WR Series

Light Duty Hydraulic Motor

WR (All Series)

For Light Duty Applications

OVERVIEW

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.

FEATURES / BENEFITS

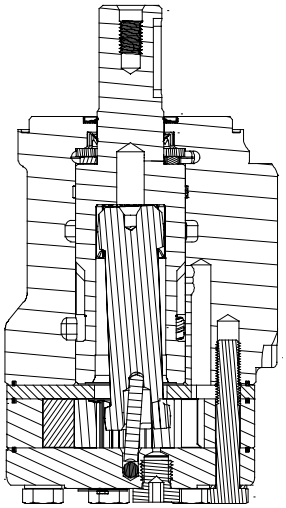
- A variety of mounts and shafts provides flexibility in application design.
- A high pressure shaft seal offers superior seal life and performance.
- The spool valve design gives superior performance and smooth operation over a wide speed and torque range.
- Built-in check valves (not shown) in the housing offer versatility and increased seal life.
- Optimized Roller Stator® geometry provides a smooth running high efficient product.

TYPICAL APPLICATIONS

conveyors, carwashes, positioners, light-duty wheel drives, sweepers, food processing, grain augers, spreaders, feed rollers, screw drives, brush drives and more

SERIES DESCRIPTIONS

255/256 - Hydraulic Motor
Standard



SPECIFICATIONS

CODE	Displacement cm^3 [in^3/rev]	Max. Speed rpm		Max. Flow lpm [gpm]		Max. Torque Nm [lb-in]		Max. Pressure bar [psi]		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
040	40 [2.5]	1116	1515	45 [12]	61 [16]	93 [823]	123 [1088]	155 [2250]	207 [3000]	224 [3250]
050	50 [3.1]	1058	1220	53 [14]	61 [16]	111 [982]	149 [1319]	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]
080	79 [4.9]	759	957	61 [16]	76 [20]	202 [1788]	243 [2150]	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]
250	250 [15.3]	250	300	61 [16]	76 [20]	561 [4965]	624 [5522]	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]

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 9 for additional information on product testing. Running at intermittent ratings should not exceed 10% of every minute of operation.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

040

40 cm³ [2.5 in³] / rev

Pressure - bar [psi] | Max. Cont. | Max. Inter.

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	207 [3000]	Theoretical rpm
2 [0.5]	9 [80] **43**	20 [177] **40**	32 [283] **35**	40 [354] **29**	37 [327] **24**							50
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] **324**	49 [434] **312**	62 [549] **295**	73 [646] **293**	83 [735] **275**	93 [823] **257**	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
Max. Cont. 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] **1230**	63 [558] **1206**	75 [664] **1184**	82 [726] **1154**	93 [823] **1116**	115 [1018] **1078**	1318
Max. Inter. 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% ☐

Rotor Width	Theoretical Torque - Nm [lb-in]										
8.1 [.317]	11 [97]	22 [195]	34 [301]	45 [398]	56 [496]	67 [593]	78 [690]	90 [796]	101 [894]	112 [991]	132 [1167]

mm [in]

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

050

50 cm³ [3.1 in³] / rev

Pressure - bar [psi] | Max. Cont. | Max. Inter.

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	207 [3000]	Theoretical rpm
4 [1]	11 [97] **77**	24 [212] **75**	37 [327] **74**	49 [434] **69**	61 [540] **63**	74 [655] **52**	82 [726] **41**	91 [805] **36**				80
8 [2]	11 [97] **155**	24 [212] **152**	36 [319] **150**	49 [434] **142**	62 **132**	75 [664] **124**	88 [779] **107**	99 [876] **91**	107 [947] **82**			160
15 [4]	9 [80] **295**	23 [204] **291**	36 [319] **283**	49 [434] **272**	62 **267**	75 [664] **248**	88 [779] **231**	99 [876] **215**	110 [973] **199**	123 [1088] **182**	147 [1301] **164**	300
23 [6]	7 [62] **452**	22 [195] **447**	35 [310] **434**	47 [416] **430**	61 **416**	74 [655] **402**	87 [770] **385**	99 [876] **368**	111 [982] **346**	124 [1097] **324**	149 [1319] **300**	460
30 [8]	5 [44] **594**	21 [186] **589**	34 [301] **577**	45 [398] **566**	60 **546**	74 [655] **528**	86 [761] **509**	99 [876] **489**	111 [982] **468**	125 [1106] **448**	148 [1310] **426**	600
38 [10]	3 [27] **754**	19 [168] **749**	32 [283] **736**	45 [398] **728**	57 **716**	70 [619] **699**	82 [726] **680**	95 [841] **664**	107 [947] **644**	120 [1062] **624**	142 [1257] **600**	760
45 [12]	2 [18] **896**	17 [150] **892**	30 [265] **875**	43 [381] **873**	55 **861**	68 [602] **843**	80 [708] **827**	92 [814] **812**	105 [929] **794**	116 [1027] **776**	138 [1221] **752**	900
Max. Max. Inter. Cont. 53 [14]		14 [124] **1058**	27 [239] **1055**	39 [345] **1052**	51 **1036**	64 [566] **998**	76 [673] **988**	88 [779] **960**	100 [885] **972**	112 [991] **904**	134 [1186] **860**	1060
61 [16]		11 [97] **1220**	24 [212] **1216**	35 [310] **1212**	47 **1210**	60 [531] **1198**	72 [637] **1160**	84 [743] **1130**	96 [850] **1112**	108 [956] **1080**	130 [1150] **1032**	1220

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

Rotor Width	Theoretical Torque - Nm [lb-in]										
9.9 [.389]	14 [122]	27 [195]	41 [301]	55 [398]	69 [496]	82 [593]	96 [690]	110 [796]	124 [894]	137 [1215]	165 [1458]

mm [in]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

060

59 cm³ [3.6 in³] / rev

Pressure - bar [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]

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	207 [3000]	Theoretical rpm
2 [0.5]	12 [106] **28**	26 [230] **22**	34 [301] **15**	45 [398] **12**								34
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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width 11.8 [.463] mm [in]

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]

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

070

71 cm³ [4.3 in³] / rev

Pressure - bar [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]

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
2 [0.5]	13 [115] **26**	30 [266] **23**										28
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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width 13.8 [.542] mm [in]

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]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

080

79 cm³ [4.9 in³] / rev

Pressure - bar [psi] | Max. Cont. | Max. Inter.

