



whitedriveproducts



SERIES

300 -
310 -
315 -



MEDIUM DUTY
Hydraulic Motor & Brake





OVERVIEW

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.

FEATURES / BENEFITS

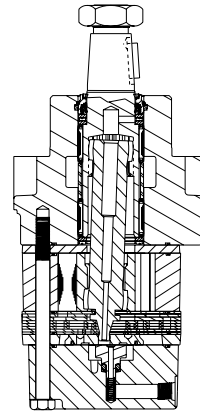
- Forced Drive Link Lubrication reduces wear and promotes longer life from motor.
- Heavy-Duty Drive Link is up to 30% stronger than competitive designs for longer life.
- Three-Zone Orbiting Valve precisely meters oil to produce exceptional volumetric efficiency.
- Rubber Energized Steel Face Seal does not extrude or melt under high pressure or high temperature.
- Standard Case Drain increases shaft seal life by reducing pressure on seal.

TYPICAL APPLICATIONS

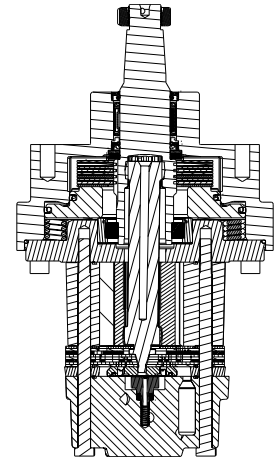
conveyors, carwashes, positioners, light-duty wheel drives, sweepers, machine tool indexers, grain augers, spreaders, feed rollers, screw drives, brush drives and more

SERIES DESCRIPTIONS

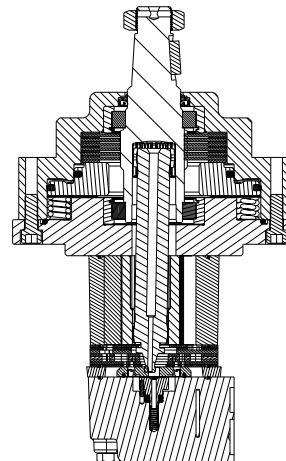
300 - Hydraulic Motor
Standard



310 - Hydraulic Motor/Brake
Standard



315 - Hydraulic Motor/Brake
With Greater Holding Torque



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
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]

► 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.
050		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]	
52 cm³ [3.2 in³] / rev										
		Torque - Nm [lb-in], Speed rpm							Intermittent Ratings - 10% of Operation	
Flow - lpm [gpm]	2 [0.5]	7 [66] 36	18 [158] 31	38 [314] 26	51 [447] 21	66 [587] 9				37
	4 [1]	9 [77] 72	19 [164] 69	38 [335] 65	57 [505] 63	71 [631] 33	87 [772] 32	98 [866] 9		73
	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	145
	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	289
	23 [6]			36 [319] 431	56 [492] 427	76 [669] 416	97 [859] 396	114 [1009] 347	134 [1182] 321	434
	30 [8]			34 [304] 577	53 [467] 572	73 [646] 568	95 [841] 543	113 [1001] 488	134 [1183] 463	578
	38 [10]				51 [451] 699	71 [628] 683	92 [810] 665	111 [978] 634	133 [1174] 604	722
	45 [12]				48 [427] 847	68 [606] 825	88 [781] 798	111 [980] 770		867
Max. Max. Inter. Cont.	Rotor Width	Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒								
	8.0 [316] mm [in]	Theoretical Torque - Nm [lb-in]								
		14 [127]	29 [255]	58 [510]	86 [764]	115 [1019]	144 [1274]	173 [1529]	202 [1783]	
		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								



DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]							Max. Cont.	Max. Inter.
090		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]	
89 cm ³ [5.4 in ³] / 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
	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. Cont.	68 [18]					136 [1201] 748	189 [1675] 729	240 [2122] 719		770
	76 [20]					136 [1205] 835	174 [1536] 819	216 [1916] 806		856
Rotor Width										
13.7 [541]										
mm [in]										
		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]	
		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

		Pressure - bar [psi]							Max. Cont.	Max. Inter.
110		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]	
111 cm ³ [6.8 in ³] / 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
	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
Max. Inter.	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
	95 [25]				77 [678] 847	132 [1171] 844	191 [1694] 835	243 [2154] 828		850
Rotor Width										
17.3 [681]										
mm [in]										
		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]	
		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.



DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]							Max. Cont.	Max. Inter.	
125		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]		
127 cm³ [7.7 in³] / rev											
		Torque - Nm [lb-in], Speed rpm							Intermittent Ratings - 10% of Operation		
Flow - lpm [gpm]	Max. Cont.	2 [0.5]	14 [127] 14	44 [394] 14	109 [961] 13	159 [1408] 13	217 [1922] 12	267 [2364] 10	313 [2766] 9	355 [3146] 7	15
		4 [1]	16 [138] 29	45 [401] 29	108 [952] 29	167 [1475] 27	226 [2004] 25	278 [2459] 23	332 [2936] 21	367 [3245] 19	30
		8 [2]		49 [432] 59	108 [953] 59	165 [1462] 57	231 [2046] 54	286 [2528] 48	332 [2941] 48	387 [3421] 45	60
		15 [4]		49 [430] 119	107 [949] 119	167 [1479] 118	229 [2024] 113	284 [2513] 108	342 [3023] 102	392 [3467] 98	120
		23 [6]			102 [902] 179	166 [1473] 177	223 [1973] 173	279 [2473] 169	337 [2985] 163	393 [3477] 157	180
		30 [8]			100 [888] 239	160 [1420] 239	222 [1968] 235	287 [2541] 235	337 [2987] 221	391 [3459] 214	240
		38 [10]			95 [841] 299	154 [1359] 298	217 [1919] 298	273 [2413] 292	332 [2940] 281	387 [3428] 273	300
		45 [12]			83 [738] 359	147 [1304] 358	207 [1831] 357	267 [2361] 350	329 [2914] 342	406 [3590] 308	360
		53 [14]			82 [727] 419	146 [1293] 418	204 [1801] 417	268 [2375] 413	332 [2935] 402	419 [3704] 340	420
		61 [16]			69 [608] 473	168 [1484] 463	198 [1756] 440	258 [2287] 415	327 [2895] 384	386 [3419] 341	480
		68 [18]				193 [1704] 517	214 [1894] 498	278 [2460] 472	360 [3188] 438	386 [3412] 384	540
		76 [20]				205 [1815] 577	245 [2164] 561	290 [2567] 537	344 [3040] 505	408 [3606] 453	600
		83 [22]				151 [1336] 640	201 [1781] 623	260 [2298] 597	320 [2832] 563		660
		91 [24]				85 [751] 705	151 [1334] 686	218 [1930] 662	284 [2516] 621		720
		95 [25]				79 [697] 736	139 [1227] 723	209 [1853] 694	270 [2387] 669		750
Rotor Width		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☒									
		Theoretical Torque - Nm [lb-in]									
19.7 [776]		35 [307]	69 [613]	139 [1226]	208 [1839]	277 [2452]	346 [3065]	416 [3678]	485 [4291]		
mm [in]		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]									

Rotor Width

19.7 [7.76]

mm [in]

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]

		Pressure - bar [psi]							Max. Cont.	Max. Inter.	
160		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]		
164 cm ³ [10.0 in ³] / rev											
		Torque - Nm [lb-in], Speed rpm							Intermittent Ratings - 10% of Operation		
Flow - lpm [gpm]	Max. Cont.	2 [0.5]	24 [216] 11	61 [538] 11	143 [1267] 10	213 [1881] 9	287 [2536] 8	351 [3106] 7	411 [3640] 5	470 [4159] 4	12
		4 [1]	28 [244] 23	67 [596] 22	145 [1287] 21	215 [1899] 18	291 [2578] 16	355 [3145] 14	425 [3758] 13	493 [4366] 11	24
		8 [2]		66 [588] 46	148 [1306] 44	224 [1983] 39	301 [2666] 34	366 [3241] 32	441 [3904] 30	508 [4493] 28	47
		15 [4]		66 [584] 92	146 [1291] 91	226 [2002] 87	313 [2769] 80	375 [3318] 71	451 [3990] 67	516 [4569] 66	93
		23 [6]		62 [551] 137	146 [1295] 136	224 [1986] 134	307 [2718] 125	379 [3358] 119	449 [3975] 108	515 [4553] 106	139
		30 [8]			142 [1258] 184	221 [1954] 182	299 [2644] 172	376 [3329] 161	447 [3952] 152	520 [4603] 146	185
		38 [10]			132 [1169] 230	216 [1909] 229	289 [2558] 222	371 [3282] 211	448 [3961] 195	520 [4598] 190	231
		45 [12]			129 [1144] 277	208 [1842] 275	284 [2510] 270	357 [3161] 261	436 [3862] 239	512 [4529] 228	278
		53 [14]			117 [1040] 323	202 [1788] 320	275 [2438] 316	353 [3124] 305	427 [3781] 291	509 [4508] 279	324
		61 [16]			103 [913] 369	187 [1659] 367	275 [2431] 364	338 [2994] 356	418 [3698] 341	496 [4392] 325	370
		68 [18]			91 [803] 415	175 [1553] 413	257 [2278] 4110	325 [2874] 403	405 [3587] 389	480 [4246] 376	416
		76 [20]				169 [1499] 461	246 [2176] 459	328 [2906] 447	397 [3514] 438	477 [4223] 422	462
		83 [22]				147 [1297] 507	232 [2049] 504	315 [2792] 498	385 [3411] 487		509
		91 [24]				131 [1157] 553	218 [1928] 550	300 [2655] 546	378 [3344] 531		555
		95 [25]				121 [1073] 577	208 [1844] 573	291 [2577] 571	365 [3229] 557		578
		Theoretical Torque - Nm [lb-in]									
Rotor Width		45 [398]	90 [796]	180 [1592]	270 [2389]	360 [3185]	450 [3981]	540 [4777]	630 [5573]		
25.4 [1.000] mm [in]											
Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]											

