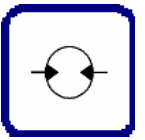
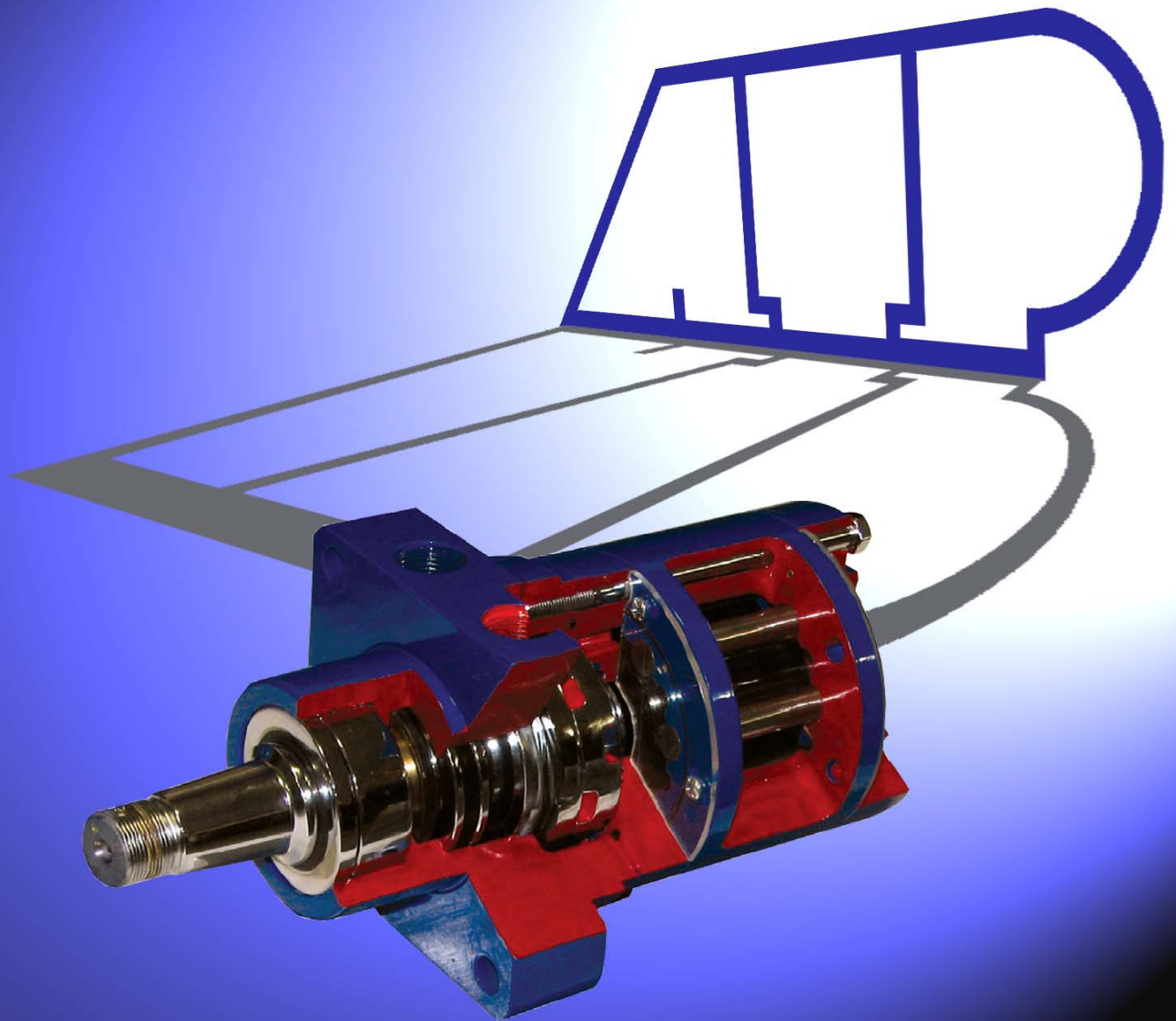




ATP HYDRAULIK AG



Hydraulikmotor Delta Series



B005-00 2007-11

Ein Produkt von

EATON

Char-Lynn

Seit über 30 Jahren der richtige Partner



- Engineering

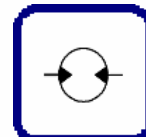
- Produktion

- Kundendienst

- Handel

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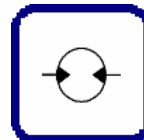
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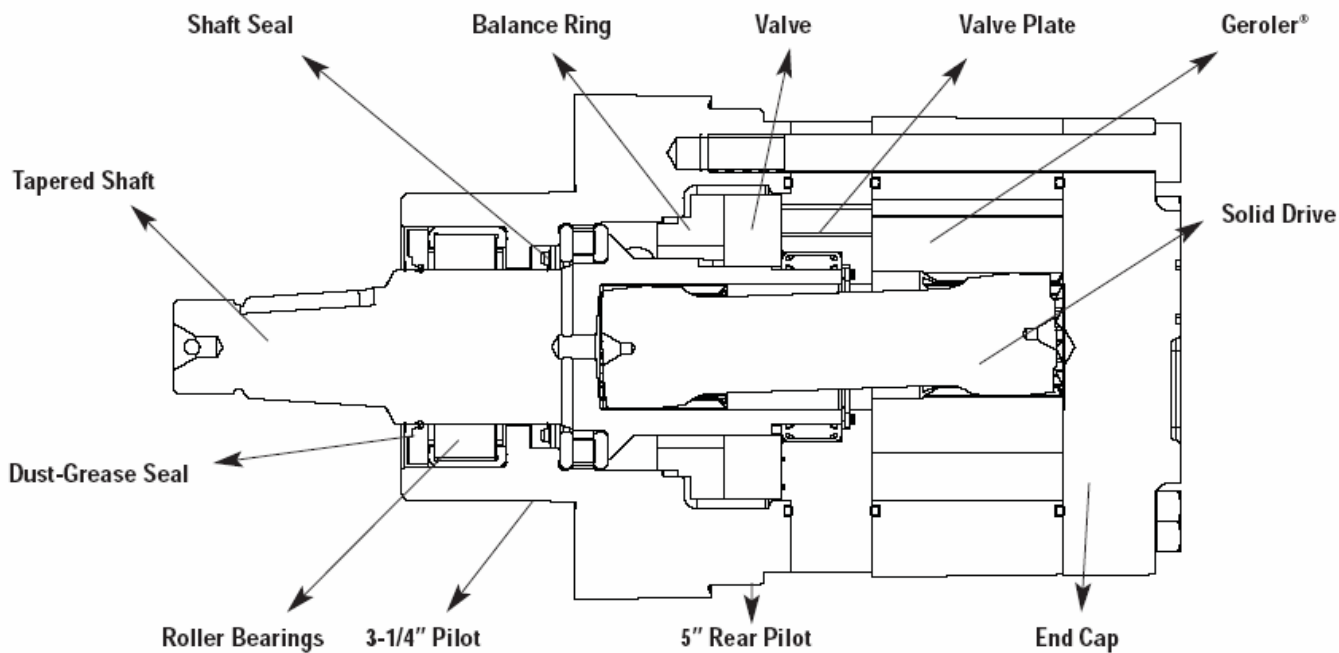
Delta Serie

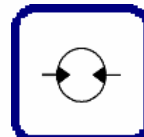
Low Speed High Torque Motor for Wheel Applications

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General Performance Data	4
Specific Performance Data	5
110cm ³ /r (6.9in ³ /rev)	5
142cm ³ /r (8.9in ³ /rev)	6
194cm ³ /r (12.1in ³ /rev)	7
229cm ³ /r (14.3in ³ /rev)	8
246cm ³ /r (15.4in ³ /rev)	9
293cm ³ /r (18.3in ³ /rev)	10
340cm ³ /r (21.2in ³ /rev)	11
386cm ³ /r (24.1in ³ /rev)	12
459cm ³ /r (28.7in ³ /rev)	13
530cm ³ /r (33.1in ³ /rev)	14
634cm ³ /r (39.6in ³ /rev)	15
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Model Code	17
Mounting Type	18
AA – Wheel, 4 Bolt, Circle Ø 127,6 [5,00]	18
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AC – Standard, 6 Bolt, Circle Ø 250,0 [6,35]	20
Output Shaft	21
01 – Straight with UNC-2B	21
02 – Tapered Shaft with SAE J501 (5:12)	22
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04 – Flat root Side fit 14 Tooth	24
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06 – Tapered Shaft with SAE J501 (1:8)	26
Allowable Radial Load	27



General Information





Features and Benefits

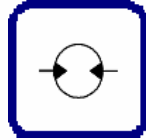


Features:

- Excellent reliability with time proven Char-Lynn components
- Proven disc valve technology with the highest efficiencies in its class
- Leak resistant motor with the front bearing protecting the shaft seal
- Torque up to 10,500 lb-in intermittent duty / Flow up to 30 GPM intermittent
- 12 displacements available from 6.9 to 46 CID
- Shaft sizes up to 1-5/8 inch
- 3-1/4 inch front pilot and 5 inch rear pilot
- STC ports available

Benefits:

- Perfect replacement for Parker® TF-TG and White™ RE motors
- Lowest no load pressure drop which leads to longer life and lower temperature operation
- Highest overall efficiency: more available HP to the system than competitive motors
- The highest side load capacity with 4,500 lbs standard at 3" from the mount face



General Performance Data

DISPLACEMENT	CONTINUOUS FLOW CAPACITY	INTERMITTENT FLOW CAPACITY	CONTINUOUS PRESSURE RATING	INTERMITTENT PRESSURE RATING
cm ³ /r (in ³ /rev)	lpm (gpm)	lpm (gpm)	bar (psi)	bar (psi)
110 (6.9)	75 (20)	95 (25)	200 (3000)	275 (4000)
142 (8.9)	75 (20)	115 (30)	200 (3000)	275 (4000)
194 (12.1)	75 (20)	115 (30)	200 (3000)	275 (4000)
229 (14.3)	75 (20)	115 (30)	200 (3000)	275 (4000)
246 (15.4)	75 (20)	115 (30)	200 (3000)	275 (4000)
293 (18.3)	75 (20)	115 (30)	200 (3000)	275 (4000)
340 (21.2)	75 (20)	115 (30)	200 (3000)	275 (4000)
386 (24.1)	75 (20)	115 (30)	190 (2750)	241 (3500)
459 (28.7)	75 (20)	115 (30)	172 (2500)	200 (3000)
530 (33.1)	75 (20)	115 (30)	138 (2000)	172 (2500)
634 (39.6)	75 (20)	115 (30)	121 (1750)	155 (2250)
736 (46)	75 (20)	115 (30)	103 (1500)	138 (2000)

Note: Top assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Maximum Inlet Pressure:
276 bar (4000 psi)
Do not exceed Δ pressure rating (see chart above).

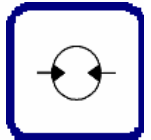
Recommended Fluids:
Premium quality, anti wear type hydraulic oil with a viscosity of no less than 70 SUS at operating temperature.

Recommended Maximum System Operating Temp.:
82° C (180 F)
Recommended Filtration:
per ISO cleanliness
Code 4406: 20/18/13

MOUNTING	SHAFT	PORTS	TIMING	DISPLACEMENT			
				6.9 CID	8.9 CID	12.1 CID	14.3 CID
				113 cm ³	146 cm ³	198 cm ³	234 cm ³
Wheel Motor	1-1/4" Tapered	7/8" O-ring	Standard -CCW	184-0005-001	184-0006-001	184-0002-001	184-0001-001
			Standard -CW	184-0025-001	184-0026-001	184-0027-001	184-0028-001
Wheel Motor	1-1/2" 17 T Splined	7/8" O-ring	Standard -CCW	184-0013-001	184-0014-001	184-0015-001	184-0016-001
			Standard -CW	184-0037-001	184-0038-001	184-0039-001	184-0040-001

MOUNTING	SHAFT	PORTS	TIMING	DISPLACEMENT			
				15.4 CID	18.3 CID	21.2 CID	24.1 CID
				252 cm ³	300 cm ³	347 cm ³	395 cm ³
Wheel Motor	1-1/4" Tapered	7/8" O-ring	Standard -CCW	184-0003-001	184-0004-001	184-0007-001	184-0008-001
			Standard -CW	184-0029-001	184-0030-001	184-0031-001	184-0032-001
Wheel Motor	1-1/2" 17 T Splined	7/8" O-ring	Standard -CCW	184-0017-001	184-0018-001	184-0019-001	184-0020-001
			Standard -CW	184-0041-001	184-0042-001	184-0043-001	184-0044-001

MOUNTING	SHAFT	PORTS	TIMING	DISPLACEMENT			
				28.7 CID	33.1 CID	39.6 CID	46.0 CID
				470 cm ³	542 cm ³	649 cm ³	754 cm ³
Wheel Motor	1-1/4" Tapered	7/8" O-ring	Standard -CCW	184-0009-001	184-0010-001	184-0011-001	184-0012-001
			Standard -CW	184-0033-001	184-0034-001	184-0035-001	184-0036-001
Wheel Motor	1-1/2" 17 T Splined	7/8" O-ring	Standard -CCW	184-0021-001	184-0022-001	184-0023-001	184-0024-001
			Standard -CW	184-0045-001	184-0046-001	184-0047-001	184-0048-001

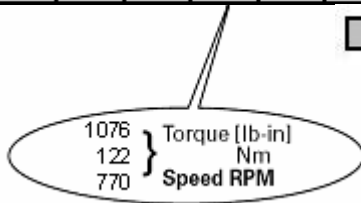


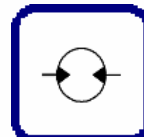
Specific Performance Data

110cm³/r (6.9in³/rev)

