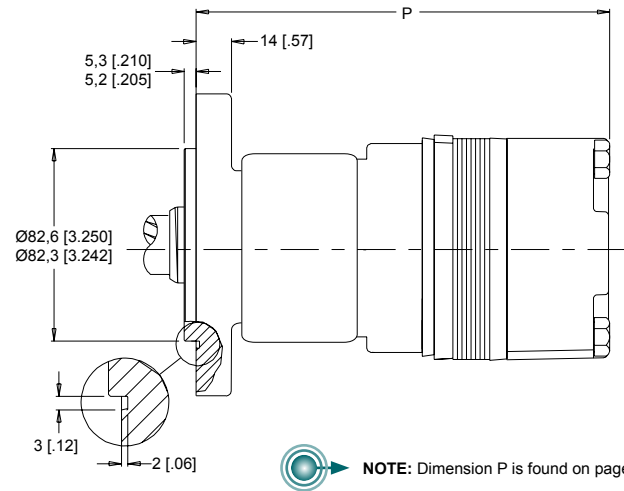
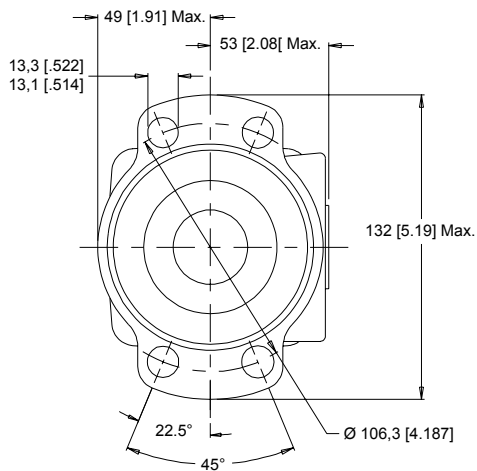
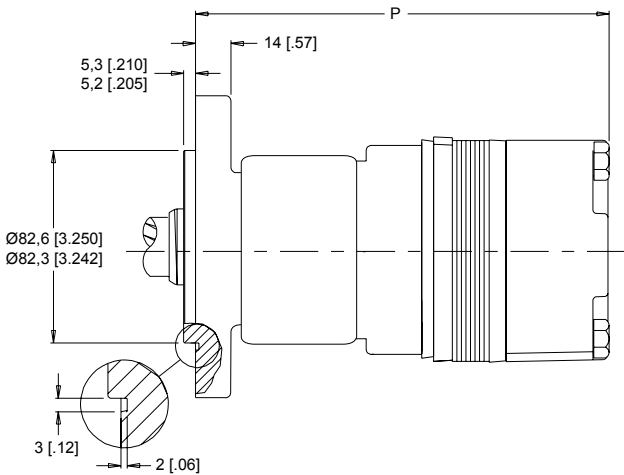
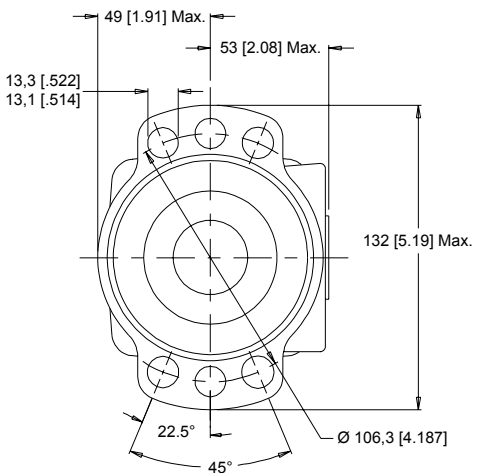
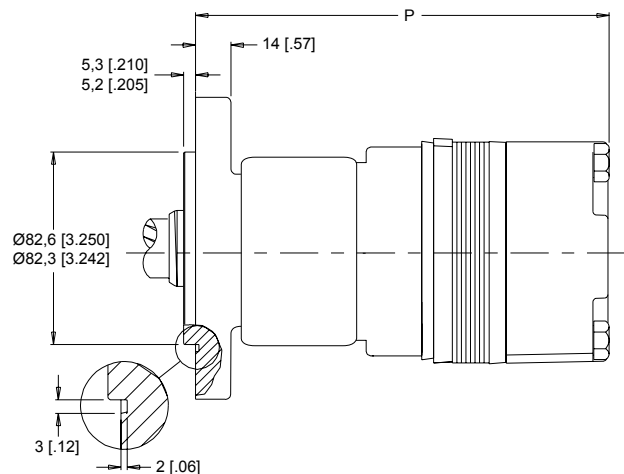
112 [991]	224 [1982]	448 [3965]	672 [5947]	896 [7930]	1120 [9912]	1344 [11895]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



HB

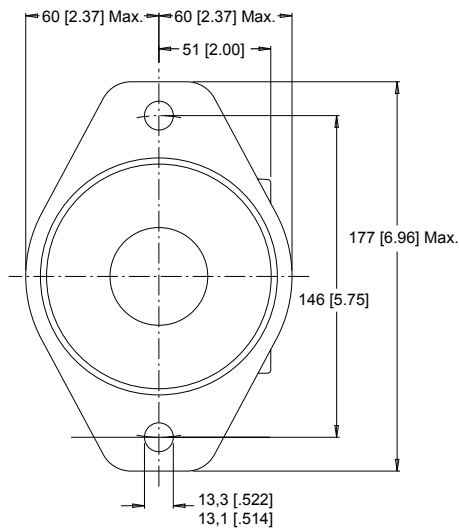
300 SERIES HOUSINGS (MAGNETO MOUNTS)