Rotor Width

25.4 [1.000]

mm [in]

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

Theoretical Torque - Nm [lb-in]

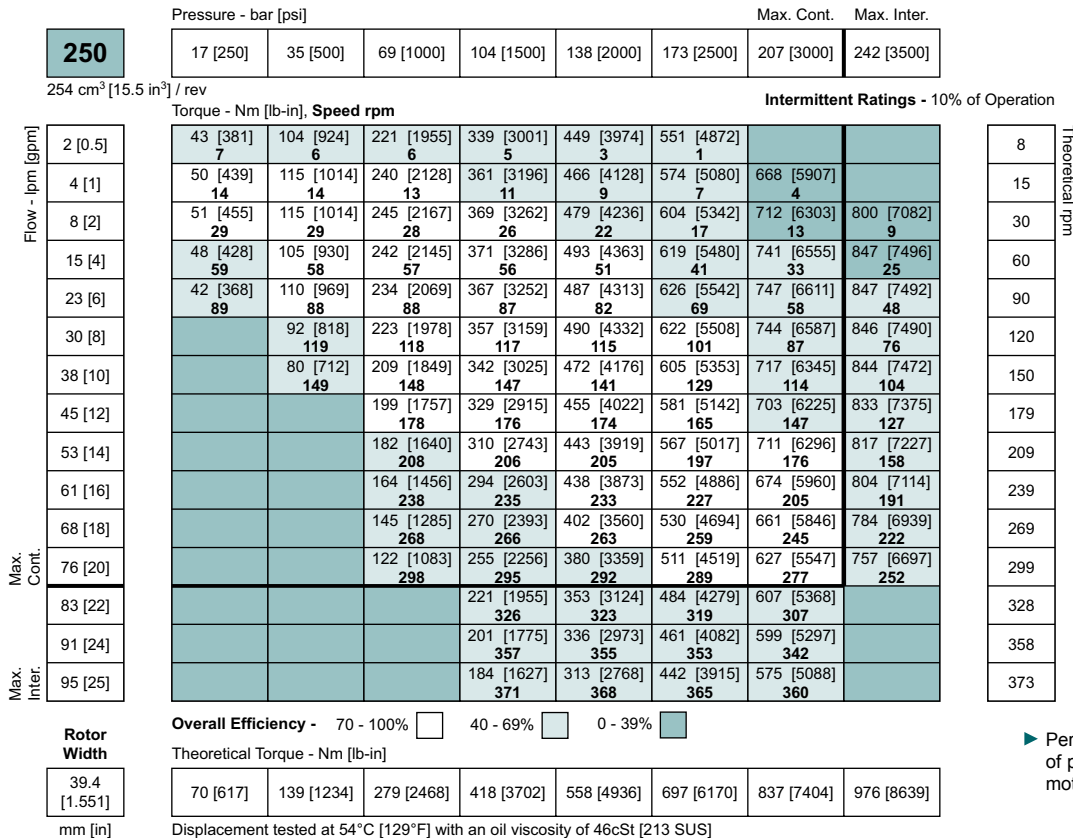
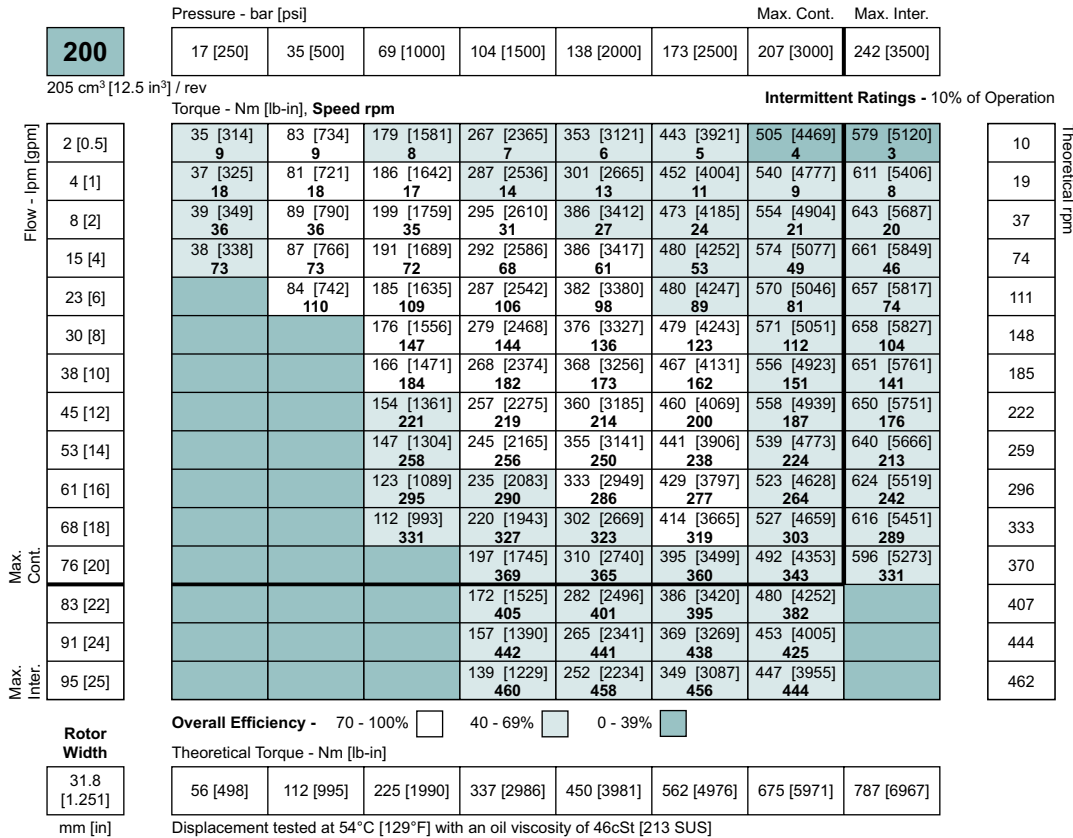
45 [398]	90 [796]	180 [1592]	270 [2389]	360 [3185]	450 [3981]	540 [4777]	630 [5573]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

► Performance data is typical. Performance of production units varies slightly from one motor to another.



DISPLACEMENT PERFORMANCE





DISPLACEMENT PERFORMANCE

		Pressure - bar [psi]							Max. Cont.	Max. Inter.
		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	242 [3500]	
		293 cm ³ [17.9 in ³] / rev							Intermittent Ratings - 10% of Operation	
		Torque - Nm [lb-in], Speed rpm								
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
Max. Cont.	68 [18]			143 [1266] 232	298 [2638] 230	427 [3783] 227	591 [5234] 220	745 [6591] 198	878 [7773] 176	233
	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
	95 [25]				166 [1466] 321	323 [2858] 319	491 [4347] 318	630 [5577] 300		323
Max. Inter.										
		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
Rotor Width		Theoretical Torque - Nm [lb-in]								
		45.5 [1.790]	81 [713]	161 [1425]	322 [2850]	483 [4275]	644 [5701]	805 [7126]	966 [8551]	1127 [9976]
		mm [in]								
		Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]								

		Pressure - bar [psi]							Max. Cont.	Peak
		17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]		
		409 cm ³ [24.9 in ³] / rev							Intermittent Ratings - 10% of Operation	
		Torque - Nm [lb-in], Speed rpm								
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
Max. Cont.	68 [18]			244 [2156] 166	453 [4009] 165	681 [6023] 158	871 [7708] 142	1071 [9478] 121		167
	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
	95 [25]				303 [2682] 231	539 [4773] 228	764 [6760] 221			232
Max. Inter.										
		Overall Efficiency - 70 - 100% ☐ 40 - 69% ☐ 0 - 39% ☐								
Rotor Width		Theoretical Torque - Nm [lb-in]								
		63.5 [2.500]	112 [991]	224 [1982]	448 [3965]	672 [5947]	896 [7930]	1120 [9912]	1344 [11895]	
		mm [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.



PORTING

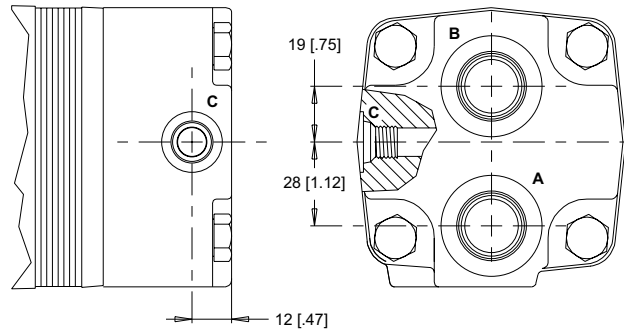
► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

END PORTED - ALIGNED

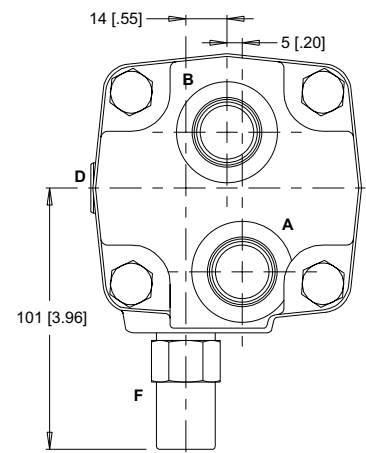
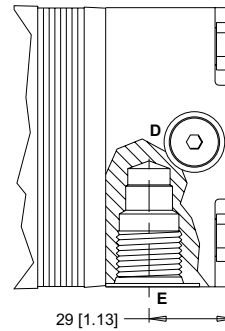
1 Main Ports **A, B:** 7/8-14 UNF
Drain Port **C:** 7/16-20 UNF

