

white drive products

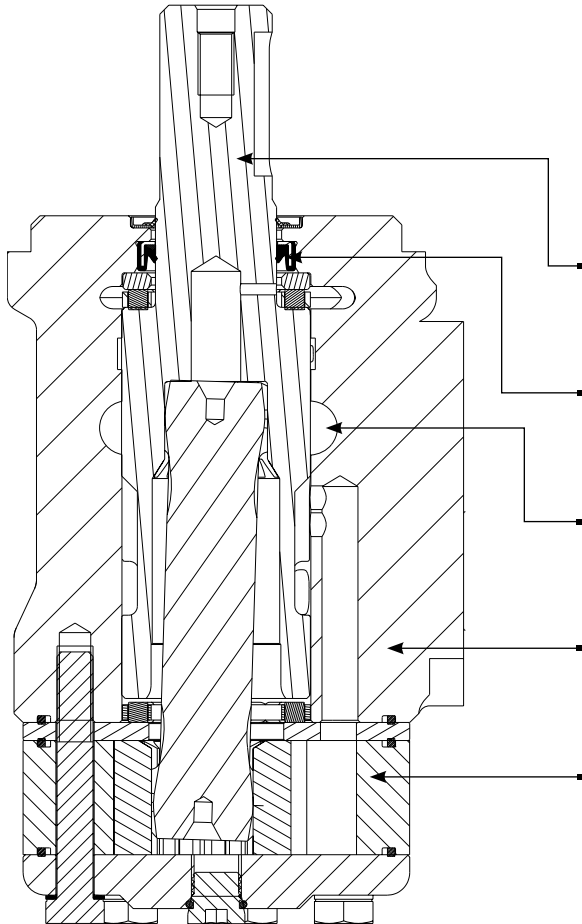


WP

SERIES HYDRAULIC MOTORS

OVERVIEW

The WP motor series is an economical alternative to more complex geroler designs that still provides high efficiency across a wide performance range. These motors are intended for medium-duty applications requiring high torque in a compact package and are suitable for industrial and mobile applications including car wash brushes, food processing equipment, conveyors, machine tools, agricultural equipment, sweepers, skid steer attachments, and more.



KEY FEATURES

Variety of Mounts and Shafts provide flexibility in application design.

High Pressure Shaft Seal offers superior seal life and performance.

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

Built-In Check Valves (not shown) in the housing offers versatility and increased seal life.

Integral Roller Stator® Motor Design provides compact volume, high power & low weight.

SPECIFICATIONS

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

CODE	Displacement cc [in ³ /rev]	Max. Speed rpm		Max. Flow lpm [gpm]		Max. Torque Nm [lb-in]		Max. Pressure bar [psi]		
		cont.	inter.	cont.	inter.	cont.	inter.	cont.	inter.	peak
050	50 [3.0]	1208	1500	60 [16]	75 [20]	91 [805]	108 [956]	140 [2030]	175 [2540]	240 [3480]
060	59 [3.6]	1185	1271	60 [16]	75 [20]	125 [1106]	136 [1204]	160 [2320]	175 [2540]	240 [3480]
080	78 [4.8]	896	960	60 [16]	75 [20]	164 [1451]	183 [1620]	160 [2320]	175 [2540]	240 [3480]
100	96 [5.9]	728	780	60 [16]	75 [20]	195 [1726]	213 [1885]	160 [2320]	175 [2540]	240 [3480]
125	125 [7.6]	559	599	60 [16]	75 [20]	258 [2285]	278 [2460]	160 [2320]	175 [2540]	240 [3480]
160	154 [9.4]	452	483	60 [16]	75 [20]	321 [2840]	362 [3205]	160 [2320]	175 [2540]	240 [3480]
200	190 [11.6]	367	385	60 [16]	75 [20]	380 [3365]	420 [3720]	150 [2180]	175 [2540]	240 [3480]
250	240 [14.6]	291	312	60 [16]	75 [20]	445 [3940]	557 [4930]	140 [2030]	175 [2540]	240 [3480]
315	303 [18.5]	228	245	60 [16]	75 [20]	460 [4071]	602 [5330]	120 [1740]	160 [2320]	200 [2900]
400	388 [23.7]	155	189	60 [16]	75 [20]	488 [4320]	625 [5532]	95 [1380]	125 [1810]	180 [2610]



050

Pressure - bars [psi]				Max. Cont.		Max. Inter.	
30 [435]	60 [870]	80 [1160]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]

50 cc [3.0 in³/rev.]

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

Flow - lpm [gpm]	5 [1.3]	19 [168] 100	39 [345] 85	48 [425] 75	62 [549] 64	75 [664] 48				Theoretical rpm
	10 [2.6]	20 [177] 197	38 [336] 196	50 [442] 174	63 [558] 159	78 [690] 146	92 [814] 127	102 [903] 101	107 [947] 97	
Max. Cont.	20 [5.3]	18 [159] 400	38 [336] 386	52 [460] 371	64 [566] 355	78 [690] 341	90 [796] 314	104 [920] 292	108 [956] 290	202
	30 [7.9]	15 [133] 600	37 [327] 585	50 [442] 571	64 [566] 560	77 [681] 540	89 [788] 516	103 [912] 499	107 [947] 495	404
Max. Inter.	40 [10.6]	12 [106] 808	31 [274] 800	45 [398] 790	59 [522] 770	73 [646] 766	87 [770] 733	99 [876] 703	106 [938] 697	606
	50 [13.2]	9 [80] 1009	27 [239] 1006	41 [363] 986	55 [487] 982	68 [602] 964	84 [743] 956	98 [867] 930	105 [929] 872	808
Max. Inter.	60 [15.8]	6 [53] 1208	24 [212] 1200	37 [327] 1196	53 [469] 1188	64 [566] 1176	82 [726] 1160	95 [841] 1140	102 [903] 963	1010
	70 [18.5]	3 [27] 1410	17 [150] 1396	32 [283] 1382	44 [389] 1370	58 [513] 1358	80 [708] 1347	93 [823] 1334	98 [867] 1315	1212
Max. Inter.	75 [19.8]		15 [133] 1500	30 [265] 1488	40 [354] 1473	56 [496] 1457	77 [681] 1439	88 [779] 1412	93 [823] 1388	1414
										1515

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

Theoretical Torque - Nm [lb-in]

24 [212]	47 [416]	63 [558]	79 [699]	95 [841]	110 [973]	126 [1115]	138 [1221]
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Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]

060

Pressure - bars [psi]				Max. Cont.		Max. Inter.	
30 [435]	60 [870]	80 [1160]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]

59 cc [3.6 in³/rev.]

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

Flow - lpm [gpm]	5 [1.3]	20 [177] 83	46 [407] 79	65 [575] 72	80 [708] 64	95 [841] 51	112 [991] 38			Theoretical rpm
	10 [2.6]	22 [195] 169	47 [416] 164	66 [584] 155	81 [717] 142	96 [850] 135	113 [1000] 124	125 [1106] 108	136 [1204] 88	
Max. Cont.	20 [5.3]	20 [177] 338	45 [398] 332	64 [566] 320	80 [708] 309	93 [823] 290	111 [982] 276	123 [1088] 245	134 [1186] 222	170
	30 [7.9]	17 [150] 507	43 [381] 502	62 [549] 493	76 [673] 482	89 [788] 468	109 [965] 454	121 [1071] 424	131 [1159] 400	339
Max. Inter.	40 [10.6]	14 [124] 678	41 [363] 669	58 [513] 660	73 [646] 645	87 [770] 630	105 [929] 616	117 [1035] 594	127 [1124] 582	509
	50 [13.2]	10 [88] 845	37 [327] 841	55 [487] 833	70 [619] 818	84 [743] 805	102 [903] 792	113 [1000] 770	122 [1080] 754	678
Max. Inter.	60 [15.8]	7 [62] 1014	34 [301] 1005	52 [460] 999	66 [584] 992	82 [726] 982	99 [876] 968	109 [965] 956	118 [1044] 933	848
	70 [18.5]	4 [35] 1185	27 [239] 1182	47 [416] 1180	62 [549] 1175	76 [673] 1158	93 [823] 1144	104 [920] 1128	114 [1009] 1112	1017
Max. Inter.	75 [19.8]		22 [195] 1271	43 [381] 1265	58 [513] 1256	73 [646] 1241	86 [761] 1228	100 [885] 1212	110 [973] 1196	1186
										1271

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

Theoretical Torque - Nm [lb-in]

28 [249]	56 [499]	75 [665]	94 [831]	113 [998]	132 [1164]	150 [1330]	164 [1455]
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Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]



PERFORMANCE

080

Pressure - bars [psi]						Max. Cont.	Max. Inter.
30 [435]	60 [870]	80 [1160]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]

78 cc [4.8 in³/rev.]

