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THE **NEW**  
**WR**  
SERIES HYDRAULIC MOTOR

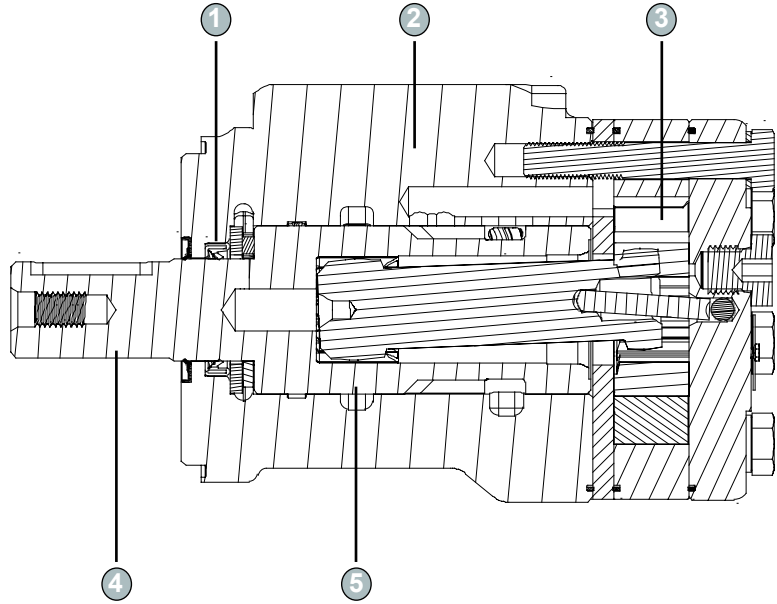


Superior Roller Stator<sup>®</sup> design  
incorporating the latest advancements  
for smooth performance and reliability.

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The WR Series motor incorporates the latest advances for smooth performance, efficiency and durability. It features an optimized Roller Stator<sup>®</sup> 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.



- ① **High Pressure Shaft Seal** offers superior seal life and performance.
- ② **Built In Check Valves** in the housing offers versatility and increased seal life.
- ③ **Optimized Roller Stator<sup>®</sup>** geometry provides a smooth running high efficient product.
- ④ **Variety of Mounts and Shafts** provides flexibility in application design.
- ⑤ **Spool Valve Design** gives superior performance and smooth operation over a wide speed and torque range.

### SPECIFICATIONS

CODE	Displacement cc [in <sup>3</sup> /rev]	Max. Speed rpm		Max. Flow lpm [gpm]		Max. Torque daNm [lb-in]		Max. Pressure bar [psi]		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
040	40 [2.5]	1120	1312	45 [12]	53 [14]	8 [726]	10 [898]	138 [2000]	172 [2500]	224 [3250]
060	59 [3.6]	908	1127	45 [12]	53 [14]	12 [1115]	15 [1368]	138 [2000]	172 [2500]	224 [3250]
070	70 [4.3]	747	873	61 [16]	76 [20]	16 [1425]	19 [1705]	172 [2500]	207 [3000]	224 [3250]
090	87 [5.3]	718	895	61 [16]	76 [20]	20 [1779]	24 [2105]	172 [2500]	207 [3000]	224 [3250]
100	101 [6.1]	630	798	61 [16]	76 [20]	23 [2071]	28 [2461]	172 [2500]	207 [3000]	224 [3250]
115	113 [6.9]	551	694	61 [16]	76 [20]	27 [2398]	32 [2841]	172 [2500]	207 [3000]	224 [3250]
130	128 [7.8]	483	606	61 [16]	76 [20]	29 [2549]	33 [2939]	172 [2500]	207 [3000]	224 [3250]
160	163 [9.9]	394	494	61 [16]	76 [20]	37 [3283]	43 [3843]	172 [2500]	207 [3000]	224 [3250]
200	202 [12.3]	317	402	61 [16]	76 [20]	44 [3850]	51 [4533]	138 [2000]	207 [3000]	224 [3250]
240	236 [14.4]	259	332	61 [16]	76 [20]	53 [4690]	62 [5505]	103 [1500]	207 [3000]	207 [3000]
320	326 [19.8]	190	244	61 [16]	76 [20]	61 [5300]	72 [6300]	86 [1200]	21 [1750]	155 [2250]
400	404 [24.6]	153	194	61 [16]	76 [20]	69 [6005]	80 [7047]	61 [1000]	86 [1200]	131 [2000]



### 040 40 cc/rev [2.5 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.	Max. Inter.	Theo. RPM	
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]				
2 [0.5]	8 [68]	30												47
4 [1]	9 [77]	78												93
8 [2]	9 [83]	20 [173]	30 [262]	39 [347]	50 [442]	60 [527]	68 [602]							186
15 [4]	174	162	148	133	123	118	97							372
23 [6]	9 [78]	19 [170]	30 [262]	40 [353]	50 [443]	60 [531]	70 [617]	79 [697]	89 [783]	97 [855]				557
30 [8]	360	348	333	317	298	276	252	221	191	173				743
38 [10]	8 [68]	18 [160]	28 [252]	39 [344]	49 [435]	59 [526]	70 [615]	80 [704]	89 [790]	99 [873]				928
45 [12]	544	531	516	499	480	458	433	404	358	320				1114
53 [14]	6 [56]	17 [147]	27 [240]	37 [332]	48 [424]	58 [515]	69 [606]	79 [696]	89 [785]	99 [872]				1299
	729	716	701	683	663	641	614	585	526	491				
	5 [41]	15 [133]	25 [225]	36 [317]	46 [410]	57 [502]	67 [593]	77 [683]	88 [775]	98 [863]				
	913	900	884	866	845	821	792	760	703	668				
	3 [26]	13 [118]	24 [209]	34 [301]	44 [393]	55 [484]	65 [577]	75 [668]	86 [760]	96 [851]				
	1097	1080	1066	1047	1026	1002	970	940	882	848				
	2 [18]	11 [101]	22 [191]	32 [284]	43 [377]	53 [468]	63 [560]	74 [651]						
	1275	1263	1247	1227	1202	1175	1145	1112						
Theo. Torque	11 [99]	22 [198]	34 [297]	45 [396]	56 [495]	67 [594]	78 [694]	90 [793]	101 [892]	112 [991]				

### 060 59 cc/rev [3.6 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.	Max. Inter.	Theo. RPM	
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]				
8 [2]	14 [128]	29 [261]	44 [392]	59 [521]	73 [645]									128
15 [4]	121	114	106	98	86									256
23 [6]	13 [119]	29 [253]	44 [388]	59 [520]	74 [652]	88 [780]	102 [906]	118 [1047]	133 [1177]	146 [1289]				383
30 [8]	248	240	231	220	208	193	171	163	145	120				511
38 [10]	12 [105]	27 [240]	42 [375]	58 [511]	73 [643]	88 [775]	103 [907]	117 [1036]	131 [1161]	145 [1286]				639
45 [12]	374	366	357	345	331	315	296	276	251	226				766
53 [14]	10 [89]	25 [224]	40 [358]	56 [493]	71 [627]	86 [761]	101 [893]	116 [1025]	130 [1152]	144 [1276]				894
	502	494	484	472	458	440	424	402	367	342				
	8 [72]	23 [204]	38 [339]	54 [474]	69 [608]	84 [742]	99 [876]	114 [1008]	129 [1139]	143 [1265]				
	628	620	610	598	583	567	548	528	485	461				
	6 [49]	21 [182]	36 [316]	51 [450]	66 [585]	81 [719]	96 [854]	112 [987]	126 [1119]	141 [1248]				
	753	745	735	723	709	695	676	652	608	581				
	3 [26]	18 [164]	33 [294]	48 [428]	63 [562]	78 [693]	94 [828]	109 [962]						
	878	867	856	843	828	812	792	769						
Theo. Torque	16 [144]	33 [288]	49 [432]	65 [576]	81 [720]	98 [864]	114 [1008]	130 [1152]	146 [1296]	163 [1440]				

