

# 14mm Brushless DC Motor



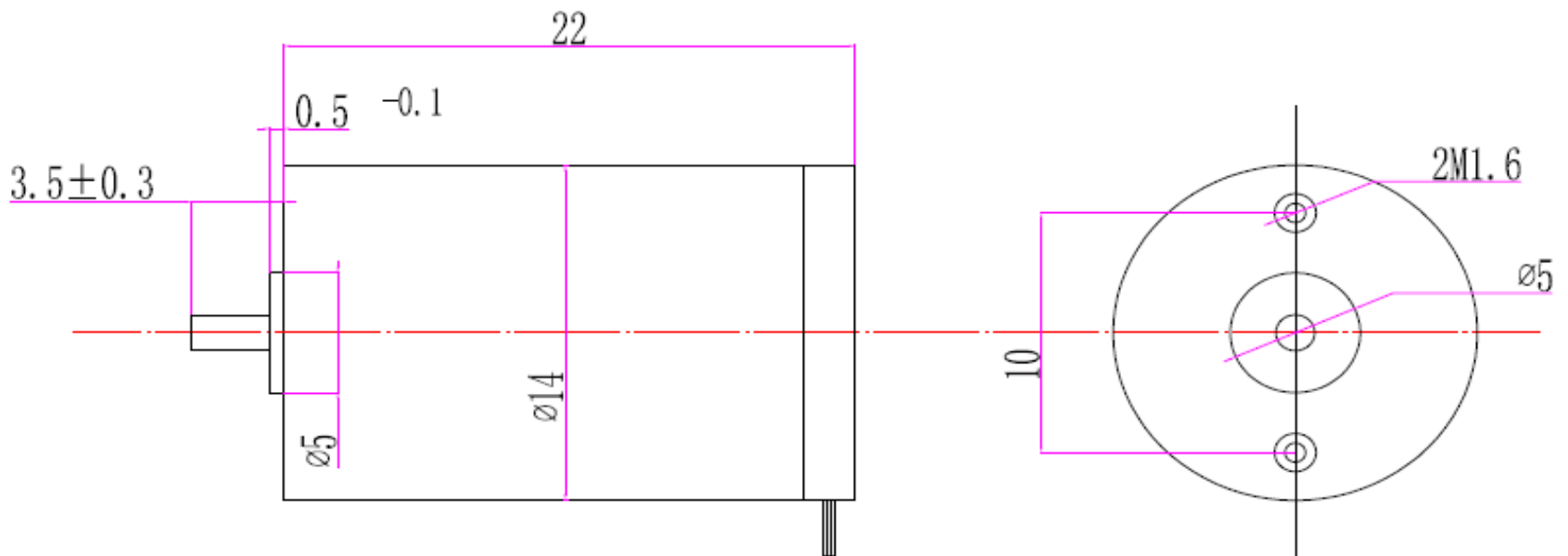
1422

## 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		DM1422-03	DM1422-08			
Nominal Voltage	V	3	8			
Rated Speed	RPM	233	2622			
Rated Current	A	0.01	0.04			
Rated Torque	mNm	0.21	0.42			
Rated Efficiency	%	18	42			
Phase Resistance	W	165	99			
Output Power	W	0.01	0.12			
Max. Efficiency	%	18	42			
No-Load Speed	RPM	780	4200			
No-Load Current	A	0.006	0.01			
Stall Torque	mNm	0.3	1.13			
Friction Torque	mNm	0.15	0.16			
Back EMF Constant	mV/RPM	2.58	1.67			
Torque Constant	mNm/A	24.61	15.94			
Slope of Speed vs. Torque Curve	RPM/mNm	2602.01	3721.57			
Mechanical time Constant	mS	3.27	4.68			
Rotor Inertia	g-cm <sup>2</sup>	0.12	0.12			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	24.98	94.05			
Sensor		Sensorless	Sensorless			
Driver Recommendation		DR1802	DR1802			
Weight	g	18	18			
Motor Body Length	"L"	22	22			

## Outline Drawing



# 14mm Brushless DC Motor



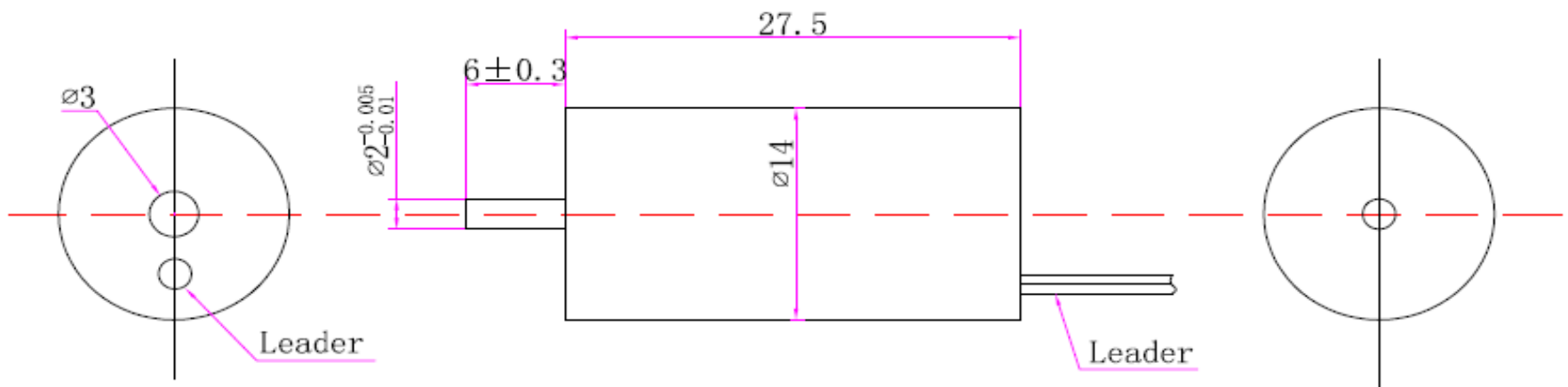
1428

## General Specifications

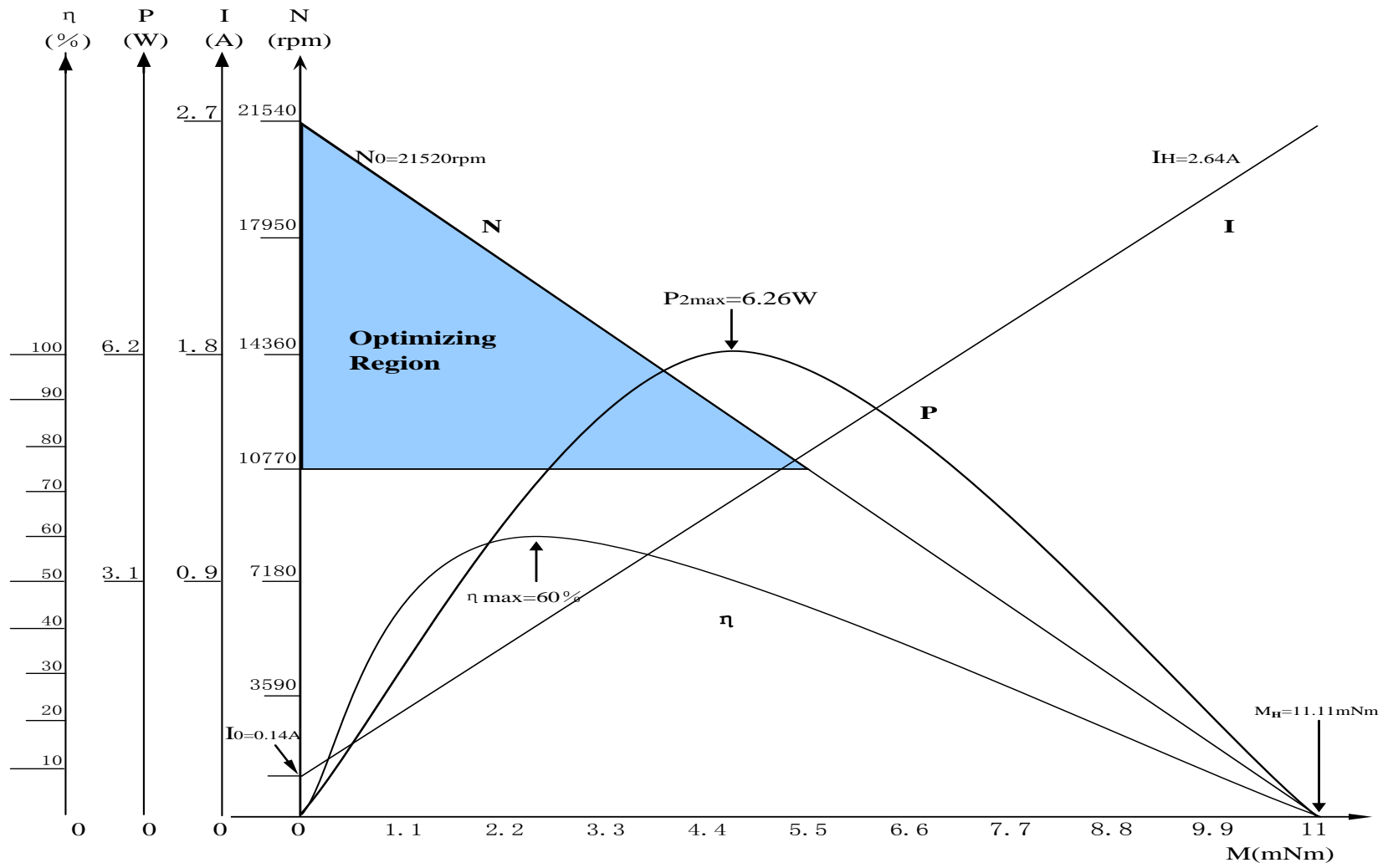
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM1428-10				
Nominal Voltage	V	10				
Rated Speed	RPM	16562				
Rated Current	A	0.75				
Rated Torque	mNm	2.56				
Rated Efficiency	%	60				
Phase Resistance	W	3.6				
Output Power	W	4.44				
Max. Efficiency	%	60				
No-Load Speed	RPM	21520				
No-Load Current	A	0.14				
Stall Torque	mNm	11.11				
Friction Torque	mNm	0.59				
Back EMF Constant	mV/RPM	0.44				
Torque Constant	mNm/A	4.21				
Slope of Speed vs. Torque Curve	RPM/mNm	1936.13				
Mechanical time Constant	mS	4.46				
Rotor Inertia	g-cm <sup>2</sup>	0.22				
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	505.23				
Sensor		Sensorless				
Driver Recommendation		DR1802				
Weight	g	22				
Motor Body Length	"L"	28				

## Outline Drawing



# Performance Curve



# 14mm Brushless DC Motor



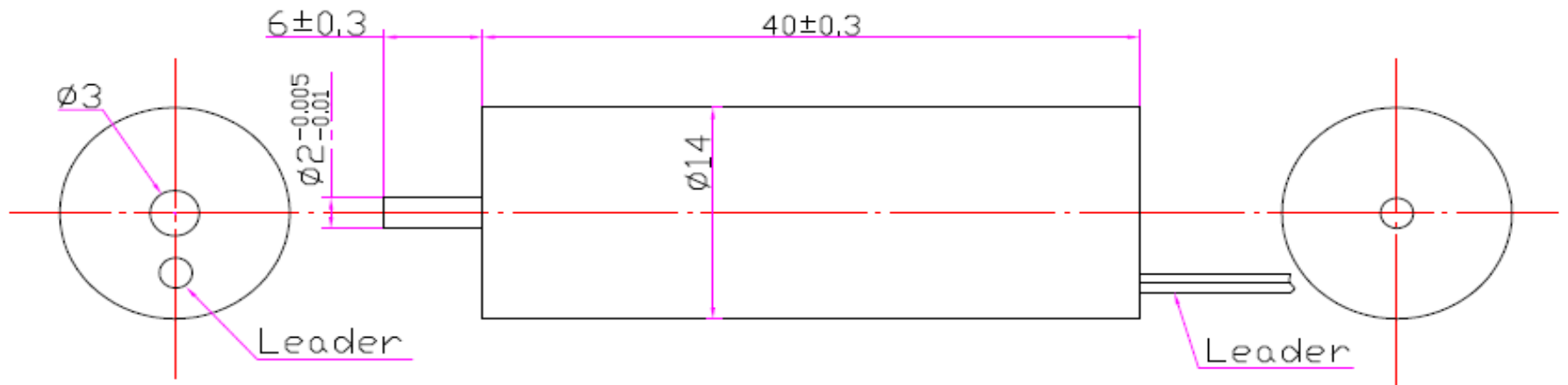
1440

## General Specifications

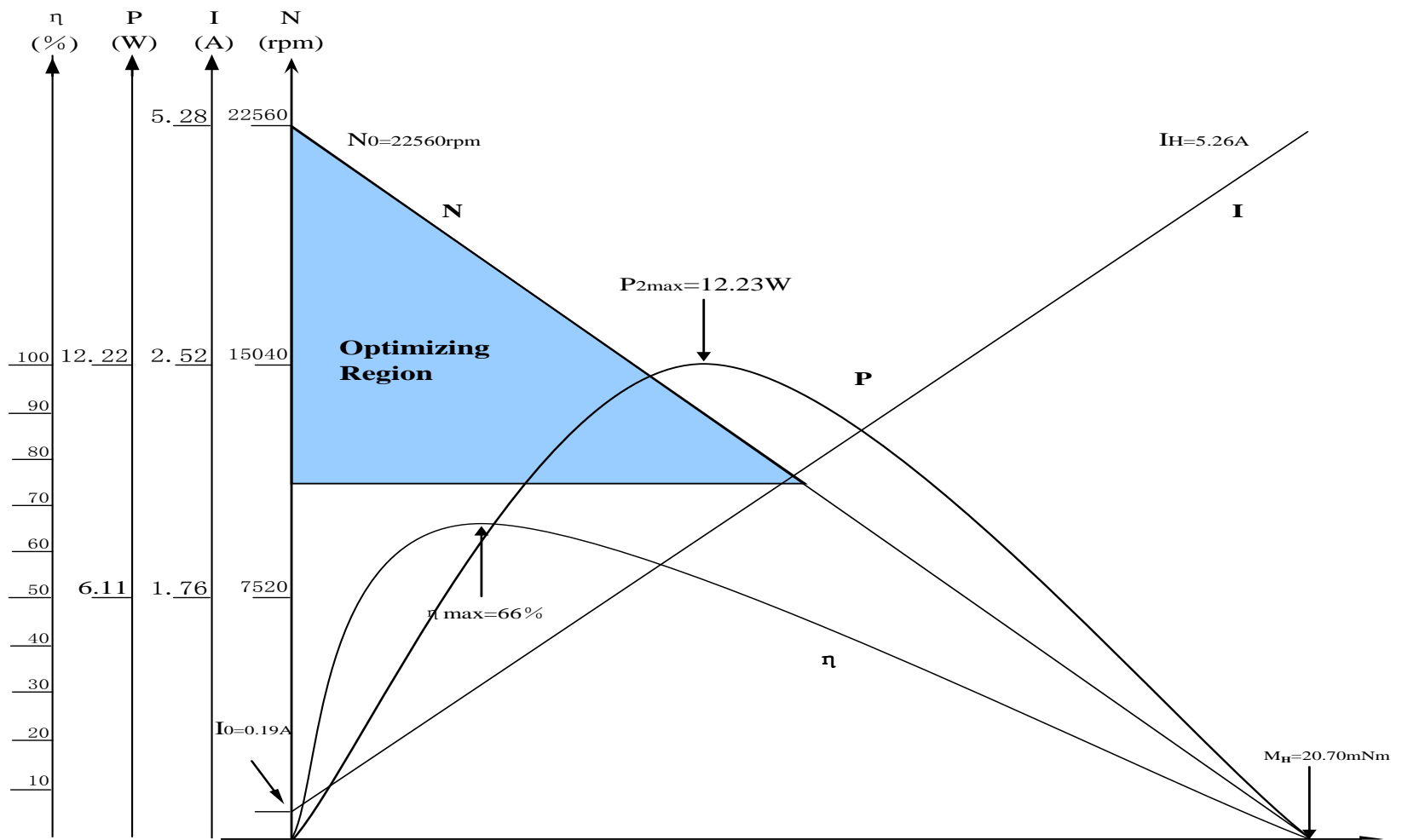
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM1440-06-004	DM1440-06-012			
Nominal Voltage	V	6	6			
Rated Speed	RPM	9773	18194			
Rated Current	A	0.51	1.17			
Rated Torque	mNm	2.9	4.01			
Rated Efficiency	%	59	66			
Phase Resistance	W	5.5	1.9			
Output Power	W	2.97	7.63			
Max. Efficiency	%	59	66			
No-Load Speed	RPM	12880	22560			
No-Load Current	A	0.1	0.19			
Stall Torque	mNm	12.04	20.7			
Friction Torque	mNm	0.7	0.78			
Back EMF Constant	mV/RPM	0.73	0.43			
Torque Constant	mNm/A	7.01	4.08			
Slope of Speed vs. Torque Curve	RPM/mNm	1069.94	1089.92			
Mechanical time Constant	mS	4.48	4.57			
Rotor Inertia	g-cm <sup>2</sup>	0.4	0.4			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	300.95	517.47			
Sensor		Sensorless	Sensorless			
Driver Recommendation		DR1802&DR2404	DR1802&DR2404			
Weight	g	44.5	44.5			
Motor Body Length	"L"	32	32			

## Outline Drawing



# Performance Curve



# 16mm Brushless DC Motor



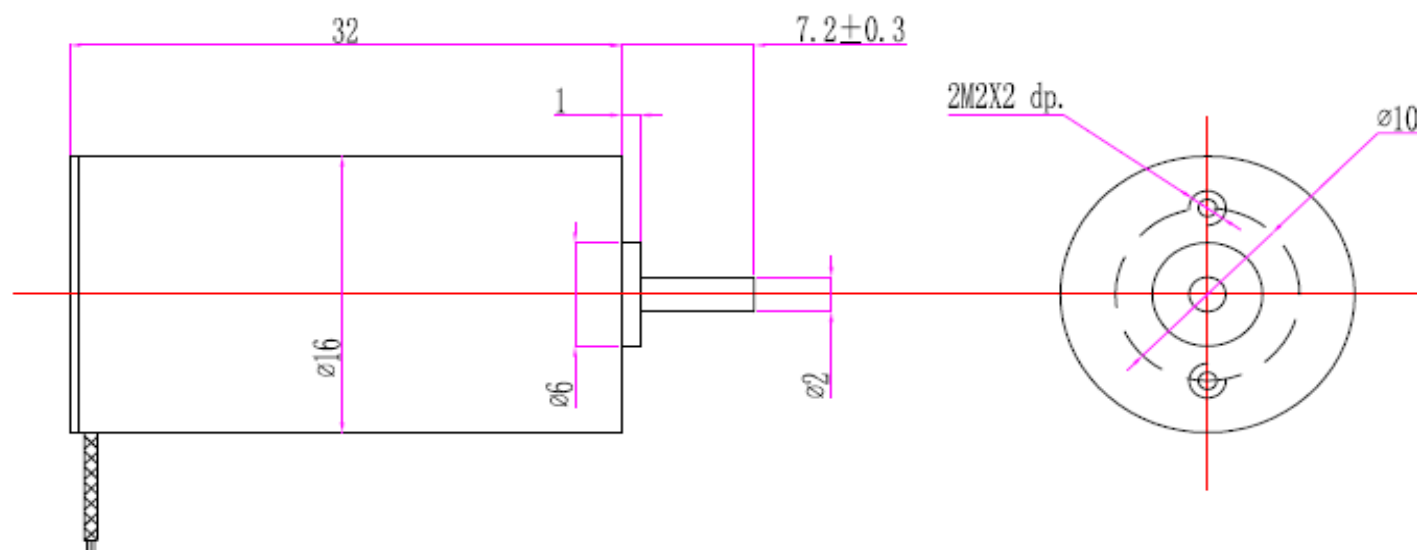
1632

## General Specifications

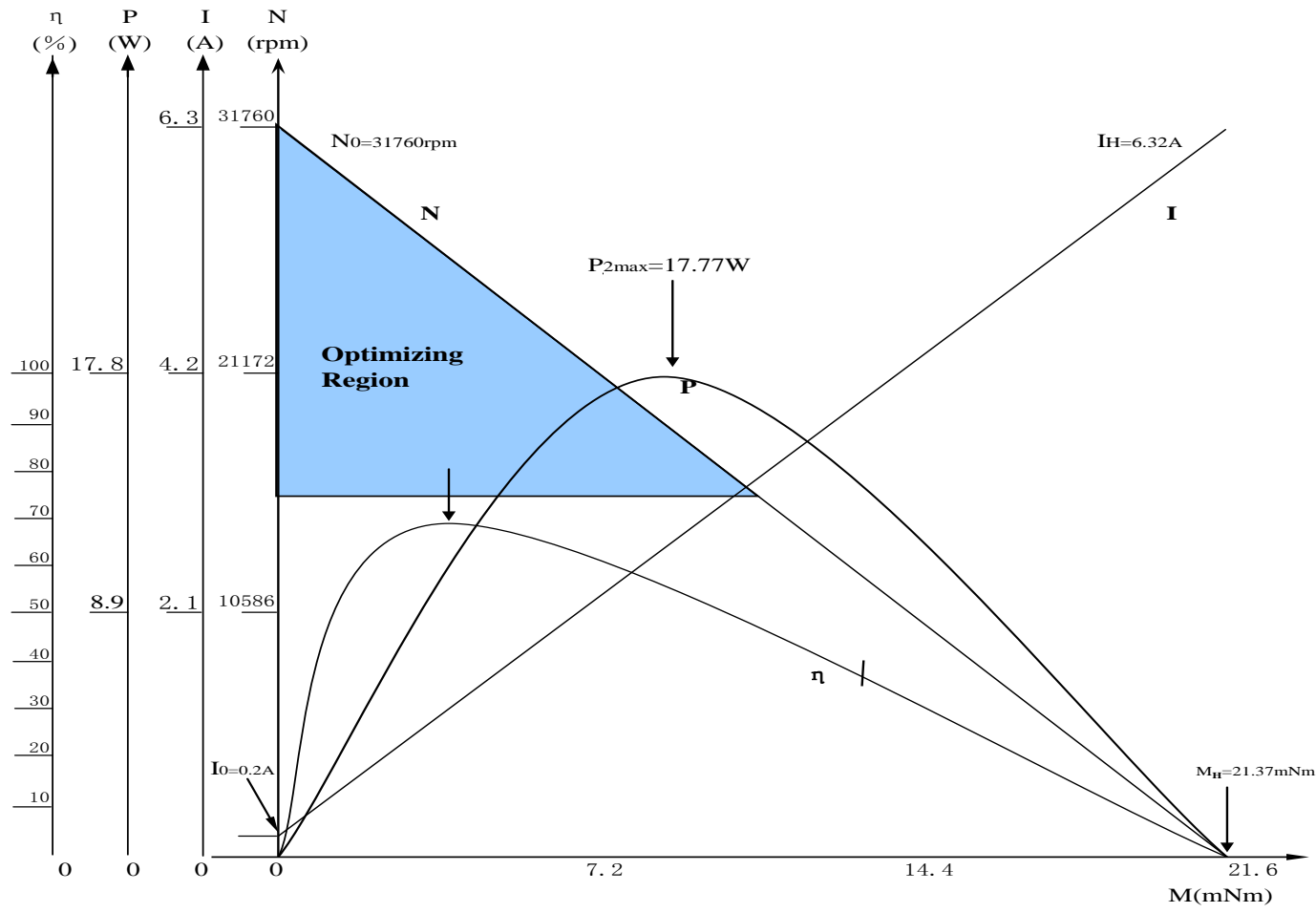
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM1632-05	DM1632-12-000	DM1632-12-002	DM-1632-12-005	DM1632-12-011	DM1632-24-002
Nominal Voltage	V	5	12	12	12	12	24
Rated Speed	RPM	3324	2979	10487	19448	26017	6808
Rated Current	A	0.2	0.14	0.38	0.67	1.31	0.26
Rated Torque	mNm	1.28	1.13	2.22	2.44	3.86	2.13
Rated Efficiency	%	47	26	55	62	68	28
Phase Resistance	W	10.1	58	10.1	4.5	1.9	58
Output Power	W	0.45	0.35	2.44	4.96	10.52	1.51
Max. Efficiency	%	47	26	55	62	68	28
No-Load Speed	RPM	5,000	6,840	14340	24,840	31,760	14400
No-Load Current	A	0.05	0.05	0.08	0.12	0.2	0.09
Stall Torque	mNm	3.82	1.99	8.26	11.22	21.37	4.03
Friction Torque	mNm	0.43	0.64	0.60	0.53	0.70	1.12
Back EMF Constant	mV/RPM	0.9	1.33	0.78	0.46	0.37	1.3
Torque Constant	mNm/A	8.58	12.7	7.45	4.41	3.49	12.45
Slope of Speed vs. Torque Curve	RPM/mNm	1308.67	3,431.52	1,736.33	2,213.99	1,486.38	3571
Mechanical time Constant	mS	7.67	20.12	10.18	12.98	8.72	20.94
Rotor Inertia	g-cm <sup>2</sup>	0.56	0.56	0.56	0.56	0.56	0.56
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	68.23	35.59	147.48	200.35	381.56	72.01
Sensor		Sensorless	Sensorless	Sensorless	Sensorless	Sensorless	Sensorless
Driver Recommendation		DR1802	DR1802	DR1802	DR1802	DR1802	DR1802
Weight	g	26	26	26	26	26	26
Motor Body Length	"L"	32	32	32	32	32	32