A0 2-Hole with End Ports

A7 2-Hole with Side Ports

A2 4-Hole with End Ports

A8 4-Hole with Side Ports

A4 6-Hole with End Ports

A9 6-Hole with Side Ports


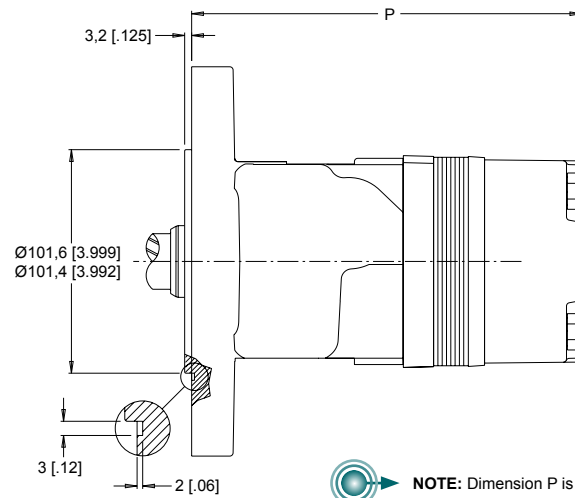


300 SERIES HOUSINGS (SAE B, WHEEL, & 4-HOLE SQUARE MOUNTS)

B0 2-Hole with End Ports

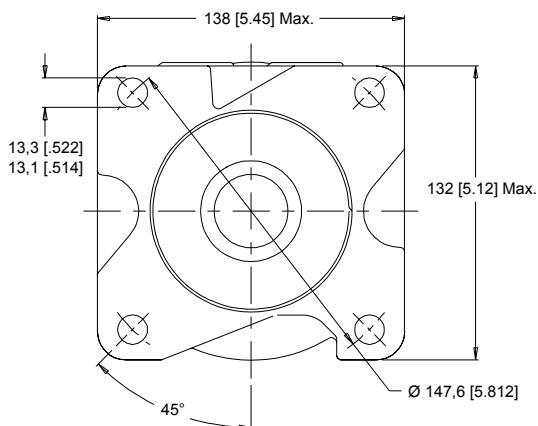


B7 2-Hole with Side Ports

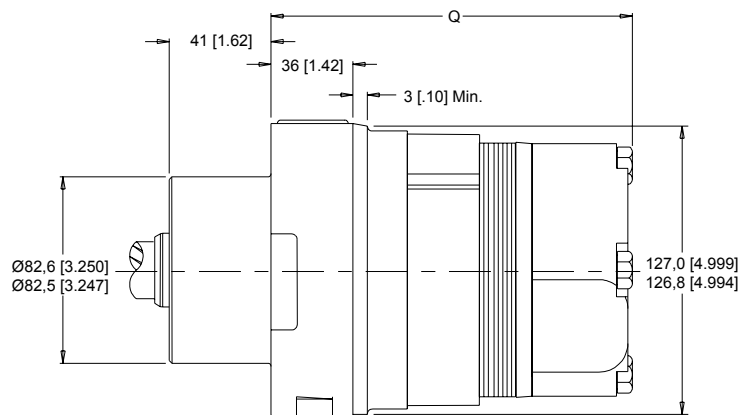


NOTE: Dimension P is found on page 10.

W2 4-Hole with End Ports

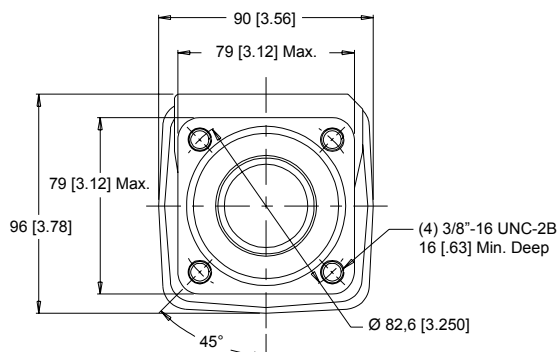


W8 4-Hole with Side Ports

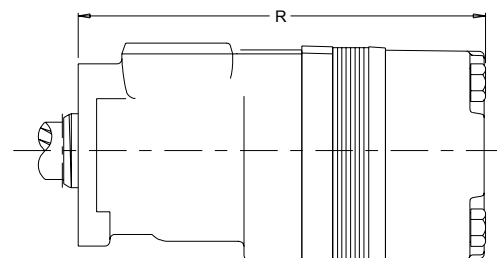


NOTE: Dimension Q is found on page 10.

F2 4-Hole with End Ports



F8 4-Hole with Side Ports



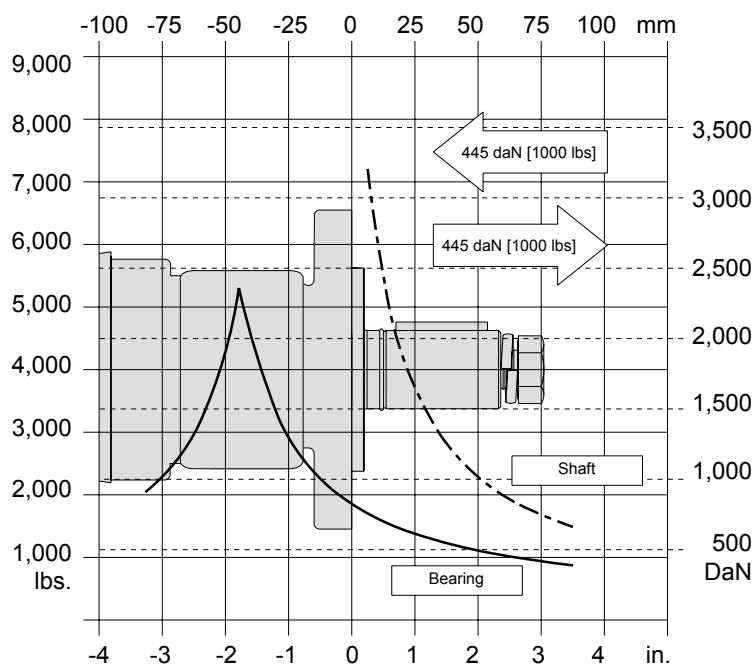
NOTE: Dimension R is found on page 11.



300 SERIES TECHNICAL INFORMATION

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2,000 hours at 100 rpm. Radial loads for speeds other than 100 rpm may be calculated using the multiplication factor table located below.

SAE A & B MOUNTS



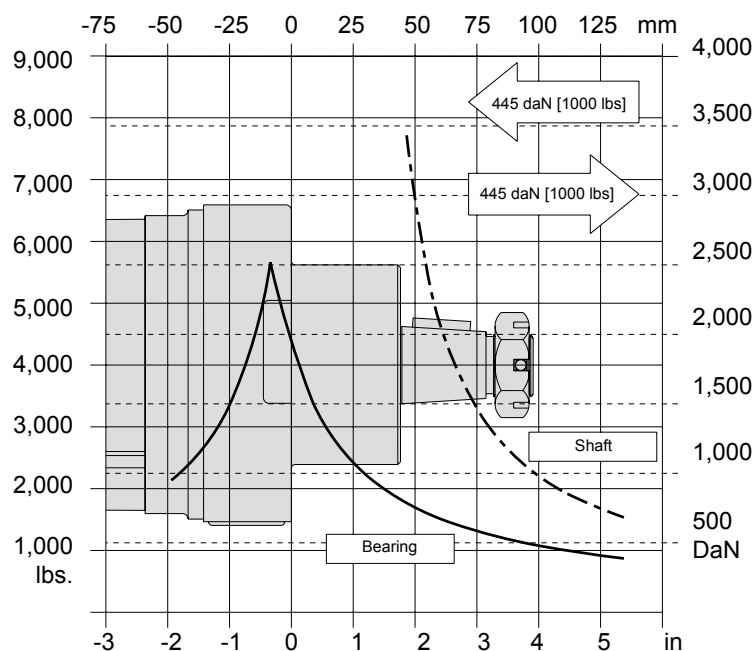
LENGTH / WEIGHT CHART SAE A & B Mounts - Dimension P		
Code	mm [in]	kg [lb]
050	195 [7.68]	8,8 [19.5]
080	199 [7.82]	9,1 [20.0]
090	201 [7.90]	9,2 [20.2]
110	204 [8.04]	9,4 [20.7]
125	207 [8.14]	9,5 [21.0]
160	212 [8.36]	9,8 [21.7]
200	219 [8.61]	10,2 [22.5]
250	226 [8.91]	10,6 [23.4]
300	232 [9.15]	11,0 [24.3]
400	251 [9.86]	12,0 [26.4]

NOTE:
HB motor weights vary ± 1.0 kg [2 lbs] depending upon motor configuration. Add 1,2 kg [2.7 lb] to motor weight for the SAE B mount. Subtract 18 [.71] from Dimension P if side ports 5, 6, or 7 and end ports 1 or 2 are used.