### 070 70 cc/rev [4.3 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.	Max. Inter.	Theo. RPM	
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]				190 [2750]
2 [0.5]	15 [129]	29 [256]												28
4 [1]	16 [139]	32 [280]	47 [416]	62 [547]										55
8 [2]	47	39	27	8										109
15 [4]	16 [145]	34 [298]	51 [450]	67 [592]	83 [732]	101 [890]								217
23 [6]	101	94	86	77	70	70								325
30 [8]	16 [142]	34 [299]	52 [456]	69 [613]	86 [765]	103 [913]	119 [1052]	135 [1198]	154 [1366]	173 [1530]				433
38 [10]	210	202	194	184	173	159	144	132	121	120				541
45 [12]	15 [130]	32 [287]	51 [448]	68 [606]	86 [759]	103 [914]	121 [1067]	137 [1215]	153 [1358]	169 [1494]	192 [1699]	207 [1836]		650
53 [14]	317	309	300	290	279	267	252	234	212	188	210	191		758
61 [16]	13 [113]	31 [271]	48 [429]	67 [589]	84 [746]	102 [902]	120 [1059]	137 [1211]	154 [1362]	170 [1506]	187 [1656]	202 [1791]		866
68 [18]	425	416	408	398	387	373	358	340	320	296	271	243		974
76 [20]	10 [92]	28 [250]	46 [409]	64 [568]	82 [726]	100 [883]	117 [1040]	135 [1194]	152 [1347]	169 [1497]	186 [1645]	202 [1788]		1082
	533	524	515	505	495	482	465	447	426	404	366	342		
	7 [64]	25 [224]	43 [383]	61 [542]	79 [701]	97 [859]	115 [1016]	132 [1172]	150 [1327]	167 [1479]	184 [1629]	201 [1779]		
	642	633	624	614	603	589	572	553	532	507	466	445		
	4 [35]	22 [194]	40 [353]	58 [512]	76 [671]	94 [830]	112 [989]	129 [1146]	147 [1301]	164 [1455]	182 [1608]	199 [1759]		
	750	741	732	721	710	696	680	663	642	618	574	549		
	2 [15]	18 [161]	36 [320]	54 [480]	72 [639]	90 [798]	108 [956]	126 [1113]	144 [1270]	161 [1425]	179 [1581]	196 [1734]		
	860	850	841	830	818	804	788	770	750	726	681	652		
	15 [132]	32 [287]	51 [449]	69 [607]	86 [765]	104 [924]	122 [1082]	140 [1239]	157 [1394]					
	954	943	931	918	903	887	869	826	849					
	10 [89]	28 [247]	46 [404]	64 [564]	82 [722]	99 [880]	118 [1040]	135 [1198]	153 [1355]					
	1064	1052	1041	1029	1015	1000	981	959	935					
Theo. Torque	19 [170]	38 [340]	58 [510]	77 [680]	96 [849]	115 [1019]	134 [1189]	154 [1359]	173 [1529]	192 [1699]	211 [1869]	230 [2039]		

Torque, Nm [lb-in]  
Speed, RPM

All values in white are at maximum efficiencies. DO NOT operate at maximum pressure and maximum flow simultaneously. Tested at 50°C [122°F] with a full viscosity 146 cSt [1.23 st]. Note: Performance data is typical. Performance on production units varies slightly from one motor to another.



## 090 87 cc/rev [5.3 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.		Max. Inter.		Theo. RPM		
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]	190 [2750]	207 [3000]					
2 [0.5]	60 [531]	60 [531]															
4 [1]	19 [168]	42 [372]	60 [531]	73 [646]	89 [788]	99 [876]	115 [1018]										46
8 [2]	22.5 [199]	41 [363]	62.5 [553]	84 [743]	105.5 [934]	127 [1124]	151 [1336]	170 [1504]									91
15 [4]	21 [186]	41.5 [367]	63.5 [562]	84.5 [748]	107 [947]	130 [1150]	151 [1336]	172 [1522]	194 [1717]	243 [2150]	275 [2434]						171
23 [6]	20 [177]	40.5 [358]	62.5 [553]	85 [752]	106.5 [942]	129.5 [1146]	155 [1372]	178 [1575]	200 [1770]	244 [2159]	267 [2363]	290 [2566]					262
30 [8]	18 [159]	41 [363]	64 [566]	87 [770]	107 [947]	131 [1159]	154 [1363]	174 [1540]	198 [1752]	241 [2133]	266 [2354]	289 [2558]					342
38 [10]	15 [133]	38 [336]	61 [540]	83 [735]	106 [938]	130 [1150]	150 [1327]	173 [1531]	193 [1708]	238 [2106]	261 [2310]	286 [2531]					433
45 [12]	13 [115]	36 [319]	56 [496]	82 [726]	106 [938]	125 [1106]	146 [1292]	188 [1664]	190 [1681]	233 [2062]	258 [2283]	283 [2504]					513
53 [14]	10 [88]	33 [292]	54 [478]	76 [673]	99 [876]	123 [1088]	144 [1274]	165 [1460]	187 [1655]	228 [2018]	254 [2248]	278 [2460]					604
61 [16]	6 [61]	25 [221]	52 [460]	72 [637]	95 [841]	121 [1071]	143 [1265]	163 [1442]	181 [1602]	223 [1973]	223 [1973]	223 [1973]					695
68 [18]	6 [61]	21 [186]	46 [407]	71 [628]	97 [858]	122 [1080]	147 [1301]	172 [1522]	198 [1752]	223 [1973]							773
76 [20]	6 [61]	14 [124]	39 [345]	65 [575]	90 [796]	116 [1027]	141 [1248]	166 [1469]	192 [1699]	217 [1920]							864
Theo. Torque	24 [212]	49 [434]	73 [646]	96 [850]	120 [1062]	145 [1283]	169 [1496]	193 [1708]	217 [1920]	242 [2145]	266 [2356]	290 [2567]					

## 100 101 cc/rev [6.1 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.		Max. Inter.		Theo. RPM		
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]	190 [2750]	207 [3000]					
2 [0.5]	18 [159]	37 [327]	56 [496]	77 [681]	91 [805]												20
4 [1]	27 [239]	49 [434]	69 [611]	84 [743]	106 [938]	120 [1062]	140 [1239]	160 [1416]									40
8 [2]	25 [221]	50 [442]	75 [664]	98 [867]	125 [1106]	150 [1327]	175 [1549]	199 [1761]	189 [1673]	180 [1593]	176 [1558]	174 [1540]					80
15 [4]	26 [230]	46 [407]	72 [637]	97 [858]	124 [1097]	148 [1310]	175 [1549]	198 [1752]	224 [1982]	245 [2168]	267 [2363]	173 [1531]					150
23 [6]	21 [186]	48 [425]	69 [611]	96 [850]	123 [1088]	148 [1310]	173 [1531]	200 [1770]	223 [1973]	246 [2177]	269 [2381]	167 [1478]					230
30 [8]	21 [186]	45 [398]	70 [619]	93 [823]	121 [1071]	146 [1292]	168 [1487]	195 [1726]	221 [1956]	244 [2159]	265 [2345]	165 [1460]					300
38 [10]	16 [142]	41 [363]	68 [602]	91 [805]	115 [1018]	141 [1248]	165 [1460]	189 [1673]	215 [1903]	238 [2106]	264 [2336]	160 [1416]					380
45 [12]	11 [97]	36 [319]	63 [558]	89 [788]	116 [1027]	140 [1239]	162 [1434]	188 [1664]	210 [1858]	234 [2071]	258 [2283]	157 [1389]					450
53 [14]	10 [88]	34 [301]	59 [522]	83 [735]	109 [965]	134 [1186]	157 [1389]	181 [1602]	205 [1814]	226 [2000]	254 [2248]						531
61 [16]	10 [88]	28 [248]	55 [487]	79 [699]	103 [912]	129 [1142]	152 [1345]	172 [1522]	198 [1752]	198 [1752]	231 [2044]						611
68 [18]	6 [53]	21 [186]	47 [416]	71 [628]	94 [832]	121 [1071]	146 [1292]	169 [1496]	192 [1699]	190 [1681]							681
76 [20]	6 [61]	15 [133]	41 [363]	63 [558]	85 [752]	112 [991]	133 [1177]	160 [1416]	185 [1637]	179 [1584]							761
Theo. Torque	27 [239]	56 [496]	83 [735]	110 [973]	137 [1212]	165 [1460]	192 [1699]	220 [1947]	247 [2186]	274 [2425]	301 [2664]						

