

WK SERIES

ISSUE 1

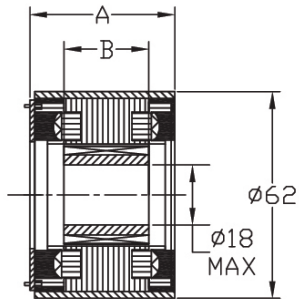


Frameless Brushless DC Motors

MYG

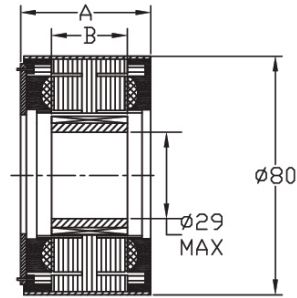
WK SERIES

WK60



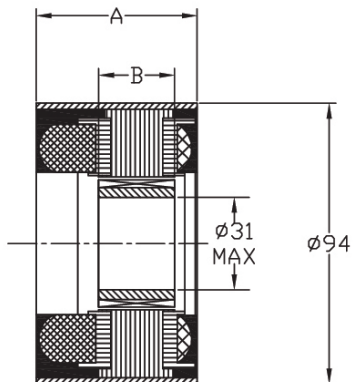
MODEL	HOUSIG ASSEMBLY	ROTOR ASSEMBLY
	A	B
WK60-04	44	25.4
WK60-08	70	50.8

WK86



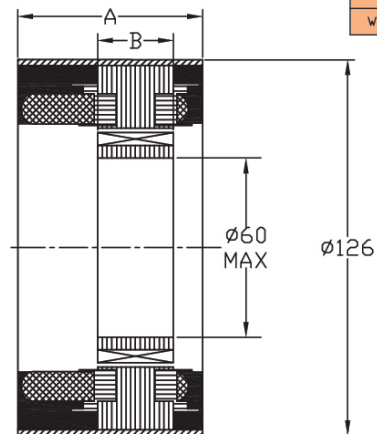
MODEL	HOUSIG ASSEMBLY	ROTOR ASSEMBLY
	A	B
WK86-04	43.7	25.4
WK86-08	69.1	50.8

WK100



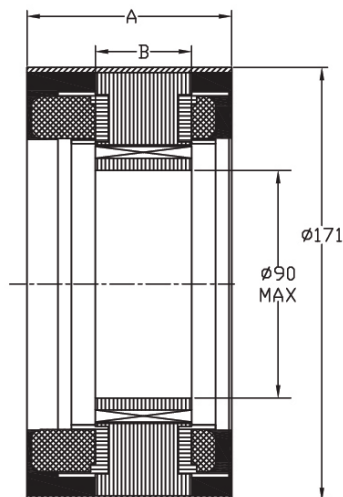
MODEL	HOUSIG ASSEMBLY	ROTOR ASSEMBLY
	A	B
WK100-04	54	25.4
WK100-08	80	50.8

WK130



MODEL	HOUSIG ASSEMBLY	ROTOR ASSEMBLY
	A	B
WK130-04	62	25.4
WK130-08	88	50.8

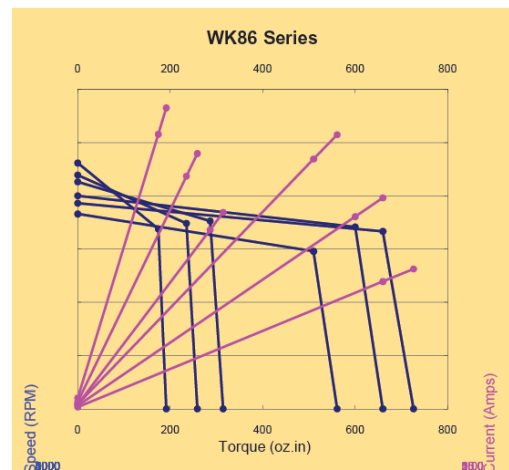
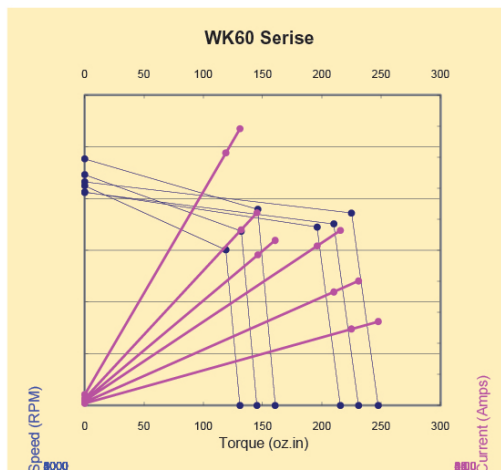
WK180



