



**CE**

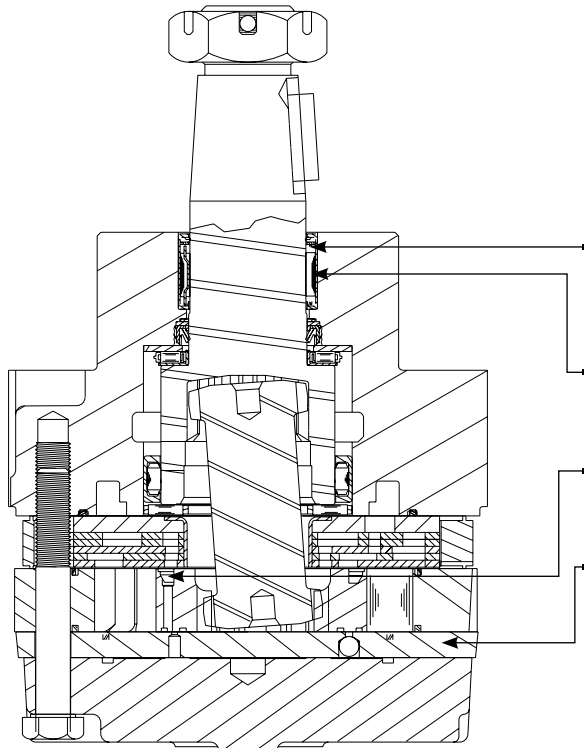
SERIES HYDRAULIC MOTORS

苏州帕凯德自动化有限公司

# CE

## OVERVIEW

The combination of compact size, light weight and low speed efficiency make the CE motor the best wheel drive motor available. To reduce overall motor length and weight, all unnecessary material was removed from the housing and the valve was placed in the face of the rotor. The pressure-compensated balance plate allows the motor to maintain high volumetric efficiencies at startup and high mechanical efficiencies during running conditions. All of these features unite to make the CE Series motor 10-25% lighter and more compact than competitive designs, making it perfect for applications with strict weight and size requirements.



### KEY FEATURES

- Needle Roller Bearing** is in optimum location to allow load to be placed as close to center line of bearing as possible.
- Three Bearing Options** allow load carrying capability of motor to be matched to application.
- Valve-In-Rotor Design** provides cost effective, efficient distribution of oil and reduces overall motor length.
- Pressure-Compensated Balance Plate** improves volumetric efficiency at low flows and high pressure.

## SPECIFICATIONS

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

CODE	Displacement cc [in <sup>3</sup> /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
120	121 [7.4]	360	490	45 [12]	61 [16]	322 [2850]	356 [3150]	207 [3000]	224 [3250]	241 [3500]
160	162 [9.9]	370	470	61 [16]	76 [20]	424 [3750]	501 [4430]	207 [3000]	224 [3250]	241 [3500]
200	204 [12.4]	300	370	61 [16]	76 [20]	525 [4650]	593 [5250]	207 [3000]	224 [3250]	241 [3500]
230	232 [14.2]	260	320	61 [16]	76 [20]	559 [4950]	646 [5720]	207 [3000]	224 [3250]	241 [3500]
260	261 [15.9]	260	350	68 [18]	91 [24]	706 [6250]	760 [6730]	207 [3000]	224 [3250]	241 [3500]
300	300 [18.3]	250	320	76 [20]	95 [25]	802 [7100]	862 [7630]	207 [3000]	224 [3250]	241 [3500]
350	348 [21.2]	220	270	76 [20]	95 [25]	904 [8000]	1017 [9000]	207 [3000]	224 [3250]	241 [3500]
375	375 [22.8]	200	250	76 [20]	95 [25]	972 [8600]	1040 [9200]	207 [3000]	224 [3250]	241 [3500]
470	465 [28.3]	160	200	76 [20]	95 [25]	1040 [9200]	1153 [10200]	172 [2500]	189 [2750]	207 [3000]
540	536 [32.7]	140	170	76 [20]	95 [25]	1003 [8875]	1209 [10700]	138 [2000]	172 [2500]	207 [3000]
750	748 [45.6]	100	130	76 [20]	95 [25]	1082 [9575]	1237 [10950]	103 [1500]	121 [1750]	138 [2000]



**120**

Pressure - bars [psi]							Max. Cont.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]	

121 cc [7.4 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], **Speed rpm** Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	21 [184] 14	47 [418] 13	84 [745] 10	114 [1008] 7					Theoretical rpm
	4 [1]	26 [226] 26	52 [459] 26	109 [969] 23	157 [1387] 21	203 [1793] 18	260 [2305] 13	290 [2566] 10	281 [2490] 7	
	8 [2]		52 [456] 58	110 [977] 56	161 [1424] 51	208 [1845] 47	269 [2382] 33	310 [2746] 29	347 [3066] 25	
	15 [4]		48 [422] 119	110 [975] 112	169 [1497] 103	225 [1992] 95	271 [2399] 91	327 [2896] 83	369 [3269] 82	
	23 [6]		46 [409] 187	106 [934] 182	158 [1402] 177	204 [1803] 173	248 [2199] 168	297 [2630] 160	372 [3290] 143	
	30 [8]			99 [876] 248	157 [1389] 244	207 [1829] 240	253 [2241] 233	323 [2857] 205	371 [3282] 201	
	38 [10]			96 [853] 306	156 [1379] 298	207 [1834] 293	257 [2278] 286	297 [2633] 279	359 [3178] 269	
	45 [12]			85 [749] 371	151 [1337] 360	206 [1823] 352	256 [2267] 345	305 [2695] 341	344 [3042] 335	
	53 [14]			77 [684] 437	137 [1215] 428	197 [1745] 418	251 [2222] 409	296 [2618] 404		
	61 [16]			71 [633] 499	135 [1191] 490	194 [1717] 482	244 [2163] 467	304 [2687] 454		

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

Theoretical Torque - Nm [lb-in]

33 [295]	67 [589]	133 [1178]	200 [1768]	266 [2357]	333 [2946]	399 [3535]	466 [4124]
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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.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]	

162 cc [9.9 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], **Speed rpm** Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	32 [287] 11	72 [634] 11	152 [1341] 10	215 [1906] 9	282 [2493] 8	326 [2888] 6	366 [3238] 4	412 [3643] 1	Theoretical rpm
	4 [1]	36 [318] 22	78 [690] 21	145 [1287] 20	225 [1991] 19	290 [2567] 16	346 [3060] 14	366 [3236] 8	416 [3680] 7	
	8 [2]	33 [296] 45	73 [649] 44	145 [1287] 43	227 [2010] 40	292 [2586] 36	357 [3156] 33	413 [3654] 31	464 [4108] 28	
	15 [4]	44 [386] 92	71 [630] 91	146 [1296] 88	226 [2000] 86	299 [2646] 79	364 [3226] 74	426 [3768] 71	485 [4289] 66	
	23 [6]		70 [623] 133	146 [1294] 131	225 [1991] 128	296 [2617] 122	365 [3232] 117	428 [3786] 115	492 [4352] 111	
	30 [8]		66 [583] 181	141 [1251] 177	216 [1916] 175	286 [2533] 171	350 [3102] 165	414 [3663] 159	476 [4210] 152	
	38 [10]		61 [537] 224	138 [1224] 223	212 [1873] 219	282 [2497] 213	347 [3072] 211	411 [3641] 204	473 [4183] 196	
	45 [12]		56 [495] 272	130 [1150] 265	207 [1829] 264	279 [2465] 262	344 [3046] 256	407 [3603] 249	470 [4157] 242	
	53 [14]			123 [1088] 318	196 [1737] 313	269 [2384] 306	332 [2939] 297	400 [3540] 295	464 [4111] 284	
	61 [16]			114 [1010] 362	187 [1659] 356	263 [2327] 351	329 [2910] 344	395 [3499] 334	458 [4053] 330	
	68 [18]			102 [903] 410	180 [1593] 407	250 [2209] 401	319 [2822] 385	389 [3438] 382		
	76 [20]			96 [846] 455	174 [1536] 448	248 [2193] 438	316 [2798] 430	379 [3353] 423		

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

Theoretical Torque - Nm [lb-in]

45 [394]	89 [788]	178 [1576]	267 [2365]	356 [3153]	445 [3941]	534 [4729]	623 [5518]
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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.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]

204 cc [12.4 in<sup>3</sup>/rev.]