## Outline Drawing



# Performance Curve



# 17mm Brushless DC Motor



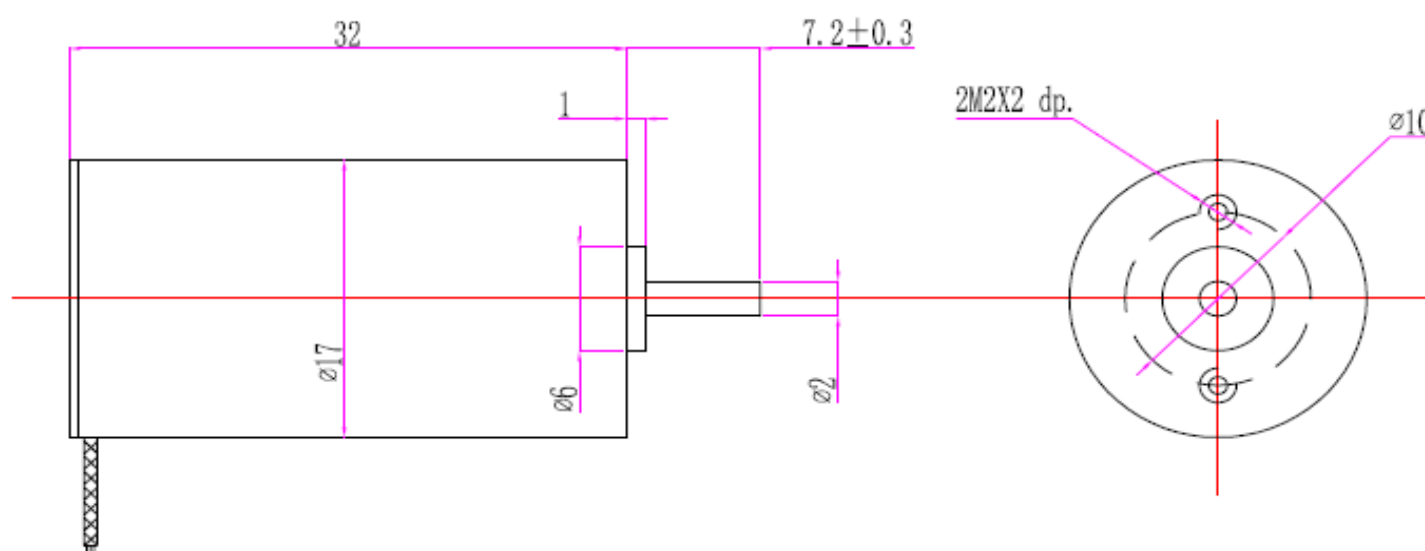
1732

## 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

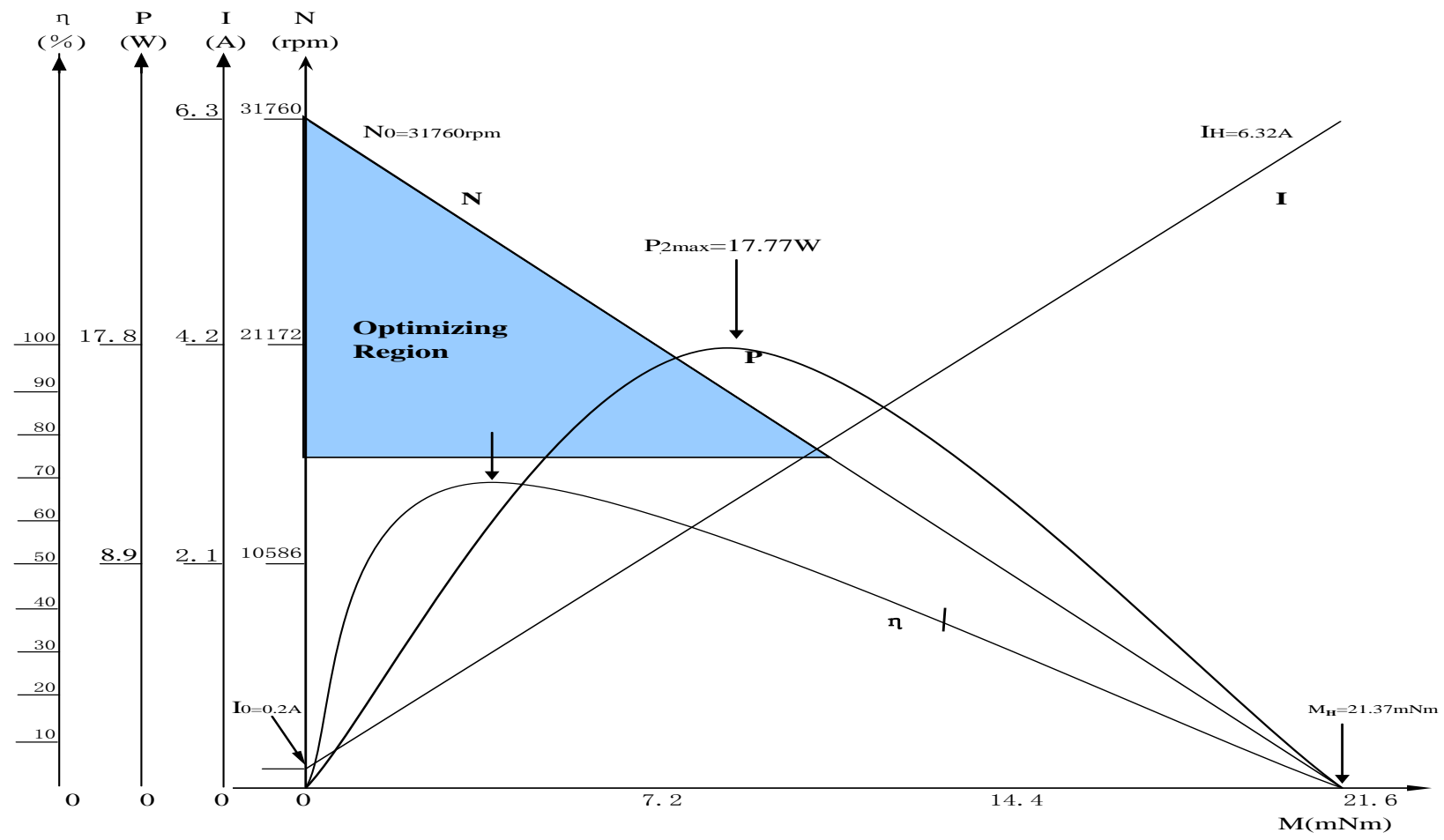
Model		DM1732-05	DM1732-12-000	DM1732-12-002	DM1732-12-005	DM1732-12-011	DM1732-24-002
Nominal Voltage	V	5	12	12	12	12	24
Rated Speed	RPM	3324	2979	10487	19447	26017	6808
Rated Current	A	0.2	0.14	0.38	0.67	1.31	0.26
Rated Torque	mNm	1.28	1.13	2.22	2.44	3.86	2.13
Rated Efficiency	%	47	26	55	62	68	28
Phase Resistance	W	10.1	58	10.1	4.5	1.9	58
Output Power	W	0.45	0.35	2.44	4.96	10.52	1.51
Max. Efficiency	%	47	26	55	62	68	28
No-Load Speed	RPM	5,000	6,840	14340	24,840	31,760	14400
No-Load Current	A	0.05	0.05	0.08	0.12	0.2	0.09
Stall Torque	mNm	3.82	1.99	8.26	11.22	21.37	4.03
Friction Torque	mNm	0.43	0.64	0.60	0.53	0.70	1.12
Back EMF Constant	mV/RPM	0.9	1.33	0.78	0.46	0.37	1.3
Torque Constant	mNm/A	8.58	12.7	7.45	4.41	3.49	12.45
Slope of Speed vs. Torque Curve	RPM/mNm	1308.67	3,431.52	1,736.33	2,213.99	1,486.38	3571
Mechanical time Constant	mS	7.67	20.12	10.18	12.98	8.72	20.94
Rotor Inertia	g-cm <sup>2</sup>	0.56	0.56	0.56	0.56	0.56	0.56
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	68.23	35.59	147.48	200.35	381.56	72.01
Sensor		Sensorless	Sensorless	Sensorless	Sensorless	Sensorless	Sensorless
Driver Recommendation		DR1802	DR1802	DR1802	DR1802	DR1802	DR1802
Weight	g	27.5	27.5	27.5	27.5	27.5	27.5
Motor Body Length	"L"	32	32	32	32	32	32

## Outline Drawing





**Performance Curve**



# 22mm Brushless DC Motor



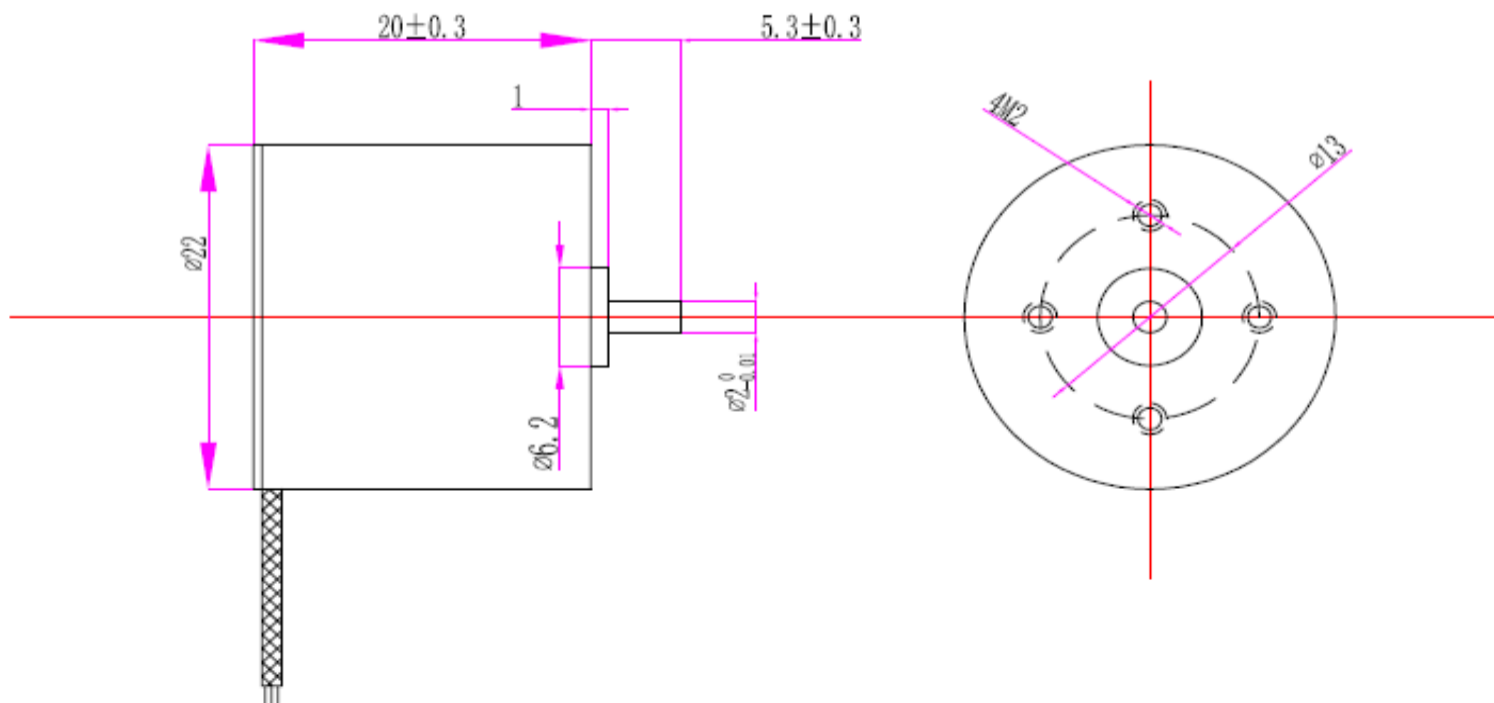
2220

## General Specifications

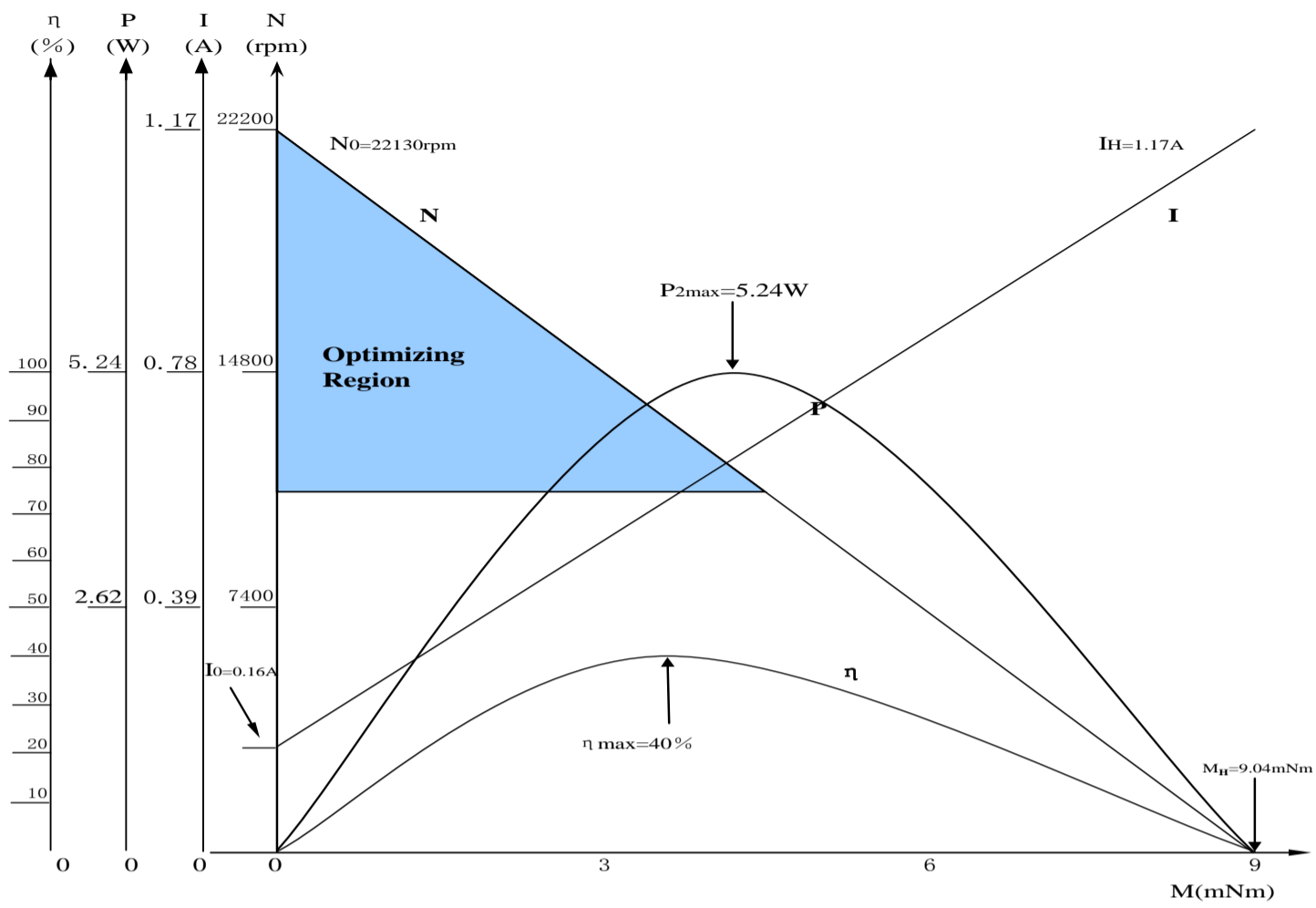
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric 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	2.07	0.73	5.01		
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 <sup>2</sup>	1.23	1.23	1.23		
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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



2232

## General Specifications

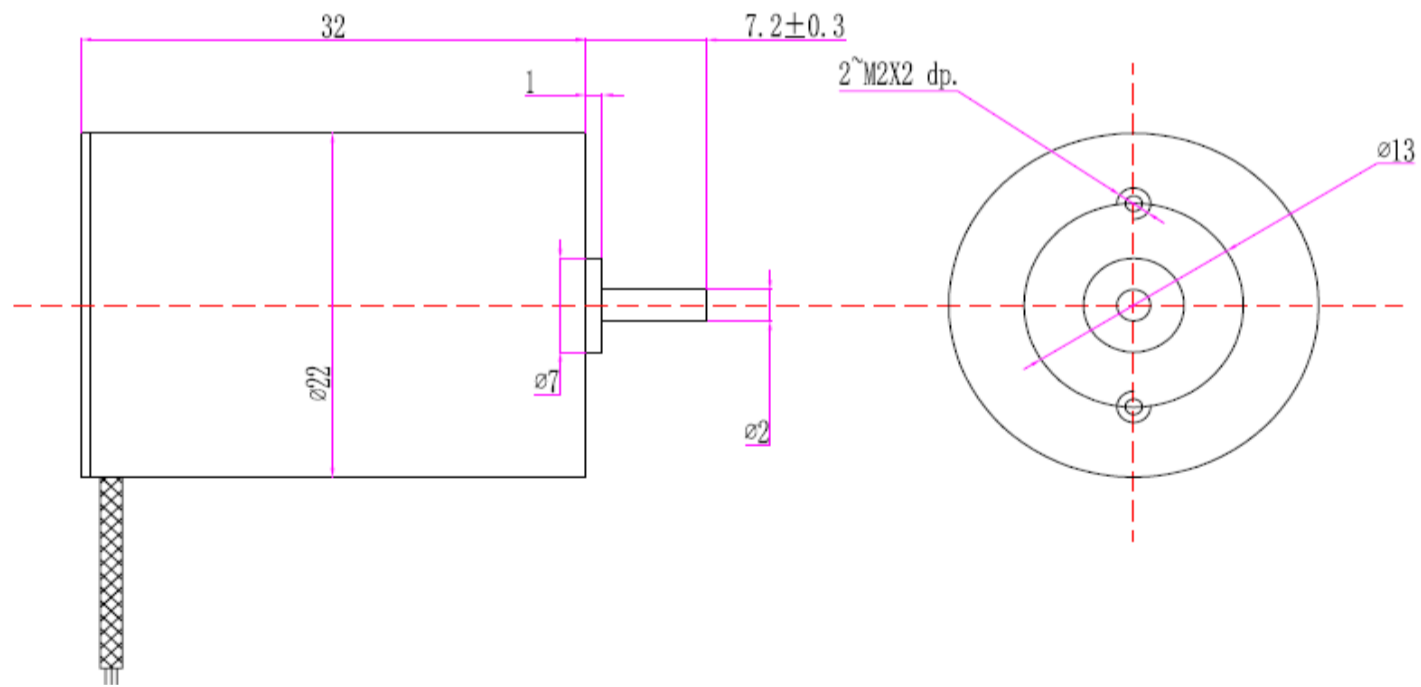
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM2232-06-000-09	DM2232-06-000-13	DM2232-06-001-37	DM2232-06-006	DM2232-09-000
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	0.91	5.79	0.45
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 <sup>2</sup>	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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

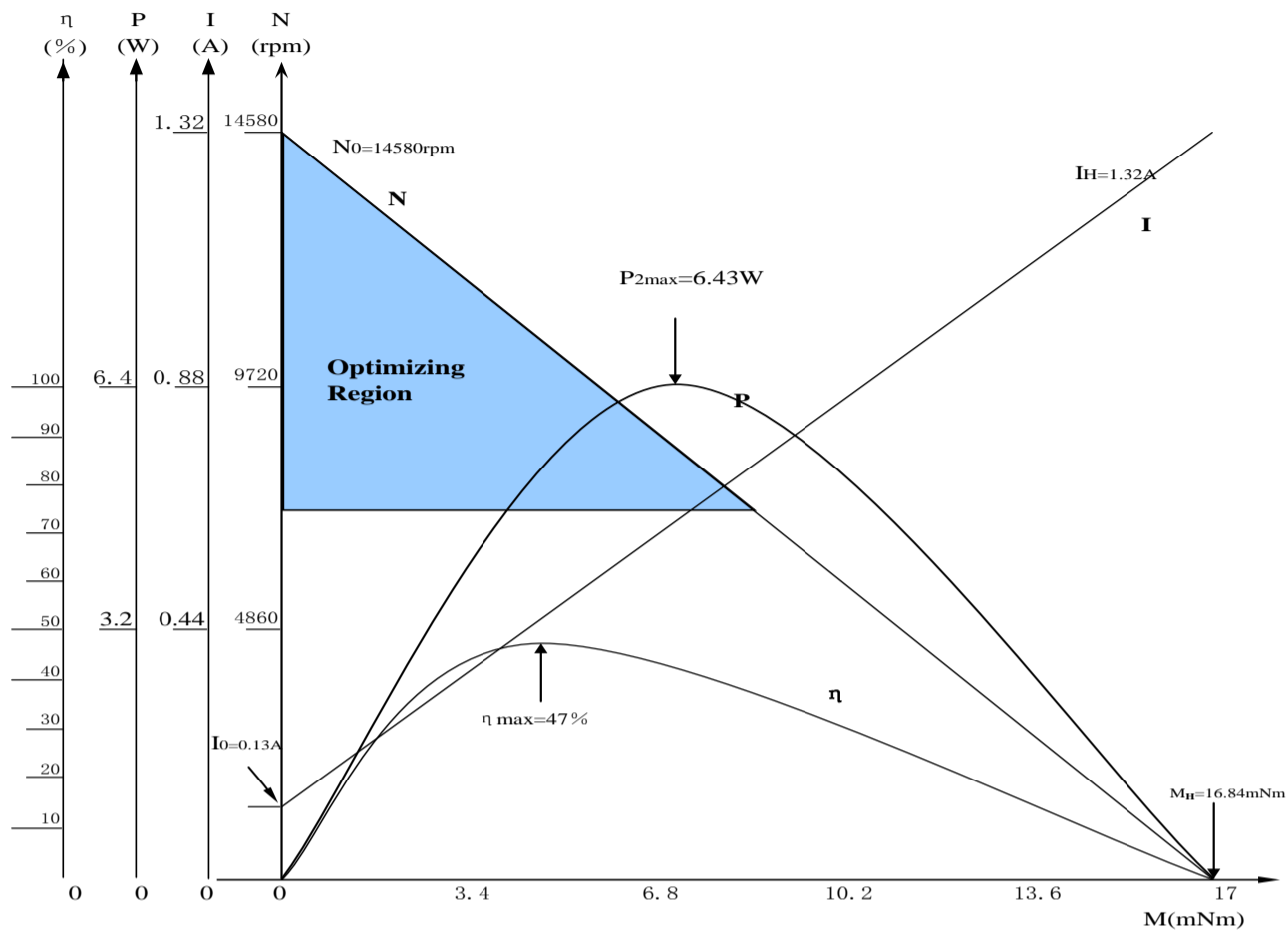
Model		DM2232-12-001-02	DM2232-12-001-04	DM2232-12-002	DM2232-12-010	DM2232-12-015
Nominal Voltage	V	12	12	12	12	12
Rated Speed	RPM	2471	4265	7073	16673	19958
Rated Current	A	0.21	0.32	0.45	1.27	2.14
Rated Torque	mNm	2.41	3.16	3.32	5.45	7.33
Rated Efficiency	%	29	40	48	63	60
Phase Resistance	W	36	18.2	10.5	2.3	1.5
Output Power	W	0.62	1.41	2.46	9.52	15.31
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 <sup>2</sup>	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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

Model		DM2232-24-003	DM2232-24-004	DM2232-24-006	DM2232-24-010	DM2232-24-017
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	3.49	4.44	5.69	9.9	16.72
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 <sup>2</sup>	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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