Max. Cont.	5 [1.3]
	10 [2.6]
	20 [5.3]
	30 [7.9]
	40 [10.6]
	50 [13.2]
	60 [15.8]
Max. Inter.	70 [18.5]
	75 [19.8]

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

32 [283] 60	62 [549] 56	80 [708] 50	106 [938] 42	125 [1106] 30			
31 [274] 125	64 [566] 118	84 [743] 112	104 [920] 104	120 [1062] 98	142 [1257] 82	162 [1434] 67	175 [1549] 50
26 [230] 254	60 [531] 245	84 [743] 236	102 [903] 228	125 [1106] 215	144 [1274] 204	164 [1451] 190	183 [1619] 175
24 [212] 384	56 [496] 374	81 [717] 366	100 [885] 358	122 [1080] 346	142 [1257] 335	160 [1416] 318	175 [1549] 305
19 [168] 512	53 [469] 505	75 [664] 494	96 [850] 483	118 [1044] 473	140 [1239] 462	158 [1398] 450	170 [1504] 438
14 [124] 638	46 [407] 630	70 [619] 625	92 [814] 615	110 [973] 606	135 [1195] 593	156 [1381] 580	168 [1487] 568
10 [88] 768	42 [372] 762	66 [584] 756	86 [761] 748	106 [938] 738	128 [1133] 728	150 [1327] 717	164 [1451] 694
6 [53] 896	36 [319] 890	56 [496] 882	78 [690] 872	98 [867] 860	118 [1044] 846	140 [1239] 830	160 [1416] 816
3 [27] 960	27 [239] 955	50 [442] 948	74 [655] 938	92 [814] 926	113 [1000] 916	133 [1177] 896	148 [1310] 802

64	Theoretical rpm
128	
256	
385	
513	
641	
769	
897	
962	

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

Theoretical Torque - Nm [lb-in]

37 [327]	75 [664]	100 [885]	125 [1106]	149 [1319]	174 [1540]	199 [1761]	218 [1929]
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Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]

100

Pressure - bars [psi]						Max. Cont.	Max. Inter.
30 [435]	60 [870]	80 [1160]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]

96 cc [5.9 in³/rev.]

Max. Cont.	5 [1.3]
	10 [2.6]
	20 [5.3]
	30 [7.9]
	40 [10.6]
	50 [13.2]
	60 [15.8]
Max. Inter.	70 [18.5]
	75 [19.8]

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

43 [381] 51	82 [726] 42	109 [965] 35	131 [1159] 25				
43 [381] 99	84 [743] 93	108 [956] 84	133 [1177] 72	152 [1345] 62	180 [1593] 48	197 [1743] 24	
41 [363] 205	79 [699] 202	107 [947] 197	127 [1124] 192	154 [1363] 182	178 [1575] 172	200 [1770] 140	212 [1876] 118
39 [345] 311	74 [655] 307	101 [894] 301	126 [1115] 294	152 [1345] 283	176 [1558] 271	198 [1752] 258	213 [1885] 240
29 [257] 413	63 [558] 410	93 [823] 406	121 [1071] 399	150 [1327] 388	172 [1522] 379	195 [1726] 368	208 [1841] 347
20 [177] 519	52 [460] 515	85 [752] 510	115 [1018] 503	148 [1310] 492	169 [1496] 480	193 [1708] 464	203 [1796] 446
17 [150] 624	53 [469] 620	83 [735] 615	111 [982] 608	138 [1221] 600	165 [1460] 582	183 [1619] 565	193 [1708] 548
11 [97] 728	42 [372] 726	73 [646] 723	93 [823] 714	126 [1115] 706	159 [1407] 684	172 [1522] 668	183 [1619] 646
6 [53] 780	35 [310] 771	61 [540] 764	89 [788] 755	118 [1044] 736	145 [1283] 724	156 [1381] 712	176 [1558] 699

52	Theoretical rpm
104	
208	
313	
417	
521	
625	
729	
781	

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

Theoretical Torque - Nm [lb-in]

46 [407]	92 [814]	122 [1080]	153 [1354]	183 [1623]	214 [1894]	245 [2168]	268 [2372]
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Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]



125

Pressure - bars [psi]							Max. Cont.	Max. Inter.
30 [435]	60 [870]	80 [1160]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]	

125 cc [7.6 in³/rev.]

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

Max. Cont.	Flow - lpm [gpm]	5 [1.3]	10 [2.6]	20 [5.3]	30 [7.9]	40 [10.6]	50 [13.2]	60 [15.8]	70 [18.5]	75 [19.8]	Theoretical rpm	
	Max. Inter.	52 [460]	95 [841]	135 [1195]	168 [1487]							40
		38	35	32	27							80
		50 [442]	98 [867]	138 [1221]	172 [1522]	190 [1681]	234 [2071]	258 [2283]				160
		78	74	69	62	54	45	35				240
		50 [442]	96 [850]	132 [1168]	168 [1487]	202 [1788]	236 [2088]	256 [2265]	278 [2460]			320
		158	152	144	135	124	110	94	78			400
		44 [389]	92 [814]	126 [1115]	164 [1451]	198 [1752]	232 [2053]	262 [2319]	268 [2372]			480
		238	232	225	215	210	198	168	155			560
35 [310]	82 [726]	118 [1044]	160 [1416]	193 [1708]	226 [2000]	252 [2230]	266 [2354]		600			
319	316	312	308	300	288	262	238					
31 [274]	77 [681]	108 [956]	155 [1372]	182 [1611]	220 [1947]	238 [2106]	262 [2319]					
399	396	392	383	368	354	338	326					
15 [133]	64 [566]	97 [858]	146 [1292]	166 [1469]	210 [1858]	224 [1982]	256 [2265]					
479	478	475	470	463	454	443	434					
8 [71]	50 [442]	90 [796]	140 [1239]	162 [1434]	204 [1805]	209 [1850]	236 [2088]					
559	555	548	538	524	516	500	488					
	40 [354]	71 [628]	128 [1133]	158 [1398]	192 [1699]	199 [1761]	224 [1982]					
	599	594	588	576	565	536	524					

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

Theoretical Torque - Nm [lb-in]

60 [531]	119 [1053]	159 [1407]	199 [1761]	239 [2115]	279 [2469]	318 [2814]	348 [3080]
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Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]

160

Pressure - bars [psi]							Max. Cont.	Max. Inter.
30 [435]	60 [870]	80 [1160]	100 [1450]	120 [1740]	140 [2030]	160 [2320]	175 [2540]	

160 cc [9.4 in³/rev.]

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

Max. Cont.	Flow - lpm [gpm]	5 [1.3]	10 [2.6]	20 [5.3]	30 [7.9]	40 [10.6]	50 [13.2]	60 [15.8]	70 [18.5]	75 [19.8]	Theoretical rpm	
	Max. Inter.	56 [496]	112 [991]	154 [1363]	201 [1779]							32
		30	25	18	10							65
		58 [513]	115 [1018]	156 [1381]	205 [1814]	245 [2168]	285 [2522]					130
		63	60	56	52	48	37					194
		60 [532]	123 [1089]	162 [1434]	202 [1788]	242 [2142]	282 [2496]	327 [2894]	360 [3186]			258
		128	125	121	116	110	100	86	78			323
		50 [443]	117 [1035]	157 [1389]	197 [1743]	238 [2106]	278 [2460]	322 [2850]	358 [3168]			387
		193	190	187	183	179	173	160	144			453
48 [425]	113 [1000]	155 [1372]	195 [1726]	236 [2089]	273 [2416]	318 [2814]	355 [3142]		485			
257	255	252	248	244	239	224	211					
32 [283]	106 [938]	149 [1319]	188 [1664]	235 [2080]	267 [2363]	313 [2770]	352 [3115]					
323	320	316	312	306	299	288	275					
23 [204]	88 [779]	133 [1177]	178 [1575]	212 [1876]	260 [2301]	308 [2726]	342 [3027]					
387	384	380	375	371	366	358	346					
16 [142]	82 [726]	128 [1133]	170 [1505]	206 [1823]	255 [2257]	302 [2673]	331 [2929]					
452	451	448	444	436	430	423	412					
10 [89]	79 [699]	124 [1097]	164 [1451]	201 [1779]	248 [2195]	296 [2620]	319 [2823]					
483	481	477	472	466	460	450	436					

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

Theoretical Torque - Nm [lb-in]

74 [651]	147 [1302]	196 [1736]	245 [2170]	282 [2496]	343 [3038]	392 [3472]	429 [3798]
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Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]



PERFORMANCE



200

Pressure - bars [psi]					Max. Cont.	Max. Inter.
30 [435]	60 [870]	80 [1160]	100 [1450]	115 [1670]	140 [2030]	150 [2180] 175 [2540]

190 cc [11.6 in³/rev.]