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm								Theoretical rpm
	40 [358]	92 [817]	180 [1596]	269 [2378]	348 [3083]				
2 [0.5]	8	8	8	7	6				10
4 [1]	17	15	15	12	11	427 [3782]	489 [4328]		19
8 [2]	36	34	32	31	28	451 [3989]	523 [4630]	586 [5189]	38
15 [4]	73	72	69	67	63	453 [4006]	530 [4693]	607 [5371]	75
23 [6]		111	107	104	100	451 [3989]	524 [4636]	605 [5353]	112
30 [8]		148	145	142	137	441 [3905]	518 [4584]	597 [5286]	150
38 [10]		185	184	181	177	429 [3798]	507 [4488]	587 [5198]	187
45 [12]			222	217	213	429 [3798]	506 [4476]	583 [5161]	224
53 [14]			259	256	250	410 [3628]	492 [4354]	571 [5049]	261
61 [16]			298	297	284	399 [3534]	484 [4285]	562 [4971]	299
68 [18]			334	330	327	395 [3493]	481 [4260]		336
76 [20]			366	365	361	372 [3288]	465 [4115]		373

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

Theoretical Torque - Nm [lb-in]

56 [494]	112 [987]	223 [1975]	335 [2962]	446 [3949]	558 [4936]	669 [5924]	781 [6911]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

**230**

Pressure - bars [psi]						Max. Cont.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]

232 cc [14.2 in<sup>3</sup>/rev.]

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm								Theoretical rpm
	46 [406]	98 [866]	209 [1849]	300 [2659]	380 [3367]				
2 [0.5]	7	7	6	5	2				9
4 [1]	14	13	12	11	8	488 [4315]	543 [4808]		17
8 [2]	30	28	26	26	22	520 [4599]	594 [5260]	662 [5856]	33
15 [4]	62	61	59	57	53	522 [4623]	610 [5395]	683 [6045]	66
23 [6]	96	96	93	91	87	486 [4304]	560 [4953]	642 [5678]	98
30 [8]		128	125	122	119	506 [4479]	600 [5313]	647 [5728]	131
38 [10]		162	159	156	153	493 [4363]	584 [5169]	634 [5613]	163
45 [12]			192	191	188	491 [4349]	576 [5094]	658 [5822]	196
53 [14]			225	225	220	470 [4160]	555 [4910]	657 [5818]	228
61 [16]			259	259	253	464 [4110]	553 [4895]	637 [5637]	261
68 [18]			291	289	286	447 [3956]	540 [4777]		293
76 [20]			325	323	319	432 [3825]	529 [4677]		326

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

Theoretical Torque - Nm [lb-in]

64 [565]	128 [1131]	256 [2261]	383 [3392]	511 [4522]	639 [5653]	767 [6783]	894 [7914]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



260

Pressure - bars [psi]						Max. Cont.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]

261 cc [15.9 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], Speed rpm Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm								Theoretical rpm
	58 [514]	127 [1120]	242 [2140]	347 [3068]	425 [3759]				
2 [0.5]	6	5	4	3	1				8
4 [1]	12	10	9	8	6	495 [4377]			15
8 [2]	26	23	20	20	17	562 [4972]	633 [5599]		30
15 [4]	54	51	48	46	42	600 [5306]	700 [6192]	781 [6915]	59
23 [6]	84	81	74	74	69	609 [5391]	713 [6309]	815 [7214]	88
30 [8]		111 [981]	242 [2143]	369 [3268]	489 [4327]	607 [5374]	711 [6290]	810 [7167]	117
38 [10]		113	107	105	100	89	81	71	146
45 [12]		103 [909]	230 [2034]	357 [3161]	483 [4273]	595 [5267]	700 [6198]	762 [6740]	175
53 [14]		142	137	134	128	119	109	98	204
61 [16]		87 [771]	216 [1915]	345 [3057]	452 [4002]	578 [5111]	645 [5708]	741 [6557]	233
68 [18]		173	169	166	161	152	143	129	262
76 [20]		75 [664]	202 [1786]	331 [2928]	434 [3841]	553 [4897]	657 [5811]	759 [6718]	291
83 [22]		203	201	195	191	183	170	157	320
91 [24]		61 [538]	191 [1687]	313 [2769]	435 [3847]	553 [4892]	656 [5803]	746 [6601]	349
		232	131	226	220	210	199	189	
			168 [1486]	295 [2614]	414 [3664]	526 [4652]	638 [5642]	742 [6567]	
			258	255	248	242	229	215	
			152 [1345]	277 [1455]	403 [3570]	520 [4598]	631 [5585]		
			287	286	281	271	257		
			129 [1143]	249 [2208]	381 [3372]	493 [4365]	620 [5489]		
			319	319	312	299	287		
			104 [924]	233 [2063]	358 [3166]	471 [4168]	551 [4875]		
			348	346	335	333	332		

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

Theoretical Torque - Nm [lb-in]

72 [633]	143 [1266]	286 [2532]	429 [3798]	572 [5064]	715 [6330]	858 [7596]	1001 [8861]
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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.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]

300 cc [18.3 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], Speed rpm Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm								Theoretical rpm
	63 [559]	136 [1202]	285 [2518]	413 [3656]	513 [4537]	580 [5129]			
2 [0.5]	5	4	3	3	2	1			7
4 [1]	12	10	10	8	6	4			13
8 [2]	23	21	19	19	16	14	673 [5952]	743 [6572]	26
15 [4]	47	44	40	38	37	34	696 [6161]	774 [6852]	51
23 [6]	73	70	64	62	61	55	789 [6978]	877 [7762]	76
30 [8]		111 [986]	279 [2468]	424 [3752]	567 [5020]	685 [6059]	807 [7142]	920 [8139]	101
38 [10]		97	93	92	86	77	72	64	127
45 [12]		96 [853]	261 [2306]	417 [3687]	532 [4712]	659 [5832]	805 [7121]	903 [7994]	152
53 [14]		126	121	118	112	104	95	86	177
61 [16]		78 [689]	228 [2013]	367 [3252]	501 [4434]	643 [5694]	766 [6781]	890 [7875]	202
68 [18]		150	149	146	140	130	121	109	228
76 [20]		59 [525]	213 [1889]	385 [3410]	495 [4383]	623 [5509]	748 [6618]	812 [7186]	253
83 [22]		176	174	171	166	155	143	136	278
91 [24]			181 [1603]	349 [3085]	474 [4195]	620 [5484]	731 [6471]	850 [7519]	303
95 [25]			200	196	194	181	172	157	316
			159 [1405]	319 [2823]	479 [4241]	578 [5112]	718 [6356]	830 [7348]	
			227	225	219	212	196	186	
			126 [1115]	289 [2560]	418 [3703]	561 [4962]	703 [6221]	811 [7180]	
			252	251	248	240	225	207	
			104 [919]	261 [2309]	390 [3454]	555 [4907]	679 [6011]		
			277	276	274	263	252		
			67 [590]	218 [1925]	389 [3441]	530 [4686]	652 [5766]		
			302	301	299	293	282		
			56 [496]	197 [1740]	364 [3225]	484 [4281]	632 [5594]		
			314	313	310	309	298		

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

Theoretical Torque - Nm [lb-in]

82 [729]	165 [1457]	329 [2914]	494 [4371]	659 [5828]	823 [7285]	988 [8742]	1152 [10199]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



**350**

Pressure - bars [psi]							Max. Cont.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]	

348 cc [18.3 in<sup>3</sup>/rev.]

