

MJ SERIES

LOW SPEED HIGH TORQUE MOTORS



HIGH EFFICIENCY TORQUE MOTORS

The MJ Series Low Speed High Torque Motor is available in 10 displacement sizes. The MJ Series motor is constructed using heavy-duty roller bearings designed for extra side load capacity. A heavy-duty drive link provides greater resistance to pressure and torque spikes.



KEY FEATURES

- Shaft and Mounting options to match the most common SAE standards.**
- Three zone commutator valve for higher flows and higher pressure applications.
- Heavy-duty tapered roller bearings for extra side load capacity.
- Heavy-duty drive link with larger pitch diameter than competitors for greater resistance to pressure and torque spikes.
- Standard case drain with integral internal drain for extended shaft seal life.

MOTOR SPECIFICATIONS

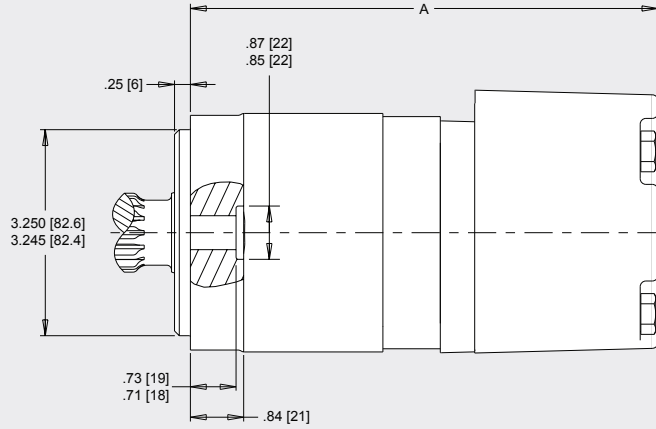
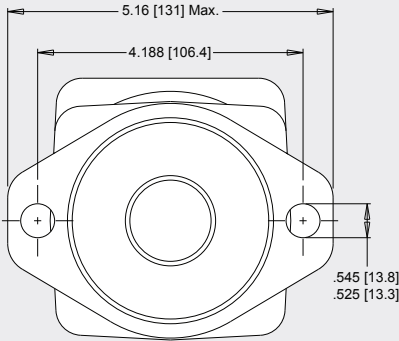
MODEL NUMBER	DISPLACEMENT IN ³ (CC)	MAX RPM* (CONTINUOUS)	MAX FLOW*		MAX TORQUE*		MAX PRESSURE*	
			GPM	LPM	LB-IN	NM	PSI	BAR
MJ080	4.8 (79)	870	16	61	1832	207	3000	207
MJ100	6.1 (100)	745	20	76	2475	280	3000	207
MJ110	6.9 (112)	675	20	76	2715	307	3000	207
MJ130	7.9 (129)	580	20	76	3275	370	3000	207
MJ160	9.9 (162)	465	20	76	4090	462	3000	207
MJ200	12.3 (202)	375	20	76	5100	576	3000	207
MJ230	13.9 (228)	325	20	76	5685	642	3000	207
MJ320	19.8 (325)	235	20	76	6980	789	2750	190
MJ400	24.4 (399)	190	20	76	7225	816	2250	155
MJ500	30.3 (496)	155	20	76	7295	824	1750	121

* Reference only, see performance data

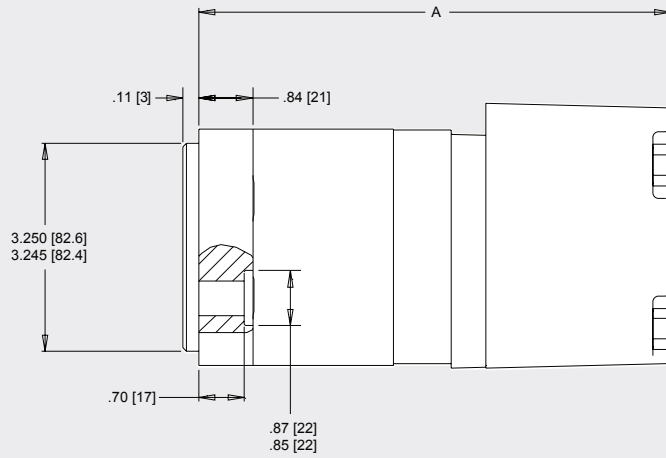
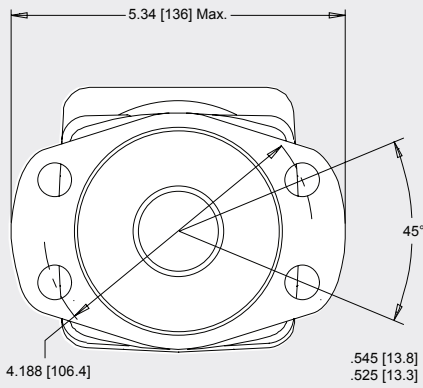
** Other options available, call for information and availability

DIMENSIONS

2 Bolt, SAE A Flange - Code: "A"



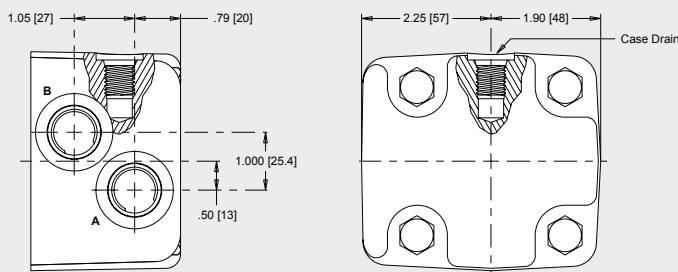
4 Hole Magneto Mount - Code: "U"



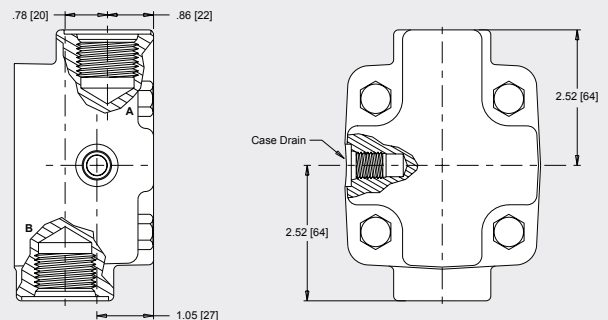
DIMENSION A					
MODEL	IN	MM	MODEL	IN	MM
080	7.27	185	200	8.04	204
100	7.27	185	230	8.28	210
110	7.36	187	320	8.99	228
130	7.49	190	400	8.99	228
160	7.74	197	500	9.60	244