5 [1.3]
10 [2.6]
20 [5.3]
30 [7.9]
40 [10.6]
50 [13.2]
60 [15.8]
70 [18.5]
75 [19.8]

Torque - Nm [lb-in], Speed rpm		Intermittent Ratings - 10% of Operation					
75 [664]	158 [1398]	200 [1770]	241 [2133]				
25	22	20	10				
78 [690]	160 [1416]	204 [1805]	252 [2230]	291 [2575]	348 [3080]	377 [3336]	
51	49	45	39	35	29	22	
74 [655]	156 [1381]	200 [1770]	246 [2177]	293 [2593]	354 [3133]	380 [3363]	416 [3681]
104	102	99	95	89	83	76	65
70 [619]	152 [1345]	196 [1735]	240 [2124]	290 [2566]	352 [3115]	378 [3345]	420 [3717]
157	155	152	148	143	137	130	118
65 [575]	147 [1301]	190 [1681]	228 [2018]	286 [2531]	340 [3009]	376 [3327]	418 [3699]
210	208	205	200	193	186	178	168
54 [478]	142 [1257]	180 [1593]	222 [1965]	277 [2451]	333 [2947]	356 [3150]	402 [3558]
262	260	258	254	249	243	235	223
36 [319]	128 [1133]	166 [1469]	210 [1858]	266 [2354]	322 [2850]	350 [3097]	400 [3540]
315	313	309	305	299	293	284	268
15 [133]	102 [903]	158 [1398]	202 [1788]	254 [2248]	302 [2673]	327 [2894]	376 [3327]
367	365	362	358	352	336	330	316
	94 [832]	146 [1292]	194 [1717]	230 [2035]	290 [2566]	317 [2805]	364 [3221]
	394	390	385	380	374	365	352

26
53
105
158
211
263
316
368
395

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

Theoretical Torque - Nm [lb-in]							
91 [803]	182 [1611]	242 [2142]	303 [2677]	348 [3079]	424 [3748]	454 [4016]	529 [4685]

Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]

250

Pressure - bars [psi]					Max. Cont.	Max. Inter.
30 [435]	60 [870]	85 [1230]	100 [1450]	125 [1810]	140 [2030]	160 [2320] 175 [2540]

240 cc [14.6 in³/rev.]

5 [1.3]
10 [2.6]
20 [5.3]
30 [7.9]
40 [10.6]
50 [13.2]
60 [15.8]
70 [18.5]
75 [19.8]

Torque - Nm [lb-in], Speed rpm		Intermittent Ratings - 10% of Operation					
89 [788]	194 [1717]	264 [2336]	326 [2885]				
19	16	10	6				
92 [814]	196 [1735]	268 [2372]	329 [2912]	394 [3487]			
40	36	32	21	10			
90 [796]	192 [1699]	264 [2336]	321 [2841]	397 [3513]	445 [3938]	510 [4513]	554 [4903]
81	77	72	65	50	42	36	23
86 [761]	185 [1637]	256 [2265]	314 [2779]	392 [3469]	439 [3855]	502 [4442]	557 [4929]
124	121	115	106	94	84	76	61
82 [726]	179 [1584]	248 [2195]	305 [2699]	384 [3398]	431 [3814]	486 [4301]	545 [4823]
165	162	158	153	144	135	125	113
69 [611]	169 [1496]	243 [2150]	293 [2593]	378 [3345]	421 [3726]	475 [4204]	526 [4655]
207	203	195	189	183	170	157	138
48 [425]	152 [1345]	230 [2035]	282 [2496]	364 [3221]	407 [3602]	456 [4035]	508 [4496]
250	247	243	236	222	216	205	188
37 [327]	139 [1230]	219 [1938]	263 [2327]	343 [3035]	386 [3416]	441 [3903]	496 [4389]
291	285	278	271	256	249	234	221
26 [230]	128 [1133]	205 [1814]	245 [2168]	328 [2903]	374 [3310]	428 [3788]	481 [4257]
312	310	307	302	294	270	254	242

21
42
83
125
167
208
250
292
313

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

Theoretical Torque - Nm [lb-in]							
115 [1018]	229 [2027]	325 [2875]	382 [3381]	478 [4230]	535 [4735]	611 [5407]	669 [5920]

Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]



315

Pressure - bars [psi]				Max. Cont.		Max. Inter.	
30 [435]	50 [725]	70 [1015]	85 [1230]	100 [1450]	120 [1740]	140 [2030]	160 [2320]

303 cc [18.5 in³/rev.]

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

Max. Cont.	5 [1.3]	123 [1089] 16	200 [1770] 13	282 [2496] 10	344 [3044] 6					Theoretical rpm
	10 [2.6]	117 [1035] 31	194 [1717] 29	277 [2451] 25	342 [3027] 21	399 [3531] 17				
	20 [5.3]	112 [991] 64	196 [1735] 62	275 [2434] 58	340 [3009] 54	397 [3513] 49	460 [4071] 43	526 [4655] 32	605 [5354] 23	
	30 [7.9]	104 [920] 98	183 [1620] 94	267 [2363] 90	322 [2850] 85	390 [3452] 79	448 [3965] 70	520 [4602] 62	602 [5328] 56	
	40 [10.6]	86 [761] 129	168 [1487] 126	252 [2230] 122	304 [2690] 118	365 [3230] 113	440 [3894] 106	515 [4558] 99	588 [5204] 76	
	50 [13.2]	73 [646] 164	156 [1381] 160	238 [2106] 155	288 [2549] 150	350 [3098] 144	424 [3752] 136	500 [4425] 127	571 [5053] 119	
	60 [15.8]	60 [531] 195	140 [1239] 192	223 [1974] 188	270 [2390] 183	325 [2876] 176	396 [3505] 170	480 [4248] 164	546 [4832] 157	
	70 [18.5]	37 [327] 228	122 [1080] 226	186 [1646] 223	254 [2248] 218	309 [2735] 212	368 [3257] 206	455 [4027] 196	527 [4664] 188	
Max. Inter.	75 [19.8]	23 [204] 245	100 [885] 242	174 [1540] 238	237 [2097] 233	293 [2593] 228	359 [3177] 222	444 [3929] 215	516 [4567] 206	248

Overall Efficiency - 60 - 100% 40 - 59% 0 - 39%

Theoretical Torque - Nm [lb-in]

145 [1283]	241 [2133]	338 [2991]	410 [3628]	482 [4265]	579 [5124]	675 [5973]	772 [6832]
------------	------------	------------	------------	------------	------------	------------	------------

Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]

400

Pressure - bars [psi]				Max. Cont.		Max. Inter.	
30 [435]	45 [650]	55 [800]	65 [940]	80 [1160]	95 [1380]	110 [1595]	125 [1810]

388 cc [23.7 in³/rev.]