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
4 [1]	18 [159] **49**	38 [336] **46**	77 [681] **41**	94 [832] **40**								50
8 [2]	18 [159] **99**	39 [345] **98**	76 [673] **89**	98 [867] **83**	120 [1062] **74**	141 [1248] **68**	159 [1407] **59**	174 [1540] **50**				100
15 [4]	17 [150] **189**	38 [336] **187**	76 [673] **177**	98 [867] **170**	120 [1062] **161**	141 [1248] **151**	160 [1416] **144**	180 [1593] **131**	199 [1761] **122**	220 [1947] **112**	240 [2124] **100**	190
23 [6]	17 [150] **290**	37 [327] **286**	79 [690] **274**	97 [858] **268**	119 [1053] **259**	140 [1239] **250**	160 [1416] **240**	182 [1611] **227**	202 [1788] **214**	222 [1965] **200**	243 [2150] **185**	291
30 [8]	14 [124] **374**	35 [310] **368**	75 [664] **357**	96 [850] **349**	117 [1035] **339**	138 [1221] **330**	159 1407] **321**	181 [1602] **307**	200 [1770] **296**	220 [1947] **284**	241 [2133] **268**	380
38 [10]	11 [97] **480**	34 [301] **475**	73 [646] **464**	94 [832] **453**	116 [1027] **442**	138 [1221] **433**	158 [1398] **423**	177 [1566] **412**	199 [1761] **398**	218 [1929] **383**	238 [2106] **370**	481
45 [12]	8 [71] **568**	31 [274] **562**	72 [637] **548**	93 [823] **543**	114 [1009] **532**	135 [1195] **525**	155 [1372] **515**	176 [1558] **501**	196 [1735] **486**	215 [1903] **472**	235 [2080] **458**	570
53 [14]	5 [44] **668**	28 [248] **663**	69 [611] **649**	90 [796] **642**	111 [982] **632**	133 [1177] **624**	152 [1345] **620**	172 [1522] **600**	193 [1708] **585**	212 [1876] **570**	232 [2053] **554**	671
Max. Cont. 61 [16]		24 [212] **759**	65 [575] **752**	85 [752] **747**	109 [965] **731**	129 [1142] **722**	148 [1310] **710**	168 [1487] **703**	187 [1655] **689**	208 [1841] **675**	228 [2018] **660**	772
68 [18]		21 [186] **855**	61 [540] **848**	81 [717] **842**	105 [929] **828**	125 [1106] **818**	143 [1265] **807**	164 [1451] **800**	182 [1611] **789**	204 [1805] **776**	223 [1973] **760**	861
Max. Inter. 76 [20]		18 [159] **957**	56 [496] **952**	76 [673] **944**	100 [885] **932**	120 [1062] **923**	138 [1221] **912**	159 [1407] **900**	178 [1575] **886**	199 [1761] **872**	218 [1929] **858**	962

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

Rotor Width 15.7 [.617] mm [in]

Theoretical Torque - Nm [lb-in]

22 [192]	43 [384]	87 [768]	108 [960]	130 [1152]	152 [1344]	174 [1536]	195 [1728]	217 [1920]	239 [2112]	260 [2304]

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

090

88 cm³ [5.4 in³] / rev

Pressure - bar [psi] | Max. Cont. | Max. Inter.

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
2 [0.5]	18 [159] **23**	40 [354] **22**	75 [664] **17**									23
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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width 17.3 [.682] mm [in]

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]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

100 — 100 cm³ [6.1 in³] / rev

Pressure - bar [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]

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]	18 [159] **17**	37 [327] **13**	77 [681] **12**	91 [805] **11**								20
4 [1]	26 [230] **38**	49 [434] **37**	84 [743] **33**	106 [938] **31**	120 [1062] **29**	140 [1239] **15**	160 [1416] **7**					40
8 [2]	25 [221] **80**	50 [442] **78**	98 [867] **75**	125 [1106] **70**	150 [1327] **68**	175 [1549] **65**	199 [1761] **61**	189 [1673] **20**				80
15 [4]	26 [230] **150**	46 [407] **148**	97 [858] **142**	124 [1097] **139**	148 [1310] **136**	175 [1549] **131**	198 [1752] **128**	224 [1982] **122**	245 [2168] **118**	267 [2363] **111**	289 [2558] **85**	150
23 [6]	23 [203] **229**	48 [425] **226**	96 [850] **221**	123 [1088] **218**	148 [1310] **215**	173 [1531] **212**	200 [1770] **208**	223 [1973] **201**	246 [2177] **197**	269 [2381] **189**	286 [2531] **162**	230
30 [8]	21 [186] **296**	45 [398] **292**	93 [823] **285**	121 [1071] **282**	146 [1292] **280**	168 [1487] **280**	195 [1726] **274**	221 [1956] **270**	244 [2159] **265**	265 [2345] **255**	284 [2513] **208**	300
38 [10]	17 [150] **378**	41 [363] **375**	91 [805] **367**	115 [1018] **370**	141 [1248] **367**	165 [1460] **364**	189 [1673] **363**	215 [1903] **361**	238 [2106] **353**	264 [2336] **338**	282 [2496] **310**	380
45 [12]	14 [123] **450**	36 [319] **448**	89 [788] **442**	116 [1027] **438**	140 [1239] **433**	162 [1434] **426**	188 [1664] **420**	210 [1858] **412**	234 [2071] **404**	258 [2283] **390**	280 [2478] **355**	450
53 [14]	12 [106] **528**	34 [301] **526**	83 [735] **520**	109 [965] **518**	134 [1186] **514**	158 [1389] **508**	181 [1602] **500**	205 [1814] **490**	228 [2017] **480**	256 [2265] **468**	278 [2460] **440**	530
Max. Cont. 61 [16]	10 [88] **610**	28 [248] **608**	79 [699] **600**	103 [912] **596**	129 [1142] **590**	152 [1345] **582**	172 [1522] **576**	198 [1752] **568**	223 [1973] **556**	254 [2248] **542**	276 [2443] **525**	610
68 [18]	6 [53] **680**	21 [186] **677**	71 [628] **666**	94 [832] **660**	121 [1071] **653**	146 [1292] **645**	169 [1496] **635**	192 [1699] **624**	215 [1903] **610**	251 [2221] **594**	272 [2407] **574**	680
Max. Inter. 76 [20]		15 [133] **760**	63 [558] **754**	85 [752] **750**	112 [991] **742**	133 [1177] **730**	160 [1416] **715**	185 [1637] **702**	202 [1788] **688**	248 [2195] **666**	267 [2363] **636**	760

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

Rotor Width — Theoretical Torque - Nm [lb-in]

19.7 [.777]	27 [239]	56 [496]	110 [974]	137 [1212]	166 [1469]	193 [1708]	220 [1947]	247 [2186]	275 [2434]	303 [2682]	330 [2921]

mm [in]

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

115 — 113 cm³ [6.9 in³] / rev

Pressure - bar [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]

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]	23 [204] **17**	53 [469] **12**										18
4 [1]	25 [221] **35**	56 [496] **34**	95 [841] **30**	118 [1044] **19**								35
8 [2]	25 [221] **70**	59 [522] **69**	117 [1035] **65**	144 [1274] **62**	172 [1522] **60**	202 [1788] **56**						71
15 [4]	24 [212] **130**	58 [513] **129**	112 [991] **127**	144 [1274] **125**	173 [1531] **122**	202 [1788] **117**	225 [1991] **114**	251 [2221] **108**				133
23 [6]	22 [195] **200**	51 [451] **199**	111 [982] **197**	140 [1239] **194**	171 [1513] **191**	201 [1779] **186**	224 [1982] **183**	251 [2221] **176**	284 [2513] **170**	307 [2717] **153**		204
30 [8]	21 [186] **264**	53 [469] **262**	108 [956] **258**	134 [1186] **256**	167 [1478] **254**	196 [1735] **251**	222 [1965] **248**	251 [2221] **240**	278 [2460] **232**	305 [2699] **226**	327 [2894] **210**	265
38 [10]	16 [142] **336**	46 [407] **334**	105 [929] **330**	131 [1159] **326**	164 [1451] **323**	191 [1690] **318**	217 [1920] **312**	247 [2186] **306**	271 [2398] **300**	299 [2646] **292**	327 [2894] **281**	336
45 [12]	12 [106] **397**	43 [381] **396**	101 [894] **390**	132 [1168] **387**	161 [1425] **382**	187 [1655] **379**	218 [1929] **371**	239 [2115] **363**	269 [2381] **355**	290 [2566] **344**	319 [2823] **339**	398
53 [14]	6 [53] **468**	35 [310] **464**	97 [858] **456**	125 [1106] **452**	157 [1389] **448**	179 [1584] **444**	207 [1832] **442**	237 [2097] **436**	259 [2292] **430**	289 [2558] **422**	315 [2788] **415**	469
Max. Cont. 61 [16]		34 [301] **539**	90 [796] **534**	118 [1044] **531**	149 [1319] **524**	174 [1540] **521**	200 [1770] **518**	233 [2062] **506**	254 [2248] **498**	285 [2522] **495**	314 [2779] **479**	540
68 [18]		29 [257] **601**	84 [743] **596**	114 [1009] **594**	140 [1239] **589**	172 [1522] **583**	202 [1788] **572**	221 [1956] **566**	253 [2239] **557**	282 [2496] **547**	299 [2646] **544**	602
Max. Inter. 76 [20]		17 [150] **672**	73 [646] **668**	103 [912] **664**	132 [1168] **658**	161 [1425] **655**	186 [1646] **648**	214 [1894] **638**	240 [2124] **627**	266 [2354] **621**	293 [2593] **607**	673

