

22mm Brushless DC Motor



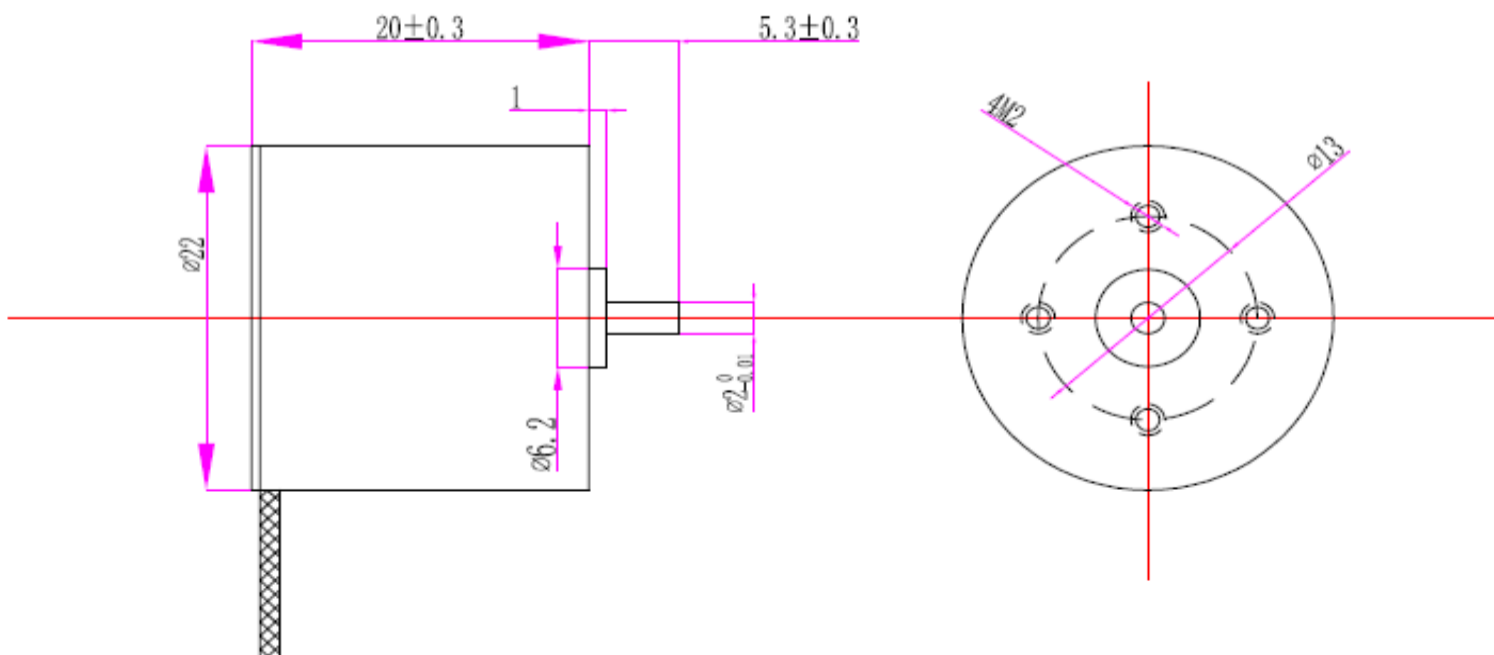
2220

General Specifications

Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC

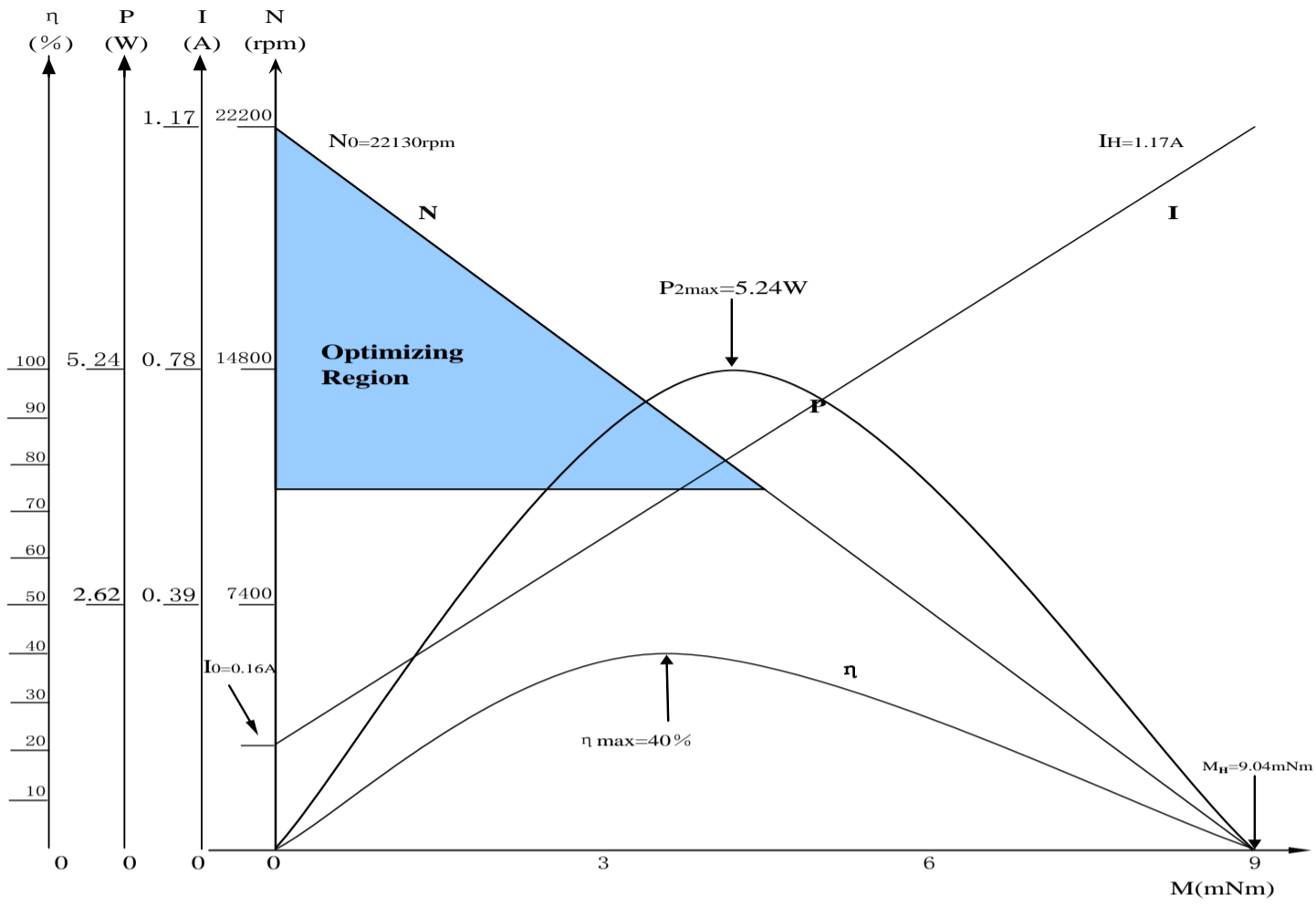
Model		DM2220-06-002	DM2220-12-001	DM2220-24-005		
Nominal Voltage	V	6	12	24		
Rated Speed	RPM	8871	3373	13325		
Rated Current	A	0.94	0.24	0.56		
Rated Torque	mNm	2.23	2.07	3.6		
Rated Efficiency	%	39	30	40		
Phase Resistance	W	3.1	31	20.5		
Output Power	P	2.15	0.73	5.24		
Max. Efficiency	%	39	30	40		
No-Load Speed	RPM	14,850	6,890	22130		
No-Load Current	A	0.27	0.08	0.16		
Stall Torque	mNm	5.53	4.05	9.04		
Friction Torque	mNm	0.90	1.06	1.43		
Back EMF Constant	mV/RPM	0.35	1.38	0.94		
Torque Constant	mNm/A	3.32	13.19	8.94		
Slope of Speed vs. Torque Curve	RPM/mNm	2685.59	1,700.41	2,448.87		
Mechanical time Constant	mS	34.59	21.9	31.54		
Rotor Inertia	g-cm ²	1.23	1.23	1.23		
Max. Angular Acceleration	10 ³ rad/s ²	44.96	32.94	73.47		
Sensor		Hall Sensor	Hall Sensor	Hall Sensor		
Driver Recommendation		DR2404	DR2404	DR2404		
Weight	g	40	40	40		
Motor Body Length	"L"	20	20	20		