LENGTH / WEIGHT CHART Wheel Mount - Dimension Q		
Code	mm [in]	kg [lb]
050	158 [6.22]	11,5 [25.3]
080	162 [6.36]	11,7 [25.7]
090	163 [6.41]	11,8 [25.9]
110	166 [6.55]	12,0 [26.5]
125	169 [6.64]	12,1 [26.7]
160	174 [6.87]	12,4 [27.4]
200	181 [7.12]	12,8 [28.3]
250	188 [7.42]	13,2 [29.7]
300	195 [7.66]	13,6 [30.0]
400	213 [8.37]	14,6 [32.1]

NOTE:
HB motor weights vary ± 1.0 kg [2 lbs] depending upon motor configuration. Subtract 18 [.71] from Dimension Q if side ports 5, 6, or 7 and end ports 1 or 2 are used.

WHEEL MOUNT



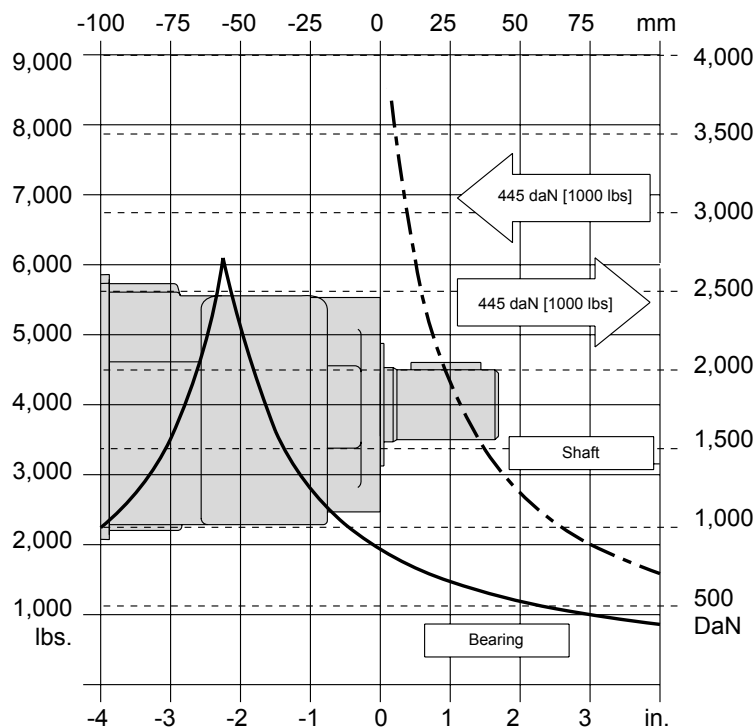
BEARING LOAD MULTIPLICATION FACTOR TABLE	
RPM	FACTOR
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.50



300 SERIES TECHNICAL INFORMATION

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2,000 hours at 100 rpm. Radial loads for speeds other than 100 rpm may be calculated using the multiplication factor table located on page 10.

4-HOLE SQUARE MOUNT



LENGTH / WEIGHT CHART 4-Hole Sq. Mount - Dimension R		
Code	mm [in]	kg [lb]
050	198 [7.80]	8,3 [18.4]
080	202 [7.94]	8,6 [18.9]
090	204 [8.02]	8,7 [19.1]
110	207 [8.16]	8,9 [19.6]
125	210 [8.26]	9,0 [19.9]
160	215 [8.48]	9,3 [20.6]
200	222 [8.73]	9,7 [21.4]
250	229 [9.03]	10,1 [22.3]
300	236 [9.27]	10,5 [23.2]
400	254 [9.98]	11,5 [25.3]

NOTE:
HB motor weights vary ± 1.0 kg [2 lbs] depending upon motor configuration. Subtract 18 [7.1] from Dimension R if side ports 5, 6, or 7 and end ports 1 or 2 are used.

MOUNTING FLANGE TO SHAFT END - Dimension S

Code	SAE A & B Mounts mm [in]	Wheel Mounts mm [in]	4-Hole Sq. Mounts mm [in]
01	44 [1.75]	82 [3.21]	41 [1.63]
02	49 [1.93]	86 [3.39]	46 [1.81]
07	62 [2.46]	100 [3.93]	60 [2.35]
08	62 [2.46]	100 [3.93]	60 [2.35]
10	49 [1.93]	86 [3.39]	46 [1.81]
12	55 [2.17]	92 [3.63]	52 [2.05]
15	51 [1.99]	88 [3.45]	47 [1.87]
20	61 [2.40]	99 [3.87]	58 [2.29]
21	61 [2.40]	98 [3.87]	58 [2.29]
22	66 [2.58]	103 [4.04]	63 [2.46]
23	57 [2.23]	94 [3.69]	54 [2.11]

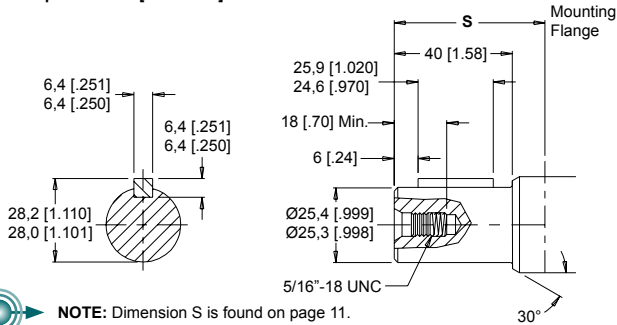


NOTE: Shaft lengths vary ± 0.8 mm [.030 in.]