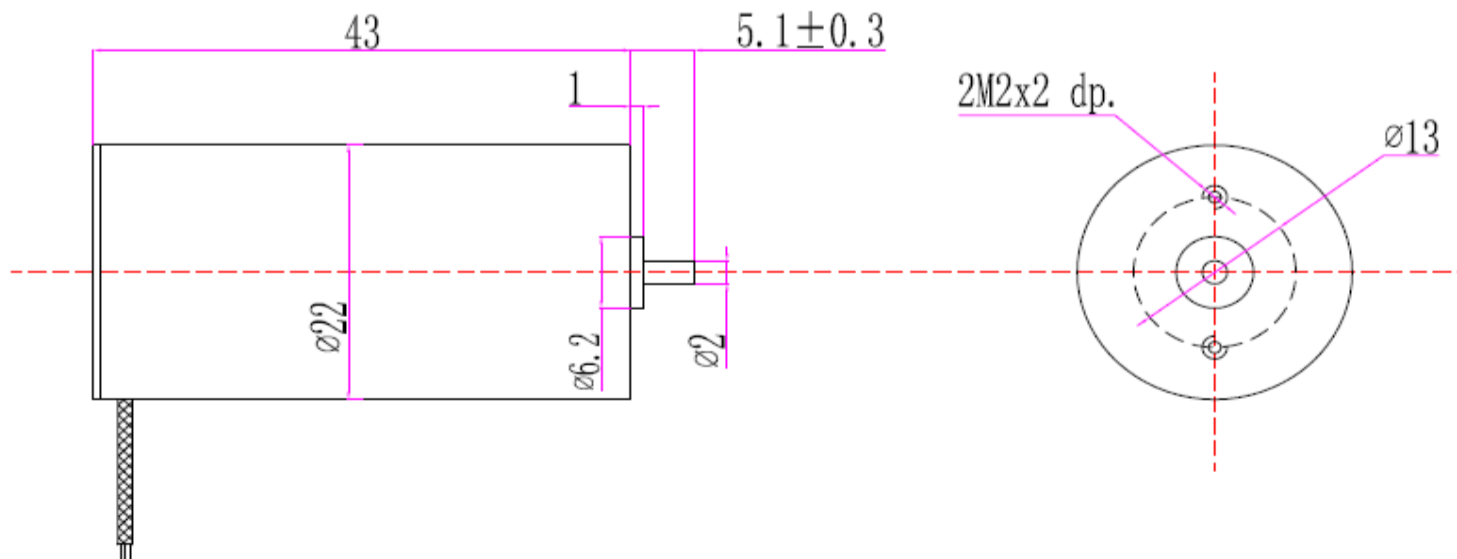
2243

## General Specifications

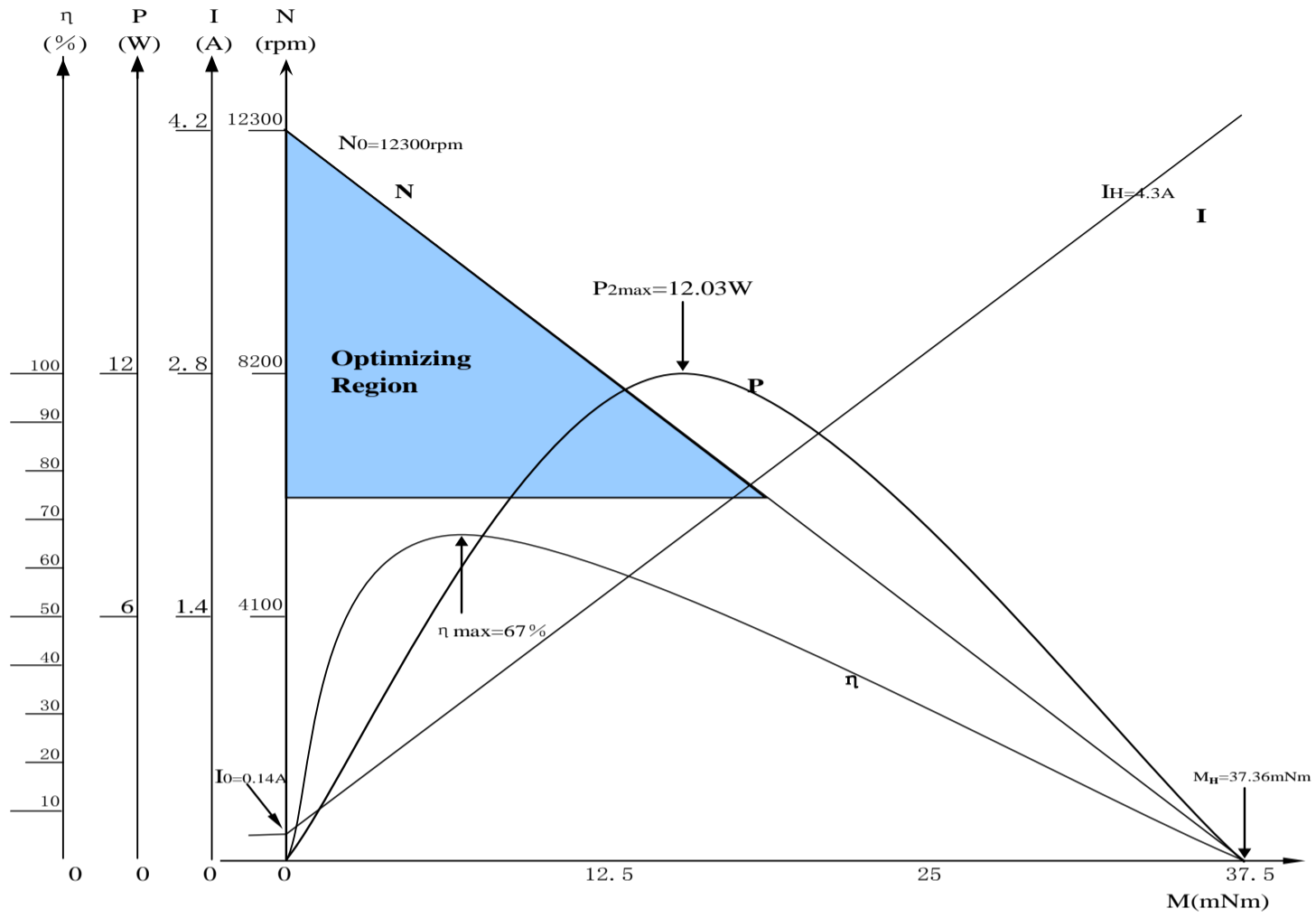
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM2243-12-004	DM2243-12-007	DM2243-24-002	DM2243-24-006	DM2243-24-020
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	3.81	7.21	2.09	5.71	19.52
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 <sup>2</sup>	0.91	0.91	0.91	0.91	0.91
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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



2262

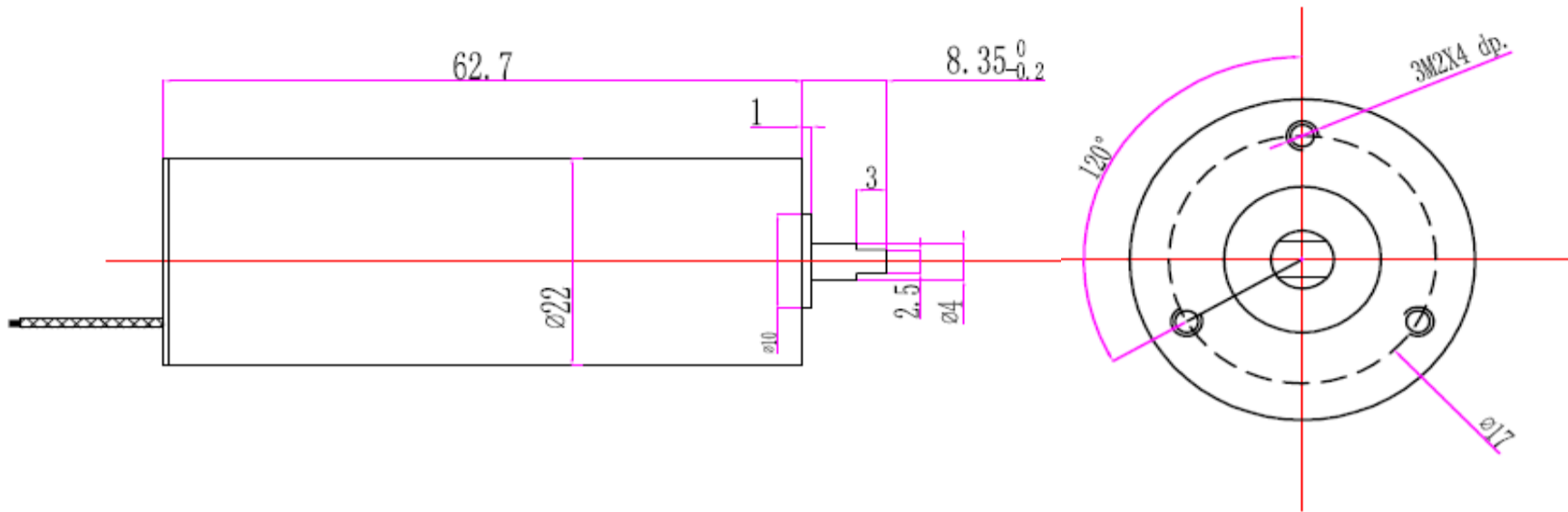
## General Specifications

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

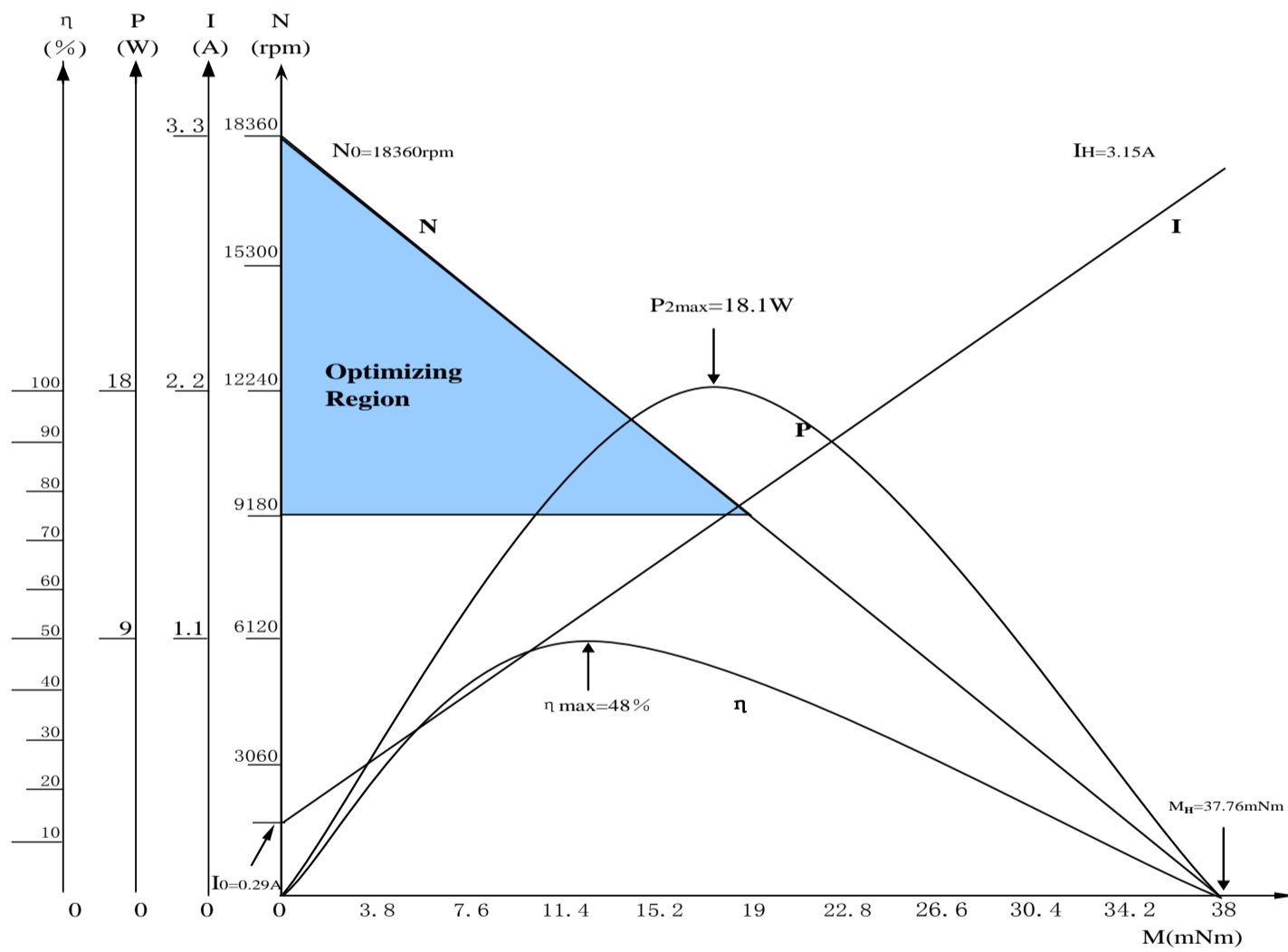
Model		DM2262-12-015	DM2262-15-018	DM2262-24-009	DM2262-24-012	DM2262-24-027
Nominal Voltage	V	12	15	24	24	24
Rated Speed	RPM	12156	11438	9501	11100	19542
Rated Current	A	2.39	2.11	0.57	1.09	1.64
Rated Torque	mNm	11.6	15.33	9.06	10.35	12.97
Rated Efficiency	%	53	59	66	47	68
Phase Resistance	W	1.7	2	9.1	8.6	3
Output Power	W	14.76	18.35	9.01	12.02	26.54
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 <sup>2</sup>	5.01	5.01	5.01	5.01	5.01
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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	15.75	27	20.65		
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 <sup>2</sup>	5.01	5.01	5.01		
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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



# 26mm Brushless DC Motor



2644

## 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

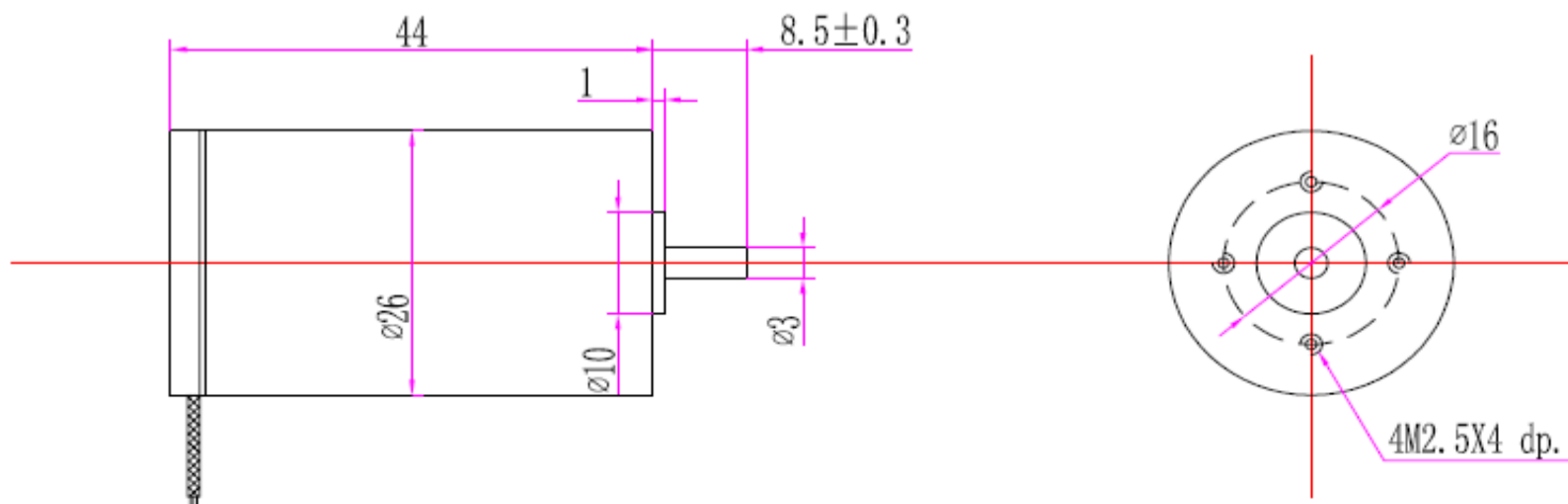
Model		DM26440-06-000	DM2644-06-001	DM26440-06-002	DM2644-09	DM26440-12-004
Nominal Voltage	V	6	6	6	9	12
Rated Speed	RPM	583	1791	3419	2718	3576
Rated Current	A	0.1	0.38	0.75	0.47	0.54
Rated Torque	mNm	3.32	5.98	6.31	8.09	10.23
Rated Efficiency	%	37	50	52	55	60
Phase Resistance	W	31	5.7	2.8	6	6
Output Power	W	0.2	1.12	2.26	2.3	3.83
Max. Efficiency	%	37	50	52	55	60
No-Load Speed	RPM	1020	2580	4840	3710	4640
No-Load Current	A	0.03	0.09	0.17	0.1	0.1
Stall Torque	mNm	7.76	19.55	21.5	30.27	44.58
Friction Torque	mNm	1.42	1.83	1.85	2.16	2.35
Back EMF Constant	mV/RPM	4.97	2.13	1.14	2.26	2.46
Torque Constant	mNm/A	47.47	20.31	10.9	21.62	23.46
Slope of Speed vs. Torque Curve	RPM/mNm	131.39	131.97	225.1	122.57	104.09
Mechanical time Constant	mS	8.93	8.97	15.3	8.33	7.07
Rotor Inertia	g-cm <sup>2</sup>	6.49	6.49	6.49	6.49	6.49
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	11.96	30.12	33.13	46.64	68.69
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE
Weight	g	106	106	106	106	106
Motor Body Length	"L"	44	44	44	44	44

Model		DM2644-12-006	DM2644-15-002	DM2644-15-008	DM2644-15-010	DM2644-16-012
Nominal Voltage	V	12	15	15	15	16
Rated Speed	RPM	5117	3453	7014	9167	9221
Rated Current	A	0.8	0.25	0.74	1.03	1.14
Rated Torque	mNm	10.72	5.77	10.36	9.97	12.54
Rated Efficiency	%	60	57	69	63	67
Phase Resistance	W	4	18	4	3.6	3
Output Power	W	5.74	2.08	7.61	9.57	12.1
Max. Efficiency	%	60	57	69	63	67
No-Load Speed	RPM	6640	4620	8490	11640	11340
No-Load Current	A	0.15	0.05	0.11	0.18	0.18
Stall Torque	mNm	46.73	22.83	59.61	46.94	67.09
Friction Torque	mNm	2.46	1.46	1.8	2.12	2.34
Back EMF Constant	mV/RPM	1.72	3.05	1.71	1.23	1.36
Torque Constant	mNm/A	16.39	29.14	16.38	11.77	13.02
Slope of Speed vs. Torque Curve	RPM/mNm	142.11	202.37	142.42	247.98	169.03
Mechanical time Constant	mS	9.66	13.75	9.68	16.85	11.49
Rotor Inertia	g-cm <sup>2</sup>	6.49	6.49	6.49	6.49	6.49
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	72	35.18	91.85	72.33	103.37
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE
Weight	g	106	106	106	106	106
Motor Body Length	"L"	44	44	44	44	44

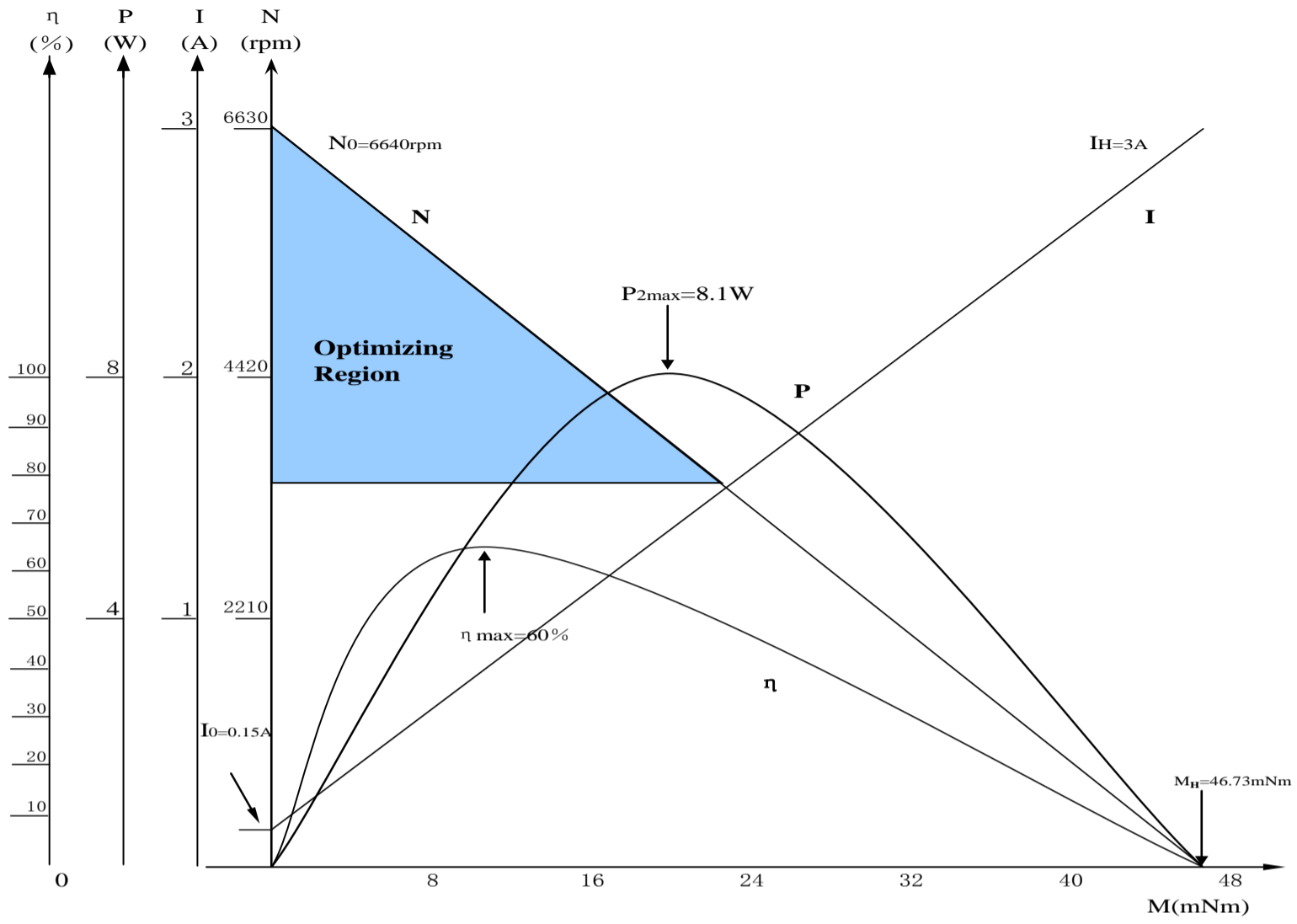
Model		DM2644-18-006	DM2644-18-009	DM2644-24-003	DM2644-24-017	DM2644-24-026
Nominal Voltage	V	18	18	24	24	24
Rated Speed	RPM	4727	5686	3465	9162	12279
Rated Current	A	0.65	0.95	0.29	1.09	1.79
Rated Torque	mNm	12.64	15.47	9.15	18.04	20.46
Rated Efficiency	%	54	55	49	67	62
Phase Resistance	W	8.9	6	31	4.7	3.4
Output Power	W	6.25	9.21	3.32	17.3	26.3
Max. Efficiency	%	54	55	49	67	62
No-Load Speed	RPM	6500	7760	5060	11250	15700
No-Load Current	A	0.14	0.2	0.07	0.17	0.32
Stall Torque	mNm	46.33	57.89	29.01	97.22	93.91
Friction Torque	mNm	3.45	4.13	2.88	3.35	4.46
Back EMF Constant	mV/RPM	2.58	2.16	4.31	2.06	1.46
Torque Constant	mNm/A	24.61	20.67	41.2	19.69	13.94
Slope of Speed vs. Torque Curve	RPM/mNm	140.28	134.06	174.42	115.72	167.18
Mechanical time Constant	mS	9.53	9.11	11.85	7.86	11.36
Rotor Inertia	g-cm <sup>2</sup>	6.49	6.49	6.49	6.49	6.49
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	71.39	89.19	44.7	149.79	144.7
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE	DR2404&DR3002IE
Weight	g	106	106	106	106	106
Motor Body Length	"L"	44	44	44	44	44