PORT OPTIONS

7/8" O-Ring Offset with 7/16" Drain Port Code: "FM" - Dash Size: -10

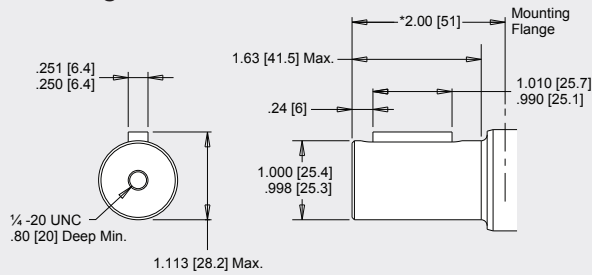


1-1/16" O-Ring 180 Opposed with 7/16" Drain Port Code: "FX" - Dash Size: -12

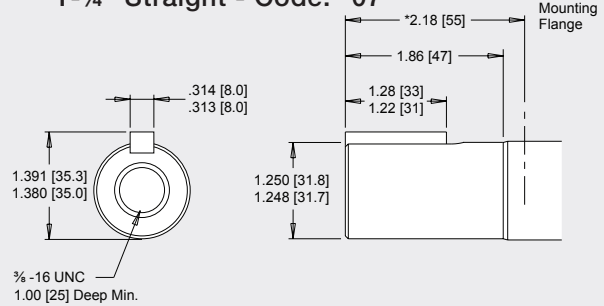


SHAFT OPTIONS

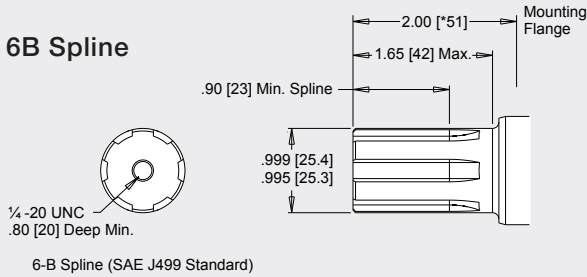
1" Straight - Code "1"



1-1/4" Straight - Code: "07"

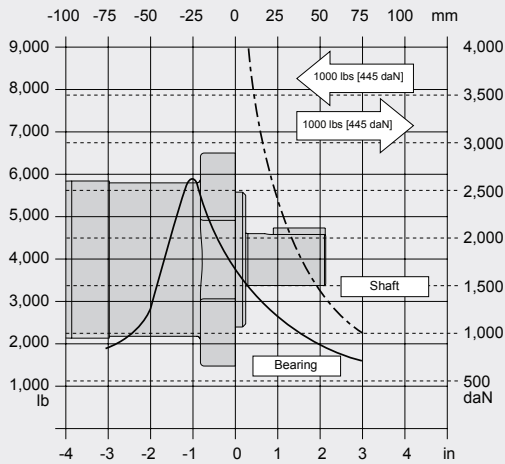


6B Spline



TECHNICAL SPECIFICATIONS

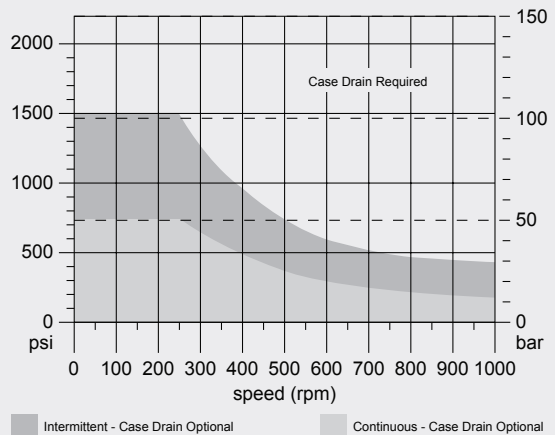
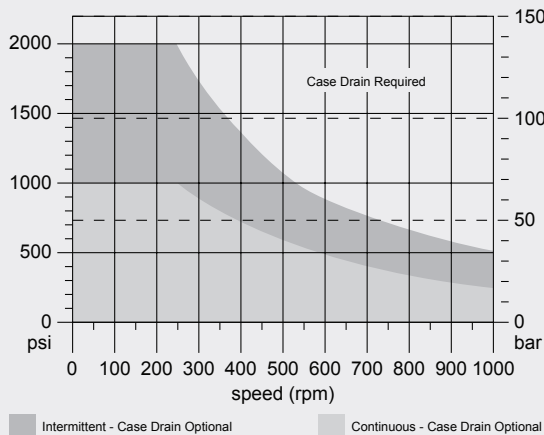
ALL MOUNT TYPES



Bearing Curve: The bearing curve represents allowable bearing loads for a B10 life of 2,000 hours @ 100 RPM. The curve includes affects of 1,000 lbs inward/outward net thrust.

*Case pressure will push outward on the shaft. If case drain line is not attached, case pressure will be nearly the same as motor return pressure. When case pressure is acting, the allowable axial load can be increased and the allowable outward axial load must be decreased at a rate of 130lb/100 psi [59kg/7bar].

PERMISSIBLE SHAFT SEAL PRESSURE



Note: Above chart represents shaft options that are less than 1.259 inches (32mm) in diameter.

Note: Above chart represents the 32mm shaft option. *This shaft not stocked, must be special ordered.