		Pressure Bar [PSI]																	
		17	34	52	69	86	103	121	138	155	172	190	207	224	241	259	276	bar	
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	psi	
Flow LPM [GPM]	2 GPM	204	450	686	915	1140	1355	1593	1814	2018	2197	2349	2573	2776	2975	3182	3362		
	7.6 LPM	23	51	77	103	129	153	180	205	228	248	265	290	313	336	359	380		
		65	64	63	62	60	60	59	57	56	55	56	54	52	48	49	44		
	4 GPM	210	457	706	950	1194	1436	1677	1906	2129	2351	2571	2790	3010	3231	3454	3660		
	15 LPM	24	52	80	107	135	162	189	215	240	265	290	315	340	365	390	413		
		132	131	130	129	128	127	126	125	123	122	120	118	115	113	112	110		
	6 GPM	196	445	696	942	1186	1432	1674	1914	2144	2367	2587	2805	3027	3252	3476	3695		
	23 LPM	22	50	79	106	134	162	189	216	242	267	292	317	342	367	392	417		
		199	196	196	195	193	192	191	190	189	185	183	182	180	177	174	172		
	8 GPM	176	425	677	921	1168	1420	1666	1906	2152	2386	2616	2834	3051	3265	3481	3697		
	30 LPM	20	48	76	104	132	160	188	215	243	269	295	320	344	369	393	417		
		266	264	263	261	261	259	257	257	255	252	250	248	246	244	241	237		
	10 GPM	160	407	659	901	1149	1398	1650	1894	2134	2370	2601	2823	3044	3258	3457	3654		
	38 LPM	18	46	74	102	130	158	186	214	241	268	294	319	344	368	390	413		
		333	333	329	326	324	323	321	320	318	314	312	309	306	303	301	295		
	12 GPM	134	382	632	876	1122	1372	1621	1868	2111	2353	2589	2821	3046	3270	3479	3680		
	45 LPM	15	43	71	99	127	155	183	211	238	266	292	319	344	369	393	415		
		399	398	396	393	392	389	387	386	383	381	377	374	372	370	367	364		
14 GPM	111	357	608	855	1102	1350	1599	1847	2090	2330	2569	2800	3024	3250	3455	3614			
53 LPM	13	40	69	97	124	152	181	208	236	263	290	316	341	367	390	408			
	466	465	462	460	457	455	453	451	449	446	442	438	436	433	429	415			
16 GPM	81	325	577	822	1071	1321	1572	1817	2063	2307	2549	2781	3011	3237	3436	3578			
61 LPM	9	37	65	93	121	149	177	205	233	260	288	314	340	365	388	404			
	533	532	529	527	524	522	520	517	516	513	509	506	503	500	496	477			
18 GPM	48	295	543	790	1036	1283	1535	1781	2027	2271	2512	2751	2984	3214	3431	3597			
68 LPM	5	33	61	89	117	145	173	201	229	256	284	311	337	363	387	406			
	601	600	597	593	591	587	586	583	581	577	573	570	568	564	559	542			
20 GPM	14	263	510	758	1005	1249	1499	1746	1988	2231	2474	2712	2945	3176	3395	3597			
76 LPM	2	30	58	86	113	141	169	197	224	252	279	306	332	359	383	406			
	668	666	664	661	658	654	652	649	646	644	640	637	634	630	628	621			
22 GPM		228	477	725	972	1218	1468	1712	1957	2201	2447	2686	2917	3149	3350	3523			
83 LPM		26	54	82	110	138	166	193	221	249	276	303	329	355	378	398			
		733	731	728	724	721	718	715	713	710	705	704	700	697	688	664			
25 GPM		170	416	663	913	1153	1402	1646	1891	2136	2382	2622	2856	3081	3273	3452			
95 LPM		19	47	75	103	130	158	186	214	241	269	296	322	348	369	390			
		831	829	827	825	821	818	815	812	809	805	803	800	794	776	745			
30 GPM		114	429	755	1076	1400	1725	2047	2368	2687	3003	3323	3635	3942	4249	4552			
114 LPM		13	48	85	122	158	195	231	267	303	339	375	410	445	480	514			
		778	777	773	770	765	759	756	753	749	746	744	742	740	737	735			

■ No Operation




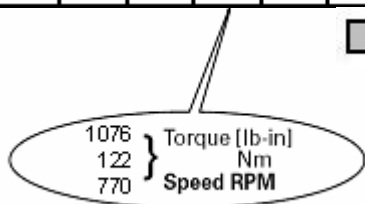


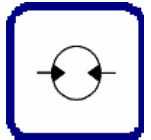
Specific Performance Data

142cm³/r (8.9in³/rev)

		Pressure Bar [PSI]															
		17	34	52	69	86	103	121	138	155	172	190	207	224	241	259	276
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000
		psi															
Flow LPM [GPM]	2 GPM	288	596	907	1184	1445	1718	1992	2247	2537	2810	3039	3290	3595	3846	3996	4265
	7.6 LPM	32	67	102	134	163	194	225	254	286	317	343	371	406	434	451	482
		50	48	46	42	44	43	40	39	38	37	36	34	32	31	25	28
	4 GPM	289	619	947	1267	1593	1914	2227	2482	2755	3042	3295	3615	3916	4135	4456	4680
	15 LPM	33	70	107	143	180	216	251	280	311	343	372	408	442	467	503	528
		102	100	98	96	95	95	94	93	91	88	84	81	79	76	74	70
	6 GPM	275	604	934	1259	1588	1908	2232	2552	2869	3181	3497	3800	4102	4397	4680	4955
	23 LPM	31	68	105	142	179	215	252	288	324	359	395	429	463	496	528	559
		154	151	149	148	146	145	144	143	141	137	135	133	130	128	125	123
	8 GPM	256	580	909	1235	1566	1887	2209	2528	2845	3160	3475	3783	4091	4397	4692	4984
	30 LPM	29	66	103	139	177	213	249	285	321	357	392	427	462	496	530	563
		206	204	201	200	198	198	196	195	190	187	185	182	179	179	176	173
	10 GPM	227	553	879	1204	1535	1861	2184	2504	2820	3133	3447	3757	4061	4369	4667	4963
	38 LPM	26	62	99	136	173	210	247	283	318	354	389	424	459	493	527	560
		258	256	253	251	250	249	248	246	241	238	236	233	231	229	228	225
	12 GPM	199	521	850	1172	1501	1825	2148	2469	2780	3091	3402	3714	4017	4324	4627	4922
	45 LPM	23	59	96	132	170	206	243	279	314	349	384	419	454	488	522	556
	310	308	305	303	301	300	299	297	292	290	287	284	282	281	278	276	
14 GPM	157	480	809	1130	1458	1784	2104	2426	2743	3057	3369	3679	3983	4291	4593	4892	
53 LPM	18	54	91	128	165	201	238	274	310	345	380	415	450	484	519	552	
	362	360	356	354	353	352	351	346	344	341	339	337	335	332	331	329	
16 GPM	132	457	780	1102	1429	1753	2081	2397	2714	3025	3335	3645	3947	4255	4558	4857	
61 LPM	15	52	88	124	161	198	235	271	306	342	377	412	446	480	515	548	
	414	412	408	406	405	403	402	398	395	392	389	387	384	382	380	377	
18 GPM	98	414	742	1065	1390	1715	2039	2360	2675	2986	3295	3605	3906	4213	4518	4817	
68 LPM	11	47	84	120	157	194	230	266	302	337	372	407	441	476	510	544	
	467	465	461	459	457	456	453	450	447	444	442	439	437	435	432	430	
20 GPM	42	373	700	1020	1347	1670	1989	2308	2628	2944	3255	3568	3866	4172	4475	4774	
76 LPM	5	42	79	115	152	189	225	261	297	332	368	403	436	471	505	539	
	519	517	514	511	509	507	503	500	498	495	492	489	488	485	484	482	
22 GPM	16	328	659	978	1306	1628	1950	2268	2586	2900	3211	3522	3823	4128	4429	4732	
83 LPM	2	37	74	110	147	184	220	256	292	327	362	398	432	466	500	534	
	571	569	565	562	559	559	555	552	549	546	544	541	538	536	534	531	
25 GPM		253	576	899	1221	1544	1864	2179	2500	2811	3120	3433	3736	4036	4337	4639	
95 LPM		29	65	102	138	174	210	246	282	317	352	388	422	456	490	524	
		647	645	641	639	637	633	629	626	624	621	618	616	613	612	609	
30 GPM		114	429	755	1076	1400	1725	2047	2368	2687	3003	3323	3635	3942	4249	4552	
114 LPM		13	48	85	122	158	195	231	267	303	339	375	410	445	480	514	
		778	777	773	770	765	759	756	753	749	746	744	742	740	737	735	

 No Operation



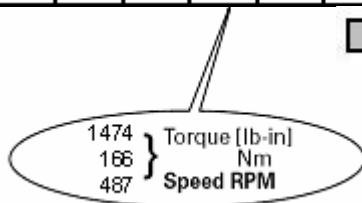


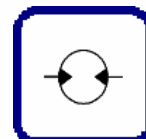
Specific Performance Data

194cm³/r (12.1in³/rev)

		Pressure Bar [PSI]																
		17	34	52	69	86	103	121	138	155	172	190	207	224	241	259	276	bar
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	psi
Flow LPM [GPM]	2 GPM	313	732	1113	1480	1870	2249	2668	3059	3447	3822	4189	4544	4875	5194	5508	5948	
	7.6 LPM	35	83	126	167	211	254	301	345	389	432	473	513	550	586	622	671	
		36	35	34	32	31	30	29	27	27	26	24	22	21	18	17	18	
	4 GPM	367	809	1228	1640	2038	2437	2844	3234	3623	4010	4398	4779	5164	5545	5917	6275	
		15 LPM	41	91	139	185	230	275	321	365	409	453	497	540	583	626	668	708
	6 GPM	365	799	1231	1654	2066	2473	2878	3270	3665	4056	4446	4833	5215	5598	5975	6347	
		23 LPM	41	90	139	187	233	279	325	369	414	458	502	546	589	632	675	717
	8 GPM	112	111	110	109	107	106	104	102	101	99	98	96	95	93	91	89	
		343	782	1219	1648	2069	2484	2898	3300	3702	4093	4482	4865	5237	5607	5976	6349	
	30 LPM	39	88	138	186	234	280	327	373	418	462	506	549	591	633	675	717	
		151	150	149	147	146	145	143	142	140	138	135	134	133	131	129	127	
	10 GPM	322	759	1201	1633	2063	2483	2904	3316	3726	4125	4515	4904	5290	5672	6048	6421	
		38 LPM	36	86	136	184	233	280	328	374	421	466	510	554	597	640	683	725
	12 GPM	190	188	187	186	185	182	181	178	177	174	173	171	169	168	166	164	
		283	719	1158	1590	2020	2448	2868	3279	3691	4096	4492	4883	5265	5644	6015	6385	
	45 LPM	32	81	131	180	228	276	324	370	417	462	507	551	594	637	679	721	
		229	227	226	224	223	221	220	218	216	215	212	211	209	206	205	202	
	14 GPM	238	671	1110	1538	1970	2396	2816	3228	3644	4050	4451	4846	5231	5613	5982	6357	
53 LPM		27	76	125	174	222	271	318	364	411	457	503	547	591	634	675	718	
16 GPM	267	266	264	262	261	259	257	255	253	251	249	246	244	242	240	238		
	191	625	1063	1493	1923	2345	2768	3182	3596	4003	4403	4801	5191	5576	5947	6316		
61 LPM	22	71	120	169	217	265	312	359	406	452	497	542	586	630	671	713		
	305	304	303	301	300	298	296	295	293	291	289	287	285	284	281	279		
18 GPM	139	567	1006	1438	1871	2299	2720	3133	3547	3956	4359	4760	5128	5492	5871	6247		
	68 LPM	16	64	114	162	211	260	307	354	400	447	492	537	579	620	663	705	
20 GPM	342	341	340	339	337	335	333	331	330	328	326	324	322	321	319	317		
	99	457	886	1315	1745	2168	2590	3006	3418	3822	4224	4622	5018	5418	5816	6208		
76 LPM	11	52	100	148	197	245	292	339	386	432	477	522	567	612	657	701		
	382	380	378	377	375	373	371	369	366	364	362	359	358	356	354	352		
22 GPM	15	383	810	1243	1676	2096	2520	2938	3351	3759	4161	4558	4953	5339	5722	6095		
	83 LPM	2	43	91	140	189	237	284	332	378	424	470	515	559	603	646	688	
25 GPM	420	417	416	415	413	411	409	407	405	403	401	399	397	395	392	390		
	272	700	1131	1559	1985	2408	2823	3231	3639	4042	4443	4842	5229	5617	5992			
95 LPM	31	79	128	176	224	272	319	365	411	456	502	547	590	634	677			
	476	475	474	472	470	468	466	465	463	461	459	457	455	453	450			
30 GPM	163	600	1037	1474	1902	2315	2723	3134	3536	3933	4338	4737	5125	5516	5899			
	114 LPM	18	68	117	166	215	261	307	354	399	444	490	535	579	623	666		
		516	506	494	487	484	488	494	501	506	511	514	515	516	515	514		

■ No Operation




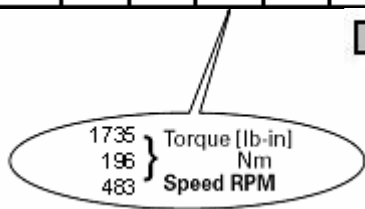


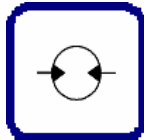
Specific Performance Data

229cm³/r (14.3in³/rev)