Outline Drawing





Performance Curve



22mm Brushless DC Motor



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General Specifications

Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC

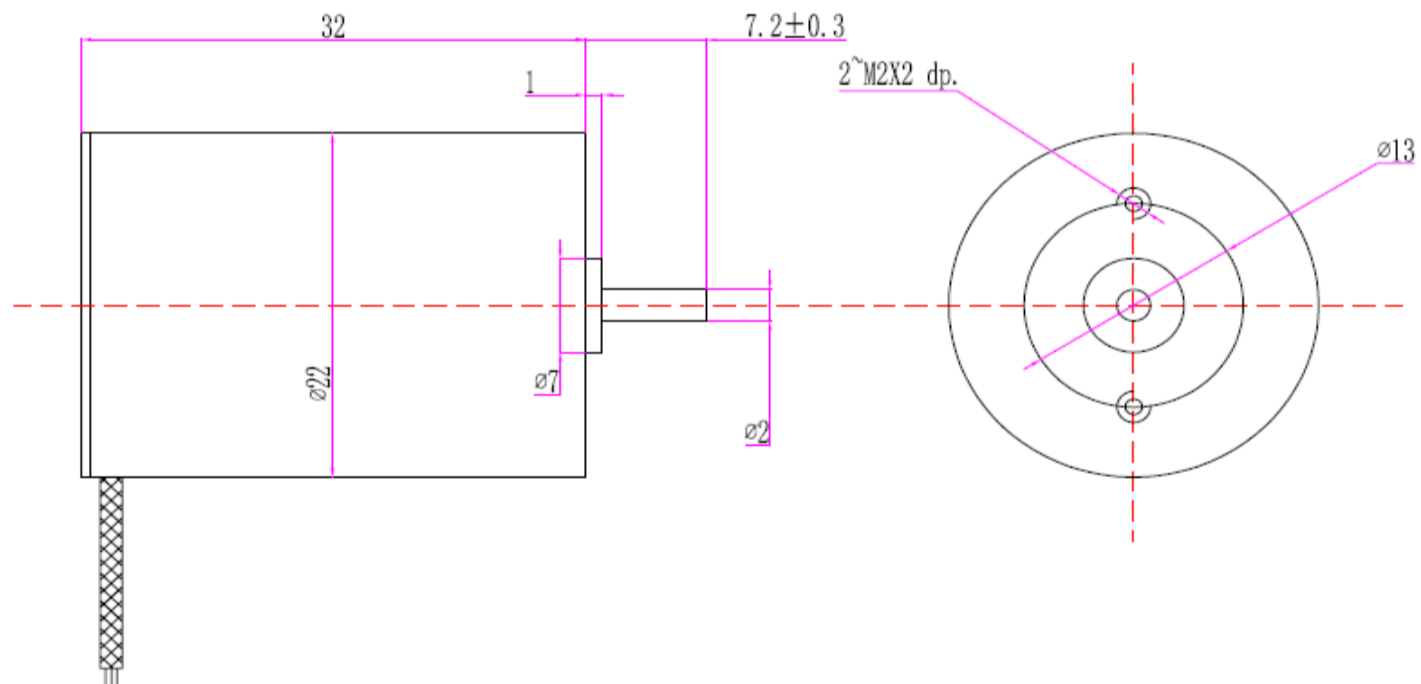
Model		DM2232-06-000-09	DM2232-06-000-13	DM2232-06-001-37	DM2232-06-008	DM2232-09-001
Nominal Voltage	V	6	6	6	6	9
Rated Speed	RPM	966	1372	3777	12181	2616
Rated Current	A	0.09	0.12	0.37	1.64	0.11
Rated Torque	mNm	1.24	1.17	2.31	4.54	1.66
Rated Efficiency	%	28	28	43	60	48
Phase Resistance	W	43.7	32.6	7.1	1	32
Output Power	W	0.13	0.17	0.99	8.09	0.52
Max. Efficiency	%	28	28	43	60	48
No-Load Speed	RPM	2,050	2,900	5960	15,890	3,880
No-Load Current	A	0.03	0.04	0.1	0.31	0.027
Stall Torque	mNm	2.34	2.23	6.32	19.46	5.09
Friction Torque	mNm	0.66	0.62	0.85	1.06	0.54
Back EMF Constant	mV/RPM	2.29	1.62	0.89	0.36	2.1
Torque Constant	mNm/A	21.84	15.46	8.48	3.42	20.02
Slope of Speed vs. Torque Curve	RPM/mNm	874.7	1,301.93	943.77	816.68	762.11
Mechanical time Constant	mS	18.14	36.99	19.57	16.93	15.8
Rotor Inertia	g-cm ²	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 ³ rad/s ²	11.84	11.25	31.89	98.27	25.71
Sensor		SL&HS	SL&HS	SL&HS	SL&HS	SL&HS
Driver Recommendation		DR1802&DR2404	DR1802&DR2404	DR1802&DR2404	DR1802&DR2404	DR1802&DR2404
Weight	g	44.5	44.5	44.5	44.5	44.5
Motor Body Length	"L"	32	32	32	32	32