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm								Intermittent Ratings - 10% of Operation	
	70 [617]	147 [1297]	269 [2383]							
2 [0.5]	5	5	4							6
4 [1]	10	10	10	9						11
8 [2]	21	21	21	20	18	16	13			22
15 [4]	43	42	42	40	37	36	32	25		44
23 [6]	65	65	64	31	57	53	52	43		66
30 [8]	87	86	85	84	80	75	67	61		88
38 [10]	108	107	106	100	94	85	77			109
45 [12]	130	129	128	124	115	104	94			131
53 [14]	152	151	150	148	137	127	117			153
61 [16]										175
68 [18]										197
76 [20]										218
83 [22]										240
91 [24]										262
95 [25]										273

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

Theoretical Torque - Nm [lb-in]

95 [844]	191 [1688]	381 [3376]	572 [5064]	763 [6752]	954 [8439]	1144 [10127]	1335 [11815]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

**375**

Pressure - bars [psi]							Max. Cont.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500]	207 [3000]	241 [3500]	

375 cc [22.8 in<sup>3</sup>/rev.]

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm								Intermittent Ratings - 10% of Operation	
	78 [687]	162 [1438]	321 [2840]	447 [3958]	592 [5237]					
2 [0.5]	4	4	4	3	2					6
4 [1]	9	8	8	7	6	4				11
8 [2]	19	18	17	16	15	13	9			21
15 [4]	39	38	36	36	33	29	25			41
23 [6]	60	59	58	56	51	44	43			61
30 [8]	81	80	77	76	71	63	61			82
38 [10]	101	99	97	92	83	74	77			102
45 [12]	121	119	117	112	107	93	94			122
53 [14]	141	140	139	135	126	114	117			142
61 [16]	162	161	160	155	147	135	139			163
68 [18]										183
76 [20]										203
83 [22]										223
91 [24]										244
95 [25]										254

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

Theoretical Torque - Nm [lb-in]

103 [908]	205 [1815]	410 [3631]	615 [5446]	821 [7261]	1026 [9076]	1231 [10892]	1436 [12707]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



**470**

Pressure - bars [psi]				Max. Cont.	Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	173 [2500] 207 [3000]

465 cc [28.3 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], Speed rpm Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	99 [878] 4	210 [1862] 3	420 [3713] 3						Theoretical rpm
	4 [1]	102 [899] 8	210 [1856] 7	424 [3748] 7	597 [5285] 7	774 [6847] 6				
	8 [2]	102 [906] 16	222 [1968] 15	438 [3875] 15	620 [5488] 14	782 [6922] 13	957 [8470] 11	1106 [9788] 9		
	15 [4]	95 [836] 32	208 [1837] 31	407 [3600] 30	605 [5351] 28	782 [6922] 25	961 [8504] 23	1143 [10118] 20		
	23 [6]	79 [700] 48	196 [1736] 48	426 [3772] 46	620 [5483] 44	814 [7204] 41	969 [8580] 36	1149 [10172] 31		
	30 [8]	61 [544] 65	179 [1588] 65	411 [3638] 63	630 [5578] 61	847 [7498] 57	1046 [9253] 48	1191 [10541] 44		
	38 [10]	40 [352] 81	159 [1405] 80	387 [3429] 80	618 [5471] 77	825 [7301] 73	1036 [9167] 67	1245 [11019] 55		
	45 [12]		125 [1105] 97	367 [3245] 96	587 [5197] 94	800 [7076] 90	1005 [8891] 82	1232 [10898] 72		
	53 [14]		103 [912] 113	340 [3007] 113	572 [5066] 111	767 [6787] 106	985 [8720] 100	1208 [10688] 91		
	61 [16]		63 [557] 130	306 [2712] 129	527 [4662] 128	744 [6581] 124	955 [8451] 116	1162 [10285] 105		
	68 [18]			260 [2298] 146	494 [4370] 145	708 [6262] 142	921 [8148] 135	1149 [10169] 126		
	76 [20]			219 [1941] 163	456 [4035] 163	673 [5954] 158	883 [7815] 151	1090 [9647] 140		
	83 [22]			174 [1542] 179	417 [3687] 178	634 [5612] 176	847 [7496] 168			
	91 [24]			138 [1225] 195	373 [3302] 194	605 [5354] 193	808 [7147] 186			
	95 [25]				348 [3079] 204	552 [4885] 203	769 [6808] 197			

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

Theoretical Torque - Nm [lb-in]

127 [1127]	255 [2253]	509 [4506]	764 [6760]	1018 [9013]	1273 [11266]	1528 [13519]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

**540**

Pressure - bars [psi]				Max. Cont.	Max. Inter.
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]	172 [2500]

536 cc [32.7 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], Speed rpm Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	106 [940] 3	230 [2035] 2							Theoretical rpm
	4 [1]	105 [927] 6	223 [1975] 6	455 [4023] 6	655 [5797] 5	868 [7684] 3				
	8 [2]	112 [991] 13	237 [2100] 13	488 [4321] 12	719 [6358] 10	911 [8065] 8	1087 [9617] 3			
	15 [4]	107 [944] 27	246 [2174] 26	503 [4455] 25	745 [6593] 24	952 [8426] 21	1131 [10005] 16			
	23 [6]	96 [854] 42	230 [2033] 41	516 [4571] 40	756 [6686] 40	1007 [8911] 36	1233 [10911] 30			
	30 [8]	69 [613] 56	208 [1843] 56	476 [4214] 54	760 [6724] 54	993 [8787] 49	1206 [10676] 42			
	38 [10]	59 [521] 70	184 [1631] 70	456 [4035] 69	720 [6367] 67	968 [8568] 64	1223 [10821] 56			
	45 [12]	30 [264] 84	155 [1376] 83	418 [3702] 83	688 [6089] 83	926 [8195] 78	1205 [10668] 69			
	53 [14]		123 [1089] 98	391 [3456] 98	630 [5576] 97	892 [7896] 95	1149 [10165] 88			
	61 [16]		90 [793] 113	361 [3197] 113	635 [5622] 112	896 [7925] 109	1137 [10061] 106			
	68 [18]		51 [452] 127	328 [2901] 126	592 [5238] 125	862 [7632] 124	1116 [9873] 118			
	76 [20]			278 [2460] 141	550 [4869] 140	816 [7222] 140	1076 [9526] 132			
	83 [22]			224 [1980] 154	447 [3954] 153	720 [6369] 151				
	91 [24]			180 [1590] 169	449 [3971] 168	754 [6673] 167				
	95 [25]			153 [1358] 176	426 [3768] 174	689 [6095] 173				

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

Theoretical Torque - Nm [lb-in]

147 [1302]	294 [2604]	588 [5207]	883 [7811]	1177 [10414]	1471 [13018]
------------	------------	------------	------------	--------------	--------------

Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



**750**

Pressure - bars [psi]		Max. Cont.		Peak
17 [250]	35 [500]	69 [1000]	104 [1500]	138 [2000]

748 cc [45.6 in<sup>3</sup>/rev.]