Model		DM2644-24				
Nominal Voltage	V	24				
Rated Speed	RPM	21021				
Rated Current	A	1.49				
Rated Torque	mNm	11.35				
Rated Efficiency	%	70				
Phase Resistance	W	3				
Output Power	W	24.97				
Max. Efficiency	%	70				
No-Load Speed	RPM	25150				
No-Load Current	A	0.21				
Stall Torque	mNm	69.12				
Friction Torque	mNm	1.86				
Back EMF Constant	mV/RPM	0.93				
Torque Constant	mNm/A	8.87				
Slope of Speed vs. Torque Curve	RPM/mNm	363.84				
Mechanical time Constant	mS	24.73				
Rotor Inertia	g-cm <sup>2</sup>	6.49				
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	106.51				
Sensor		Hall Sensor				
Driver Recommendation		DR2404&DR3002IE				
Weight	g	106				
Motor Body Length	"L"	44				

### Outline Drawing



# Performance Curve



# 26mm Brushless DC Motor



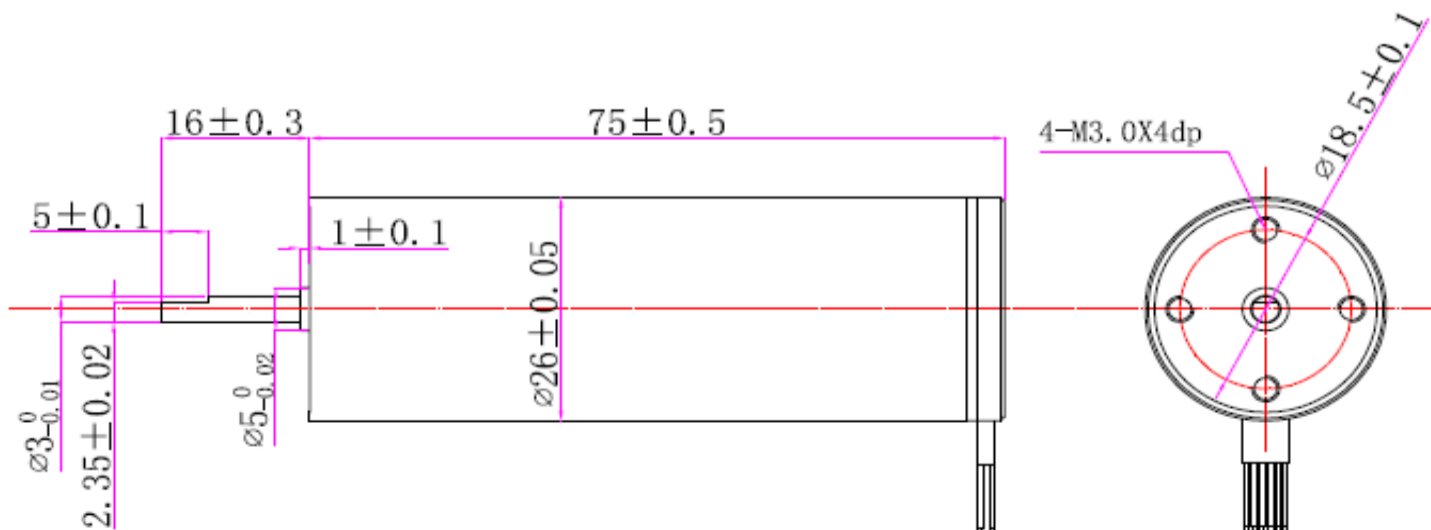
2675

## General Specifications

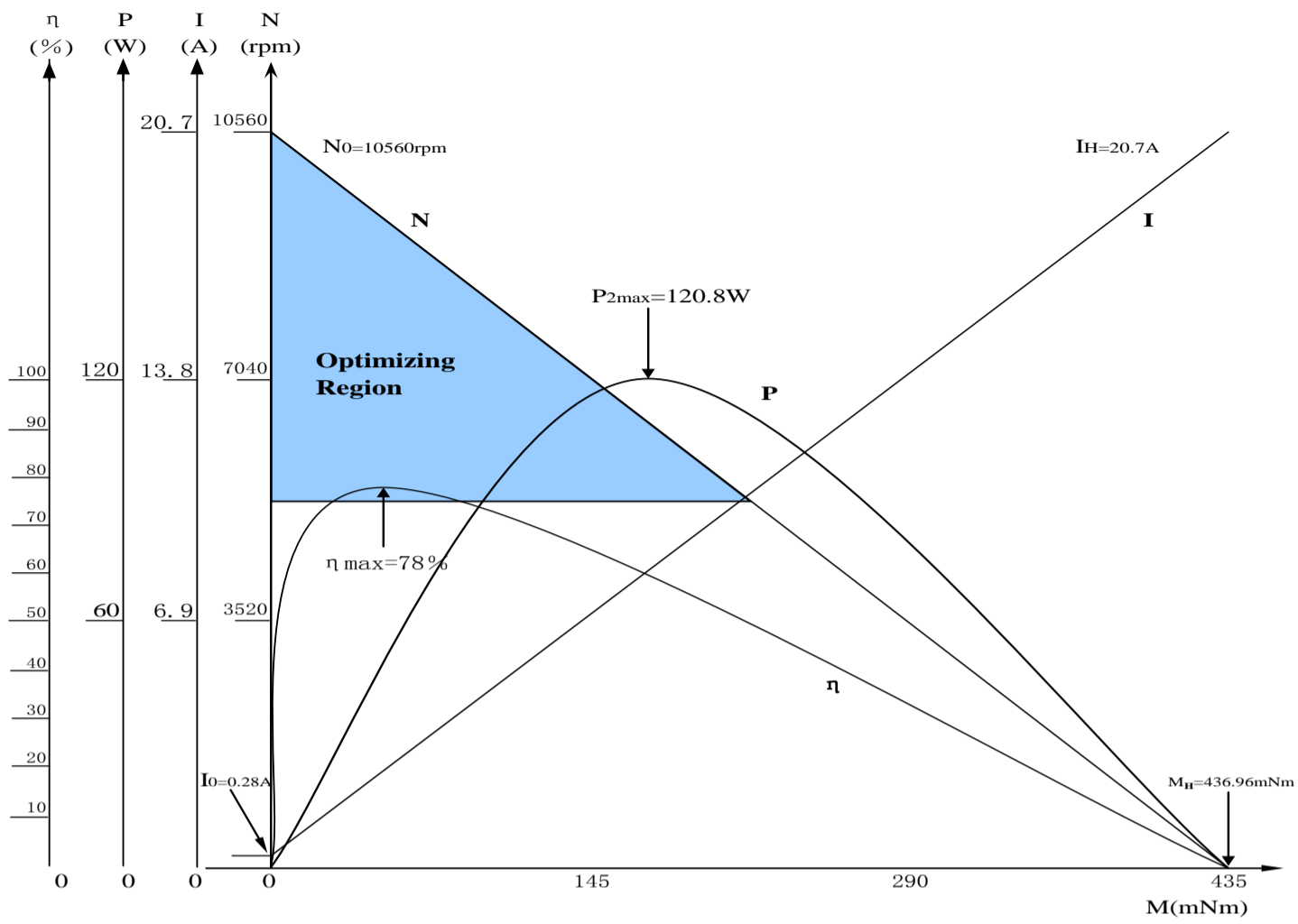
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM2675-24-050			
Nominal Voltage	V	24			
Rated Speed	RPM	9323			
Rated Current	A	2.67			
Rated Torque	mNm	51.18			
Rated Efficiency	%	78			
Phase Resistance	W	1.16			
Output Power	W	49.94			
Max. Efficiency	%	78			
No-Load Speed	RPM	10560			
No-Load Current	A	0.28			
Stall Torque	mNm	436.96			
Friction Torque	mNm	5.99			
Back EMF Constant	mV/RPM	2.24			
Torque Constant	mNm/A	21.41			
Slope of Speed vs. Torque Curve	RPM/mNm	24.17			
Mechanical time Constant	mS	3.32			
Rotor Inertia	g-cm <sup>2</sup>	13.13			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	332.79			
Sensor		Hall Sensor			
Driver Recommendation		DR2404			
Weight	g	210			
Motor Body Length	"L"	75			

## Outline Drawing



# Performance Curve



# 28mm Brushless DC Motor



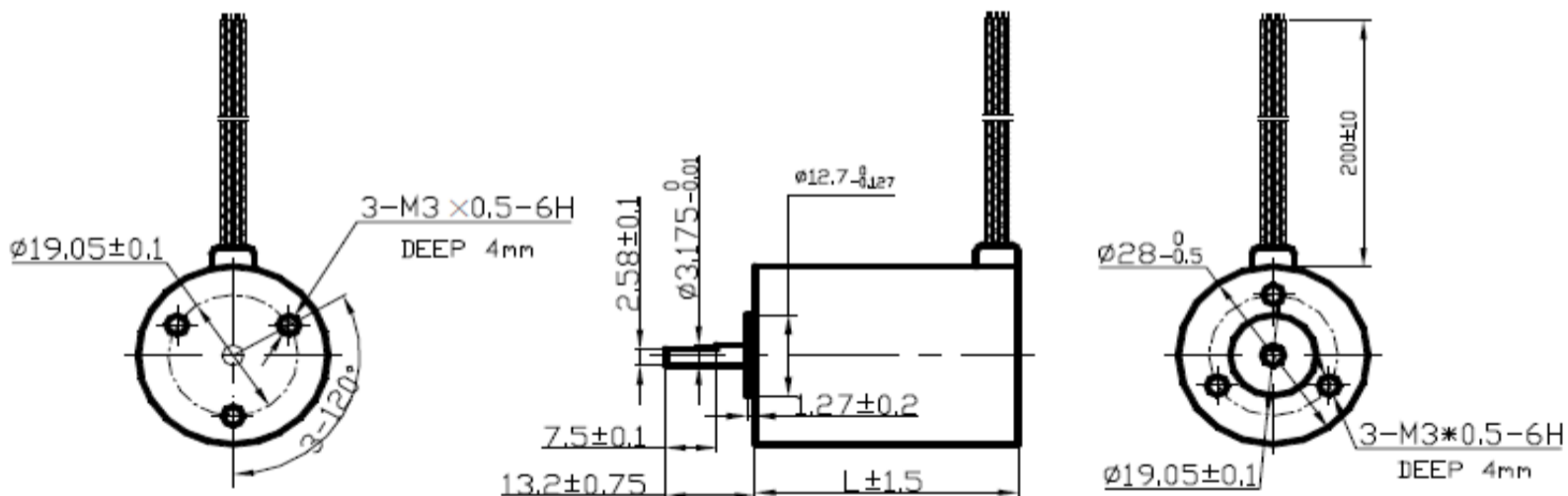
2826, 2838 and 2877

## General Specifications

Number of phases	3
Number of poles	4
Hall effect angle	120 degree electrical angle
Shaft run out	0.025mm
Radial play	0.02mm@450g
End play	0.08mm@450g
Max. radial force	15N @ 10mm from the flange
Max. axial force	10N
Direction of rotation	
Insulation Class	Class B
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC

Model		DM2826	DM2838	DM2877		
Rated Voltage	V	15	24	24		
Rated Speed	RPM	8000	10000	3700		
Rated Torque	mNm	7	14.12	50		
Output Power	W	6	14.78	16		
Peak Current	A	2.5	2.8	3		
Peak Torque	mNm	21	42.4	150		
Stall Torque	mNm	8.4	17	60		
Back EMF Constant	mV/RPM	1.06	1.25	2.77		
Torque Constant	mNm/A	13.7	16	35.6		
Rotor Inertia	g-cm <sup>2</sup>	2.35	3.69	10.98		
Line to line resistance	ohms	8.2	4.2	4.2		
Line to line inductance	mH	2.3	1.69	2.3		
Weight	g	60	82	280		
Motor Body Length	"L"	26	38	77		

## Outline Drawing



## Electric Connection

Lead No.	Lead Color	Lead Gauge	FUNCTION	DESCRIPTION
1	Yellow	UL1007 26AWG	Vcc	SUPPLY VOLTAGE FOR HALL SENEORS
2	Blue		HALL A	
3	Orange		HALL B	
4	Brown		HALL C	
5	White		GND	GROUND FOR HALL SENEORS
6	Green		PHASE U	
7	Red		PHASE V	
8	Black		PHASE W	





# 30mm Brushless DC Motor



3056

## General Specifications

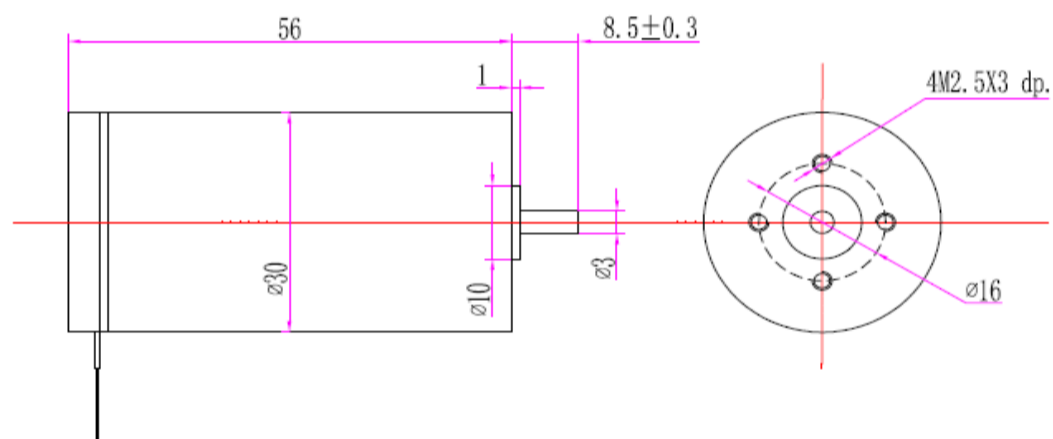
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC
Body length option	12mm, 25mm

Model		DM3056-12-009	DM3056-18-008	DM3056-24-007	DM3056-24-013	DM3056-24-017
Nominal Voltage	V	12	18	24	24	24
Rated Speed	RPM	4949	3232	3374	4691	5501
Rated Current	A	1.14	0.66	0.5	0.79	1.01
Rated Torque	mNm	17.99	23.88	21.05	27.34	28.8
Rated Efficiency	%	68	68	62	71	69
Phase Resistance	W	2.1	5.5	12	5.5	4.7
Output Power	W	9.32	8.08	7.44	13.42	16.58
Max. Efficiency	%	68	68	62	71	69
No-Load Speed	RPM	6000	3930	4310	5590	6660
No-Load Current	A	0.17	0.1	0.09	0.11	0.15
Stall Torque	mNm	102.74	134.53	96.99	170	165.55
Friction Torque	mNm	3.15	4.24	4.57	4.4	5.01
Back EMF Constant	mV/RPM	1.94	4.44	5.32	4.19	3.5
Torque Constant	mNm/A	18.53	42.4	50.78	39.97	33.4
Slope of Speed vs. Torque Curve	RPM/mNm	58.4	29.21	44.44	32.88	40.23
Mechanical time Constant	mS	9.79	4.89	7.45	5.51	6.74
Rotor Inertia	g-cm <sup>2</sup>	16	16	16	16	16
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	64.21	84.08	60.62	106.25	103.47
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	200	200	200	200	200
Motor Body Length	"L"	56	56	56	56	56

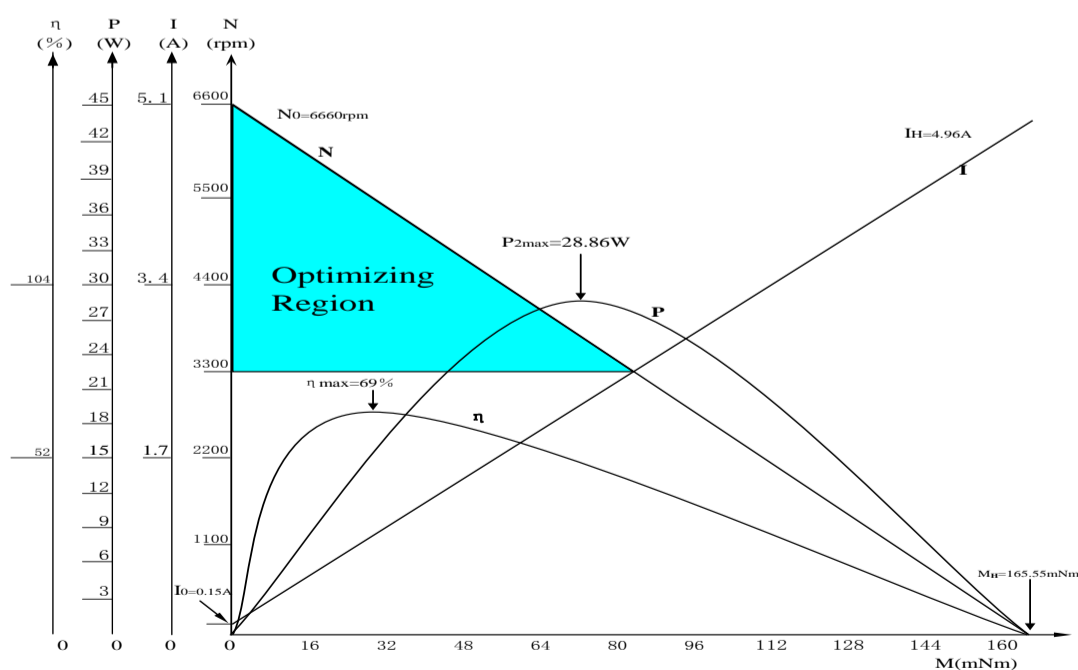
Model		DM3056-24-021	DM3056-24-031	DM3056-24-029	DM3056-24-051	DM3056-24-078
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	7161	7065	8671	14789	17943
Rated Current	A	1.2	2.11	1.63	3.1	4.51
Rated Torque	mNm	27.36	42.59	31.91	33.06	41.62
Rated Efficiency	%	72	63	74	69	72
Phase Resistance	W	3.5	2.8	2.3	1.5	0.9
Output Power	W	20.5	31.49	28.96	51.18	78.17
Max. Efficiency	%	72	63	74	69	72
No-Load Speed	RPM	8470	8970	10080	17820	21120
No-Load Current	A	0.16	0.37	0.2	0.45	0.59
Stall Torque	mNm	176.98	200.5	228.24	194.36	276.71
Friction Torque	mNm	4.23	9.05	4.46	5.62	6.26
Back EMF Constant	mV/RPM	2.77	2.56	2.34	1.31	1.11
Torque Constant	mNm/A	26.43	24.45	22.3	12.5	10.61
Slope of Speed vs. Torque Curve	RPM/mNm	47.86	44.74	44.16	91.68	76.33
Mechanical time Constant	mS	8.02	7.5	7.4	15.36	12.79
Rotor Inertia	g-cm <sup>2</sup>	16	16	16	16	16
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	110.62	125.31	142.65	121.48	172.94
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	200	200	200	200	200
Motor Body Length	"L"	56	56	56	56	56

Model		DM3056-24-002			
Nominal Voltage	V	24			
Rated Speed	RPM	2072			
Rated Current	A	0.23			
Rated Torque	mNm	10.42			
Rated Efficiency	%	44			
Phase Resistance	W	46			
Output Power	W	2.26			
Max. Efficiency	%	44			
No-Load Speed	RPM	3240			
No-Load Current	A	0.06			
Stall Torque	mNm	28.91			
Friction Torque	mNm	3.76			
Back EMF Constant	mV/RPM	6.56			
Torque Constant	mNm/A	62.6			
Slope of Speed vs. Torque Curve	RPM/mNm	112.09			
Mechanical time Constant	mS	18.78			
Rotor Inertia	g-cm <sup>2</sup>	16			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	18.07			
Sensor		Hall Sensor			
Driver Recommendation		DR2404			
Weight	g	200			
Motor Body Length	"L"	56			

### Outline Drawing



### Performance Curve



# 35mm Brushless DC Motor



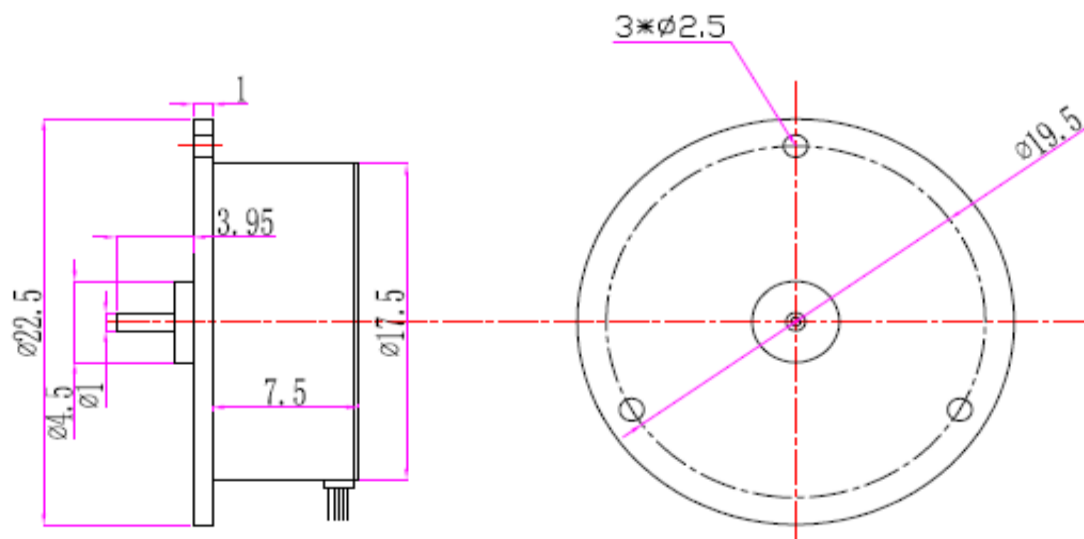
3517

## General Specifications

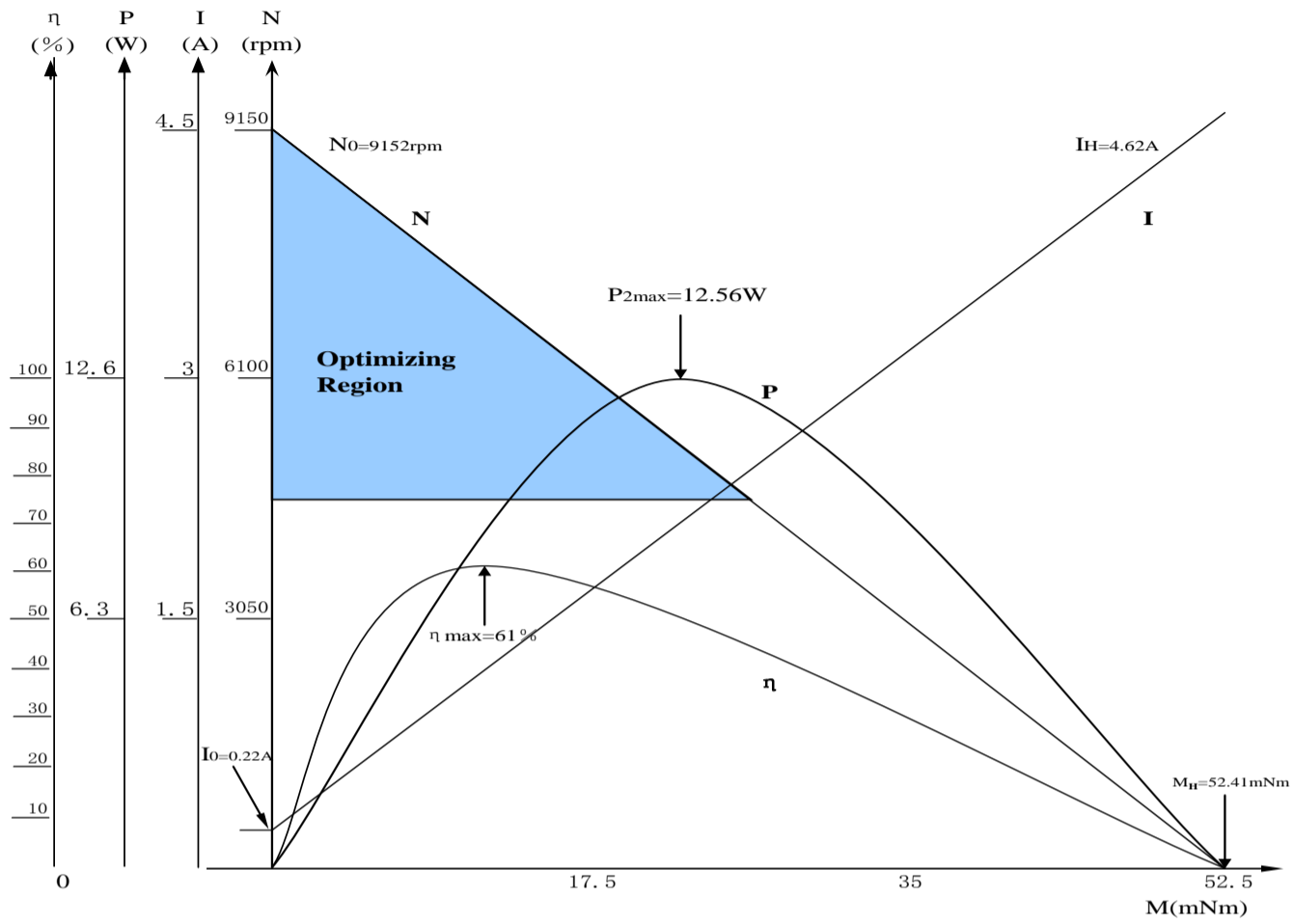
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM3517-10	DM3517-12			
Nominal Voltage	V	10	12			
Rated Speed	RPM	1338	7249			
Rated Current	A	0.13	1.28			
Rated Torque	mNm	3.79	12.7			
Rated Efficiency	%	43	63			
Phase Resistance	W	34	2.26			
Output Power	P	0.53	9.64			
Max. Efficiency	%	43	63			
No-Load Speed	RPM	2115	9152			
No-Load Current	A	0.035	0.22			
Stall Torque	mNm	10.31	61.09			
Friction Torque	mNm	1.39	2.64			
Back EMF Constant	mV/RPM	4.17	1.26			
Torque Constant	mNm/A	39.78	12			
Slope of Speed vs. Torque Curve	RPM/mNm	205.2	149.82			
Mechanical time Constant	mS	17.26	12.6			
Rotor Inertia	g-cm <sup>2</sup>	8.03	8.03			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	12.84	76.07			
Sensor		Hall Sensor	Hall Sensor			
Driver Recommendation		DR2404	DR2404			
Weight	g	65	65			
Motor Body Length	"L"	17	17			

