

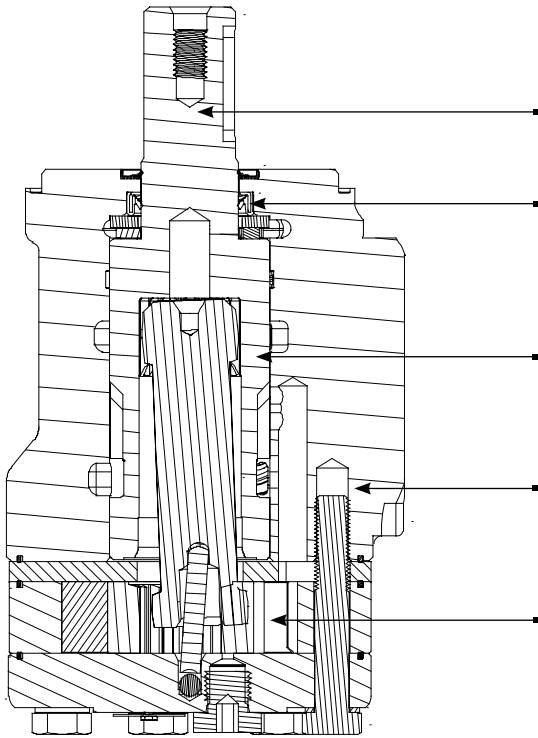
white drive products



WR

SERIES HYDRAULIC MOTORS

The WR Series motor incorporates the latest advances for smooth performance, efficiency and durability. It features an optimized Roller Stator® geometry with seven precision rollers to eliminate sliding friction and provide rolling contact between the rotor and stator. This increases motor efficiency. A three-zone spool valve, integral check valves and a provision for a case drain reduce pressure on internal seals to improve product life. A wide variety of mounting, shaft, motor displacement and porting options are available to meet all application needs.



KEY FEATURES

Variety of Mounts and Shafts provides flexibility in application design.

High Pressure Shaft Seal offers superior seal life and performance.

Spool Valve Design gives superior performance and smooth operation over a wide speed and torque range.

Built In Check Valves (Not Shown) in the housing offers versatility and increased seal life.

Optimized Roller Stator® geometry provides a smooth running high efficient product.

SPECIFICATIONS

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

CODE	Displacement cc [in ³ /rev]	Max. Speed rpm		Max. Flow lpm [gpm]		Max. Torque Nm [lb-in]		Max. Pressure bar [psi]		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
040	40 [2.5]	1116	1515	45 [12]	61 [16]	93 [823]	123 [1088]	155 [2250]	207 [3000]	224 [3250]
060	59 [3.6]	890	1142	53 [14]	68 [18]	138 [1221]	172 [1522]	155 [2250]	207 [3000]	224 [3250]
070	71 [4.3]	865	1078	61 [16]	76 [20]	176 [1558]	207 [1832]	172 [2500]	207 [3000]	241 [3500]
090	88 [5.4]	691	864	61 [16]	76 [20]	222 [1965]	263 [2327]	172 [2500]	207 [3000]	241 [3500]
100	100 [6.1]	610	760	61 [16]	76 [20]	246 [2177]	289 [2558]	172 [2500]	207 [3000]	241 [3500]
115	113 [6.9]	539	672	61 [16]	76 [20]	284 [2513]	327 [2894]	172 [2500]	207 [3000]	241 [3500]
130	129 [7.9]	472	588	61 [16]	76 [20]	316 [2797]	375 [3319]	172 [2500]	207 [3000]	241 [3500]
160	160 [9.8]	379	469	61 [16]	76 [20]	400 [3540]	454 [4018]	172 [2500]	207 [3000]	241 [3500]
200	198 [12.1]	308	384	61 [16]	76 [20]	462 [4088]	544 [4814]	172 [2500]	207 [3000]	241 [3500]
240	236 [14.4]	249	315	61 [16]	76 [20]	548 [4850]	642 [5682]	172 [2500]	207 [3000]	224 [3250]
290	291 [17.8]	210	256	61 [16]	76 [20]	526 [4655]	664 [5876]	138 [2000]	190 [2750]	207 [3000]
320	322 [19.6]	188	235	61 [16]	76 [20]	518 [4584]	690 [6106]	121 [1750]	172 [2500]	190 [2750]
400	400 [24.4]	152	190	61 [16]	76 [20]	551 [4873]	698 [6177]	104 [1500]	138 [2000]	155 [2250]



040

Pressure - bars [psi]

Max. Cont.

Max. Inter.

17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	207 [3000]
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40 cc [2.46 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Max. Inter.	2 [0.5]	9 [80] 43	20 [177] 40	32 [283] 35	40 [354] 29	37 [327] 24							50	Theoretical rpm
	4 [1]	10 [88] 95	21 [186] 91	30 [265] 82	42 [372] 73	52 [460] 62	62 [549] 51						100	
	8 [2]	9 [80] 188	19 [168] 180	28 [248] 170	41 [363] 160	51 [451] 144	64 [566] 137	72 [637] 126	79 [699] 115	89 [788] 102	99 [876] 88		199	
	15 [4]	7 [62] 365	18 [159] 355	27 [239] 343	40 [354] 160	49 [434] 324	62 [549] 293	73 [646] 275	83 [735] 257	93 [823] 237	102 [903] 237	121 [1071] 198	373	
	23 [6]	6 [53] 560	17 [150] 548	26 [230] 532	39 [345] 515	48 [425] 502	61 [540] 485	70 [619] 471	82 [726] 451	90 [796] 432	101 [894] 444	122 [1080] 398	572	
	30 [8]	6 [53] 728	16 [142] 716	25 [221] 706	37 [327] 684	47 [416] 667	59 [522] 648	68 [602] 634	81 [717] 629	88 [779] 618	99 [876] 601	123 [1088] 545	746	
	38 [10]	5 [44] 942	14 [124] 936	22 [195] 927	35 [310] 918	45 [398] 904	57 [504] 890	68 [602] 874	78 [690] 852	86 [761] 835	97 [858] 812	118 [1044] 743	945	
	45 [12]	3 [27] 1116	13 [115] 1113	21 [186] 1100	34 [301] 1082	43 [381] 1056	55 [487] 1028	67 [593] 1004	77 [681] 976	84 [743] 952	95 [841] 916	116 [1027] 870	1119	
	53 [14]		10 [88] 1316	20 [177] 1301	31 [274] 1278	39 [345] 1253	52 [460] 1200	63 [558] 1266	75 [664] 1184	82 [726] 1154	93 [823] 1123	115 [1018] 1078	1318	
	61 [16]		8 [71] 1515	19 [168] 1497	29 [257] 1469	38 [336] 1442	49 [434] 1415	60 [531] 1399	74 [655] 1378	80 [708] 1355	90 [796] 1330	113 [1000] 1298	1517	

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

Theoretical Torque - Nm [lb-in]

11 [97]	22 [195]	34 [301]	45 [398]	56 [496]	67 [593]	78 [690]	90 [796]	101 [894]	112 [991]	132 [1167]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

060

Pressure - bars [psi]

Max. Cont.

Max. Inter.

17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	207 [3000]
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59 cc [3.6 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Max. Inter.	2 [0.5]	12 [106] 28	26 [230] 22	34 [301] 15	45 [398] 12								34	Theoretical rpm
	4 [1]	13 [115] 60	29 [257] 56	42 [372] 50	56 [496] 44	62 [549] 33	68 [602] 16						67	
	8 [2]	14 [124] 134	31 [274] 129	46 [407] 125	58 [513] 118	74 [655] 113	94 [832] 107	110 [974] 97	121 [1071] 87	137 [1212] 73	148 [1310] 58	168 [1487] 50	135	
	15 [4]	12 [106] 250	30 [266] 245	45 [398] 240	60 [531] 232	75 [664] 225	95 [841] 217	108 [956] 208	122 [1080] 198	138 [1221] 185	150 [1328] 174	170 [1505] 168	253	
	23 [6]	11 [97] 384	30 [266] 380	44 [389] 376	59 [522] 370	74 [655] 364	93 [823] 356	106 [938] 345	124 [1097] 331	138 [1221] 318	152 [1345] 307	172 [1522] 298	387	
	30 [8]	10 [89] 502	29 [257] 496	43 [381] 494	58 [513] 490	72 [637] 485	92 [814] 478	104 [920] 468	123 [1089] 460	135 [1195] 450	148 [1310] 438	170 [1505] 431	505	
	38 [10]	9 [80] 635	28 [248] 632	42 [372] 629	55 [487] 628	70 [620] 619	90 [797] 611	102 [903] 598	121 [1071] 589	133 [1177] 578	146 [1292] 561	168 [1487] 513	640	
	45 [12]	8 [71] 755	24 [212] 748	39 [345] 745	52 [460] 741	69 [611] 735	87 [770] 729	100 [885] 718	118 [1044] 705	130 [1151] 688	145 [1283] 676	164 [1451] 659	758	
	53 [14]	6 [53] 890	23 [204] 888	38 [336] 884	48 [425] 880	65 [575] 874	84 [743] 865	98 [867] 852	114 [1009] 840	127 [1124] 831	138 [1221] 820	162 [1434] 802	892	
	61 [16]		17 [150] 1021	29 [257] 1018	44 [389] 1011	62 [549] 1007	78 [690] 1000	90 [797] 993	106 [938] 984	121 [1071] 974	136 [1204] 962	160 [1416] 956	1026	
	68 [18]		10 [89] 1142	26 [230] 1140	40 [354] 1129	57 [504] 1112	73 [646] 1097	86 [761] 1085	102 [903] 1074	115 [1018] 1060	130 [1151] 1044	158 [1398] 1020	1145	

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

Theoretical Torque - Nm [lb-in]

16 [142]	33 [292]	49 [434]	65 [575]	81 [717]	98 [867]	114 [1009]	131 [1150]	147 [1292]	164 [1442]	179 [1584]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



070

Pressure - bars [psi]

Max. Cont.

Max. Inter.