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

Max. Cont.	5 [1.3]	144 [1274] 11	220 [1947] 10	270 [2389] 7	338 [2991] 5					Theoretical rpm
	10 [2.6]	146 [1292] 25	223 [1973] 23	272 [2407] 20	340 [3009] 16	412 [3646] 10	488 [4319] 6			
	20 [5.3]	145 [1283] 51	219 [1938] 50	269 [2381] 48	333 [2347] 45	408 [3611] 40	484 [4283] 35	548 [4850] 27		
	30 [7.9]	138 [1221] 76	215 [1903] 75	262 [2319] 73	322 [2850] 70	402 [3558] 67	472 [4177] 59	546 [4832] 47	625 [5531] 36	
	40 [10.6]	120 [1062] 103	204 [1805] 102	250 [2212] 100	310 [2743] 96	393 [3478] 89	458 [4053] 82	535 [4735] 73	618 [5469] 62	
	50 [13.2]	100 [885] 129	186 [1646] 128	238 [2106] 125	295 [2611] 123	374 [3310] 119	446 [3947] 112	520 [4602] 102	600 [5310] 91	
	60 [15.8]	76 [673] 155	166 [1469] 153	222 [1965] 150	282 [2496] 148	358 [3168] 143	427 [3779] 139	496 [4389] 130	576 [5097] 121	
	70 [18.5]	50 [442] 179	145 [1283] 177	194 [1717] 174	250 [2212] 170	334 [2956] 165	402 [3558] 158	472 [4177] 152	540 [4779] 144	
Max. Inter.	75 [19.8]	42 [372] 189	135 [1195] 187	176 [1558] 184	226 [2000] 180	306 [2708] 175	373 [3301] 167	445 [3938] 160	520 [4602] 150	190

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

Theoretical Torque - Nm [lb-in]

185 [1640]	278 [2460]	340 [3007]	402 [3554]	494 [4374]	587 [5194]	680 [6014]	772 [6834]
------------	------------	------------	------------	------------	------------	------------	------------

Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]



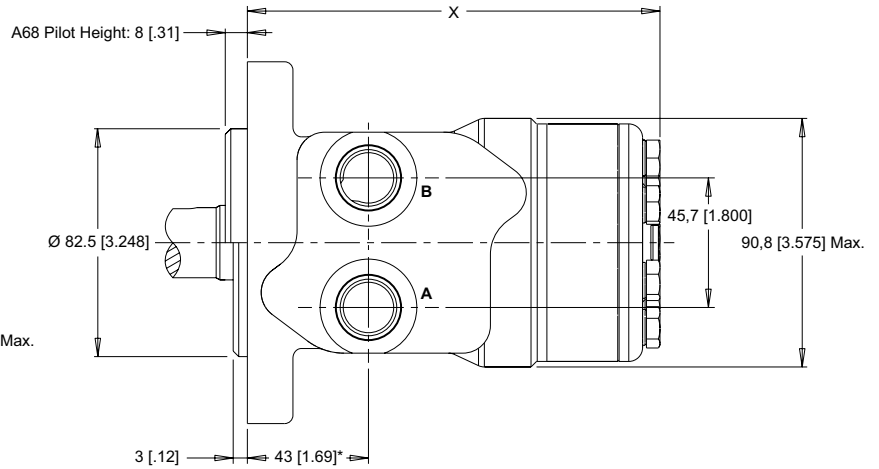
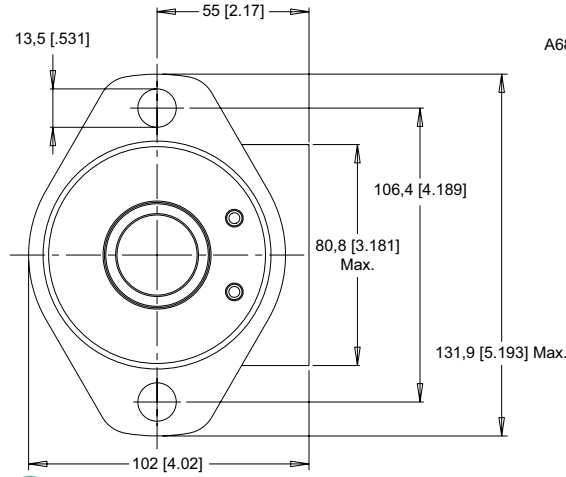
155 & 156 SERIES HOUSINGS (SAE A & MAGNETO MOUNTS)

A10 2-Hole 1/2" NPT Aligned Ports

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

A18 2-Hole 1/2" BSP.F Aligned Ports

A68 2-Hole 1/2" BSP.F Aligned Ports*

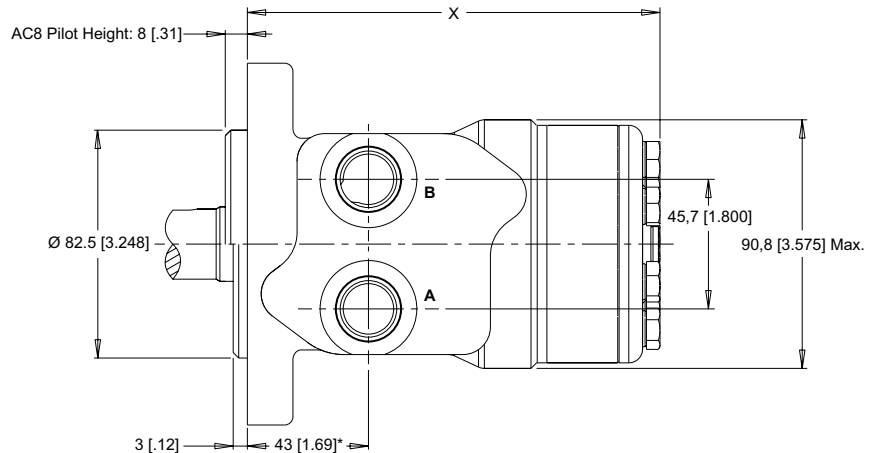
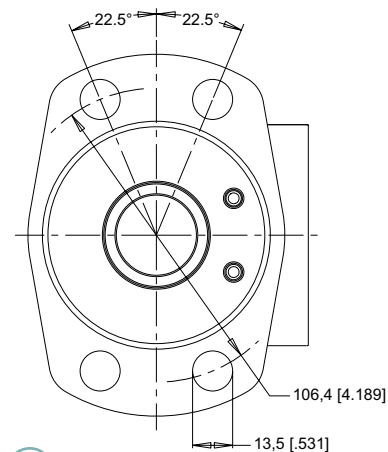


NOTE: Dimension X is found on page 12. * Add 5 [.20] to dimension for the A10, A11, & A18 housings.

A30 4-Hole 1/2" NPT Aligned Ports

A31 4-Hole 7/8" O-Ring Aligned Ports

AC8 2-Hole 1/2" BSP.F Aligned Ports

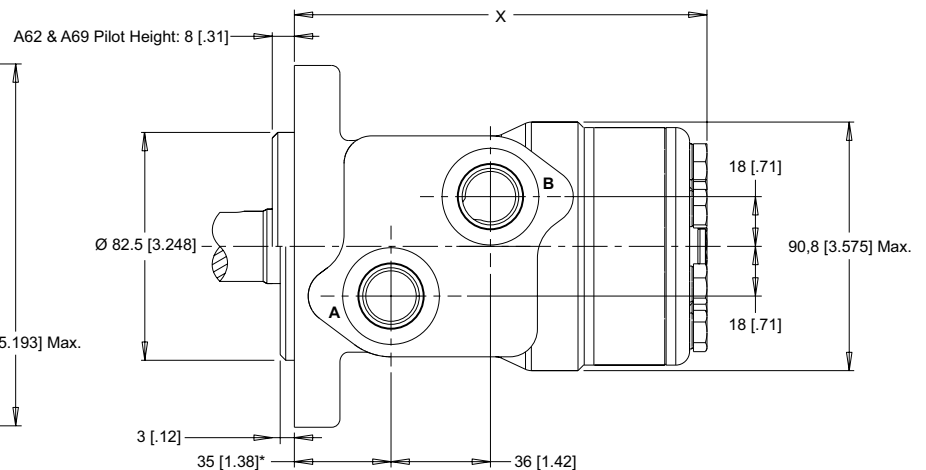
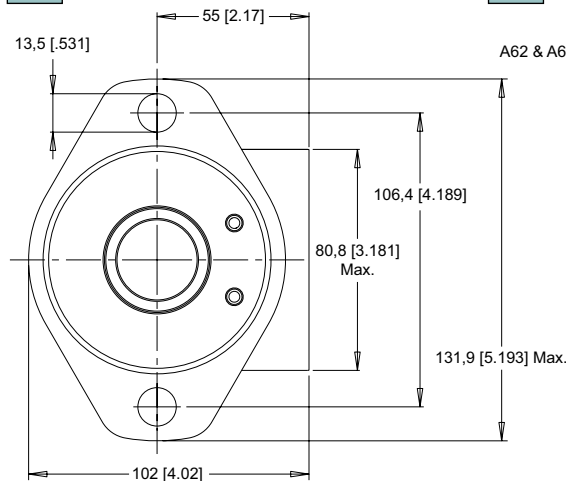


NOTE: Dimension X is found on page 12. * Add 5 [.20] to dimension for the A30 & A31 housings.