Model		DM2232-12-001	DM2232-12-001	DM2232-12-003	DM2232-12-014	DM2232-12-022
Nominal Voltage	V	12	12	12	12	12
Rated Speed	RPM	2471	4265	7073	16673	19958
Rated Current	A	0.21	0.32	0.45	1.27	2.14
Rated Torque	mNm	2.41	3.16	3.32	5.45	7.33
Rated Efficiency	%	29	40	48	63	60
Phase Resistance	W	36	18.2	10.5	2.3	1.5
Output Power	W	0.62	1.47	2.8	14.36	21.66
Max. Efficiency	%	29	40	48	63	60
No-Load Speed	RPM	5,100	7,080	10500	21,100	25,900
No-Load Current	A	0.07	0.09	0.11	0.22	0.4
Stall Torque	mNm	4.67	7.96	10.19	26.00	31.94
Friction Torque	mNm	1.24	1.26	1.08	1.14	1.68
Back EMF Constant	mV/RPM	1.86	1.46	1.03	0.54	0.44
Torque Constant	mNm/A	17.75	13.98	9.86	5.2	4.2
Slope of Speed vs. Torque Curve	RPM/mNm	1091.08	889.77	1,030.71	811.67	810.79
Mechanical time Constant	mS	22.62	18.45	21.37	16.83	16.81
Rotor Inertia	g-cm ²	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 ³ rad/s ²	23.61	40.19	51.45	131.29	161.33
Sensor		SL&HS	SL&HS	SL&HS	SL&HS	SL&HS
Driver Recommendation		DR1802&DR2404	DR1802&DR2404	DR1802&DR2404	DR1802&DR2404	DR1802&DR2404
Weight	g	44.5	44.5	44.5	44.5	44.5