17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]
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71 cc [4.3 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	13 [115] 26	30 [266] 23										28	Theoretical rpm
	4 [1]	14 [124] 55	32 [283] 50	66 [584] 40	73 [646] 34								57	
	8 [2]	16 [142] 112	34 [301] 106	70 [620] 94	88 [779] 89	104 [920] 81	120 [1062] 73	134 [1186] 66	149 [1319] 51				113	
	15 [4]	15 [133] 211	33 [292] 206	71 [628] 194	87 [770] 186	107 [947] 178	123 [1089] 172	139 [1230] 163	158 [1398] 152	171 [1513] 143	196 [1735] 125	211 [1867] 110	213	
	23 [6]	14 [124] 324	31 [274] 319	66 [584] 306	83 [735] 298	104 [920] 288	124 [1097] 280	138 [1221] 270	157 [1389] 260	176 [1558] 248	192 [1699] 232	207 [1832] 221	326	
	30 [8]	13 [115] 425	30 [266] 418	67 [593] 403	84 [743] 394	104 [920] 386	123 [1089] 376	137 [1212] 364	159 [1407] 350	174 [1540] 339	193 [1708] 326	203 [1797] 312	426	
	38 [10]	10 [89] 539	29 [257] 537	65 [575] 529	82 [726] 520	103 [903] 508	115 [1018] 500	135 [1195] 486	152 [1345] 474	172 [1522] 458	186 [1646] 440	204 [1805] 425	539	
	45 [12]	7 [62] 638	25 [221] 634	63 [558] 622	82 [726] 614	98 [867] 604	117 [1035] 594	132 [1168] 578	152 [1345] 566	169 [1496] 552	189 [1673] 538	199 [1761] 522	638	
	53 [14]	5 [44] 752	21 [186] 751	58 [513] 743	75 [664] 736	94 [832] 728	115 [1018] 718	131 [1159] 705	147 [1301] 690	167 [1478] 675	187 [1655] 650	204 [1805] 630	752	
	61 [16]		17 [150] 865	54 [478] 854	73 [646] 843	91 [805] 831	107 [947] 818	128 [1133] 807	143 [1266] 795	160 [1416] 782	177 [1566] 766	194 [1717] 750	865	
	68 [18]		16 [142] 965	48 [425] 960	70 [620] 956	88 [779] 945	106 [938] 932	122 [1080] 920	139 [1230] 902	156 [1381] 888	173 [1531] 876	191 [1690] 850	965	
	76 [20]		12 [106] 1078	47 [416] 1070	65 [575] 1062	81 [717] 1048	100 [885] 1036	118 [1044] 1014	138 [1221] 1000	152 [1345] 988	173 [1531] 960	189 [1673] 944	1078	

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

Theoretical Torque - Nm [lb-in]

19 [169]	39 [348]	77 [685]	97 [854]	117 [1033]	136 [1202]	155 [1371]	174 [1540]	194 [1719]	213 [1888]	232 [2056]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

090

Pressure - bars [psi]

Max. Cont.

Max. Inter.

17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]
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88 cc [5.4 in³/rev.]

Torque - Nm [lb-in], Speed rpm

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	2 [0.5]	18 [159] 23	40 [354] 22	75 [664] 17									23	Theoretical rpm
	4 [1]	20 [177] 45	44 [389] 42	88 [779] 35	112 [991] 31	118 [1044] 27	128 [1133] 21						45	
	8 [2]	22 [195] 91	44 [389] 88	87 [770] 81	114 [1009] 77	134 [1186] 72	158 [1398] 68	175 [1549] 60	198 [1752] 52	216 [1912] 42			91	
	15 [4]	20 [177] 169	44 [389] 166	88 [779] 160	112 [991] 156	134 [1186] 152	154 [1363] 146	182 [1611] 140	204 [1805] 130	222 [1965] 122	242 [2142] 110	262 [2319] 96	170	
	23 [6]	19 [168] 260	40 [354] 257	86 [761] 250	110 [974] 245	131 [1159] 238	152 [1345] 232	176 [1558] 225	196 [1735] 215	218 [1929] 205	242 [2142] 193	263 [2327] 186	260	
	30 [8]	17 [150] 339	38 [336] 336	83 [735] 328	108 [956] 324	126 [1115] 318	150 [1327] 308	173 [1531] 300	194 [1717] 292	216 [1912] 280	238 [2106] 270	258 [2283] 258	340	
	38 [10]	14 [124] 430	33 [292] 429	77 [681] 426	106 [938] 424	122 [1080] 417	146 [1292] 411	170 [1504] 402	188 [1664] 393	210 [1858] 380	232 [2053] 366	253 [2239] 354	430	
	45 [12]	9 [80] 510	30 [265] 508	73 [646] 504	103 [912] 500	120 [1062] 496	145 [1283] 488	164 [1451] 480	184 [1628] 472	206 [1823] 462	228 [2018] 448	246 [2177] 434	510	
	53 [14]	5 [44] 601	25 [221] 600	69 [611] 596	97 [856] 594	114 [1009] 591	140 [1239] 586	160 [1416] 578	178 [1575] 566	202 [1788] 552	226 [2000] 540	244 [2159] 528	601	
	61 [16]		20 [177] 691	66 [584] 688	90 [797] 684	109 [965] 678	134 [1186] 670	156 [1381] 664	173 [1531] 654	200 [1770] 642	220 [1947] 630	242 [2142] 610	692	
	68 [18]		16 [142] 772	63 [558] 770	84 [743] 768	105 [929] 766	128 [1133] 764	152 [1345] 754	168 [1487] 742	193 [1708] 722	214 [1894] 712	236 [2088] 700	772	
	76 [20]		10 [88] 864	58 [513] 863	79 [699] 858	100 [885] 848	121 [1071] 844	148 [1310] 835	163 [1442] 825	186 [1646] 812	205 [1814] 800	226 [2000] 778	864	

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

Theoretical Torque - Nm [lb-in]

24 [215]	49 [429]	97 [859]	121 [1073]	146 [1288]	170 [1502]	194 [1717]	218 [1932]	243 [2146]	267 [2361]	291 [2576]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



100

Pressure - bars [psi]								Max. Cont.	Max. Inter.	
17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]

100 cc [6.1 in³/rev.]

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

Flow - lpm [gpm]	2 [0.5]	18 [159]	37 [327]	77 [681]	91 [805]																20	Theoretical rpm		
	4 [1]	26 [230]	49 [434]	84 [743]	106 [938]	120 [1062]	140 [1239]	160 [1416]															40	
	8 [2]	25 [221]	50 [442]	98 [867]	125 [1106]	150 [1327]	175 [1549]	199 [1761]	189 [1673]															80
	15 [4]	26 [230]	46 [407]	97 [858]	124 [1097]	148 [1310]	175 [1549]	198 [1752]	224 [1982]	245 [2168]	267 [2363]	289 [2558]												150
	23 [6]	23 [203]	48 [425]	96 [850]	123 [1088]	148 [1310]	173 [1531]	200 [1770]	223 [1973]	246 [2177]	269 [2381]	286 [2531]												230
	30 [8]	21 [186]	45 [398]	93 [823]	121 [1071]	146 [1292]	168 [1487]	195 [1726]	221 [1956]	244 [2159]	265 [2345]	284 [2513]												300
	38 [10]	17 [150]	41 [363]	91 [805]	115 [1018]	141 [1248]	165 [1460]	189 [1673]	215 [1903]	238 [2106]	264 [2336]	282 [2496]												380
	45 [12]	14 [123]	36 [319]	89 [788]	116 [1027]	140 [1239]	162 [1434]	188 [1664]	210 [1858]	234 [2071]	258 [2283]	280 [2478]												450
	53 [14]	12 [106]	34 [301]	83 [735]	109 [965]	134 [1186]	158 [1389]	181 [1602]	205 [1814]	228 [2017]	256 [2265]	278 [2460]												530
	61 [16]	10 [88]	28 [248]	79 [699]	103 [912]	129 [1142]	152 [1345]	172 [1522]	198 [1752]	223 [1973]	254 [2248]	276 [2443]												610
	68 [18]	6 [53]	21 [186]	71 [628]	94 [832]	121 [1071]	146 [1292]	169 [1496]	192 [1699]	215 [1903]	251 [2221]	272 [2407]												680
	76 [20]		15 [133]	63 [558]	85 [752]	112 [991]	133 [1177]	160 [1416]	185 [1637]	202 [1788]	248 [2195]	267 [2363]												760

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

Theoretical Torque - Nm [lb-in]

27 [239]	56 [496]	110 [974]	137 [1212]	166 [1469]	193 [1708]	220 [1947]	247 [2186]	275 [2434]	303 [2682]	330 [2921]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

115

Pressure - bars [psi]								Max. Cont.	Max. Inter.	
17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]

113 cc [6.9 in³/rev.]

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

Flow - lpm [gpm]	2 [0.5]	23 [204]	53 [469]																			18	Theoretical rpm		
	4 [1]	25 [221]	56 [496]	95 [841]	118 [1044]																			35	
	8 [2]	25 [221]	59 [522]	117 [1035]	144 [1274]	172 [1522]	202 [1788]																		71
	15 [4]	24 [212]	58 [513]	112 [991]	144 [1274]	173 [1531]	202 [1788]	225 [1991]	251 [2221]																133
	23 [6]	22 [195]	51 [451]	111 [982]	140 [1239]	171 [1513]	201 [1779]	224 [1982]	251 [2221]	284 [2513]	307 [2717]														204
	30 [8]	21 [186]	53 [469]	108 [956]	134 [1186]	167 [1478]	196 [1735]	222 [1965]	251 [2221]	278 [2460]	305 [2699]	327 [2894]													265
	38 [10]	16 [142]	46 [407]	105 [929]	131 [1159]	164 [1451]	191 [1690]	217 [1920]	247 [2186]	271 [2398]	299 [2646]	327 [2894]													336
	45 [12]	12 [106]	43 [381]	101 [894]	132 [1168]	161 [1425]	187 [1655]	218 [1929]	239 [2115]	269 [2381]	290 [2566]	319 [2823]													398
	53 [14]	6 [53]	35 [310]	97 [858]	125 [1106]	157 [1389]	179 [1584]	207 [1832]	237 [2097]	259 [2292]	289 [2558]	315 [2788]													469
	61 [16]		34 [301]	90 [796]	118 [1044]	149 [1319]	174 [1540]	200 [1770]	233 [2062]	254 [2248]	285 [2522]	314 [2779]													540
	68 [18]		29 [257]	84 [743]	114 [1009]	140 [1239]	172 [1522]	202 [1788]	221 [1956]	253 [2239]	282 [2496]	299 [2646]													602
	76 [20]		17 [150]	73 [646]	103 [912]	132 [1168]	161 [1425]	186 [1646]	214 [1894]	240 [2124]	266 [2354]	293 [2593]													673

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

Theoretical Torque - Nm [lb-in]

31 [274]	62 [549]	124 [1097]	155 [1372]	186 [1646]	217 [1920]	248 [2195]	279 [2469]	310 [2743]	341 [3018]	372 [3292]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



130

Pressure - bars [psi]										Max. Cont.	Max. Inter.	
17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]		

129 cc [7.9 in³/rev.]