		Pressure Bar [PSI]																
		17	34	52	69	86	103	121	138	155	172	190	207	224	241	259	276	bar
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	psi
Flow LPM [GPM]	2 GPM	470	971	1457	1921	2414	2877	3348	3821	4275	4730	5164	5630	5997	6446	6863	7217	
	7.6 LPM	53	110	164	217	273	325	378	431	483	534	583	636	677	728	775	815	
		31	30	29	28	26	25	25	25	24	23	22	21	19	20	19	15	
	4 GPM	468	988	1504	1989	2482	2964	3447	3916	4384	4843	5302	5763	6213	6668	7113	7543	
	15 LPM	53	112	170	225	280	335	389	442	495	547	599	651	701	753	803	852	
		64	62	61	60	59	58	57	56	56	55	55	54	52	51	50	48	
	6 GPM	449	966	1484	1980	2470	2953	3445	3922	4397	4851	5304	5750	6197	6643	7085	7524	
	23 LPM	51	109	168	224	279	333	389	443	496	548	599	649	700	750	800	849	
		96	95	93	92	92	91	90	89	88	88	88	87	86	86	84	83	
	8 GPM	416	931	1446	1954	2458	2948	3438	3909	4381	4835	5280	5714	6150	6584	7015	7445	
	30 LPM	47	105	163	221	277	333	388	441	495	546	596	645	694	743	792	841	
		129	128	126	125	124	123	123	121	121	120	120	119	119	118	117	116	
	10 GPM	380	896	1410	1917	2425	2919	3412	3890	4373	4831	5280	5716	6148	6586	7017	7452	
	38 LPM	43	101	159	216	274	330	385	439	494	545	596	645	694	744	792	841	
		161	160	158	157	156	155	154	153	152	151	150	149	149	148	147	146	
	12 GPM	341	856	1366	1876	2384	2880	3370	3843	4319	4782	5229	5665	6102	6537	6962	7392	
	45 LPM	39	97	154	212	269	325	380	434	488	540	590	640	689	738	786	835	
	194	193	191	190	189	188	187	186	185	185	184	183	182	181	180	178		
14 GPM	290	804	1312	1813	2320	2821	3315	3793	4268	4732	5181	5623	6057	6485	6907	7327		
53 LPM	33	91	148	205	262	318	374	428	482	534	585	635	684	732	780	827		
	226	225	224	222	221	220	219	218	217	216	215	215	214	212	211	209		
16 GPM	239	743	1249	1756	2264	2759	3255	3735	4207	4669	5122	5568	6004	6432	6845	7268		
61 LPM	27	84	141	198	256	312	367	422	475	527	578	629	678	726	773	820		
	258	258	257	255	254	253	252	251	251	250	249	247	246	245	244	242		
18 GPM	176	688	1187	1694	2203	2698	3195	3676	4146	4603	5055	5497	5930	6358	6774	7194		
68 LPM	20	78	134	191	249	305	361	415	468	520	571	621	669	718	765	812		
	291	291	289	287	286	285	284	283	282	281	279	278	277	276	276	275		
20 GPM	108	614	1121	1623	2124	2620	3118	3603	4077	4541	4990	5430	5865	6301	6720	7139		
76 LPM	12	69	127	183	240	296	352	407	460	513	563	613	662	711	759	806		
	323	323	322	320	319	317	317	316	314	312	311	310	310	310	309	309		
22 GPM	28	535	1081	1582	2082	2579	3071	3550	4018	4483	4943	5406	5855	6300	6723	7139		
83 LPM	3	60	122	179	235	291	347	401	454	506	558	610	661	711	759	806		
	355	355	355	352	351	350	349	348	345	343	342	341	341	341	341	341		
25 GPM		410	956	1460	1959	2454	2941	3419	3892	4356	4806	5251	5683	6117	6531	6939		
95 LPM		46	108	165	221	277	332	386	439	492	543	593	642	691	737	783		
		404	404	402	401	399	398	397	394	392	391	390	390	389	390	389		
30 GPM		171	700	1297	1735	2226	2718	3204	3689	4162	4623	5079	5519	5959	6377	6781		
114 LPM		19	79	146	196	251	307	362	417	470	522	573	623	673	720	766		
		485	485	485	483	481	480	478	476	474	472	472	471	471	471	471		

 No Operation




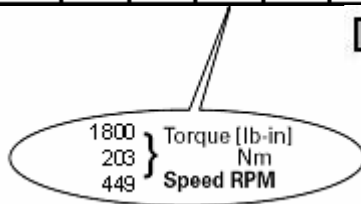


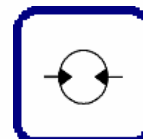
Specific Performance Data

246cm³/r (15.4in³/rev)

		Pressure Bar [PSI]																
		17	34	52	69	86	103	121	138	155	172	190	207	224	241	259	276	bar
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	psi
Flow LPM [GPM]	2 GPM	485	1011	1520	2032	2564	3059	3569	4065	4561	5085	5589	6054	6536	6891	7388	7872	
	7.6 LPM	55	114	172	229	289	345	403	459	515	574	631	683	738	778	834	889	
		28	27	26	26	25	24	23	23	22	23	23	22	22	19	19	20	
	4 GPM	504	1062	1609	2145	2684	3213	3744	4263	4780	5294	5804	6311	6811	7308	7787	8236	
	15 LPM	57	120	182	242	303	363	423	481	540	598	655	712	769	825	879	930	
		59	57	56	56	55	55	54	54	53	53	53	51	51	49	49	47	
	6 GPM	478	1031	1585	2132	2670	3195	3717	4222	4726	5222	5721	6211	6700	7179	7658	8118	
	23 LPM	54	116	179	241	301	361	420	477	534	590	646	701	756	810	865	917	
		89	88	86	85	85	84	84	84	84	84	83	82	82	80	78	78	
	8 GPM	453	1012	1571	2115	2664	3191	3717	4224	4725	5215	5706	6194	6678	7161	7628	8076	
	30 LPM	51	114	177	239	301	360	420	477	533	589	644	699	754	808	861	912	
		120	118	117	115	114	113	113	112	113	113	113	112	111	110	109	108	
	10 GPM	398	957	1516	2063	2609	3137	3668	4181	4678	5157	5636	6116	6589	7059	7522	7974	
	38 LPM	45	108	171	233	295	354	414	472	528	582	636	690	744	797	849	900	
		149	148	147	145	144	143	142	142	142	143	142	142	141	140	139	138	
	12 GPM	370	914	1468	2011	2557	3085	3614	4125	4622	5102	5577	6059	6538	7017	7497	7966	
	45 LPM	42	103	166	227	289	348	408	466	522	576	630	684	738	792	846	899	
	180	179	178	176	174	173	172	172	172	172	172	172	171	171	170	169		
14 GPM	290	842	1399	1948	2496	3024	3552	4065	4571	5056	5525	5987	6445	6905	7359	7813		
53 LPM	33	95	158	220	282	341	401	459	516	571	624	676	728	780	831	882		
	210	209	208	206	205	203	202	201	200	199	199	200	200	200	200	199		
16 GPM	239	795	1346	1891	2434	2962	3494	4003	4511	4995	5461	5919	6382	6841	7292	7743		
61 LPM	27	90	152	213	275	334	395	452	509	564	616	668	720	772	823	874		
	240	240	238	237	235	233	232	231	229	228	229	230	230	230	230	230		
18 GPM	157	716	1265	1810	2355	2881	3408	3921	4431	4924	5401	5860	6310	6749	7184	7627		
68 LPM	18	81	143	204	266	325	385	443	500	556	610	662	712	762	811	861		
	270	270	269	267	265	264	261	261	258	256	256	258	259	260	260	260		
20 GPM	96	650	1203	1750	2294	2820	3345	3857	4366	4865	5340	5801	6242	6686	7122	7553		
76 LPM	11	73	136	198	259	318	378	435	493	549	603	655	705	755	804	853		
	300	300	299	297	295	293	292	289	287	286	286	287	289	290	291	290		
22 GPM	26	569	1111	1656	2195	2725	3250	3763	4268	4769	5259	5733	6182	6609	7030	7459		
83 LPM	3	64	125	187	248	308	367	425	482	538	594	647	698	746	794	842		
	330	330	330	328	327	324	322	320	316	314	313	314	316	318	320	320		
25 GPM		425	967	1508	2042	2574	3093	3605	4110	4602	5084	5561	6028	6482	6899	7316		
95 LPM		48	109	170	231	291	349	407	464	520	574	628	681	732	779	826		
		375	375	374	372	369	366	364	361	358	357	356	358	361	364	364		
30 GPM		179	723	1266	1800	2330	2852	3364	3868	4368	4856	5338	5811	6269	6701	7096		
114 LPM		20	82	143	203	263	322	380	437	493	548	603	656	708	757	801		
		450	450	450	449	447	443	439	436	433	430	430	431	434	437	438		

 No Operation




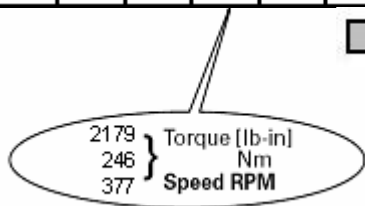


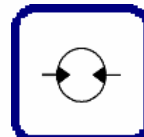
Specific Performance Data

293cm³/r (18.3in³/rev)

		Pressure Bar [PSI]															
		17 250	34 500	52 750	69 1000	86 1250	103 1500	121 1750	138 2000	155 2250	172 2500	190 2750	207 3000	224 3250	241 3500	259 3750	276 4000
Flow LPM [GPM]	2 GPM	608	1257	1919	2553	3196	3824	4475	5087	5707	6307	6901	7472	8015	8484	8962	9413
	7.6 LPM	69	142	217	288	361	432	505	574	644	712	779	844	905	958	1012	1063
		24	23	23	22	21	21	21	20	19	18	17	16	15	13	11	11
	4 GPM	612	1283	1940	2587	3227	3856	4483	5094	5693	6293	6881	7462	8024	8574	9113	9629
	15 LPM	69	145	219	292	364	435	506	575	643	710	777	842	906	968	1029	1087
		50	48	47	46	45	44	44	44	43	42	41	40	40	39	38	37
	6 GPM	570	1248	1906	2547	3178	3800	4420	5025	5619	6203	6773	7345	7899	8449	8992	9525
	23 LPM	64	141	215	288	359	429	499	567	634	700	765	829	892	954	1015	1075
		76	74	73	71	70	69	68	68	69	68	68	67	66	65	64	63
	8 GPM	540	1210	1871	2522	3152	3781	4404	5008	5607	6186	6749	7319	7879	8433	8977	9512
	30 LPM	61	137	211	285	356	427	497	565	633	698	762	826	890	952	1013	1074
		101	100	98	96	94	93	92	92	92	93	93	93	93	92	91	91
	10 GPM	496	1161	1825	2471	3110	3733	4362	4968	5574	6157	6721	7274	7811	8356	8887	9416
	38 LPM	56	131	206	279	351	421	492	561	629	695	759	821	882	943	1003	1063
		126	126	124	122	120	118	115	113	113	113	114	116	118	118	117	117
	12 GPM	443	1108	1768	2418	3059	3688	4307	4918	5526	6114	6681	7239	7786	8338	8876	9411
45 LPM	50	125	200	273	345	416	486	555	624	690	754	817	879	941	1002	1062	
	151	151	150	148	145	143	141	140	139	139	140	142	144	144	144	144	
14 GPM	387	1034	1701	2346	2985	3610	4227	4839	5452	6050	6622	7184	7723	8269	8816	9362	
53 LPM	44	117	192	265	337	408	477	546	615	683	748	811	872	934	995	1057	
	177	177	176	173	171	168	166	165	163	163	165	167	169	171	170	170	
16 GPM	366	961	1620	2264	2903	3530	4147	4753	5366	5960	6540	7098	7642	8169	8685	9211	
61 LPM	41	109	183	256	328	399	468	537	606	673	738	801	863	922	980	1040	
	202	202	201	199	197	195	192	190	189	188	188	189	191	194	196	196	
18 GPM	291	893	1546	2187	2829	3450	4067	4678	5283	5873	6451	7005	7537	8064	8580	9103	
68 LPM	33	101	175	247	319	390	459	528	596	663	728	791	851	910	969	1028	
	227	227	227	224	222	219	217	215	213	211	212	214	217	220	221	221	
20 GPM	204	797	1444	2094	2736	3361	3974	4585	5184	5775	6353	6907	7448	7974	8489	8992	
76 LPM	23	90	163	236	309	380	449	518	585	652	717	780	841	900	958	1015	
	252	252	252	251	249	246	243	241	239	238	238	239	242	245	247	248	
22 GPM	102	710	1366	2013	2651	3270	3885	4496	5096	5689	6271	6831	7362	7877	8375	8880	
83 LPM	12	80	154	227	299	369	439	508	575	642	708	771	831	889	945	1003	
	278	278	278	277	274	272	269	267	265	264	263	265	269	273	275	275	
25 GPM		553	1208	1851	2489	3114	3726	4335	4930	5523	6108	6670	7220	7783	8298	8777	
95 LPM		62	136	209	281	352	421	489	557	624	690	753	815	879	937	991	
		316	316	316	313	310	307	303	301	299	298	298	301	306	310	312	
30 GPM		233	941	1539	2179	2811	3430	4028	4625	5217	5802	6385	6957	7522	8060	8565	
114 LPM		26	106	174	246	317	387	455	522	589	655	721	785	849	910	967	
		379	379	379	377	374	371	367	365	363	362	361	364	368	374	376	

 No Operation




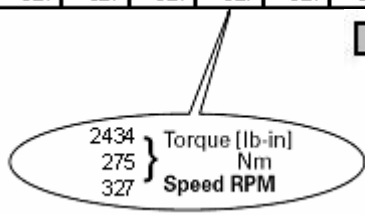


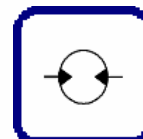
Specific Performance Data

340cm³/r (21.2in³/rev)