MODEL NUMBER CONSTRUCTION

M-J-100-01-A-FX XXX-RR

Type:

M (Motor)

Series J

DISPLACEMENT			
MODEL CODE	IN³ (CC)	MODEL CODE	IN³ (CC)
080	4.8 (79)	200	12.3 (202)
100	6.1 (100)	230	13.9 (228)
110	6.9 (112)	320	19.8 (325)
130	7.9 (129)	400	24.4 (399)
160	9.9 (162)	500	30.3 (496)

Special Features:

RR - Red Paint

Product Attributes:

XXX - None

Ports:

FM - 7/8"-14 O-Ring*

FX - 1-1/16"-12 O-Ring

Mounting Flange:

A - 2-Bolt, SAE A

U - Magneto

Shaft:

01 - 1" Straight (SAE B-B)

07 - 1-1/4" Straight (SAE C)

29 - 1" 6B Spline

PERFORMANCE DATA

		Pressure - psi [bars]								Max. Cont.		Max. Inter.		
		250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	3000 [207]	3500 [242]	4000 [276]				
080		4.8 in³/rev. [79 cc] Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation												
Flow - gpm [lpm]	0.5 [2]													
	1 [4]	61 [7] 47	201 [23] 47											
	2 [8]	79 [9] 97	244 [28] 95	568 [64] 90	887 [100] 85	1192 [135] 78								
	4 [15]	79 [9] 194	242 [27] 192	567 [64] 186	896 [101] 178	1216 [137] 167	1536 [174] 157	1832 [207] 142						
	6 [23]	58 [7] 291	224 [25] 289	550 [62] 282	875 [99] 271	1202 [136] 258	1519 [172] 242	1830 [207] 222	2141 [242] 198					
	8 [30]	29 [3] 388	196 [22] 388	524 [59] 380	841 [95] 367	1162 [131] 349	1479 [167] 328	1795 [203] 305	2123 [240] 279	2484 [281] 221				
	10 [38]		171 [19] 484	495 [56] 477	814 [92] 464	1129 [128] 444	1447 [164] 420	1766 [200] 393	2092 [236] 361	2470 [279] 306				
	12 [45]		127 [14] 581	465 [53] 575	781 [88] 562	1102 [125] 540	1411 [159] 513	1730 [195] 481	2062 [233] 441	2456 [278] 381				
	14 [53]		80 [9] 678	422 [48] 674	704 [79] 658	1055 [119] 635	1373 [155] 606	1689 [191] 571	2028 [229] 527					
	16 [61]		14 [2] 775	336 [38] 771	662 [75] 757	985 [111] 736	1337 [151] 704	1611 [182] 664	2109 [238] 608	2499 [282] 540				
18 [68]			298 [34] 871	602 [68] 858	896 [101] 833	1244 [141] 806	1661 [188] 750	2104 [238] 680	2507 [283] 605					
		Torque - lb-in [Nm], Speed rpm Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/>												
		194 [22]	388 [44]	777 [88]	1165 [132]	1553 [176]	1942 [219]	2330 [263]	2718 [307]	3107 [351]				
		Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]												

		Pressure - psi [bars]								Max. Cont.		Max. Inter.			
		250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	3000 [207]	3500 [242]	4000 [276]	4500 [310]				
100		6.10 in³/rev. [100 cc] Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation													
Flow - gpm [lpm]	0.5 [2]														
	1 [4]	120 [14] 11	313 [35] 8	681 [77] 6	1025 [116] 4										
	2 [8]	129 [15] 37	337 [38] 35	710 [80] 10	1079 [122] 7	1436 [162] 5									
	4 [15]	138 [16] 75	354 [40] 74	781 [88] 71	1205 [136] 68	1602 [181] 58	2007 [227] 44	2364 [267] 43	2791 [315] 42	3119 [352] 41	3386 [383] 33				
	6 [23]	138 [16] 151	354 [40] 149	790 [89] 146	1222 [138] 143	1654 [187] 137	2079 [235] 129	2495 [282] 119	2871 [324] 110	3277 [370] 101	3636 [411] 87				
	8 [30]	127 [14] 226	344 [39] 225	779 [88] 221	1214 [137] 217	1647 [186] 210	2071 [234] 200	2494 [282] 188	2869 [324] 174	3279 [371] 162	3676 [415] 147				
	10 [38]	109 [12] 302	326 [37] 300	765 [86] 297	1200 [136] 292	1625 [184] 284	2049 [232] 273	2474 [280] 258	2859 [323] 240	3268 [369] 224	3682 [416] 206				
	12 [45]	88 [10] 378	305 [34] 376	738 [83] 372	1174 [133] 366	1601 [181] 357	2026 [229] 343	2446 [276] 326	2810 [318] 300	3235 [366] 281	3672 [415] 261				
	14 [53]	65 [7] 453	282 [32] 451	713 [81] 447	1145 [129] 441	1574 [178] 430	2002 [226] 415	2423 [274] 396	2793 [316] 367	3220 [364] 345	3653 [413] 324				
	16 [61]	39 [4] 528	254 [29] 527	686 [77] 522	1116 [126] 515	1546 [175] 504	1968 [222] 486	2351 [266] 455	2791 [315] 433	3203 [362] 407	3637 [411] 384				
18 [68]	15 [2] 604	221 [25] 602	652 [74] 597	1084 [122] 590	1513 [171] 578	1941 [219] 559	2340 [264] 527	2760 [312] 502	3182 [360] 475	3616 [409] 447					
20 [76]		186 [21] 678	614 [69] 672	1047 [118] 664	1481 [167] 651	1910 [216] 632	2300 [260] 596	2735 [309] 570	3152 [356] 541	3601 [407] 513					
22 [83]		144 [16] 754	573 [65] 747	1009 [114] 739	1441 [163] 725	1872 [211] 704	2278 [257] 677	2712 [307] 652	3121 [353] 624	3568 [403] 595					
24 [91]					1379 [156] 801	1814 [205] 782	2239 [253] 758	2653 [300] 730	3075 [347] 698	3526 [398] 668					
25 [95]						1762 [199] 850	2179 [246] 826	2604 [294] 799	3037 [343] 768	3495 [395] 733					
		Torque - lb-in [Nm], Speed rpm Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/>													
		243 [27]	485 [55]	971 [110]	1456 [165]	1942 [219]	2427 [274]	2913 [329]	3398 [384]	3883 [439]	4369 [494]				
		Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]													