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

Rotor Width — Theoretical Torque - Nm [lb-in]

22.1 [.872]	31 [274]	62 [549]	124 [1097]	155 [1372]	186 [1646]	217 [1920]	248 [2195]	279 [2469]	310 [2743]	341 [3018]	372 [3292]

mm [in]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

130

129 cm³ [7.9 in³] / rev

Pressure - bar [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]

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

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
2 [0.5]	34 [301] **15**	60 [531] **6**										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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width

25.4 [1.002] mm [in]

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]

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

160

160 cm³ [9.8 in³] / rev

Pressure - bar [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]

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

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
2 [0.5]	30 [266] **12**	66 [584] **11**	109 [965] **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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width

31.8 [1.252] mm [in]

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]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

200

198 cm³ [12.1 in³] / rev

Pressure - bar [psi] | Max. Cont. | Max. Inter.

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width	Theoretical Torque - Nm [lb-in]										
39.4 [1.553]	54 [481]	109 [963]	218 [1929]	272 [2407]	326 [2888]	381 [3369]	435 [3850]	489 [4332]	544 [4813]	598 [5294]	653 [5776]

mm [in]

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

240

236 cm³ [14.4 in³] / rev

Pressure - bar [psi] | Max. Cont. | Max. Inter.

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	Theoretical rpm
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
Max. Cont. 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
Max. Inter. 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% ☐

Rotor Width	Theoretical Torque - Nm [lb-in]										
47.4 [1.865]	66 [584]	132 [1168]	265 [2345]	331 [2929]	397 [3513]	463 [4097]	529 [4681]	595 [5265]	661 [5850]	728 [6442]	794 [7027]

mm [in]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

250 — 250 cm³ [15.3 in³] / rev

Pressure - bar [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]

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

Flow - lpm [gpm]												Theoretical rpm
	8 [2]	49 [434] **31**	112 [991] **31**									32
	15 [4]	49 [434] **59**	115 [1018] **60**	237 [2097] **56**	295 [2611] **53**	356 [3150] **48**						60
	23 [6]	45 [398] **91**	112 [991] **90**	233 [2062] **88**	301 [2664] **85**	360 [3186] **81**	418 [3699] **74**	471 [4168] **69**	521 [4611] **64**	561 [4965] **61**		92
	30 [8]	41 [363] **119**	107 [947] **118**	235 [2080] **116**	285 [2522] **113**	352 [3115] **107**	399 [3531] **103**	441 [3903] **99**	511 [4522] **92**	559 [4947] **87**	598 [5292] **84**	624 [5522] **82**	120
	38 [10]	33 [292] **151**	97 [858] **150**	219 [1938] **148**	273 [2416] **144**	330 [2920] **139**	390 [3451] **134**	434 [3841] **132**	484 [4283] **129**	529 [4681] **124**	578 [5115] **119**	618 [5469] **116**	152
	45 [12]	22 [195] **179**	81 [717] **179**	198 [1752] **178**	254 [2248] **177**	312 [2761] **174**	368 [3257] **168**	410 [3628] **163**	474 [4195] **158**	500 [4425] **156**	588 [5204] **148**	605 [5354] **148**	180
	53 [14]	14 [124] **211**	75 [664] **210**	196 [1735] **205**	249 [2204] **201**	307 [2717] **193**	357 [3159] **188**	414 [3664] **180**	467 [4133] **171**	512 [4531] **162**	561 [4965] **158**	610 [5398] **150**	212
Max. Cont.	61 [16]		62 [549] **250**	178 [1575] **241**	235 [2080] **234**	292 [2584] **231**	347 [3071] **223**	400 [3540] **214**	454 [4020] **211**	501 [4434] **201**	543 [4805] **193**	602 [5327] **185**	244
	68 [18]		50 [442] **271**	160 [1416] **268**	223 [1973] **263**	276 [2442] **255**	335 [2965] **244**	386 [3416] **232**	442 [3912] **221**	490 [4336] **210**	530 [4690] **200**	590 [5221] **192**	272
Max. Inter.	76 [20]		38 [336] **300**	142 [1257] **296**	210 [1858] **290**	260 [2301] **281**	324 [2867] **273**	372 [3292] **263**	430 [3805] **252**	478 [4230] **242**	514 [4549] **230**	580 [2133] **220**	304

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

Rotor Width 49.2 [1.938] mm [in]

Theoretical Torque - Nm [lb-in]

69 [608]	137 [1215]	275 [2431]	343 [3039]	412 [3646]	481 [4254]	549 [4862]	618 [5469]	687 [6077]	755 [6685]	824 [7292]

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

290 — 291 cm³ [17.8 in³] / rev

Pressure - bar [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]

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

Flow - lpm [gpm]												Theoretical rpm
	2 [0.5]	60 [531] **7**	115 [1018] **6**	185 [1637] **5**	260 [2301] **4**	292 [2584] **3**						7
	4 [1]	62 [549] **13**	122 [1080] **12**	187 [1655] **10**	265 [2345] **8**	304 [2690] **6**	365 [2330] **4**					14
	8 [2]	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**		27
	15 [4]	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**	664 [5876] **3**	52
	23 [6]	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**	660 [5841] **40**	79
	30 [8]	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**	655 [5797] **62**	103
	38 [10]	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**	645 [5708] **74**	130
	45 [12]	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**	636 [5629] **95**	155
	53 [14]	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**	625 [5531] **114**	182
Max. Cont.	61 [16]	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**	615 [5443] **136**	210
	68 [18]		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**	234
Max. Inter.	76 [20]		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**	261

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

Rotor Width 57.2 [2.252] mm [in]

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]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

For Light Duty Applications

DISPLACEMENT PERFORMANCE

320

322 cm³ [19.6 in³] / rev

Pressure - bar [psi] (Max. Cont. / Max. Inter.)

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	Theoretical rpm
2 [0.5]	60 [531] **6**	134 [1186] **5**	189 [1673] **5**	238 [2106] **4**							6
4 [1]	70 [619] **12**	140 [1239] **11**	239 [2115] **10**	276 [2442] **9**	324 [2867] **6**	393 [3478] **4**	403 [3566] **2**				12
8 [2]	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**	25
15 [4]	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**	47
23 [6]	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**	71
30 [8]	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**	93
38 [10]	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**	118
45 [12]	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**	140
53 [14]	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**	165
Max. Cont. 61 [16]	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**	189
68 [18]		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**	211
Max. Inter. 76 [20]		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**	236

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

Rotor Width	Theoretical Torque - Nm [lb-in]									
63.5 [2.502]	87 [770]	177 [1566]	267 [2362]	354 [3132]	441 [3903]	533 [4717]	620 [5487]	708 [6265]	795 [7035]	887 [7850]

mm [in]

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

400

400 cm³ [24.4 in³] / rev

Pressure - bar [psi] (Max. Cont. / Max. Inter.)