		Pressure Bar [PSI]															
		17	34	52	69	86	103	121	138	155	172	190	207	224	241	259	276
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000
		psi															
Flow LPM [GPM]	2 GPM	687	1415	2128	2824	3532	4248	4947	5633	6298	6964	7575	8182	8743	9209	9624	10081
	7.6 LPM	78	160	240	319	399	480	558	636	711	786	855	924	987	1040	1087	1138
		20	19	18	18	17	18	17	17	16	15	14	13	12	9	8	4
	4 GPM	689	1443	2179	2891	3606	4302	4986	5653	6316	6965	7615	8260	8891	9515	10120	10698
	15 LPM	78	163	246	326	407	486	563	638	713	786	860	933	1004	1074	1143	1208
		42	41	41	40	39	37	38	38	39	38	38	37	37	35	33	31
	6 GPM	648	1406	2154	2866	3580	4276	4970	5641	6290	6921	7563	8190	8812	9427	10029	10630
	23 LPM	73	159	243	324	404	483	561	637	710	781	854	925	995	1064	1132	1200
		64	64	63	61	60	58	57	57	59	60	60	59	58	57	56	55
	8 GPM	606	1356	2105	2825	3545	4241	4943	5621	6274	6899	7522	8144	8768	9388	9998	10598
	30 LPM	68	153	238	319	400	479	558	635	708	779	849	919	990	1060	1129	1196
		87	86	85	84	82	81	79	78	79	81	82	81	81	80	78	77
	10 GPM	550	1295	2041	2765	3488	4188	4891	5585	6264	6899	7505	8091	8672	9283	9885	10488
	38 LPM	62	146	230	312	394	473	552	631	707	779	847	913	979	1048	1116	1184
		109	108	107	106	104	103	100	98	97	98	100	103	103	103	102	101
	12 GPM	478	1227	1976	2698	3411	4108	4802	5479	6146	6782	7396	7992	8585	9176	9767	10345
	45 LPM	54	139	223	305	385	464	542	619	694	766	835	902	969	1036	1103	1168
	131	130	130	129	127	125	122	119	117	115	115	119	123	125	125	124	
14 GPM	409	1151	1896	2624	3344	4048	4742	5418	6083	6722	7339	7939	8541	9142	9738	10318	
53 LPM	46	130	214	296	378	457	535	612	687	759	829	896	964	1032	1099	1165	
	153	153	152	152	149	147	145	142	140	139	139	143	147	148	147	147	
16 GPM	339	1033	1774	2494	3209	3907	4605	5280	5956	6610	7243	7850	8438	9014	9592	10166	
61 LPM	38	117	200	282	362	441	520	596	672	746	818	886	953	1018	1083	1148	
	174	174	174	174	172	169	166	164	162	159	159	160	165	168	170	170	
18 GPM	245	943	1676	2401	3113	3809	4500	5175	5837	6477	7107	7711	8308	8895	9466	10040	
68 LPM	28	106	189	271	351	430	508	584	659	731	802	871	938	1004	1069	1133	
	196	196	196	195	193	192	189	187	185	183	181	182	185	188	192	193	
20 GPM	143	832	1571	2290	3003	3697	4386	5050	5715	6351	6968	7569	8147	8721	9297	9855	
76 LPM	16	94	177	259	339	417	495	570	645	717	787	855	920	985	1050	1113	
	218	218	218	218	216	214	212	209	207	205	203	203	205	210	214	215	
22 GPM	34	715	1454	2175	2896	3594	4280	4950	5602	6236	6854	7449	8027	8590	9150	9705	
83 LPM	4	81	164	246	327	406	483	559	632	704	774	841	906	970	1033	1096	
	240	240	240	240	240	238	236	233	230	228	226	226	228	231	237	240	
25 GPM		523	1251	1969	2693	3395	4081	4756	5414	6057	6687	7296	7882	8457	9011	9534	
95 LPM		59	141	222	304	383	461	537	611	684	755	824	890	955	1017	1076	
		272	272	272	272	272	269	266	263	261	259	259	261	265	270	272	
30 GPM		152	1072	1749	2434	3123	3802	4468	5114	5763	6400	7018	7633	8232	8819	8997	
114 LPM		17	121	197	275	353	429	504	577	651	723	792	862	929	996	1016	
		327	327	327	327	327	323	319	315	314	313	315	319	323	327	327	

 No Operation




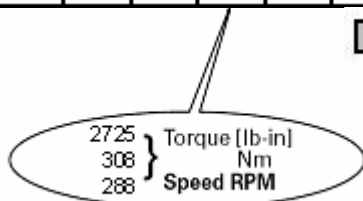


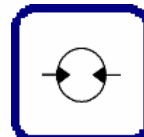
Specific Performance Data

386cm³/r (24.1in³/rev)

		Pressure Bar [PSI]													
		17	34	52	69	86	103	121	138	155	172	190	207	224	241
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500
		psi													
Flow LPM [GPM]	2 GPM	782	1622	2436	3237	4034	4837	5650	6428	7213	7911	8607	9235	9798	10439
	7.6 LPM	88	183	275	365	455	546	638	726	814	893	972	1043	1106	1179
		18	17	17	16	16	16	17	16	15	15	15	14	13	12
	4 GPM	770	1643	2476	3287	4088	4860	5617	6357	7103	7838	8566	9285	9990	10684
	15 LPM	87	186	280	371	462	549	634	718	802	885	967	1048	1128	1206
		38	37	36	35	33	33	35	36	36	35	35	34	34	33
	6 GPM	746	1609	2460	3280	4083	4867	5644	6384	7103	7811	8520	9232	9930	10616
	23 LPM	84	182	278	370	461	549	637	721	802	882	962	1042	1121	1199
		58	57	55	54	52	51	50	51	53	54	55	54	53	53
	8 GPM	699	1561	2430	3249	4062	4852	5638	6398	7126	7820	8506	9198	9884	10565
	30 LPM	79	176	274	367	459	548	637	722	805	883	960	1038	1116	1193
		77	76	75	74	72	70	68	67	69	72	74	74	74	73
	10 GPM	630	1489	2345	3180	4008	4819	5622	6397	7142	7856	8525	9142	9776	10438
	38 LPM	71	168	265	359	453	544	635	722	806	887	962	1032	1104	1178
		96	96	95	93	91	90	87	85	83	83	88	93	93	93
12 GPM	556	1412	2264	3090	3898	4689	5473	6225	6976	7710	8415	9081	9681	10304	
45 LPM	63	159	256	349	440	529	618	703	788	870	950	1025	1093	1163	
	115	115	115	113	111	109	107	105	102	100	100	105	110	113	
14 GPM	469	1325	2178	2999	3819	4611	5391	6137	6867	7581	8270	8942	9598	10234	
53 LPM	53	150	246	339	431	521	609	693	775	856	934	1010	1084	1155	
	134	134	134	133	131	128	126	124	122	120	119	123	133	134	
16 GPM	360	1220	2069	2894	3715	4506	5290	6048	6782	7495	8190	8873	9534	10181	
61 LPM	41	138	234	327	419	509	597	683	766	846	925	1002	1076	1149	
	153	153	153	153	151	148	145	143	140	138	138	139	145	151	
18 GPM	334	1098	1951	2777	3591	4386	5172	5924	6665	7387	8087	8763	9418	10048	
68 LPM	38	124	220	314	405	495	584	669	752	834	913	989	1063	1134	
	173	173	173	173	171	169	166	162	161	159	157	158	162	169	
20 GPM	221	993	1837	2660	3479	4259	5030	5780	6518	7238	7939	8613	9258	9892	
76 LPM	25	112	207	300	393	481	568	653	736	817	896	972	1045	1117	
	192	192	192	192	191	189	186	183	181	179	177	178	182	188	
22 GPM	115	862	1698	2521	3337	4135	4895	5641	6366	7067	7752	8414	9062	9702	
83 LPM	13	97	192	285	377	467	553	637	719	798	875	950	1023	1095	
	211	211	211	211	211	209	206	203	201	200	199	200	204	209	
25 GPM		637	1473	2296	3117	3909	4687	5434	6163	6861	7536	8192	8829	9475	
95 LPM		72	166	259	352	441	529	613	696	775	851	925	997	1070	
		240	240	240	240	238	235	232	229	227	227	228	233	240	
30 GPM		211	1079	1903	2725	3526	4311	5079	5824	6547	7240	7921	8577	9228	
114 LPM		24	122	215	308	398	487	573	658	739	817	894	968	1042	
		288	288	288	288	286	283	280	277	274	273	275	280	287	

 No Operation




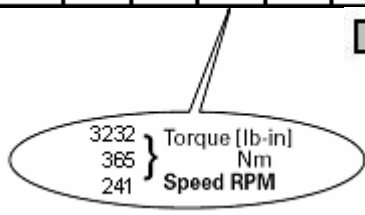


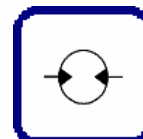
Specific Performance Data

459cm³/r (28.7in³/rev)

		Pressure Bar [PSI]												
		17	34	52	69	86	103	121	138	155	172	190	207	bar
		250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	psi
Flow LPM [GPM]	2 GPM	925	1885	2820	3727	4639	5526	6404	7270	8129	8978	9794	10551	
	7.6 LPM	104	213	318	421	524	624	723	821	918	1014	1106	1191	
		14	14	13	12	12	12	11	10	9	9	8	7	
	4 GPM	942	1942	2917	3849	4776	5692	6594	7488	8352	9199	10014	10824	
	15 LPM	106	219	329	435	539	643	744	845	943	1039	1131	1222	
		31	30	29	29	28	27	27	26	25	24	23	23	
	6 GPM	906	1921	2892	3833	4772	5676	6572	7440	8309	9152	9974	10786	
	23 LPM	102	217	327	433	539	641	742	840	938	1033	1126	1218	
		47	46	45	45	44	43	43	42	42	41	41	40	
	8 GPM	856	1866	2853	3795	4730	5634	6520	7379	8230	9075	9895	10693	
	30 LPM	97	211	322	428	534	636	736	833	929	1025	1117	1207	
		63	62	62	61	60	58	57	57	58	58	57	56	
	10 GPM	780	1799	2800	3745	4685	5594	6479	7337	8177	9009	9843	10638	
	38 LPM	88	203	316	423	529	632	731	828	923	1017	1111	1201	
	79	79	78	77	76	75	74	72	72	74	74	74		
12 GPM	699	1709	2711	3661	4597	5508	6403	7258	8101	8916	9719	10506		
45 LPM	79	193	306	413	519	622	723	819	915	1007	1097	1186		
	96	95	94	93	92	91	90	89	89	90	90	91		
14 GPM	596	1612	2609	3561	4490	5390	6268	7112	7941	8743	9519	10282		
53 LPM	67	182	295	402	507	608	708	803	897	987	1075	1161		
	112	111	111	110	109	107	106	104	103	101	102	104		
16 GPM	467	1486	2480	3440	4371	5268	6152	6992	7810	8601	9370	10118		
61 LPM	53	168	280	388	493	595	695	789	882	971	1058	1142		
	129	128	127	126	125	123	122	120	119	117	116	116		
18 GPM	332	1353	2357	3317	4256	5157	6043	6892	7713	8501	9270	10026		
68 LPM	37	153	266	375	481	582	682	778	871	960	1047	1132		
	145	145	144	143	142	140	138	136	135	134	132	133		
20 GPM	304	1226	2218	3172	4102	4994	5873	6731	7557	8365	9147	9922		
76 LPM	34	138	250	358	463	564	663	760	853	944	1033	1120		
	161	161	160	159	158	157	155	153	152	150	149	150		
22 GPM	137	1059	2048	3004	3945	4840	5727	6576	7399	8198	8967	9715		
83 LPM	15	120	231	339	445	546	647	742	835	926	1012	1097		
	177	177	177	176	175	174	172	170	169	167	166	166		
25 GPM		833	1816	2765	3680	4575	5455	6313	7133	7928	8691	9436		
95 LPM		94	205	312	415	517	616	713	805	895	981	1065		
		201	201	201	200	198	196	194	193	191	191	192		
30 GPM		491	1318	2295	3232	4142	5022	5881	6721	7522	8300	9320		
114 LPM		55	149	259	365	468	567	664	759	849	937	1052		
		241	241	241	241	240	237	236	236	233	232	227		

 No Operation




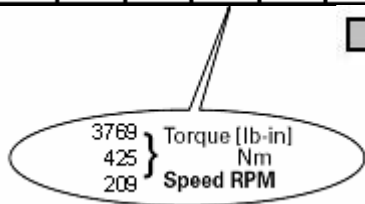


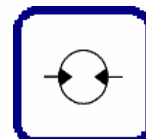
Specific Performance Data

530cm³/r (33.1in³/rev)