		Pressure - psi [bars]					Max. Cont.			Max. Inter.	
110		250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	3000 [207]	3500 [242]	4000 [276]	4500 [310]
6.85 in ³ /rev. [112 cc] Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation											
Flow - gpm [lpm]		106 [12]	334 [38]	757 [86]	1166 [132]						
		9	8	6	4						
1 [4]		110 [12]	334 [38]	788 [89]	1213 [137]						
		17	10	8	6	1624 [184]					
2 [8]		129 [15]	373 [42]	863 [98]	1341 [152]	1823 [206]	2257 [255]	2629 [297]	3015 [341]	3334 [377]	3502 [396]
		67	67	65	62	58	45	40	36	22	9
4 [15]		134 [15]	378 [43]	863 [97]	1350 [152]	1838 [208]	2314 [261]	2776 [314]	3158 [357]	3558 [402]	3879 [438]
		135	135	133	130	125	118	107	88	71	49
6 [23]		128 [15]	373 [42]	856 [97]	1337 [151]	1826 [206]	2302 [260]	2770 [313]	3179 [359]	3633 [413]	4054 [458]
		203	203	200	196	190	182	170	143	124	103
8 [30]		108 [12]	351 [40]	833 [94]	1313 [148]	1798 [203]	2281 [258]	2753 [311]	3177 [359]	3656 [413]	4122 [466]
		269	267	265	262	258	248	234	201	178	155
10 [38]		80 [9]	322 [36]	803 [91]	1280 [145]	1761 [199]	2236 [253]	2715 [307]	3165 [358]	3652 [413]	4144 [468]
		337	335	333	331	325	313	296	255	232	206
12 [45]		69 [8]	293 [33]	770 [87]	1247 [141]	1716 [194]	2205 [249]	2684 [303]	3124 [353]	3613 [408]	4133 [467]
		404	403	401	399	391	378	360	313	289	259
14 [53]		38 [4]	254 [29]	728 [82]	1202 [136]	1676 [189]	2152 [243]	2605 [294]	3108 [351]	3601 [407]	4109 [464]
		473	471	470	465	457	442	403	376	347	316
16 [61]			210 [24]	687 [78]	1162 [131]	1635 [185]	2114 [239]	2564 [290]	3058 [346]	3553 [402]	4092 [462]
			540	538	532	523	508	467	438	406	372
18 [68]			163 [18]	639 [72]	1116 [126]	1594 [180]	2068 [234]	2534 [286]	3016 [341]	3515 [397]	4051 [458]
			608	605	599	589	573	530	502	467	432
20 [76]			117 [13]	598 [68]	1068 [121]	1541 [174]	2017 [228]	2494 [282]	2977 [336]	3481 [393]	4017 [454]
			675	673	667	656	639	594	565	528	492
22 [83]				596 [67]	1015 [115]	1500 [169]	1960 [221]	2445 [276]	2942 [332]	3436 [388]	3953 [447]
				742	735	722	699	672	637	598	557
24 [91]				549 [62]	967 [109]	1452 [164]	1926 [218]	2403 [272]	2885 [326]	3385 [383]	3906 [441]
				808	801	787	767	737	702	659	620
25 [95]				528 [60]	939 [105]	1425 [161]	1901 [215]	2389 [270]	2861 [323]	3361 [380]	3886 [439]
				841	834	818	800	771	736	693	648
Torque - lb-in [Nm], Speed rpm Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/>											
		273 [31]	545 [62]	1090 [123]	1635 [185]	2180 [246]	2726 [308]	3271 [370]	3816 [431]	4361 [493]	4906 [554]
Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]											

17	Theoretical rpm
34	
68	
135	
203	
270	
338	
405	
473	
540	
608	
675	
742	
810	
844	

		Pressure - psi [bars]					Max. Cont.			Max. Inter.	
130		250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	3000 [207]	3500 [242]	4000 [276]	4500 [310]
7.86 in ³ /rev. [129 cc] Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation											
Flow - gpm [lpm]		114 [13]	367 [41]	830 [94]							
		8	6	3							
1 [4]		144 [16]	400 [45]	890 [101]	1334 [151]	1780 [201]	2264 [256]	2706 [306]			
		17	9	6	4	3	3	2			
2 [8]		172 [19]	456 [52]	1022 [115]	1592 [180]	2081 [235]	2600 [294]	3084 [348]	3560 [402]	3962 [448]	4219 [477]
		58	57	55	52	50	38	35	31	22	9
4 [15]		182 [21]	469 [53]	1037 [117]	1609 [182]	2175 [246]	2735 [309]	3265 [369]	3749 [424]	4249 [480]	4671 [528]
		117	116	114	111	107	101	92	80	68	53
6 [23]		174 [20]	460 [52]	1026 [116]	1591 [180]	2163 [244]	2730 [308]	3285 [371]	3783 [427]	4330 [489]	4837 [547]
		175	174	172	169	165	158	148	132	117	99
8 [30]		150 [17]	436 [49]	1004 [113]	1571 [178]	2143 [242]	2714 [307]	3276 [370]	3767 [426]	4322 [488]	4866 [550]
		234	233	230	227	223	215	202	186	168	147
10 [38]		120 [14]	403 [46]	974 [110]	1537 [174]	2109 [238]	2677 [303]	3246 [367]	3741 [423]	4305 [486]	4860 [549]
		293	291	289	285	280	272	260	240	220	197
12 [45]		86 [10]	367 [42]	935 [106]	1499 [169]	2069 [234]	2633 [298]	3204 [362]	3688 [417]	4264 [482]	4837 [547]
		351	350	347	343	337	329	315	289	266	243
14 [53]		6 [53]	329 [37]	891 [101]	1458 [165]	2027 [229]	2600 [294]	3092 [349]	3661 [414]	4230 [478]	4818 [544]
		410	408	405	401	395	385	361	341	317	289
16 [61]			289 [33]	853 [96]	1415 [160]	1979 [224]	2543 [287]	3048 [344]	3620 [409]	4195 [474]	4773 [539]
			467	464	460	453	442	415	392	367	338
18 [68]				803 [91]	1369 [155]	1934 [219]	2498 [282]	3007 [340]	3571 [404]	4147 [469]	4744 [536]
				522	518	510	499	471	448	421	389
20 [76]				753 [85]	1314 [148]	1879 [212]	2447 [277]	2960 [335]	3528 [399]	4108 [464]	4714 [533]
				580	575	568	556	526	503	474	441
22 [83]				681 [77]	1242 [140]	1805 [204]	2362 [267]	2938 [332]	3510 [397]	4076 [461]	4651 [526]
				641	637	627	613	592	567	536	504
24 [91]				625 [71]	1185 [134]	1751 [198]	2307 [261]	2872 [325]	3442 [389]	4011 [453]	4599 [520]
				701	696	686	672	651	625	594	563
25 [95]				601 [68]	1158 [131]	1722 [195]	2285 [258]	2849 [322]	3399 [384]	3986 [450]	4594 [519]
				730	726	717	703	683	657	625	589
Torque - lb-in [Nm], Speed rpm Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/>											
		313 [35]	625 [71]	1251 [141]	1876 [212]	2502 [283]	3127 [353]	3753 [424]	4378 [495]	5004 [565]	5629 [636]
Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]											