Torque - Nm [lb-in], Speed rpm **Intermittent Ratings - 10% of Operation**

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm					Theoretical rpm
2 [0.5]	108 [957] 2	231 [2041] 1				3
4 [1]	174 [1540] 4	340 [3010] 4	651 [5760] 4	950 [8408] 4	1233 [10916] 3	6
8 [2]	166 [1467] 9	367 [3246] 9	695 [6154] 9	1020 [9024] 9	1302 [11518] 7	11
15 [4]	170 [1501] 19	359 [3181] 19	719 [6366] 19	1086 [9607] 18	1325 [11729] 16	21
23 [6]	167 [1477] 29	344 [3048] 29	699 [6190] 28	1015 [8979] 27	1346 [11916] 25	31
30 [8]	129 [1142] 40	324 [2866] 39	700 [6191] 38	1053 [9316] 37	1345 [11898] 35	41
38 [10]	111 [979] 50	295 [2606] 49	656 [5809] 48	1039 [9191] 47	1390 [12305] 44	51
45 [12]	69 [614] 60	254 [2246] 59	631 [5586] 58	987 [8736] 57	1365 [12079] 56	61
53 [14]	47 [413] 69	227 [2009] 68	591 [5232] 66	957 [8469] 65	1346 [11913] 64	71
61 [16]		198 [1756] 80	555 [4909] 79	931 [8243] 77	1294 [11455] 74	82
68 [18]		136 [1203] 91	517 [4571] 90	879 [7778] 90	1230 [10884] 87	92
76 [20]		93 [827] 100	453 [4010] 99	820 [7257] 98	1191 [10540] 97	102
83 [22]			409 [3620] 109	786 [6958] 108		112
91 [24]			340 [3010] 120	747 [6609] 119		122
95 [25]			318 [2810] 126	693 [6130] 125		127

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

Theoretical Torque - Nm [lb-in]

205 [1815]	410 [3631]	821 [7261]	1231 [10892]	1641 [14522]
------------	------------	------------	--------------	--------------

Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

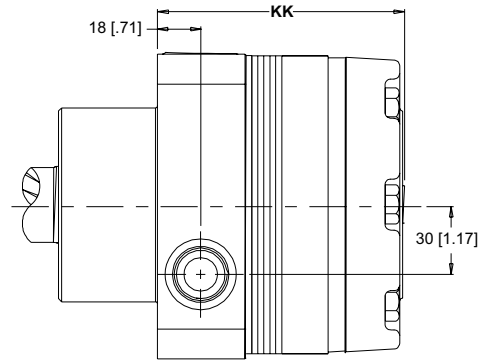
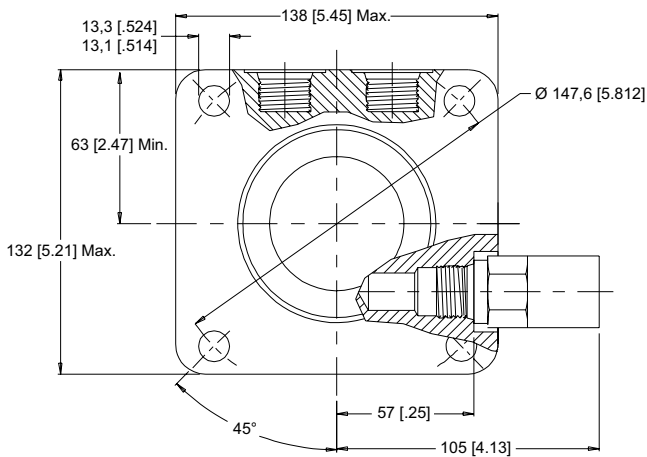
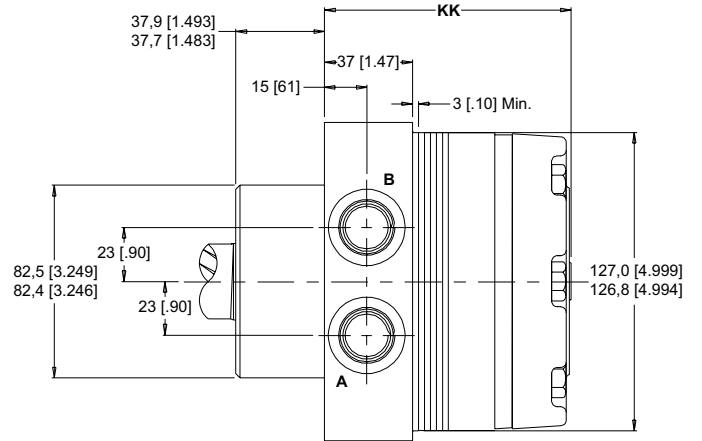
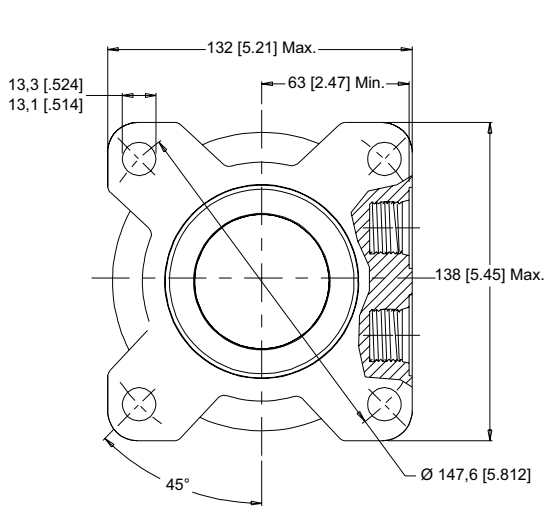




400 & 401 SERIES HOUSINGS (WHEEL MOUNT)

**W31** 4-Hole 7/8" O-Ring Aligned Ports

**W38** 4-Hole 1/2" BSP.F Aligned Ports



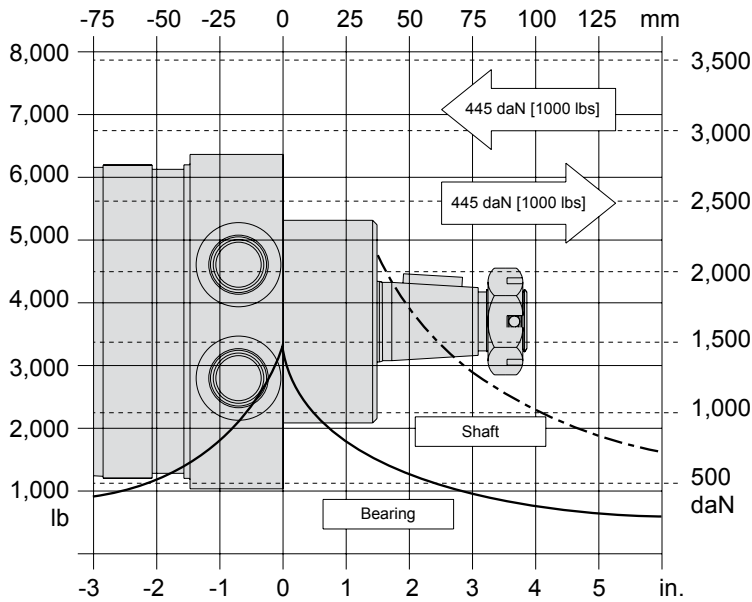
**NOTE:** Dimension KK is found on page 10. Optional Relief Cartridge shown installed and is available for both the W31 and W38 housings. Valve Cavity - 10 Series/2-way (7/8"-14 UNF-2B)



## 400 & 401 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 15.

### WHEEL MOUNT



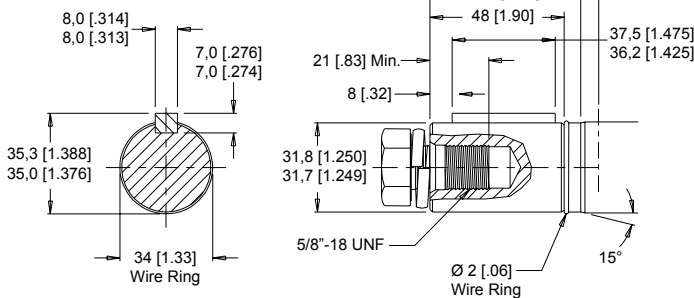
LENGTH / WEIGHT CHART Wheel Mount - Dimension KK		
Code	mm [in]	kg [lb]
120	99 [3.91]	10,9 [24.1]
160	99 [3.91]	10,9 [24.1]
200	103 [4.05]	11,3 [24.8]
230	105 [4.15]	11,4 [25.2]
260	108 [4.24]	11,6 [25.6]
300	111 [4.37]	11,9 [26.3]
350	125 [4.92]	13,1 [28.8]
375	117 [4.62]	12,4 [27.4]
470	125 [4.92]	13,1 [28.8]
540	131 [5.16]	13,6 [30.0]
750	149 [5.87]	15,0 [33.1]