## 115 113 cc/rev [6.9 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.		Max. Inter.		Theo. RPM		
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]	190 [2750]	207 [3000]					
2 [0.5]	23 [202]	45 [401]															17
4 [1]	25 [224]	50 [440]	72 [641]														34
8 [2]	26 [234]	54 [478]	81 [717]	105 [926]	126 [1117]												68
15 [4]	26 [228]	54 [482]	83 [735]	111 [985]	139 [1232]	166 [1473]	191 [1688]	215 [1905]									136
23 [6]	24 [211]	52 [464]	81 [719]	110 [971]	138 [1222]	166 [1468]	194 [1712]	220 [1950]	247 [2185]	269 [2377]	303 [2684]						203
30 [8]	21 [182]	49 [437]	78 [690]	106 [937]	135 [1194]	163 [1444]	191 [1687]	218 [1927]	245 [2165]	271 [2402]	296 [2619]	321 [2843]					271
38 [10]	17 [147]	45 [401]	74 [657]	102 [906]	131 [1159]	159 [1411]	187 [1656]	215 [1899]	242 [2140]	268 [2375]	294 [2605]	320 [2835]					339
45 [12]	12 [106]	41 [360]	69 [614]	98 [867]	126 [1117]	154 [1367]	183 [1616]	210 [1860]	237 [2102]	264 [2338]	291 [2573]	318 [2814]					406
53 [14]	7 [62]	36 [315]	64 [568]	93 [820]	121 [1071]	149 [1319]	177 [1568]	204 [1809]	232 [2055]	259 [2294]	286 [2530]	312 [2765]					474
61 [16]	4 [21]	29 [259]	58 [513]	87 [765]	115 [1016]	143 [1266]	171 [1516]	199 [1763]	227 [2006]	254 [2247]	280 [2481]	307 [2715]					542
68 [18]	4 [21]	24 [208]	52 [458]	80 [710]	108 [959]	137 [1211]	165 [1457]	193 [1706]	220 [1948]	247 [2190]							609
76 [20]	4 [21]	16 [139]	45 [397]	73 [646]	101 [896]	130 [1148]	158 [1396]	186 [1642]	213 [1888]	240 [2127]							677
Theo. Torque	31 [272]	61 [544]	92 [812]	122 [1071]	154 [1367]	184 [1631]	215 [1905]	246 [2186]	276 [2425]	307 [2664]	338 [2989]	369 [3261]					



130 128 cc/rev [7.8 in<sup>3</sup>/rev]

Performance table for 130 cc/rev pump. Columns: Pressure (bars [psi]), Max. Cont., Max. Inter., Theo. RPM. Rows: Flow LPM [GPM] (2 to 76), Max. Cont., Max. Inter., Theo. Torque.

Torque, Nm [lb-in]  
Speed, RPM

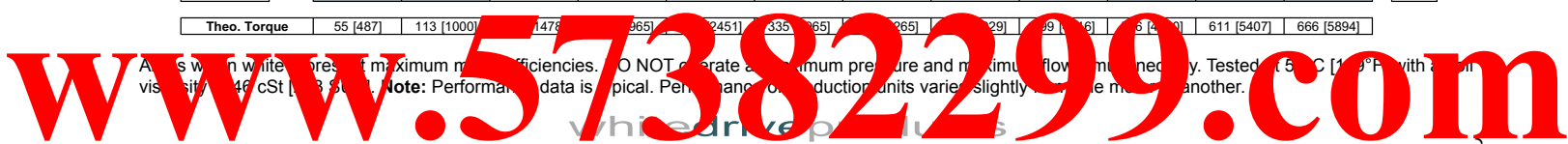
160 163 cc/rev [9.9 in<sup>3</sup>/rev]

Performance table for 160 cc/rev pump. Columns: Pressure (bars [psi]), Max. Cont., Max. Inter., Theo. RPM. Rows: Flow LPM [GPM] (4 to 76), Max. Cont., Max. Inter., Theo. Torque.

200 202 cc/rev [12.3 in<sup>3</sup>/rev]

Performance table for 200 cc/rev pump. Columns: Pressure (bars [psi]), Max. Cont., Max. Inter., Theo. RPM. Rows: Flow LPM [GPM] (4 to 76), Max. Cont., Max. Inter., Theo. Torque.

All values are in white unless otherwise specified. DO NOT operate at maximum pressure and maximum flow simultaneously. Tested at 25 °C [77 °F] with a kinematic viscosity of 146 cSt [1.8 St]. Note: Performance data is typical. Performance of production units varies slightly from one another.





## 240 236 cc/rev [14.4 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.	Max. Inter.	Theo. RPM		
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]				190 [2750]	207 [3000]
2 [0.5]	47 [417] 7	98 [870] 6	148 [1306] 5	197 [1745] 3	247 [2188] 3										8
4 [1]	50 [446] 14	105 [932] 13	158 [1397] 12	210 [1855] 11	260 [2299] 9	307 [2720] 7	354 [3133] 4	404 [3572] 4							16
8 [2]	53 [466] 29	111 [986] 28	169 [1493] 27	224 [1979] 26	277 [2448] 24	327 [2894] 21	377 [3333] 19	424 [3753] 16	469 [4148] 11	511 [4521] 8	582 [5152] 8				32
15 [4]	52 [462] 60	113 [999] 59	174 [1536] 57	233 [2062] 56	291 [2572] 53	346 [3063] 50	399 [3535] 47	449 [3976] 44	496 [4386] 40	541 [4786] 36	598 [5295] 33	638 [5650] 28			63
23 [6]	47 [415] 93	108 [955] 91	168 [1485] 90	227 [2010] 88	285 [2526] 85	342 [3028] 81	397 [3510] 77	449 [3977] 71	500 [4421] 66	548 [4846] 60	595 [5267] 55	642 [5684] 52			95
30 [8]		102 [899] 123	162 [1432] 121	221 [1952] 119	279 [2469] 116	336 [2973] 111	391 [3461] 106	445 [3936] 100	497 [4395] 93	547 [4841] 87	593 [5247] 79	640 [5666] 73			126
38 [10]		94 [828] 155	154 [1360] 153	213 [1886] 150	271 [2399] 147	328 [2906] 142	384 [3396] 137	437 [3868] 131	489 [4330] 123	541 [4788] 115	587 [5193] 106	635 [5619] 99			158
45 [12]		85 [751] 186	144 [1277] 184	203 [1796] 182	262 [2315] 178	319 [2821] 173	375 [3314] 168	428 [3789] 160	480 [4248] 153	531 [4698] 145	575 [5091] 134	623 [5516] 125			189
53 [14]		74 [657] 218	134 [1183] 216	192 [1698] 214	250 [2212] 210	308 [2723] 205	374 [3311] 201	418 [3696] 191	470 [4159] 183	520 [4604] 174	564 [4992] 164	611 [5408] 154			220
Max. Cont.	61 [16]	67 [591] 249	122 [1078] 248	180 [1589] 245	238 [2106] 241	295 [2612] 236	351 [3105] 230	405 [3586] 222	458 [4049] 213	508 [4496] 205	551 [4879] 192	600 [5306] 183			252
Max. Inter.	76 [20]		107 [949] 279	165 [1464] 276	221 [1960] 272	279 [2468] 267	335 [2961] 260	388 [3438] 251	440 [3896] 241	490 [4335] 231					283
			93 [823] 311	152 [1342] 307	208 [1837] 303	264 [2336] 297	320 [2834] 290	374 [3310] 282	426 [3774] 272	477 [4219] 261					315
	<b>Theo. Torque</b>	66 [585]	132 [1171]	198 [1756]	265 [2341]	331 [2926]	397 [3512]	463 [4097]	529 [4682]	595 [5268]	661 [5853]	728 [6438]	794 [7024]		