15	Theoretical rpm
30	
59	
118	
177	
236	
294	
353	
412	
471	
530	
588	
647	
706	
735	

160	Pressure - psi [bars]							Max. Cont.		Max. Inter.	
	250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	3000 [207]	3500 [242]	3750 [259]	4000 [276]	

9.90 in³/rev. [162 cc] **Intermittent Ratings are below and to the right of the BOLD line.** Intermittent Ratings - 10% of Operation

Flow - gpm [lpm]	0.5 [2]	173 [20]	485 [55]	1102 [125]	1679 [190]	2258 [255]						
	1 [4]	11	10	8	6	5						
Max. Cont.	2 [8]	283 [32]	554 [63]	1273 [144]	1974 [223]	2635 [298]	3255 [368]	3830 [433]	4251 [480]	4459 [504]	4664 [527]	
	4 [15]	47	45	43	41	37	34	29	21	16	10	
Max. Inter.	6 [23]	278 [31]	609 [69]	1287 [143]	2014 [228]	2728 [308]	3416 [388]	4071 [460]	4654 [526]	4931 [557]	5163 [583]	
	8 [30]	94	94	91	88	84	79	71	59	53	45	
Theoretical rpm	10 [38]	257 [29]	615 [69]	1265 [143]	1990 [225]	2711 [306]	3412 [386]	4108 [464]	4737 [535]	5074 [573]	5370 [607]	
	12 [45]	140	138	136	135	130	124	116	100	93	83	
	14 [53]	226 [26]	583 [66]	1225 [138]	1958 [221]	2678 [303]	3387 [383]	4088 [462]	4761 [538]	5116 [578]	5463 [617]	
	16 [61]	188 [21]	547 [62]	1180 [133]	1914 [216]	2633 [298]	3353 [379]	4055 [458]	4730 [534]	5085 [575]	5451 [616]	
	18 [68]	145 [16]	509 [57]	1192 [135]	1861 [210]	2581 [292]	3289 [372]	4000 [452]	4688 [530]	5046 [570]	5423 [613]	
	20 [76]	280	278	276	274	270	261	250	234	224	212	
	22 [83]	97 [11]	455 [51]	1178 [133]	1817 [205]	2530 [286]	3231 [365]	3905 [441]	4627 [523]	4986 [563]	5363 [606]	
	24 [91]	44 [5]	402 [45]	1110 [125]	1761 [199]	2474 [280]	3173 [359]	3857 [436]	4572 [517]	4934 [557]	5301 [599]	
	25 [95]	374	372	371	370	363	353	339	319	308	295	
	30 [114]		331 [37]	1048 [118]	1697 [192]	2408 [272]	3104 [351]	3779 [427]	4498 [508]	4853 [548]	5240 [592]	
			420	419	417	410	400	383	363	353	339	
			265 [30]	980 [111]	1616 [183]	2337 [264]	3036 [343]	3712 [419]	4424 [500]	4777 [540]	5167 [584]	
			467	466	465	457	446	428	408	396	382	
			193 [22]	913 [103]	1557 [176]	2284 [256]	2965 [335]	3658 [413]	4358 [492]	4721 [533]	5093 [575]	
			514	512	510	503	491	476	454	441	427	
					1553 [175]	2180 [246]	2890 [327]	3587 [405]	4286 [484]	4639 [524]	5027 [568]	
					558	550	538	522	500	484	473	
					1443 [163]	2134 [241]	2843 [321]	3543 [400]	4253 [481]	4611 [521]	4988 [561]	
					581	573	561	545	522	511	496	
					1222 [138]	1917 [217]	2618 [296]	3324 [376]	4034 [456]	4383 [495]	4729 [534]	
					699	679	661	645	625	609		

Torque - lb-in [Nm], Speed rpm Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

394 [45]	788 [89]	1576 [178]	2363 [267]	3151 [356]	3939 [445]	4727 [534]	5515 [623]	5909 [668]	712 [6303]
----------	----------	------------	------------	------------	------------	------------	------------	------------	------------

Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]

200	Pressure - psi [bars]							Max. Cont.		Max. Inter.	
	250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	2750 [190]	3000 [207]	3500 [242]	4000 [276]	

12.31 in³/rev. [202 cc] **Intermittent Ratings are below and to the right of the BOLD line.** Intermittent Ratings - 10% of Operation