**NOTE:**  
CE motor weights vary  $\pm 0,5$  kg [1 lb] depending upon motor configuration.

### SHAFTS

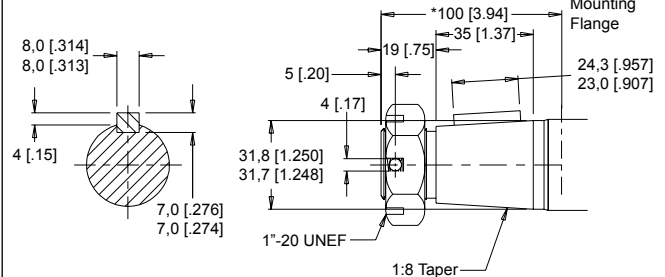
#### 20 1-1/4" Straight

Max. Torque: 1200 Nm [10600 lb-in]



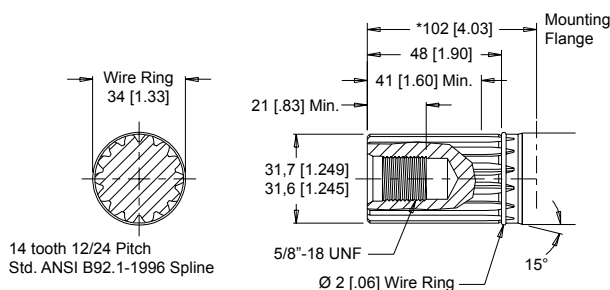
#### 22 1-1/4" Tapered

Max. Torque: 1200 Nm [10600 lb-in]



#### 23 1-1/4" 14 Tooth Spline

Max. Torque: 1200 Nm [10600 lb-in]



14 tooth 12/24 Pitch  
Std. ANSI B92.1-1996 Spline

**NOTE:** \* Shaft lengths may vary by  $\pm 0,8$ mm [.030 in].

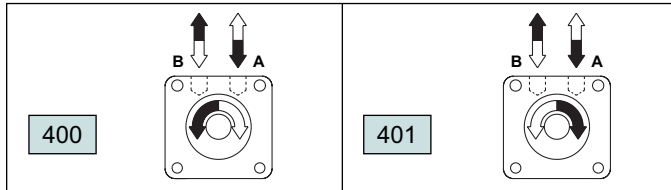


400 & 401 SERIES MODEL CODE BUILDER

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

- 400 Counterclockwise Rotation
- 401 Clockwise Rotation



**NOTE:** For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic above to determine the rotation code for the motor. For bi-directional applications, the 400 series is recommended. Preferred rotation is determined by internal valving design.

STEP 2 - Select a displacement option

120	121 cc	[7.4 in <sup>3</sup> /rev]	350	348 cc	[21.2 in <sup>3</sup> /rev]
160	162 cc	[9.9 in <sup>3</sup> /rev]	375	375 cc	[22.8 in <sup>3</sup> /rev]
200	204 cc	[12.4 in <sup>3</sup> /rev]	470	465 cc	[28.3 in <sup>3</sup> /rev]
230	232 cc	[14.2 in <sup>3</sup> /rev]	540	536 cc	[32.7 in <sup>3</sup> /rev]
260	261 cc	[15.9 in <sup>3</sup> /rev]	750	748 cc	[45.6 in <sup>3</sup> /rev]
300	300 cc	[18.3 in <sup>3</sup> /rev]			

STEP 3 - Select a housing option

- W31 4-Hole 7/8" O-Ring Aligned Ports
- W38 4-Hole 1/2" BSP.F Aligned Ports

STEP 4 - Select a shaft option

- 20 1-1/4" Straight
- 22 1-1/4" Tapered
- 23 14 Tooth Spline

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 1000 psi Relief Valve Installed
- D 1250 psi Relief Valve Installed
- E 1500 psi Relief Valve Installed
- F 1750 psi Relief Valve Installed
- G 2000 psi Relief Valve Installed
- J 2500 psi Relief Valve Installed
- L 3000 psi Relief Valve Installed

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
- AE Hydraulic Declutch with Freeturning Rotor

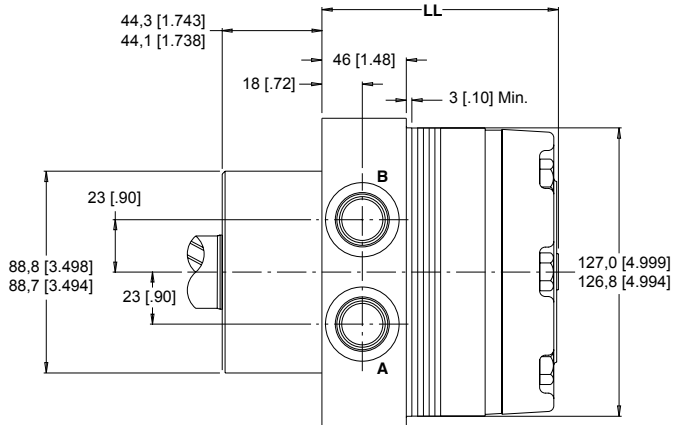
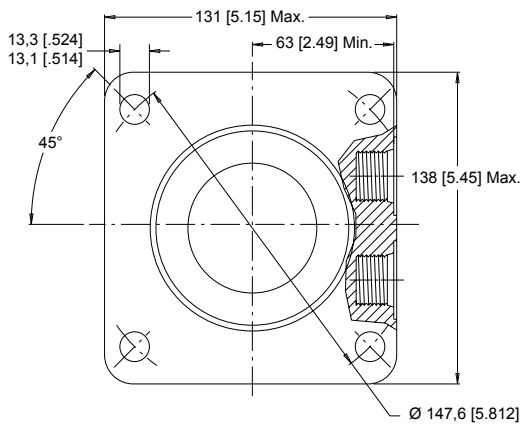


## 420 & 421 SERIES HOUSINGS (WHEEL MOUNT)

**W31** 4-Hole 7/8" O-Ring Aligned Ports

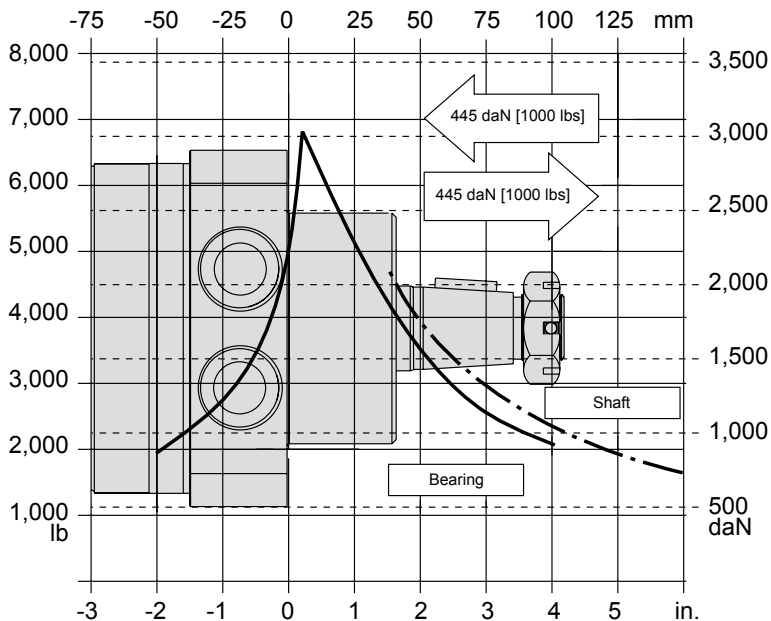
**W35** 4-Hole 9/16" O-Ring Aligned Ports

**W38** 4-Hole 1/2" BSP.F Aligned Ports



**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 15.

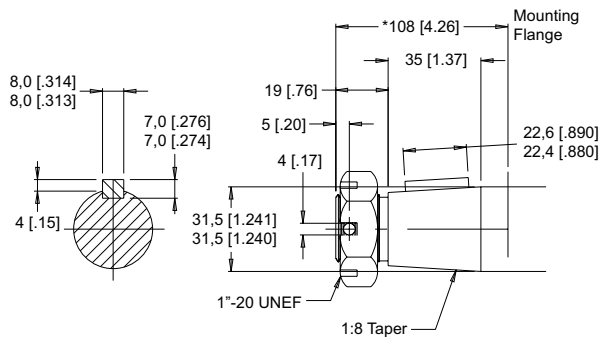
### WHEEL MOUNT



### SHAFT

**22** 1-1/4" Tapered

Max. Torque: 1200 Nm [10600 lb-in]