MODEL	HOUSIG ASSEMBLY	ROTOR ASSEMBLY
	A	B
WK180-06	81	38.1

High Torque Series Frameless Brushless DC Motors

WK Series Frameless Motor Model Number			WK60-04			WK60-08			WK86-04			WK86-08		
Winding			FB	HB	CA	GB	CA	EA	BB	DB	FB	DB	ZA	BA
Stator O.D.	inch		2.44			2.44			3.15			3.15		
	mm		62			62			80			80		
Rotor I.D.	inch		0.375			0.375			0.5			0.5		
	mm		9.525			9.525			12.7			12.7		
Max. Rotor I.D.	inch		0.71			0.71			1.14			1.14		
	mm		18			18			29			29		
Length	inch		1.73			2.76			1.65			2.64		
	mm		44			70			42			67		
Design Voltage	V _P	volts	24	40	55	60	90	150	24	36	55	60	100	160
Cont. Stall Torque @V _P	T _S	oz.in	131	145	161	216	231	248	191	259	315	561	660	726
		Nm	0.9	1.0	1.1	1.5	1.6	1.7	1.4	1.8	2.2	4.0	4.7	5.1
Cont. Stall Current @V _P	I _S	Amps	17.8	12.4	10.6	11.3	8.0	5.4	28.3	24.0	18.5	25.7	19.8	13.1
		oz.in	393	436	482	647	693	743	574	776	944	1683	1980	2178
Peak Torque @V _P	T _P	Nm	2.8	3.1	3.4	4.6	4.9	5.2	4.1	5.5	6.7	11.9	14.0	15.4
		Amps	52.1	36.3	31.2	33.2	23.6	15.9	82.7	70.6	54.5	76.3	58.9	39.0
Rated Torque @V _P	T _R	oz.in	119	132	146	196	210	225	174	235	286	510	600	660
		Nm	0.84	0.93	1.03	1.38	1.48	1.59	1.23	1.66	2.02	3.6	4.2	4.7
Rated Speed @V _P	S _R	RPM	3007	3368	3793	3448	3509	3719	3378	3486	3526	2957	3418	3332
		rad/s	315	353	397	361	368	389	354	365	369	310	358	349
Rated Current @V _P	I _R	Amps	16.3	11.3	9.7	10.3	7.3	4.9	25.8	21.8	16.8	23.4	18.0	12.0
Rated Power Out @V _P	P _{OUT}	W	265	329	410	500	545	619	435	606	746	1116	1517	1626
Max. Rotor Speed *		RPM	7000			7000			6000			6000		
No Load Speed @V _P	S _{NL}	RPM	4248	4459	4766	4127	4117	4322	4615	4390	4264	3659	4000	3860
		rad/s	445	467	499	432	431	453	483	460	446	383	419	404
Friction Torque	T _F	oz.in	5.3			6			7.3			10		
		mNm	37.4			42.4			51.5			70.6		
No Load Current @V _P	I _{NL}	Amps	0.69	0.44	0.34	0.31	0.20	0.13	1.04	0.66	0.42	0.45	0.30	0.18
Thermal Resistance	R _{th}	°C/W	0.8			0.65			0.55			0.35		
Rotor Poles		poles	8			8			8			8		
Motor Weight	lb		1.98			2.64			3.96			4.85		
	Kg		0.90			1.20			1.80			2.20		
Rotor Inertia	J	oz.in.s ²	0.00191			0.00382			0.00725			0.0145		
		Kg.m ²	1.3E-05			2.7E-05			5.1E-05			1.0E-04		
Torque Constant	K _T	oz.in/Amp.	7.6	12.1	15.6	19.7	29.6	46.9	7.0	11.09	17.45	22.2	33.81	56.06
		Nm/Amp.	0.05	0.09	0.11	0.14	0.21	0.33	0.05	0.08	0.12	0.16	0.24	0.40
Back EMF Constant	K _B	V/Krpm	5.65	8.97	11.54	14.54	21.86	34.71	5.2	8.2	12.9	16.4	25	41.5
		V/rad/s	0.054	0.086	0.11	0.139	0.209	0.331	0.05	0.078	0.123	0.157	0.239	0.396
Terminal Resistance	R _M	Ohms	0.25	0.70	1.00	0.79	1.67	4.16	0.06	0.15	0.38	0.30	0.62	1.66
Terminal Inductance	L _M	mH	0.54	1.35	2.19	1.71	4.15	10.4	0.22	0.56	1.40	1.15	2.80	7.27