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

STANDARD



OPTIONAL



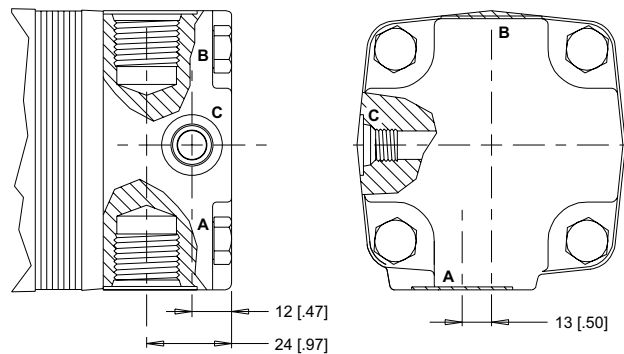
D: Internal Drain **E:** 10 Series/2-Way Valve Cavity 7/8-14 UNF **F:** Valve Cartridge Installed

SIDE PORTED - 180° OPPOSED

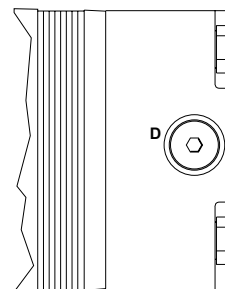
6 Main Ports **A, B:** 1 1/16-12 UN
Drain Port **C:** 7/16-20 UNF

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

STANDARD



OPTIONAL

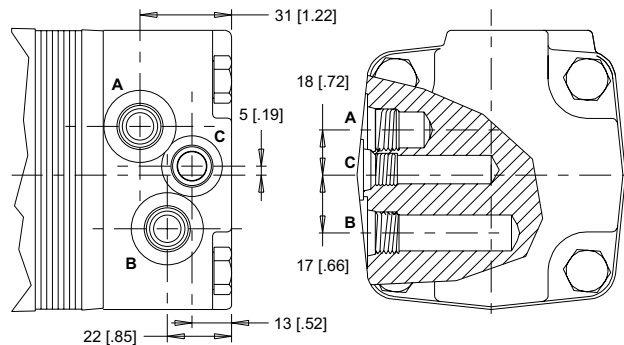


D: Internal Drain

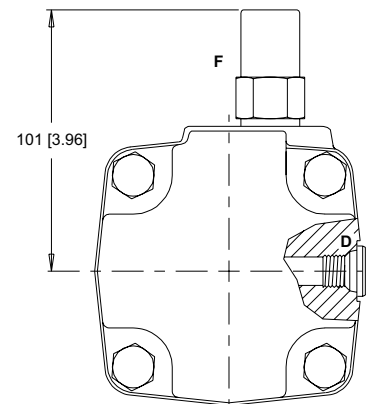
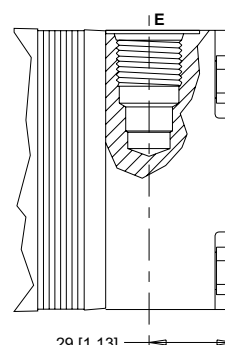
SIDE PORTED - OFFSET

5 Main Ports **A, B:** 9/16-18 UNF
Drain Port **C:** 7/16-20 UNF

STANDARD



OPTIONAL



D: Internal Drain **E:** 10 Series/2-Way Valve Cavity 7/8-14 UNF **F:** Valve Cartridge Installed



PORTING

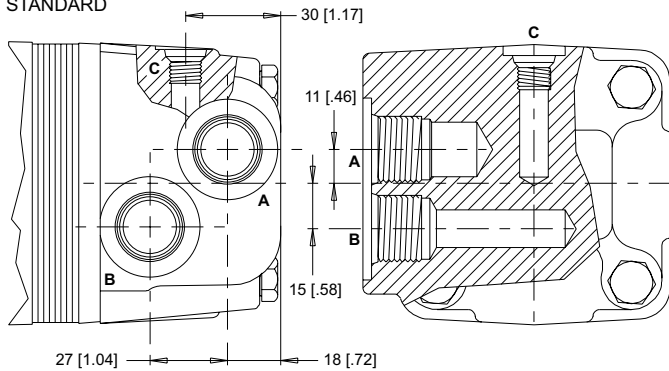
► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

SIDE PORTED - OFFSET

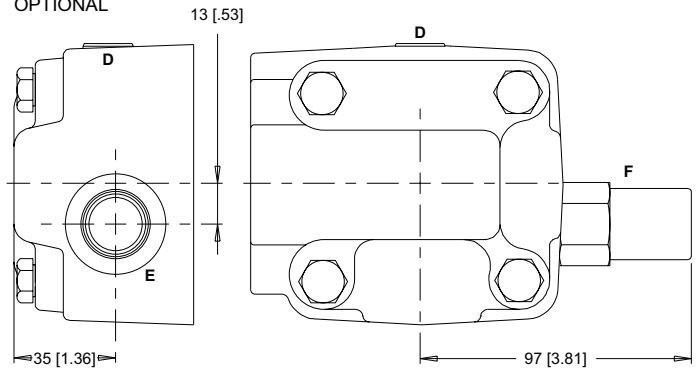
1 Main Ports **A, B:** 7/8-14 UNF
Drain Port **C:** 7/16-20 UNF

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

STANDARD



OPTIONAL

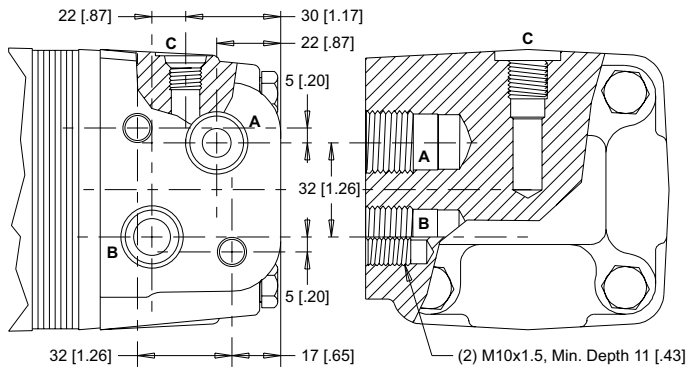


D: Internal Drain E: 10 Series/2-Way Valve Cavity 7/8-14 UNF F: Valve Cartridge Installed

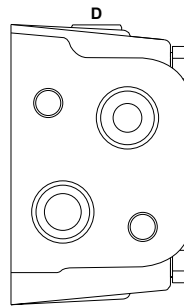
SIDE PORTED - OFFSET MANIFOLD

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

STANDARD



OPTIONAL



D: Internal Drain



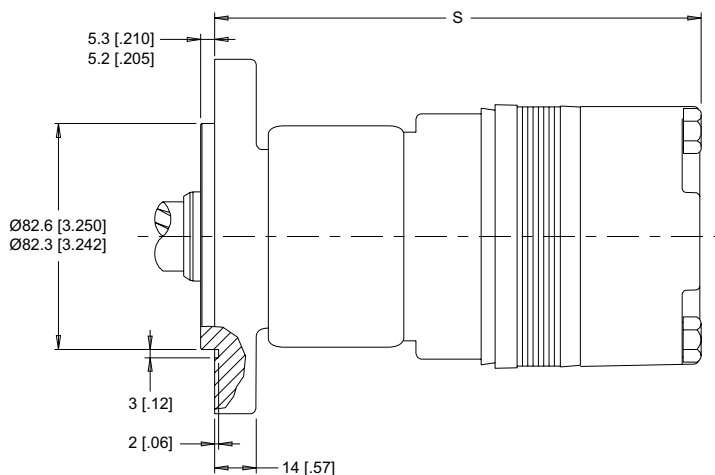
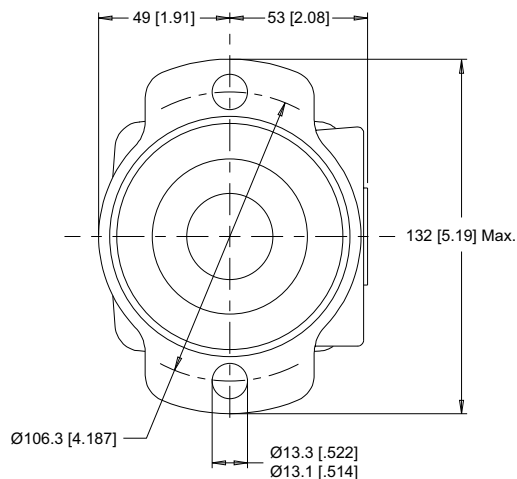
HOUSINGS

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

2-HOLE, SAE A MOUNT

A0 End Ports

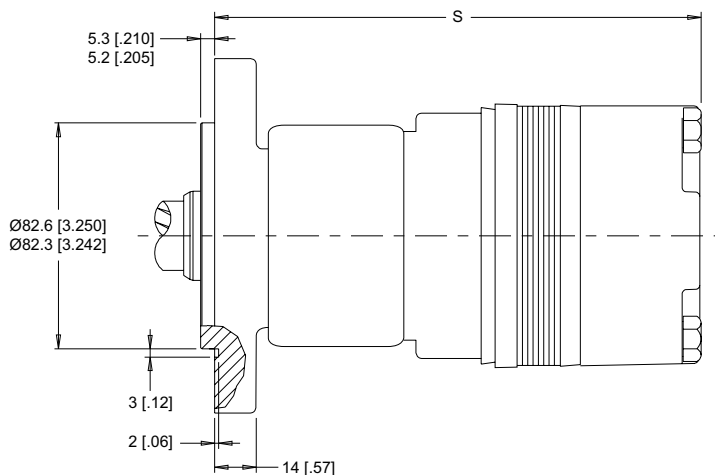
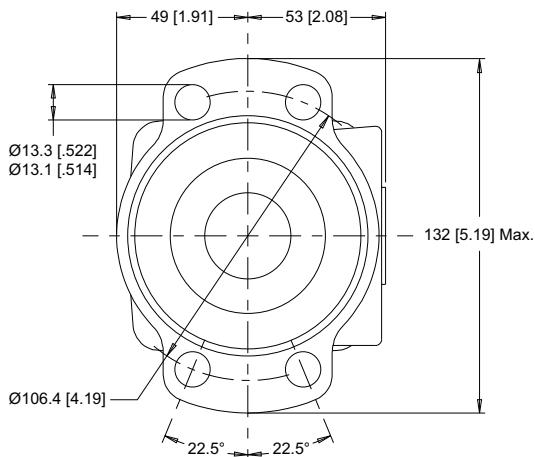
A7 Side Ports