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

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

A69 2-Hole 7/8" O-Ring Offset Ports

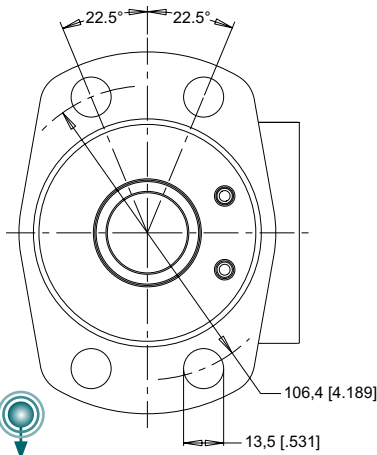


NOTE: Dimension X is found on page 12. * Add 5 [.20] to dimension for the A12 housing.

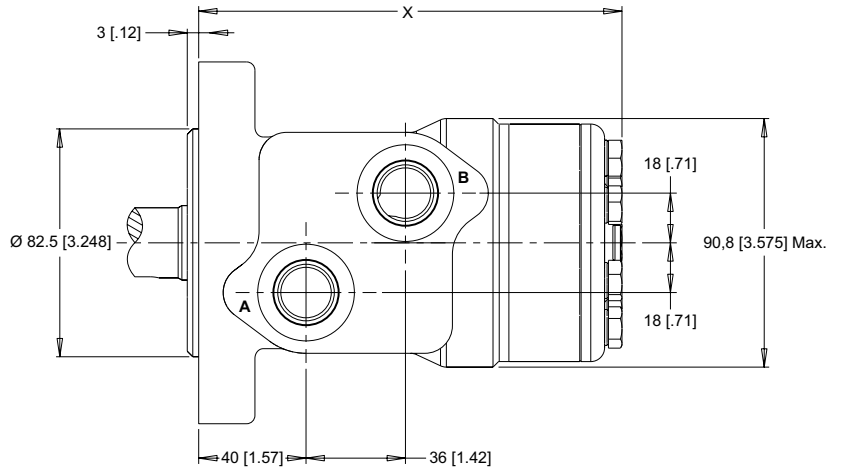


155 & 156 SERIES HOUSINGS (SAE A & MAGNETO MOUNTS)

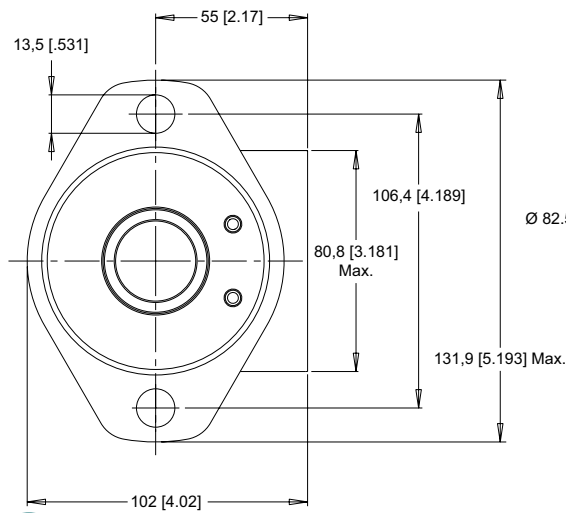
A32 2-Hole 1/2" BSP.F Offset Ports



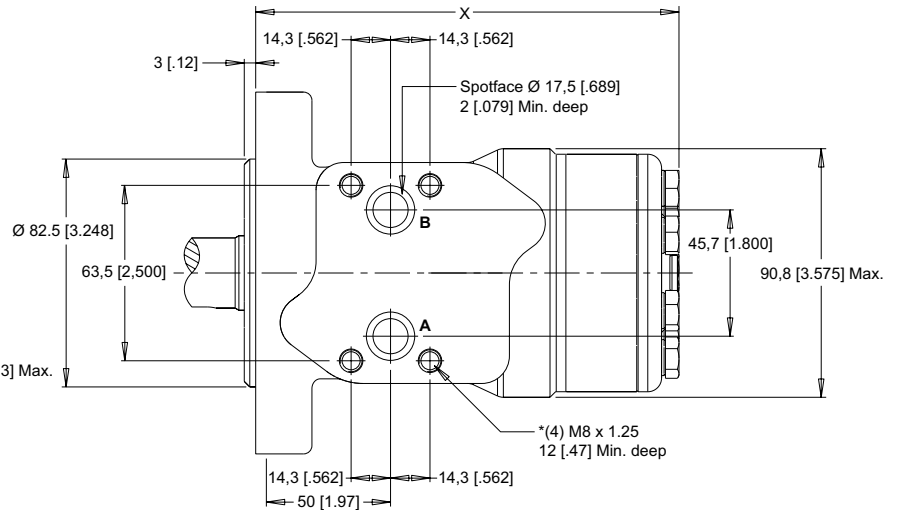
NOTE: Dimension X is found on page 12.



A17 2-Hole Manifold Ports

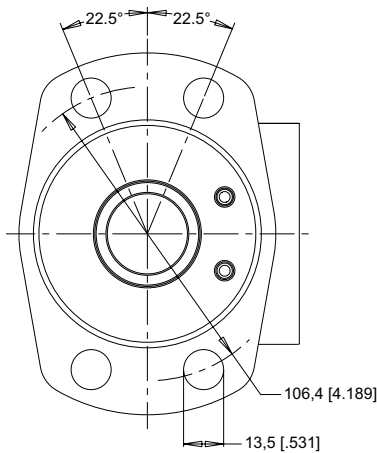


G17 2-Hole Manifold Ports

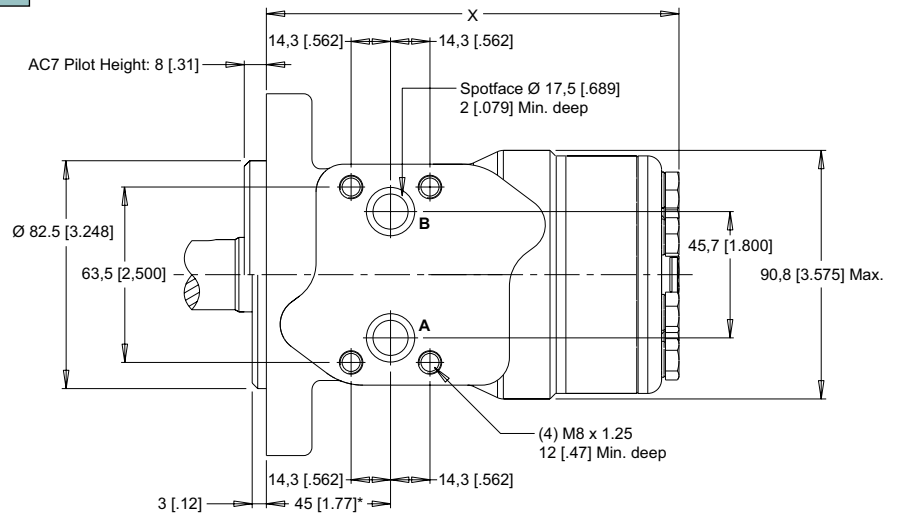


NOTE: Dimension X is found on page 12. * The four (4) mounting holes on the A17 housing are 5/16-18 UNC at the same depth.