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

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm											Theoretical rpm
	34 [301] 15	60 [531] 6	124 [1097] 18	140 [1239] 10	185 [1637] 6							
2 [0.5]												15
4 [1]	32 [283] 30	64 [566] 29	124 [1097] 18	140 [1239] 10	185 [1637] 6							30
8 [2]	31 [274] 59	65 [575] 58	126 [1115] 51	144 [1274] 46	198 [1752] 38	223 [1974] 32	248 [2195] 25					59
15 [4]	31 [274] 115	66 [584] 112	130 [1151] 106	164 [1451] 102	195 [1726] 97	221 [1956] 92	255 [2257] 86	285 [2522] 80	312 [2761] 74	345 [3053] 66		118
23 [6]	30 [266] 177	65 [575] 175	130 [1151] 167	162 [1434] 163	196 [1735] 157	230 [2036] 152	265 [2345] 142	289 [2558] 138	316 [2797] 132	352 [3115] 121	375 [3319] 114	177
30 [8]	28 [248] 232	64 [566] 227	128 [1133] 218	157 [1389] 213	192 [1699] 208	223 [1974] 200	259 [2292] 189	284 [2513] 184	313 [2770] 176	343 [3036] 168	374 [3310] 162	235
38 [10]	20 [177] 294	60 [531] 289	125 [1106] 280	157 [1389] 275	188 [1664] 268	222 [1965] 260	254 [2248] 251	282 [2496] 243	313 [2770] 234	349 [3089] 221	370 [3275] 214	294
45 [12]	15 [133] 353	55 [487] 351	120 [1062] 343	152 [1345] 338	186 [1646] 331	216 [1912] 321	244 [2159] 311	281 [2487] 299	307 [2717] 289	341 [3018] 277	369 [3266] 264	353
53 [14]	13 [115] 411	47 [416] 408	117 [1035] 398	150 [1328] 392	181 [1602] 386	212 [1876] 378	247 [2186] 366	273 [2416] 357	310 [2744] 347	335 [2965] 335	363 [3213] 325	411
61 [16]	7 [62] 472	42 [372] 470	106 [938] 465	140 [1239] 462	170 [1505] 456	207 [1832] 447	239 [2115] 435	265 [2345] 426	296 [2620] 409	328 [2903] 396	361 [3195] 388	472
68 [18]		36 [319] 529	102 [903] 522	132 [1168] 517	166 [1469] 507	198 [1752] 500	224 [1982] 489	262 [2319] 482	292 [2584] 468	323 [2859] 445	351 [3106] 430	529
76 [20]		32 [283] 588	94 [832] 585	123 [1089] 580	158 [1398] 570	190 [1682] 562	219 [1938] 550	254 [2248] 535	282 [2496] 520	308 [2726] 510	347 [3071] 490	588

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

Theoretical Torque - Nm [lb-in]

35 [310]	71 [628]	142 [1257]	177 [1566]	212 [1876]	248 [2195]	283 [2504]	318 [2814]	354 [3133]	389 [3442]	425 [3761]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

160

Pressure - bars [psi]										Max. Cont.	Max. Inter.	
17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]		

160 cc [9.8 in³/rev.]

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

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm											Theoretical rpm
	30 [266] 12	66 [584] 11	109 [965] 5									
2 [0.5]												13
4 [1]	32 [283] 24	70 [620] 23	136 [1204] 21	164 [1451] 20	182 [1611] 14	250 [2213] 6						25
8 [2]	38 [336] 48	76 [673] 47	157 [1389] 42	181 [1602] 38	202 [1788] 34	265 [2345] 28	290 [2567] 22					50
15 [4]	39 [345] 92	78 [690] 89	166 [1469] 84	205 [1814] 82	242 [2142] 77	275 [2434] 73	317 [2805] 70	358 [3169] 67	400 [3540] 62			94
23 [6]	40 [354] 140	79 [699] 137	160 [1416] 132	203 [1797] 128	246 [2177] 123	290 [2567] 118	320 [2832] 114	354 [3133] 110	396 [3505] 106	404 [3575] 100	440 [3894] 94	144
30 [8]	34 [301] 184	73 [646] 178	164 [1451] 172	200 [1770] 170	245 [2168] 164	288 [2549] 160	316 [2797] 152	350 [3098] 147	388 [3434] 142	428 [3788] 134	448 [3965] 129	188
38 [10]	32 [283] 235	72 [637] 230	156 [1381] 222	196 [1735] 218	240 [2124] 212	282 [2496] 208	312 [2761] 200	347 [3071] 192	389 [3443] 184	422 [3735] 178	454 [4018] 172	238
45 [12]	24 [212] 278	70 [620] 272	151 [1336] 264	192 [1699] 259	236 [2089] 253	278 [2460] 247	310 [2744] 242	344 [3044] 235	382 [3381] 227	419 [3708] 216	450 [3983] 210	281
53 [14]	20 [177] 327	60 [531] 322	144 [1274] 312	186 [1646] 306	232 [2053] 300	266 [2354] 295	306 [2708] 289	338 [2991] 281	374 [3310] 276	420 [3717] 267	448 [3965] 258	331
61 [16]	12 [106] 379	52 [460] 374	134 [1186] 360	178 [1575] 355	218 [1929] 350	254 [2248] 342	297 [2628] 338	334 [2956] 333	371 [3283] 323	401 [3549] 316	442 [3912] 308	381
68 [18]		46 [407] 420	130 [1151] 409	171 [1513] 400	215 [1903] 394	248 [2195] 387	291 [2575] 380	326 [2885] 374	361 [3195] 368	393 [3478] 358	428 [3788] 346	425
76 [20]		38 [336] 469	120 [1062] 453	162 [1434] 448	199 [1760] 442	240 [2124] 435	278 [2460] 428	324 [2867] 421	357 [3159] 412	390 [3452] 401	425 [3761] 392	475

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

Theoretical Torque - Nm [lb-in]

43 [383]	89 [789]	176 [1556]	219 [1939]	265 [2345]	308 [2728]	352 [3111]	395 [3495]	441 [3901]	484 [4284]	527 [4667]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



200

Pressure - bars [psi]								Max. Cont.	Max. Inter.	
17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]

198 cc [12.1 in³/rev.]

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

Flow - lpm [gpm]	2 [0.5]	38 [336] 10	87 [770] 8	172 [1522] 6	201 [1779] 5									10
	4 [1]	47 [416] 20	103 [912] 19	164 [1451] 14	201 [1779] 12	244 [2159] 9	295 [2611] 6	328 [2903] 3						20
	8 [2]	46 [407] 39	96 [850] 38	192 [1699] 36	241 [2133] 35	286 [2531] 34	330 [2920] 28	372 [3292] 25	417 [3690] 22	428 [3788] 17				40
	15 [4]	44 [389] 75	95 [841] 73	194 [1717] 70	241 [2133] 68	286 [2531] 65	333 [2947] 63	376 [3319] 59	419 [3708] 57	461 [4080] 52	498 [4407] 50	544 [4814] 40		76
	23 [6]	40 [354] 113	92 [814] 111	192 [1699] 109	240 [2124] 106	288 [2549] 103	333 [2947] 99	375 [3319] 96	421 [3726] 94	461 [4080] 89	505 [4469] 84	544 [4814] 78		116
	30 [8]	33 [292] 150	87 [770] 147	187 [1655] 142	236 [2088] 140	284 [2513] 135	330 [2920] 131	374 [3327] 126	421 [3726] 124	462 [4088] 117	504 [4460] 112	542 [4796] 106		152
	38 [10]	23 [204] 192	80 [708] 190	180 [1593] 185	230 [2035] 182	278 [2460] 177	325 [2876] 172	371 [3283] 167	415 [3673] 160	459 [4062] 154	498 [4407] 146	540 [4779] 140		192
	45 [12]	21 [186] 227	73 [646] 226	173 [1531] 221	223 [1973] 219	271 [2398] 212	318 [2814] 207	364 [3221] 201	409 [3619] 194	453 [4009] 186	491 [4345] 179	533 [4717] 174		227
	53 [14]	10 [88] 268	64 [566] 266	165 [1460] 260	214 [1894] 256	262 [2319] 251	309 [2735] 245	356 [3150] 240	400 [3540] 233	444 [3929] 227	483 [4274] 217	525 [4646] 210		268
	61 [16]		55 [487] 308	155 [1372] 300	204 [1805] 298	253 [2239] 291	300 [2655] 286	346 [3062] 279	391 [3460] 271	434 [3841] 264	472 [4177] 255	514 [4549] 248		308
	68 [18]		46 [407] 343	143 [1265] 332	191 [1690] 330	240 [2124] 322	287 [2540] 316	332 [2938] 310	377 [3336] 302	420 [3717] 296	457 [4044] 286	484 [4283] 276		343
	76 [20]		30 [265] 384	130 [1150] 374	179 [1584] 367	227 [2009] 363	275 [2434] 355	321 [2841] 349	365 [3230] 343	409 [3619] 333	430 [3805] 324	468 [4142] 314		384

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

Theoretical Torque - Nm [lb-in]

54 [481]	109 [963]	218 [1929]	272 [2407]	326 [2888]	381 [3369]	435 [3850]	489 [4332]	544 [4813]	598 [5294]	653 [5776]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

240

Pressure - bars [psi]								Max. Cont.	Max. Inter.	
17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]

236 cc [14.4 in³/rev.]

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

Flow - lpm [gpm]	2 [0.5]	47 [416] 7	98 [867] 6	197 [1743] 3	247 [2186] 3									8
	4 [1]	50 [443] 14	105 [929] 13	210 [1859] 11	260 [2301] 9	310 [2717] 7	354 [3133] 4	404 [3575] 4						16
	8 [2]	53 [469] 29	111 [982] 28	224 [1982] 26	277 [2451] 24	329 [2894] 21	377 [3336] 19	424 [3752] 16	469 [4151] 11	511 [4522] 8	582 [5151] 8			32
	15 [4]	52 [460] 60	114 [1000] 59	236 [2062] 56	290 [2575] 53	346 [3062] 50	399 [3531] 47	449 [3974] 44	496 [4390] 40	541 [4788] 36	598 [5292] 33	638 [5646] 28		63
	23 [6]	47 [416] 93	109 [956] 91	227 [2009] 88	285 [2522] 85	342 [3027] 81	397 [3513] 77	449 [3974] 71	500 [4425] 66	548 [4850] 60	595 [5266] 55	642 [5682] 52		95
	30 [8]	42 [372] 125	104 [903] 123	221 [1956] 119	280 [2469] 116	336 [2974] 111	391 [3460] 106	445 [3938] 100	497 [4398] 93	547 [4841] 87	592 [5248] 79	640 [5664] 73		126
	38 [10]	35 [310] 158	95 [832] 155	213 [1885] 150	272 [2398] 147	328 [2903] 142	384 [3398] 137	437 [3867] 131	489 [4328] 123	541 [4788] 115	587 [5195] 106	635 [5620] 99		158
	45 [12]	23 [204] 189	85 [752] 186	203 [1797] 182	262 [2319] 178	319 [2823] 174	375 [3319] 168	428 [3788] 160	480 [4248] 153	531 [4699] 145	575 [5089] 134	623 [5514] 125		189
	53 [14]		75 [655] 218	192 [1699] 214	250 [2213] 210	308 [2726] 205	365 [3310] 201	418 [3699] 191	470 [4160] 183	520 [4602] 174	564 [4991] 164	611 [5407] 154		220
	61 [16]		68 [593] 249	180 [1593] 245	238 [2106] 242	295 [2611] 236	350 [3106] 230	405 [3584] 222	458 [4053] 215	510 [4496] 205	551 [4876] 195	600 [5310] 184		252
	68 [18]		56 [487] 279	165 [1460] 273	221 [1956] 270	281 [2469] 267	335 [2965] 260	388 [3434] 251	440 [3894] 241	490 [4337] 231	545 [4797] 221	590 [5222] 208		283
	76 [20]		40 [354] 315	154 [1345] 307	210 [1841] 303	264 [2336] 295	320 [2832] 290	376 [3310] 282	428 [3770] 272	480 [4221] 261	530 [4691] 250	580 [5133] 238		315

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

Theoretical Torque - Nm [lb-in]

66 [584]	132 [1168]	265 [2345]	331 [2929]	397 [3513]	463 [4097]	529 [4681]	595 [5265]	661 [5850]	728 [6442]	794 [7027]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



PERFORMANCE



290

Pressure - bars [psi]					Max. Cont.			Max. Inter.		
17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]

291 cc [17.8 in³/rev.]