**NOTE:** \* Shaft lengths may vary by  $\pm 0,8\text{mm}$  [0.030 in].

LENGTH / WEIGHT CHART		
Wheel Mount - Dimension LL		
Code	mm [in]	kg [lb]
120	99 [3.91]	10,9 [24.1]
160	99 [3.91]	10,9 [24.1]
200	103 [4.05]	11,3 [24.8]
230	105 [4.15]	11,4 [25.2]
260	108 [4.24]	11,6 [25.6]
300	111 [4.37]	11,9 [26.3]
350	125 [4.92]	13,1 [28.8]
375	117 [4.62]	12,4 [27.4]
470	125 [4.92]	13,1 [28.8]
540	131 [5.16]	13,6 [30.0]
750	149 [5.87]	15,0 [33.1]

**NOTE:**  
CE motor weights vary  $\pm 0,5\text{ kg}$  [1 lb] depending upon motor configuration.

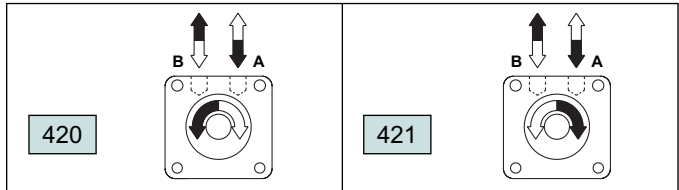


420 & 421 SERIES MODEL CODE BUILDER

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

- 420 Counterclockwise Rotation
- 421 Clockwise Rotation



**NOTE:** For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic above to determine the rotation code for the motor. For bi-directional applications, the 420 series is recommended. Preferred rotation is determined by internal valving design.

STEP 2 - Select a displacement option

120	121 cc	[7.4 in <sup>3</sup> /rev]	350	348 cc	[21.2 in <sup>3</sup> /rev]
160	162 cc	[9.9 in <sup>3</sup> /rev]	375	375 cc	[22.8 in <sup>3</sup> /rev]
200	204 cc	[12.4 in <sup>3</sup> /rev]	470	465 cc	[28.3 in <sup>3</sup> /rev]
230	232 cc	[14.2 in <sup>3</sup> /rev]	540	536 cc	[32.7 in <sup>3</sup> /rev]
260	261 cc	[15.9 in <sup>3</sup> /rev]	750	748 cc	[45.6 in <sup>3</sup> /rev]
300	300 cc	[18.3 in <sup>3</sup> /rev]			

STEP 3 - Select a housing option

- W31 4-Hole 7/8" O-Ring Aligned Ports
- W35 4-Hole 9/16" O-Ring Aligned Ports
- W38 4-Hole 1/2" BSP.F Aligned Ports

STEP 4 - Select a shaft option

- 22 1-1/4" 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

STEP 7 - Select an add on option

- A Standard
- B Lock Nut
- C Solid Hex Nut

STEP 8 - Select a miscellaneous option

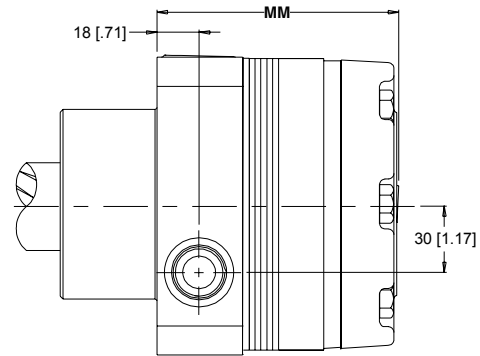
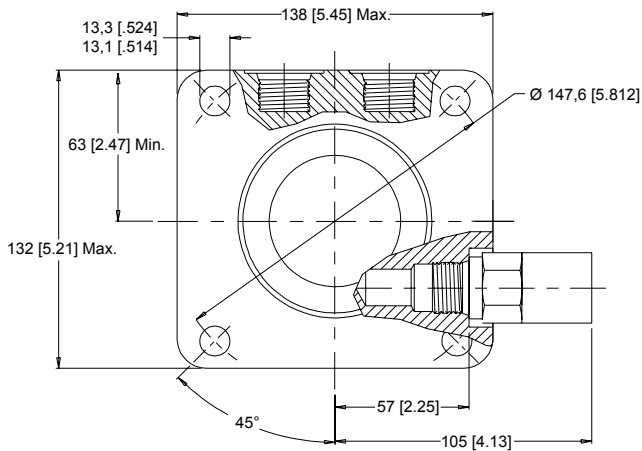
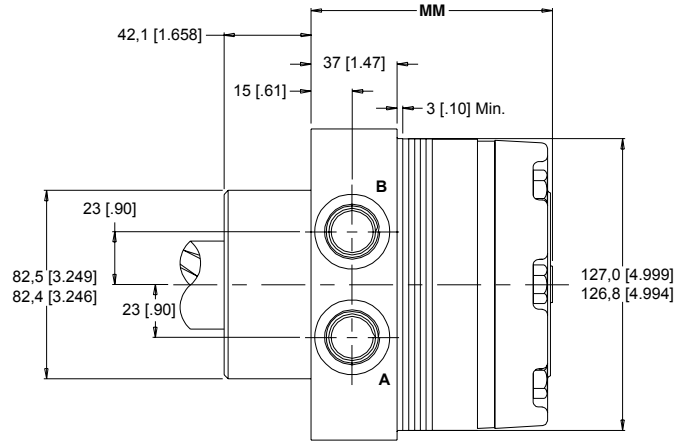
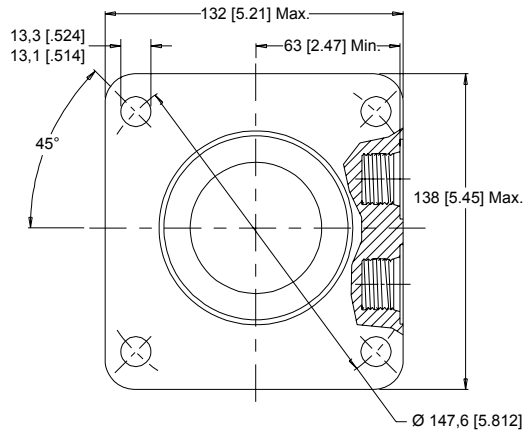
- AA None
- AC Freeturning Rotor
- AE Hydraulic Declutch with Freeturning Rotor



## 430 & 431 SERIES HOUSINGS (WHEEL MOUNT)

**W31** 4-Hole 7/8" O-Ring Aligned Ports

**W38** 4-Hole 1/2" BSP.F Aligned Ports

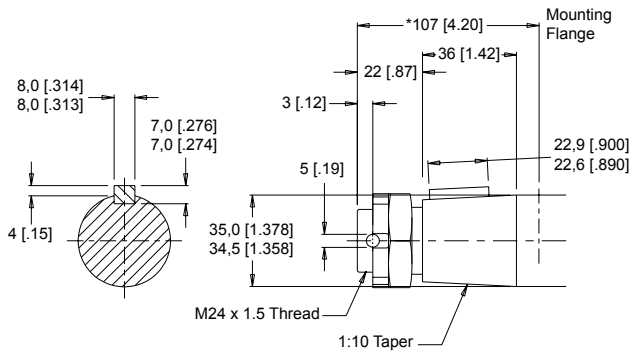


**NOTE:** Dimension MM is found on page 15. Optional Relief Cartridge shown installed and is available for both the W31 and W38 housings. Valve Cavity - 10 Series/2-way (7/8"-14 UNF-2B)