## 320 326 cc/rev [19.8 in<sup>3</sup>/rev]

Flow LPM [GPM]	Pressure, bars [psi]										Max. Cont.	Max. Inter.	Theo. RPM		
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]	155 [2250]	173 [2500]					
2 [0.5]	71 [630] 5	141 [1250] 5	210 [1855] 5	277 [2454] 4	344 [3043] 4	409 [3618] 3	477 [4220] 3								6
4 [1]	75 [661] 11	149 [1314] 11	221 [1952] 10	291 [2576] 10	358 [3168] 9	425 [3765] 8	488 [4320] 7	553 [4893] 6							12
8 [2]	77 [684] 22	157 [1385] 22	233 [2066] 21	306 [2711] 20	377 [3340] 20	446 [3944] 19	512 [4529] 18	575 [5092] 17							24
15 [4]	77 [680] 46	158 [1402] 45	239 [2116] 44	318 [2813] 43	394 [3484] 41	465 [4114] 39	532 [4712] 36	595 [5265] 35	657 [5811] 33	712 [6299] 33					48
23 [6]	71 [632] 70	153 [1353] 68	234 [2071] 67	313 [2774] 65	390 [3454] 62	464 [4103] 59	532 [4712] 55	596 [5278] 52	648 [5735] 48	707 [6253] 47					71
30 [8]		144 [1278] 92	226 [1996] 90	305 [2701] 88	382 [3381] 85	456 [4037] 81	537 [4748] 76	593 [5250] 71	640 [5663] 64	699 [6187] 61					95
38 [10]		134 [1182] 116	215 [1899] 114	294 [2601] 111	371 [3288] 108	446 [3948] 103	518 [4581] 98	585 [5176] 91	632 [5595] 82	689 [6101] 78					118
45 [12]		121 [1070] 139	202 [1788] 137	281 [2487] 134	358 [3171] 131	433 [3832] 127	506 [4477] 121	575 [5084] 114	620 [5483] 101	677 [5991] 95					142
53 [14]		107 [949] 163	187 [1657] 161	266 [2355] 158	343 [3037] 155	418 [3703] 150	491 [4344] 144	559 [4950] 137	606 [5362] 122	663 [5869] 115					165
Max. Cont.	61 [16]	90 [795] 186	170 [1508] 185	249 [2202] 182	326 [2884] 178	401 [3547] 174	474 [4192] 168	544 [4813] 160	591 [5227] 144	649 [5744] 136					189
Max. Inter.	68 [18]		147 [1302] 207	224 [1979] 203	299 [2644] 198	371 [3287] 193	442 [3914] 186	510 [4515] 178	575 [5088] 169	635 [5618] 160					213
	76 [20]		128 [1133] 230	204 [1803] 227	278 [2460] 222	351 [3104] 217	421 [3727] 210	489 [4331] 202	555 [4908] 193	616 [5454] 183					236
	<b>Theo. Torque</b>	88 [780]	176 [1561]	265 [2341]	353 [3121]	441 [3901]	529 [4682]	617 [5462]	705 [6242]	794 [7022]	882 [7803]				

Torque, Nm [lb-in]  
Speed, RPM



**400** 404 cc/rev [24.6 in<sup>3</sup>/rev]

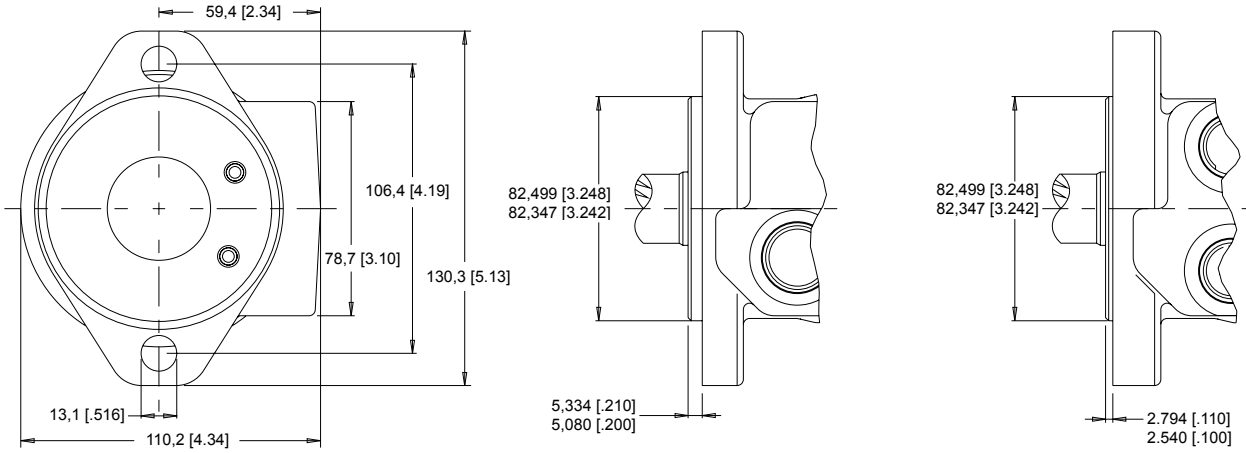
Flow LPM [GPM]	Pressure, bars [psi]								Max. Cont.	Max. Inter.	Theo. RPM
	17 [250]	35 [500]	52 [750]	69 [1000]	86 [1250]	104 [1500]	121 [1750]	138 [2000]			
2 [0.5]	82 [723] 4	165 [1459] 4	250 [2214] 3	329 [2911] 2	418 [3702] 2	497 [4399] 1					5
4 [1]	86 [761] 9	175 [1549] 8	262 [2317] 7	345 [3056] 7	427 [3776] 6	502 [4442] 4	577 [5108] 3	660 [5838] 2			10
8 [2]	89 [791] 18	185 [1637] 17	276 [2445] 17	364 [3219] 16	448 [3962] 15	529 [4679] 13	606 [5362] 11	682 [6032] 9	739 [6540] 6		19
15 [4]	87 [771] 36	187 [1653] 35	285 [2518] 34	378 [3346] 33	467 [4135] 32	551 [4873] 30	629 [5569] 28	698 [6180] 26	765 [6773] 25		38
23 [6]	79 [703] 56	180 [1597] 55	279 [2465] 53	373 [3305] 52	464 [4110] 49	550 [4868] 46	631 [5587] 43	695 [6147] 39	757 [6695] 37		56
30 [8]	70 [620] 75	171 [1511] 73	269 [2377] 72	364 [3217] 70	455 [4025] 67	541 [4787] 63	623 [5515] 58	677 [5991] 52	747 [6614] 48		75
38 [10]	59 [523] 93	157 [1394] 92	255 [2260] 91	351 [3103] 89	442 [3913] 85	529 [4684] 80	611 [5410] 75	663 [5864] 67	734 [6492] 62		93
45 [12]	46 [404] 112	142 [1260] 112	241 [2131] 110	335 [2968] 107	427 [3777] 103	513 [4543] 98	595 [5269] 92	645 [5705] 83	715 [6326] 77		112
53 [14]		125 [1110] 130	223 [1974] 129	318 [2813] 126	409 [3622] 122	496 [4393] 116	578 [5115] 110	625 [5531] 99	694 [6144] 93		130
Max. Cont. 61 [16]		107 [946] 149	203 [1800] 148	298 [2641] 145	390 [3448] 141	478 [4228] 135	560 [4959] 128	606 [5364] 117	673 [5956] 109		149
68 [18]		77 [684] 168	171 [1513] 166	263 [2328] 163	351 [3104] 158	436 [3855] 151	517 [4572] 143				167
Max. Inter. 76 [20]		63 [556] 186	147 [1305] 185	240 [2122] 181	327 [2895] 176	412 [3646] 170	493 [4365] 162				186
<b>Theo. Torque</b>	112 [992]	224 [1984]	336 [2976]	448 [3968]	560 [4960]	673 [5952]	785 [6944]	897 [7935]	1009 [8927]		

Torque, Nm [lb-in]  
Speed, RPM

All values in white are pressure of maximum efficiency. DO NOT generate a maximum pressure and maximum flow rate. Tested at 50°C [122°F] with a kinematic viscosity of 46 cSt [0.8 St]. Note: Performance data is typical. Performance of production units varies slightly from the model to another.

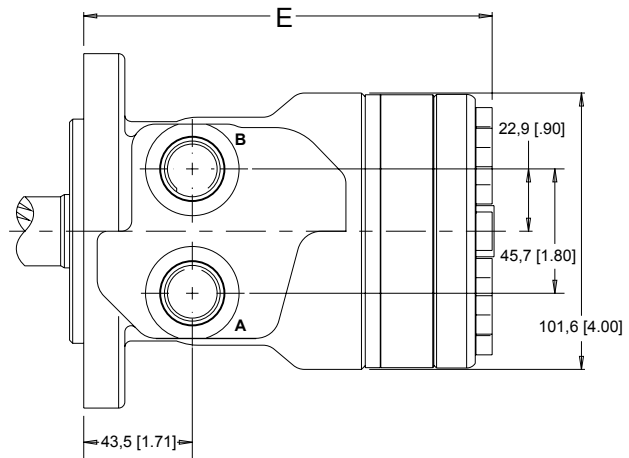
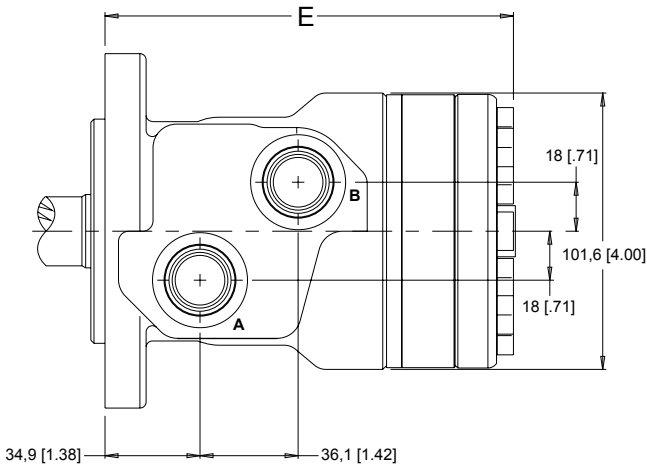