Flow - gpm [lpm]	0.5 [2]	249 [28]	638 [72]	1388 [157]								
	1 [4]	8	7	5								
Max. Cont.	2 [8]	343 [39]	757 [85]	1637 [185]	2474 [280]	3232 [365]	3948 [446]	4279 [483]	4609 [521]	5024 [568]		
	4 [15]	37	36	34	31	27	23	20	17	13		
Max. Inter.	6 [23]	354 [40]	773 [87]	1654 [187]	2554 [289]	3430 [388]	4254 [481]	4627 [523]	4995 [564]	5548 [627]	6156 [696]	
	8 [30]	75	74	72	69	65	59	56	51	38	25	
Theoretical rpm	10 [38]	334 [38]	789 [89]	1624 [184]	2524 [285]	3425 [387]	4299 [486]	4721 [533]	5128 [579]	5790 [654]	6478 [732]	
	12 [45]	112	111	110	106	102	95	90	84	67	54	
	14 [53]	298 [34]	752 [85]	1593 [180]	2488 [281]	3394 [384]	4285 [484]	4722 [534]	5149 [582]	5931 [670]	6685 [755]	
	16 [61]	150	149	148	144	138	131	126	120	99	85	
	18 [68]	255 [29]	709 [80]	1544 [174]	2446 [276]	3345 [378]	4240 [479]	4683 [529]	5098 [576]	5965 [674]	6793 [768]	
	20 [76]	188	187	186	182	176	167	161	150	134	116	
	22 [83]	197 [22]	651 [74]	1491 [168]	2385 [270]	3284 [371]	4190 [473]	4600 [520]	5064 [572]	5930 [670]	6789 [767]	
	24 [91]	226	225	224	220	213	204	194	185	169	150	
	25 [95]	139 [16]	593 [67]	1439 [163]	2324 [263]	3216 [363]	4111 [465]	4537 [513]	4980 [563]	5880 [664]	6765 [764]	
	30 [114]	263	262	261	257	251	241	229	222	205	186	
		70 [8]	530 [60]	1409 [159]	2260 [255]	3145 [355]	4022 [454]	4477 [506]	4929 [557]	5809 [656]	6688 [756]	
		301	299	296	289	273	266	257	238	219	219	
			446 [50]	1358 [153]	2181 [246]	3067 [347]	3955 [447]	4363 [493]	4838 [547]	5731 [648]	6612 [747]	
			338	336	334	327	310	302	294	274	253	
			363 [41]	1277 [144]	2100 [237]	2977 [336]	3868 [437]	4305 [487]	4754 [537]	5639 [637]	6546 [740]	
			376	374	372	365	348	340	331	311	288	
			276 [31]	1186 [134]	2007 [227]	2888 [326]	3783 [427]	4230 [478]	4665 [527]	5555 [628]	6463 [730]	
			413	411	410	403	385	377	368	347	324	
					1908 [216]	2790 [315]	3693 [417]	4137 [467]	4581 [518]	5466 [618]	6395 [723]	
					449	441	423	414	405	383	359	
					1856 [210]	2737 [309]	3656 [413]	4107 [464]	4543 [513]	5436 [614]	6353 [718]	
					469	461	440	432	422	401	378	
					1598 [181]	2486 [281]	3380 [382]	3831 [433]	4267 [482]	5136 [580]	6100 [689]	
					561	552	539	530	521	495	467	

Torque - lb-in [Nm], Speed rpm Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

490 [55]	980 [111]	1959 [221]	2939 [332]	3918 [443]	4898 [553]	5388 [609]	5878 [664]	6857 [775]	7837 [886]
----------	-----------	------------	------------	------------	------------	------------	------------	------------	------------

Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]

230	Pressure - psi [bars]						Max. Cont.		Max. Inter.	
	250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2500 [172]	2750 [190]	3000 [207]	3500 [242]	4000 [276]

13.92 in³/rev. [228 cc] **Intermittent Ratings are below and to the right of the BOLD line.** Intermittent Ratings - 10% of Operation

Flow - gpm [lpm]	0.5 [2]	353 [40]	798 [90]	1673 [189]																
	1 [4]	435 [49]	856 [97]	1764 [199]	2592 [293]	3457 [391]	4272 [483]	4692 [530]	5094 [576]											
	2 [8]	378 [43]	889 [100]	1878 [212]	2798 [316]	3664 [414]	4491 [507]	4881 [552]	5271 [596]											
	4 [15]	433 [49]	884 [100]	1918 [217]	2943 [333]	3909 [442]	4801 [542]	5215 [589]	5685 [642]	6407 [724]	7135 [806]									
	6 [23]	402 [45]	861 [97]	1897 [214]	2929 [331]	3950 [446]	4925 [556]	5393 [609]	5762 [651]	6610 [747]	7371 [833]									
	8 [30]	360 [41]	871 [98]	1852 [209]	2896 [327]	3928 [444]	4933 [557]	5370 [607]	5863 [662]	6781 [766]	7595 [858]									
	10 [38]	302 [34]	829 [94]	1804 [204]	2841 [321]	3881 [439]	4868 [550]	5380 [608]	5882 [665]	6857 [775]	7743 [875]									
	12 [45]	235 [27]	763 [86]	1734 [196]	2772 [313]	3815 [431]	4819 [545]	5334 [603]	5837 [660]	6829 [772]	7803 [882]									
	14 [53]	167 [19]	690 [78]	1660 [188]	2698 [305]	3734 [422]	4757 [538]	5269 [595]	5778 [653]	6781 [766]	7772 [878]									
	16 [61]	100 [11]	612 [69]	1576 [178]	2614 [295]	3657 [413]	4677 [528]	5188 [586]	5697 [644]	6198 [700]	7214 [815]									
	18 [68]		527 [60]	1487 [168]	2514 [286]	3559 [402]	4592 [519]	5106 [577]	5611 [634]	6617 [748]	7632 [862]									
	20 [76]		430 [49]	1375 [155]	2408 [272]	3457 [391]	4482 [506]	5001 [565]	5514 [623]	6537 [739]	7525 [850]									
	22 [83]		352 [40]	1319 [149]	2321 [262]	3357 [379]	4382 [495]	4894 [553]	5409 [611]	6409 [724]	7423 [839]									
	24 [91]		268 [30]	1220 [138]	2217 [251]	3253 [368]	4268 [482]	4781 [540]	5295 [598]	6309 [713]	7333 [829]									
	25 [95]		392	1161 [131]	2167 [245]	3202 [362]	4227 [478]	4755 [537]	5237 [592]	6263 [708]	7283 [823]									
30 [114]			816 [92]	1837 [208]	2876 [325]	3908 [442]	4419 [499]	4928 [557]	5942 [617]	6991 [790]										

Torque - lb-in [Nm], Speed rpm **Overall Efficiency -** 70 - 100% 40 - 69% 0 - 39%

554 [63]	1108 [125]	2215 [250]	3323 [376]	4431 [501]	5539 [626]	6092 [688]	6646 [751]	7754 [876]	8862 [1001]
----------	------------	------------	------------	------------	------------	------------	------------	------------	-------------

Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]

9
17
34
67
100
133
166
200
233
266
299
332
366
399
415
498

320	Pressure - psi [bars]						Max. Cont.		Max. Inter.	
	250 [17]	500 [35]	1000 [69]	1500 [104]	2000 [138]	2250 [155]	2500 [172]	2750 [190]	3000 [207]	3250 [224]