10 1" Straight

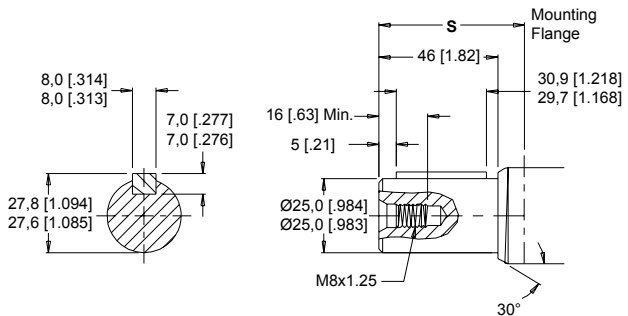
Max. Torque: 661 Nm [5850 lb-in]



*15 1" Straight Extended

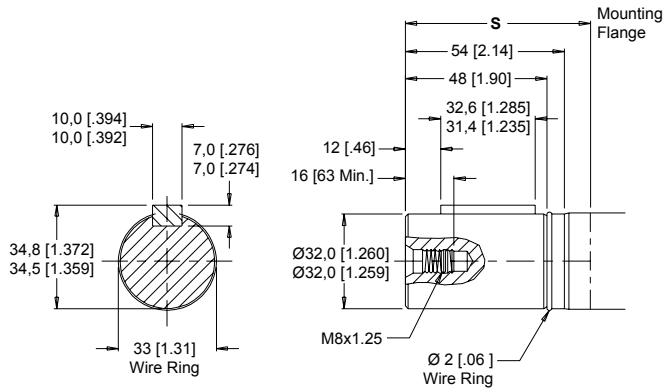
12 25mm Straight

Max. Torque: 631 Nm [5580 lb-in]



21 32mm Straight

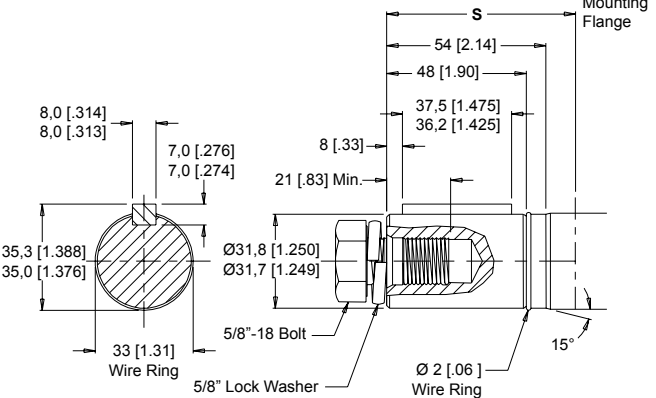
Max. Torque: 882 Nm [7804 lb-in]



*08 32mm Straight Extended

20 1-1/4" Straight

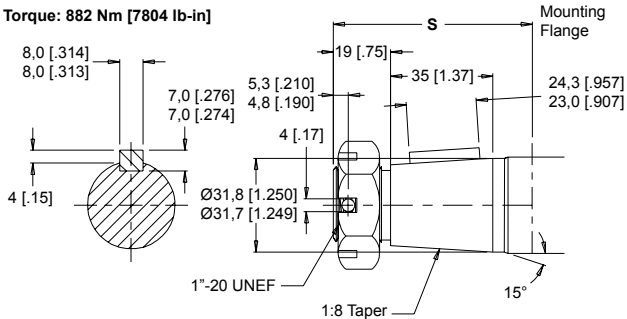
Max. Torque: 882 Nm [7804 lb-in]



*07 1-1/4" Straight Extended

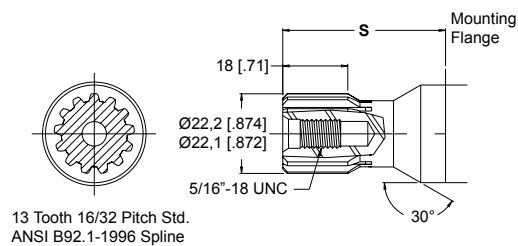
22 1-1/4" Tapered

Max. Torque: 882 Nm [7804 lb-in]



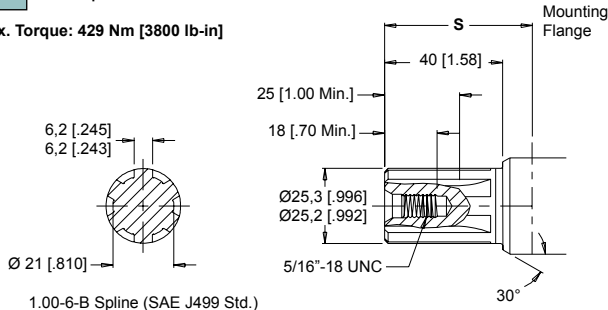
01 13 Tooth Spline

Max. Torque: 170 Nm [1500 lb-in]



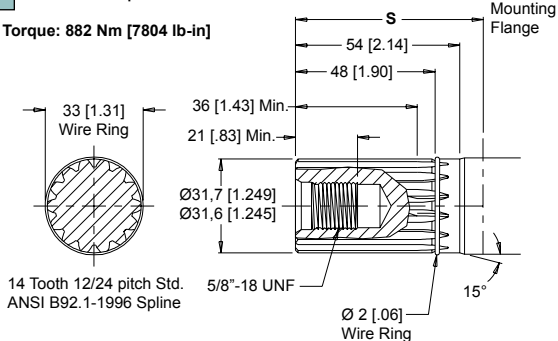
02 6-B Spline

Max. Torque: 429 Nm [3800 lb-in]



23 14 Tooth Spline

Max. Torque: 882 Nm [7804 lb-in]



NOTE: A slotted nut is standard on this shaft.

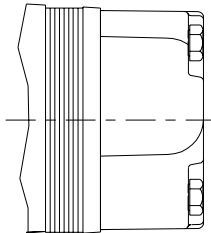
NOTE: *Shafts for speed sensor use only.



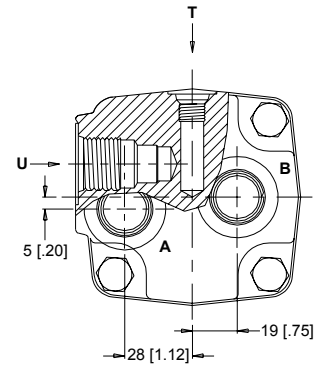
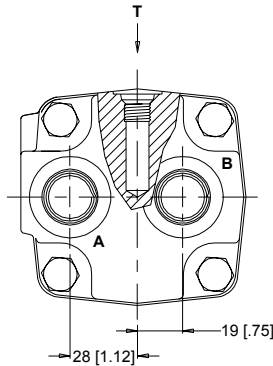
300 SERIES PORTING OPTIONS