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm										Theoretical rpm
	60 [531] 7	115 [1018] 6	185 [1637] 5	260 [2301] 4	292 [2584] 3						
2 [0.5]	62 [549] 13	122 [1080] 12	187 [1655] 10	265 [2345] 8	304 [2690] 6	365 [2330] 4					7
4 [1]	60 [531] 26	128 [1133] 24	190 [1682] 22	272 [2407] 20	325 [2876] 18	372 [3292] 15	456 [4036] 12	512 [4531] 8	570 [5045] 4		14
8 [2]	58 [513] 50	133 [1177] 49	195 [1726] 46	270 [2390] 44	328 [2903] 40	376 [3328] 36	458 [4053] 32	522 [4620] 24	574 [5080] 16	630 [5576] 9	27
15 [4]	56 [496] 76	124 [1097] 74	200 [1770] 71	268 [2372] 68	331 [2929] 64	396 [3505] 61	462 [4089] 57	525 [4646] 55	566 [5009] 52	625 [5531] 48	52
23 [6]	50 [442] 100	120 [1062] 96	197 [1743] 90	264 [2336] 85	326 [2885] 80	394 [3487] 76	465 [4115] 72	526 [4655] 70	568 [5027] 68	620 [5487] 65	79
30 [8]	45 [398] 129	114 [1009] 126	190 [1682] 122	258 [2283] 118	320 [2832] 116	392 [3469] 112	460 [4071] 106	521 [4611] 100	559 [4947] 92	615 [5443] 82	103
38 [10]	38 [336] 153	104 [920] 150	180 [1593] 146	252 [2230] 142	314 [2779] 138	390 [3452] 133	458 [4053] 127	511 [4522] 120	550 [4868] 106	610 [5399] 100	130
45 [12]	25 [221] 182	93 [823] 174	170 [1505] 166	236 [2089] 158	306 [2708] 150	382 [3381] 142	452 [4000] 134	500 [4425] 128	542 [4797] 122	606 [5363] 118	155
53 [14]	12 [106] 210	82 [726] 202	155 [1372] 193	225 [1991] 184	294 [2602] 175	375 [3319] 166	445 [3938] 160	488 [4319] 152	535 [4735] 145	595 [5266] 140	182
61 [16]	66 [581] 230	140 [1239] 226	218 [1929] 218	280 [2478] 210	365 [3230] 202	435 [3850] 192	479 [4239] 182	526 [4655] 174	588 [5204] 164	604 [5345] 158	210
68 [18]	55 [487] 256	128 [1133] 246	198 [1752] 237	270 [2390] 226	350 [3098] 216	426 [3770] 206	468 [4142] 198	514 [4549] 190	574 [5080] 185	588 [5204] 180	234
76 [20]											261

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

Theoretical Torque - Nm [lb-in]

80 [707]	160 [1415]	240 [2122]	320 [2829]	400 [3537]	480 [4244]	560 [4952]	639 [5659]	719 [6366]	799 [7074]	879 [7781]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

320

Pressure - bars [psi]					Max. Cont.			Max. Inter.		
17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	

322 cc [19.6 in³/rev.]

Flow - lpm [gpm]	Torque - Nm [lb-in], Speed rpm										Theoretical rpm
	60 [531] 6	134 [1186] 5	189 [1673] 5	238 [2106] 4							
2 [0.5]	70 [619] 12	140 [1239] 11	239 [2115] 10	276 [2442] 9	324 [2867] 6	393 [3478] 4	403 [3566] 2				6
4 [1]	73 [646] 24	154 [1363] 22	233 [2062] 20	291 [2575] 19	333 [2947] 17	425 [3761] 16	487 [4310] 13	545 [4823] 11	621 [5496] 6	659 [5832] 2	12
8 [2]	79 [699] 46	152 [1345] 45	235 [2080] 44	311 [2752] 43	385 [3407] 41	452 [4000] 38	518 [4584] 35	555 [4912] 32	641 [5673] 28	690 [6106] 24	25
15 [4]	68 [602] 70	150 [1328] 69	227 [2009] 68	295 [2611] 66	378 [3345] 63	443 [3920] 58	512 [4531] 53	578 [5115] 49	621 [5496] 47	686 [6071] 43	47
23 [6]	56 [496] 93	145 [1283] 92	218 [1929] 89	286 [2531] 86	356 [3150] 82	436 [3858] 77	506 [4478] 73	560 [4956] 67	614 [5434] 63	665 [5885] 59	71
30 [8]	54 [478] 118	140 [1239] 117	202 [1788] 115	273 [2416] 113	348 [3080] 110	427 [3779] 104	501 [4434] 98	557 [4929] 91	604 [5345] 85	664 [5876] 77	93
38 [10]	38 [336] 140	134 [1186] 138	192 [1681] 136	260 [2301] 134	336 [2973] 130	409 [3619] 124	476 [4212] 117	542 [4796] 110	601 [5319] 103	642 [5681] 97	118
45 [12]	22 [195] 165	122 [1080] 163	173 [1531] 161	255 [2257] 158	323 [2858] 154	391 [3460] 147	451 [3991] 141	521 [4611] 134	582 [5150] 126	630 [5575] 118	140
53 [14]	11 [97] 188	105 [930] 186	157 [1389] 184	229 [2027] 182	298 [2637] 177	376 [3327] 170	440 [3894] 162	503 [4451] 155	557 [4929] 147	618 [5469] 138	165
61 [16]	88 [779] 210	144 [1274] 208	220 [1947] 204	285 [2522] 197	356 [3150] 190	424 [3752] 181	487 [4310] 173	549 [4858] 165	602 [5327] 156		189
68 [18]	70 [620] 235	126 [1062] 233	190 [1681] 230	262 [2319] 226	335 [2965] 218	410 [3628] 209	463 [4097] 202	528 [4673] 193	586 [5186] 185		211
76 [20]											236

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

Theoretical Torque - Nm [lb-in]

87 [770]	177 [1566]	267 [2362]	354 [3132]	441 [3903]	533 [4717]	620 [5487]	708 [6265]	795 [7035]	887 [7850]
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Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



400

Pressure - bars [psi]				Max. Cont.		Max. Inter.	
17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]

400 cc [24.4 in³/rev.]

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

Flow - lpm [gpm]	2 [0.5]	82 [723] 5	165 [1459] 4	250 [2213] 3	329 [2912] 2	418 [3699] 2				Theoretical rpm
	4 [1]	86 [761] 10	175 [1549] 9	262 [2317] 8	345 [3053] 7	427 [3779] 6	497 [4398] 4	577 [5106] 3	660 [5841] 2	
	8 [2]	89 [791] 20	191 [1690] 19	284 [2513] 18	364 [3219] 17	448 [3962] 15	502 [4443] 13	606 [5363] 11	682 [6036] 8	
	15 [4]	87 [771] 38	189 [1673] 37	277 [2451] 36	378 [3346] 34	467 [4135] 33	529 [4679] 32	629 [5569] 28	698 [6177] 25	
	23 [6]	79 [703] 58	185 [1637] 56	271 [2398] 55	373 [3305] 53	464 [4110] 50	551 [4873] 49	631 [5584] 46	696 [6159] 44	
	30 [8]	70 [620] 75	176 [1558] 73	260 [2301] 71	364 [3217] 69	455 [4025] 66	550 [4868] 63	623 [5515] 60	676 [5982] 58	
	38 [10]	59 [523] 95	159 [1407] 93	239 [2115] 92	351 [3106] 87	442 [3913] 84	541 [4787] 81	611 [5410] 78	663 [5864] 75	
	45 [12]	52 [460] 113	145 [1283] 111	233 [2062] 108	335 [2968] 105	430 [3806] 103	529 [4684] 96	595 [5269] 91	645 [5705] 88	
	53 [14]	46 [404] 133	138 [1221] 131	215 [1903] 127	318 [2813] 126	409 [3622] 121	513 [4543] 114	578 [5115] 109	624 [5522] 104	
	Max. Cont.	61 [16]	113 [1000] 152	191 [1690] 147	298 [2641] 145	390 [3448] 139	496 [4393] 130	560 [4959] 127	606 [5364] 121	
Max. Inter.	68 [18]	96 [850] 170	178 [1575] 164	263 [2328] 163	365 [3230] 156	478 [4228] 146	517 [4572] 142	580 [5133] 137		
	76 [20]	74 [655] 190	150 [1327] 185	240 [2122] 180	342 [3027] 174	436 [3855] 165	493 [4365] 160	560 [4956] 156		

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

Theoretical Torque - Nm [lb-in]

112 [992]	224 [1984]	336 [2976]	448 [3968]	560 [4960]	673 [5952]	785 [6944]	897 [7935]
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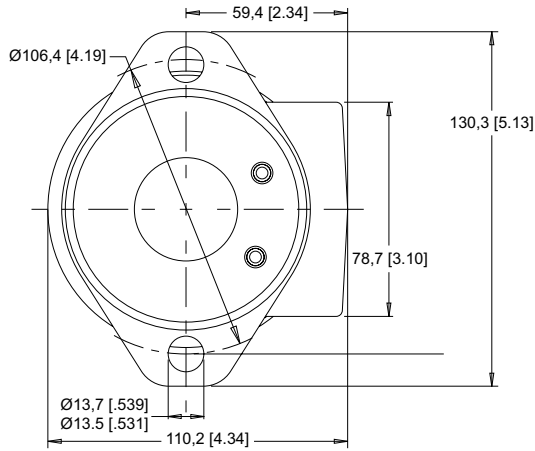
Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]