## Outline Drawing



# Performance Curve



# 35mm Brushless DC Motor



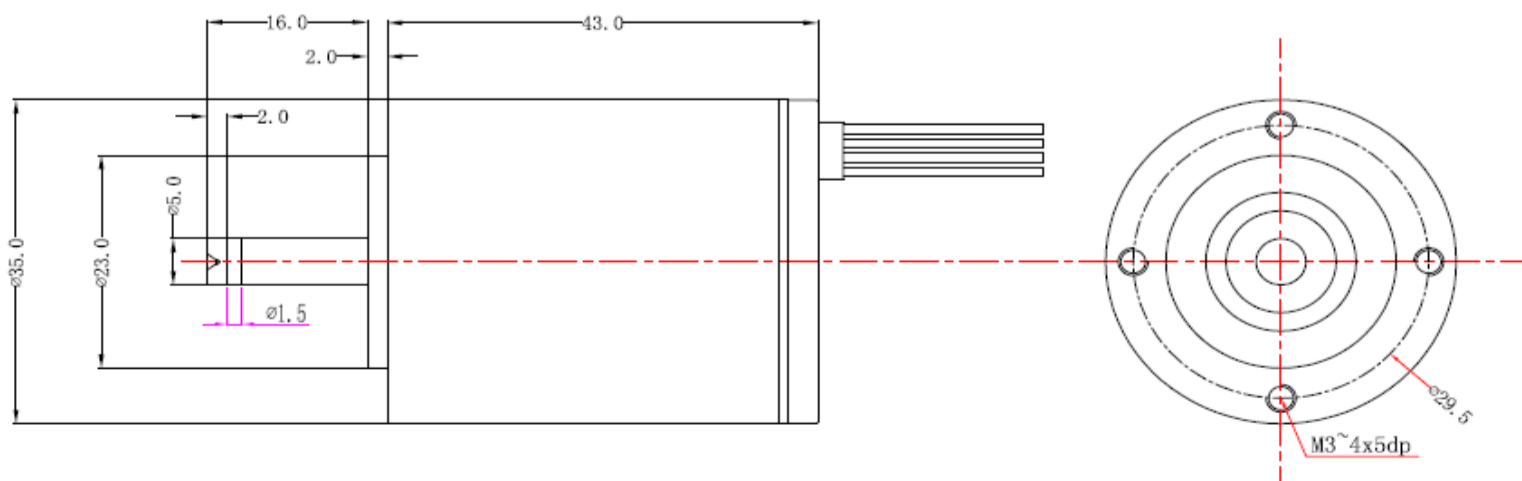
3543

## General Specifications

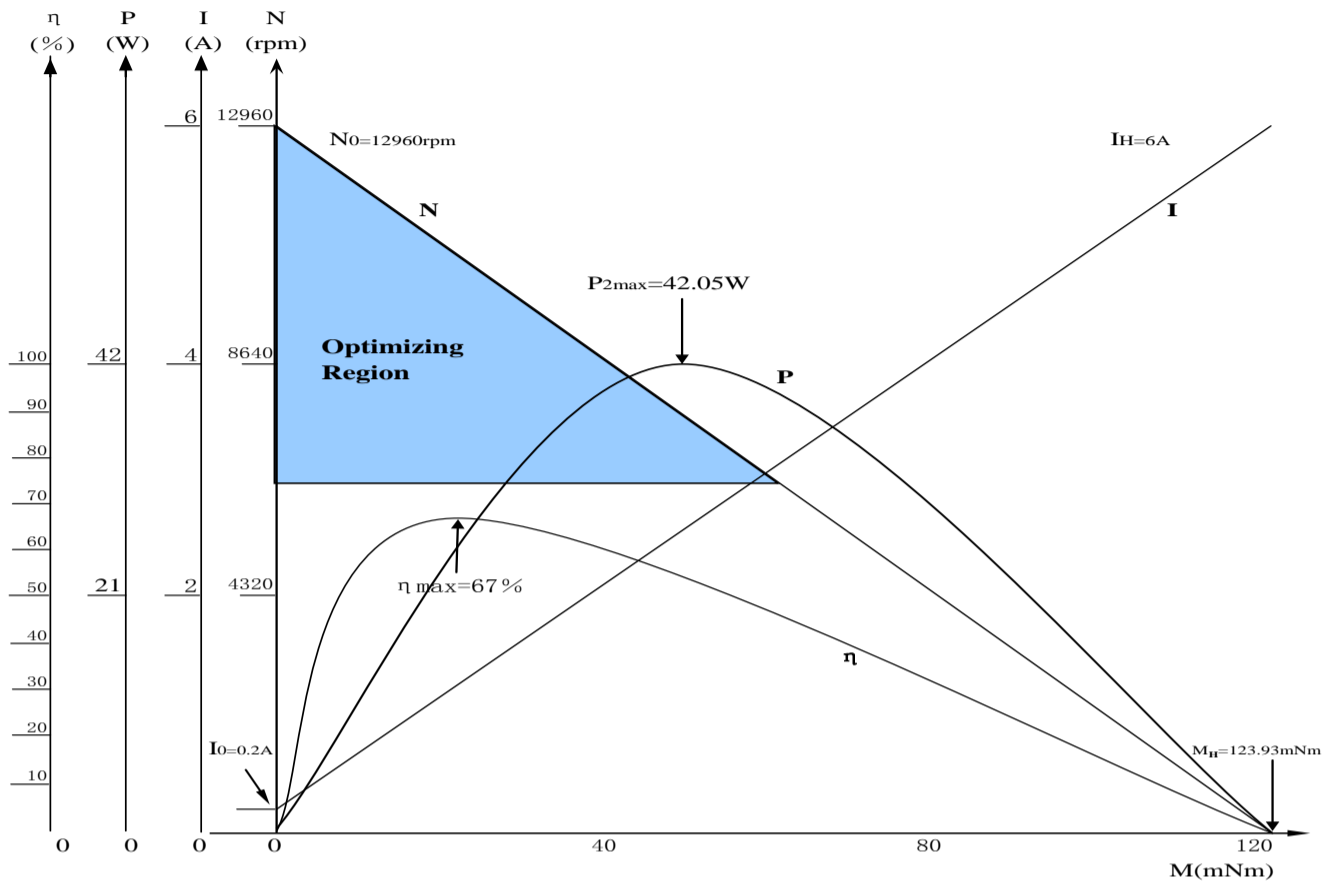
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM3543-30				
Nominal Voltage	V	30				
Rated Speed	RPM	10553				
Rated Current	A	1.28				
Rated Torque	mNm	23.01				
Rated Efficiency	%	67				
Phase Resistance	W	5				
Output Power	P	25.42				
Max. Efficiency	%	67				
No-Load Speed	RPM	12960				
No-Load Current	A	0.2				
Stall Torque	mNm	123.93				
Friction Torque	mNm	4.27				
Back EMF Constant	mV/RPM	2.24				
Torque Constant	mNm/A	21.37				
Slope of Speed vs. Torque Curve	RPM/mNm	104.57				
Mechanical time Constant	mS	21.01				
Rotor Inertia	g-cm <sup>2</sup>	19.19				
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	64.58				
Sensor		Hall Sensor				
Driver Recommendation		DR2404				
Weight	g	110				
Motor Body Length	"L"	43				

## Outline Drawing



# Performance Curve



# 35mm Brushless DC Motor



3564

## 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		DM3564-12-013	DM3564-12-018	DM3564-12-019	DM3564-12-034	DM3564-12-030
Nominal Voltage	V	12	12	12	12	12
Rated Speed	RPM	3926	5373	5475	7714	8533
Rated Current	A	1.41	1.97	2.21	3.84	3.58
Rated Torque	mNm	31.44	32.64	32.49	41.93	34.09
Rated Efficiency	%	76	78	70	74	71
Phase Resistance	W	1.2	0.8	1	0.5	0.6
Output Power	W	12.92	18.36	18.62	33.85	30.44
Max. Efficiency	%	76	78	70	74	71
No-Load Speed	RPM	4500	6100	6540	9000	10140
No-Load Current	A	0.16	0.21	0.31	0.48	0.49
Stall Torque	mNm	246.56	273.95	199.54	293.48	215.08
Friction Torque	mNm	4.01	3.89	5.29	5.99	5.4
Back EMF Constant	mV/RPM	2.62	1.94	1.79	1.31	1.15
Torque Constant	mNm/A	25.06	18.52	17.07	12.48	11.02
Slope of Speed vs. Torque Curve	RPM/mNm	18.25	22.27	32.78	30.67	47.15
Mechanical time Constant	mS	6.88	8.39	12.35	11.56	17.77
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	68.51	76.12	55.44	81.54	59.76
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

Model		DM3564-18-027	DM3564-24-008	DM3564-24-012	DM3564-24-020	DM3564-24-013
Nominal Voltage	V	18	24	24	24	24
Rated Speed	RPM	6848	2867	3577	4530	4599
Rated Current	A	2.09	0.52	0.77	1.14	0.8
Rated Torque	mNm	37.54	28.05	33.15	41.48	27.18
Rated Efficiency	%	72	68	67	72	68
Phase Resistance	W	1.5	9.5	6.5	3.6	6
Output Power	W	26.91	8.42	12.41	19.67	13.08
Max. Efficiency	%	72	68	67	72	68
No-Load Speed	RPM	8100	3500	4380	5340	5580
No-Load Current	A	0.28	0.08	0.12	0.15	0.12
Stall Torque	mNm	242.9	155.11	180.85	273.39	154.58
Friction Torque	mNm	5.8	5.07	6.07	6.29	4.78
Back EMF Constant	mV/RPM	2.17	6.64	5.3	4.39	4.17
Torque Constant	mNm/A	20.73	63.41	50.62	41.95	39.84
Slope of Speed vs. Torque Curve	RPM/mNm	33.35	22.56	24.22	19.53	36.1
Mechanical time Constant	mS	12.57	8.5	9.13	7.36	13.6
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	67.49	43.1	50.25	75.96	42.95
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

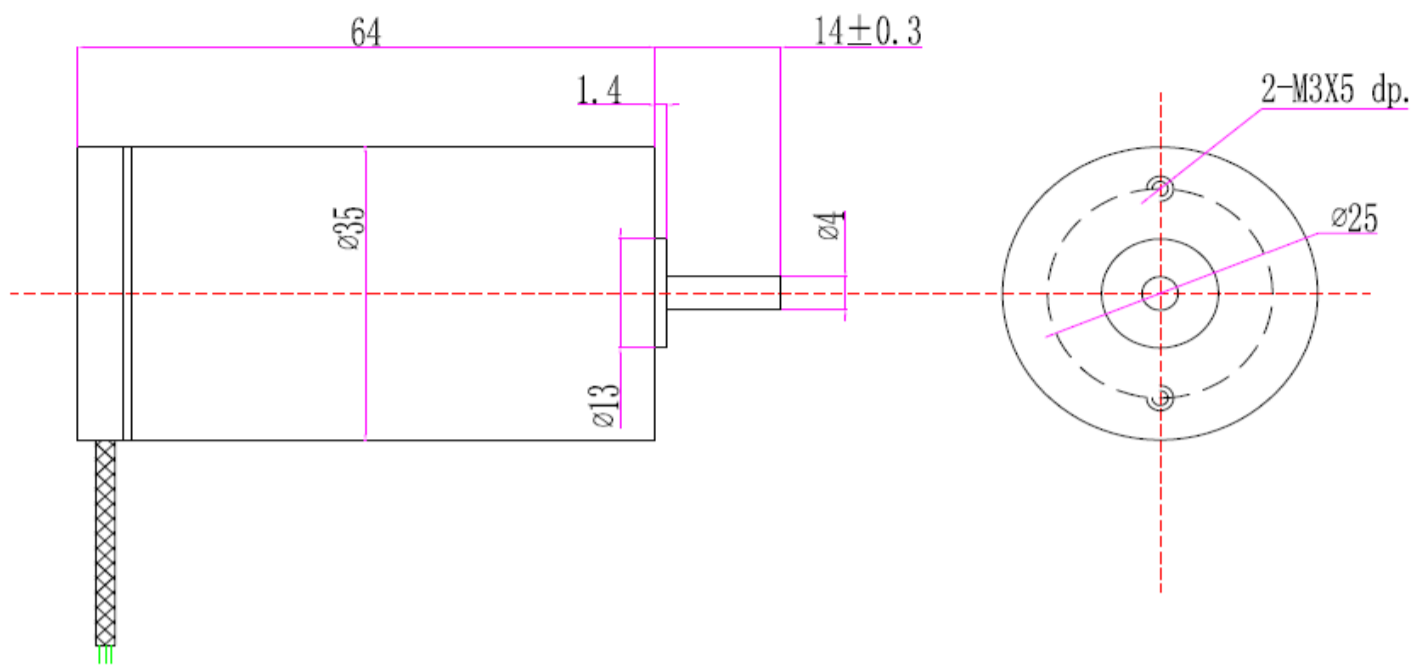
Model		DM3564-24-021	DM3564-24-025	DM3564-24-027	DM3564-24-033	DM3564-24-043
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	5428	5741	6277	6889	7989
Rated Current	A	1.17	1.39	1.51	1.83	2.28
Rated Torque	mNm	36.97	41.96	41.21	45.39	51.5
Rated Efficiency	%	75	76	75	75	79
Phase Resistance	W	3.1	2.5	2.4	2	1.3
Output Power	W	21	25.22	27.08	32.73	43.06
Max. Efficiency	%	75	76	75	75	79
No-Load Speed	RPM	6280	6600	7260	7980	9000
No-Load Current	A	0.14	0.16	0.18	0.22	0.23
Stall Torque	mNm	272.41	322.34	304.42	332.12	458.48
Friction Torque	mNm	5.02	5.46	5.58	6.2	5.78
Back EMF Constant	mV/RPM	3.75	3.58	3.25	2.95	2.63
Torque Constant	mNm/A	35.83	34.15	31	28.19	25.15
Slope of Speed vs. Torque Curve	RPM/mNm	23.05	20.48	23.85	24.03	19.63
Mechanical time Constant	mS	8.69	7.72	8.99	9.06	7.4
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	75.69	89.56	84.58	92.28	127.39
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

Model		DM3564-24-041	DM3564-24-044	DM3564-24-065	DM3564-24-066	DM3564-24-077
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	8793	9514	9808	10910	11505
Rated Current	A	2.31	2.47	3.66	3.52	4.43
Rated Torque	mNm	44.76	44.21	63.76	57.71	64.08
Rated Efficiency	%	75	74	75	78	73
Phase Resistance	W	1.6	1.5	1	0.88	0.9
Output Power	W	41.2	44.02	65.46	65.9	77.16
Max. Efficiency	%	75	74	75	78	73
No-Load Speed	RPM	10200	11040	11360	12360	13500
No-Load Current	A	0.28	0.3	0.44	0.37	0.57
Stall Torque	mNm	324.57	319.81	466.6	492.07	433.56
Friction Torque	mNm	6.17	6.11	8.71	6.77	9.47
Back EMF Constant	mV/RPM	2.31	2.13	2.07	1.92	1.74
Torque Constant	mNm/A	22.05	20.37	19.8	18.29	16.61
Slope of Speed vs. Torque Curve	RPM/mNm	31.43	34.52	24.35	25.12	31.14
Mechanical time Constant	mS	11.84	13.01	9.18	9.47	11.74
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	90.18	88.86	129.65	136.72	120.47
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

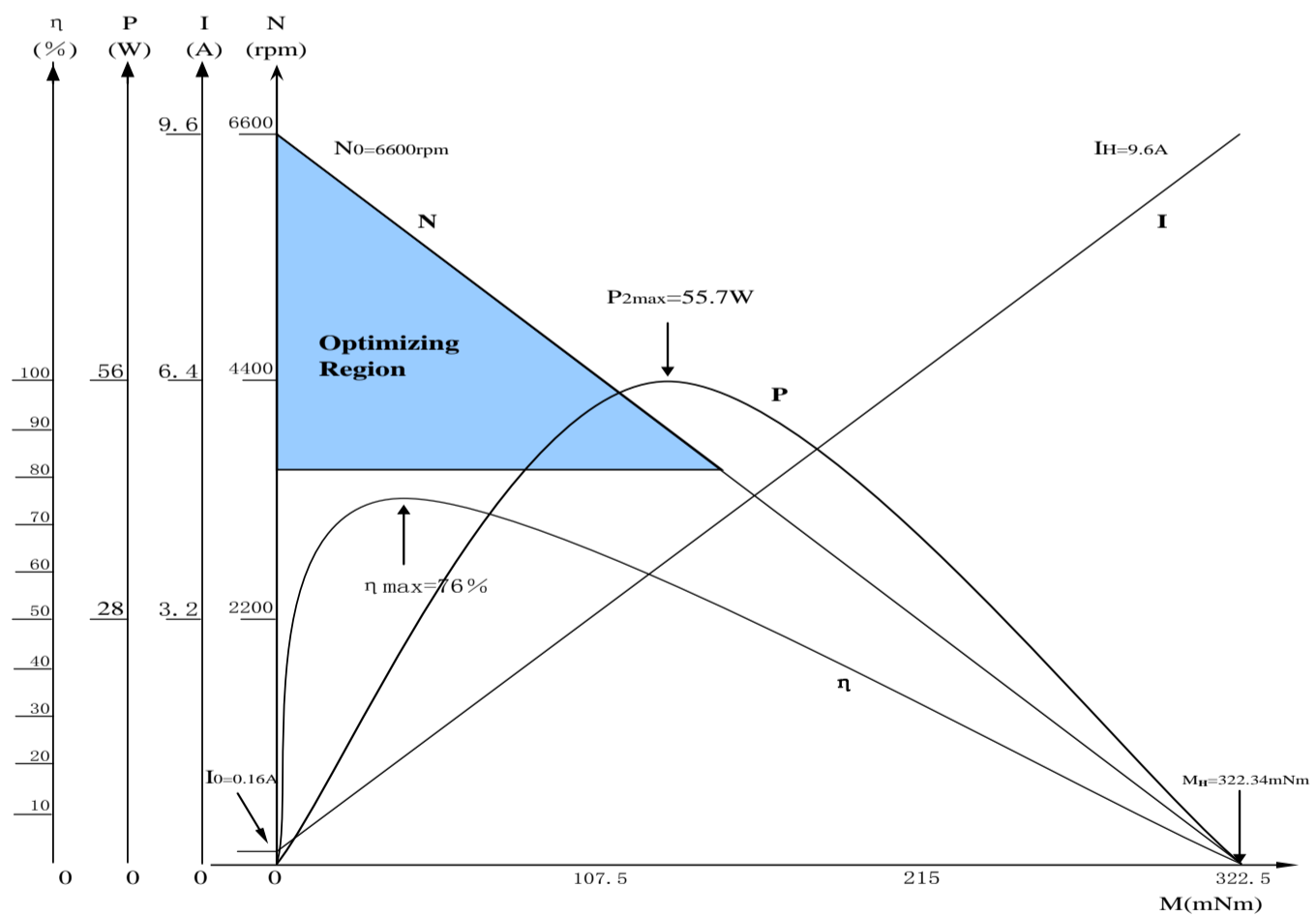
Model		DM3564-24-079	DM3564-24-186	DM3564-24-171		
Nominal Voltage	V	24	24	24		
Rated Speed	RPM	13623	15603	21914		
Rated Current	A	4.19	9.83	9.73		
Rated Torque	mNm	55.69	113.94	74.5		
Rated Efficiency	%	79	79	73		
Phase Resistance	W	0.7	0.3	0.4		
Output Power	W	79.41	186.07	170.87		
Max. Efficiency	%	79	79	73		
No-Load Speed	RPM	15330	17570	25620		
No-Load Current	A	0.42	0.99	1.23		
Stall Torque	mNm	500.09	1017.85	514.95		
Friction Torque	mNm	6.2	12.75	10.78		
Back EMF Constant	mV/RPM	1.55	1.35	0.92		
Torque Constant	mNm/A	14.77	12.88	8.76		
Slope of Speed vs. Torque Curve	RPM/mNm	30.65	17.26	49.75		
Mechanical time Constant	mS	11.55	6.51	18.75		
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99		
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	138.95	282.82	143.08		
Sensor		Hall Sensor	Hall Sensor	Hall Sensor		
Driver Recommendation		DR2404	DR2404	DR2404		
Weight	g	300	300	300		
Motor Body Length	"L"	64	64	64		