A37 4-Hole Manifold Ports



AC7 4-Hole Manifold Ports



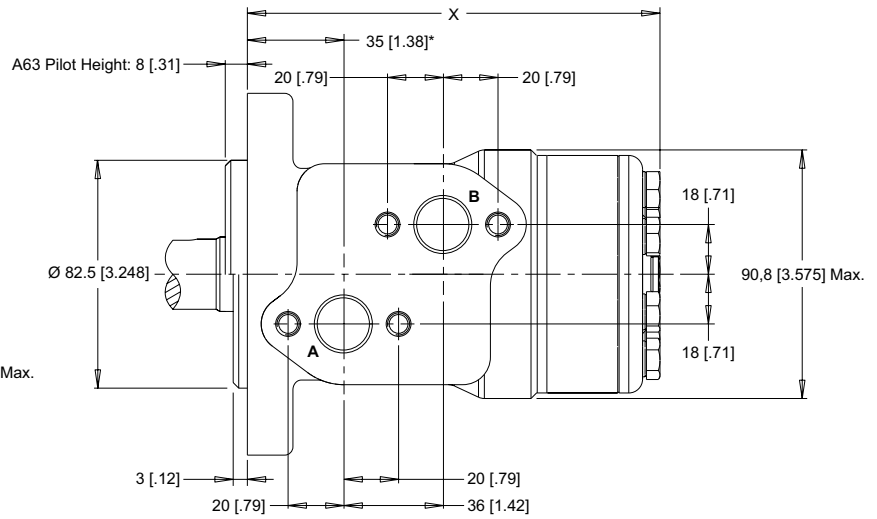
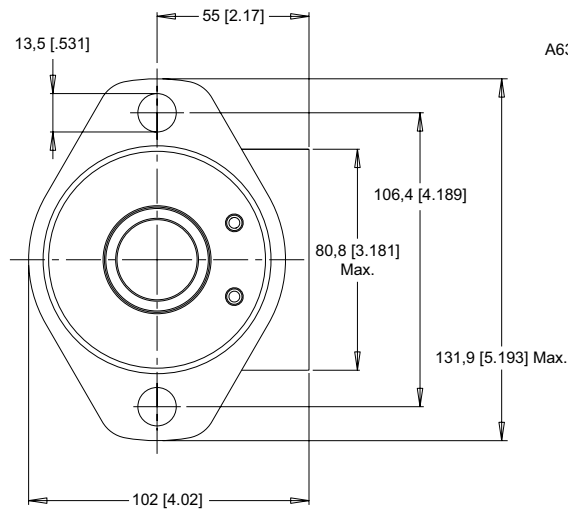
NOTE: Dimension X is found on page 12. * Pilot height is 3 [.12] for the A37 housing. ** Add 5 [.20] to dimension for the A37 housing.



155 & 156 SERIES HOUSINGS (SAE A, MAGNETO, 4-HOLE SQUARE MOUNTS)

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

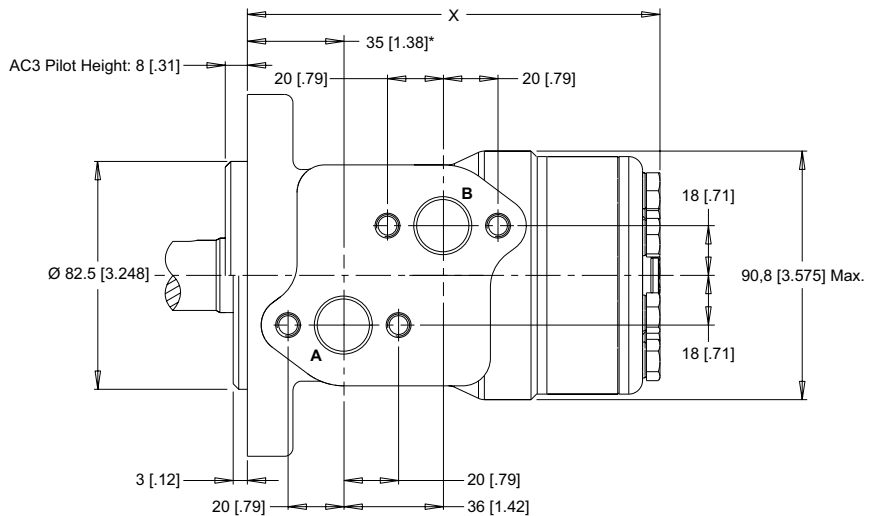
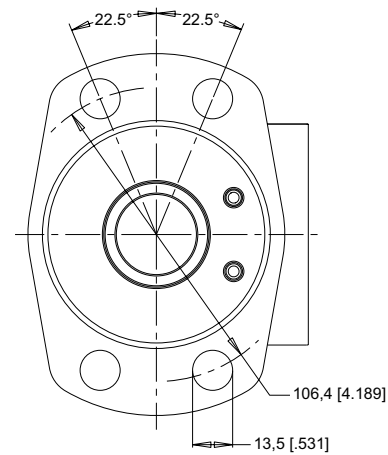
A63 2-Hole 1/2" BSP.F Offset Manifold Ports



NOTE: Dimension X is found on page 12. * Add 5 [.20] to dimension for the A13 housing.

AC3 4-Hole 1/2" BSP.F Offset Manifold Ports

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

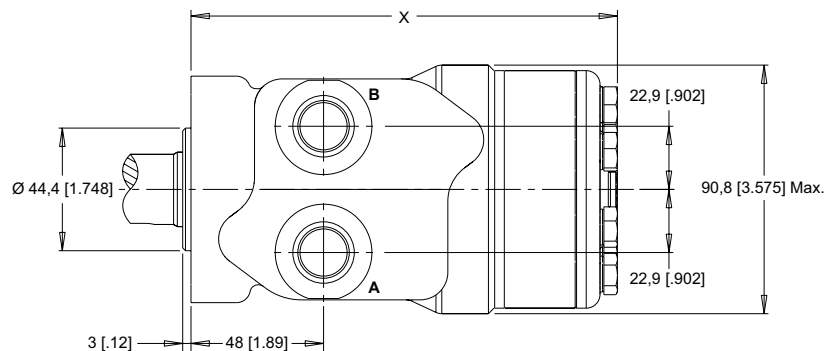
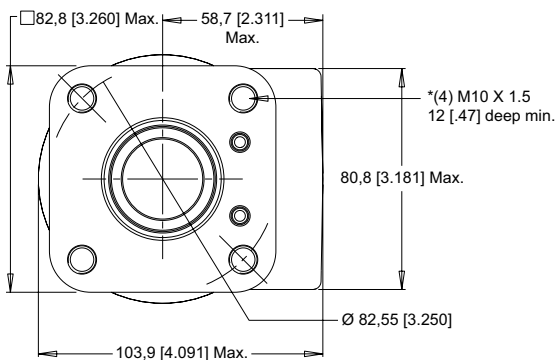


NOTE: Dimension X is found on page 12. * Add 5 [.20] to dimension for the A3D housing.

F30 4-Hole 1/2" NPT Aligned Ports

F31 4-Hole 7/8" O-Ring Aligned Ports

F38 2-Hole 1/2" BSP.F Aligned Ports

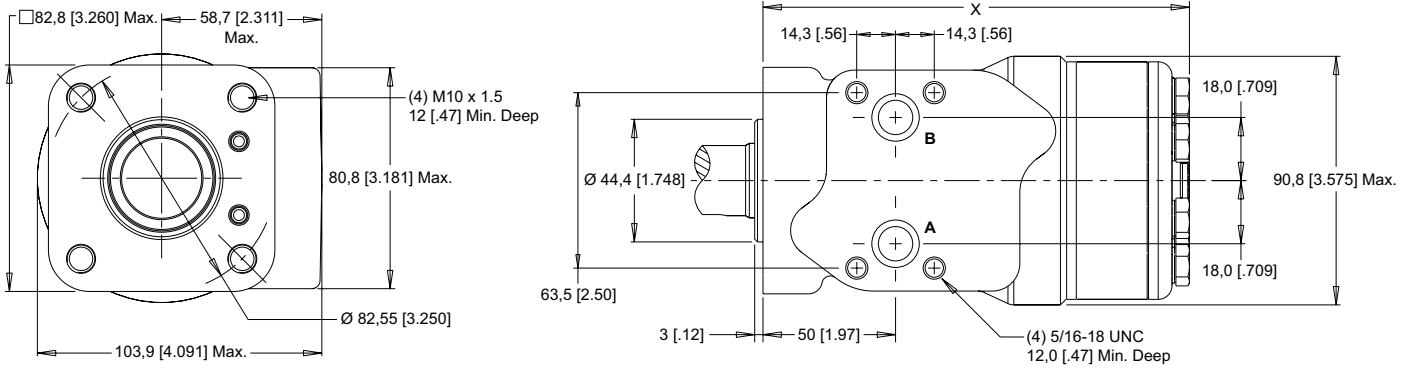


NOTE: Dimension X is found on page 12. * The four (4) mounting holes on the F30 & F31 housings are 3/8-16 UNC at the same depth.