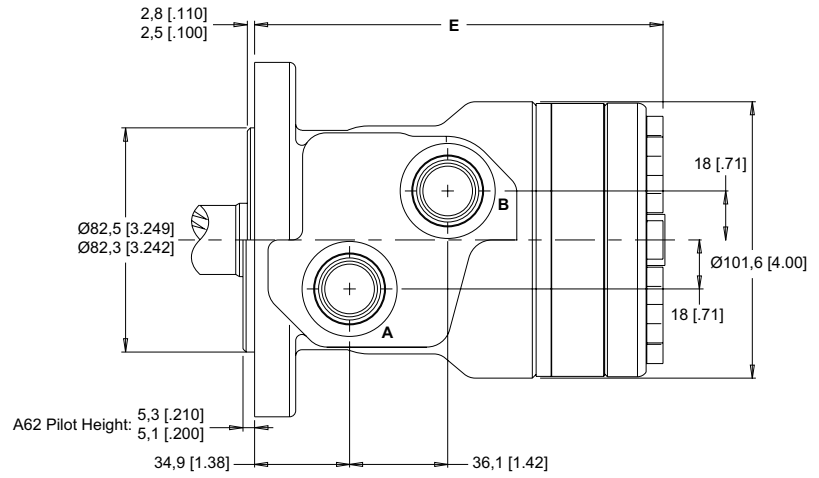
NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

255 & 256 SERIES HOUSINGS (SAE A MOUNTS)

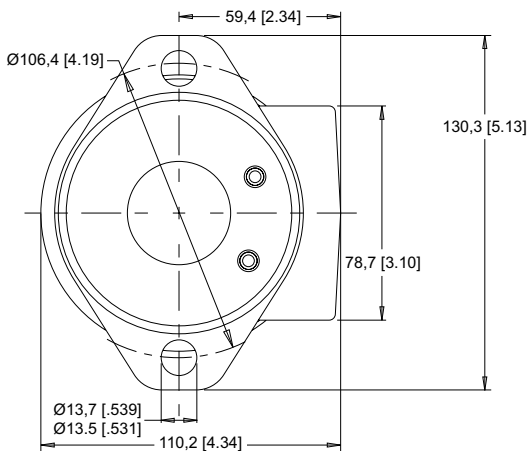
A12 2-Hole 1/2" BSP.F Offset Ports



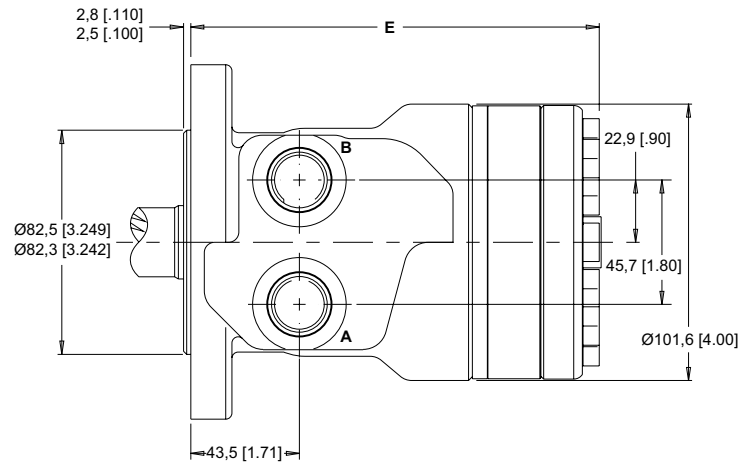
A62 2-Hole 1/2" BSP.F Offset Ports



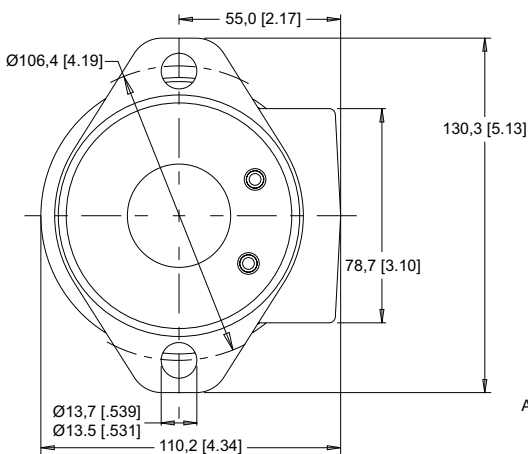
A10 2-Hole 1/2" NPT Aligned Ports



A11 2-Hole 7/8" O-Ring Aligned Ports

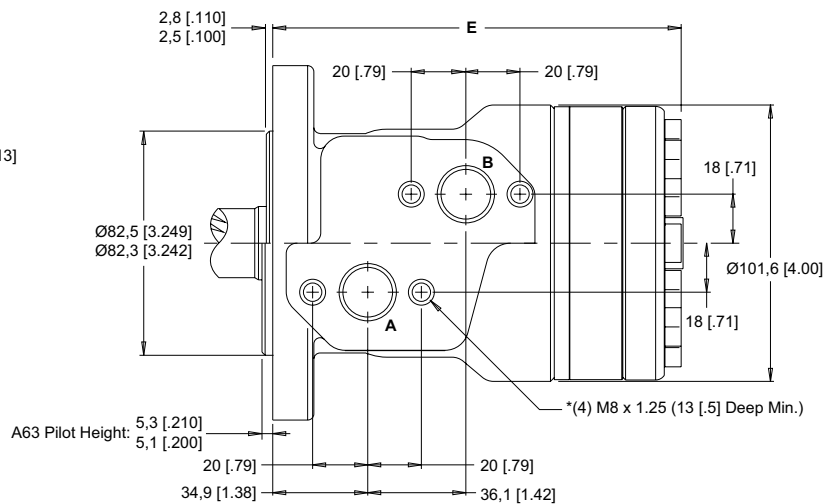


A13 2-Hole 1/2" BSP.F Offset Manifold Ports



A1D 2-Hole 7/8" O-Ring Offset Manifold Ports

A63 2-Hole 1/2" BSP.F Offset Manifold Ports

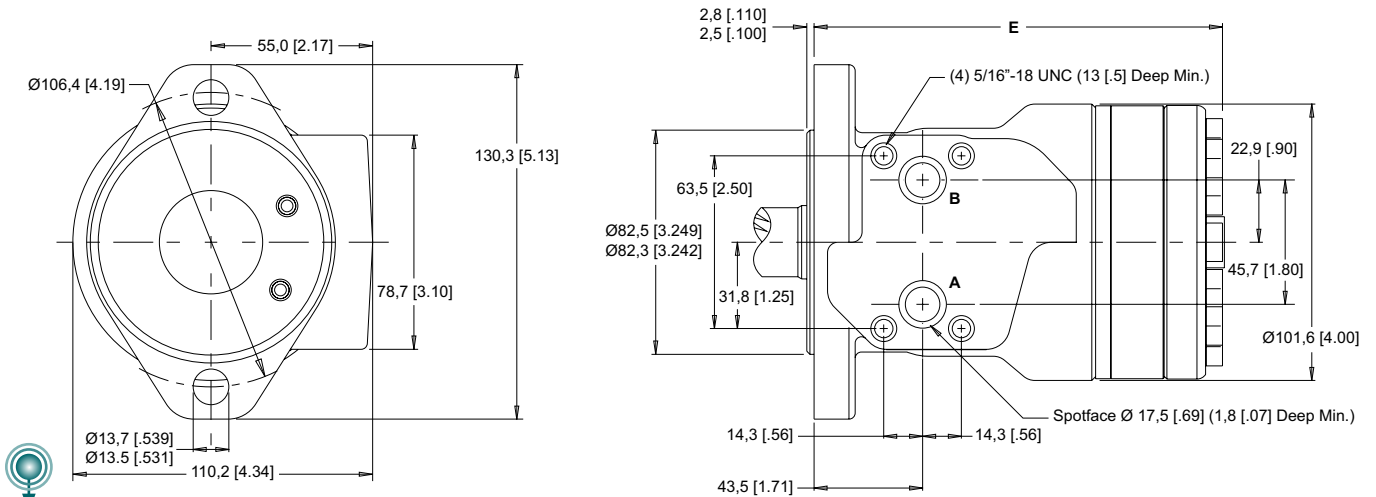


NOTE: Dimension E is found on page 14. * For the A1D the four mounting holes are 5/16" -18 UNC at same depth.



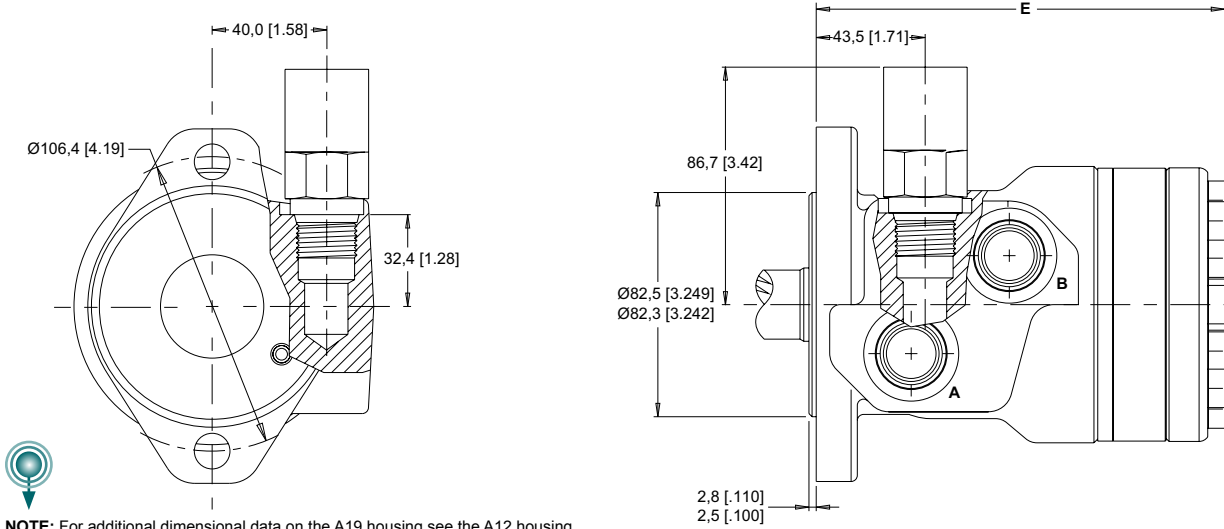
255 & 256 SERIES HOUSINGS (SAE A & MAGNETO MOUNTS)

A17 2-Hole 1/2" Drilled Manifold Ports



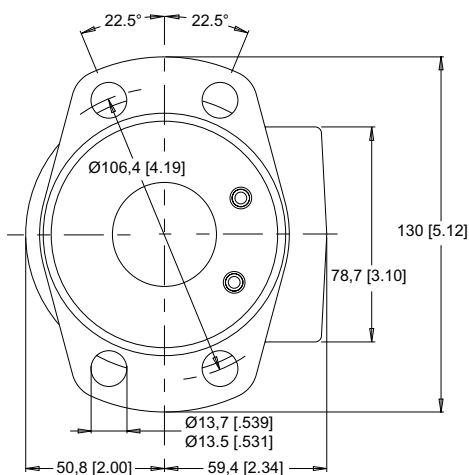
NOTE: Dimension E is found on page 14.