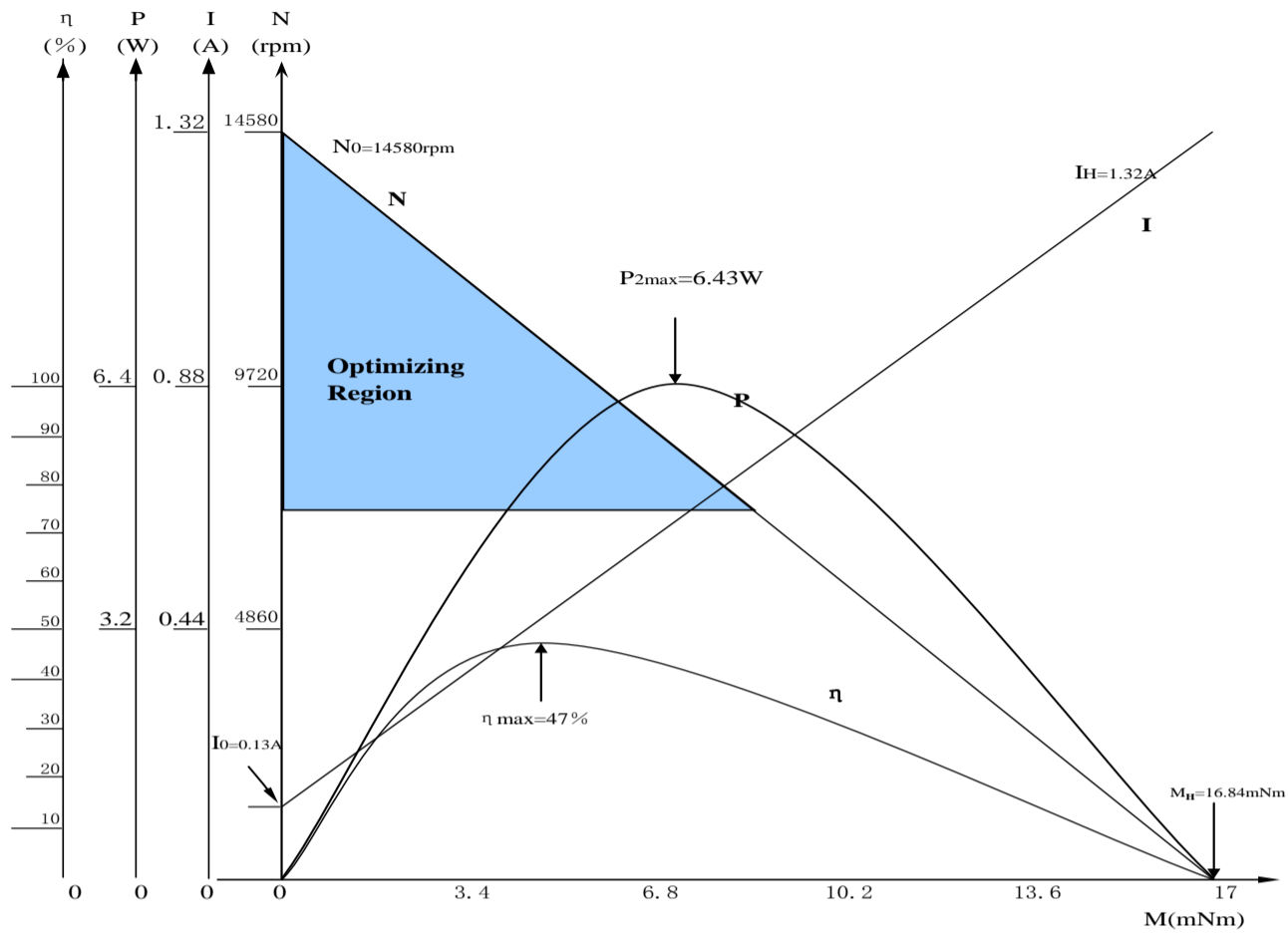
Motor Body Length	"L"	32	32	32	32	32
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Model		DM2232-24-004	DM2232-24-005	DM2232-24-006	DM2232-24-014	DM2232-24-028
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	7582	9004	9758	17626	21845
Rated Current	A	0.3	0.36	0.52	0.69	1.04
Rated Torque	mNm	4.4	4.71	5.57	5.36	7.31
Rated Efficiency	%	50	53	47	60	67
Phase Resistance	W	29.3	22.6	18.2	9.3	4.8
Output Power	W	4.11	5.45	6.43	13.96	28.11
Max. Efficiency	%	50	53	47	60	67
No-Load Speed	RPM	10,920	12,600	14580	22,900	26,700
No-Load Current	A	0.07	0.08	0.13	0.13	0.16
Stall Torque	mNm	14.38	16.52	16.84	23.29	40.22
Friction Torque	mNm	1.34	1.35	1.84	1.24	1.33
Back EMF Constant	mV/RPM	2.01	1.76	1.48	1.00	0.87
Torque Constant	mNm/A	19.19	16.82	14.17	9.50	8.31
Slope of Speed vs. Torque Curve	RPM/mNm	759.47	762.93	865.65	983.23	663.93
Mechanical time Constant	mS	15.75	15.82	17.95	20.39	13.77
Rotor Inertia	g-cm ²	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 ³ rad/s ²	72.62	83.41	85.07	117.63	203.11
Sensor		SL&HS	SL&HS	SL&HS	SL&HS	SL&HS
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	44.5	44.5	44.5	44.5	44.5
Motor Body Length	"L"	32	32	32	32	32