Torque - Nm [lb-in], **Speed rpm**

Intermittent Ratings - 10% of Operation

Flow - lpm [gpm]	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	Theoretical rpm
2 [0.5]	82 [723] **5**	165 [1459] **4**	250 [2213] **3**	329 [2912] **2**	418 [3699] **2**				5
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**	10
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**	20
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**	38
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**	58
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**	75
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**	95
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**	113
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**	133
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**	153
68 [18]		96 [850] **170**	178 [1575] **164**	263 [2328] **163**	365 [3230] **156**	478 [4228] **146**	517 [4572] **142**	580 [5133] **137**	170
Max. Inter. 76 [20]		74 [655] **190**	150 [1327] **185**	240 [2122] **180**	342 [3027] **174**	436 [3855] **165**	493 [4365] **160**	560 [4956] **156**	190

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

Rotor Width	Theoretical Torque - Nm [lb-in]							
78.9 [3.106]	112 [992]	224 [1984]	336 [2976]	448 [3968]	560 [4960]	673 [5952]	785 [6944]	897 [7935]

mm [in]

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

► Performance data is typical. Performance of production units varies slightly from one motor to another. See page 10.03 for additional information on product testing.

WR (All Series)

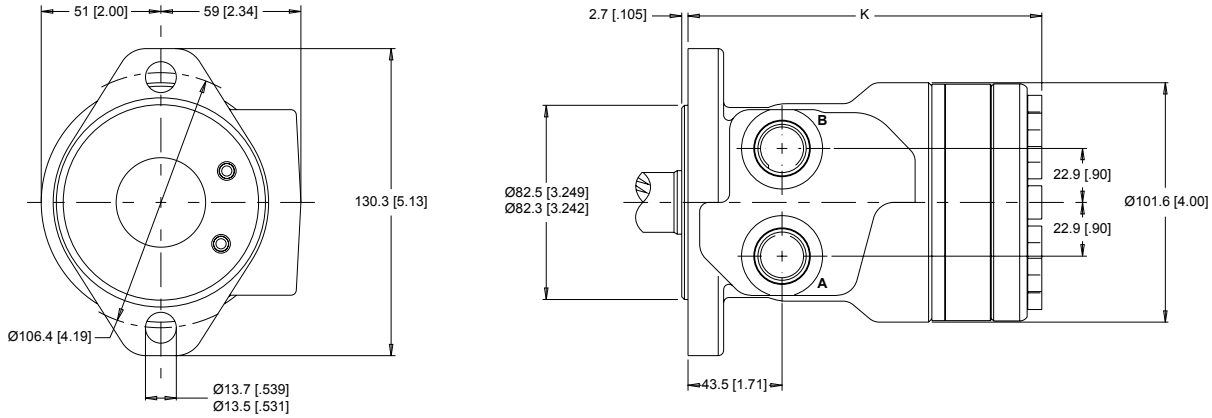
For Light Duty Applications

HOUSINGS

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

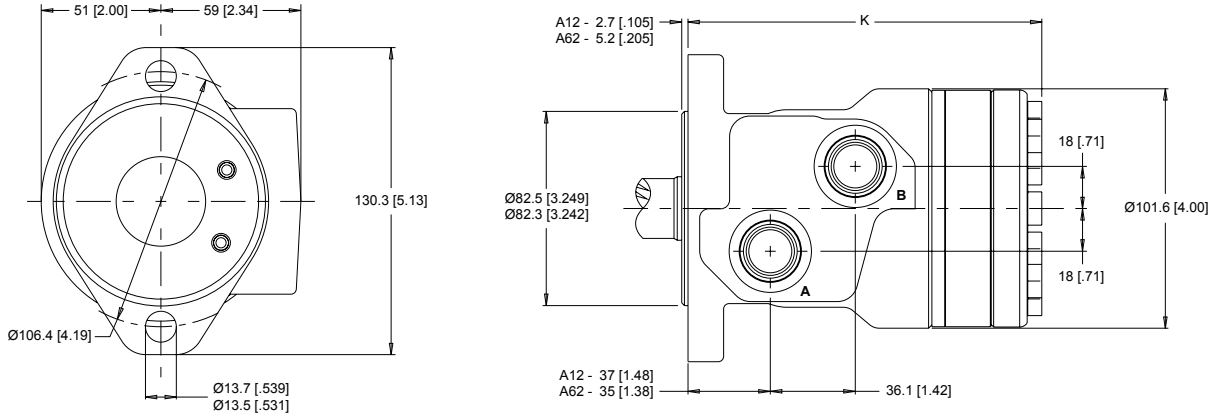
2-HOLE, SAE A MOUNT, ALIGNED PORTS

A10 1/2-14 NPT **A11** 7/8-14 UNF



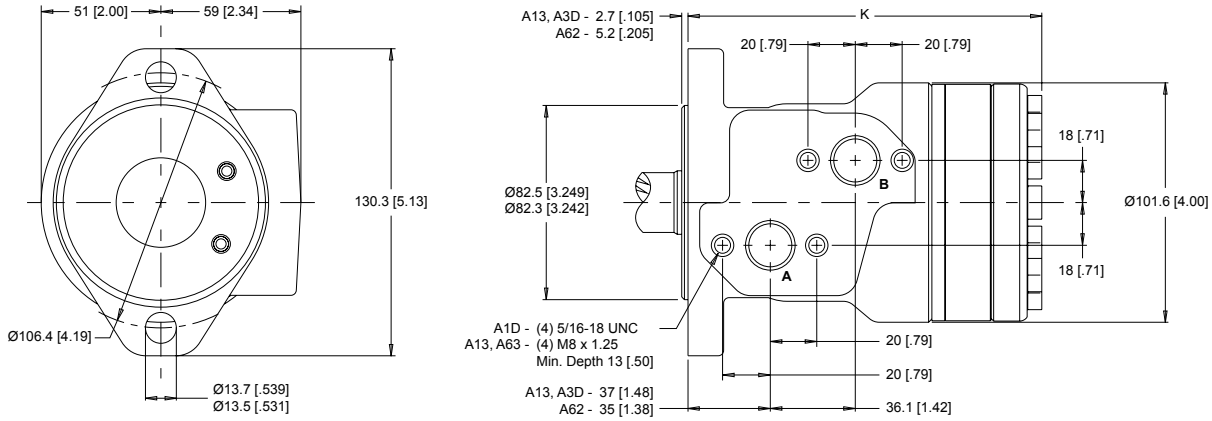
2-HOLE, SAE A MOUNT, OFFSET PORTS

A12 G 1/2 **A62** G 1/2 (TP)



2-HOLE, SAE A MOUNT, OFFSET MANIFOLD PORTS

A13 G 1/2 **A1D** 7/8-14 UNF **A63** G 1/2 (TP)



▶ Dimension K is charted on page 10.61. ▶ (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