4-HOLE, MAGNETO MOUNT

A2 End Ports

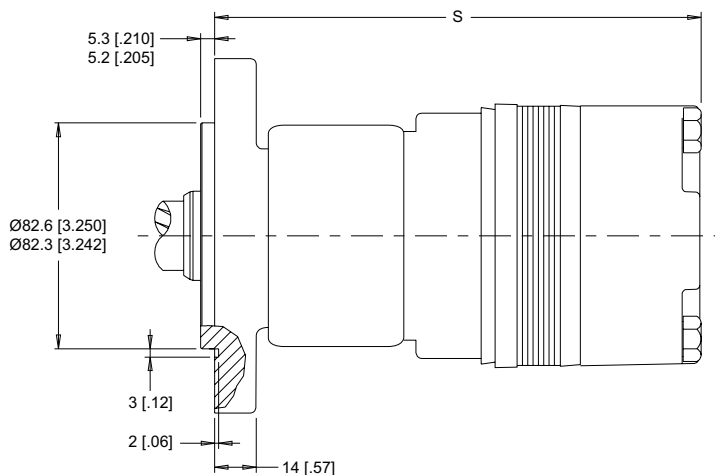
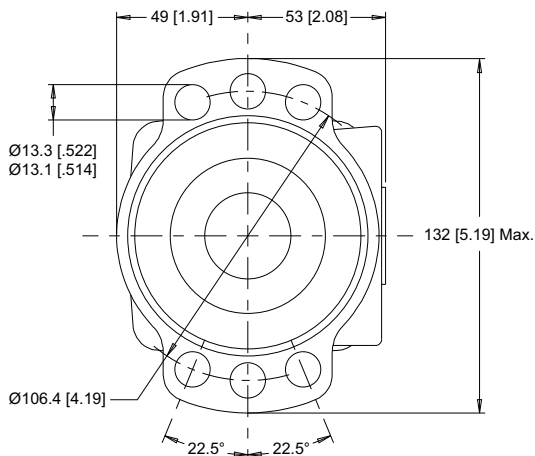
A8 Side Ports



6-HOLE, SAE A MOUNT

A4 End Ports

A9 Side Ports



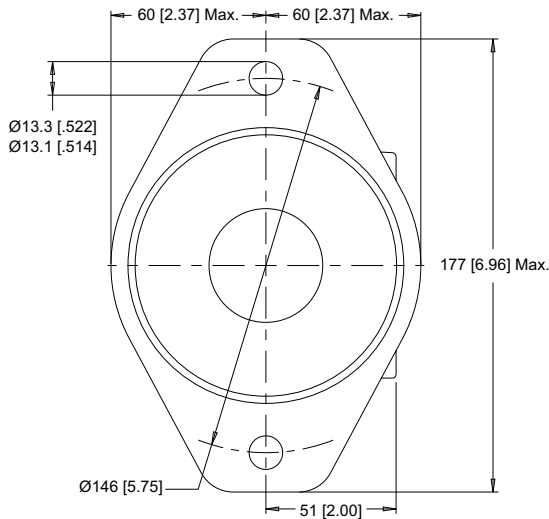
► Dimension S is charted on page 12. Porting options listed on pages 8-9.



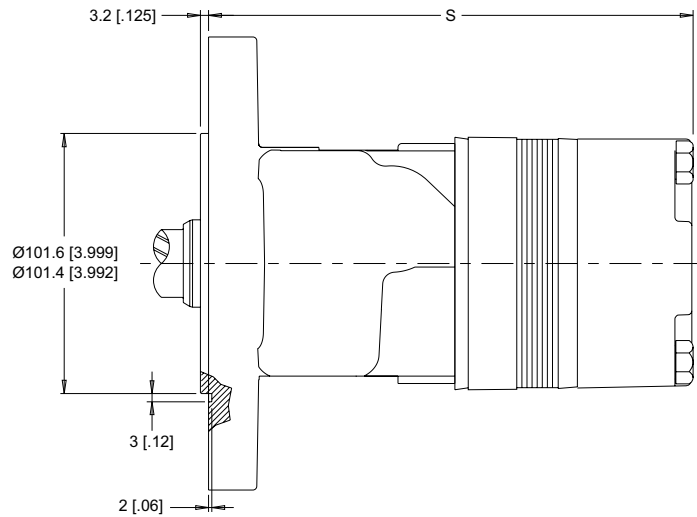
HOUSINGS

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

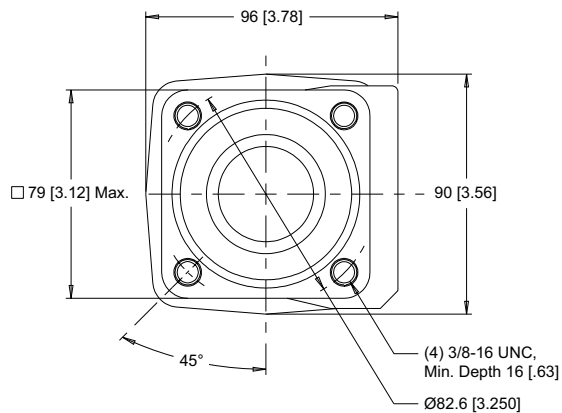
2-HOLE, SAE B MOUNT



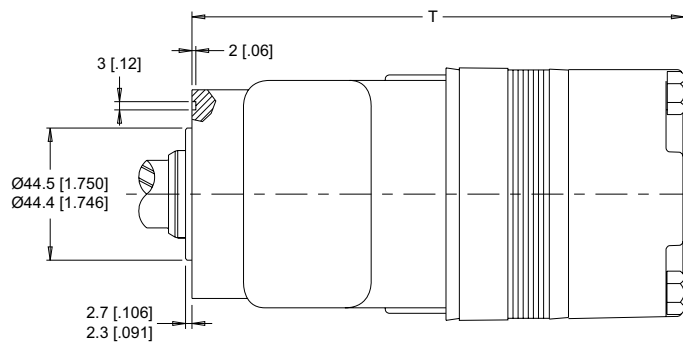
B0 End Ports **B7** Side Ports



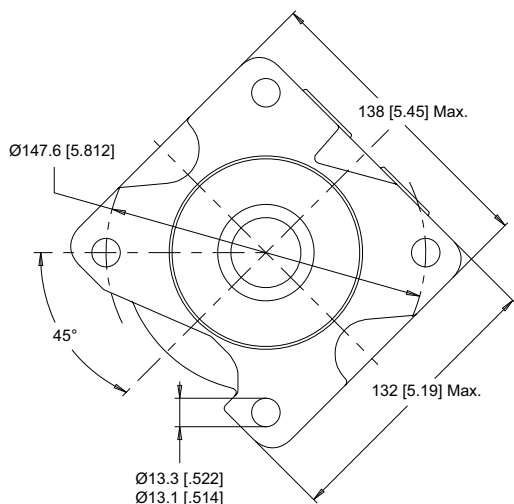
4-HOLE, SQUARE MOUNT



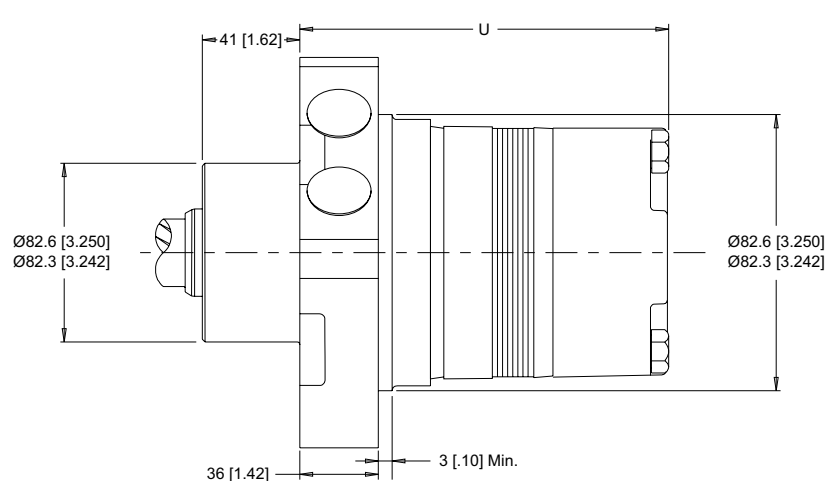
F2 End Ports **F8** Side Ports



4-HOLE, WHEEL MOUNT



W2 End Ports **W8** Side Ports



► Dimensions S & T are charted on page 12. Dimension U is charted on page 13. Porting options listed on pages 8-9.