A19 2-Hole 7/8" O-Ring Offset Ports

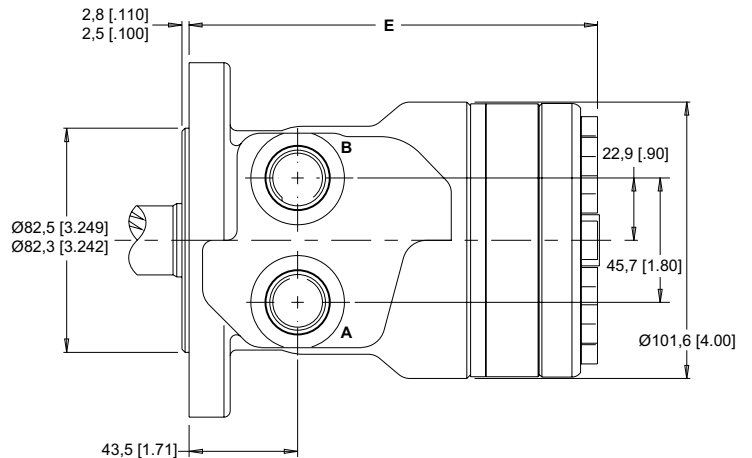


NOTE: For additional dimensional data on the A19 housing see the A12 housing.

A30 4-Hole 1/2" NPT Magneto



A31 4-Hole 7/8" O-Ring Magneto

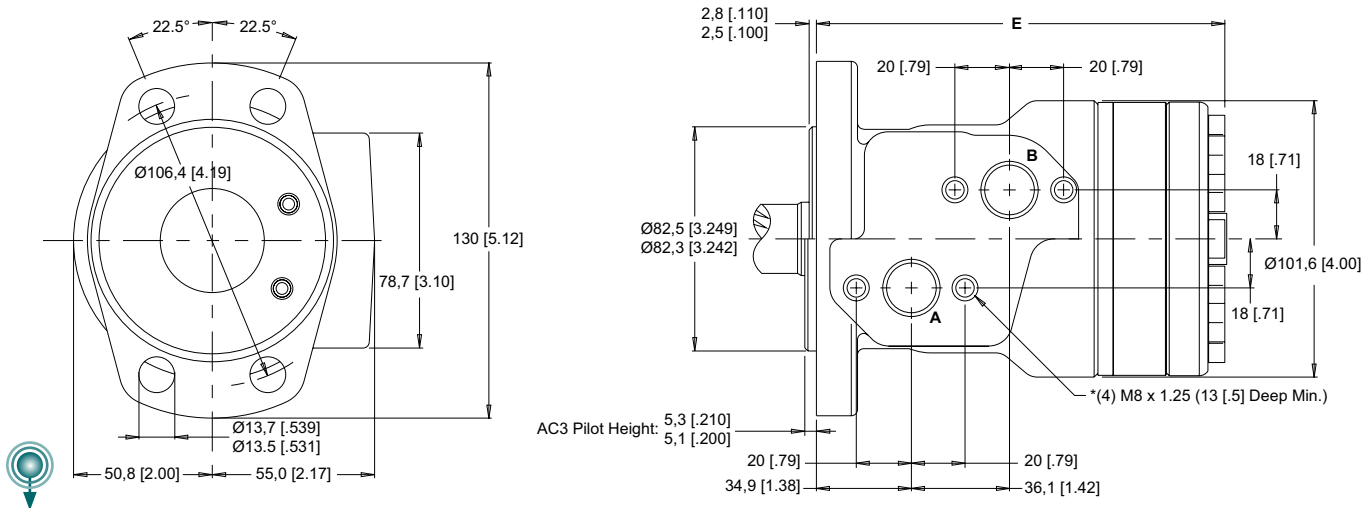




NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

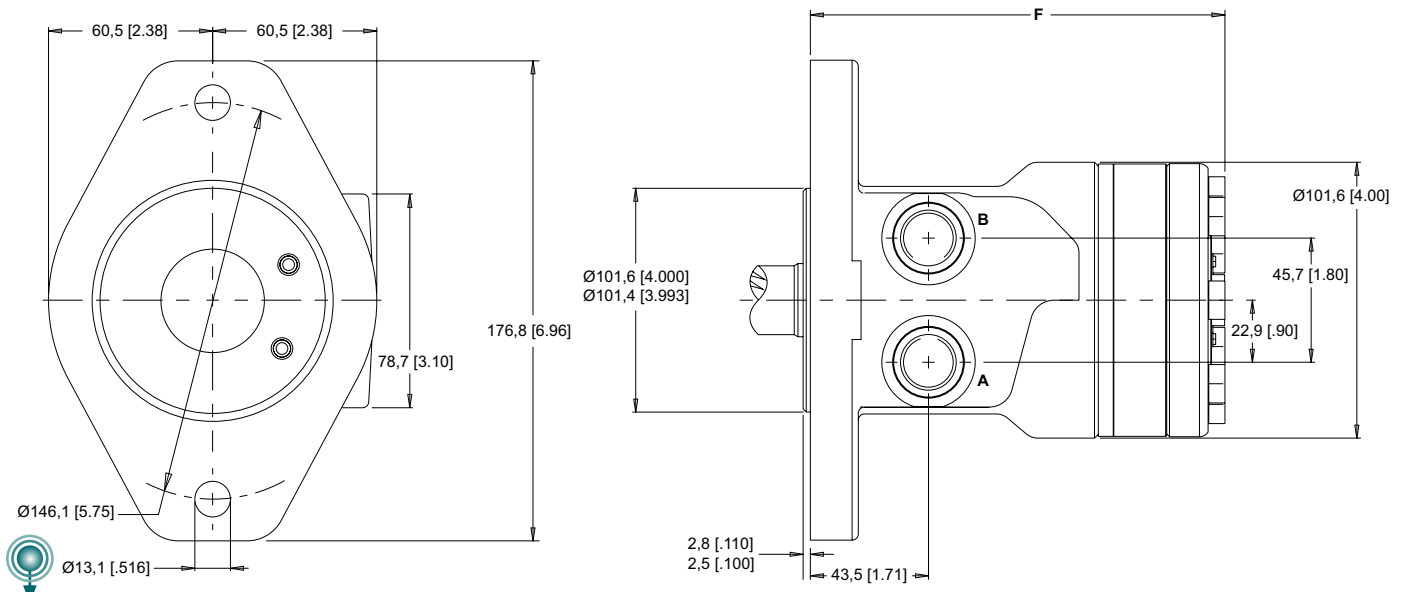
255 & 256 SERIES HOUSINGS (MAGNETO, SAE B, & 4-HOLE SQUARE MOUNTS)

AC3 4-Hole 1/2" BSP.F Offset Manifold Ports **A33** 4-Hole 1/2" BSP.F Offset Manifold Ports **A3D** 4-Hole 7/8" O-Ring Offset Manifold Ports



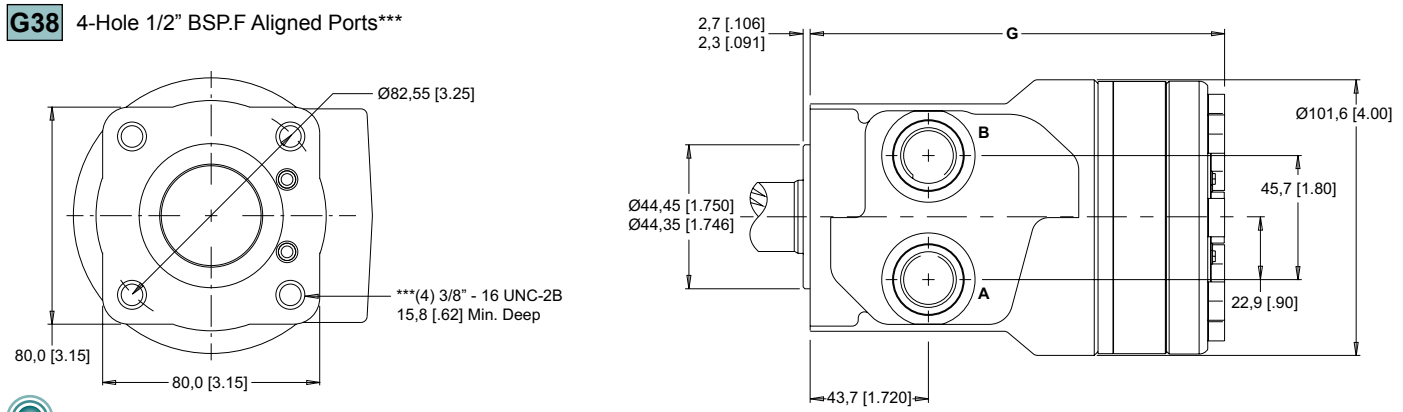
NOTE: Dimension E is found on page 14. * For the A3D the four mounting holes are 5/16" -18 UNC at same depth.

B11 2-Hole 7/8" O-Ring Aligned Ports **B18** 2-Hole 1/2" BSP.F Aligned Ports



NOTE: Dimension F is found on page 14.

F30 4-Hole 1/2" NPT Aligned Ports **F31** 4-Hole 7/8" O-Ring Aligned Ports **F38** 4-Hole 1/2" BSP.F Aligned Ports



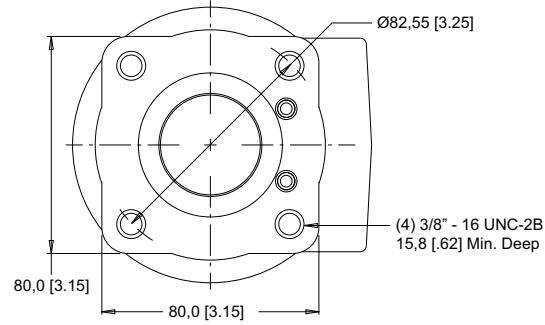
NOTE: Dimension G is found on page 14. *** For the G38 the four mounting holes are M10 x 1.5 at same depth.