## Outline Drawing



## Performance Curve



# 40mm Brushless DC Motor



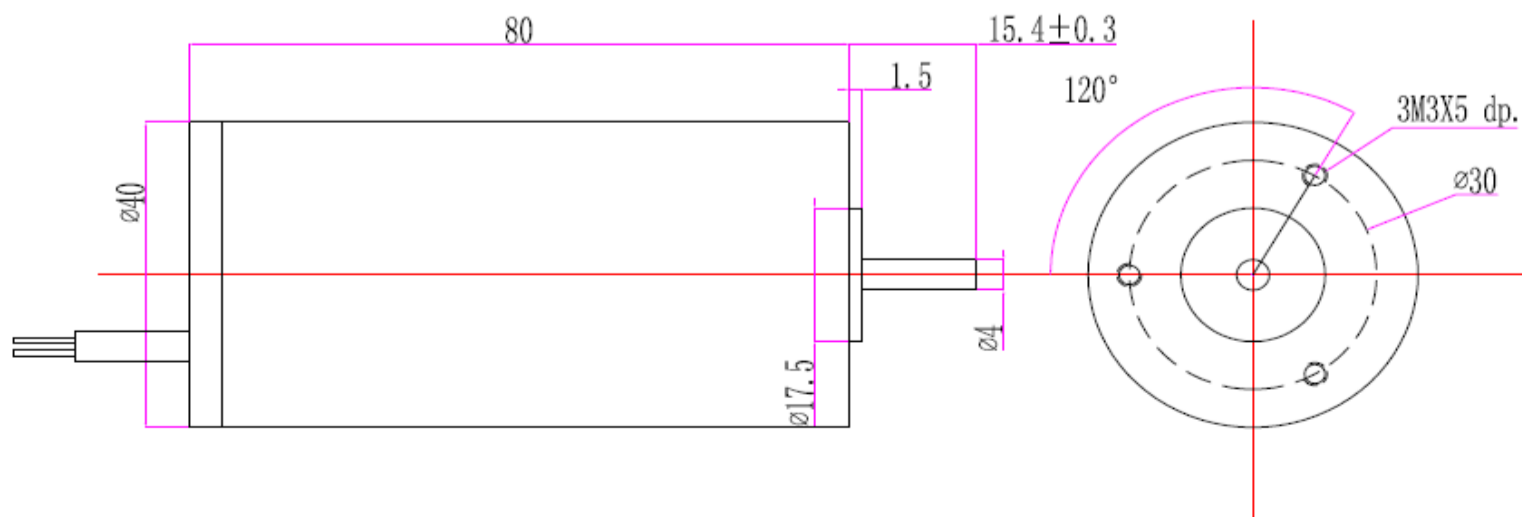
4080

## General Specifications

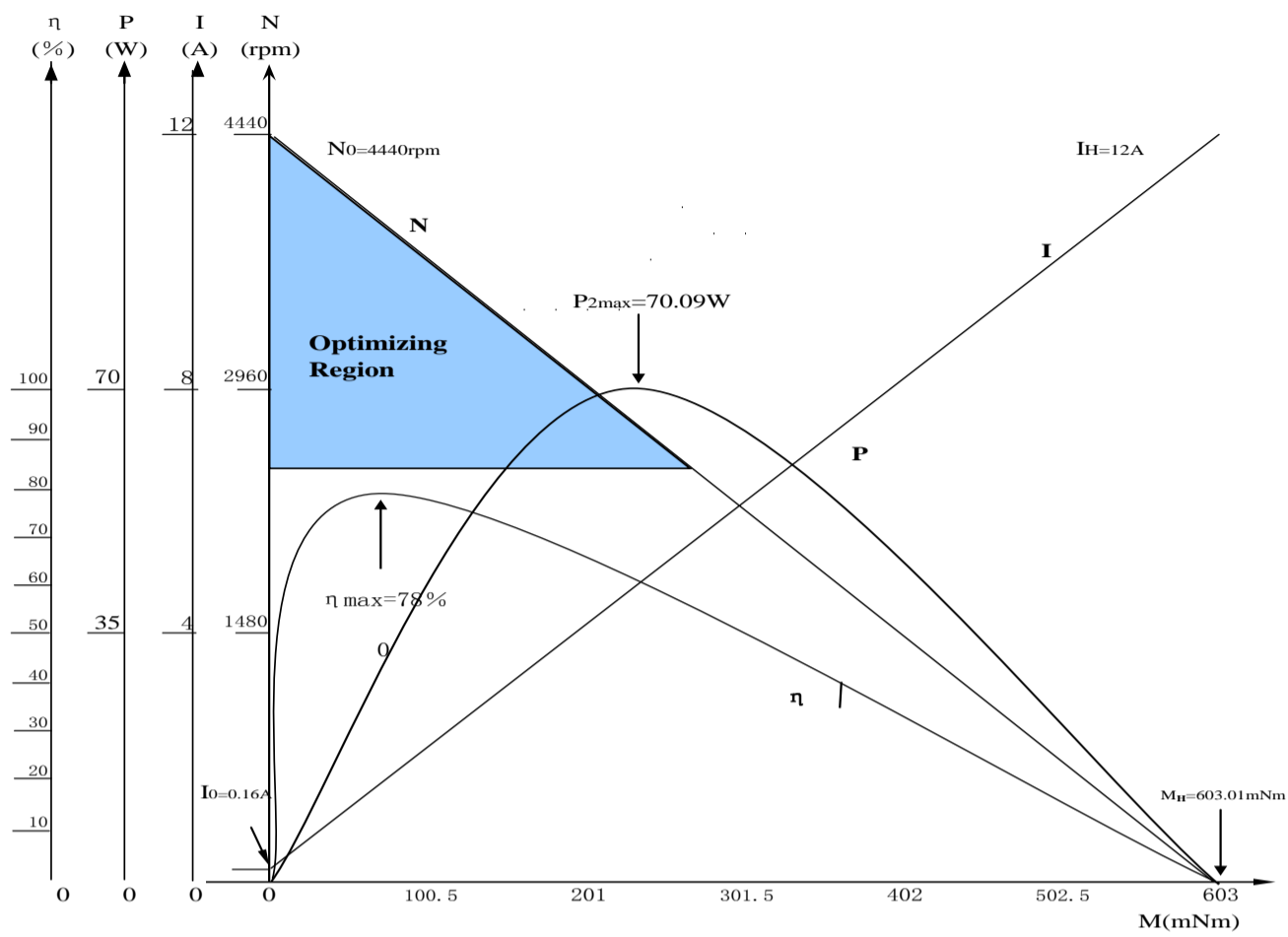
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric strength	500 VDC for one minute
Insulation resistance	100Mohms min., 500VDC
Body length option	32mm, 50mm

Model		DM4080-24-029	DM4080-24-040			
Nominal Voltage	V	24	24			
Rated Speed	RPM	3924	6078			
Rated Current	A	1.54	2.1			
Rated Torque	mNm	70.1	62.41			
Rated Efficiency	%	78	79			
Phase Resistance	W	2	1.4			
Output Power	P	28.79	39.7			
Max. Efficiency	%	78	79			
No-Load Speed	RPM	4,440	6,840			
No-Load Current	A	0.16	0.21			
Stall Torque	mNm	603.01	560.41			
Friction Torque	mNm	8.15	6.95			
Back EMF Constant	mV/RPM	5.33	3.47			
Torque Constant	mNm/A	50.93	33.1			
Slope of Speed vs. Torque Curve	RPM/mNm	7.36	12.21			
Mechanical time Constant	mS	7.39	12.25			
Rotor Inertia	g-cm <sup>2</sup>	95.88	95.88			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	62.89	58.45			
Sensor		Hall Sensor	Hall Sensor			
Driver Recommendation		DR2404	DR2404			
Weight	g	440	440			
Motor Body Length	"L"	80	80			

## Outline Drawing



# Specification



# 43mm Brushless DC Motor



4373

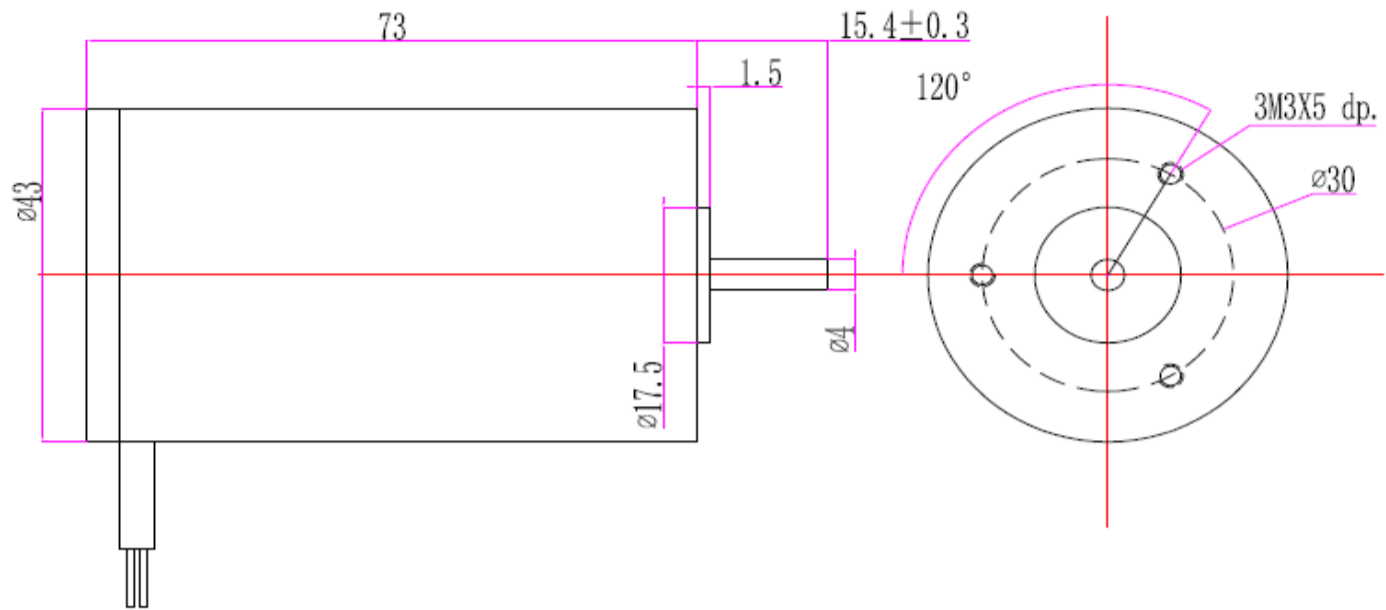
## General Specifications

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

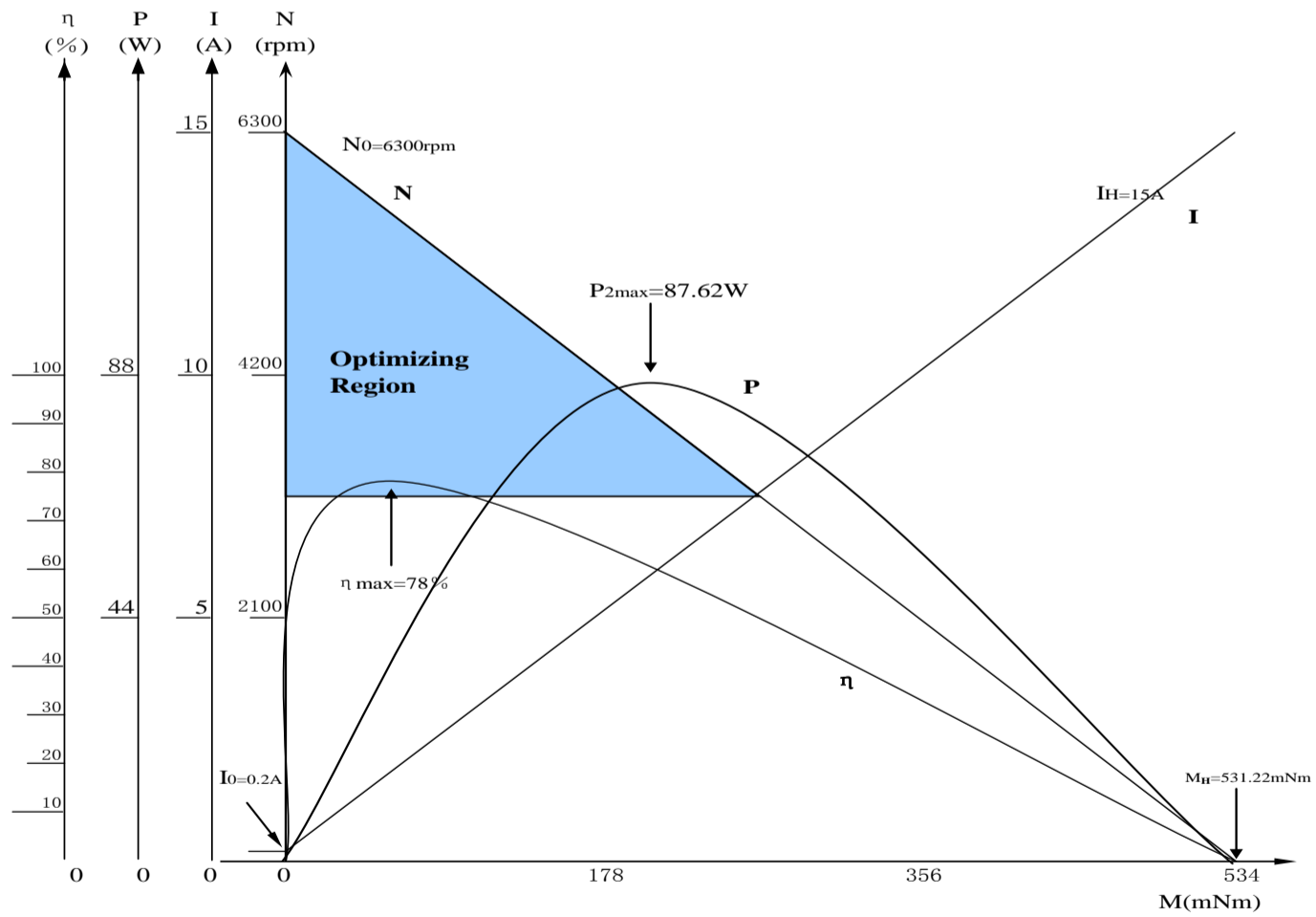
Model		DM4373-12-020	DM4373-12-115	DM4373-24-013	DM4373-24-038	DM4373-24-036
Nominal Voltage	V	12	12	24	24	24
Rated Speed	RPM	3891	10108	3386	5043	5568
Rated Current	A	2.26	11.58	0.86	2.03	1.92
Rated Torque	mNm	49.87	108.92	38.01	72.26	61.75
Rated Efficiency	%	75	83	66	78	78
Phase Resistance	W	0.8	0.1	6.2	1.5	1.6
Output Power	P	20.31	115.24	13.47	38.14	35.99
Max. Efficiency	%	75	83	66	78	78
No-Load Speed	RPM	4500	11100	4200	5700	6300
No-Load Current	A	0.27	0.95	0.14	0.21	0.2
Stall Torque	mNm	368.34	1219.29	196.23	626.54	531.22
Friction Torque	mNm	6.75	9.73	7.36	8.33	7.18
Back EMF Constant	mV/RPM	2.62	1.07	5.51	4.16	3.76
Torque Constant	mNm/A	25.01	10.24	52.59	39.68	35.89
Slope of Speed vs. Torque Curve	RPM/mNm	12.22	9.1	21.4	9.1	11.86
Mechanical time Constant	mS	12.27	9.14	21.49	9.13	11.91
Rotor Inertia	g-cm <sup>2</sup>	95.88	95.88	95.88	95.88	95.88
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	38.42	127.17	20.47	65.35	55.4
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	510	510	510	510	510
Motor Body Length	"L"	73	73	73	73	73

Model		DM4373-24-046	DM4373-24-063	DM4373-12-060		
Nominal Voltage	V	24	24	12		
Rated Speed	RPM	5855	7871	5165		
Rated Current	A	2.42	3.33	6.45		
Rated Torque	mNm	74.94	76.23	110.5		
Rated Efficiency	%	79	79	77		
Phase Resistance	W	1.2	0.9	0.25		
Output Power	P	45.92	62.8	59.73		
Max. Efficiency	%	79	79	77		
No-Load Speed	RPM	6580	8880	5880		
No-Load Current	A	0.24	0.34	0.7		
Stall Torque	mNm	679.99	670.8	908.36		
Friction Torque	mNm	8.26	8.66	13.44		
Back EMF Constant	mV/RPM	3.6	2.67	2.01		
Torque Constant	mNm/A	34.41	25.48	19.2		
Slope of Speed vs. Torque Curve	RPM/mNm	9.68	13.24	6.47		
Mechanical time Constant	mS	9.72	13.29	6.5		
Rotor Inertia	g-cm <sup>2</sup>	95.88	95.88	95.88		
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	70.92	69.96	94.74		
Sensor		Hall Sensor	Hall Sensor	Hall Sensor		
Driver Recommendation		DR2404	DR2404	DR2404		
Weight	g	510	510	510		
Motor Body Length	"L"	73	73	73		

## Outline Drawing



## Performance Curve



# 44mm Brushless DC Motor



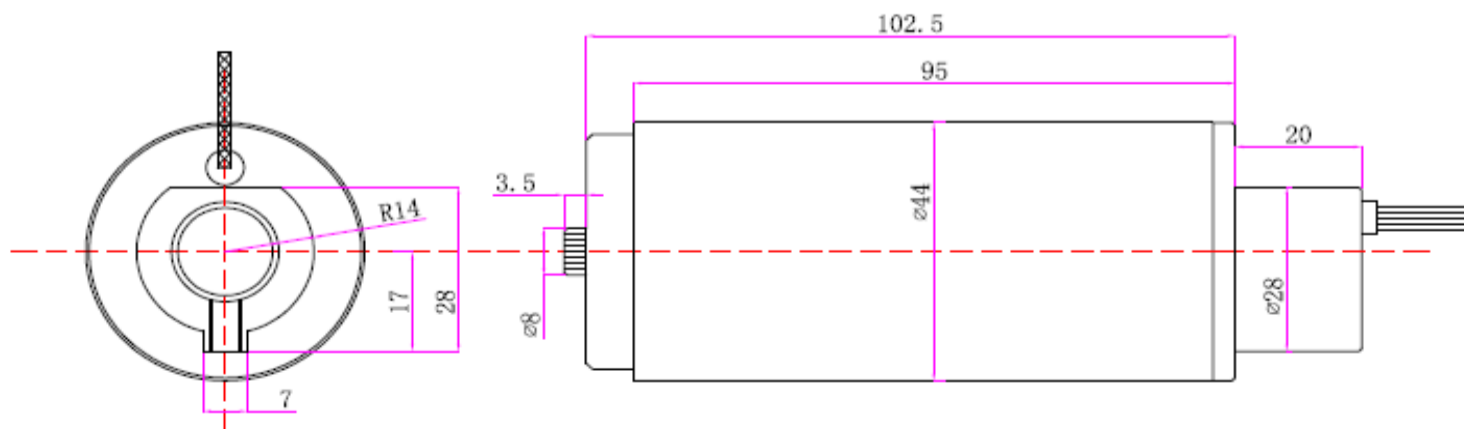
4490

## General Specifications

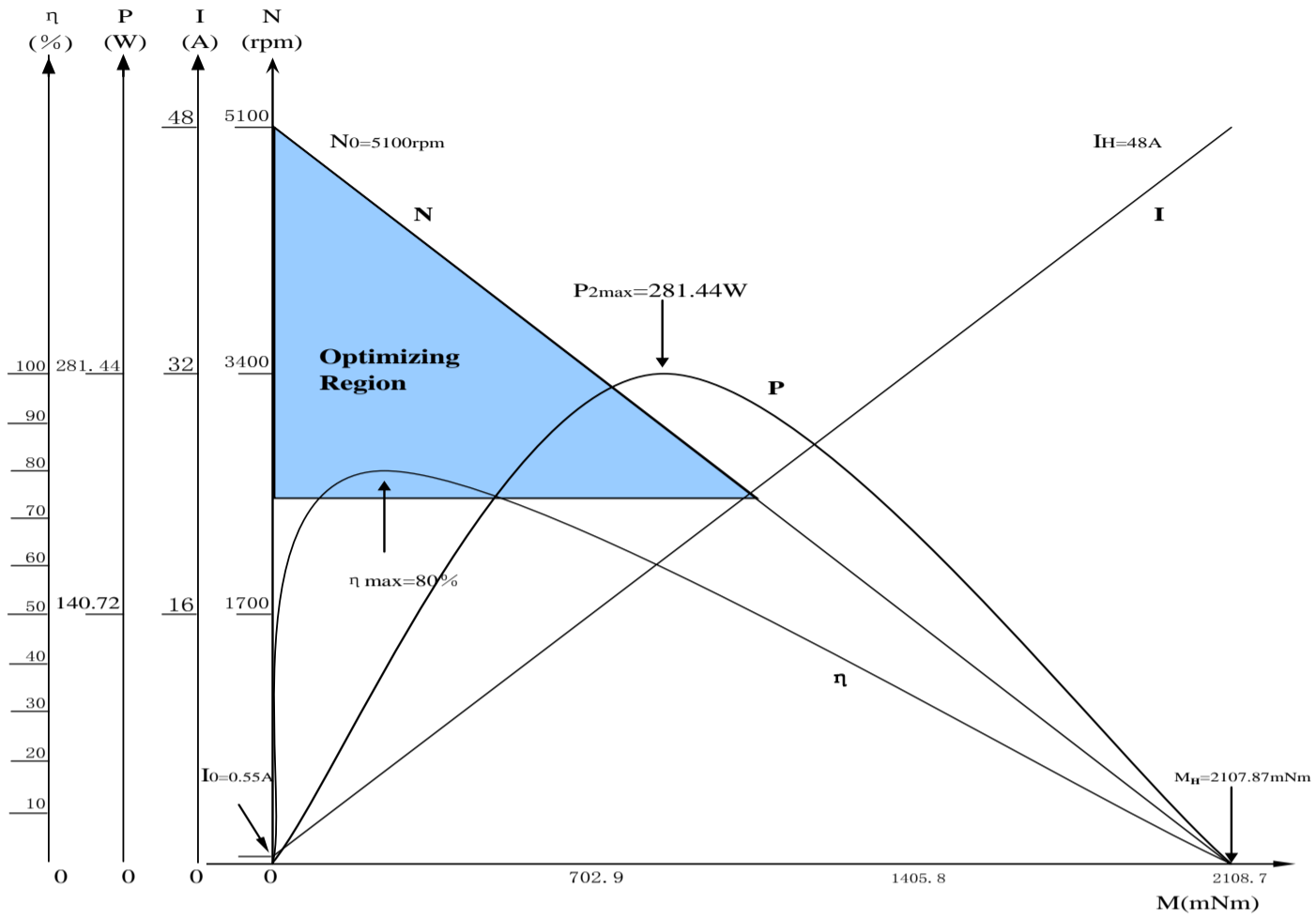
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM4490-24			
Nominal Voltage	V	24			
Rated Speed	RPM	4551			
Rated Current	A	5.66			
Rated Torque	mNm	226.94			
Rated Efficiency	%	80			
Phase Resistance	W	0.5			
Output Power	P	108.1			
Max. Efficiency	%	80			
No-Load Speed	RPM	5100			
No-Load Current	A	0.55			
Stall Torque	mNm	2107.87			
Friction Torque	mNm	24.43			
Back EMF Constant	mV/RPM	4.65			
Torque Constant	mNm/A	44.42			
Slope of Speed vs. Torque Curve	RPM/mNm	2.42			
Mechanical time Constant	mS	4.09			
Rotor Inertia	g-cm <sup>2</sup>	161.34			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	130.65			
Sensor		Hall Sensor			
Driver Recommendation		DR2404			
Weight	g	560			
Motor Body Length	"L"	90			