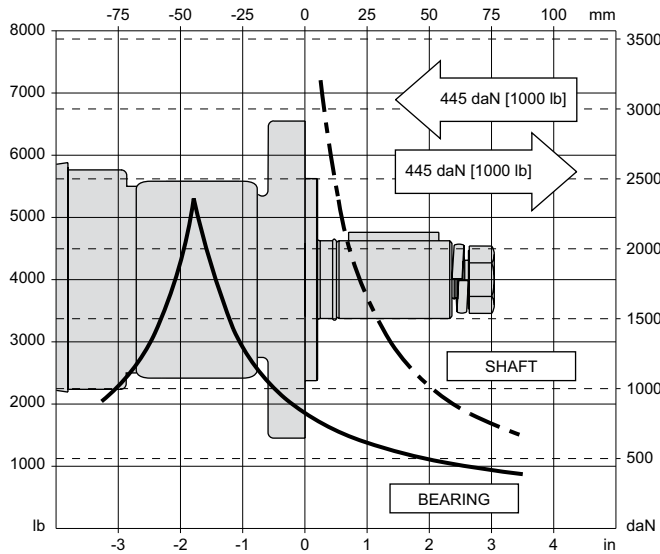


TECHNICAL INFORMATION

ALLOWABLE SHAFT LOAD / 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 below.

SAE A & B MOUNTS



LENGTH & WEIGHT CHART

Dimension S 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 10 & 11.

S	Endcovers on pg. 8	Endcovers on pg. 9	Weight
#	mm [in]	mm [in]	kg [lb]
050	177 [6.97]	195 [7.68]	8.8 [19.5]
080	181 [7.11]	199 [7.82]	9.1 [20.0]
090	183 [7.19]	201 [7.90]	9.2 [20.2]
110	186 [7.33]	204 [8.04]	9.4 [20.7]
125	189 [7.43]	207 [8.14]	9.5 [21.0]
160	194 [7.65]	212 [8.36]	9.8 [21.7]
200	201 [7.90]	219 [8.61]	10.2 [22.5]
250	208 [8.20]	226 [8.91]	10.6 [23.4]
300	214 [8.44]	232 [9.15]	11.0 [24.3]
400	233 [9.15]	251 [9.86]	12.0 [26.4]

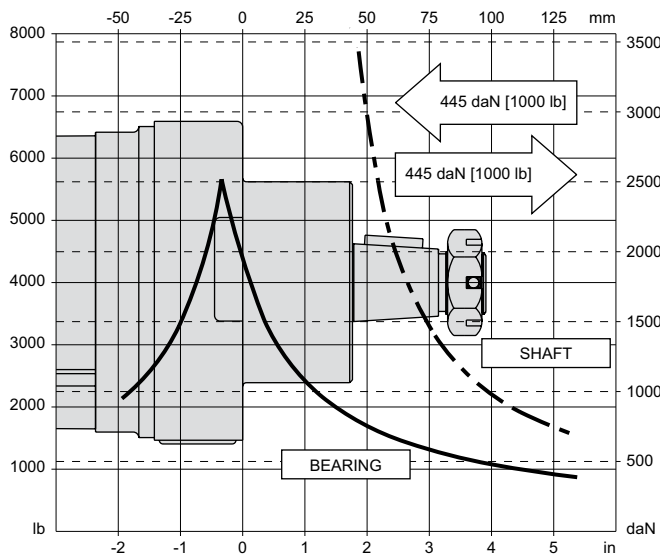
► Add 1.2 kg [2.7 lb] to the weight listed to the right for SAE B mount housings.

Dimension T 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 page 11.

T	Endcovers on pg. 8	Endcovers on pg. 9	Weight
#	mm [in]	mm [in]	kg [lb]
050	180 [7.09]	198 [7.80]	8.3 [18.4]
080	184 [7.23]	202 [7.94]	8.6 [18.9]
090	186 [7.31]	204 [8.02]	8.7 [19.1]
110	189 [7.45]	207 [8.16]	8.9 [19.6]
125	192 [7.55]	210 [8.26]	9.0 [19.9]
160	197 [7.77]	215 [8.48]	9.3 [20.6]
200	204 [8.02]	222 [8.73]	9.7 [21.4]
250	211 [8.32]	229 [9.03]	10.1 [22.3]
300	218 [8.56]	236 [9.27]	10.5 [23.2]
400	236 [9.27]	254 [9.98]	11.5 [25.3]

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

WHEEL MOUNTS



BEARING LOAD MULTIPLICATION FACTOR TABLE

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

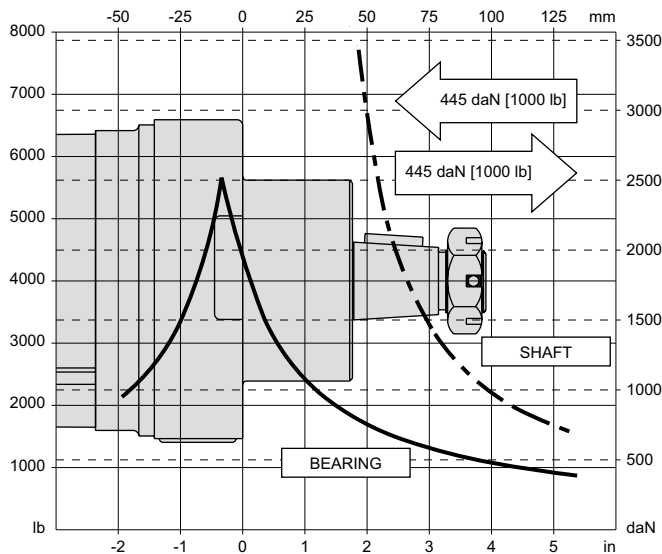


TECHNICAL INFORMATION

ALLOWABLE SHAFT LOAD / 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 on page 12.

WHEEL MOUNTS



LENGTH & WEIGHT CHART

Dimension U 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 page 11.

U	Endcovers on pg. 8	Endcovers on pg. 9	Weight
#	mm [in]	mm [in]	kg [lb]
050	140 [5.51]	158 [6.22]	11.5 [25.3]
080	144 [5.65]	162 [6.36]	11.7 [25.7]
090	145 [5.70]	163 [6.41]	11.8 [25.9]
110	148 [5.84]	166 [6.55]	12.0 [26.5]
125	151 [5.93]	169 [6.64]	12.1 [26.7]
160	156 [6.16]	174 [6.87]	12.4 [27.4]
200	163 [6.41]	181 [7.12]	12.8 [28.3]
250	170 [6.71]	188 [7.42]	13.2 [29.7]
300	177 [6.95]	195 [7.66]	13.6 [30.0]
400	195 [7.61]	213 [8.37]	14.6 [32.1]

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

MOUNTING / SHAFT LENGTH CHART

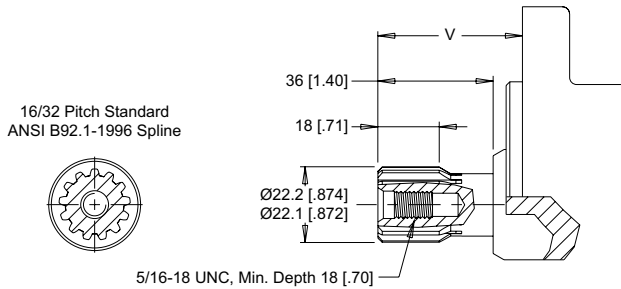
Dimension V is the overall distance from the motor mounting surface to the end of the shaft and is referenced on detailed housing drawings listed on page 14.

V	SAE A & B Mounts	Wheel Mounts	Square Mounts
#	mm [in]	mm [in]	mm [in]
01	44 [1.75]	82 [3.21]	41 [1.63]
02	49 [1.93]	86 [3.39]	46 [1.81]
07	81 [3.18]	118 [4.65]	78 [3.07]
08	81 [3.18]	118 [4.65]	78 [3.07]
10	49 [1.93]	86 [3.39]	46 [1.81]
12	55 [2.17]	92 [3.63]	52 [2.05]
15	69 [2.73]	106 [4.19]	66 [2.61]
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]



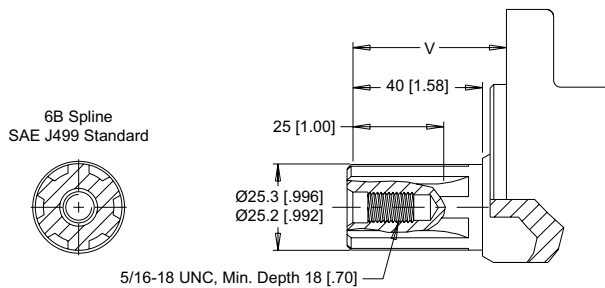
SHAFTS

01 7/8" 13 Tooth Spline



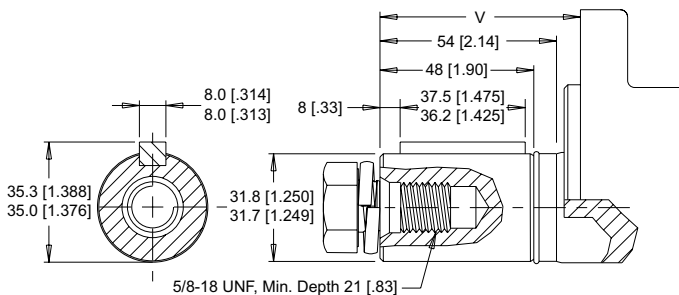
Max. Torque: 170 Nm [1500 lb-in]

02 1" 6B Spline



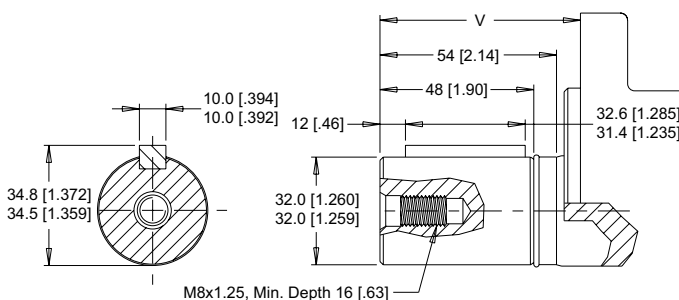
Max. Torque: 678 Nm [6000 lb-in]