END PORTS

1 7/8" O-Ring with 7/16" Drain



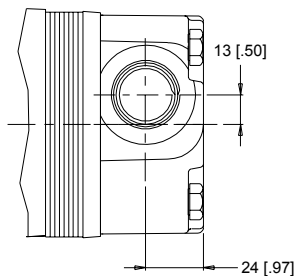
2 1/2" BSP.F with 1/4" Drain



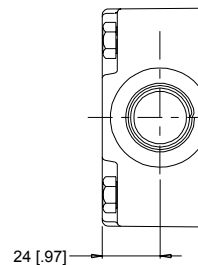
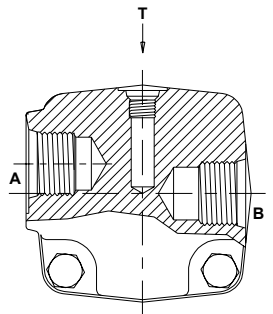
NOTE: The 1 & 2 porting options can be ordered with an internal drain and/or a relief valve cavity. **U** - 10 Series/2-way Valve Cavity (7/8-14 UNF-2B)

SIDE PORTS

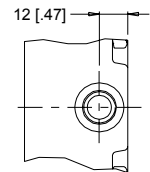
6 1-1/16" O-Ring with 7/16" Drain



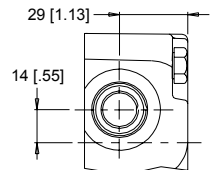
7 1/2" BSP.F with 1/4" Drain



T - Case Drain

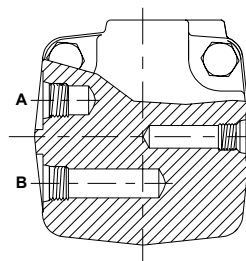
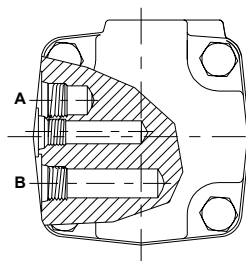
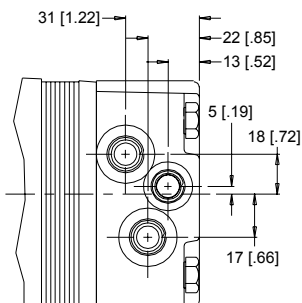


U - Valve Cavity

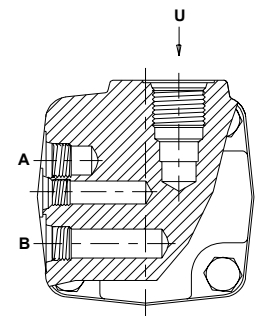


NOTE: The 6 & 7 porting options can be ordered with an internal drain.

5 9/16" O-Ring with 7/16" Drain



T



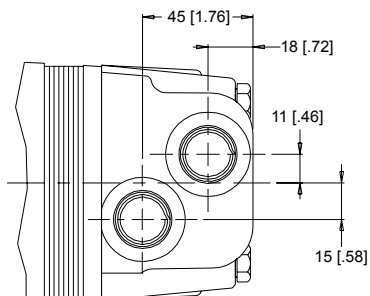
NOTE: The 5 porting option can be ordered with an internal drain or a relief valve cavity. **U** - 10 Series/2-way Valve Cavity (7/8-14 UNF-2B)



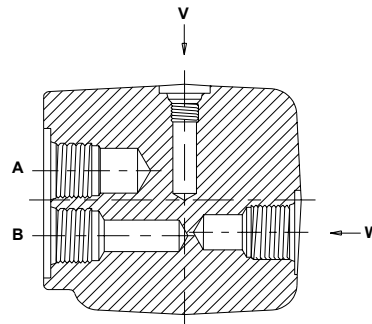
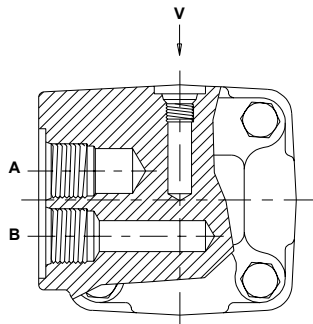
300 SERIES PORTING OPTIONS

SIDE PORTS

1 7/8" O-Ring with 7/16" Drain

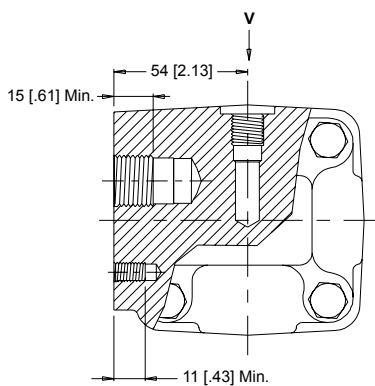
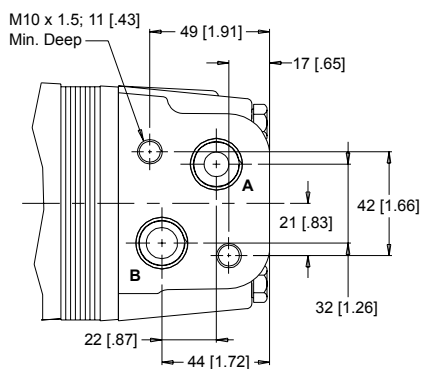


2 1/2" BSP.F with 1/4" Drain



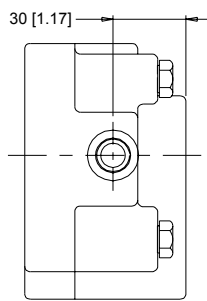
NOTE: The 1 & 2 porting options can be ordered with an internal drain and/or a relief valve cavity. **W** - 10 Series/2-way Valve Cavity (7/8-14 UNF-2B)

3 1/2" BSP.F Offset Manifold With 1/4" Drain

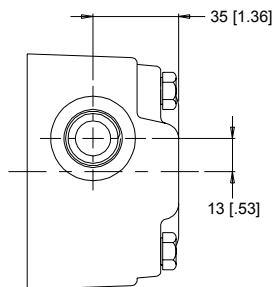


NOTE: The 3 porting option can be ordered with an internal drain.

V - Case Drain



W - Valve Cavity





300 SERIES MODEL CODE BUILDER

SERIES	DISPLACEMENT	HOUSING	SHAFT	PAINT	CAVITY	ADD ON	MISCELLANEOUS
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7	STEP 8

STEP 1 - Select a series

300 High Pressure HB Series

STEP 2 - Select a displacement option

050	52 cc	[3.2 in ³ /rev]	160	164 cc	[10.0 in ³ /rev]
080	76 cc	[4.6 in ³ /rev]	200	205 cc	[12.5 in ³ /rev]
090	89 cc	[5.4 in ³ /rev]	250	254 cc	[15.5 in ³ /rev]
110	111 cc	[6.8 in ³ /rev]	300	293 cc	[17.9 in ³ /rev]
125	127 cc	[7.7 in ³ /rev]	400	409 cc	[24.9 in ³ /rev]

STEP 3 - Select a mounting option

NOTE: To complete the three (3) digit HB Series housing code a two (2) digit mounting option must be followed with the single (1) digit porting option found in STEP 3 part II. Side port mounting options need side port porting options and end port mounting options need end port porting options.