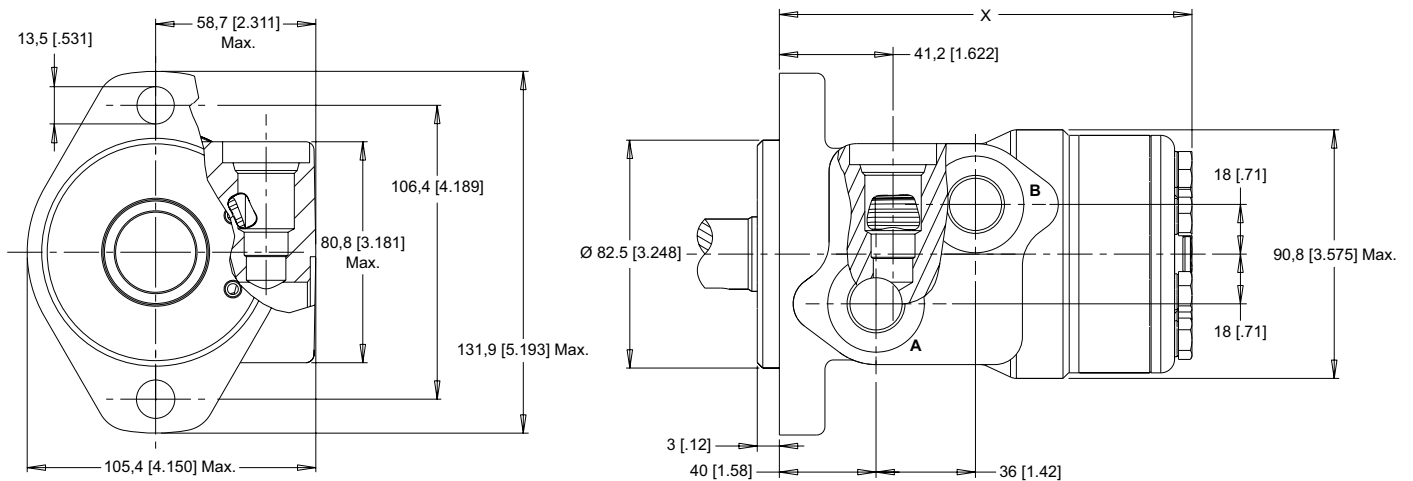
155 & 156 SERIES HOUSINGS (SAE A & MAGNETO MOUNTS WITH RELIEF CAVITY)

F37 4-Hole Manifold Ports



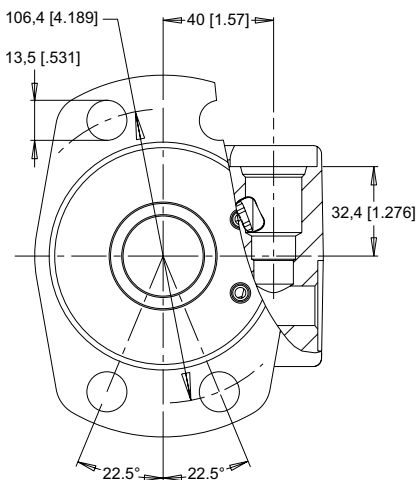
NOTE: Dimension X is found on page 12.

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

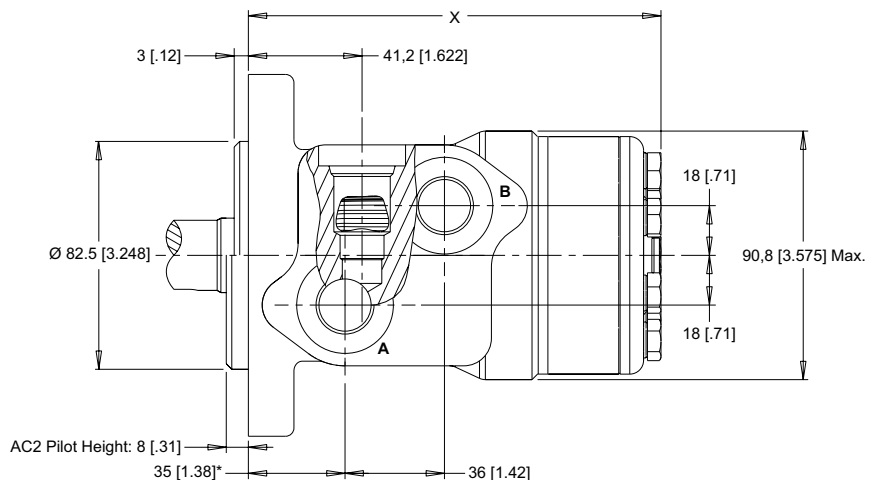


NOTE: Dimension X is found on page 12.

A39 2-Hole 7/8" O-Ring Offset Ports



AC2 2-Hole 1/2" BSP.F Offset Ports



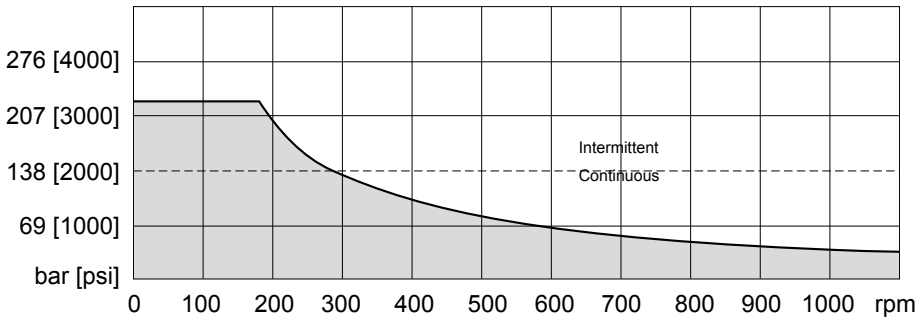
NOTE: Dimension X is found on page 12. * Add 5 [0.20] to dimension for the A39 housing.



155 & 156 SERIES TECHNICAL INFORMATION

PERMISSIBLE SHAFT SEAL PRESSURE

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



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

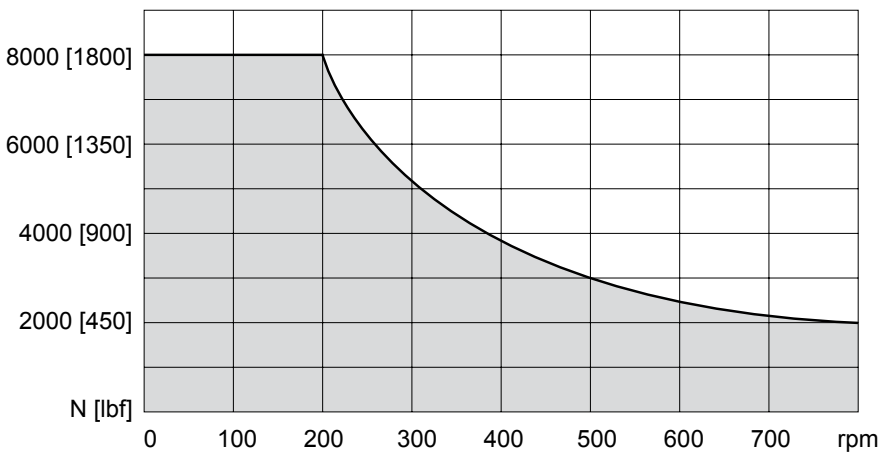
LENGTH / WEIGHT CHART All Mounts - Dimension X		
Code	mm [in]	kg [lb]
050	136 [5.34]	6.5 [14.2]
060	137 [5.40]	6.5 [14.3]
080	139 [5.49]	6.6 [14.5]
100	142 [5.59]	6.7 [14.7]
125	146 [5.74]	6.8 [14.9]
160	150 [5.90]	6.9 [15.2]
200	155 [6.10]	7.1 [15.6]
250	162 [6.36]	7.3 [16.1]
315	170 [6.69]	7.6 [16.7]
400	181 [7.13]	7.9 [17.5]

NOTE:

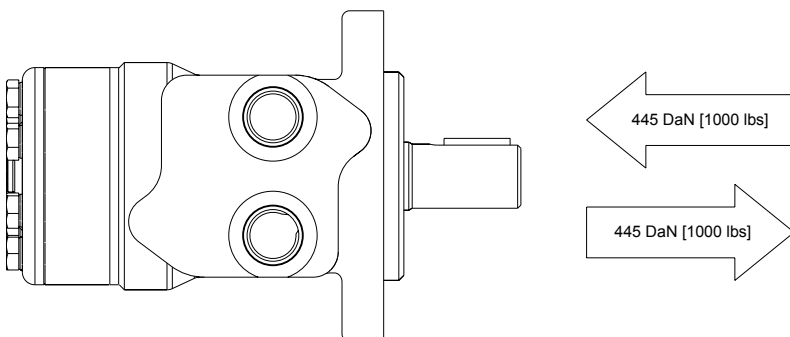
WP motor weights vary $\pm 0,5$ kg [1 lb] depending upon motor configuration.