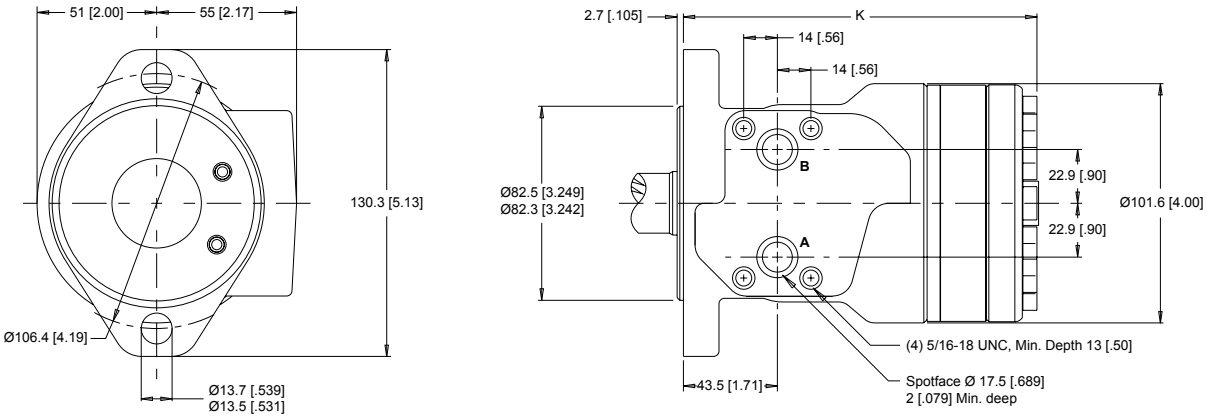
WR (255/256 Series)

Light Duty Hydraulic Motor

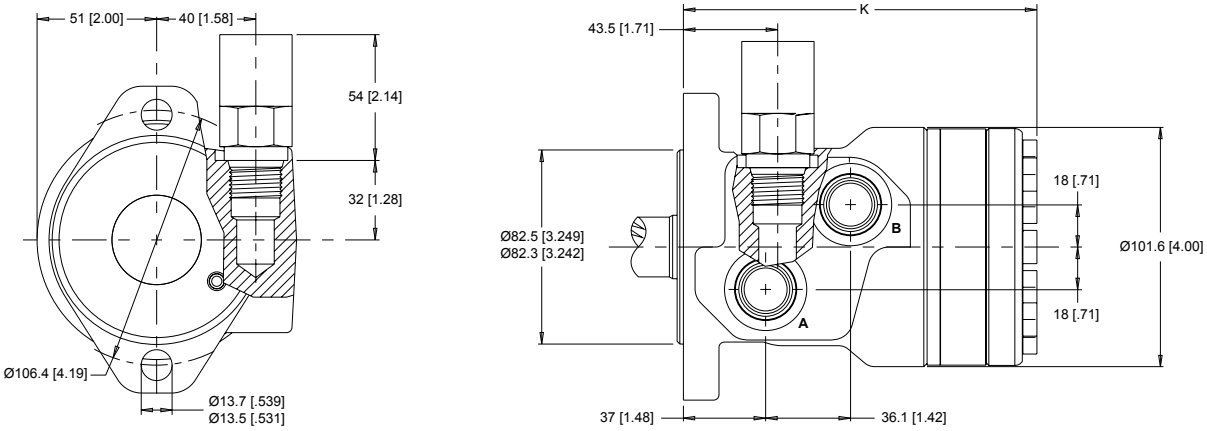
HOUSINGS

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

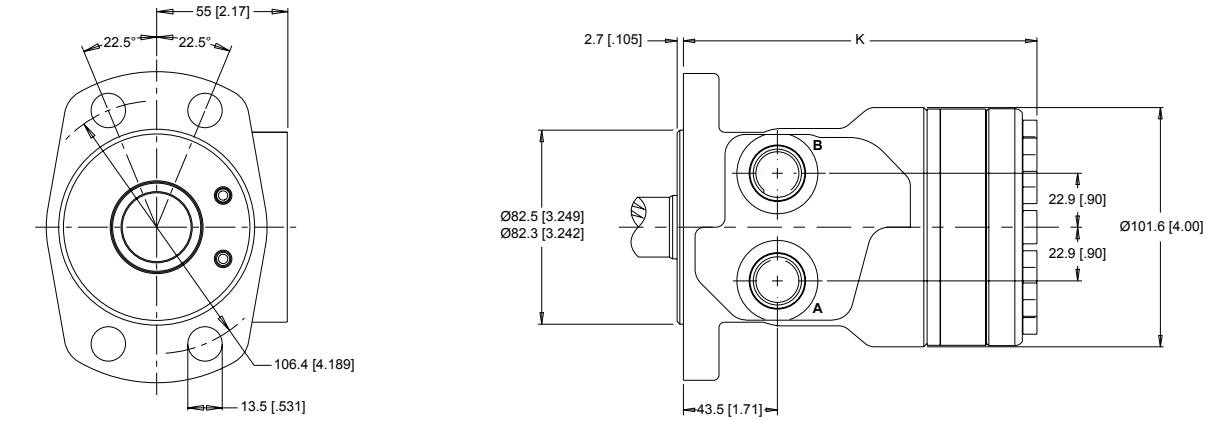
2-HOLE, SAE A MOUNT, ALIGNED MANIFOLD PORTS **A17** 1/2" Drilled



2-HOLE, SAE A MOUNT, OFFSET PORTS, VALVE CAVITY **A19** 7/8-14 UNF



4-HOLE, MAGNETO MOUNT, ALIGNED PORTS **A30** 1/2-14 NPT **A31** 7/8-14 UNF



▶ Dimension K is charted on page 10.61. ▶ (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

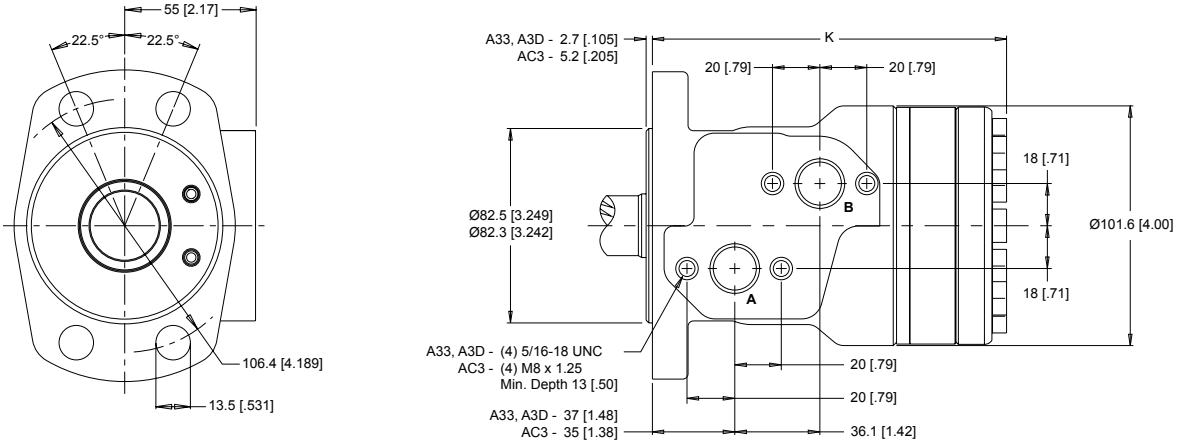
WR (All Series)