A0	2-Hole End Port Magneto Mount (S)
A7	2-Hole Side Port Magneto Mount (S)
A2	4-Hole End Port Magneto Mount (S)
A8	4-Hole Side Port Magneto Mount (S)
A4	6-Hole End Port Magneto Mount (S)
A9	6-Hole Side Port Magneto Mount (S)
B0	2-Hole End Port SAE B Mount
B7	2-Hole Side Port SAE B Mount
W2	4-Hole End Port Wheel Mount
W8	4-Hole Side Port Wheel Mount
F2	4-Hole End Port Square Mount (S)
F8	4-Hole Side Port Square Mount (S)

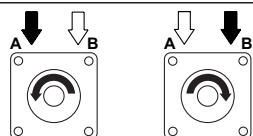
STEP 3 (part II) - Select a porting option

END PORTS

1	7/8" O-Ring With 7/16" Drain
2	1/2" BSP.F With 1/4" Drain

SIDE PORTS

1	7/8" O-Ring With 7/16" Drain
2	1/2" BSP.F With 1/4" Drain
3	1/2" BSP.F Offset Manifold With 1/4" Drain
5	9/16" O-Ring With 7/16" Drain
6	1-1/16" O-Ring With 7/16" Drain
7	1/2" BSP.F With 1/4" Drain



NOTE: HB Series motors do not have internal components that allow the motor to turn in either direction. Refer to the diagram to the left to determine which way the motor will turn when either port A or port B is pressurized.

STEP 4 - Select a shaft option

01	7/8" 13 Tooth Spline	15	1" Straight Ext. (S)
02	1" 6-B Spline	20	1-1/4" Straight
07	1-1/4" Straight Ext. (S)	21	32mm Straight
08	32mm Straight Ext. (S)	22	1-1/4" Tapered
10	1" Straight	23	1-1/4" 14 Tooth Spline
12	25mm Straight		

STEP 5 - Select a paint option

A	Black
B	Black (unpainted flange face)
Z	No Paint

STEP 6 - Select a valve cavity option

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

NOTE: Valve cavity option is only available on side ports 1, 2, & 5 and end ports 1 & 2.

STEP 7 - Select an add on option

A	Standard
B	Lock Nut
C	Solid Hex Nut
W	4-Pin Dual Male Weatherpack Connector (S)
X	4-Pin M12 Dual Male Connector (S)
Y	3-Pin Single Male Weatherpack Connector (S)
Z	4-Pin M12 Single Male Connector (S)

NOTE: (S) - STEP 3 Mountings available for use with speed sensors. STEP 4 Shafts available for use with speed sensors. STEP 7 Speed sensor options.

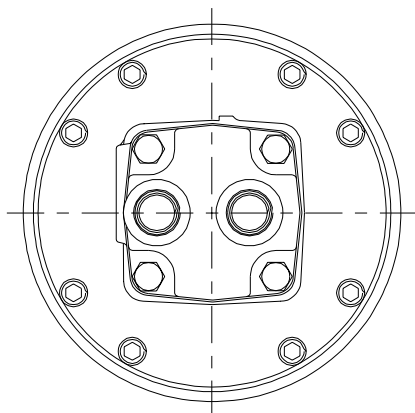
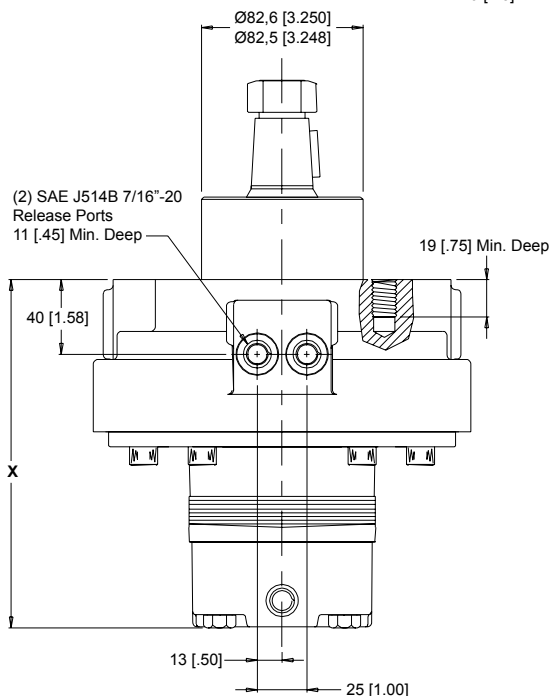
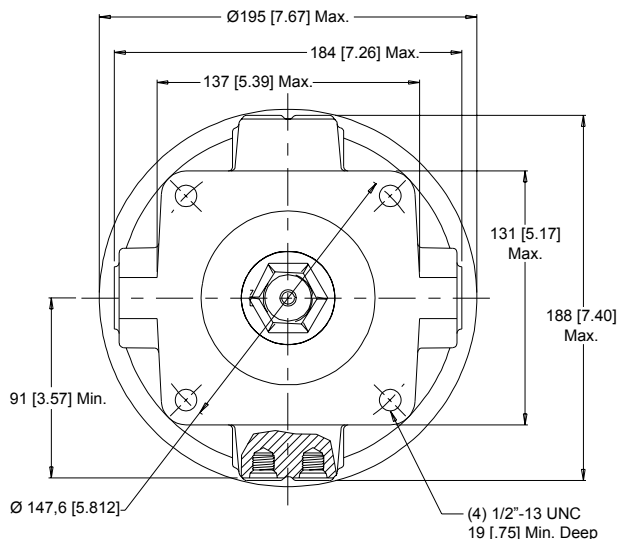
STEP 8 - Select a miscellaneous option

AA	None
AB	Internal Drain
AC	Freeturning Rotor
AD	Internal Drain with Freeturning Rotor



W2 4-Hole with End Ports

W8 4-Hole with Side Ports

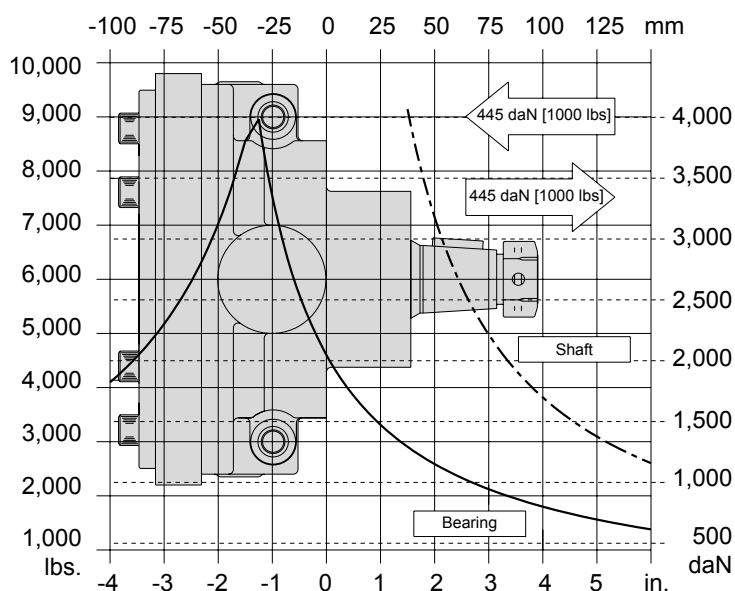


Rated brake torque.....904 Nm [8000 lb-in]
Initial release pressure 21 bar [300 psi]
Full release pressure 31 bar [450 psi]
Maximum release pressure 207 bar [3000 psi]
Release volume.....13-16 cc [0.8 - 1.0 cu in]



NOTE: See page 19 for important motor/brake operating recommendations.