Outline Drawing



Performance Curve



22mm Brushless DC Motor



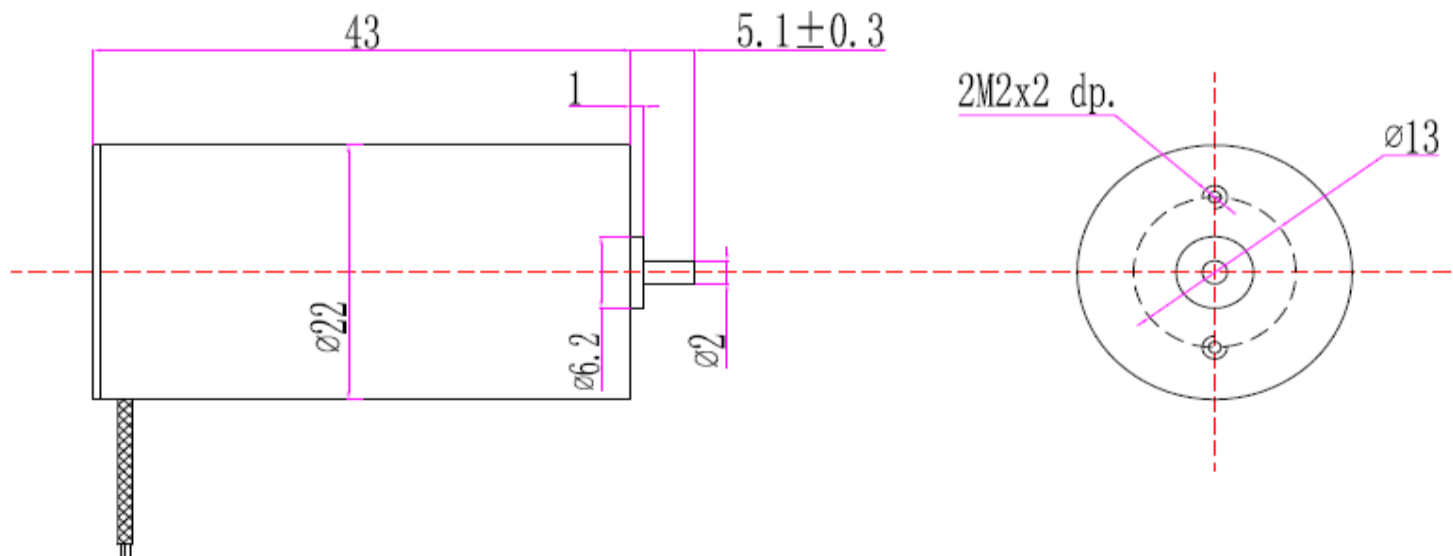
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General Specifications

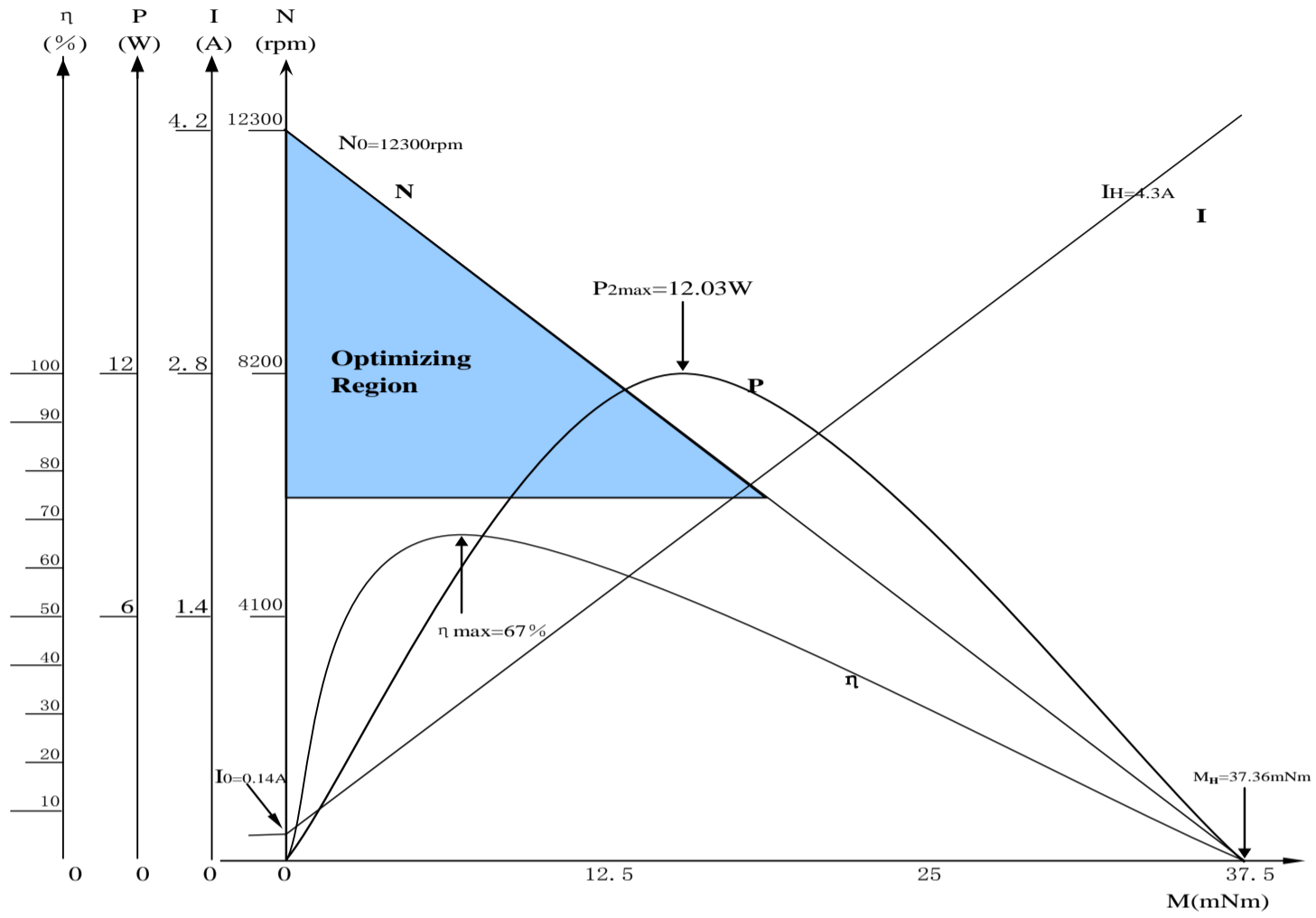
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC

Model		DM2243-12-006	DM2243-12-012	DM2243-24-002	DM2243-24-006	DM2243-24-027
Nominal Voltage	V	12	12	24	24	24
Rated Speed	RPM	6137	10040	4040	10800	30595
Rated Current	A	0.51	0.9	0.2	0.55	1.4
Rated Torque	mNm	5.93	6.87	4.94	5.05	6.09
Rated Efficiency	%	63	67	46	45	59
Phase Resistance	W	5.8	2.8	49.7	18.2	4.8
Output Power	W	5.68	12.03	2.33	6.32	26.85
Max. Efficiency	%	63	67	46	45	59
No-Load Speed	RPM	7,800	12,300	6120	16,480	40,200
No-Load Current	A	0.09	0.14	0.05	0.14	0.27
Stall Torque	mNm	27.81	37.36	14.53	14.65	25.51
Friction Torque	mNm	1.26	1.26	1.68	1.74	1.46
Back EMF Constant	mV/RPM	1.47	0.94	3.52	1.3	0.56
Torque Constant	mNm/A	14.05	9.01	33.57	12.43	5.39
Slope of Speed vs. Torque Curve	RPM/mNm	280.49	329.22	421.12	1,124.81	1,575.86
Mechanical time Constant	mS	2.67	3.14	4.01	10.72	15.02
Rotor Inertia	g-cm ²	0.91	0.91	0.91	0.91	0.91
Max. Angular Acceleration	10 ³ rad/s ²	305.59	410.56	159.70	161	280.33
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	95	95	95	95	95
Motor Body Length	"L"	43	43	43	43	43

Outline Drawing



Performance Curve



22mm Brushless DC Motor



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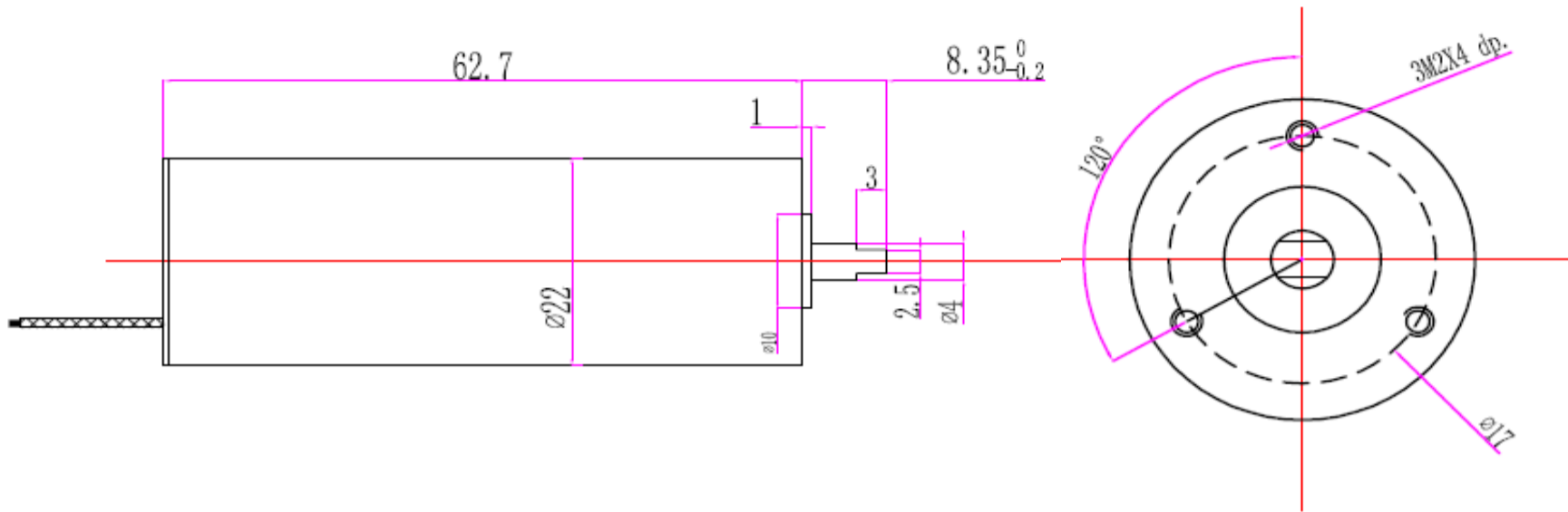
General Specifications

Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC

Model		DM2262-12-018	DM2262-15-025	DM2262-24-015	DM2262-24-014	DM2262-24-045
Nominal Voltage	V	12	15	24	24	24
Rated Speed	RPM	12156	11438	9501	11100	19542
Rated Current	A	2.39	2.11	0.57	1.09	1.64
Rated Torque	mNm	11.6	15.33	9.06	10.35	12.97
Rated Efficiency	%	53	59	66	47	68
Phase Resistance	W	1.7	2	9.1	8.6	3
Output Power	W	18.1	25.1	14.8	13.7	45
Max. Efficiency	%	53	59	66	47	68
No-Load Speed	RPM	17,000	15,060	11700	16,500	23,820
No-Load Current	A	0.53	0.41	0.09	0.27	0.25
Stall Torque	mNm	40.70	63.75	48.2	31.62	72.24
Friction Torque	mNm	3.30	3.69	1.70	3.39	2.33
Back EMF Constant	mV/RPM	0.65	0.94	1.98	1.31	0.98
Torque Constant	mNm/A	6.23	8.99	18.92	12.55	9.32
Slope of Speed vs. Torque Curve	RPM/mNm	417.65	236.24	242.76	521.74	329.75
Mechanical time Constant	mS	21.91	12.39	12.74	27.37	17.30
Rotor Inertia	g-cm ²	5.01	5.01	5.01	5.01	5.01
Max. Angular Acceleration	10 ³ rad/s ²	81.25	127.24	96.20	63.12	144.18
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	100	100	100	100	100
Motor Body Length	"L"	62	62	62	62	62

Model		DM2262-28-018	DM2262-30-038	DM2262-30-028		
Nominal Voltage	V	28	30	30		
Rated Speed	RPM	12510	12412	12918		
Rated Current	A	1.20	1.51	1.21		
Rated Torque	mNm	12.03	20.79	20.65		
Rated Efficiency	%	48	60	58		
Phase Resistance	W	8.9	5.3	7.2		
Output Power	W	18.1	38.4	27.8		
Max. Efficiency	%	48	60	58		
No-Load Speed	RPM	18,360	16,080	17160		
No-Load Current	A	0.29	0.28	0.24		
Stall Torque	mNm	37.76	91.11	61.78		
Friction Torque	mNm	3.83	4.74	3.78		
Back EMF Constant	mV/RPM	1.38	1.77	1.65		
Torque Constant	mNm/A	13.22	16.93	15.73		
Slope of Speed vs. Torque Curve	RPM/mNm	486.24	176.48	277.77		
Mechanical time Constant	mS	25.51	9.26	14.57		
Rotor Inertia	g-cm ²	5.01	5.01	5.01		
Max. Angular Acceleration	10 ³ rad/s ²	75.37	181.86	123.31		
Sensor		Hall Sensor	Hall Sensor	Hall Sensor		
Driver Recommendation		DR2404	DR2404	DR2404		
Weight	g	100	100	100		
Motor Body Length	"L"	62	62	62		

Outline Drawing



Performance Curve