### SAE A FLANGE



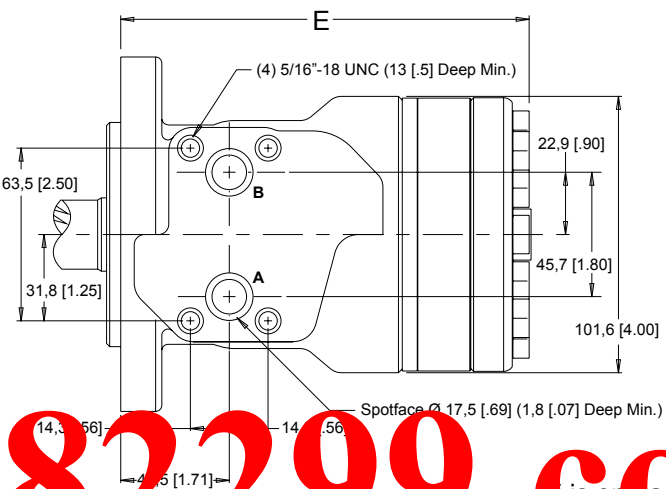
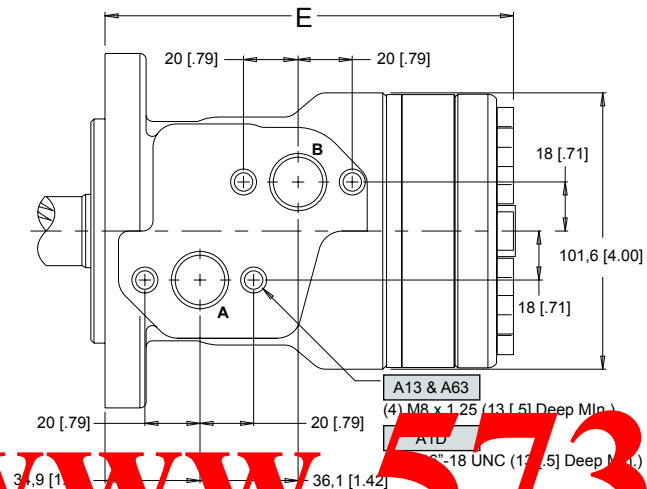
- A12** 2-Hole Offset Ports 1/2" BSP.F
- A19** 2-Hole Offset Ports 7/8" O-Ring
- A62** 2-Hole Offset Ports 1/2" BSP.F with Tall Pilot

- A10** 2-Hole Front Ports 1/2" NPT
- A11** 2-Hole Front Ports 7/8" O-Ring



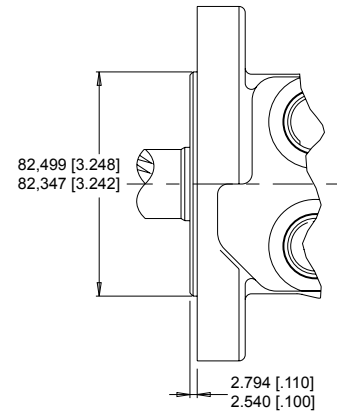
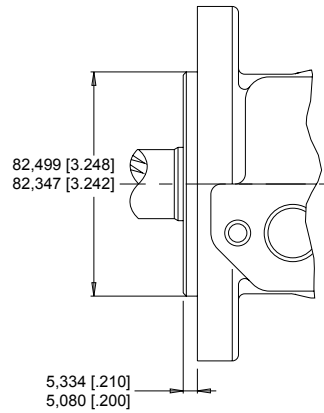
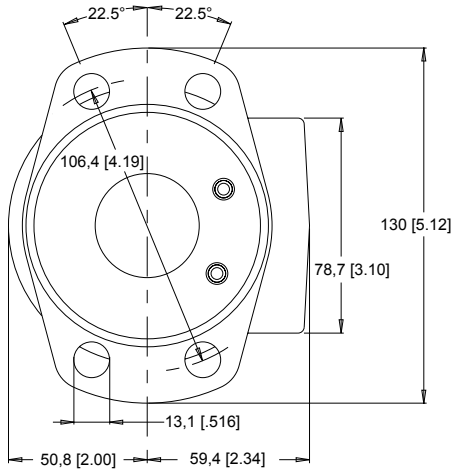
- A13** 2-Hole Offset Manifold Ports 1/2" BSP.F
- A1D** 2-Hole Offset Manifold Ports 7/8" O-Ring
- A63** 2-Hole Offset Manifold Ports 1/2" BSP.F with Tall Pilot

- A17** 2-Hole Manifold Ports 1/2" Drilled





SAE A FLANGE



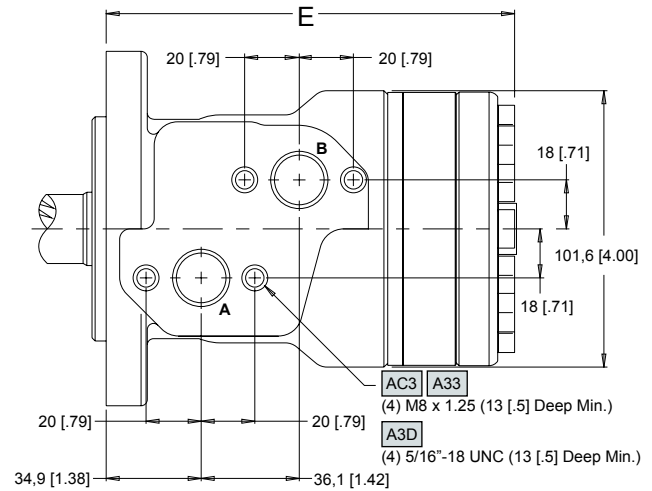
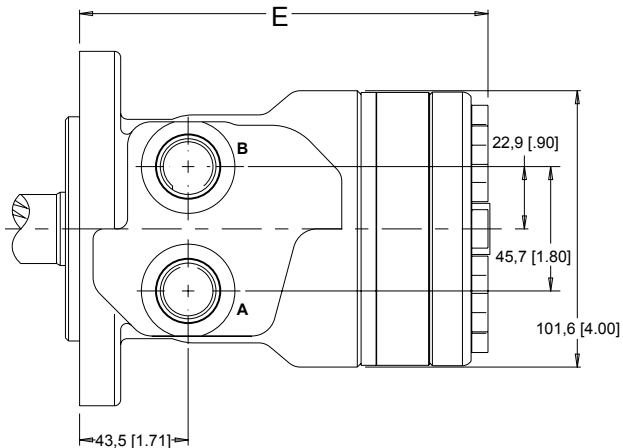
**A30** 4-Hole Front Ports 1/2" NPT