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2,000 hours at 100 rpm. Radial loads for speeds other than 100 rpm may be calculated using the multiplication factor table located on page 10.



LENGTH / WEIGHT CHART

310 Wheel Mount - Dimension X

Code	mm [in]	kg [lb]
050	173 [6.80]	19,1 [42.2]
080	175 [6.88]	19,4 [42.7]
090	178 [7.02]	19,5 [42.9]
110	182 [7.16]	19,7 [43.4]
125	184 [7.26]	19,8 [43.7]
160	190 [7.48]	20,1 [44.4]
200	196 [7.73]	20,5 [45.3]
250	204 [8.03]	20,9 [46.1]
300	210 [8.27]	21,3 [47.0]
400	228 [8.98]	22,3 [49.1]

NOTE:

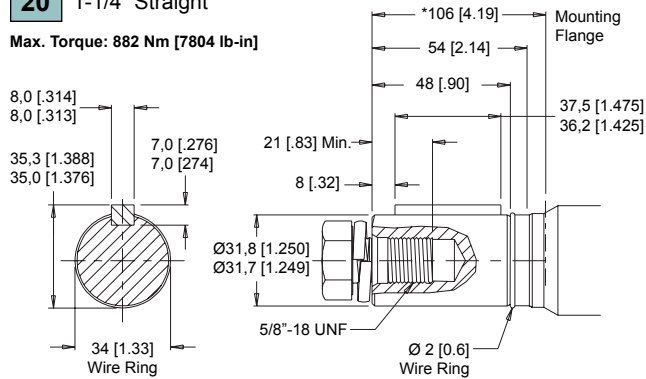
HB motor weights vary $\pm 1,0$ kg [2 lbs] depending upon motor configuration. Subtract 18 [.71] from Dimension X if side ports 5, 6, or 7 and end ports 1 or 2 are used.



310 SERIES (HB MOTOR/BRAKE SHAFTS)

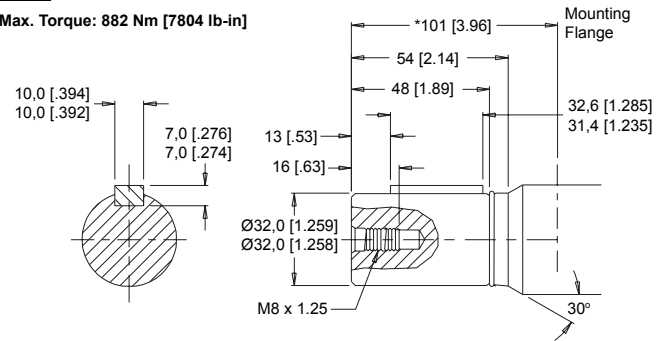
20 1-1/4" Straight

Max. Torque: 882 Nm [7804 lb-in]



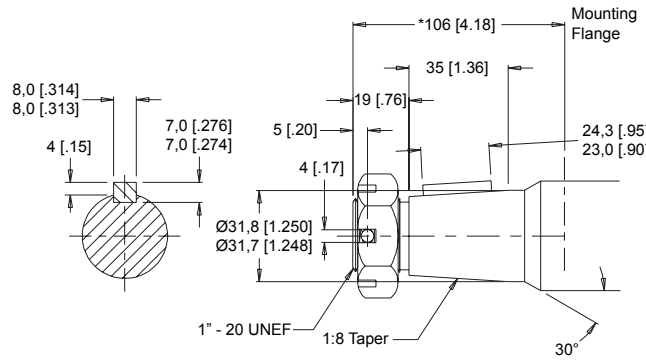
21 32mm Straight

Max. Torque: 882 Nm [7804 lb-in]



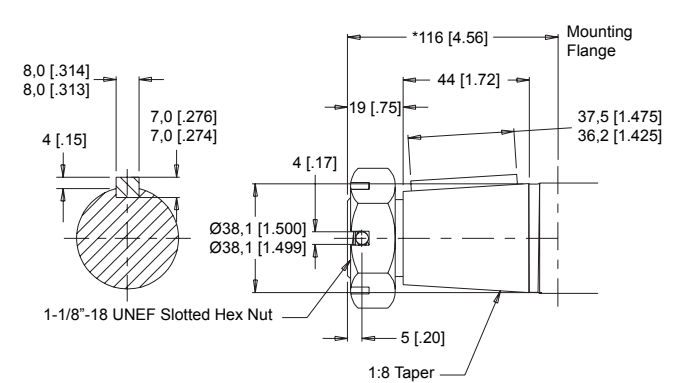
22 1-1/4" Tapered

Max. Torque: 882 Nm [7804 lb-in]



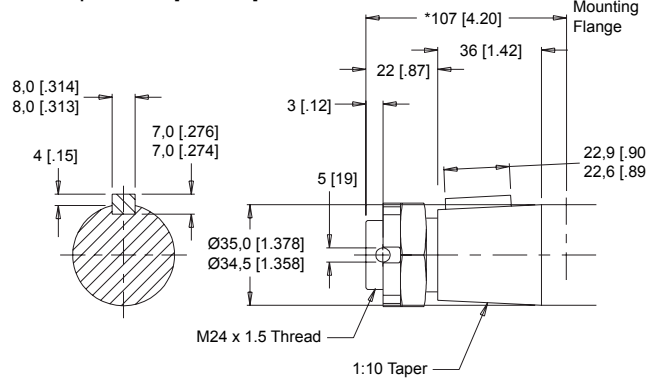
31 1-1/2" Tapered

Max. Torque: 882 Nm [7804 lb-in]



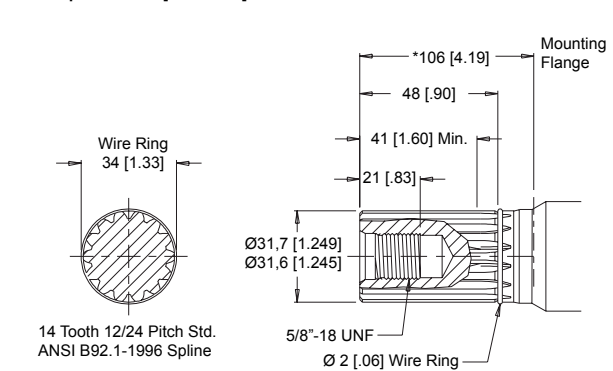
28 35mm Tapered

Max. Torque: 882 Nm [7804 lb-in]