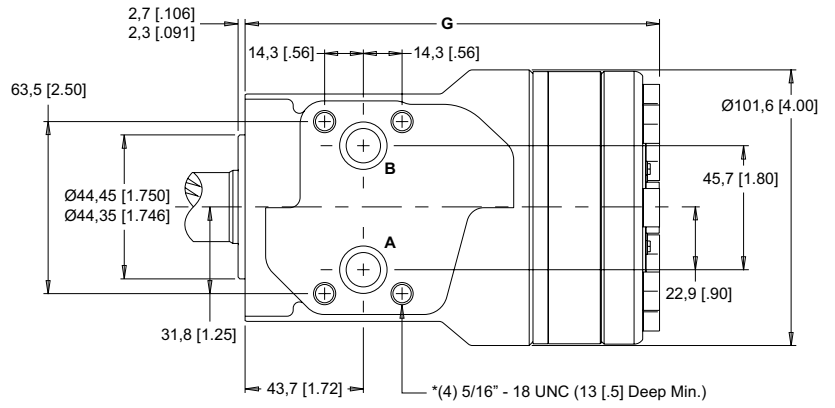
NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

255 & 256 SERIES HOUSINGS (4-HOLE SQUARE MOUNTS)

F37 4-Hole Manifold Ports



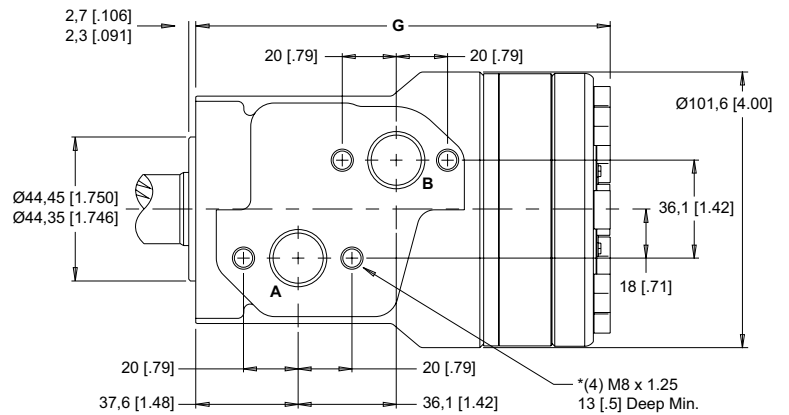
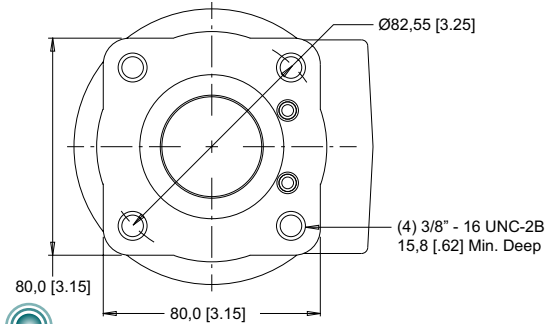
G37 4-Hole Manifold Ports



NOTE: Dimension G is found on page 14. * For the G37 the four mounting holes are M8 x 1.25 at same depth.

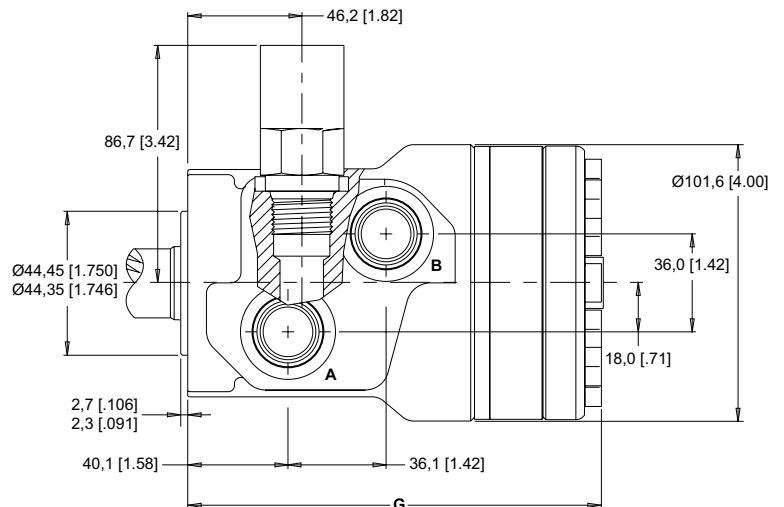
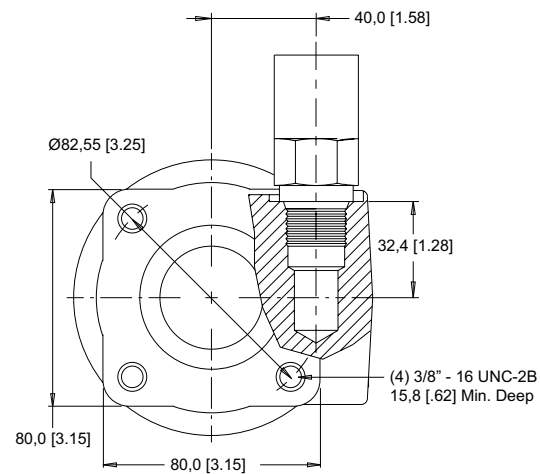
F33 4-Hole 1/2" BSP.F Offset Manifold Ports

F3D 4-Hole 7/8" O-Ring Offset Manifold Ports



NOTE: * For the F3D the four mounting holes are 5/16" - 18 UNC at same depth.

F39 2-Hole 7/8" O-Ring Offset Ports

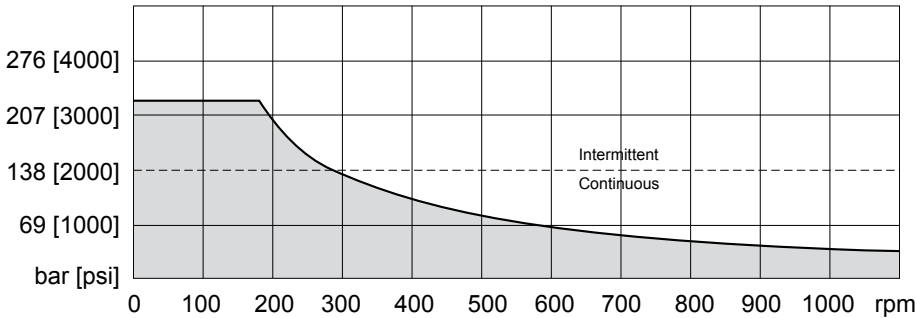




255 & 256 SERIES TECHNICAL INFORMATION

PERMISSIBLE SHAFT SEAL PRESSURE

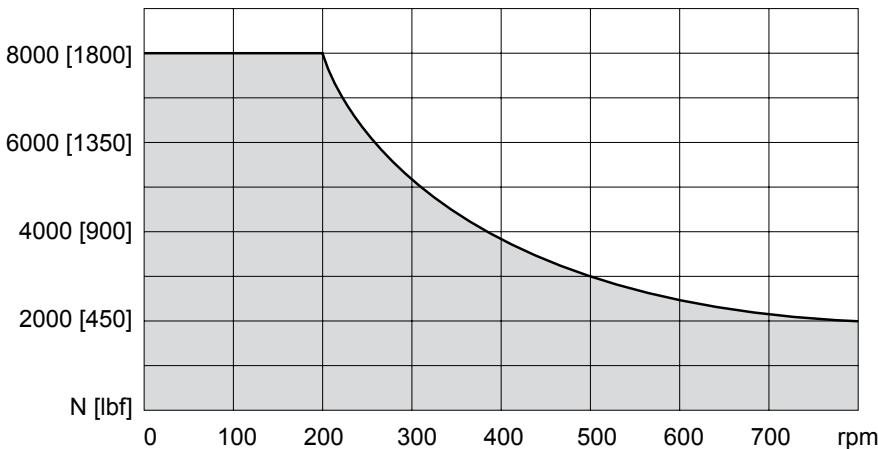
The curve below represents allowable seal pressure at various speeds. Operation in the gray area results in maintaining the rated life of the shaft seal. Actual shaft seal pressure depends on motor configuration (see below).



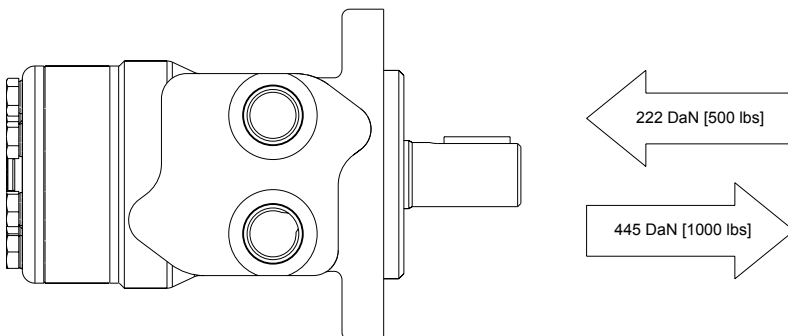
With check valves and drain connection, the shaft seal pressure equals pressure in the drain line. With check valves and no drain connection, shaft seal pressure is identical to output pressure. No check valves and no drain connection, the shaft seal pressure is identical to the average value of input and output pressure.

ALLOWABLE SHAFT LOAD / BEARING CURVE

The bearing curve below represents the side load capacity of the motor at the centerline of the key for various motor speeds. Operating conditions within the shaded area will maintain acceptable oil film lubrication with recommended fluids. Operating conditions outside the shaded area are susceptible to motor failure due to oil starvation and/or excessive heat generation. Fluids with low lubricity or low viscosity may require the maximum load and speed ratings to be derated to provide acceptable motor life and performance.



THRUST LOAD



LENGTH / WEIGHT CHART SAE A Mount - Dimension E		
Code	mm [in]	kg [lb]
040	142 [5.60]	6,6 [14.5]
060	146 [5.74]	6,7 [14.7]
070	147 [5.80]	6,7 [14.7]
090	151 [5.96]	6,8 [15.0]
100	154 [6.06]	6,9 [15.2]
115	156 [6.15]	7,1 [15.6]
130	160 [6.28]	7,3 [16.0]
160	166 [6.53]	7,5 [16.5]
200	173 [6.83]	8,0 [17.6]
240	182 [7.15]	8,5 [18.7]
290	192 [7.56]	8,8 [19.4]
320	198 [7.78]	9,0 [19.8]
400	213 [8.39]	9,8 [21.6]

LENGTH / WEIGHT CHART SAE B Mount - Dimension F		
Code	mm [in]	kg [lb]
040	142 [5.60]	7,8 [17.2]
060	146 [5.74]	7,9 [17.4]
070	147 [5.80]	7,9 [17.4]
090	151 [5.96]	8,0 [17.6]
100	154 [6.06]	8,1 [17.8]
115	156 [6.15]	8,3 [18.3]
130	160 [6.28]	8,5 [18.7]
160	166 [6.53]	8,7 [19.1]
200	173 [6.83]	9,2 [20.2]
240	182 [7.15]	9,7 [21.3]
290	192 [7.56]	10,0 [22.0]
320	198 [7.78]	10,2 [22.4]
400	213 [8.39]	11,0 [24.2]

LENGTH / WEIGHT CHART 4-Hole Mount - Dimension G		
Code	mm [in]	kg [lb]
040	142 [5.60]	5,3 [11.8]
060	146 [5.74]	5,4 [11.9]
070	147 [5.80]	5,4 [11.9]
090	151 [5.96]	5,5 [12.1]
100	154 [6.06]	5,6 [12.3]
115	156 [6.15]	5,8 [12.8]
130	160 [6.28]	6,0 [13.2]
160	166 [6.53]	6,2 [13.7]
200	173 [6.83]	6,7 [14.8]
240	182 [7.15]	7,2 [15.9]
290	192 [7.56]	7,5 [16.5]
320	198 [7.78]	7,7 [17.0]
400	213 [8.39]	8,5 [18.7]

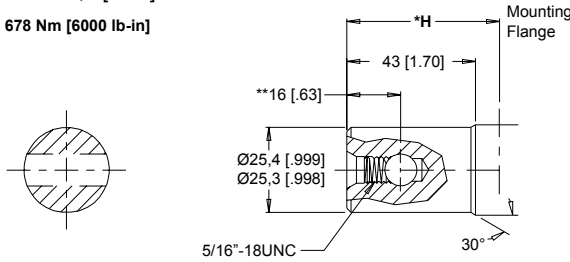
NOTE:
WR motor weights vary $\pm 0,5$ kg [1 lb] depending upon motor configuration.