**A31** 4-Hole Front Ports 7/8" O-Ring

**AC3** 4-Hole Offset Manifold Ports 1/2" BSP.F with Tall Pilot

**A33** 4-Hole Offset Manifold Ports 1/2" BSP.F

**A3D** 4-Hole Offset Manifold Ports 7/8" O-Ring

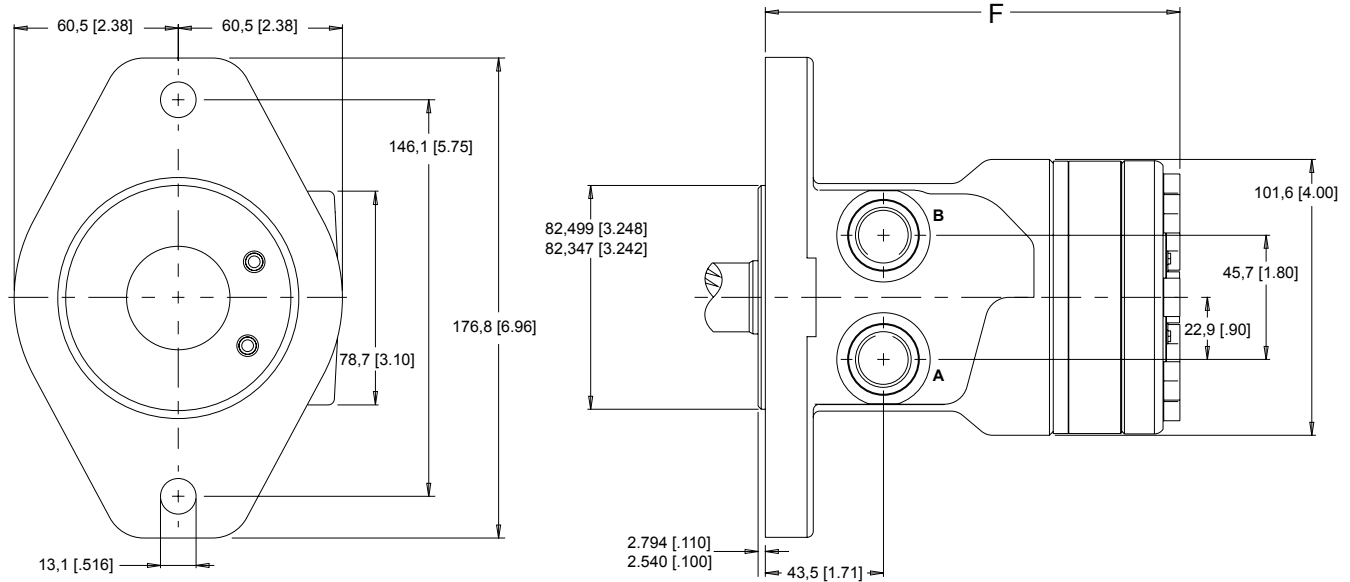


## 255 SERIES HOUSINGS



### SAE B FLANGE

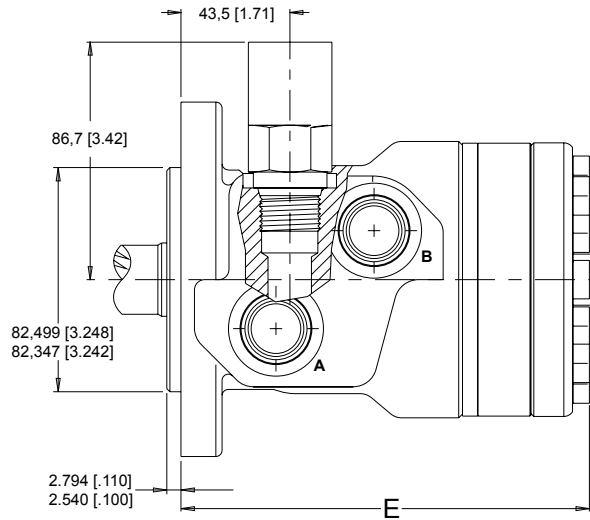
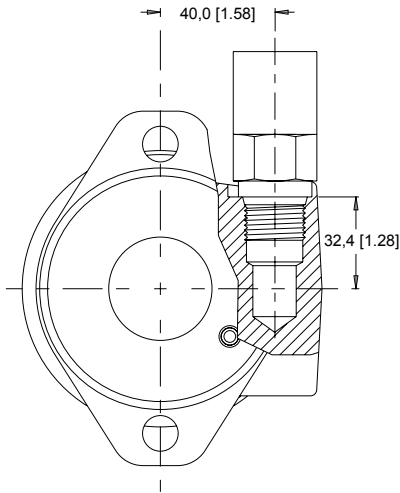
- B18** 2-Hole Aligned Ports 1/2" BSP.F
- B11** 2-Hole Aligned Ports 7/8" O-Ring



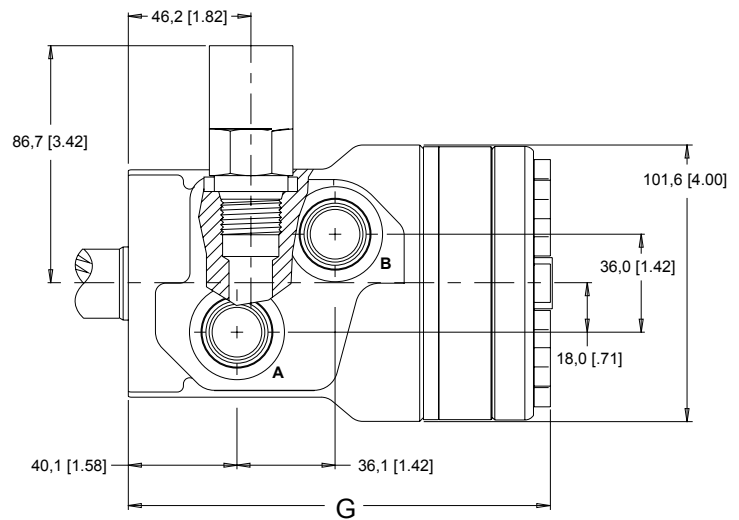
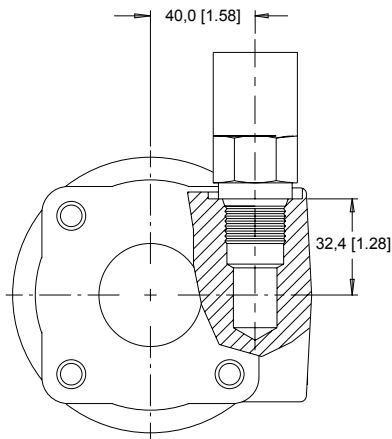


VALVE CAVITY HOUSINGS

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

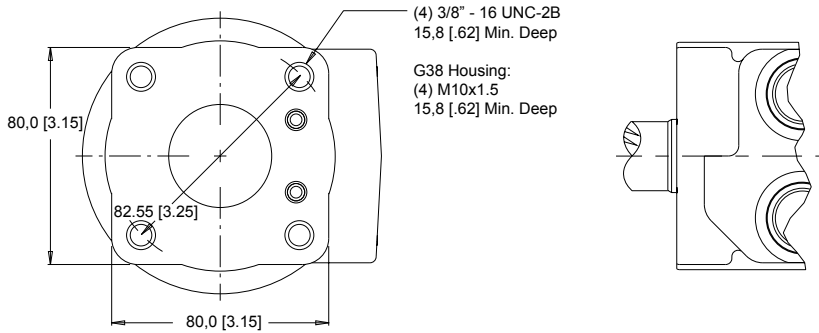


**F39** 4-Hole Offset Ports 7/8" O-Ring



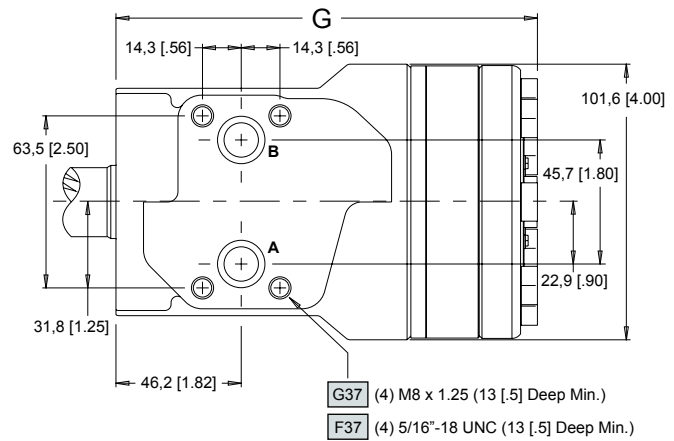
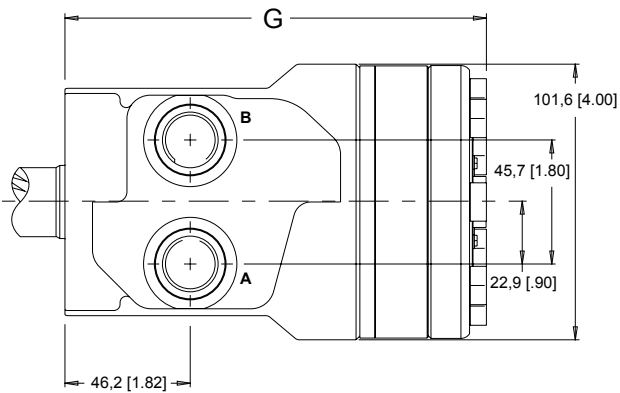