WK SERIES

High Torque Series Frameless Brushless DC Motors

WK Series Frameless Motor Model Number			WK100-04			WK100-08			WK130-04			WK130-08			WK180-06		
Winding			ZB	BB	DB	ZB	BB	DB	A2B	ZB	BB	ZB	AB	BB	Z10	A10	B10
Stator O.D.	inch		3.7			3.7			4.96			4.96			6.74		
	mm		94			94			126			126			171.3		
Rotor I.D.	inch		0.7			0.7			1.26			1.26			1.97		
	mm		17			17			32			32			50		
Max. Rotor I.D.	inch		1.2			1.2			2.36			2.36			3.54		
	mm		31			31			60			60			90		
Length	inch		2.1			3.1			2.4			3.5			3.2		
	mm		54			80			62			88			81		
Design Voltage	V _P	volts	36	48	60	60	90	120	40	60	90	100	150	180	100	150	200
Cont. Stall Torque @V _P	T _S	oz.in	308	418	506	638	814	935	418	627	858	1320	1430	1540	2178	2585	2893
		Nm	2.2	3.0	3.6	4.5	5.7	6.6	3.0	4.4	6.1	9.3	10.1	10.9	15.4	18.3	20.4
Cont. Stall Current @V _P	I _S	Amps	31.4	26.4	20.1	32.3	25.6	18.5	38.5	34.9	30.1	36.4	31.3	26.8	56.2	51.3	46.6
Peak Torque @V _P	T _P	oz.in	924	1254	1518	1914	2442	2805	1254	1881	2574	3960	4290	4620	6534	7755	8679
		Nm	6.5	8.9	10.7	13.5	17.2	19.8	8.9	13.3	18.2	28.0	30.3	32.6	46.1	54.8	61.3
Peak Current @V _P	I _P	Amps	92.1	77.9	59.5	95.2	75.8	54.9	111.9	102.6	88.8	107.7	92.6	79.4	167.3	153.0	139.0
Rated Torque @V _P	T _R	oz.in	280	380	460	580	740	850	380	570	780	1200	1300	1400	1980	2350	2630
		Nm	1.98	2.68	3.25	4.10	5.23	6.00	2.68	4.03	5.51	8.5	9.2	9.9	14.0	16.6	18.6
Rated Speed @V _P	S _R	RPM	3843	3298	2593	3371	3256	2723	4045	3908	3783	3342	4089	3925	3218	3804	4156
		rad/s	402	345	271	353	341	285	424	409	396	350	428	411	337	398	435
Rated Current @V _P	I _R	Amps	28.6	24.0	18.3	29.5	23.4	16.9	35.1	31.8	27.4	33.2	28.5	24.4	51.1	46.7	42.4
Rated Power Out @V _P	P _{OUT}	W	796	927	882	1446	1782	1712	1137	1648	2183	2967	3932	4065	4713	6612	8085
Max. Rotor Speed *		RPM	6000			6000			5000			5000			4000		
No Load Speed @V _P	S _{NL}	RPM	4800	4000	3158	4000	3750	3158	4751	4380	4167	3650	4348	4157	3448	3989	4320
		rad/s	503	419	331	419	393	331	497	459	436	382	455	435	361	418	452
Friction Torque	T _F	oz.in	10			18			20			30			26		
		mNm	70.6			127.1			141.2			211.8			183.6		
No Load Current @V _P	I _{NL}	Amps	0.99	0.62	0.39	0.89	0.55	0.35	1.76	1.08	0.68	0.81	0.64	0.51	0.66	0.51	0.42
Thermal Resistance	R _{th}	°C/W	0.47			0.32			0.38			0.28			0.25		
Rotor Poles		poles	8			8			8			8			10		
Motor Weight	lb		6.0			7.9			11.9			14.6			19.8		
	Kg		2.7			3.6			5.4			6.6			9.0		
Rotor Inertia	J		0.0089			0.0178			0.26779			0.53559			0.3773		
			6.3E-05			1.3E-04			1.9E-03			3.8E-03			2.7E-03		
Torque Constant	K _T	oz.in/Amp.	10.1	16.2	25.7	20.3	32.5	51.4	11.4	18.53	29.21	37.1	46.66	58.56	39.2	50.85	62.62
		Nm/Amp.	0.07	0.11	0.18	0.14	0.23	0.36	0.08	0.13	0.21	0.26	0.33	0.41	0.28	0.36	0.44
Back EMF Constant	K _B	V/Krpm	7.5	12	19	15	24	38	8.42	13.7	21.6	27.4	34.5	43.3	29	37.6	46.3
		V/rad/s	0.072	0.115	0.181	0.143	0.229	0.363	0.08	0.131	0.206	0.262	0.329	0.413	0.277	0.359	0.442
Terminal Resistance	R _M	Ohms	0.06	0.16	0.40	0.13	0.32	0.80	0.03	0.06	0.16	0.11	0.17	0.27	0.03	0.05	0.08
Terminal Inductance	L _M	mH	0.44	1.11	2.77	0.89	2.20	5.5	0.15	0.38	0.95	0.68	1.08	1.71	0.05	0.08	0.12