19.81 in³/rev. [325 cc] **Intermittent Ratings are below and to the right of the BOLD line.** Intermittent Ratings - 10% of Operation

Flow - gpm [lpm]	0.5 [2]	571 [65]	1196 [135]	2406 [272]	3524 [398]															
	1 [4]	595 [67]	1291 [146]	2568 [290]	3764 [425]	4937 [558]	5514 [623]	6101 [689]	6599 [746]											
	2 [8]	597 [67]	1328 [150]	2751 [311]	4083 [461]	5277 [596]	5834 [659]	6396 [723]	6977 [788]	7510 [849]	8337 [942]									
	4 [15]	565 [64]	1299 [147]	2761 [312]	4197 [474]	5547 [627]	6173 [698]	6747 [762]	7261 [821]	7785 [880]	8337 [942]									
	6 [23]	677 [77]	1367 [154]	2834 [320]	4283 [484]	5679 [642]	6347 [717]	7004 [791]	7548 [853]	8116 [917]	8646 [977]									
	8 [30]	641 [72]	1299 [147]	2766 [313]	4221 [477]	5640 [637]	6329 [715]	6959 [786]	7617 [861]	8236 [937]	8816 [996]									
	10 [38]	566 [64]	1217 [137]	2683 [303]	4142 [468]	5568 [629]	6241 [705]	6935 [784]	7603 [859]	8265 [934]	8895 [1005]									
	12 [45]	473 [53]	1155 [131]	2587 [292]	4049 [458]	5479 [619]	6151 [695]	6850 [774]	7523 [850]	8197 [926]	8861 [1001]									
	14 [53]	262 [30]	1076 [122]	2483 [281]	3943 [446]	5367 [606]	6078 [687]	6784 [764]	7434 [840]	8099 [915]	8761 [990]									
	16 [61]	161 [18]	994 [112]	2359 [267]	3818 [431]	5253 [594]	5966 [674]	6660 [753]	7290 [824]											
	18 [68]	160 [18]	997 [113]	2344 [265]	3805 [430]	5244 [593]	5953 [673]	6649 [751]	7178 [811]											
	20 [76]	25 [3]	863 [97]	2198 [248]	3673 [415]	5114 [578]	5821 [658]	6515 [736]	7052 [797]											
	22 [83]		747 [84]	2091 [236]	3540 [400]	4973 [562]	5676 [641]	6368 [720]	6913 [781]											
	24 [91]		667 [75]	1900 [215]	3365 [380]	4804 [543]	5510 [623]	6202 [701]	6756 [763]											
	25 [95]		616 [70]	1828 [207]	3272 [370]	4716 [533]	5423 [613]	6175 [698]	6711 [758]											
30 [114]		292	1353 [153]	2789 [315]	4230 [478]	4943 [559]	5653 [639]	6233 [704]												

Torque - lb-in [Nm], Speed rpm **Overall Efficiency -** 70 - 100% 40 - 69% 0 - 39%

788 [89]	1576 [178]	3153 [356]	4729 [534]	6306 [713]	7094 [802]	7882 [891]	8670 [980]	9459 [1069]	10247 [1158]
----------	------------	------------	------------	------------	------------	------------	------------	-------------	--------------

Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]

6
12
24
47
70
94
117
140
164
187
210
234
257
280
292
350

		Pressure - psi [bars]									Max. Cont.	Max. Inter.
		250 [17]	500 [35]	1000 [69]	1250 [86]	1500 [104]	1750 [121]	2000 [138]	2250 [155]	2500 [172]	2750 [190]	
400		24.36 in ³ /rev. [399 cc] Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation										
Flow - gpm [lpm]	0.5 [2]	717 [81] 4	1534 [173] 4	3148 [356] 2								
	1 [4]	752 [85] 9	1605 [181] 8	3263 [369] 7	4074 [460] 6	4865 [550] 5	5648 [638] 4	6404 [724] 3	7222 [816] 2			
	2 [8]	762 [86] 18	1654 [187] 18	3422 [387] 16	4274 [483] 15	5090 [575] 13	5861 [662] 11	6613 [747] 10	7310 [826] 7			
	4 [15]	724 [82] 38	1635 [185] 37	3460 [391] 35	4361 [493] 34	5240 [592] 31	6086 [688] 27	6871 [776] 23	7667 [866] 17	8337 [942] 12		
	6 [23]	663 [75] 57	1573 [178] 56	3393 [383] 54	4301 [486] 52	5201 [588] 50	6074 [686] 46	6926 [783] 40	7750 [876] 33	8524 [963] 27	9345 [1056] 24	
	8 [30]	585 [66] 76	1490 [168] 75	3306 [374] 73	4216 [476] 72	5119 [578] 69	6007 [679] 65	6868 [776] 61	7716 [872] 50	8545 [966] 43	9341 [1055] 36	
	10 [38]		1365 [154] 95	3197 [361] 93	4110 [464] 91	5015 [567] 88	5880 [664] 82	6764 [764] 76	7626 [862] 69	8463 [956] 61	9289 [1050] 52	
	12 [45]		1237 [140] 114	3066 [346] 112	3978 [450] 110	4880 [551] 107	5744 [649] 101	6638 [750] 95	7503 [848] 88	8361 [945] 80	9195 [1039] 71	
	14 [53]		1104 [125] 133	2924 [330] 131	3838 [434] 129	4745 [536] 126	5609 [634] 119	6504 [735] 112	7369 [833] 102	8217 [929] 97	9058 [1024] 88	
	16 [61]		934 [106] 151	2755 [311] 150	3672 [415] 148	4580 [518] 145	5456 [617] 138	6357 [718] 131	7228 [817] 123	8079 [913] 114	8913 [1007] 104	
Max. Cont.	18 [68]		2578 [291] 169	3493 [395] 167	4405 [498] 165	5279 [597] 158	6185 [699] 151	7065 [798] 143	7931 [896] 134	8774 [991] 122		
	20 [76]		2379 [269] 189	3286 [371] 187	4205 [475] 184	5084 [575] 177	5997 [678] 171	6879 [777] 163	7754 [876] 154	8606 [972] 143		
	22 [83]		2174 [246] 207	3076 [348] 205	3987 [451] 202	4911 [555] 198	5789 [654] 192	6671 [754] 184	7543 [852] 175	8413 [951] 165		
	24 [91]		2000 [226] 226	2850 [322] 224	3756 [424] 221	4668 [528] 217	5571 [629] 211	6446 [728] 204	7332 [828] 195	8197 [926] 184		
Max. Inter.	26 [99]		1739 [197] 246	2600 [294] 244	3515 [397] 241	4421 [500] 236	5323 [602] 231	6214 [702] 224	7093 [801] 215	7963 [900] 205		
	30 [114]		1162 [131] 284	2100 [237] 282	2991 [338] 279	3901 [441] 275	4798 [542] 269	5687 [643] 263	6574 [743] 254	7458 [843] 245		
		Torque - lb-in [Nm], Speed rpm										
		Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/>										
		969 [110]	1939 [219]	3877 [438]	4846 [548]	5816 [657]	6785 [767]	7754 [876]	8723 [986]	9693 [1095]	10662 [1205]	
		Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]										