### 4 - HOLE FLANGE

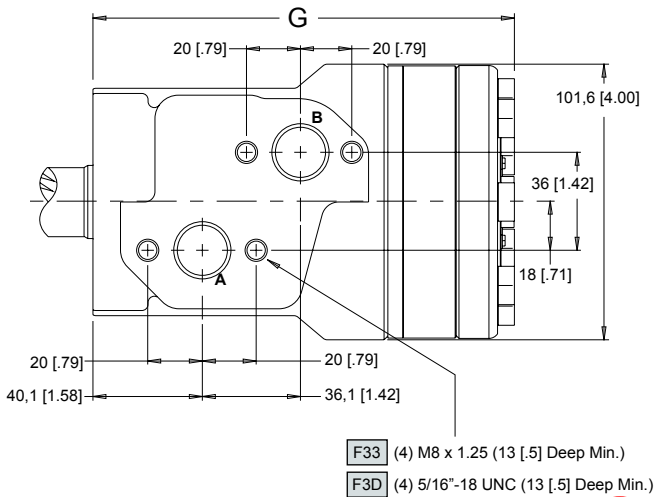


- F38** 4-Hole Aligned Ports 1/2" BSP.F
- F30** 4-Hole Aligned Ports 1/2" NPT
- F31** 4-Hole Aligned Ports 7/8" O-Ring
- G38** 4-Hole Aligned Ports 1/2" BSP.F with Metric Mounting Flange

- G37** 4-Hole Manifold Ports
- F37** 4-Hole Manifold Ports



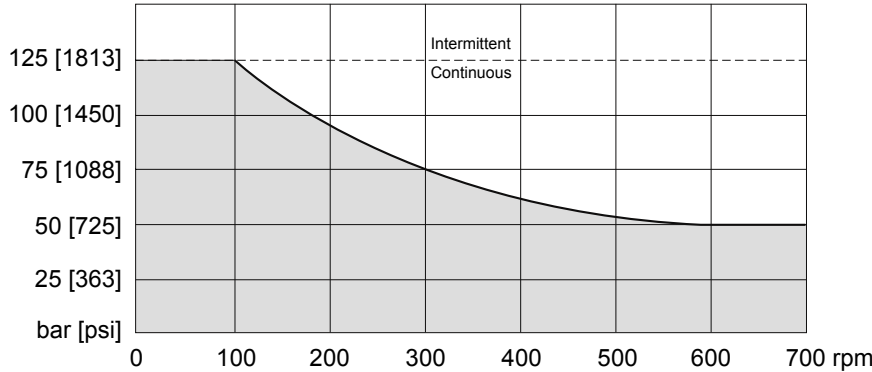
- F33** 4-Hole Offset Manifold Ports 1/2" BSP.F with Tall Pilot
- F3D** 4-Hole Offset Manifold Ports 7/8" O-Ring





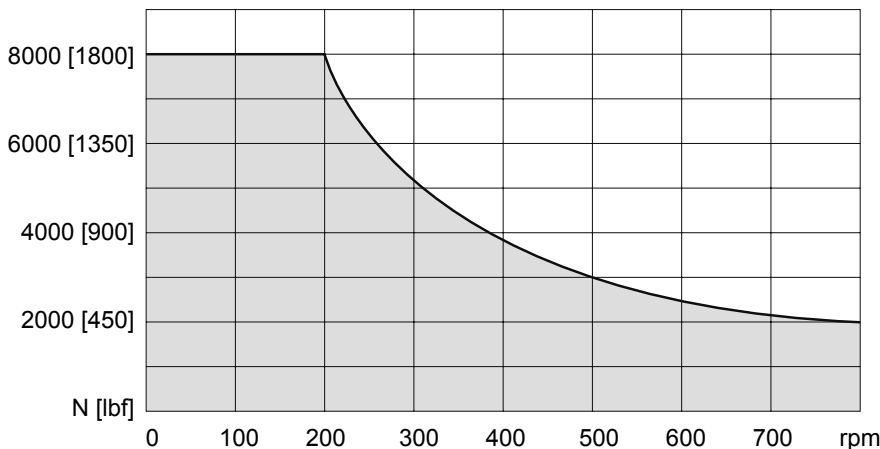
### PERMISSIBLE SHAFT SEAL PRESSURE

The WR has built-in check valves. The pressure on the shaft seal is identical to the output pressure. The curve below represents seal pressure at various speeds.



### 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.



### SHAFT LENGTHS (DIMENSION H)

Code	SAE "A" Flange mm [in]	4-Hole Flange mm [in]	SAE "B" Flange mm [in]
01	40 [1.59]	38 [1.49]	40 [1.59]
02	48 [1.88]	45 [1.78]	48 [1.88]
04	48 [1.88]	45 [1.78]	48 [1.88]
05	48 [1.88]	45 [1.78]	48 [1.88]
10	48 [1.88]	45 [1.78]	48 [1.88]
11	48 [1.88]	45 [1.78]	48 [1.88]
12	53 [2.08]	50 [1.97]	53 [2.08]
13	64 [2.52]	61 [2.42]	64 [2.52]
15	64 [2.52]	61 [2.42]	64 [2.52]
16	64 [2.52]	61 [2.42]	64 [2.52]
53	48 [1.88]	45 [1.78]	48 [1.88]
66	48 [1.88]	45 [1.78]	48 [1.88]

For Tall Pilot Housings subtract 17.5 [0.69] to distance.

### LENGTH AND WEIGHT TABLES

SAE "A" Flange		
Code	E mm [in]	Weight 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 [16.1]
160	166 [6.53]	7,5 [16.5]
200	173 [6.83]	8,0 [17.6]
240	182 [7.15]	8,5 [18.7]
320	198 [7.78]	9,0 [19.8]
400	213 [8.39]	9,8 [21.6]

For Tall Pilot Housings subtract 2,5 [0.10] from distance.

SAE "B" Flange		
Code	F mm [in]	Weight 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]
320	198 [7.78]	10,2 [22.4]
400	213 [8.39]	11,0 [24.2]

4-Hole Square Flange		
Code	G mm [in]	Weight kg [lb]
040	145 [5.70]	5,4 [11.9]
060	149 [5.85]	5,5 [12.1]
070	150 [5.91]	5,5 [12.1]
090	154 [6.07]	5,6 [12.3]
100	156 [6.16]	5,7 [12.5]
115	159 [6.26]	5,9 [13.0]
130	162 [6.39]	6,1 [13.4]
160	169 [6.64]	6,3 [13.9]
200	176 [6.94]	6,8 [15.0]
240	184 [7.25]	7,3 [16.1]
320	200 [7.89]	7,8 [17.2]
400	216 [8.49]	8,6 [18.9]

WR motor weights vary ± 0.45 kg [1 lb] depending on motor configuration.

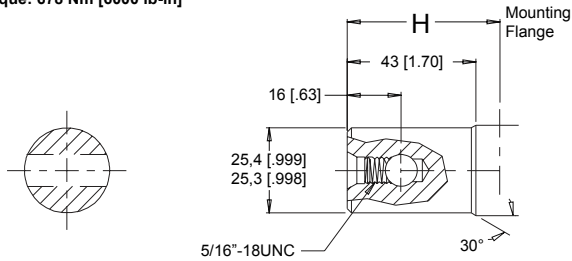


**05** 1" Pinhole with 9,5 [.375] thru hole

**53** 1" Pinhole with 10,3 [.406] thru hole

**66** 1" Pinhole with 8,0 [.315] thru hole

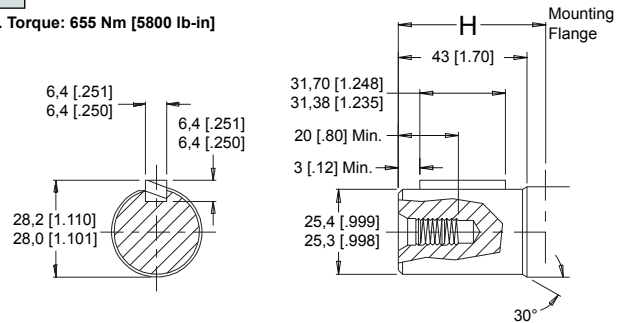
Max. Torque: 678 Nm [6000 lb-in]