## Performance Curve



**Performance Curve**



# 58mm Brushless DC Motor



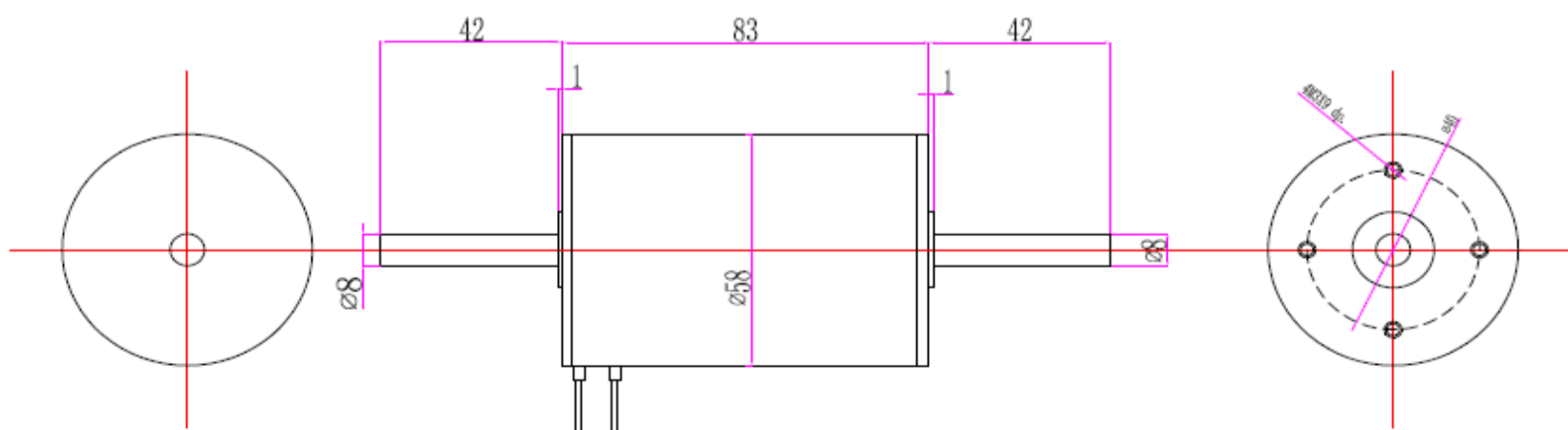
5883DS

## 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

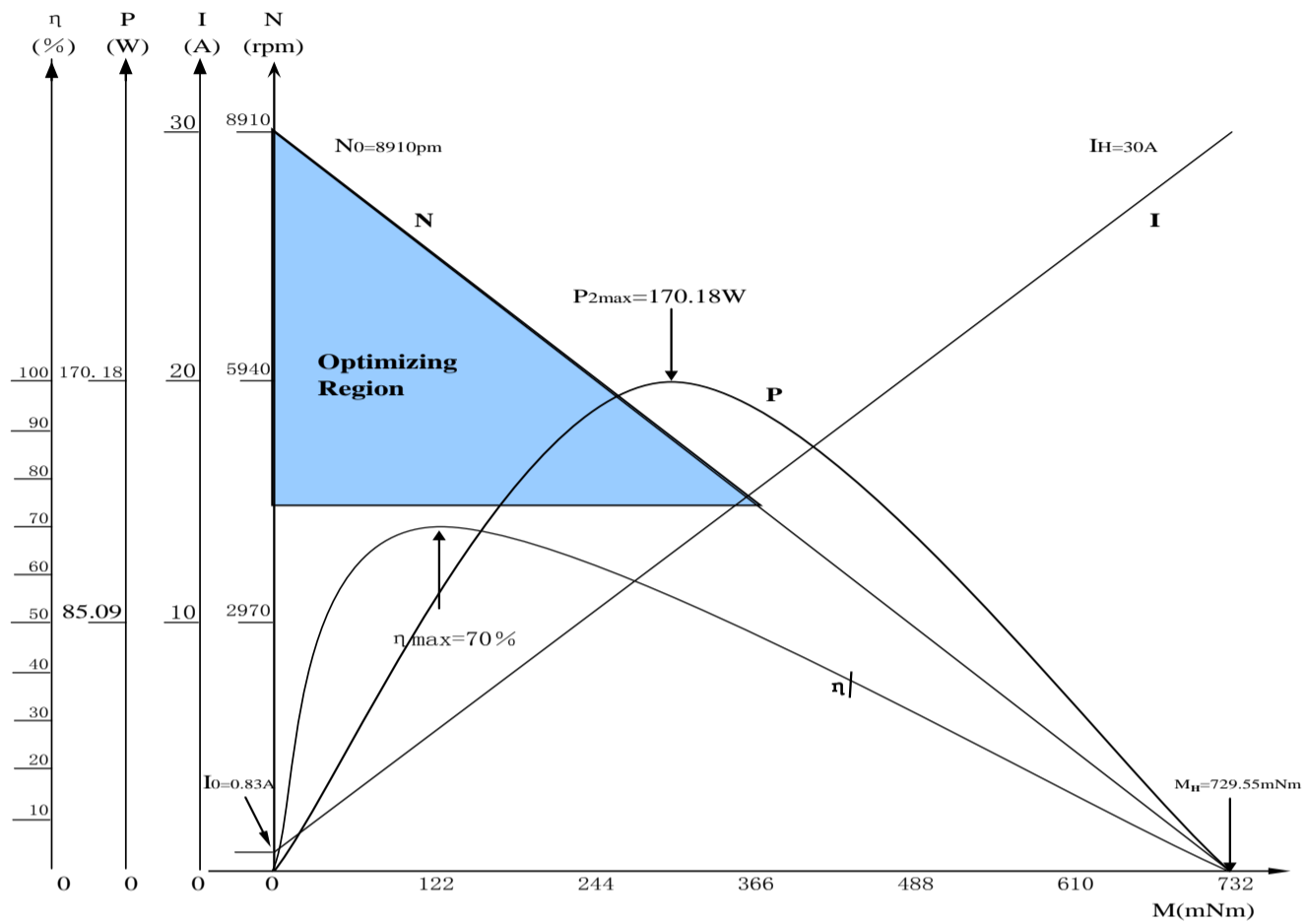
Model		DM5883DS-24-	DM5883DS-24-	DM5883DS-24-	DM5883DS-24-
		028	078	095	004
Nominal Voltage	V	24	24	24	31
Rated Speed	RPM	4494	5532	7407	806
Rated Current	A	1.56	5.08	5.75	0.3
Rated Torque	mNm	58.8	135.45	123.06	51.97
Rated Efficiency	%	74	65	70	49
Phase Resistance	W	2.4	1.08	0.8	39
Output Power	P	27.66	78.43	95.41	4.39
Max. Efficiency	%	74	65	70	49
No-Load Speed	RPM	5220	6900	8910	1170
No-Load Current	A	0.19	0.84	0.83	0.07
Stall Torque	mNm	422.52	683.36	729.55	167.25
Friction Torque	mNm	8.18	26.85	20.76	16.15
Back EMF Constant	mV/RPM	4.51	3.35	2.62	24.16
Torque Constant	mNm/A	43.07	31.96	25.01	230.73
Slope of Speed vs. Torque Curve	RPM/mNm	12.35	10.1	12.21	7
Mechanical time Constant	mS	16.29	13.31	16.1	9.22
Rotor Inertia	g-cm <sup>2</sup>	125.9	125.9	125.9	125.9
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	33.56	54.28	57.95	13.28
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404
Weight	g	998	998	998	998
Motor Body Length	"L"	83	83	83	83

## Outline Drawing





**Performance Curve**



# 16mm Brushless DC Motor- DS



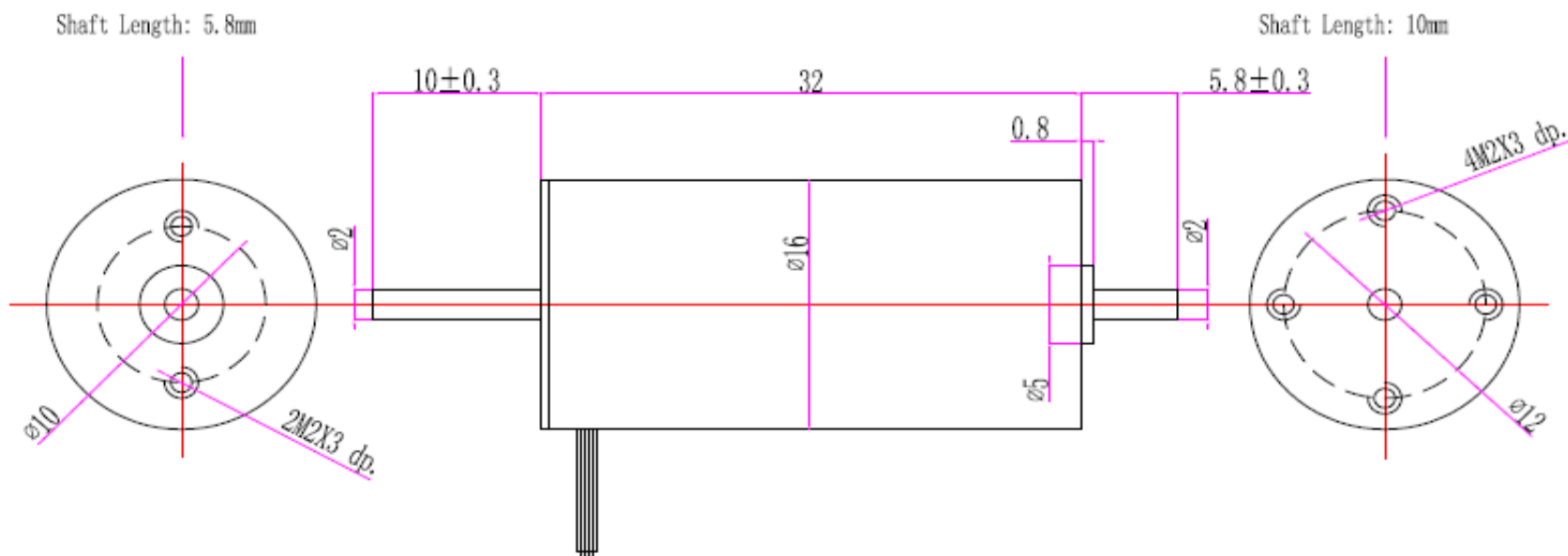
1632DS

## General Specifications

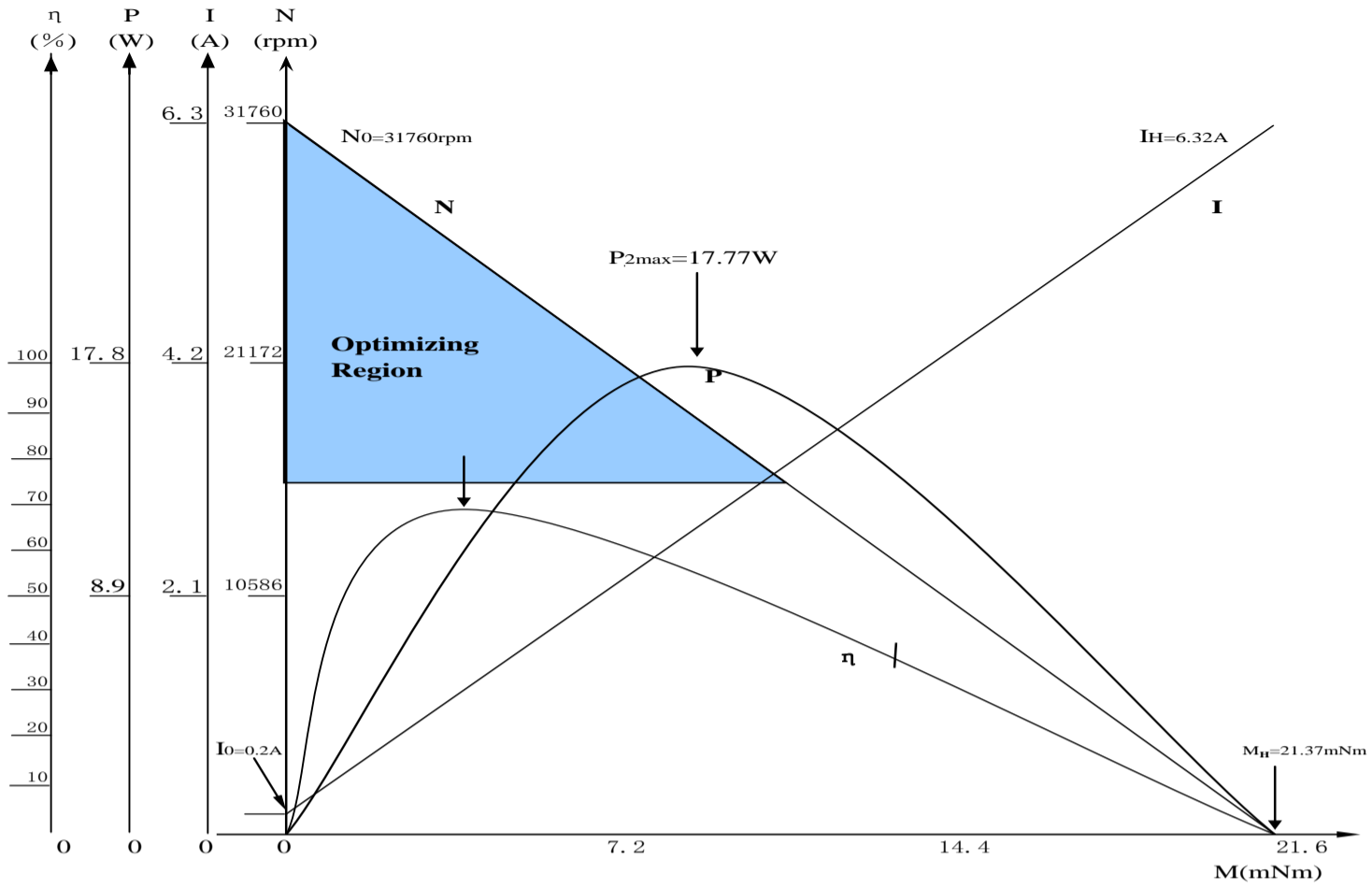
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM1632DS-05	DM1632DS-12-000	DM1632DS-12-002	DM1632DS-12-005	DM1632DS-12-011	DM1632DS-24-002
Nominal Voltage	V	5	12	12	12	12	24
Rated Speed	RPM	3324	2979	10487	19448	26017	6808
Rated Current	A	0.2	0.14	0.38	0.67	1.31	0.26
Rated Torque	mNm	1.28	1.13	2.22	2.44	3.86	2.13
Rated Efficiency	%	47	26	55	62	68	1.51
Phase Resistance	W	10.1	58	10.1	4.5	1.9	58
Output Power	W	0.45	0.35	2.44	4.96	10.52	1.51
Max. Efficiency	%	47	26	55	62	68	28
No-Load Speed	RPM	5,000	6,840	14340	24,840	31,760	14,400
No-Load Current	A	0.05	0.05	0.08	0.12	0.2	0.09
Stall Torque	mNm	3.82	1.99	8.26	11.22	21.37	4.03
Friction Torque	mNm	0.43	0.64	0.6	0.53	0.70	1.12
Back EMF Constant	mV/RPM	0.9	1.33	0.78	0.46	0.37	1.3
Torque Constant	mNm/A	8.58	12.7	7.45	4.41	3.49	12.45
Slope of Speed vs. Torque Curve	RPM/mNm	1308.67	3,431.52	1,736.33	2,213.99	1,486.38	3571
Mechanical time Constant	mS	7.67	20.12	10.18	12.98	8.72	20.94
Rotor Inertia	g-cm <sup>2</sup>	0.56	0.56	0.56	0.56	0.56	0.56
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	68.23	35.59	147.48	200.35	381.56	72.01
Sensor		Hallsensor	Hallsensor	Hallsensor	Hallsensor	Hallsensor	Hallsensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	26	26	26	26	26	26
Motor Body Length	"L"	32	32	32	32	32	32

## Outline Drawing



## Performance Curve



# 22mm Brushless DC Motor



2232DS

## General Specifications

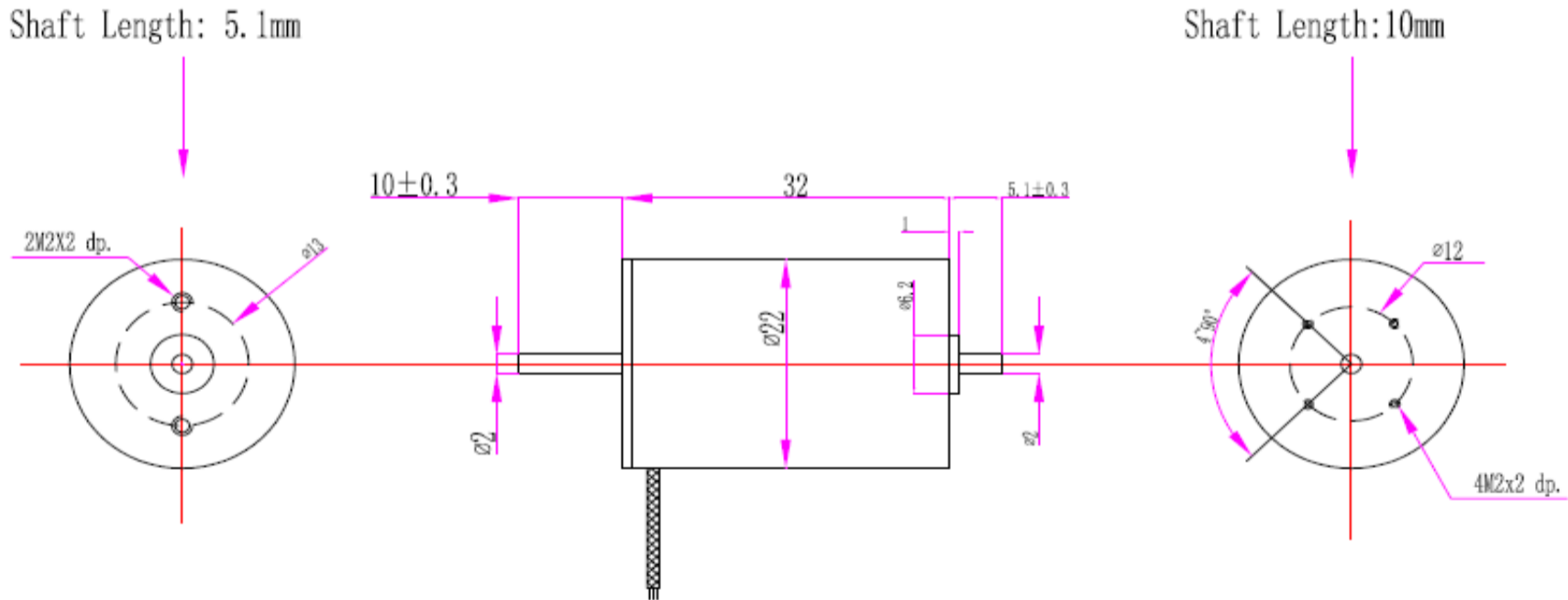
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM2232DS-06-000-	DM2232DS-06-000-	DM2232DS-06-001-	DM2232DS-06-006-	DM2232DS-09-000-
		00	01	03	12	02
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	0.91	5.79	0.45
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 <sup>2</sup>	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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

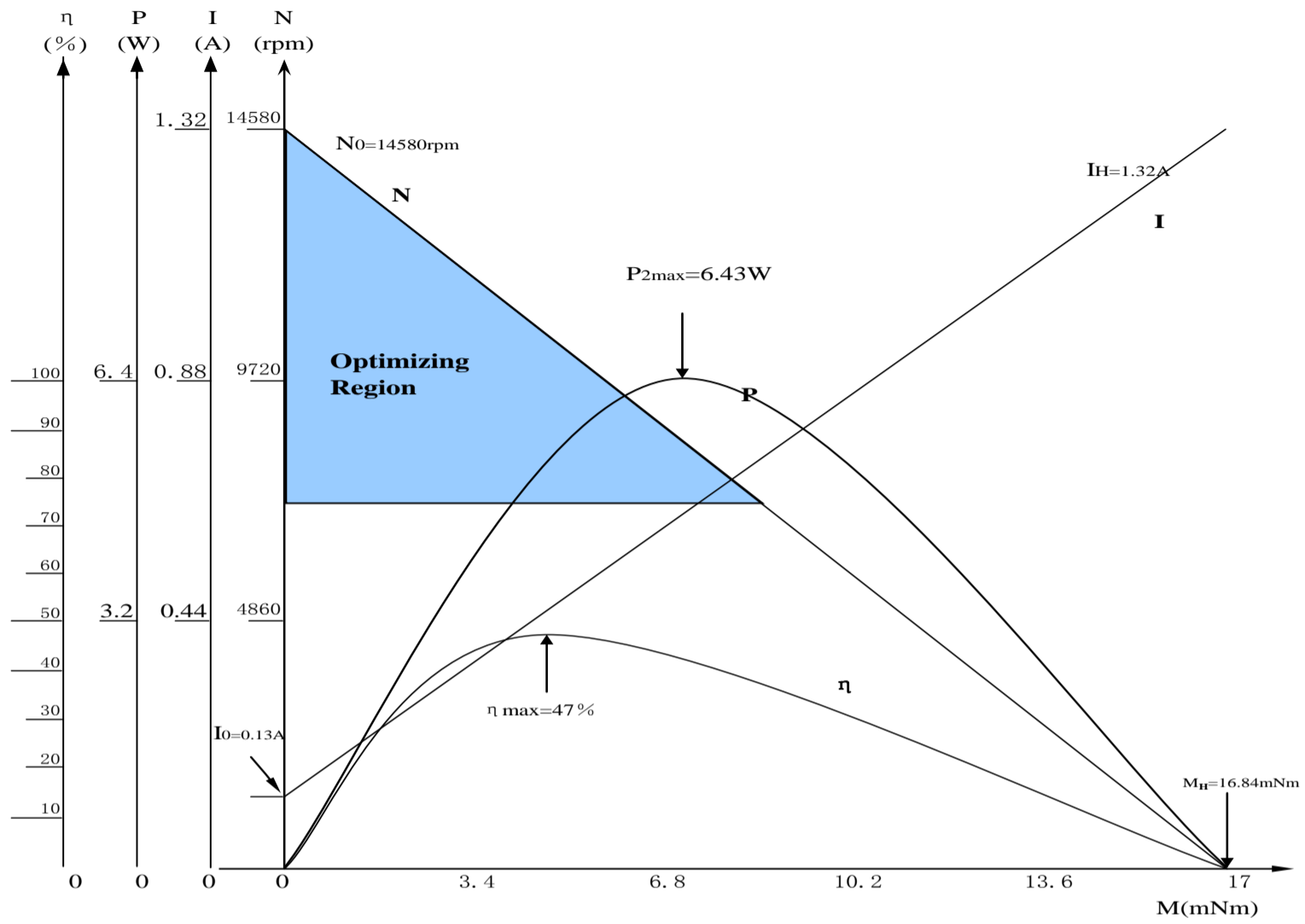
Model		DM2232DS-12-	DM2232DS-12-	DM2232DS-12-	DM2232DS-12-	DM2232DS-12-
		001-02	001-04	002-07	010-16	015-19
Nominal Voltage	V	12	12	12	12	12
Rated Speed	RPM	2471	4265	7073	16673	19958
Rated Current	A	0.21	0.32	0.45	1.27	2.14
Rated Torque	mNm	2.41	3.16	3.32	5.45	7.33
Rated Efficiency	%	29	40	48	63	60
Phase Resistance	W	36	18.2	10.5	2.3	1.5
Output Power	W	0.62	1.41	2.46	9.52	15.31
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 <sup>2</sup>	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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

Model		DM2232DS-24-004	DM2232DS-24-005	DM2232DS-24-006	DM2232DS-24-013	DM2232DS-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	3.49	4.44	5.69	9.9	16.72
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 <sup>2</sup>	1.98	1.98	1.98	1.98	1.98
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	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**



# 30mm Brushless DC Motor



3056DS

## General Specifications

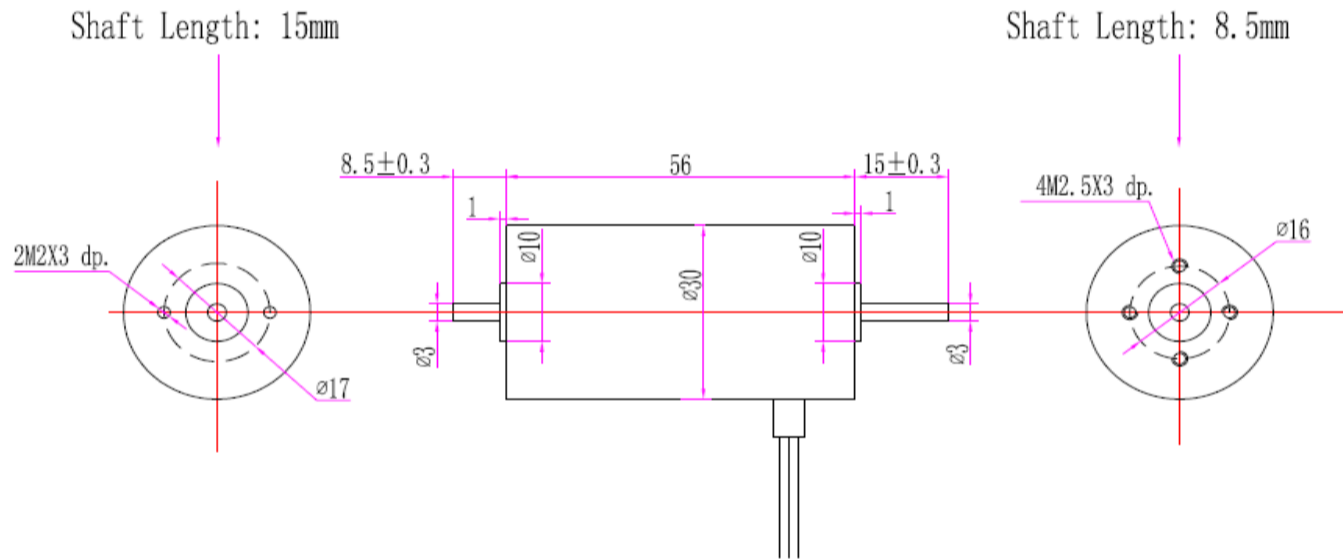
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		DM3056DS-12-009	DM3056DS-18-008	DM3056DS-24-007	DM3056DS-24-013	DM3056DS-24-017
Nominal Voltage	V	12	18	24	24	24
Rated Speed	RPM	4949	3232	3374	4691	5501
Rated Current	A	1.14	0.66	0.5	0.79	1.01
Rated Torque	mNm	17.99	23.88	21.05	27.34	28.8
Rated Efficiency	%	68	68	62	71	69
Phase Resistance	W	2.1	5.5	12	5.5	4.7
Output Power	W	9.32	8.08	7.44	13.42	16.58
Max. Efficiency	%	68	68	62	71	69
No-Load Speed	RPM	6000	3930	4310	5590	6660
No-Load Current	A	0.17	0.1	0.09	0.11	0.15
Stall Torque	mNm	102.74	134.53	96.99	170	165.55
Friction Torque	mNm	3.15	4.24	4.57	4.4	5.01
Back EMF Constant	mV/RPM	1.94	4.44	5.32	4.19	3.5
Torque Constant	mNm/A	18.53	42.4	50.78	39.97	33.4
Slope of Speed vs. Torque Curve	RPM/mNm	58.4	29.21	44.44	32.88	40.23
Mechanical time Constant	mS	9.79	4.89	7.45	5.51	6.74
Rotor Inertia	g-cm <sup>2</sup>	16	16	16	16	16
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	64.21	84.08	60.62	106.25	103.47
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	200	200	200	200	200
Motor Body Length	"L"	60	60	60	60	60