255 & 256 SERIES SHAFTS

- 05** 1" Pinhole 9,5 [.375] thru hole
- 53** 1" Pinhole 10,3 [.406] thru hole
- 66** 1" Pinhole 8,0 [.315] thru hole

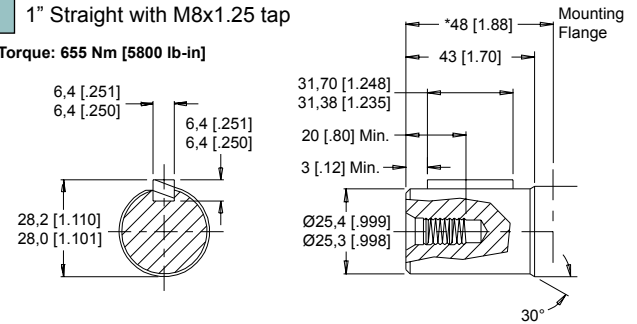
Max. Torque: 678 Nm [6000 lb-in]



NOTE: Dimension H is 48 [1.88] for the 05 & 53 shaft & 51 [2.00] for the 66 shaft.
 **For the 66 shaft subtract 4,7 [.19] from dimension.

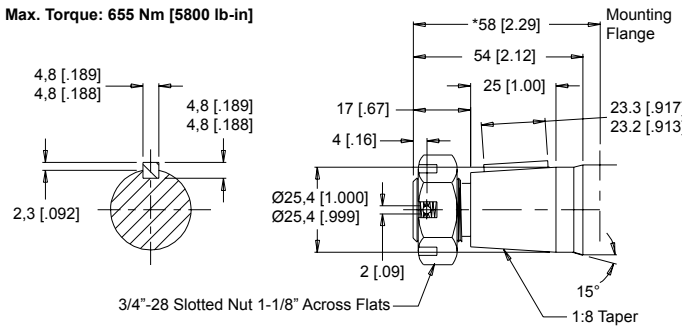
- 10** 1" Straight with 5/16" - 18 UNC tap
- 11** 1" Straight with M8x1.25 tap

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



- 13** 1" Tapered

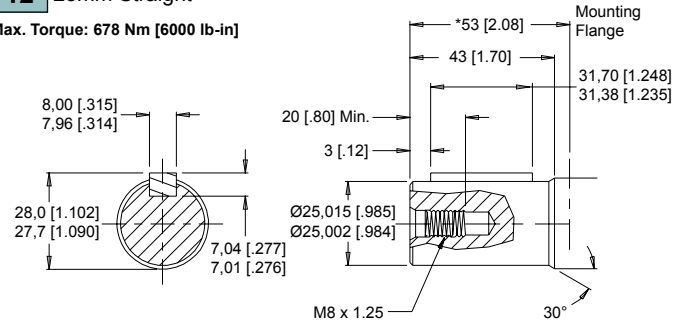
Max. Torque: 655 Nm [5800 lb-in]



NOTE: A slotted nut is standard on this shaft.

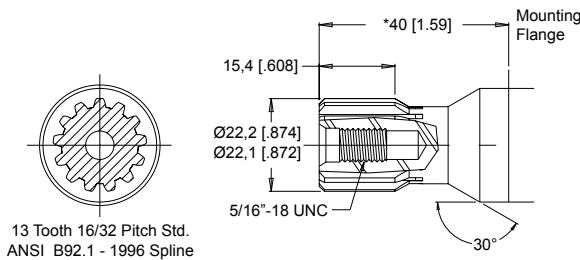
- 12** 25mm Straight

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



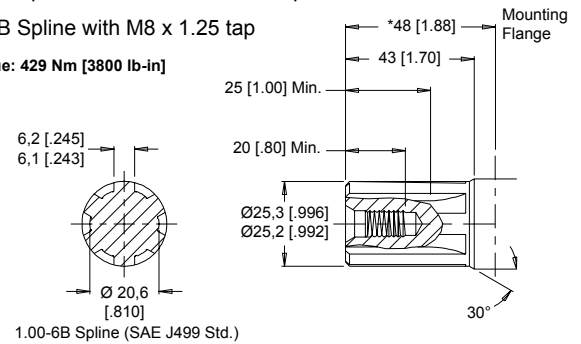
- 01** 13 Tooth Spline

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



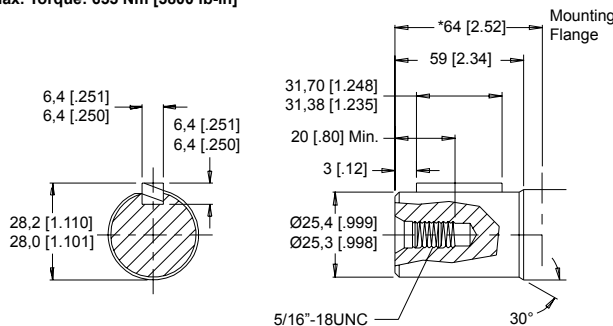
- 02** 6B Spline with 5/16" - 18 UNC tap
- 04** 6B Spline with M8 x 1.25 tap

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



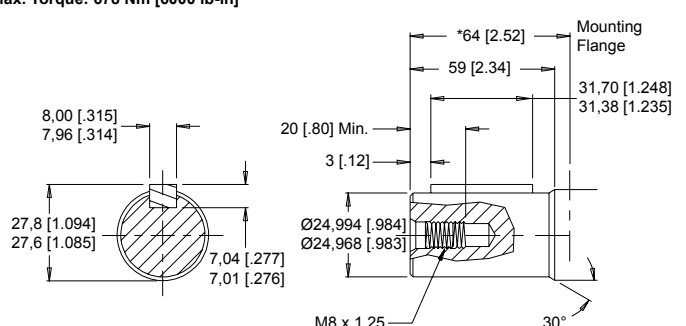
- 15** 1" Straight Extended

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



- 16** 25mm Straight Extended

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



NOTE: *For tall pilot housings add 2,5 [.10] to dimension.

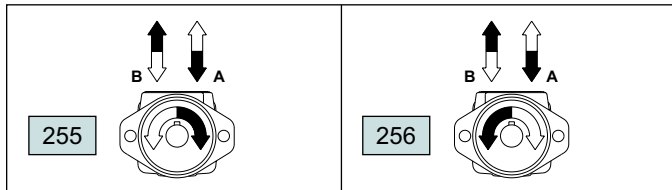


255 & 256 SERIES MODEL CODE BUILDER

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

- 255 Clockwise Rotation
- 256 Counterclockwise Rotation



NOTE: To obtain the desired direction of shaft rotation, use the graphic above to determine the rotation code for the motor.

STEP 2 - Select a displacement option

040	40 cc	[2.5 in ³ /rev]	160	160 cc	[9.8 in ³ /rev]
060	59 cc	[3.6 in ³ /rev]	200	198 cc	[12.1 in ³ /rev]
070	71 cc	[4.3 in ³ /rev]	240	236 cc	[14.4 in ³ /rev]
090	88 cc	[5.4 in ³ /rev]	290	291 cc	[17.8 in ³ /rev]
100	100 cc	[6.1 in ³ /rev]	320	322 cc	[19.6 in ³ /rev]
115	113 cc	[6.9 in ³ /rev]	400	400 cc	[24.4 in ³ /rev]
130	129 cc	[7.9 in ³ /rev]			

STEP 3 - Select a housing option

A10	2-Hole 1/2" NPT Aligned Ports (S)
A11	2-Hole 7/8" O-ring Aligned Ports (S)
A12	2-Hole 1/2" BSP.F Offset Ports (S)
A13	2-Hole 1/2" BSP.F Offset Manifold (S)
A17	2-Hole 1/2" Drilled Manifold Ports (S)
A1D	2-Hole 7/8" O-Ring Offset Manifold (S)
A19	2-Hole 7/8" O-Ring With Valve Cavity (S)
A62	2-Hole 1/2" BSP.F Offset w/5,1mm Pilot
A63	2-Hole 1/2" BSP.F Offset Manifold w/5,1mm Pilot
AC3	4-Hole 1/2" BSP.F Magneto Offset Manifold w/5,1mm Pilot
A30	4-Hole 1/2" NPT Magneto
A31	4-Hole 7/8" O-Ring Magneto
A33	4-Hole 1/2" BSP.F Magneto Offset Manifold Ports
A3D	4-Hole 7/8" O-Ring Magneto Offset Manifold Ports
B11	2-Hole SAE B Flange 7/8" O-ring Aligned
B18	2-Hole SAE B Flange 1/2" BSP.F Aligned
F30	4-Hole 1/2" NPT Aligned Ports (S)
F31	4-Hole 7/8" O-Ring Aligned Ports (S)
F33	4-Hole 1/2" BSP.F Offset Manifold Ports (S)
F37	4-Hole Manifold Ports (S)
F38	4-Hole 1/2" BSP.F Aligned Ports (S)

STEP 3 (Continued) - Select a housing option

- F39 4-Hole 7/8" O-Ring With Valve Cavity (S)
- F3D 4-Hole 7/8" O-Ring Offset Manifold Ports (S)
- G37 4-Hole Manifold Ports (S)
- G38 4-Hole 1/2" BSP.F Aligned Ports (S)

STEP 4 - Select a shaft option

01	7/8" 13 Tooth Spline	12	25mm Straight
02	1" 6-B Spline 5/16" Tap	13	1" Tapered
04	1" 6-B Spline M8 Tap	15	1" Straight Ext. (S)
05	1" Pinhole (9,5 [.375])	16	25mm Straight Ext. (S)
10	1" Straight 5/16" Tap	53	1" Pinhole (10,3 [.406])
11	1" Straight M8 Tap	66	1" Pinhole (8,0 [.315])

STEP 5 - Select a paint option

- A Black
- B Black (unpainted flange face)

STEP 6 - Select a valve cavity option and installed valve

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

NOTE: Valve cavity is only available on the A19 & F39 housings. The B option will not have a valve cartridge listed above installed.

STEP 7 - Select an add on option

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

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

STEP 8 - Select a miscellaneous option

- AA None
- EG Viton Shaft Seal

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Before selecting or using a White Drive Products' product, it is important that all information concerning the product warranty, limitation of liability and responsibility of the customer be reviewed. This information is located below. Please direct any questions regarding this information to your White Drive Products representative.

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