**28** 35mm Tapered

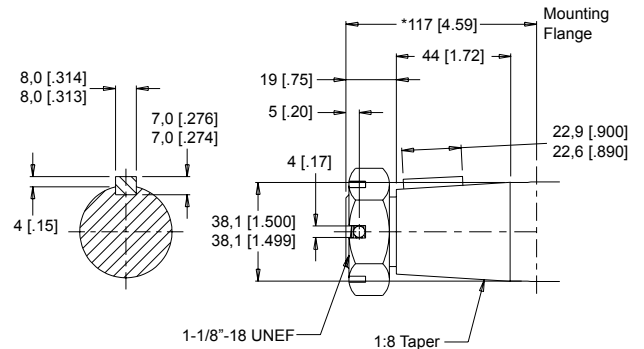
Max. Torque: 1200 Nm [10600 lb-in]



**NOTE:** \* Shaft lengths may vary by ± 0.8mm [.030 in].

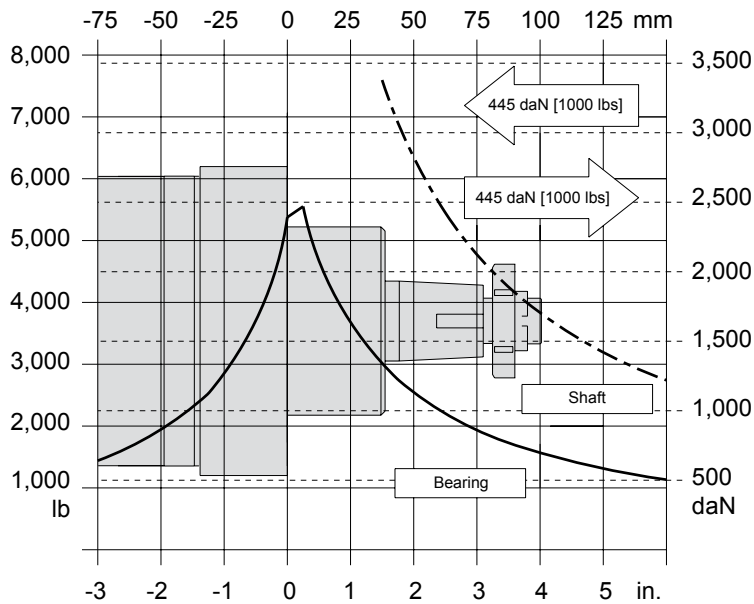
**31** 1-1/2" Tapered

Max. Torque: 1200 Nm [10600 lb-in]



**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.

WHEEL MOUNT



LENGTH / WEIGHT CHART Wheel Mount - Dimension MM		
Code	mm [in]	kg [lb]
120	99 [3.91]	10,9 [24.1]
160	99 [3.91]	10,9 [24.1]
200	103 [4.05]	11,3 [24.8]
230	105 [4.15]	11,4 [25.2]
260	108 [4.24]	11,6 [25.6]
300	111 [4.37]	11,9 [26.3]
350	125 [4.92]	13,1 [28.8]
375	117 [4.62]	12,4 [27.4]
470	125 [4.92]	13,1 [28.8]
540	131 [5.16]	13,6 [30.0]
750	149 [5.87]	15,0 [33.1]

**NOTE:**  
CE motor weights vary ± 0,5 kg [1 lb] depending upon motor configuration.

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

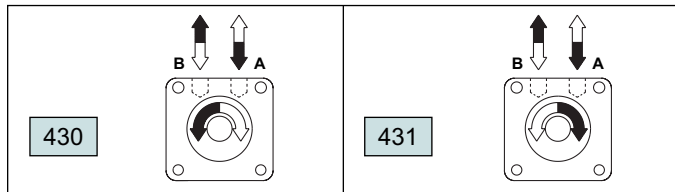


## 430 & 431 SERIES MODEL CODE BUILDER

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

- 430 Counterclockwise Rotation
- 431 Clockwise Rotation



**NOTE:** For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic above to determine the rotation code for the motor. For bi-directional applications, the 430 series is recommended. Preferred rotation is determined by internal valving design.

### STEP 2 - Select a displacement option

120	121 cc [7.4 in <sup>3</sup> /rev]	350	348 cc [21.2 in <sup>3</sup> /rev]
160	162 cc [9.9 in <sup>3</sup> /rev]	375	375 cc [22.8 in <sup>3</sup> /rev]
200	204 cc [12.4 in <sup>3</sup> /rev]	470	465 cc [28.3 in <sup>3</sup> /rev]
230	232 cc [14.2 in <sup>3</sup> /rev]	540	536 cc [32.7 in <sup>3</sup> /rev]
260	261 cc [15.9 in <sup>3</sup> /rev]	750	748 cc [45.6 in <sup>3</sup> /rev]
300	300 cc [18.3 in <sup>3</sup> /rev]		

### STEP 3 - Select a housing option

- W31 4-Hole 7/8" O-Ring Aligned Ports
- W38 4-Hole 1/2" BSP.F Aligned Ports

### STEP 4 - Select a shaft option

- 28 35mm 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 1000 psi Relief Valve Installed
- D 1250 psi Relief Valve Installed
- E 1500 psi Relief Valve Installed
- F 1750 psi Relief Valve Installed
- G 2000 psi Relief Valve Installed
- J 2500 psi Relief Valve Installed
- L 3000 psi Relief Valve Installed

### STEP 7 - Select an add on option

- A Standard
- B Lock Nut
- C Solid Hex Nut

### STEP 8 - Select a miscellaneous option

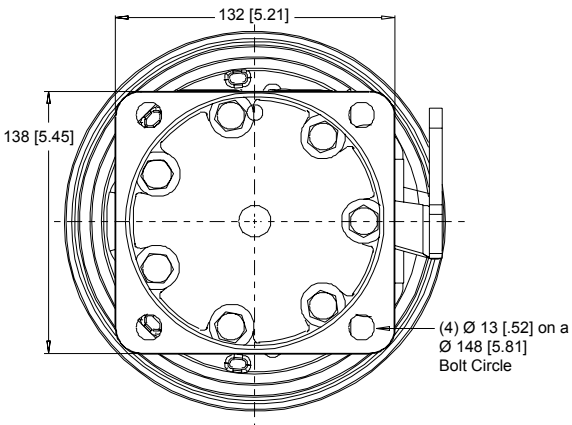
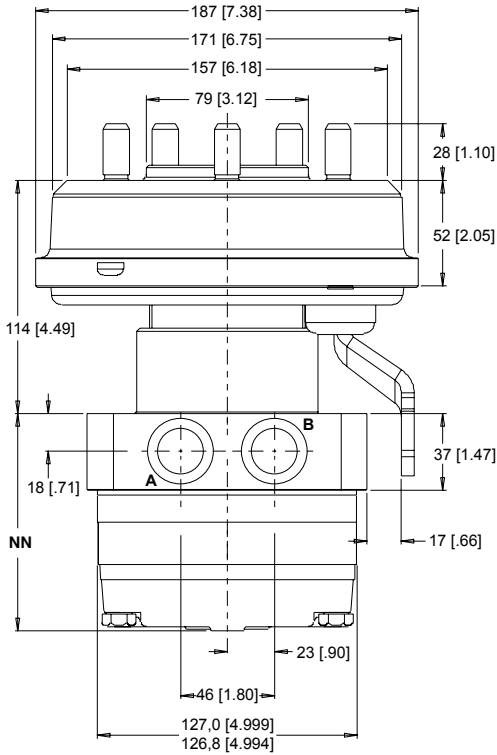
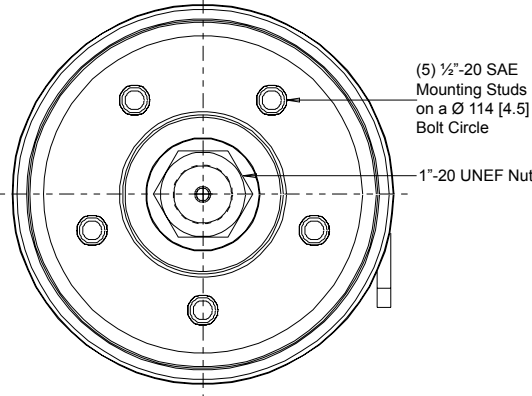
- AA None
- AC Freeturning Rotor
- AE Hydraulic Declutch with Freeturning Rotor





### 410 & 411 SERIES MOTOR WITH MECHANICAL DRUM BRAKE

- K31** 4-Hole 7/8" O-Ring Aligned Ports
- K35** 4-Hole 9/16" O-Ring Aligned Ports
- K38** 4-Hole 1/2" BSP.F Aligned Ports



#### OVERVIEW

**High Efficiency CE series Motor** provides exceptional low speed performance in one of the smallest wheel drive packages available today.