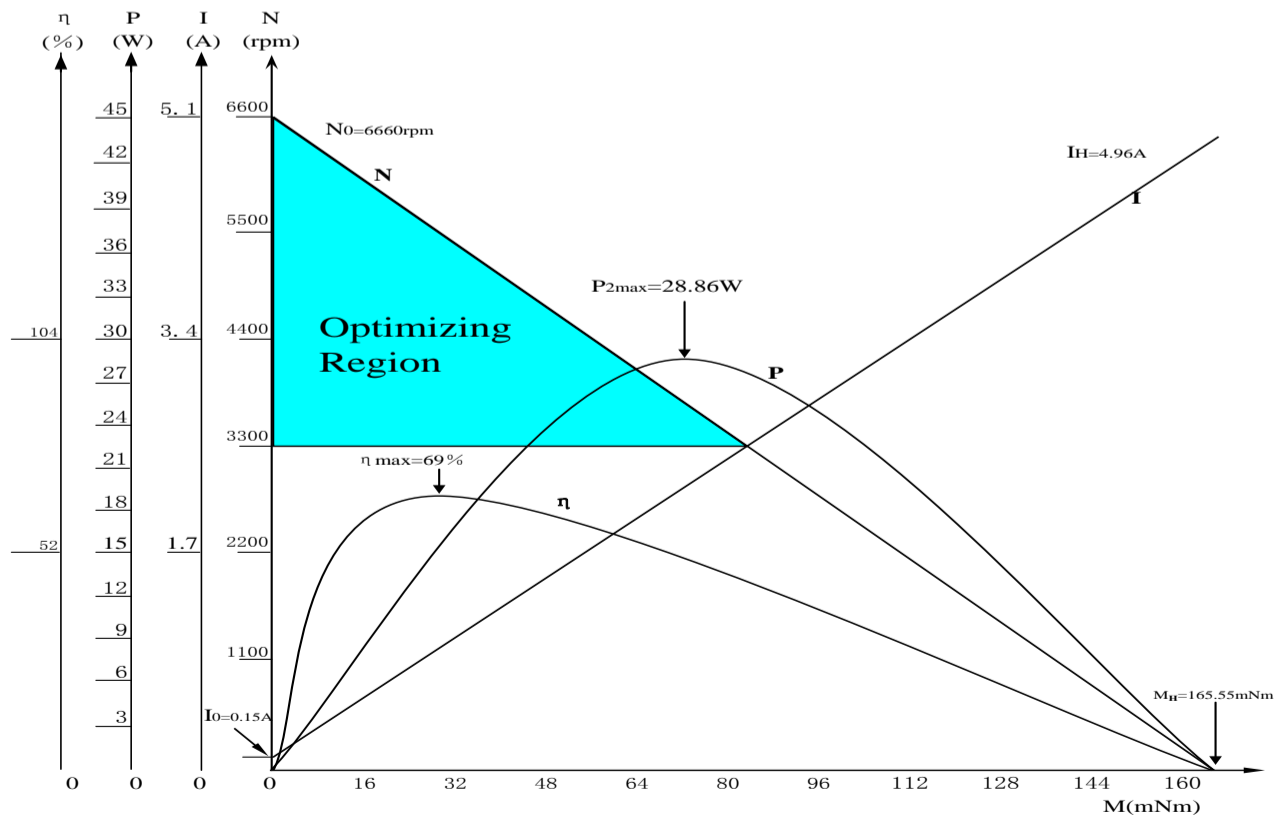
Model		DM3056DS-24-021	DM3056DS-24-031	DM3056DS-24-029	DM3056DS-24-051	DM3056DS-24-078
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	7161	7065	8671	14789	17943
Rated Current	A	1.2	2.11	1.63	3.1	4.51
Rated Torque	mNm	27.36	42.59	31.91	33.06	41.62
Rated Efficiency	%	72	63	74	69	72
Phase Resistance	W	3.5	2.8	2.3	1.5	0.9
Output Power	W	20.5	31.49	28.96	51.18	78.17
Max. Efficiency	%	72	63	74	69	72
No-Load Speed	RPM	8470	8970	10080	17820	21120
No-Load Current	A	0.16	0.37	0.2	0.45	0.59
Stall Torque	mNm	176.98	200.5	228.24	194.36	276.71
Friction Torque	mNm	4.23	9.05	4.46	5.62	6.26
Back EMF Constant	mV/RPM	2.77	2.56	2.34	1.31	1.11
Torque Constant	mNm/A	26.43	24.45	22.3	12.5	10.61
Slope of Speed vs. Torque Curve	RPM/mNm	47.86	44.74	44.16	91.68	76.33
Mechanical time Constant	mS	8.02	7.5	7.4	15.36	12.79
Rotor Inertia	g-cm <sup>2</sup>	16	16	16	16	16
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	110.62	125.31	142.65	121.48	172.94
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	200	200	200	200	200
Motor Body Length	"L"	60	60	60	60	60

Model		DM3056DS-24-002			
Nominal Voltage	V	24			
Rated Speed	RPM	2072			
Rated Current	A	0.23			
Rated Torque	mNm	10.42			
Rated Efficiency	%	44			
Phase Resistance	W	46			
Output Power	W	2.26			
Max. Efficiency	%	44			
No-Load Speed	RPM	3240			
No-Load Current	A	0.06			
Stall Torque	mNm	28.91			
Friction Torque	mNm	3.76			
Back EMF Constant	mV/RPM	6.56			
Torque Constant	mNm/A	62.6			
Slope of Speed vs. Torque Curve	RPM/mNm	112.09			
Mechanical time Constant	mS	18.78			
Rotor Inertia	g-cm <sup>2</sup>	16			
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	18.07			
Sensor		Hall Sensor			
Driver Recommendation		DR2404			
Weight	g	200			
Motor Body Length	"L"	60			

### Outline Drawing



### Performance Curve





# 35mm Brushless DC Motor



3564ds

## 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		DM3564DS-12-	DM3564DS-12-	DM3564DS-12-	DM3564DS-12-	DM3564DS-12-
		029	044	034	069	057
Nominal Voltage	V	12	12	12	12	12
Rated Speed	RPM	3926	5373	5475	7714	8533
Rated Current	A	1.41	1.97	2.21	3.84	3.58
Rated Torque	mNm	31.44	32.64	32.49	41.93	34.09
Rated Efficiency	%	76	78	70	74	71
Phase Resistance	W	1.2	0.8	1	0.5	0.6
Output Power	W	12.92	18.36	18.62	33.85	30.44
Max. Efficiency	%	76	78	70	74	71
No-Load Speed	RPM	4500	6100	6540	9000	10140
No-Load Current	A	0.16	0.21	0.31	0.48	0.49
Stall Torque	mNm	246.56	273.95	199.54	293.48	215.08
Friction Torque	mNm	4.01	3.89	5.29	5.99	5.4
Back EMF Constant	mV/RPM	2.62	1.94	1.79	1.31	1.15
Torque Constant	mNm/A	25.06	18.52	17.07	12.48	11.02
Slope of Speed vs. Torque Curve	RPM/mNm	18.25	22.27	32.78	30.67	47.15
Mechanical time Constant	mS	6.88	8.39	12.35	11.56	17.77
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	68.51	76.12	55.44	81.54	59.76
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

Model		DM3564DS-18-	DM3564DS-24-68-	DM3564DS-24-	DM3564DS-24-	DM3564DS-24-
		052	014	021	038	023
Nominal Voltage	V	18	24	24	24	24
Rated Speed	RPM	6848	2867	3577	4530	4599
Rated Current	A	2.09	0.52	0.77	1.14	0.8
Rated Torque	mNm	37.54	28.05	33.15	41.48	27.18
Rated Efficiency	%	72	68	67	72	68
Phase Resistance	W	1.5	9.5	6.5	3.6	6
Output Power	W	26.91	8.42	12.41	19.67	13.08
Max. Efficiency	%	72	68	67	72	68
No-Load Speed	RPM	8100	3500	4380	5340	5580
No-Load Current	A	0.28	0.08	0.12	0.15	0.12
Stall Torque	mNm	242.9	155.11	180.85	273.39	154.58
Friction Torque	mNm	5.8	5.07	6.07	6.29	4.78
Back EMF Constant	mV/RPM	2.17	6.64	5.3	4.39	4.17
Torque Constant	mNm/A	20.73	63.41	50.62	41.95	39.84
Slope of Speed vs. Torque Curve	RPM/mNm	33.35	22.56	24.22	19.53	36.1
Mechanical time Constant	mS	12.57	8.5	9.13	7.36	13.6
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	67.49	43.1	50.25	75.96	42.95
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

Model		DM3564DS-24-045	DM3564DS-24-056	DM3564DS-24-058	DM3564DS-24-069	DM3564DS-24-108
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	5428	5741	6277	6889	7989
Rated Current	A	1.17	1.39	1.51	1.83	2.28
Rated Torque	mNm	36.97	41.96	41.21	45.39	51.5
Rated Efficiency	%	75	76	75	75	79
Phase Resistance	W	3.1	2.5	2.4	2	1.3
Output Power	W	21	25.22	27.08	32.73	43.06
Max. Efficiency	%	75	76	75	75	79
No-Load Speed	RPM	6280	6600	7260	7980	9000
No-Load Current	A	0.14	0.16	0.18	0.22	0.23
Stall Torque	mNm	272.41	322.34	304.42	332.12	458.48
Friction Torque	mNm	5.02	5.46	5.58	6.2	5.78
Back EMF Constant	mV/RPM	3.75	3.58	3.25	2.95	2.63
Torque Constant	mNm/A	35.83	34.15	31	28.19	25.15
Slope of Speed vs. Torque Curve	RPM/mNm	23.05	20.48	23.85	24.03	19.63
Mechanical time Constant	mS	8.69	7.72	8.99	9.06	7.4
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	75.69	89.56	84.58	92.28	127.39
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

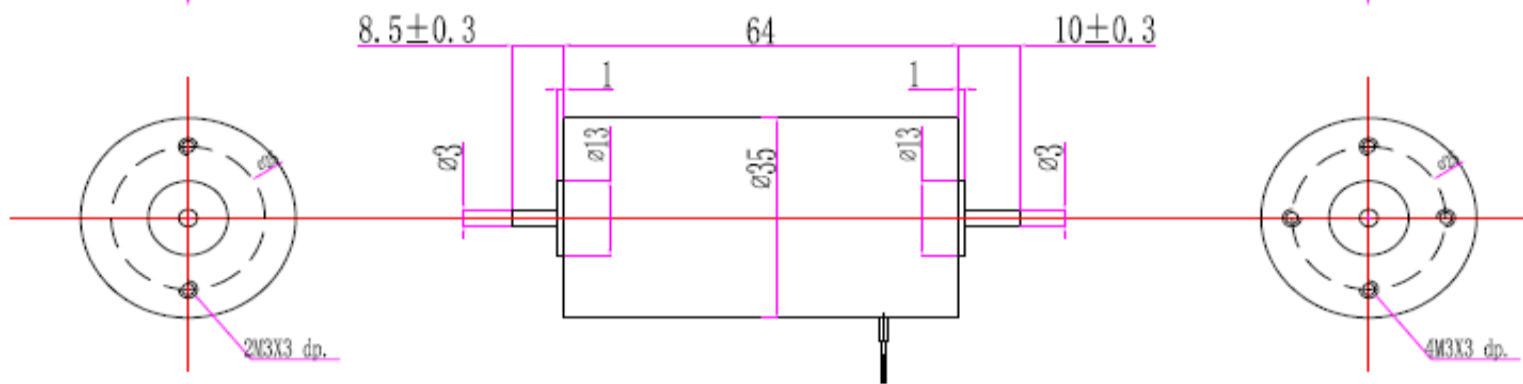
Model		DM3564DS-24-087	DM3564DS-24-092	DM3564DS-24-139	DM3564DS-24-159	DM3564DS-24-153
Nominal Voltage	V	24	24	24	24	24
Rated Speed	RPM	8793	9514	9808	10910	11505
Rated Current	A	2.31	2.47	3.66	3.52	4.43
Rated Torque	mNm	44.76	44.21	63.76	57.71	64.08
Rated Efficiency	%	75	74	75	78	73
Phase Resistance	W	1.6	1.5	1	0.88	0.9
Output Power	W	41.2	44.02	65.46	65.9	77.16
Max. Efficiency	%	75	74	75	78	73
No-Load Speed	RPM	10200	11040	11360	12360	13500
No-Load Current	A	0.28	0.3	0.44	0.37	0.57
Stall Torque	mNm	324.57	319.81	466.6	492.07	433.56
Friction Torque	mNm	6.17	6.11	8.71	6.77	9.47
Back EMF Constant	mV/RPM	2.31	2.13	2.07	1.92	1.74
Torque Constant	mNm/A	22.05	20.37	19.8	18.29	16.61
Slope of Speed vs. Torque Curve	RPM/mNm	31.43	34.52	24.35	25.12	31.14
Mechanical time Constant	mS	11.84	13.01	9.18	9.47	11.74
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99	35.99	35.99
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	90.18	88.86	129.65	136.72	120.47
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	300	300	300	300	300
Motor Body Length	"L"	64	64	64	64	64

Model		DM3564DS-24-201	DM3564DS-24-468	DM3564DS-24-345		
Nominal Voltage	V	24	24	24		
Rated Speed	RPM	13623	15603	21914		
Rated Current	A	4.19	9.83	9.73		
Rated Torque	mNm	55.69	113.94	74.5		
Rated Efficiency	%	79	79	73		
Phase Resistance	W	0.7	0.3	0.4		
Output Power	W	79.41	186.07	170.87		
Max. Efficiency	%	79	79	73		
No-Load Speed	RPM	15330	17570	25620		
No-Load Current	A	0.42	0.99	1.23		
Stall Torque	mNm	500.09	1017.85	514.95		
Friction Torque	mNm	6.2	12.75	10.78		
Back EMF Constant	mV/RPM	1.55	1.35	0.92		
Torque Constant	mNm/A	14.77	12.88	8.76		
Slope of Speed vs. Torque Curve	RPM/mNm	30.65	17.26	49.75		
Mechanical time Constant	mS	11.55	6.51	18.75		
Rotor Inertia	g-cm <sup>2</sup>	35.99	35.99	35.99		
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	138.95	282.82	143.08		
Sensor		Hall Sensor	Hall Sensor	Hall Sensor		
Driver Recommendation		DR2404	DR2404	DR2404		
Weight	g	300	300	300		
Motor Body Length	"L"	64	64	64		

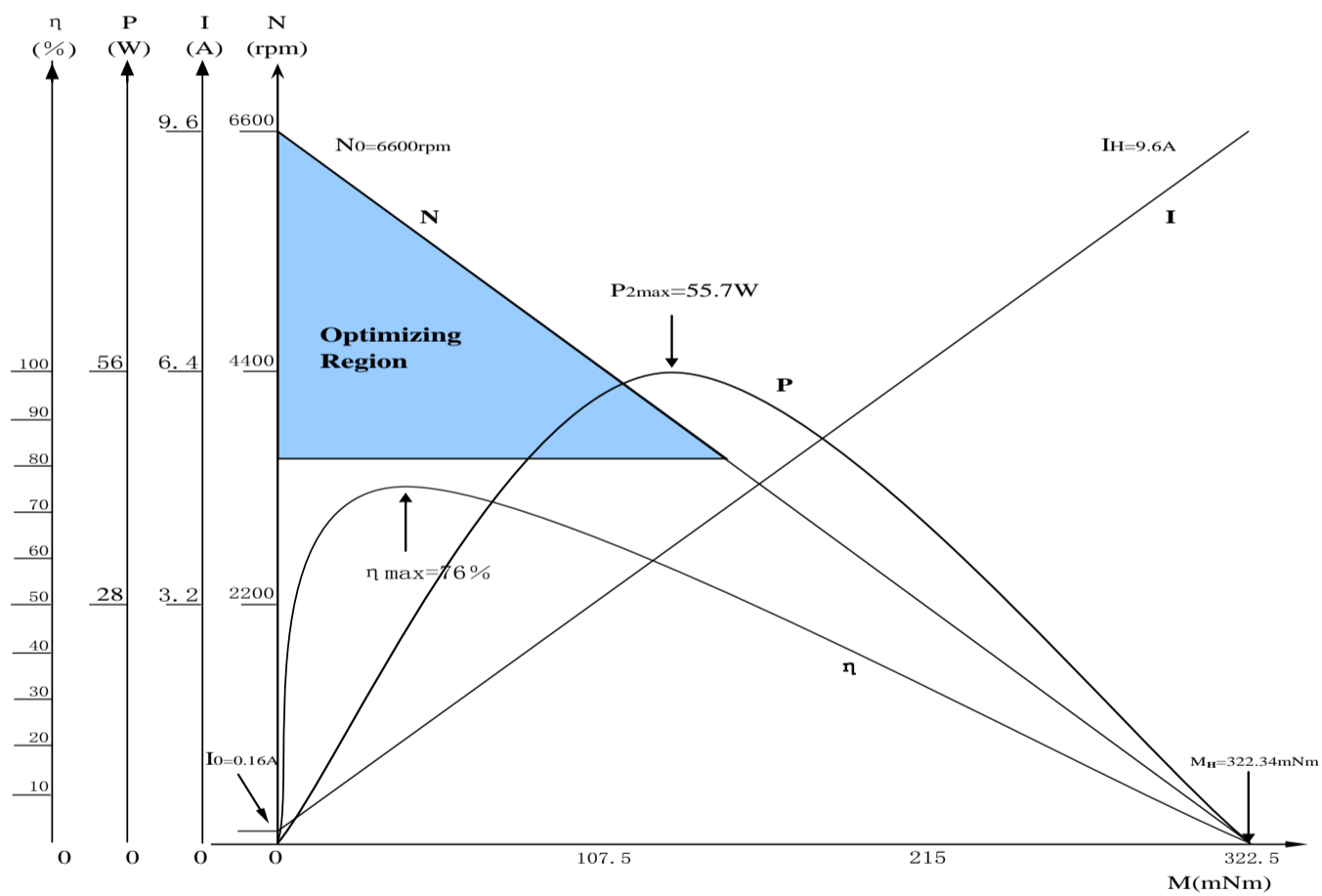
## Outline Drawing

Shaft Length: 10mm

Shaft Length: 8.5mm



## Performance Curve



# 43mm Brushless DC Motor-DS



4373DS

## 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		DM4373DS-12-	DM4373DS-12-	DM4373DS-24-	DM4373DS-24-	DM4373DS-24-
		020	115	013	038	036
Nominal Voltage	V	12	12	24	24	24
Rated Speed	RPM	3891	10108	3386	5043	5568
Rated Current	A	2.26	11.58	0.86	2.03	1.92
Rated Torque	mNm	49.87	108.92	38.01	72.26	61.75
Rated Efficiency	%	75	83	66	78	78
Phase Resistance	W	0.8	0.1	6.2	1.5	1.6
Output Power	P	20.31	115.24	13.47	38.14	35.99
Max. Efficiency	%	75	83	66	78	78
No-Load Speed	RPM	4500	11100	4200	5700	6300
No-Load Current	A	0.27	0.95	0.14	0.21	0.2
Stall Torque	mNm	368.34	1219.29	196.23	626.54	531.22
Friction Torque	mNm	6.75	9.73	7.36	8.33	7.18
Back EMF Constant	mV/RPM	2.62	1.07	5.51	4.16	3.76
Torque Constant	mNm/A	25.01	10.24	52.59	39.68	35.89
Slope of Speed vs. Torque Curve	RPM/mNm	12.22	9.1	21.4	9.1	11.86
Mechanical time Constant	mS	12.27	9.14	21.49	9.13	11.91
Rotor Inertia	g-cm <sup>2</sup>	95.88	95.88	95.88	95.88	95.88
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	38.42	127.17	20.47	65.35	55.4
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	DR2404
Weight	g	510	510	510	510	510
Motor Body Length	"L"	73	73	73	73	73

Model		DM4373DS-24-	DM4373DS-24-	DM4373DS-24-	DM4373DS-24-	
		046-05	046-06	063	178	
Nominal Voltage	V	24	24	24	24	
Rated Speed	RPM	5855	6353	7871	5376	
Rated Current	A	2.42	2.42	3.33	8.87	
Rated Torque	mNm	74.94	69.06	76.23	316.03	
Rated Efficiency	%	79	79	79	84	
Phase Resistance	W	1.2	1.2	0.9	0.25	
Output Power	P	45.92	45.92	62.8	177.83	
Max. Efficiency	%	79	79	79	84	
No-Load Speed	RPM	6580	7140	8880	5880	
No-Load Current	A	0.24	0.24	0.34	0.7	
Stall Torque	mNm	679.99	626.65	670.8	3687.4	
Friction Torque	mNm	8.26	7.61	8.66	27.08	
Back EMF Constant	mV/RPM	3.6	3.32	2.67	4.05	
Torque Constant	mNm/A	34.41	31.71	25.48	38.69	
Slope of Speed vs. Torque Curve	RPM/mNm	9.68	11.39	13.24	1.59	
Mechanical time Constant	mS	9.72	11.44	13.29	1.6	
Rotor Inertia	g-cm <sup>2</sup>	95.88	95.88	95.88	95.88	
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	70.92	65.36	69.96	384.58	
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	
Weight	g	510	510	510	510	
Motor Body Length	"L"	73	73	73	73	



# 58mm Brushless DC Motor



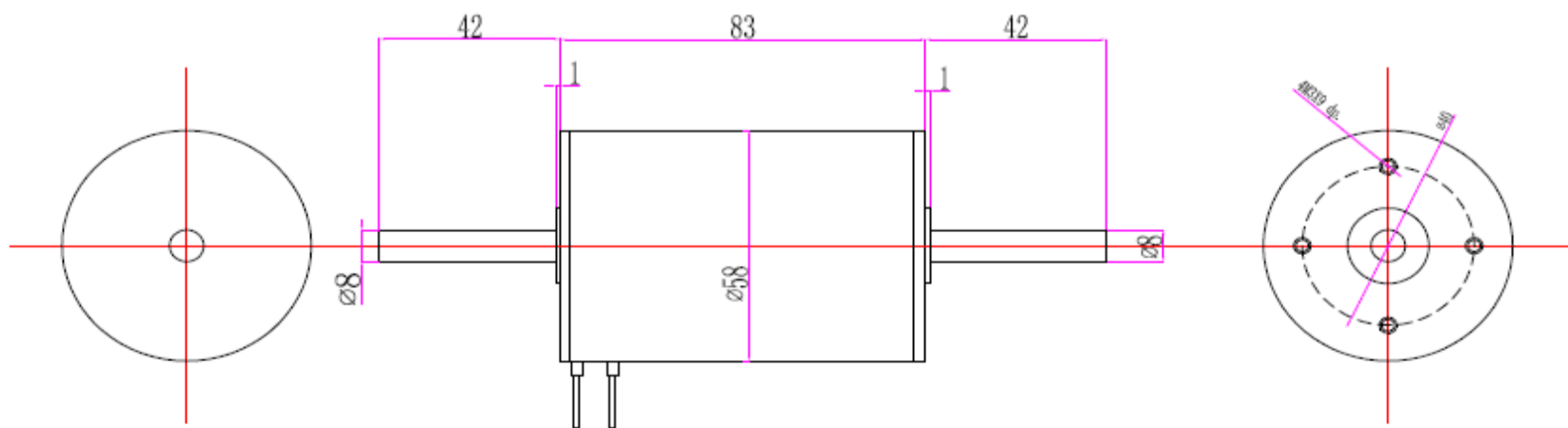
5883DS

## 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		DM5883DS-24-	DM5883DS-24-	DM5883DS-24-	DM5883DS-24-	
		058	123	170	005	
Nominal Voltage	V	24	24	24	31	
Rated Speed	RPM	4494	5532	7407	806	
Rated Current	A	1.56	5.08	5.75	0.3	
Rated Torque	mNm	58.8	135.45	123.06	51.97	
Rated Efficiency	%	74	65	70	49	
Phase Resistance	W	2.4	1.08	0.8	39	
Output Power	P	57.74	123.44	170.18	5.12	
Max. Efficiency	%	74	65	70	49	
No-Load Speed	RPM	5220	6900	8910	1170	
No-Load Current	A	0.19	0.84	0.83	0.07	
Stall Torque	mNm	422.52	683.36	729.55	167.25	
Friction Torque	mNm	8.18	26.85	20.76	16.15	
Back EMF Constant	mV/RPM	4.51	3.35	2.62	24.16	
Torque Constant	mNm/A	43.07	31.96	25.01	230.73	
Slope of Speed vs. Torque Curve	RPM/mNm	12.35	10.1	12.21	7	
Mechanical time Constant	mS	16.29	13.31	16.1	9.22	
Rotor Inertia	g-cm <sup>2</sup>	125.9	125.9	125.9	125.9	
Max. Angular Acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	33.56	54.28	57.95	13.28	
Sensor		Hall Sensor	Hall Sensor	Hall Sensor	Hall Sensor	
Driver Recommendation		DR2404	DR2404	DR2404	DR2404	
Weight	g	998	998	998	998	
Motor Body Length	"L"	83	83	83	83	

## Outline Drawing



**Performance Curve**