For Light Duty Applications

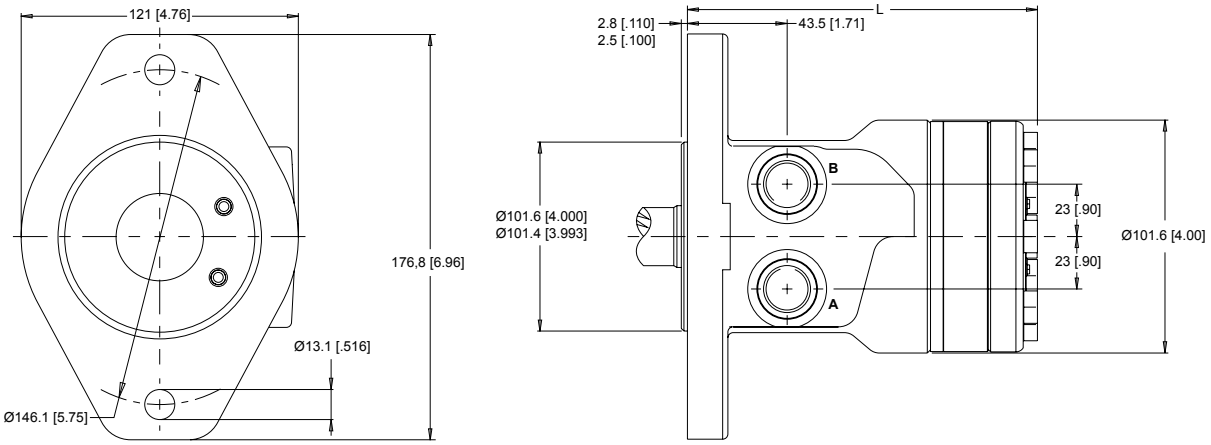
HOUSINGS

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

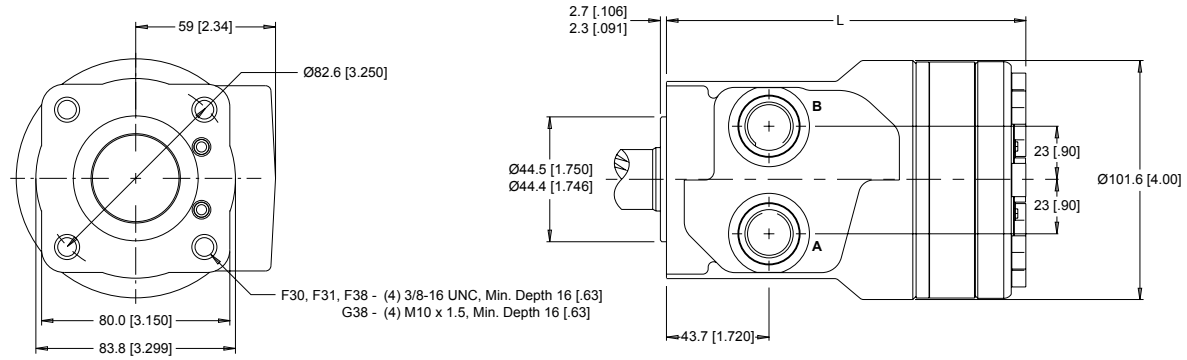
4-HOLE, MAGNETO MOUNT, OFFSET MANIFOLD PORTS **A33** G 1/2 **A3D** 7/8-14 UNF **AC3** G 1/2 (TP)



2-HOLE, SAE B MOUNT, ALIGNED PORTS **B11** 7/8-14 UNF **B18** G 1/2



4-HOLE, SQUARE MOUNT, ALIGNED PORTS **F30** 1/2-14 NPT **F31** 7/8-14 UNF **F38** G 1/2 **G38** G 1/2



► Dimensions K & L are charted on page 10.61. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

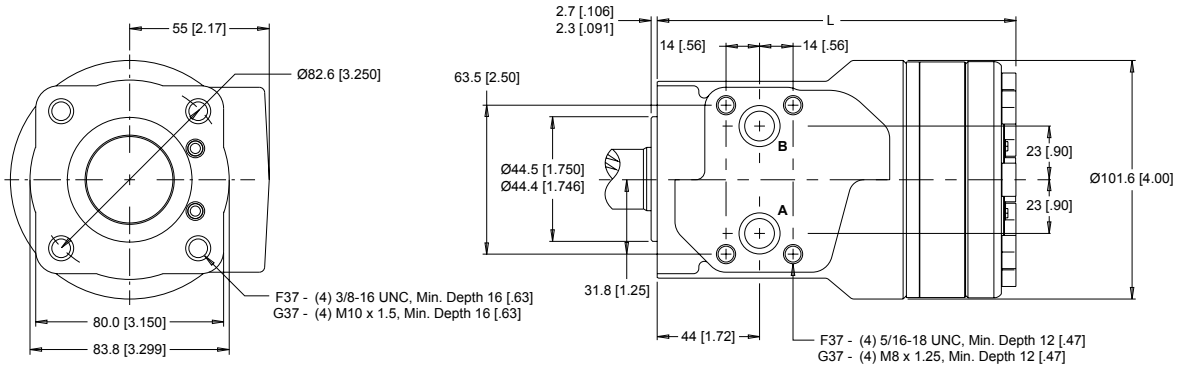
WR (255/256 Series)

Light Duty Hydraulic Motor

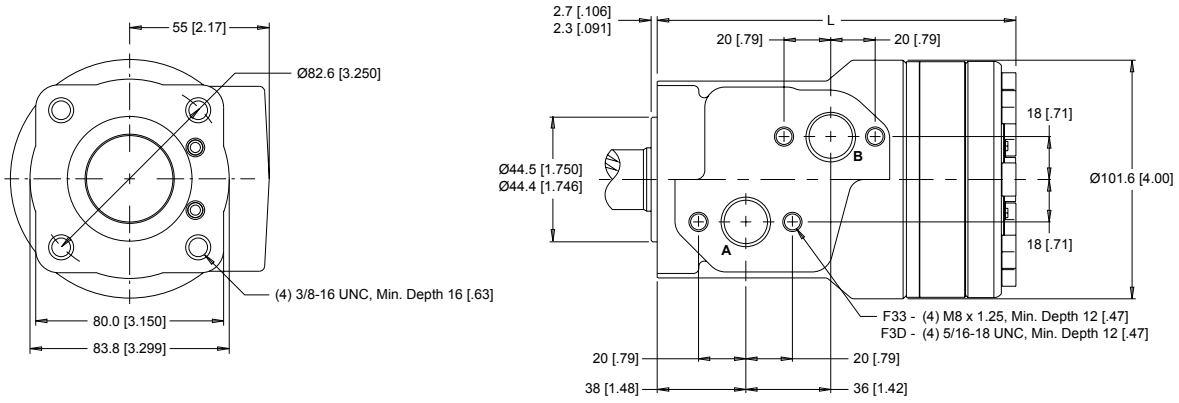
HOUSINGS

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

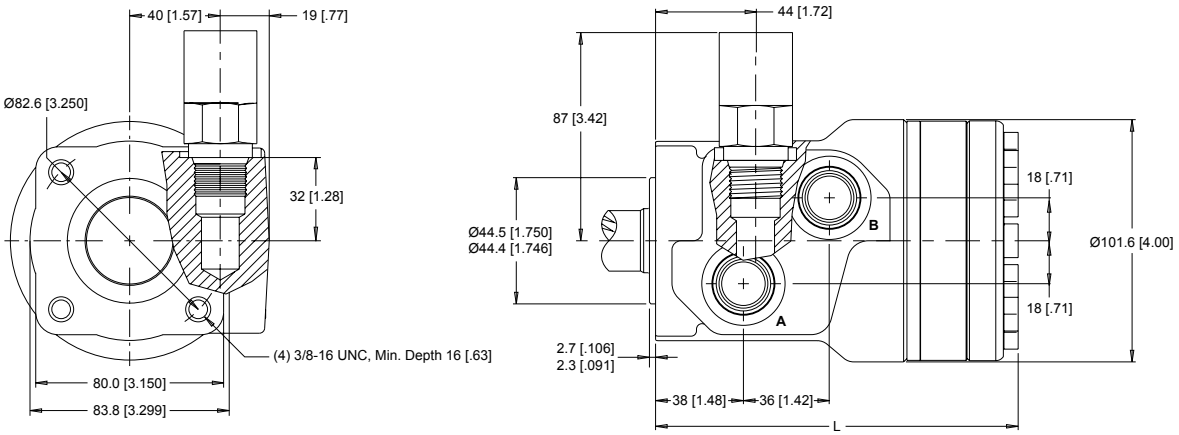
4-HOLE, SQUARE MOUNT, ALIGNED MANIFOLD PORTS **F37** 1/2" Drilled **G37** 1/2" Drilled



4-HOLE, SQUARE MOUNT, OFFSET MANIFOLD PORTS **F33** G 1/2 **F3D** 7/8-14 UNF



4-HOLE, SQUARE MOUNT, OFFSET PORTS, VALVE CAVITY **F39** 7/8-14 UNF



▶ Dimension L is charted on page 10.61.