07 1-1/4" Straight Extended



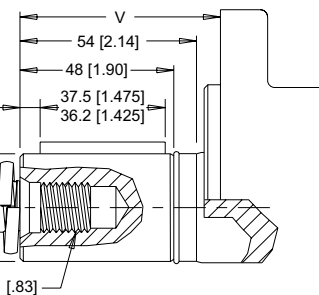
Max. Torque: 882 Nm [7804 lb-in]

08 32mm Straight Extended

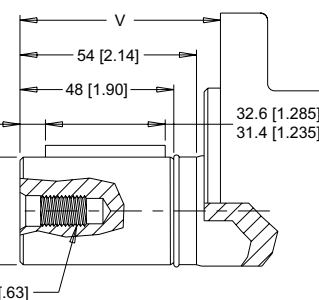


Max. Torque: 882 Nm [7804 lb-in]

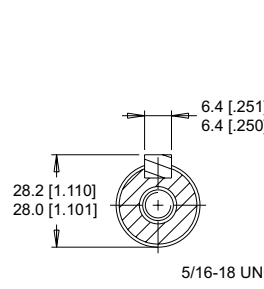
20 1-1/4" Straight



21 32mm Straight

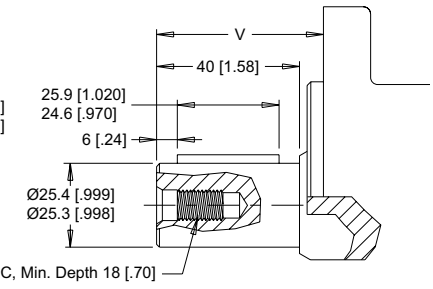


10 1" Straight

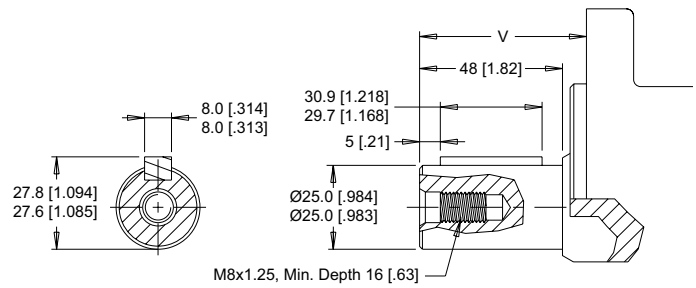


Max. Torque: 655 Nm [5800 lb-in]

15 1" Straight Extended

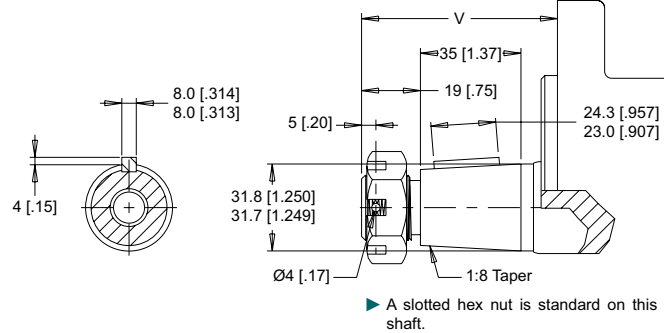


12 25mm Straight



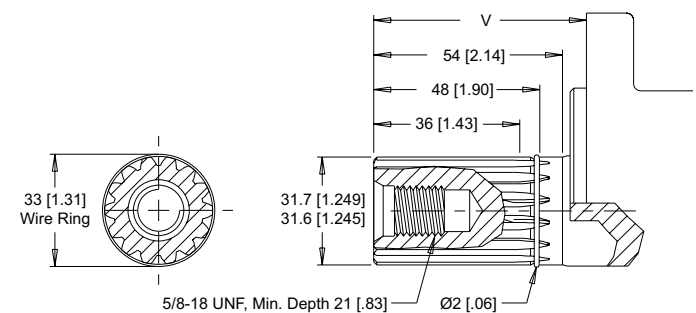
Max. Torque: 678 Nm [6000 lb-in]

22 1-1/4" Tapered



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

23 14 Tooth Spline



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

► Dimension V is charted on page 13.

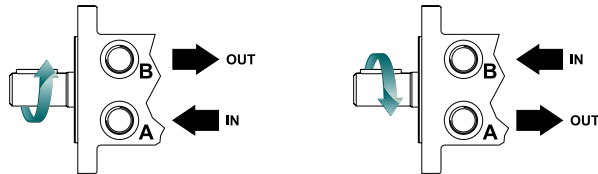


ORDERING INFORMATION

	1		2			3a	

1. CHOOSE SERIES DESIGNATION

300 Standard Motor



► The 300 series is bi-directional. Reversing the inlet hose will reverse shaft rotation.

2. SELECT A DISPLACEMENT OPTION

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

3a. SELECT MOUNT TYPE

▼ END MOUNTS

A0	2-Hole, SAE A Mount
A2	4-Hole, Magneto Mount
A4	6-Hole, SAE A Mount
B0	2-Hole, SAE B Mount
F2	4-Hole, Square Mount
W2	4-Hole, Wheel Mount

▼ SIDE MOUNTS

A7	2-Hole, SAE A Mount
A8	4-Hole, Magneto Mount
A9	6-Hole, SAE A Mount
B7	2-Hole, SAE B Mount
F8	4-Hole, Square Mount
W8	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
3	G 1/2, Offset Manifold
5	9/16-18 UNF Offset
6	1 1/16-12 UN, 180° Opposed
7	G 1/2, 180° Opposed

► Speed sensor option is not available on wheel mounts.

3b	4	5	6	7	8		

4. SELECT A SHAFT OPTION

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

► The 07, 08 & 15 extended shafts are designed for use with one of the speed sensor options listed in STEP 7.

5. SELECT A PAINT OPTION

A	Black
B	Black, Unpainted Mounting Surface
Z	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 & 5 and end ports 1 & 2.

7. SELECT AN ADD-ON OPTION

A	Standard
B	Lock Nut
C	Solid Hex Nut
W	Speed Sensor, Dual, 4-Pin Male Weatherpack Connector
X	Speed Sensor, Dual, 4-Pin M12 Male Connector
Y	Speed Sensor, Single, 3-Pin Male Weatherpack Connector
Z	Speed Sensor, Single, 4-Pin M12 Male Connector

8. SELECT A MISCELLANEOUS OPTION

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



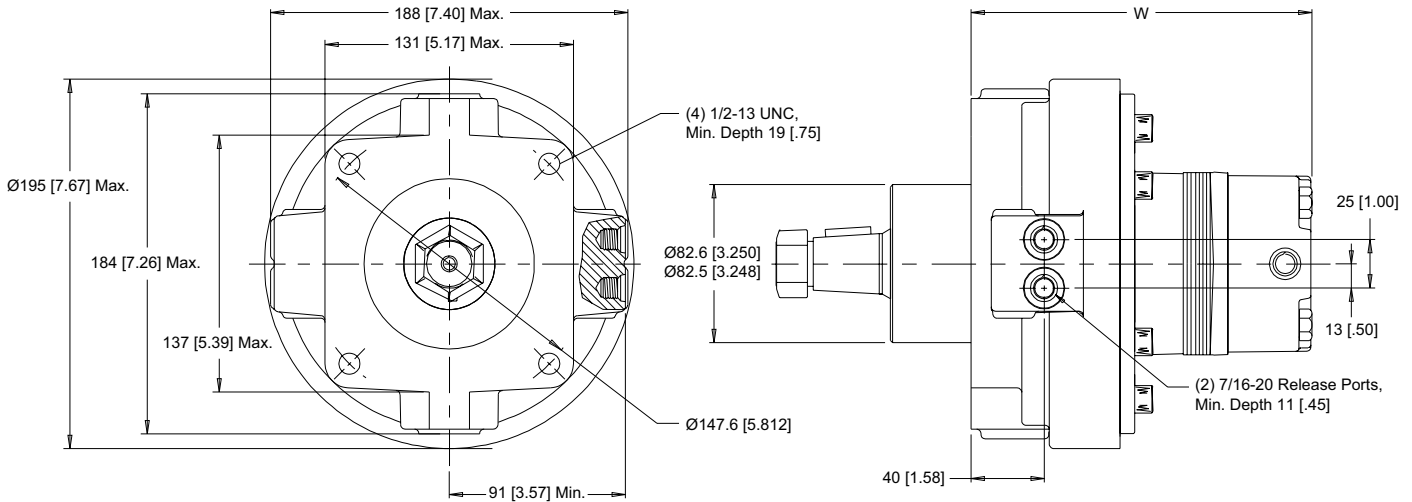
HOUSINGS

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

4-HOLE, MOTOR BRAKE

W2 End Ports

W8 Side Ports



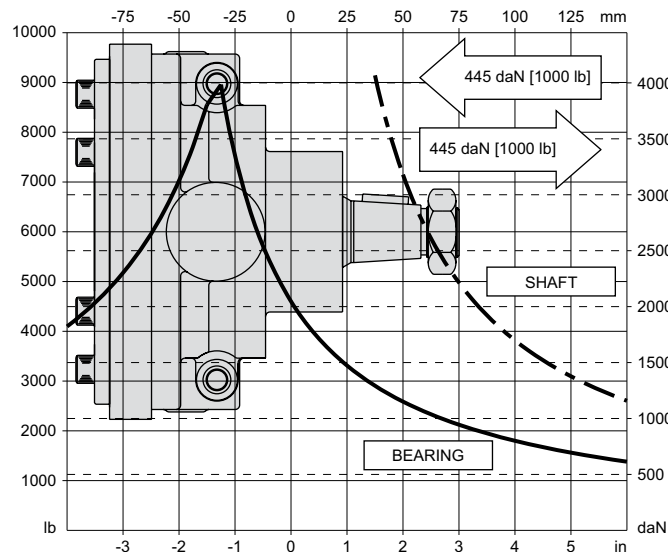
► Porting options listed on pages 8-9.

TECHNICAL INFORMATION

ALLOWABLE SHAFT LOAD / 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 on page 12.