23 1-1/4" 14 Tooth Spline

Max. Torque: 882 Nm [7804 lb-in]



NOTE: A slotted hex nut is standard on all tapered shafts. * Shaft lengths may vary $\pm 0.8\text{mm}$ [0.030 in]



310 SERIES MODEL CODE BUILDER

SERIES	DISPLACEMENT	HOUSING	SHAFT	PAINT	CAVITY	ADD ON	MISCELLANEOUS
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7	STEP 8

STEP 1 - Select a series

310	HB Series Motor/Brake
-----	-----------------------

STEP 2 - Select a displacement option

050	52 cc	[3.2 in ³ /rev]	160	164 cc	[10.0 in ³ /rev]
080	76 cc	[4.6 in ³ /rev]	200	205 cc	[12.5 in ³ /rev]
090	89 cc	[5.4 in ³ /rev]	250	254 cc	[15.5 in ³ /rev]
110	111 cc	[6.8 in ³ /rev]	300	293 cc	[17.9 in ³ /rev]
125	127 cc	[7.7 in ³ /rev]	400	409 cc	[24.9 in ³ /rev]

STEP 3 - Select a mounting option

NOTE: To complete the three (3) digit HB Series housing code a two (2) digit mounting option must be followed with the single (1) digit porting option found in STEP 3 part II. Side port mounting options need side port porting options and end port mounting options need end port porting options.

W2	4-Hole End Port Wheel Mount
W8	4-Hole Side Port Wheel Mount

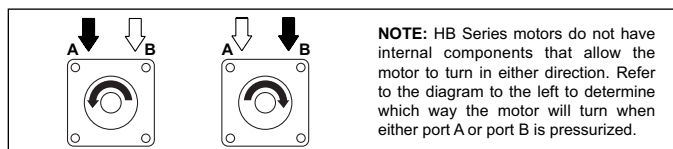
STEP 3 (part II) - Select a porting option

END PORTS

1	7/8" O-Ring With 7/16" Drain
2	1/2" BSP.F With 1/4" Drain

SIDE PORTS

1	7/8" O-Ring With 7/16" Drain
2	1/2" BSP.F With 1/4" Drain
3	1/2" BSP.F Offset Manifold With 1/4" Drain
5	9/16" O-Ring With 7/16" Drain
6	1-1/16" O-Ring With 7/16" Drain
7	1/2" BSP.F With 1/4" Drain



STEP 4 - Select a shaft option

20	1-1/4" Straight	23	1-1/4" 14 Tooth Spline
21	32mm Straight	28	35mm Tapered
22	1-1/4" Tapered	31	1-1/2" Tapered

STEP 5 - Select a paint option

A	Black
B	Black (unpainted flange face)
Z	No Paint

STEP 6 - Select a valve cavity option

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

NOTE: Valve cavity option is only available on side ports 1, 2, & 5 and end ports 1 & 2.

STEP 7 - Select an add on option

A	Standard
B	Lock Nut
C	Solid Hex Nut

STEP 8 - Select a miscellaneous option

AA	None
AC	Freeturning Rotor



NOTE: The HB 310 series motor/brakes are available with different holding torque specifications. For additional information please contact White Drive Products Customer Service & Technical Support or your local White Drive Products' distributor.

OPERATING AND TECHNICAL INFORMATION

WHITE DRIVE PRODUCT MOTOR/BRAKE PRECAUTION

CAUTION! - White Drive Products' motors/brakes are intended to operate as static or parking brakes. System circuitry must be designed to bring the load to a stop before applying the brake.

CAUTION! - Because it is possible for some large displacement motors to overpower the brake, it is critical that the maximum system pressure be limited for these applications. Failure to do so could cause serious injury or death. When choosing a motor/brake for an application, consult the performance chart for the series and displacement chosen for the application to verify that the maximum operating pressure of the system will not allow the motor to produce more torque than the maximum rating of the brake. Also, it is vital that the system relief be set low enough to insure that the motor is not able to overpower the brake.

To ensure proper operation of the brake, case drain back pressure must be maintained at 34 bar [500 psi] or less. Case drain back pressure above 34 bar [500 psi] can result in erratic operation of the brake. To avoid potential problems with the operation of the brake, a separate case drain line is recommended. Use of the internal drain option is not recommended due to the possibility of return line pressure spikes. A simple schematic of a system utilizing a motor/brake is shown in Figure A below. Although maximum brake release pressure may be used for an application, a 34 bar [500 psi] pressure reducing valve is recommended to promote maximum life for the brake release piston seals. However, if a pressure reducing valve is used in a system which has case drain back pressure, the pressure reducing valve should be set to 34 bar [500 psi] over the expected case pressure to ensure full brake release. To achieve proper brake release operation, it is necessary to bleed out any trapped air and fill brake release cavity and hoses before all connections are tightened. To facilitate this operation, all motor/brakes feature two release ports. One or both of these ports may be used to release the brake in the unit. Motor/brakes should be configured so that the release ports are near the top of the unit in the installed position. Once all system connections are made, one release port must be opened to atmosphere and the brake release line carefully charged with fluid until all air is removed from the line and motor/brake release cavity. When this has been accomplished the port plug or secondary release line must be reinstalled. In the event of a pump or battery failure, an external pressure source may be connected to the brake release port to release the brake, allowing the machine to be moved.

Typical motor/brake schematic

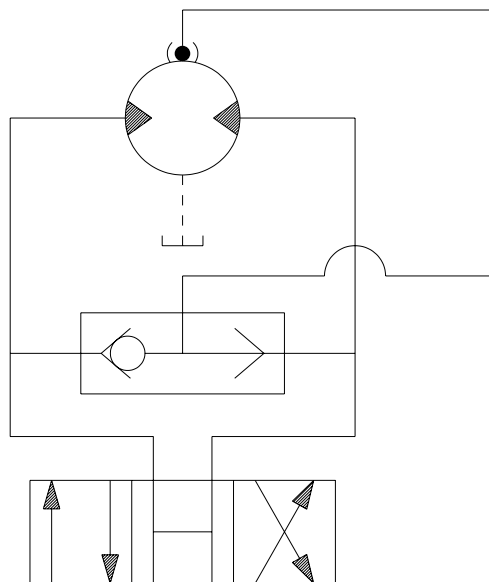


Figure A



NOTE: It is vital that all operating recommendations be followed. Failure to do so could result in injury or death.



Delivering The Power To Get Work Done.

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