**Self-Adjusting Brake Mechanism** makes brake adjustments unnecessary by automatically adjusting for brake wear.

**Standard Wheel Mount Flange** adapts easily to new designs and can be retro-fitted onto older machines.

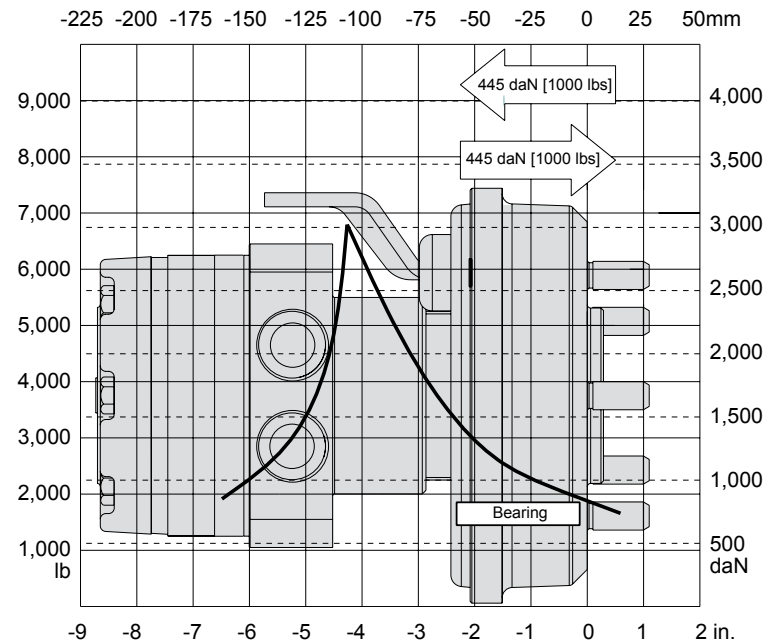
**4 and 5 Bolt Wheel Hubs** are available to accommodate a wide variety of wheel rims.

**Labyrinth Lip Design** incorporated into hub helps protect brake components from elements.

**2-Position Brake Lever** provides flexibility in the attachment of brake cables or actuating linkage.

#### 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 15.

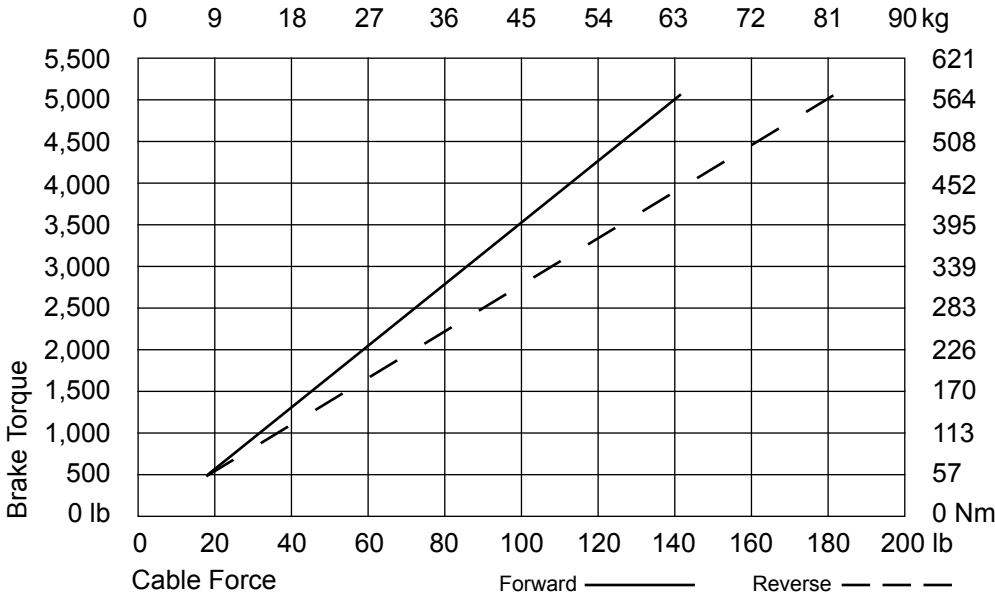


NOTE: Dimension NN is found on page 18.



## 410 & 411 SERIES MODEL CODE BUILDER

### BRAKE HOLDING TORQUE



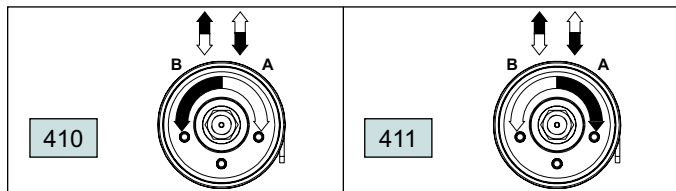
LENGTH / WEIGHT CHART Brake Mount - Dimension NN		
Code	mm [in]	kg [lb]
120	99 [3.91]	16,0 [35.2]
160	99 [3.91]	16,0 [35.2]
200	103 [4.05]	16,3 [35.9]
230	105 [4.15]	16,5 [36.3]
260	108 [4.24]	16,7 [36.7]
300	111 [4.37]	17,0 [37.4]
350	125 [4.92]	18,1 [39.9]
375	117 [4.62]	17,5 [38.5]
470	125 [4.92]	18,1 [39.9]
540	131 [5.16]	18,7 [41.1]
750	149 [5.87]	20,1 [44.2]

**NOTE:**  
CE motor weights vary ± 0,5 kg [1 lb] depending upon motor configuration.

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

- 410 Counterclockwise Rotation
- 411 Clockwise Rotation



**NOTE:** For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic above to determine the rotation code for the motor. For bi-directional applications, the 410 series is recommended. Preferred rotation is determined by internal valving design.

#### STEP 2 - Select a displacement option

120	121 cc [7.4 in <sup>3</sup> /rev]	350	348 cc [21.2 in <sup>3</sup> /rev]
160	162 cc [9.9 in <sup>3</sup> /rev]	375	375 cc [22.8 in <sup>3</sup> /rev]
200	204 cc [12.4 in <sup>3</sup> /rev]	470	465 cc [28.3 in <sup>3</sup> /rev]
230	232 cc [14.2 in <sup>3</sup> /rev]	540	536 cc [32.7 in <sup>3</sup> /rev]
260	261 cc [15.9 in <sup>3</sup> /rev]	750	748 cc [45.6 in <sup>3</sup> /rev]
300	300 cc [18.3 in <sup>3</sup> /rev]		

#### STEP 3 - Select a housing option

- K31 4-Hole 7/8" O-Ring Aligned Ports
- K35 4-Hole 9/16" O-Ring Aligned Ports
- K38 4-Hole 1/2" BSP.F Aligned Ports

#### STEP 4 - Select a shaft option

- 22 1-1/4" Tapered

#### STEP 5 - Select a paint option

- A Black
- Z No Paint

#### STEP 6 - Select a valve cavity option

- A None

#### STEP 7 - Select an add on option

- A Standard

#### STEP 8 - Select a miscellaneous option

- YA Brake Drum Right Hand Position 2, 5 Bolt Hub
- ZA Brake Drum Left Hand Position 1, 5 Bolt Hub
- YE Brake Drum Right Hand Position 2, 4 Bolt Hub
- ZE Brake Drum Left Hand Position 1, 4 Bolt Hub

### **Important Information**

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