ALLOWABLE SHAFT LOAD / BEARING CURVE

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



THRUST LOAD

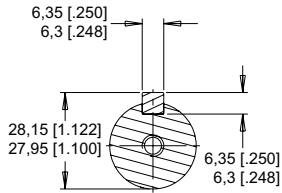




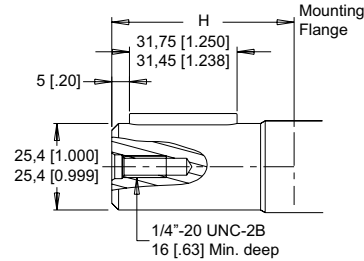
155 & 156 SERIES SHAFTS

10 1" Straight

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



15 1" Straight Extended

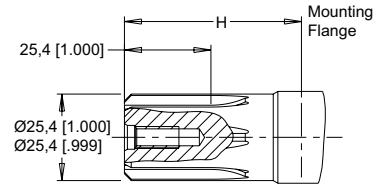


02 6B Spline (1/4" UNC Tap)

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



04 6B Spline (M8 x 1.25 Tap)



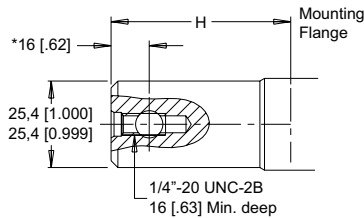
05 1" Pinhole (.375")

66 1" Pinhole (8mm)

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

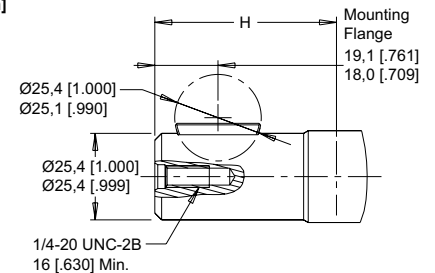
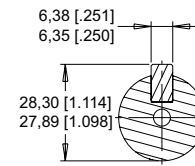


53 1" Pinhole (.406")



B1 1" Straight with Woodruff Key

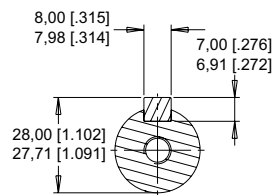
Max. Torque: 655 Nm [5800 lb-in]



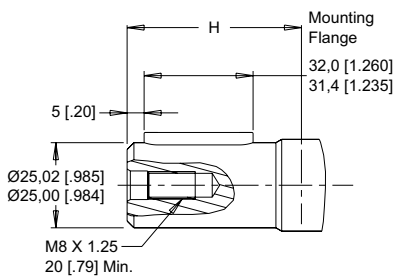
NOTE: *For 66 shaft subtract 4,6 [0.18] from this dimension.

12 25mm Straight

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

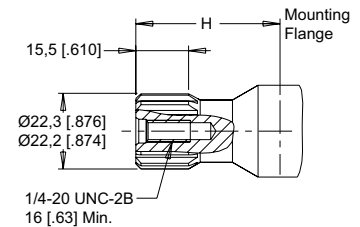


16 25mm Straight Extended



01 13 Tooth Spline

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



MOUNTING FLANGE TO SHAFT END Dimension H			
Code	8mm Pilot	Code	8mm Pilot
01	48,3 [1.902]	14	67,1 [2.642]
02	50,3 [1.980]	15	67,1 [2.642]
04	50,3 [1.980]	16	67,6 [2.661]
05	50,3 [1.980]	53	50,3 [1.980]
10	50,3 [1.980]	66	55,3 [2.177]
12	55,3 [2.177]	B1	50,3 [1.980]

NOTE: For 3mm pilot housings subtract 5,0 [0.197] from dimension. Shaft lengths vary ± 0,8 [0.30].

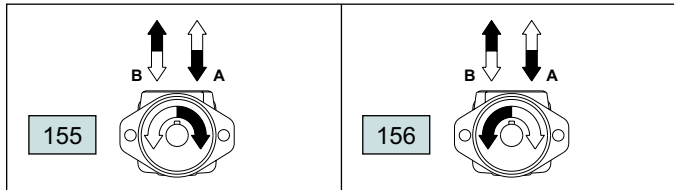


155 & 156 SERIES MODEL CODE BUILDER

SERIES	DISPLACEMENT	HOUSING	SHAFT	PAINT	CAVITY	ADD ON	MISCELLANEOUS
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7	STEP 8

STEP 1 - Select a series

- 155 Clockwise Rotation
- 156 Counterclockwise Rotation



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

STEP 2 - Select a displacement option

050	50 cc	[3.0 in ³ /rev]	160	154 cc	[9.4 in ³ /rev]
060	59 cc	[3.6 in ³ /rev]	200	190 cc	[11.6 in ³ /rev]
080	78 cc	[4.8 in ³ /rev]	250	240 cc	[14.6 in ³ /rev]
100	96 cc	[5.9 in ³ /rev]	315	303 cc	[18.5 in ³ /rev]
125	125 cc	[7.6 in ³ /rev]	400	388 cc	[23.7 in ³ /rev]

STEP 3 - Select a housing option

- A10 2-Hole 1/2" NPT Aligned Ports (S)
- A11 2-Hole 7/8" O-ring Aligned Ports (S)
- A12 2-Hole 1/2" BSP.F Offset Ports (S)
- A13 2-Hole 1/2" BSP.F Offset Manifold (S)
- A17 2-Hole Manifold Ports (S)
- A18 2-Hole 1/2" BSP.F Aligned (S)
- A19 2-Hole 7/8" O-ring With Valve Cavity (S)
- A30 4-Hole 1/2" NPT Aligned Ports
- A31 4-Hole 7/8" O-ring Aligned Ports
- A32 4-Hole 1/2" BSP.F Offset Ports
- A37 4-Hole Manifold Ports
- A39 4-Hole 7/8" O-ring With Valve Cavity
- A3D 4-Hole 7/8" O-ring Offset Manifold Ports
- A62 2-Hole 1/2" BSP.F Offset w/8mm Pilot
- A63 2-Hole 1/2" BSP.F Offset Manifold w/8mm Pilot
- A68 2-Hole 1/2" BSP.F Aligned w/8mm Pilot
- A69 2-Hole 7/8" O-Ring Offset Ports w/8mm Pilot
- AC2 4-Hole 1/2" BSP.F Offset Ports w/8mm Pilot
- AC3 4-Hole 1/2" BSP.F Offset Manifold w/8mm Pilot
- AC7 4-Hole Manifold Ports w/8mm Pilot
- AC8 4-Hole 1/2" BSP.F Aligned Ports w/8mm Pilot
- F30 4-Hole 1/2" NPT Aligned Ports (S)
- F31 4-Hole 7/8" O-ring Aligned Ports (S)

STEP 3 (Continued) - Select a housing option

- F37 4-Hole Manifold Ports (S)
- F38 4-Hole 1/2" BSP.F Aligned Ports (S)
- G17 2-Hole Manifold Ports (S)

STEP 4 - Select a shaft option

01	13 Tooth Spline	15	1" Straight Ext. (S)
02	6B (1/4" UNC Tap)	16	25mm Straight Ext. (S)
04	6B (M8 x 1.25 Tap)	53	1" Pinhole (.406")
05	1" Pinhole (.375")	66	1" Pinhole (8mm)
10	1" Straight	B1	1" Straight (Woodruff Key)
12	25mm Straight		

STEP 5 - Select a paint option

- A Black
- B Black (unpainted flange face)

STEP 6 - Select a valve cavity option and installed valve

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

NOTE: Valve cavity is only available on the A19, A39, A62 & AC2 housings. The B option will not have a valve cartridge listed above installed.

STEP 7 - Select an add on option

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

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

STEP 8 - Select a miscellaneous option

- AA None
- AC Freeturning Rotor
- FB No Check Valves Installed In Motor

Important Information

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

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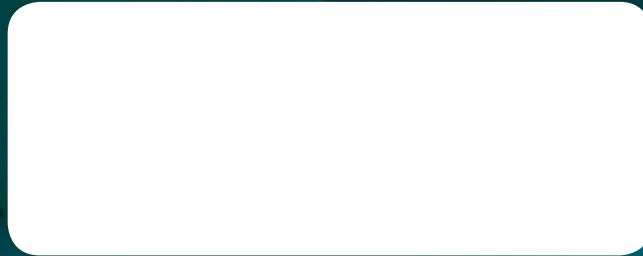
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