		Pressure Bar [P SI]									
		17	34	52	69	86	103	121	138	155	172
		250	500	750	1000	1250	1500	1750	2000	2250	2500
		psi									
Flow LPM [GPM]	2 GPM	1131	2304	3433	4558	5668	6725	7732	8683	9645	10457
	7.6 LPM	128	260	388	515	640	759	873	980	1089	1181
		13	12	11	11	11	11	10	8	8	7
	4 GPM	1139	2352	3515	4638	5735	6781	7819	8809	9752	10644
	15 LPM	129	266	397	524	648	766	883	994	1101	1202
		27	26	25	25	25	25	24	23	23	22
	6 GPM	1063	2267	3433	4549	5645	6694	7697	8675	9630	10557
	23 LPM	120	256	388	514	637	756	869	979	1087	1192
		41	40	39	38	38	38	39	38	37	36
	8 GPM	992	2186	3354	4475	5578	6646	7665	8608	9535	10449
	30 LPM	112	247	379	505	630	750	865	972	1076	1180
	56	55	54	53	52	52	51	52	52	51	
10 GPM	897	2090	3259	4378	5482	6555	7602	8578	9482	10343	
38 LPM	101	236	368	494	619	740	858	968	1071	1168	
	70	69	68	67	67	65	64	64	64	65	
12 GPM	807	1980	3138	4256	5365	6440	7494	8481	9403	10275	
45 LPM	91	224	354	481	606	727	846	957	1062	1160	
	84	83	83	81	80	79	78	77	76	77	
14 GPM	693	1873	3028	4138	5218	6268	7318	8304	9235	10105	
53 LPM	78	211	342	467	589	708	826	937	1043	1141	
	98	96	97	96	95	93	91	90	91	92	
16 GPM	554	1732	2882	3993	5083	6107	7118	8089	9032	9928	
61 LPM	63	196	325	451	574	689	804	913	1020	1121	
	112	112	111	110	109	108	106	104	104	106	
18 GPM	409	1582	2738	3844	4924	5952	6956	7928	8874	9772	
68 LPM	46	179	309	434	556	672	785	895	1002	1103	
	126	126	126	125	124	123	121	119	119	121	
20 GPM	355	1428	2587	3696	4767	5804	6813	7786	8732	9624	
76 LPM	40	161	292	417	538	655	769	879	986	1087	
	140	140	140	139	138	137	136	134	134	135	
22 GPM	310	1259	2412	3518	4595	5619	6618	7589	8536	9438	
83 LPM	35	142	272	397	519	634	747	857	964	1065	
	154	154	154	154	152	151	150	148	148	149	
25 GPM		958	2107	3215	4281	5310	6305	7264	8204	9110	
95 LPM		108	238	363	483	599	712	820	926	1029	
		174	174	174	174	173	171	170	168	169	
30 GPM		521	1599	2696	3769	4804	5809	6776	7705	8617	
114 LPM		59	181	304	425	542	656	765	870	973	
		209	209	209	209	208	207	207	205	205	

 No Operation




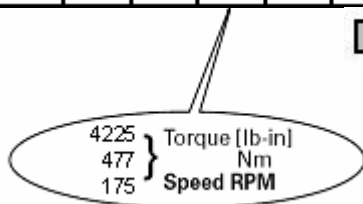


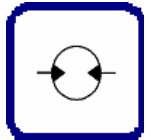
Specific Performance Data

634cm³/r (39.6in³/rev)

		Pressure Bar [PSI]								
		17 250	34 500	52 750	69 1000	86 1250	103 1500	121 1750	138 2000	155 bar 2250 psi
Flow LPM [GPM]	2 GPM	1365	2787	4156	5488	6775	7949	9102	10174	11100
	7.6 LPM	154	315	469	620	765	897	1028	1149	1253
		10	10	10	9	9	8	7	6	3
	4 GPM	1326	2770	4113	5400	6632	7819	8973	10030	11015
	15 LPM	150	313	464	610	749	883	1013	1132	1244
		22	22	21	20	21	20	19	19	18
	6 GPM	1258	2663	3998	5270	6521	7692	8774	9808	10809
	23 LPM	142	301	451	595	736	868	991	1107	1220
		35	34	33	32	32	32	32	32	31
	8 GPM	1154	2558	3902	5195	6455	7659	8775	9770	10708
30 LPM	130	289	441	587	729	865	991	1103	1209	
	47	46	45	44	42	42	42	43	43	
10 GPM	1045	2442	3787	5076	6331	7541	8691	9685	10573	
38 LPM	118	276	428	573	715	851	981	1093	1194	
	58	58	57	56	55	53	53	54	55	
12 GPM	928	2321	3662	4939	6193	7385	8536	9577	10469	
45 LPM	105	262	413	558	699	834	964	1081	1182	
	70	70	70	68	67	66	65	65	66	
14 GPM	740	2127	3469	4746	5989	7188	8352	9433	10439	
53 LPM	84	240	392	536	676	812	943	1065	1179	
	82	82	82	81	80	79	77	76	76	
16 GPM	614	1990	3318	4588	5795	6942	8081	9154	10141	
61 LPM	69	225	375	518	654	784	912	1033	1145	
	93	93	93	93	92	91	90	89	90	
18 GPM	448	1830	3158	4414	5619	6754	7853	8890	9873	
68 LPM	51	207	356	498	634	763	887	1004	1115	
	105	105	105	105	104	103	102	102	104	
20 GPM	281	1618	2944	4198	5410	6551	7653	8689	9676	
76 LPM	32	183	332	474	611	740	864	981	1092	
	117	117	117	117	117	116	114	114	115	
22 GPM	276	1518	2842	4099	5313	6453	7554	8596	9576	
83 LPM	31	171	321	463	600	728	853	970	1081	
	128	128	128	128	128	128	126	125	126	
25 GPM		1079	2393	3646	4834	5969	7071	8112	9105	
95 LPM		122	270	412	546	674	798	916	1028	
		146	146	146	146	146	145	144	144	
30 GPM		436	1747	3013	4225	5356	6454	7489	8479	
114 LPM		49	197	340	477	605	729	845	957	
		175	175	175	175	175	174	174	175	

 No Operation



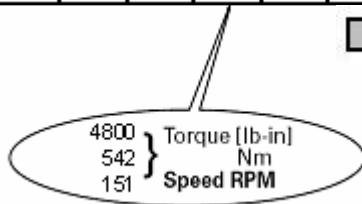


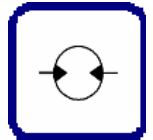
Specific Performance Data

736cm³/r (46.0in³/rev)

		Pressure Bar [PSI]							
		17 250	34 500	52 750	69 1000	86 1250	103 1500	121 1750	138 2000
2 GPM	7.6 LPM	1561	3128	4605	6014	7422	8721	9978	10910
		176	353	520	679	838	985	1127	1232
4 GPM	15 LPM	9	8	8	8	7	7	6	5
		1548	3142	4650	6029	7350	8605	9785	10892
6 GPM	23 LPM	175	355	525	681	830	971	1105	1230
		19	18	18	18	18	18	17	17
8 GPM	30 LPM	1470	3084	4608	6022	7346	8555	9722	10850
		166	348	520	680	829	966	1098	1225
10 GPM	38 LPM	30	29	28	27	27	27	27	27
		1359	2975	4504	5925	7263	8488	9638	10694
12 GPM	45 LPM	153	336	509	669	820	958	1088	1207
		40	39	38	38	37	36	37	38
14 GPM	53 LPM	1240	2844	4364	5815	7185	8458	9603	10584
		140	321	493	656	811	955	1084	1195
16 GPM	61 LPM	50	50	49	48	47	46	46	47
		1079	2686	4207	5641	7008	8248	9390	10400
18 GPM	68 LPM	122	303	475	637	791	931	1060	1174
		60	60	60	59	58	57	57	57
20 GPM	76 LPM	932	2512	4038	5477	6850	8124	9274	10286
		105	284	456	618	773	917	1047	1161
22 GPM	83 LPM	70	70	70	70	69	68	67	67
		753	2328	3834	5246	6577	7831	8999	10040
25 GPM	95 LPM	85	263	433	592	742	884	1016	1133
		80	80	80	80	80	79	78	78
30 GPM	114 LPM	547	2119	3632	5024	6320	7551	8706	9721
		62	239	410	567	714	852	983	1097
35 GPM	133 LPM	90	90	90	90	90	90	90	90
		310	1919	3430	4826	6126	7339	8466	9430
40 GPM	152 LPM	35	217	387	545	692	829	956	1065
		100	100	100	100	100	100	100	100
45 GPM	171 LPM	248	1666	3172	4571	5878	7102	8254	9269
		28	188	358	516	664	802	932	1046
50 GPM	190 LPM	110	110	110	110	110	110	110	110
		1261	2784	4191	5504	6727	7873	8911	
55 GPM	209 LPM	142	314	473	621	759	889	1006	
		126	126	126	126	126	126	126	
60 GPM	228 LPM	545	2055	3474	4800	6036	7175	8231	
		62	232	392	542	681	810	929	
65 GPM	247 LPM	151	151	151	151	151	151	151	

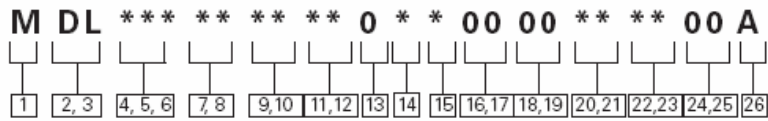
■ No Operation





Model Code

Item not in bold are not standard and may have a longer lead time.



[1] Product

M – Motor

[2,3] Series

DL – Delta Series

[4,5,6] Displacement

- 069** - 113 cm³/r [6.9 in³/r]
- 089** - 146 cm³/r [8.9 in³/r]
- 121** - 198 cm³/r [12.1 in³/r]
- 143** - 234 cm³/r [14.3 in³/r]
- 154** - 252 cm³/r [15.4 in³/r]
- 183** - 300 cm³/r [18.3 in³/r]
- 212** - 347 cm³/r [21.2 in³/r]
- 241** - 395 cm³/r [24.1 in³/r]
- 287** - 470 cm³/r [28.7 in³/r]
- 331** - 542 cm³/r [33.1 in³/r]
- 396** - 649 cm³/r [39.6 in³/r]
- 460** - 754 cm³/r [46.0 in³/r]

[7,8] Mounting Type

- AA** - WHEEL, 4 BOLT: 82.6 [3.25] PILOT DIA. 13.59 [.535] DIA. HOLES ON 147.6 [5.81] DIA. BOLT CIRCLE. 127.0 [5.00] DIA. REAR MOUNT PILOT
- AB** - STANDARD, 6 BOLT: 82.6 [3.25] PILOT DIA. 13.59 [.535] DIA. HOLES ON 106.4 [4.19] DIA. BOLT CIRCLE. .100 [2.54] PILOT LENGTH. SAE A, MAGNETO
- AC** - STANDARD, 6 BOLT: 82.6 [3.25] PILOT DIA. 13.59 [.535] DIA. HOLES ON 106.4 [4.19] DIA. BOLT CIRCLE. .250 [6.35] PILOT LENGTH. SAE A, MAGNETO

[9,10] Output Shaft

- 01** - 38.10 [1.500] DIA. STRAIGHT WITH .375-16 UNC-2B THREAD, AND 9.52 [.375] SQ X 25.40 [1.000] STRAIGHT KEY
- 02** - 31.75 [1.250] DIA. .125:1 TAPERED SHAFT PER SAE J501 WITH 1.000-20 UNEF-2A THREADED SHAFT END AND SLOTTED HEX NUT, 7.938 [.3125] SQ X 25.40 [1.000] STRAIGHT KEY
- 03** - 41.30 [1.626] DIA. .125:1 TAPERED SHAFT PER SAE J501 WITH 1.250-18 UNEF-2A THREADED SHAFT END AND SLOTTED HEX NUT, 11.125 [.4380] SQ X 34.04 [1.340] STRAIGHT KEY
- 04** - 31.75 [1.250] DIA. FLAT ROOT SIDE FIT, 14 TOOTH, 12/24 DP 30 DEG. INVOLUTE SPLINE WITH .375-16 UNC-2B THREAD IN END, 33.0 [1.30] MINIMUM FULL SPLINE LENGTH
- 05** - 38.10 [1.500] DIA. FLAT ROOT SIDE FIT, 17 TOOTH, 12/24 DP 30 DEG. INVOLUTE SPLINE, 31.8 [1.25] MINIMUM FULL SPLINE LENGTH, WITH .375-16 UNC-2B THREAD IN END
- 06** - 38.10 [1.500] DIA. TAPERED SHAFT PER SAE J501 WITH 1.250-18 UNEF-2A THREAD IN END, 7.938 [.3125] SQ X 31.75 [1.250] KEY

[11,12] Ports

- AA** - .875-14 UNF-2B SAE O-RING
- AB** - DASH 10 STC TYPE II+ (SNAP TO CONNECT)
- AC** - G 1/2 BSP STRAIGHT THREAD

[13] Pressure/Flow Option

0 – None

[14] Geroler Option

- 0** – Standard
- B** – Tight Fitting Geroler

[15] Seal Option

- 0** – Standard
- 1** – Viton
- 4** – Seal Guard

[16,17] Accessories

00 – None

[18,19] Special Features (Hardware)

00 – None

[20,21] Special Features (Assembly)

- 00** – Standard rotation- CCW
- 01** – Standard rotation- CW

[22,23] Paint/Packaging

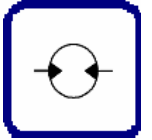
- AA** - NO PAINT, INDIVIDUAL BOX
- AB** - PAINTED LOW GLOSS BLACK, INDIVIDUAL BOX
- AC** - EPOXY COATED (FROST GRAY), INDIVIDUAL BOX
- AE** - NO PAINT, BULK BOX
- AF** - PAINTED LOW GLOSS BLACK, BULK BOX