MOTOR BRAKE



SPECIFICATIONS

Rated brake torque.....904 Nm [8000 lb-in]
Initial release pressure21 bar [300 psi]
Full release pressure31 bar [450 psi]
Maximum release pressure207 bar [3000 psi]
Release volume..... 13-16 cm³ [0.8 - 1.0 in³]

LENGTH & WEIGHT CHART

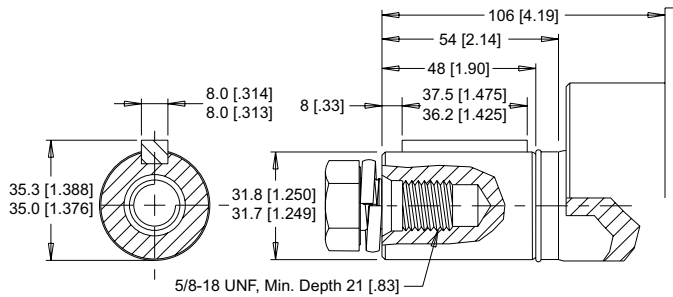
Dimension W is the overall motor length from the rear of the motor to the mounting flange surface.

W	Endcovers on pg. 8	Endcovers on pg. 9	Weight
#	mm [in]	mm [in]	kg [lb]
050	163 [6.41]	181 [7.12]	19.1 [42.2]
080	167 [6.56]	185 [7.27]	19.4 [42.7]
090	169 [6.64]	187 [7.35]	19.5 [42.9]
110	172 [6.78]	190 [7.49]	19.7 [43.4]
125	175 [6.87]	193 [7.58]	19.8 [43.7]
160	180 [7.10]	198 [7.81]	20.1 [44.4]
200	187 [7.35]	205 [8.06]	20.5 [45.3]
250	194 [7.32]	212 [8.36]	20.9 [46.1]
300	200 [7.65]	218 [8.59]	21.3 [47.0]
400	218 [8.60]	236 [9.31]	22.3 [49.1]

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

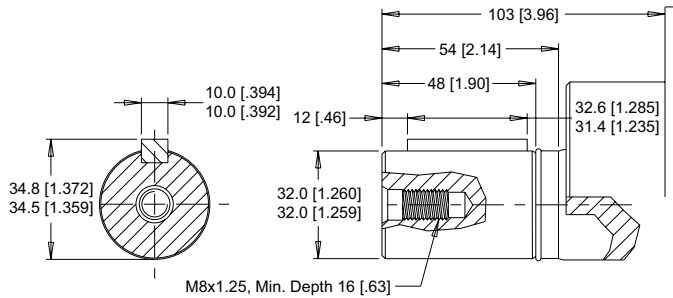
SHAFTS

20	1-1/4" Straight
----	-----------------



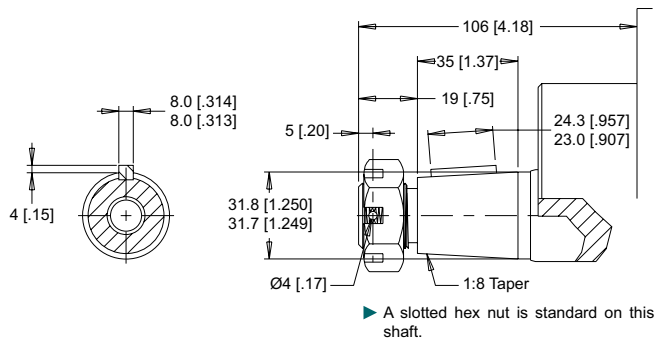
Max. Torque: 882 Nm [7804 lb-in]

21 32mm Straight



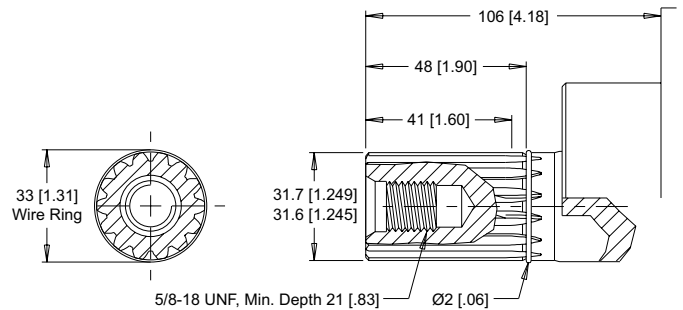
Max. Torque: 882 Nm [7804 lb-in]

22 1-1/4" Tapered



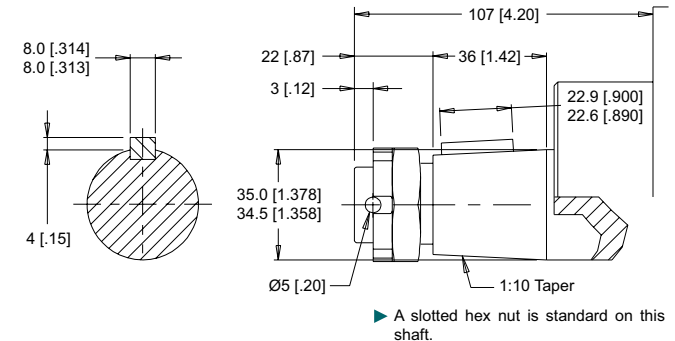
Max. Torque: 882 Nm [7804 lb-in]

23 14 Tooth Spline



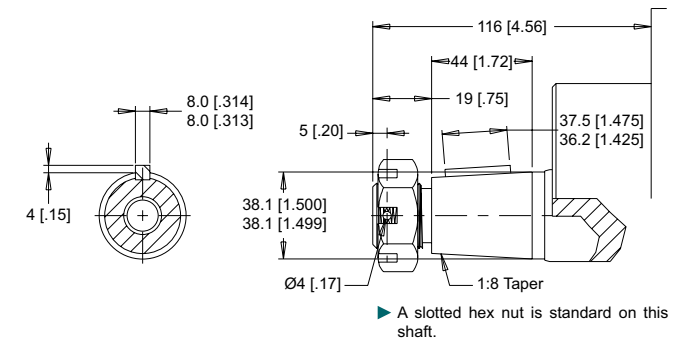
Max. Torque: 882 Nm [7804 lb-in]

28 35mm Tapered



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

31 1-1/2" Tapered



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

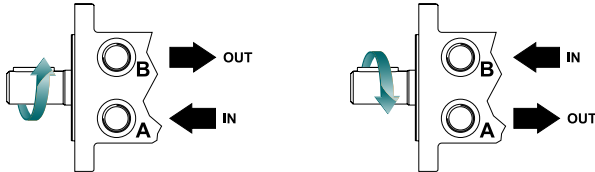


ORDERING INFORMATION

1		2		3a			

1. CHOOSE SERIES DESIGNATION

310 HB Series Motor/Brake



► The 310 series is bi-directional. Reversing the inlet hose will reverse shaft rotation.

2. SELECT A DISPLACEMENT OPTION

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

3a. SELECT MOUNT TYPE

▼ **END MOUNT**
W2 4-Hole, Motor/Brake

▼ **SIDE MOUNT**
W8 4-Hole, Motor/Brake

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, Aligned
2 G 1/2, Aligned
3 G 1/2, Offset Manifold
5 9/16-18 UNF Offset
6 1 1/16-12 UN, 180° Opposed
7 G 1/2, 180° Opposed

3b	4	5	6	7	8		

4. SELECT A SHAFT OPTION

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

5. SELECT A PAINT OPTION

A	Black
B	Black, Unpainted Mounting Surface
Z	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 & 5 and end 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