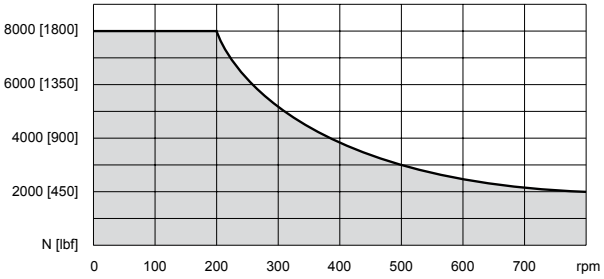
WR (All Series)

For Light Duty Applications

TECHNICAL INFORMATION

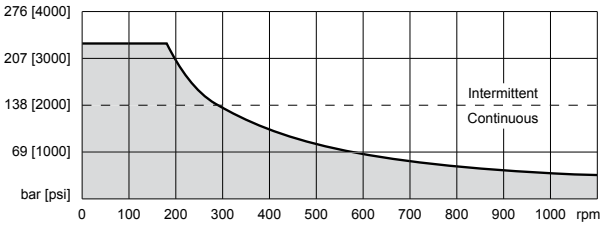
ALLOWABLE SHAFT LOAD / BEARING CURVE

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.



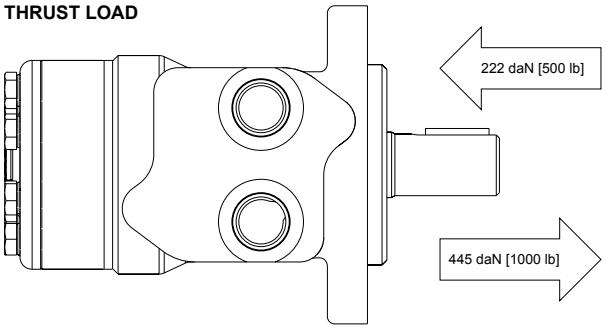
PERMISSIBLE SHAFT SEAL PRESSURE

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.



▶ 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.

THRUST LOAD



LENGTH & WEIGHT CHARTS

Dimension K is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on detailed housing drawings listed on pages 10.57 - 10.59.

K	3mm Pilot	8mm Pilot	Weight
#	mm [in]	mm [in]	kg [lb]
040	142 [5.60]	140 [5.50]	6.6 [14.5]
060	146 [5.74]	144 [5.64]	6.7 [14.7]
070	147 [5.80]	145 [5.70]	6.7 [14.7]
090	151 [5.96]	149 [5.86]	6.8 [15.0]
100	154 [6.06]	152 [5.96]	6.9 [15.2]
115	156 [6.15]	154 [6.05]	7.1 [15.6]
130	160 [6.28]	158 [6.18]	7.3 [16.0]
160	166 [6.53]	164 [6.43]	7.5 [16.5]
200	173 [6.83]	171 [6.73]	8.0 [17.6]
240	182 [7.15]	180 [7.05]	8.5 [18.7]
290	192 [7.56]	190 [7.46]	8.8 [19.4]
320	198 [7.78]	196 [7.68]	9.0 [19.8]
400	213 [8.39]	211 [8.29]	9.8 [21.6]

Dimension L is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on detailed housing drawings listed on pages 10.59 - 10.60.

L	Square & B Mounts	B Mount Weight	Sq. Mount Weight
#	mm [in]	kg [lb]	kg [lb]
040	142 [5.60]	7.8 [17.2]	5.3 [11.8]
060	146 [5.74]	7.9 [17.4]	5.4 [11.9]
070	147 [5.80]	7.9 [17.4]	5.4 [11.9]
090	151 [5.96]	8.0 [17.6]	5.5 [12.1]
100	154 [6.06]	8.1 [17.8]	5.6 [12.3]
115	156 [6.15]	8.3 [18.3]	5.8 [12.8]
130	160 [6.28]	8.5 [18.7]	6.0 [13.2]
160	166 [6.53]	8.7 [19.1]	6.2 [13.7]
200	173 [6.83]	9.2 [20.2]	6.7 [14.8]
240	182 [7.15]	9.7 [21.3]	7.2 [15.9]
290	192 [7.56]	10.0 [22.0]	7.5 [16.5]
320	198 [7.78]	10.2 [22.4]	7.7 [17.0]
400	213 [8.39]	11.0 [24.2]	8.5 [18.7]

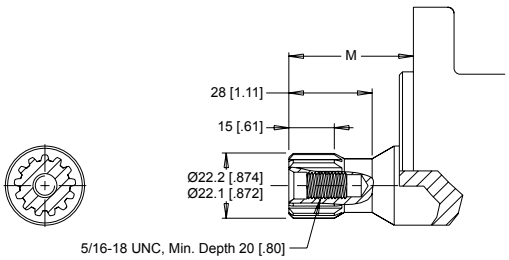
▶ 255 & 256 series motor weights can vary ± 0.5 kg [1 lb] depending on model configurations such as housing, shaft, endcover, options etc.

WR (255/256 Series)

Light Duty Hydraulic Motor

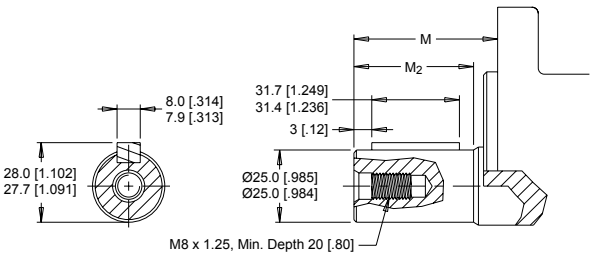
SHAFTS

01 7/8" 13 Tooth Spline



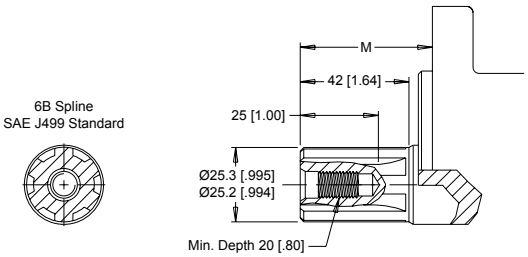
Max. Torque: 170 Nm [1500 lb-in]

12 25mm Straight **16** 25mm Straight Extended



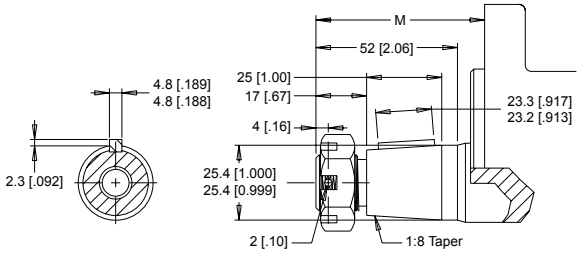
Max. Torque: 678 Nm [6000 lb-in]

02 1" 6B Spline, 5/16-18 Tap **04** 1" 6B Spline, M8x1.25 Tap



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

13 1" Tapered

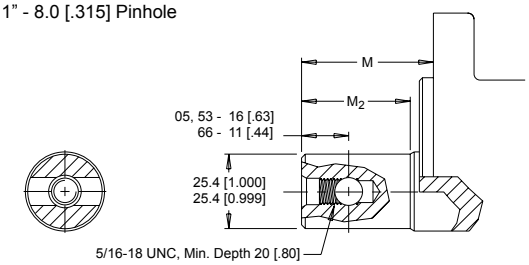


Max. Torque: 655 Nm [5800 lb-in]

▶ A slotted hex nut is standard on this shaft. Dimensional details & additional options are listed on page 10.08.