[24,25] Customer Identification

00 – None

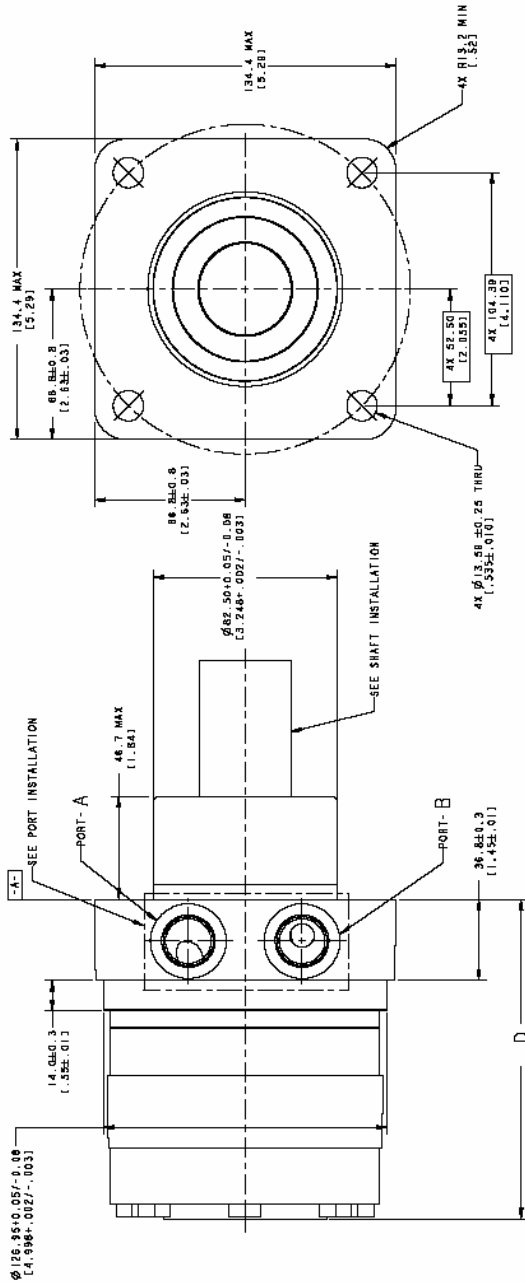
[26] Design Code

A – One (1)



Mounting Type

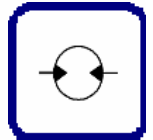
AA – Wheel, 4 Bolt, Circle Ø 127,6 [5,00]



NOTE:

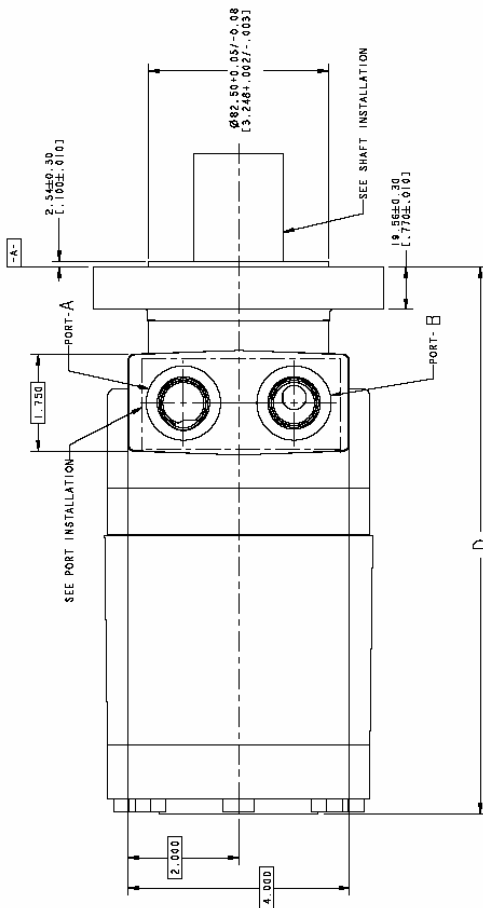
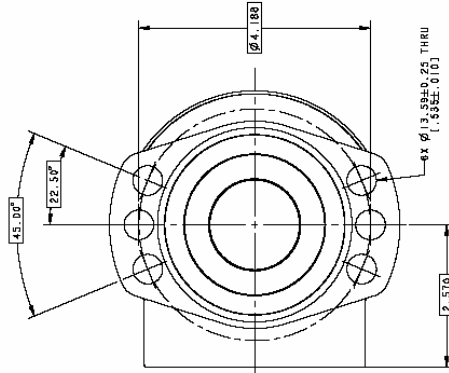
- 1 MOUNTING TYPE : AA
WHEEL, 4 BOLT: $\varnothing 22,5 \pm 0,25$ PILOT $\varnothing 31,5 \pm 0,25$
HOLES ON $\varnothing 127,6 \pm 0,10$ CIRCLE
PILOT, 25 ± 0,25 REAR MOUNT PILOT
- 2 ROTATION
STANDARD: WHEN FACING SHAFT END OF MOTOR, SHAFT TO ROTATE:
COUNTERCLOCKWISE WHEN "A" PORT IS PRESSURIZED
CLOCKWISE WHEN "B" PORT IS PRESSURIZED
REVERSE: WHEN FACING SHAFT END OF MOTOR, SHAFT TO ROTATE:
COUNTERCLOCKWISE WHEN "B" PORT IS PRESSURIZED
CLOCKWISE WHEN "A" PORT IS PRESSURIZED

DISPL CODE	D	D MAX
069	130,8 [5,143]	134,4 [5,29]
089	135,8 [5,35]	139,4 [5,49]
121	144,3 [5,69]	148,9 [5,87]
148	150,4 [5,92]	155,0 [6,10]
154	153,5 [6,04]	158,1 [6,22]
183	158,5 [6,24]	163,1 [6,42]
212	162,8 [6,41]	167,4 [6,59]
241	172,5 [6,79]	177,1 [7,00]
287	177,5 [7,00]	182,1 [7,17]
331	185,8 [7,31]	190,4 [7,50]
386	209,0 [8,23]	213,6 [8,41]



Mounting Type

AB – Standard, 6 Bolt, Circle Ø 100,0 [2,54]

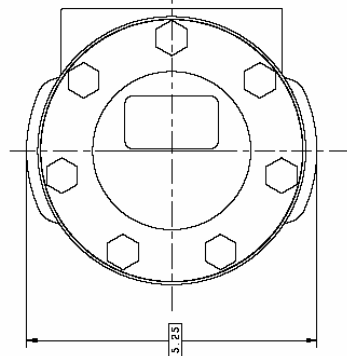


NOTE:

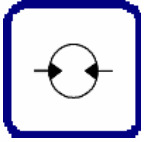
1 MOUNTING TYPE : AB
DIA HOLES ON TOP 4/4 DIA HOLES ON BOTTOM .100(2.54) PILOT LENGTH, SAE A, MAGNETO.

2 ROTATION : WHEN FACING SHAFT END OF MOTOR, SHAFT TO ROTATE :
CLOCKWISE WHEN "A" PORT IS PRESSURIZED
COUNTERCLOCKWISE WHEN "B" PORT IS PRESSURIZED

REVERSE : WHEN FACING SHAFT END OF MOTOR, SHAFT TO ROTATE :
COUNTERCLOCKWISE WHEN "B" PORT IS PRESSURIZED
CLOCKWISE WHEN "A" PORT IS PRESSURIZED

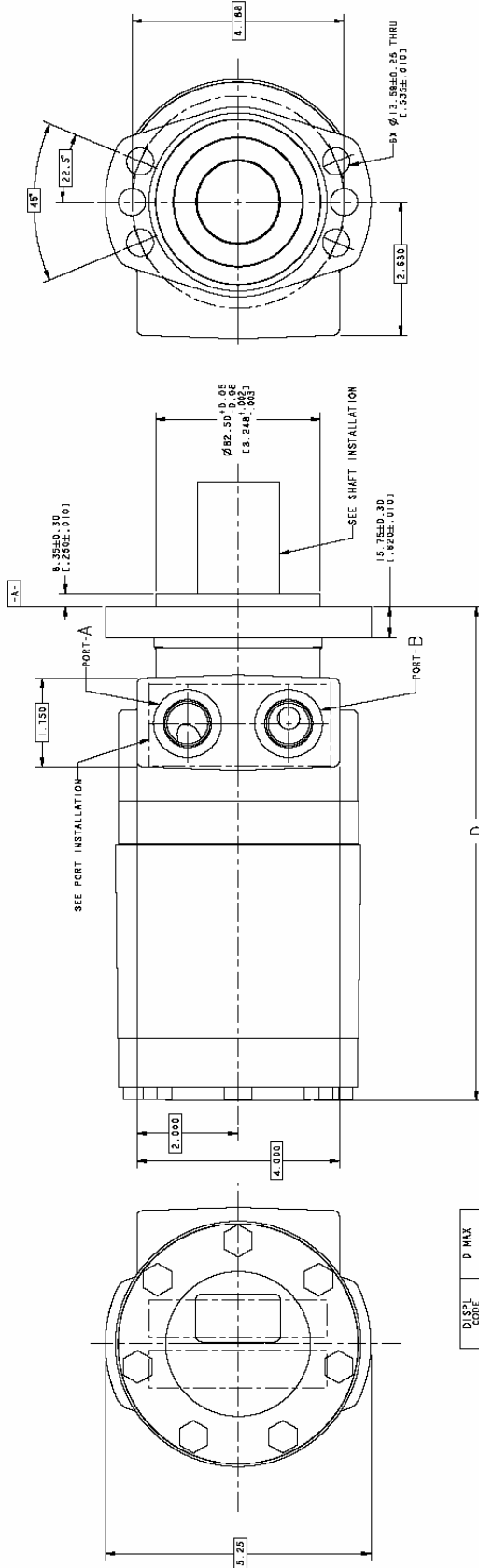


MODEL CODE	D MAX
085	173.6 [6.84]
090	175.7 [6.92]
121	197.0 [7.75]
143	188.7 [7.43]
154	196.5 [7.74]
185	193.7 [7.63]
212	179.0 [7.05]
241	200.0 [7.87]
287	215.6 [8.50]
331	225.1 [8.86]
386	230.0 [9.05]
460	252.3 [9.93]



Mounting Type

AC – Standard, 6 Bolt, Circle Ø 250,0 [6,35]

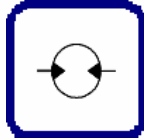


NOTE:

1 MOUNTING TYPE AC
 STANDARD: 8 BOLT: 82.6(3.25) PILOT DIA., 13.59(0.535)
 DIA. HOLES ON 166.4(6.55) DIA BOLT CIRCLE.
 8.35(0.33) PILOT LENGTH. SEE A, MAGNETO.

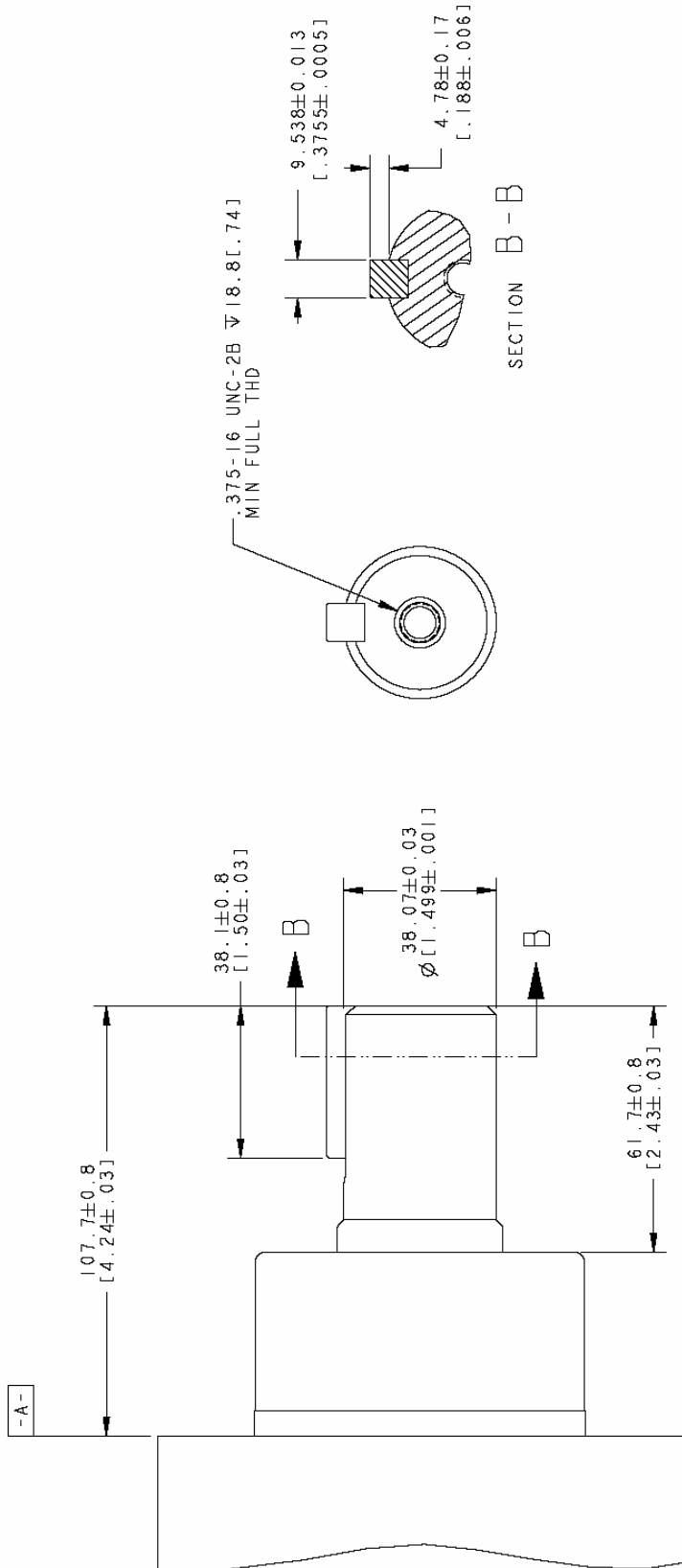
2 ROTATION:
 STANDARD: WHEN FACING SHAFT END OF MOTOR, SHAFT TO ROTATE:
 COUNTERCLOCKWISE WHEN PORT IS PRESSURIZED
 COUNTERCLOCKWISE WHEN PORT IS PRESSURIZED
 COUNTERCLOCKWISE WHEN PORT IS PRESSURIZED
 COUNTERCLOCKWISE WHEN PORT IS PRESSURIZED