**10** 1" Straight with 5/16" - 18 UNC tap

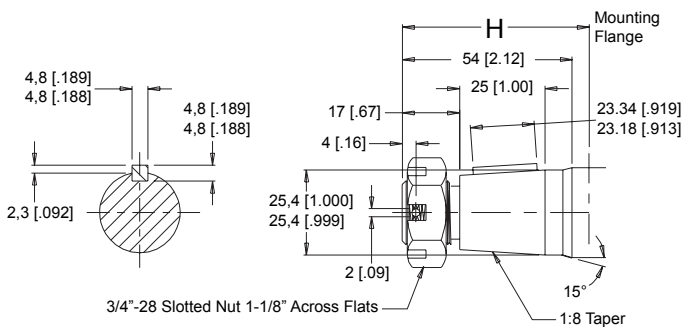
**11** 1" Straight with M8x1.25 tap

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



**13** 1" Tapered

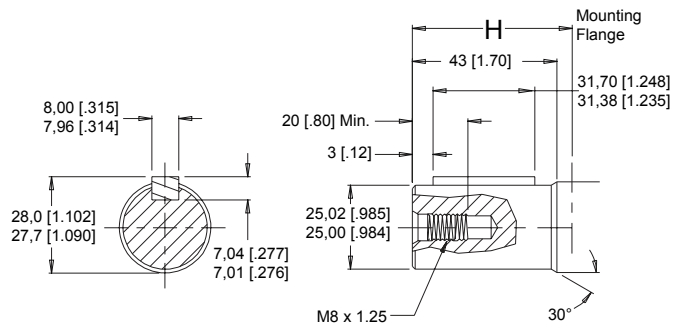
Max. Torque: 655 Nm [5800 lb-in]



Note: A slotted nut is standard on this shaft.

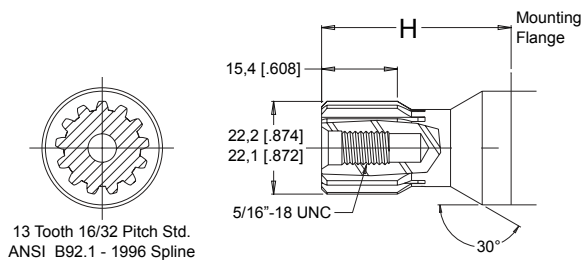
**12** 25mm Straight

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



**01** 13 Tooth Spline

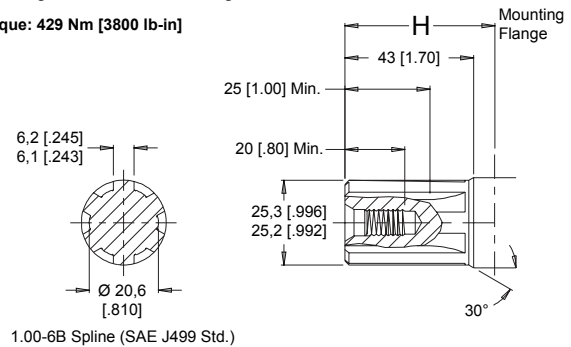
Max. Torque: 170 Nm [1500 lb-in]



**02** 6B Spline with 5/16" - 18 UNC tap

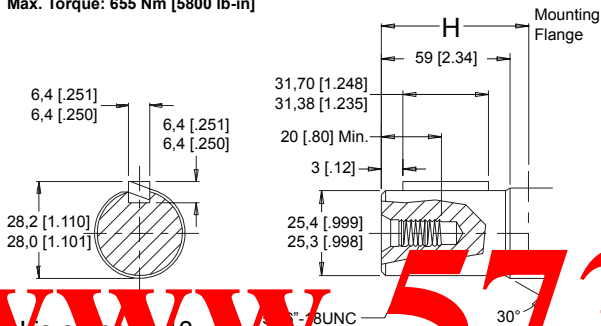
**04** 6B Spline with M8x1.25 tap

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



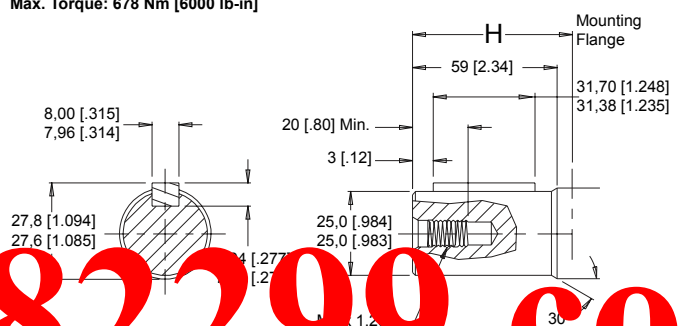
**15** 1" Straight Extended

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



**16** 25mm Straight Extended

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





# 255 SERIES ORDERING INFORMATION



SERIES

256

REVERSED TIMING

255

DISPLACEMENT

HOUSING

SHAFT

OPTIONS

MISCELLANEOUS

Code	Displacements
040	40cc [2.5 in <sup>3</sup> /rev]
060	59cc [3.6 in <sup>3</sup> /rev]
070	70cc [4.3 in <sup>3</sup> /rev]
090	87cc [5.3 in <sup>3</sup> /rev]
100	101cc [6.1 in <sup>3</sup> /rev]
115	113cc [6.9 in <sup>3</sup> /rev]
130	128cc [7.8 in <sup>3</sup> /rev]
160	163cc [9.9 in <sup>3</sup> /rev]
200	202cc [12.3 in <sup>3</sup> /rev]
240	236cc [14.4 in <sup>3</sup> /rev]
320	326cc [19.8 in <sup>3</sup> /rev]
400	404cc [24.6 in <sup>3</sup> /rev]

Code	Housings
A10	2-Hole 1/2" NPT Aligned Ports
A11	2-Hole 7/8" O-Ring Aligned Ports
A12	2-Hole 1/2" BSP.F Offset Ports
A13	2-Hole 1/2" BSP.F Offset Manifold
A17	2-Hole Manifold Ports
*A19	2-Hole 7/8" O-Ring Offset w/ Valve Cavity
A1D	2-Hole 7/8" O-Ring Offset Manifold
**A62	2-Hole 1/2" BSP.F Offset w/ Tall Pilot
A63	2-Hole 1/2" BSP.F Offset Manifold w/ Tall Pilot
AC3	4-Hole 1/2" BSP.F Offset Manifold w/ Tall Pilot
A30	4-Hole 1/2" NPT Aligned Ports
A31	4-Hole 7/8" O-ring Aligned Ports
A33	4-Hole 1/2" BSP.F Offset Manifold
A3D	4-Hole 7/8" O-Ring Offset Manifold
B11	2-Hole 7/8" O-Ring Aligned Ports
B18	2-Hole 1/2" BSP.F Aligned Ports
F30	4-Hole 1/2" NPT Aligned Ports
F31	4-Hole 7/8" O-Ring Aligned Ports
F33	4-Hole 1/2" BSP.F Offset Manifold
F37	4-Hole Manifold
F38	4-Hole 1/2" BSP.F Aligned Ports
*F39	4-Hole 7/8" O-Ring Offset w/ Valve Cavity
F3D	4-Hole 7/8" O-Ring Offset Manifold
G37	4-Hole Manifold
G38	4-Hole 1/2" BSP.F Aligned Ports w/ Metric Mount

Code	Shafts
01	7/8" 13 Tooth
02	1" 6-B Spline 5/16"-18 UNC tap
04	1" 6B Spline M8x1.5 tap
05	1" Pinhole 9,5 [.375] thru hole
10	1" Straight 5/16"-18 UNC tap
11	1" Straight M8x1.25 tap
12	25mm Straight
13	1" Tapered
15	1" Straight Ext.
16	25mm Ext.
53	1" Pinhole 10,3 [.406] thru hole
66	1" Pinhole 8,0 [.315] thru hole

Code	Options
AA	None

ADD ONS

Code	Options
A	Standard
B	Lock Nut
C	Solid Hex Nut

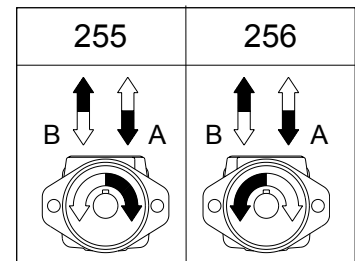
CAVITY

Code	Options
A	None
B	Relief Valve Cavity
C	69 bar [1000 psi] Relief Valve Installed
D	86 bar [1250 psi] Relief Valve Installed
E	104 bar [1500 psi] Relief Valve Installed
F	121 bar [1750 psi] Relief Valve Installed
G	138 bar [2000 psi] Relief Valve Installed

PAINT

Code	Options
A	Black
B	Black (Unpainted Flange Face)

- \* Must be ordered with a Valve Cavity
- \*\* Can be ordered with a Valve Cavity



## ROTATION

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