5
10
19
38
57
76
95
114
133
152
171
190
209
228
247
285

		Pressure - psi [bars]						Max. Cont.	Max. Inter.	
		250 [17]	500 [35]	750 [52]	1000 [69]	1250 [86]	1500 [104]	1750 [138]	2250 [155]	
500		30.29 in ³ /rev. [496 cc] Intermittent Ratings are below and to the right of the BOLD line. Intermittent Ratings - 10% of Operation								
Flow - gpm [lpm]	0.5 [2]	832 [94] 3	1861 [210] 3	2859 [323] 3	3853 [435] 3					
	1 [4]	868 [98] 7	1743 [197] 7	2781 [314] 7	3802 [430] 6	4797 [542] 6	5766 [652] 5	6876 [777] 4		
	2 [8]	882 [100] 15	1812 [205] 15	2905 [328] 14	3959 [447] 14	5001 [565] 13	5990 [677] 11	6900 [780] 9	7779 [879] 7	
	4 [15]	843 [95] 31	1803 [204] 30	2938 [332] 30	4070 [460] 29	5170 [584] 28	6225 [703] 25	7212 [815] 21	8118 [917] 16	8956 [1012] 13
	6 [23]	783 [89] 46	1737 [196] 46	2869 [324] 45	4009 [453] 44	5133 [580] 43	6237 [705] 41	7296 [824] 36	8234 [930] 28	9141 [1033] 22
	8 [30]	696 [79] 62	1639 [185] 61	2778 [314] 61	3918 [443] 60	5047 [570] 58	6161 [696] 56	7205 [814] 50	8231 [930] 43	9210 [1041] 34
	10 [38]	600 [68] 77	1523 [172] 77	2652 [300] 76	3800 [429] 75	4929 [557] 74	6052 [684] 71	7123 [805] 66	8175 [924] 59	9175 [1037] 50
	12 [45]		1568 [177] 92	2318 [262] 92	3624 [410] 91	4593 [519] 89	5696 [644] 86	6811 [770] 82	7885 [891] 75	8916 [1008] 68
	14 [53]		1389 [157] 107	2533 [286] 106	3673 [415] 105	4810 [544] 104	5918 [669] 101	7027 [794] 96	8092 [914] 89	9122 [1031] 80
	16 [61]		1219 [138] 123	2347 [265] 122	3486 [394] 121	4630 [523] 120	5740 [649] 116	6861 [775] 111	7936 [897] 104	8968 [1013] 95
Max. Cont.	18 [68]		1004 [114] 138	2147 [243] 137	3277 [370] 136	4424 [500] 135	5536 [626] 132	6659 [752] 127	7753 [876] 120	8806 [995] 111
	20 [76]		849 [96] 153	1919 [217] 153	3047 [344] 152	4190 [473] 151	5311 [600] 147	6446 [728] 143	7537 [852] 136	8606 [972] 127
	22 [83]		688 [78] 168	1360 [154] 168	2439 [276] 166	3595 [406] 164	4724 [534] 161	5839 [660] 155	6938 [784] 155	8028 [907] 148
	24 [91]			1416 [160] 184	2371 [268] 182	3512 [397] 182	4633 [524] 179	5755 [650] 175	6863 [776] 170	7950 [898] 162
Max. Inter.	26 [99]			1138 [129] 199	2048 [231] 197	2844 [321] 197	3988 [451] 196	5097 [576] 193	6218 [703] 188	7320 [827] 181
	30 [114]				1647 [186] 229	2581 [292] 228	3387 [383] 227	4494 [508] 224	5631 [636] 219	6738 [761] 213
		Torque - lb-in [Nm], Speed rpm								
		Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/>								
		1205 [136]	2410 [272]	3616 [409]	4821 [545]	6026 [681]	7231 [817]	8436 [953]	9642 [1090]	10847 [1226]
		Theoretical Torque - lb-in [Nm] Displacement tested at 129°F [54°C] with an oil viscosity of 46cSt [213 SUS]								

4
8
16
31
46
62
77
92
107
123
138
153
168
184
199
229

To use charts, find the intersection point between 2 ratings (i.e. Pressure and Flow). This will give the overall efficiency, as well as the actual torque & RPM for the given motor displacement. Intermittent Ratings are for motors that will be ran for less than 10% per minute. For motors that will be used longer, please refer to continuous use ratings.

OIL RECOMMENDATIONS

A good quality anti-foaming petroleum based fluid with anti-emulsion and anti-wear additives is recommended. Muncie does not promote specific manufacturer's brands of oil. Oil Viscosity Reference: Between 100 - 200 S.U.S. [20 - 43 cSt] at operating temperature is recommended. Fluid temperature should also be maintained below 180deg F [85deg C]. During cold weather, oil may thicken and not flow properly. Allow oil to warm up at slow speed. Your oil supplier should be consulted for your application needs.



201 East Jackson Street • Muncie, Indiana 47305
 800-367-7867 • Fax 765-284-6991 • info@munciepower.com • www.munciepower.com
 Specifications are subject to change without notice. Visit www.munciepower.com for warranties and literature. All rights reserved. © Muncie Power Products, Inc. (2015)