DISPL CODE	D MAX
066	169.9 [6.69]
089	176.0 [6.93]
121	183.9 [7.24]
143	188.0 [7.40]
154	192.8 [7.59]
183	190.0 [7.48]
212	177.72 [7.00]
241	202.2 [7.96]
287	212.1 [8.35]
331	227.7 [9.00]
396	233.0 [9.21]
460	246.4 [9.70]



Output Shaft

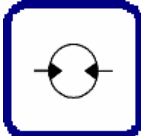
01 – Straight with UNC-2B



Output Shaft
01 - 38.10 [1.500] DIA.
 STRAIGHT WITH .375-16
 UNC-2B THREAD, AND
 9.52 [.375] SQ X 25.40
 [1.000] STRAIGHT KEY

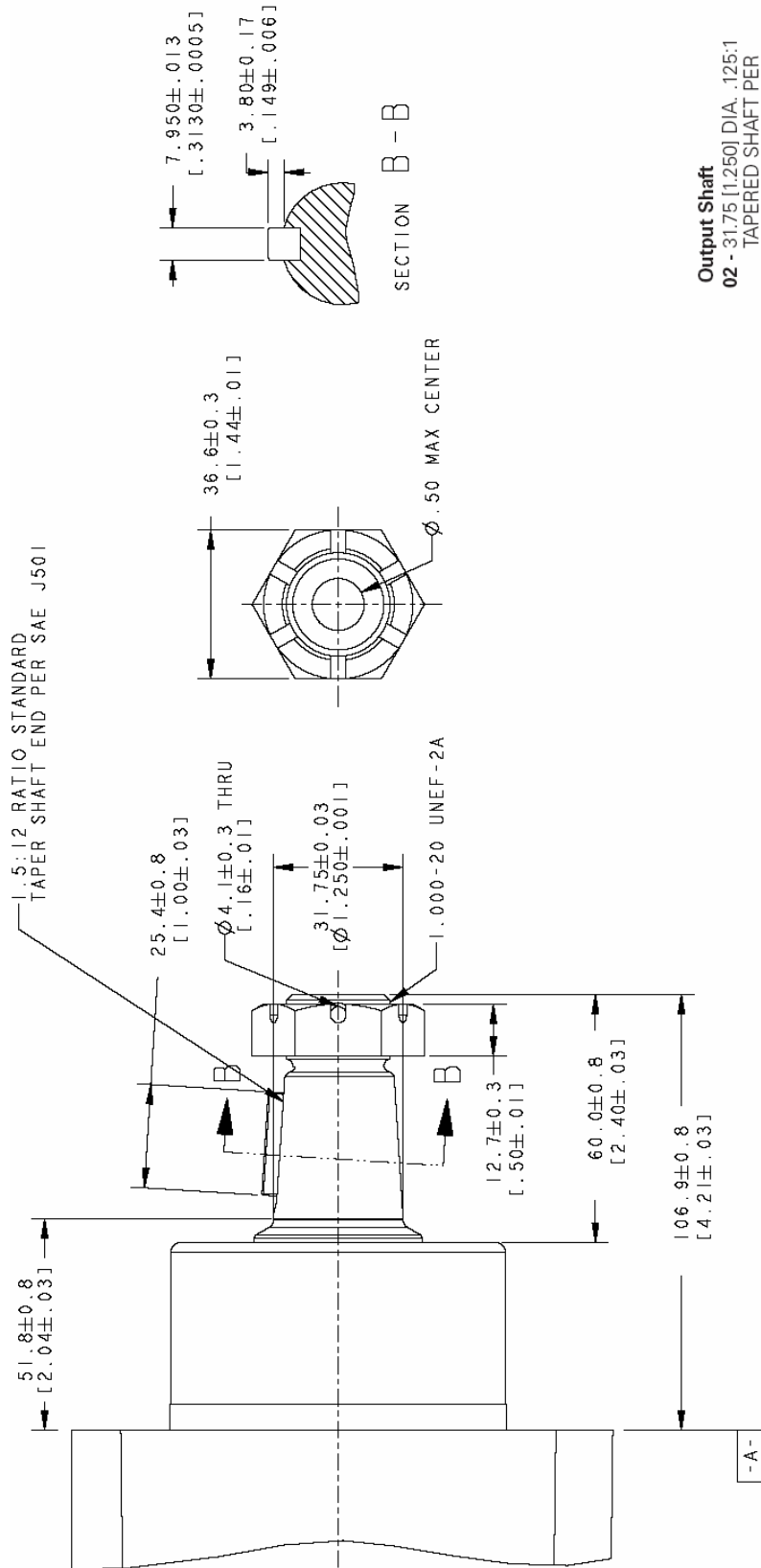


NOTE:
 1 MOUNTING TYPE : AA
 2 OUTPUT SHAFT : 01



Output Shaft

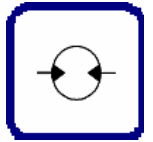
02 – Tapered Shaft with SAE J501 (5:12)



NOTE:

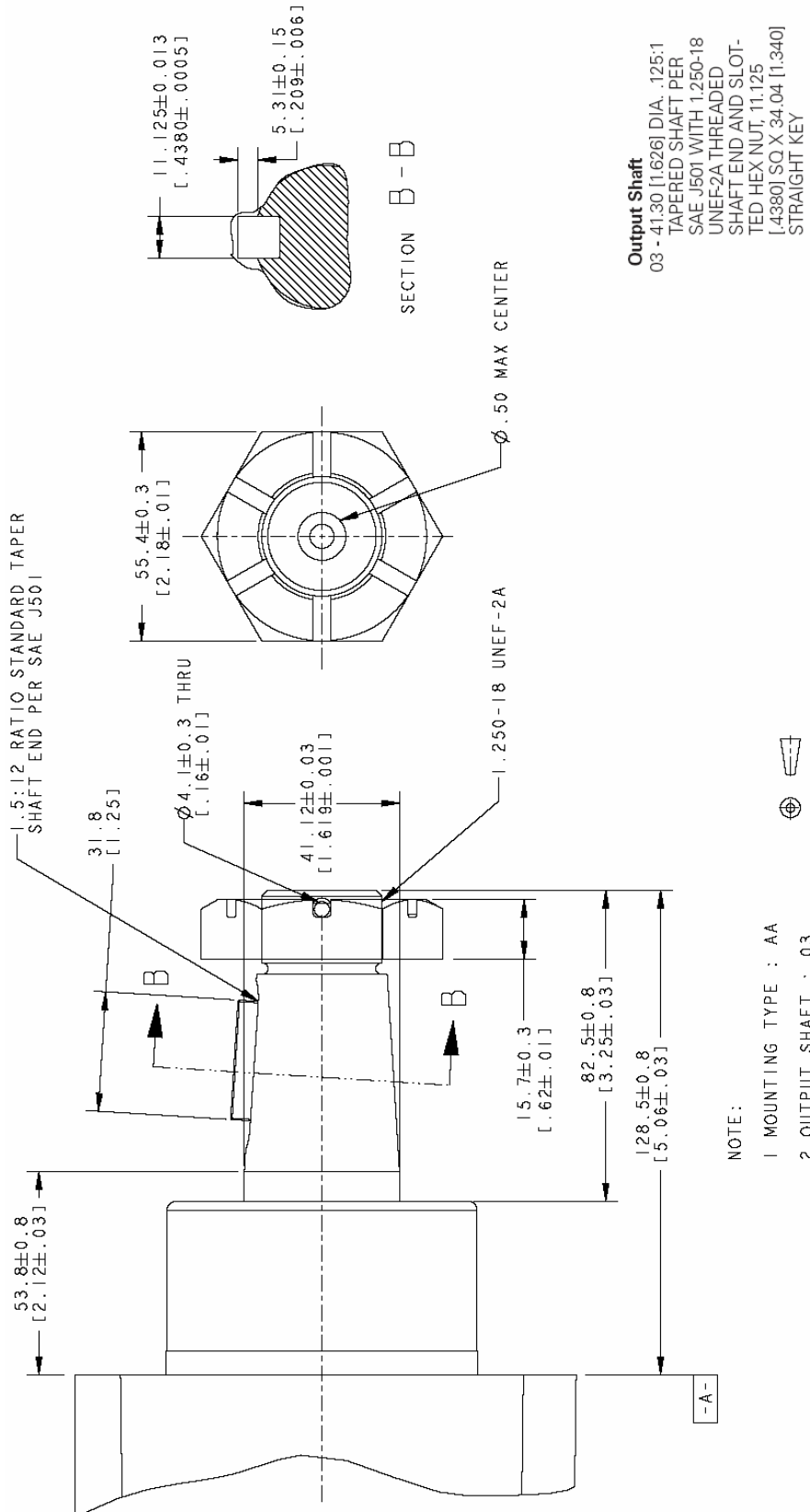
- 1 MOUNTING TYPE : AA
- 2 OUTPUT SHAFT : 02

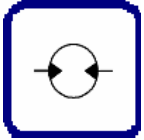
Output Shaft
 02 - 31.75 [1.250] DIA. .125:1
 TAPERED SHAFT PER
 SAE J501 WITH 1.000-20
 UNEF-2A THREADED
 SHAFT END AND SLOT-
 TED HEX NUT, 7938
 [.3125] SQ X 25.40 [1.000]
 STRAIGHT KEY



Output Shaft

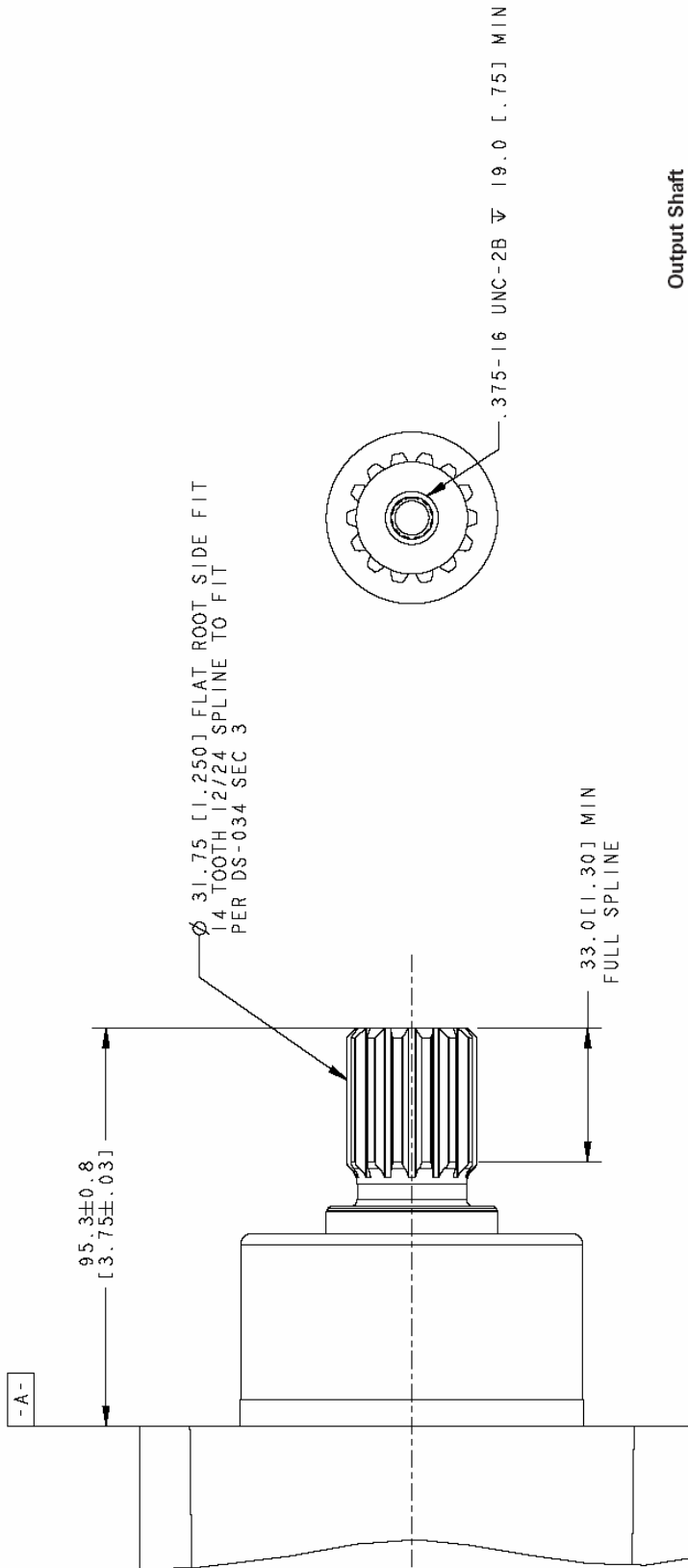
03 – Tapered Shaft with SAE J501 (5:12)







Output Shaft

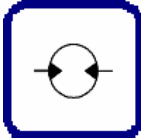
04 – Flat root Side fit 14 Tooth



Output Shaft
04 - 31.75 [1.250] DIA. FLAT ROOT SIDE FIT, 14 TOOTH, 12/24 DP 30 DEG. INVOLUTE SPLINE WITH .375-16 UNC-2B THREAD IN END, 33.0 [1.30] MINIMUM FULL SPLINE LENGTH