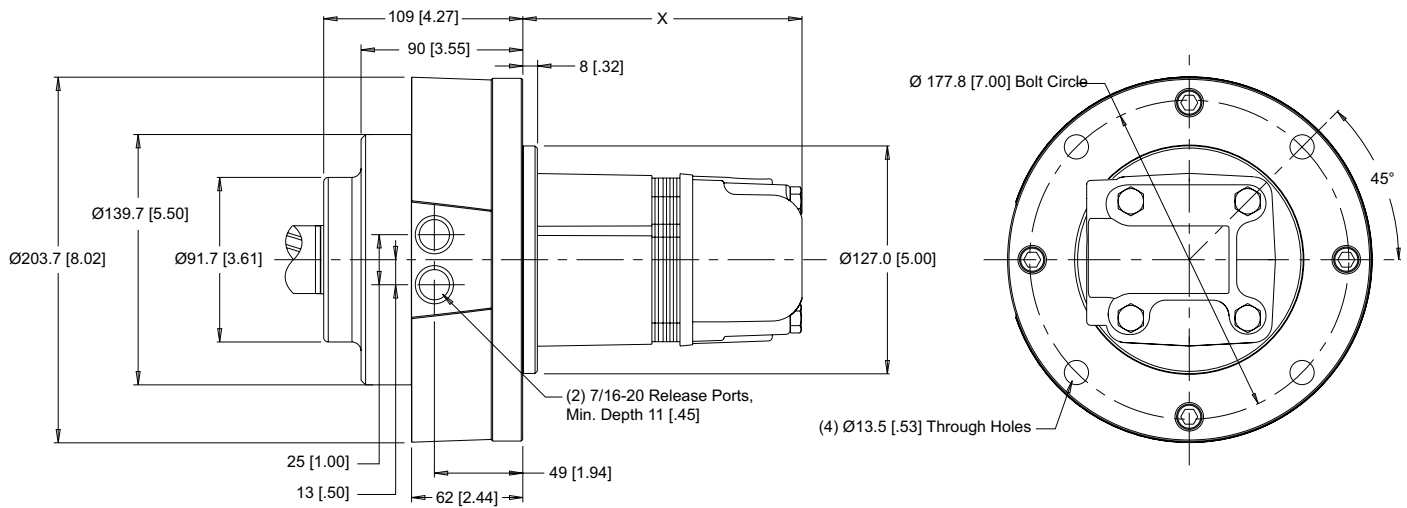
HOUSINGS

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

4-HOLE, MOTOR BRAKE

W2 End Ports

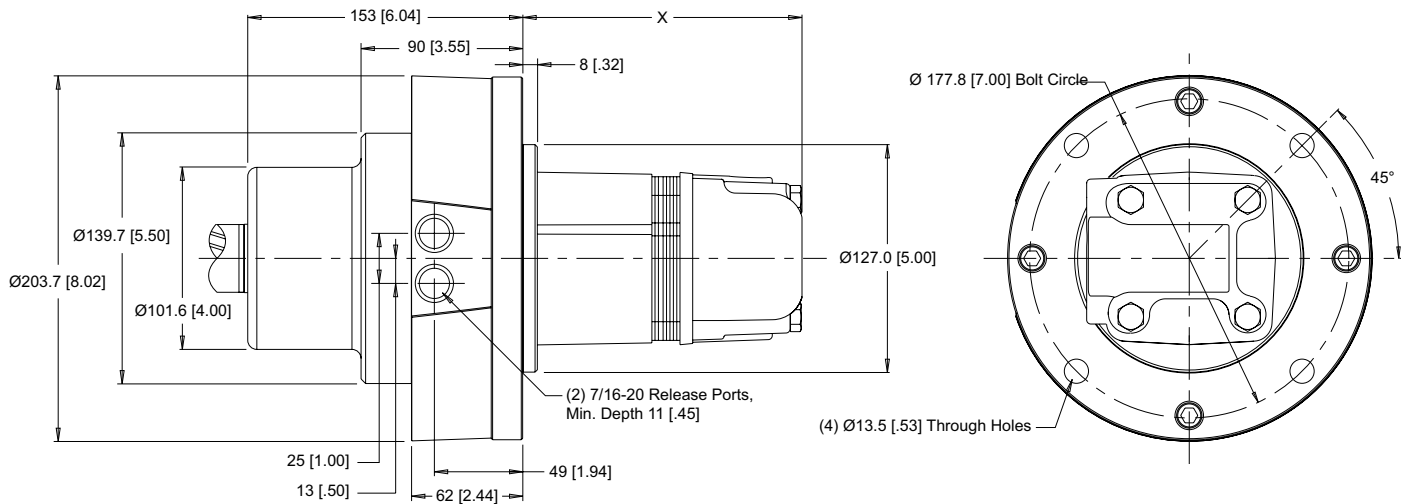
W8 Side Ports



4-HOLE, MOTOR BRAKE, TALL PILOT

WB End Ports

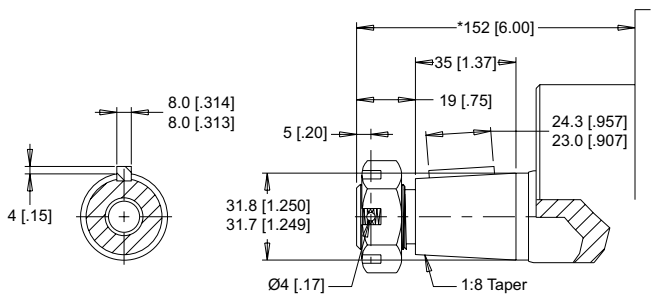
WC Side Ports



► Dimension X is charted on page 20. Porting options listed on pages 8-9.

SHAFTS

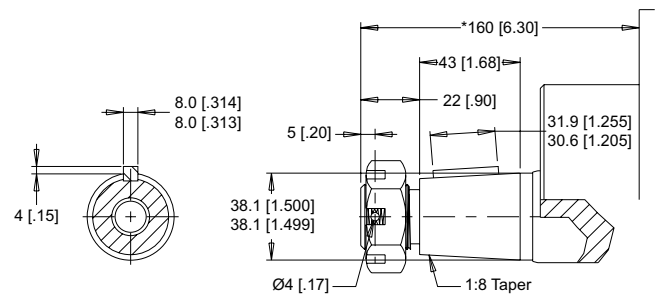
22 1-1/4" Tapered



► A slotted hex nut is standard on this shaft.

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

31 1-1/2" Tapered



► A slotted hex nut is standard on this shaft.

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

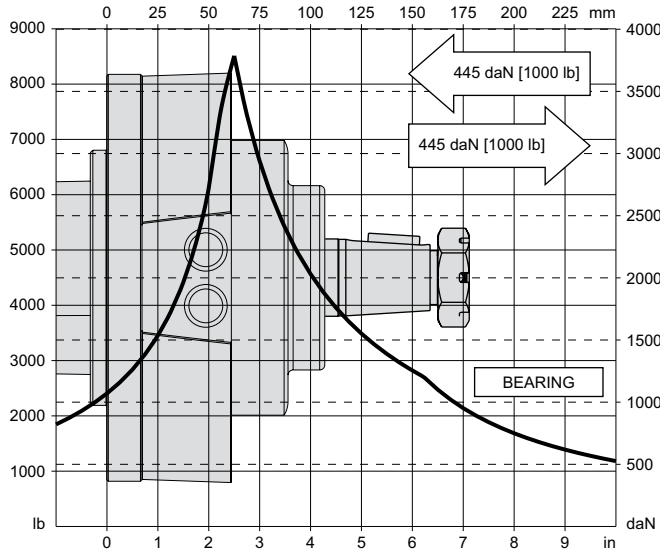
► * Dimension from end of shaft to mounting flange shown is for the W2 and W8. When using the WB or WC mount add 45 [1.77] from this dimension.

TECHNICAL INFORMATION

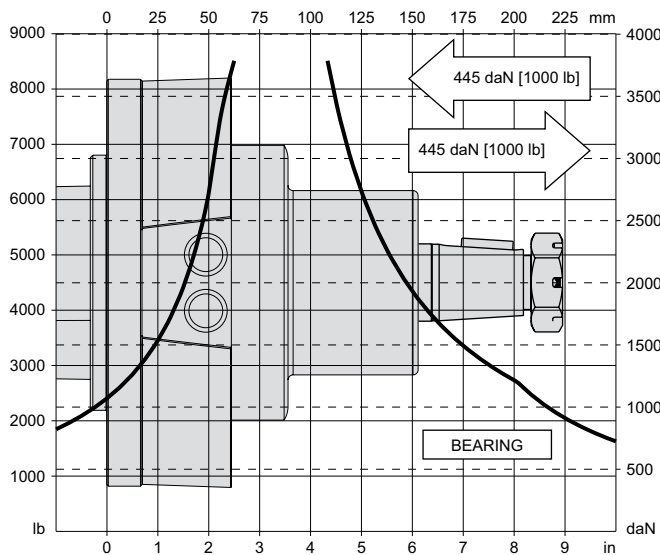
ALLOWABLE SHAFT LOAD / BEARING CURVE

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 on page 12.

MOTOR BRAKE (SHORT PILOT)



MOTOR BRAKE (TALL PILOT)



SPECIFICATIONS

Rated brake torque..... 1130 Nm [10000 lb-in]
Initial release pressure28 bar [400 psi]
Maximum release pressure207 bar [3000 psi]
Release volume..... 1.6 -16.4 cm³ [0.1 - 1.0 in³]

LENGTH & WEIGHT CHART

Dimension X is the overall motor length from the rear of the motor to the mounting flange surface.

X	Endcovers on pg. 8	Endcovers on pg. 9	Weight
#	mm [in]	mm [in]	kg [lb]
050	83 [3.26]	101 [3.97]	21.9 [48.2]
080	86 [3.40]	104 [4.11]	22.1 [48.7]
090	88 [3.45]	106 [4.16]	22.2 [48.9]
110	91 [3.59]	109 [4.30]	22.5 [49.4]
125	94 [3.68]	112 [4.39]	22.6 [49.7]
160	99 [3.91]	117 [4.62]	22.9 [50.4]
200	106 [4.16]	124 [4.87]	23.3 [51.3]
250	113 [4.46]	131 [5.17]	23.7 [52.1]
300	119 [4.70]	137 [5.41]	24.1 [53.0]
400	137 [5.41]	155 [6.12]	25.0 [55.1]

► 315 series motor/brake weights can vary ± 1 kg [2 lb] depending on model configurations such as housing, shaft, endcover, options etc. Add 1.4 kg [3 lb] to the weight listed for the Tall Pilot mount housings.

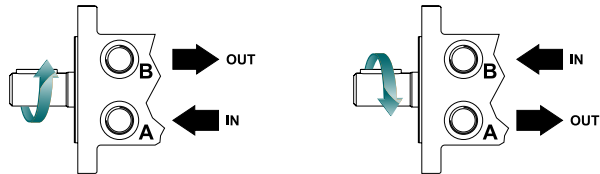


ORDERING INFORMATION

	1		2		3a		

1. CHOOSE SERIES DESIGNATION

315 HK Series Motor/Brake



► The 315 series is bi-directional. Reversing the inlet hose will reverse shaft rotation.

2. SELECT A DISPLACEMENT OPTION

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

3a. SELECT MOUNT TYPE

▼ END MOUNT

W2	4-Hole, Motor/Brake
WB	4-Hole, Motor/Brake (TP)

▼ SIDE MOUNT

W8	4-Hole, Motor/Brake
WC	4-Hole, Motor/Brake (TP)

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, Aligned
2	G 1/2, Aligned
3	G 1/2, Offset Manifold
5	9/16-18 UNF Offset
6	1 1/16-12 UN, 180° Opposed
7	G 1/2, 180° Opposed

3b	4	5	6	7	8		

4. SELECT A SHAFT OPTION

22 1-1/4" Tapered

31 1-1/2" Tapered

5. SELECT A PAINT OPTION

A	Black
B	Black, Unpainted Mounting Surface
Z	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 & 5 and end 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

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