05 1" - 9.5 [.375] Pinhole **53** 1" - 10.3 [.406] Pinhole

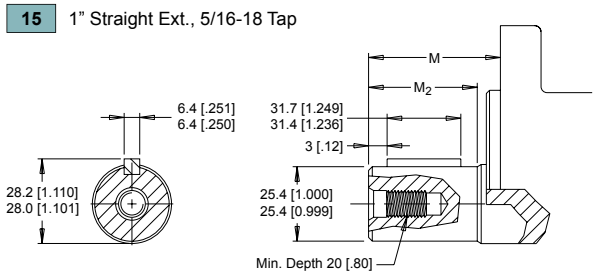
66 1" - 8.0 [.315] Pinhole



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

10 1" Straight, 5/16-18 Tap **11** 1" Straight, M8x1.25 Tap

15 1" Straight Ext., 5/16-18 Tap



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

MOUNTING / SHAFT LENGTH CHART

Dimension M is the overall distance from the motor mounting surface to the end of the shaft.

Additional shaft length information, if necessary, is noted as M_2 and does not increase or decrease the listed M dimensions in this chart. The overall shaft lengths are already factored into the overall distance from the mounting surface to the end of the shaft.

M	3mm Pilot	8mm Pilot	M_2
#	mm [in]	mm [in]	mm [in]
01	40 [1.59]	43 [1.69]	N/A
02	48 [1.88]	51 [1.98]	N/A
04	48 [1.88]	51 [1.98]	N/A
05	48 [1.88]	51 [1.98]	42 [1.64]
10	48 [1.88]	51 [1.98]	42 [1.64]
12	53 [2.08]	56 [2.18]	43 [1.69]
13	58 [2.29]	61 [2.39]	N/A
15	64 [2.52]	67 [2.62]	58 [2.28]
16	64 [2.52]	67 [2.62]	59 [2.34]
53	48 [1.88]	51 [1.98]	42 [1.64]
66	54 [2.13]	57 [2.23]	48 [1.89]

WR (255/256 Series)

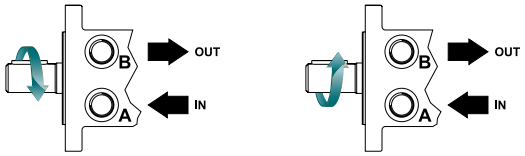
Light Duty Hydraulic Motor

ORDERING INFORMATION

□ □ □ — 1 — □ □ □ — 2 — □ □ □ — 3 — □ □ — 4 — □ — 5 — □ — 6 — □ — 7 — □ □ — 8 —

1. CHOOSE SERIES DESIGNATION

255	Clockwise Rotation	**256**	Counterclockwise Rotation



▶ The 255 & 256 series are bi-directional. Reversing the inlet hose will reverse shaft rotation.

2. SELECT A DISPLACEMENT OPTION

040	40 cm^3/rev	[2.5 in^3/rev]	**130**	129 cm^3/rev	[7.9 in^3/rev]
050	50 cm^3/rev	[3.1 in^3/rev]	**160**	160 cm^3/rev	[9.8 in^3/rev]
060	59 cm^3/rev	[3.6 in^3/rev]	**200**	198 cm^3/rev	[12.1 in^3/rev]
070	71 cm^3/rev	[4.3 in^3/rev]	**240**	236 cm^3/rev	[14.4 in^3/rev]
080	79 cm^3/rev	[4.9 in^3/rev]	**250**	250 cm^3/rev	[15.3 in^3/rev]
090	88 cm^3/rev	[5.4 in^3/rev]	**290**	291 cm^3/rev	[17.8 in^3/rev]
100	100 cm^3/rev	[6.1 in^3/rev]	**320**	322 cm^3/rev	[19.6 in^3/rev]
115	113 cm^3/rev	[6.9 in^3/rev]	**400**	400 cm^3/rev	[24.4 in^3/rev]

3. SELECT A MOUNT & PORT OPTION

A10	2-Hole, SAE A Mount, Aligned Ports, 1/2-14 NPT
A11	2-Hole, SAE A Mount, Aligned Ports, 7/8-14 UNF
A12	2-Hole, SAE A Mount, Offset Ports, G 1/2
A13	2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2
A1D	2-Hole, SAE A Mount, Offset Manifold Ports, 7/8-14 UNF
A19	2-Hole, SAE A Mount, Offset Ports, Valve Cavity 7/8-14 UNF
A30	4-Hole, Magneto Mount, Aligned Ports, 1/2-14 NPT
A31	4-Hole, Magneto Mount, Aligned Ports, 7/8-14 UNF
A33	4-Hole, Magneto Mount, Offset Manifold Ports, G 1/2
A3D	4-Hole, Magneto Mount, Offset Manifold Ports, 7/8-14 UNF
A62	2-Hole, SAE A Mount, Offset Ports, G 1/2 (TP)
A63	2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2 (TP)
AC3	4-Hole, Magneto Mount, Offset Manifold Ports, G 1/2 (TP)
B11	2-Hole, SAE B Mount, Aligned Ports, 7/8-14 UNF
B18	2-Hole, SAE B Mount, Aligned Ports, G 1/2
F30	4-Hole, Square Mount, Aligned Ports, 1/2-14 NPT
F31	4-Hole, Square Mount, Aligned Ports, 7/8-14 UNF
F33	4-Hole, Square Mount, Offset Manifold Ports, G 1/2
F37	4-Hole, Square Mount, Aligned Manifold Ports, 1/2” Drilled

▶ (TP) - Tall pilot, refer to pages 75-77 for dimensional differences. Speed sensor option is not available on tall pilot housings.

3. SELECT A MOUNT & PORT OPTION

F38	4-Hole, Square Mount, Aligned Ports, G 1/2
F39	4-Hole, Square Mount, Offset Ports, Valve Cavity 7/8-14 UNF
F3D	4-Hole, Square Mount, Offset Manifold Ports, 7/8-14 UNF
G37	4-Hole, Square Mount, Aligned Manifold Ports, 1/2” Drilled
G38	4-Hole, Square Mount, Aligned Ports, G 1/2

4. SELECT A SHAFT OPTION

01	7/8” 13 Tooth Spline	**12**	25mm Straight
02	1” 6B Spline, 5/16-18 Tap	**13**	1” Tapered
04	1” 6B Spline, M8x1.25 Tap	**15**	1” Straight Extended
05	1” - 9.5 [.375] Pinhole	**16**	25mm Straight Extended
10	1” Straight 5/16-18 Tap	**53**	1” - 10.3 [.406] Pinhole
11	1” Straight M8x1.25 Tap	**66**	1” - 8.0 [.315] Pinhole

▶ The 15 & 16 extended shafts are designed for use with one of the speed sensor options listed in STEP 7.

5. SELECT A PAINT OPTION

A	Black
B	Black, Unpainted Mounting Surface

6. SELECT A VALVE CAVITY / CARTRIDGE OPTION

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

▶ Valve cavity is only available on the A19 & F39 housings.

7. SELECT AN ADD-ON OPTION

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

8. SELECT A MISCELLANEOUS OPTION

AA	None
EG	Viton Shaft Seal