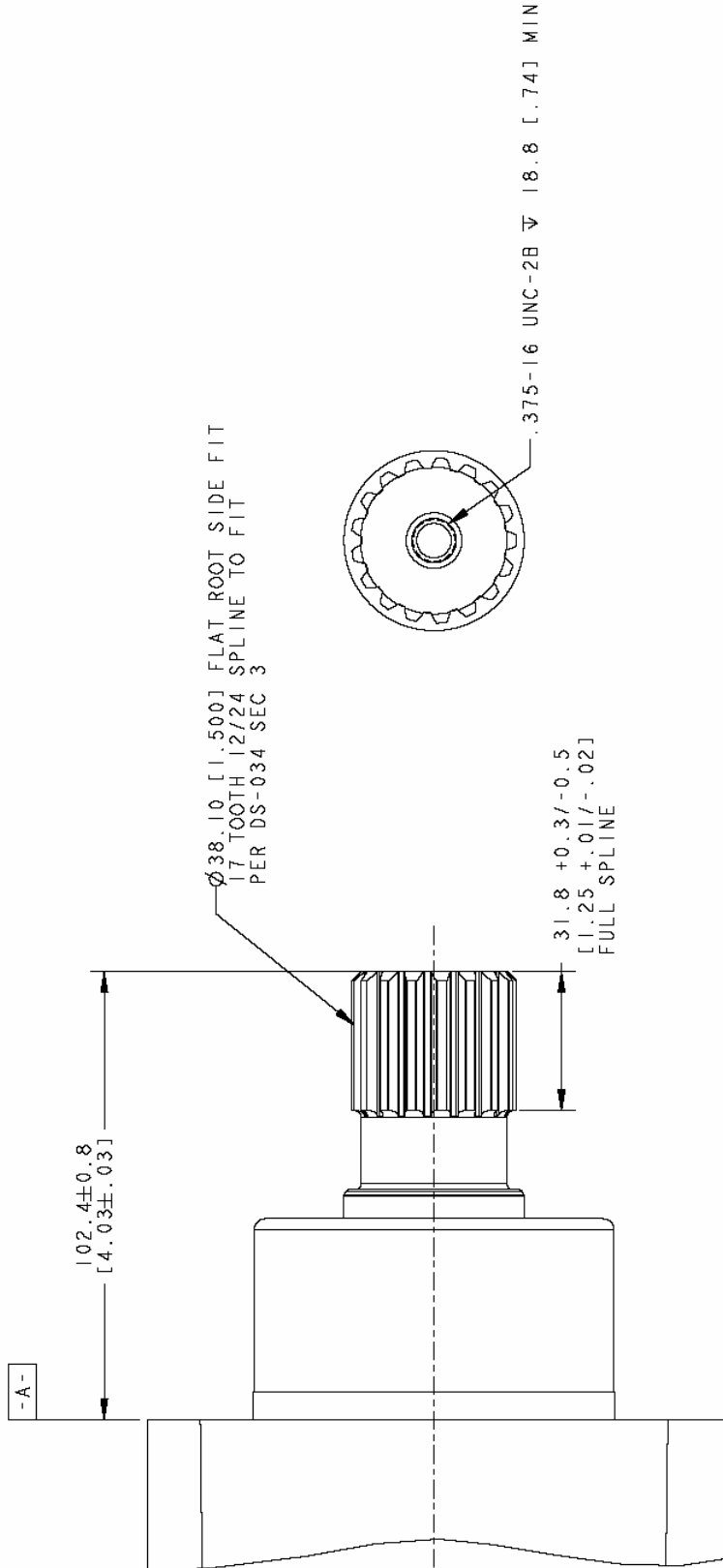
NOTE:
 1 MOUNTING TYPE : AA
 2 OUTPUT SHAFT : 04



Output Shaft

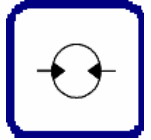
05 – Flat root Side fit 17 Tooth



Output Shaft
 05 - 38.10 [1.500] DIA. FLAT
 ROOT SIDE FIT, 17
 TOOTH, 12/24 DP 30
 DEG. INVOLUTE SPLINE,
 31.8 [1.25] MINIMUM
 FULL SPLINE LENGTH,
 WITH .375-16 UNC-2B
 THREAD IN END

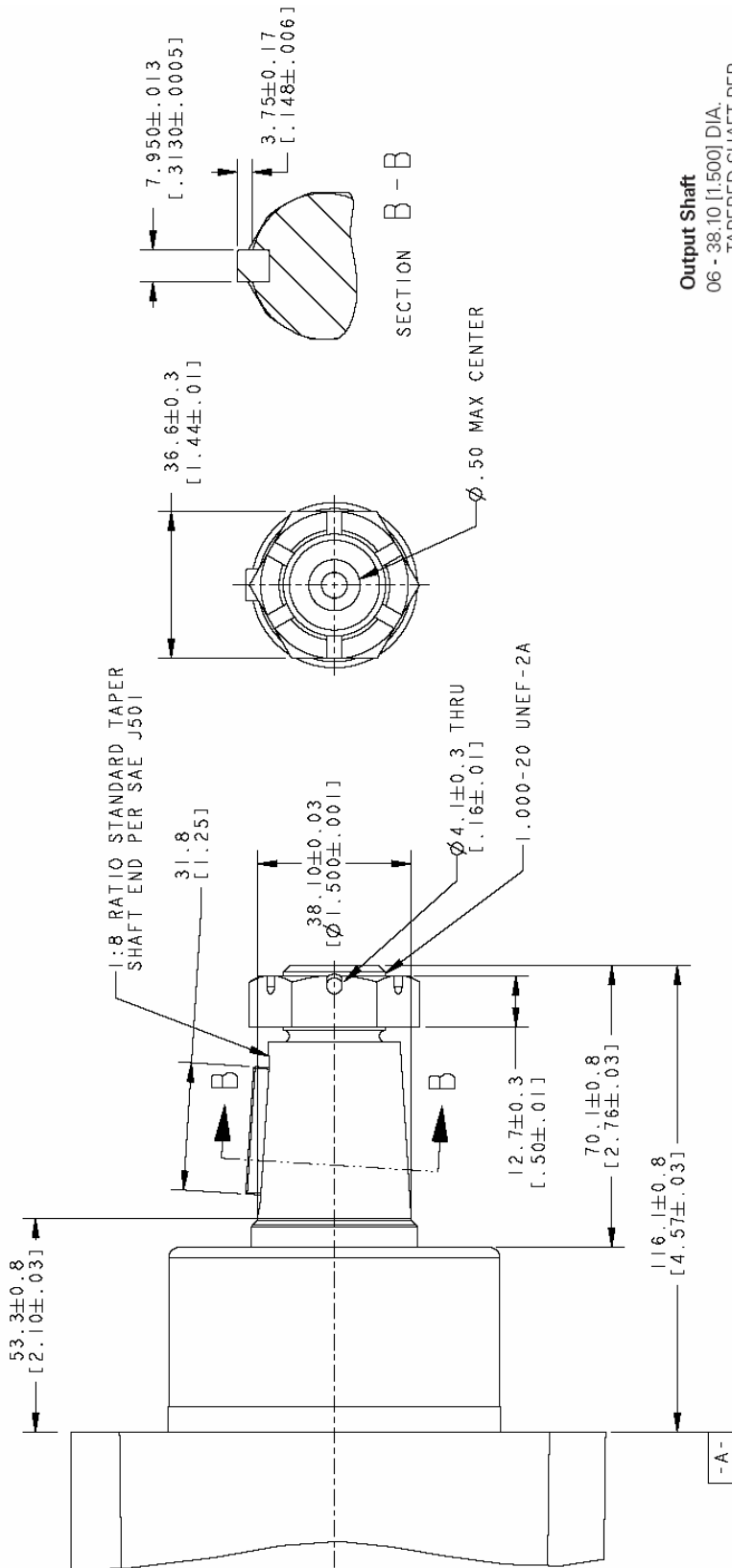
NOTE:
 1 MOUNTING TYPE : AA
 2 OUTPUT SHAFT : 05





Output Shaft

06 – Tapered Shaft with SAE J501 (1:8)

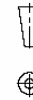


Output Shaft

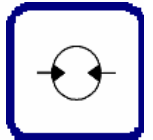
06 - 38.10 [1.500] DIA.
TAPERED SHAFT PER
SAE J501 WITH 1.250-18
UNEF-2A THREAD IN
END, 7938 [3.125] SQ X
31.75 [1.250] KEY

NOTE:

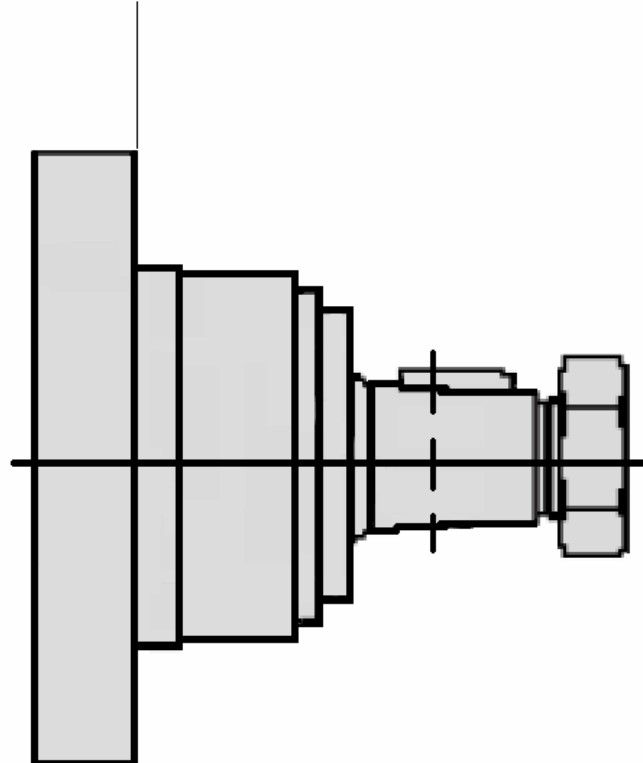
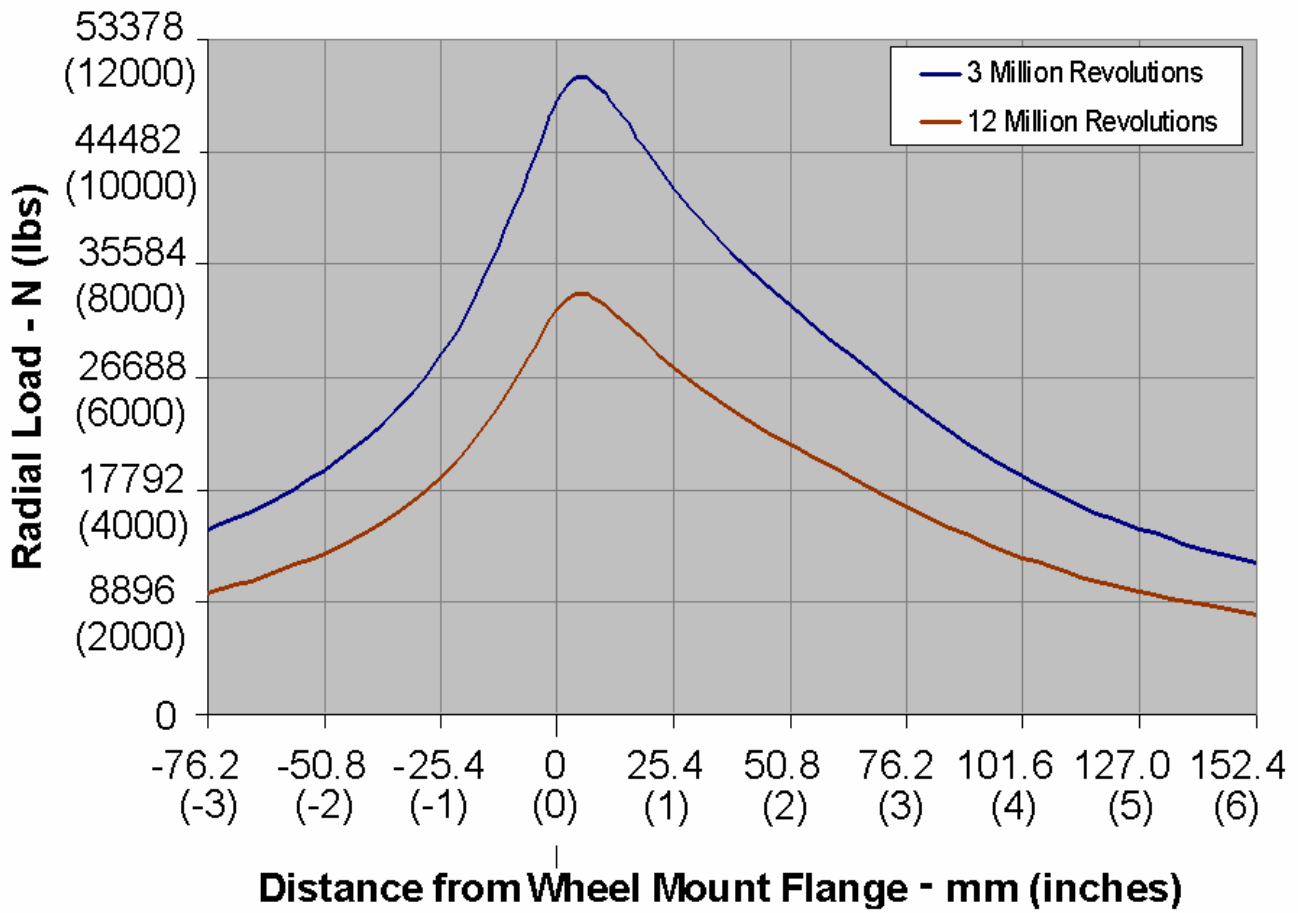
- 1 MOUNTING TYPE : AA
- 2 OUTPUT SHAFT : 06



-A-



Allowable Radial Load
ISO 281



Seit über 30 Jahren der richtige Partner



- Engineering

- Produktion

- Kundendienst

- Handel

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