

# 35mm Brushless DC Motor



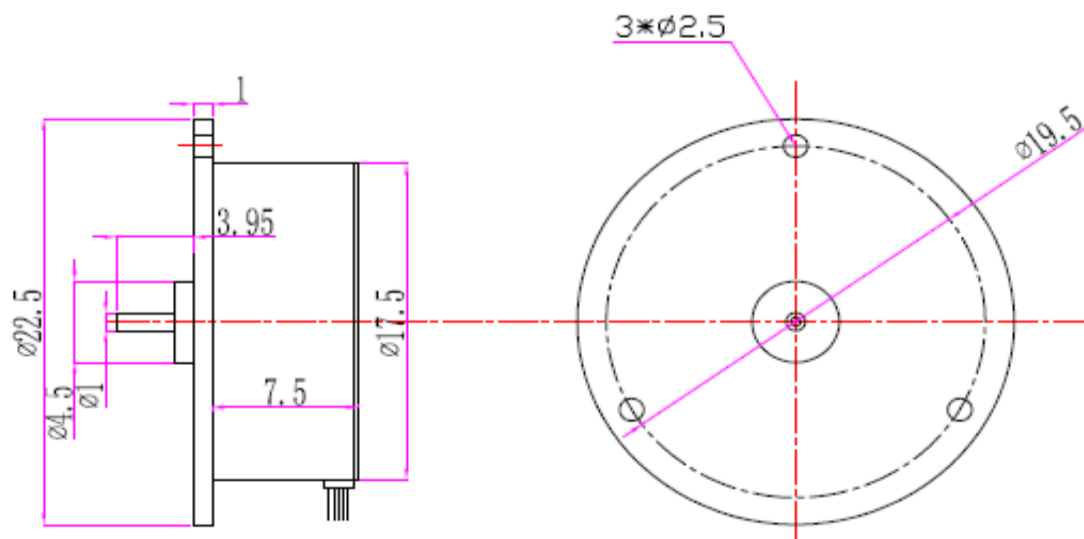
3517

## General Specifications

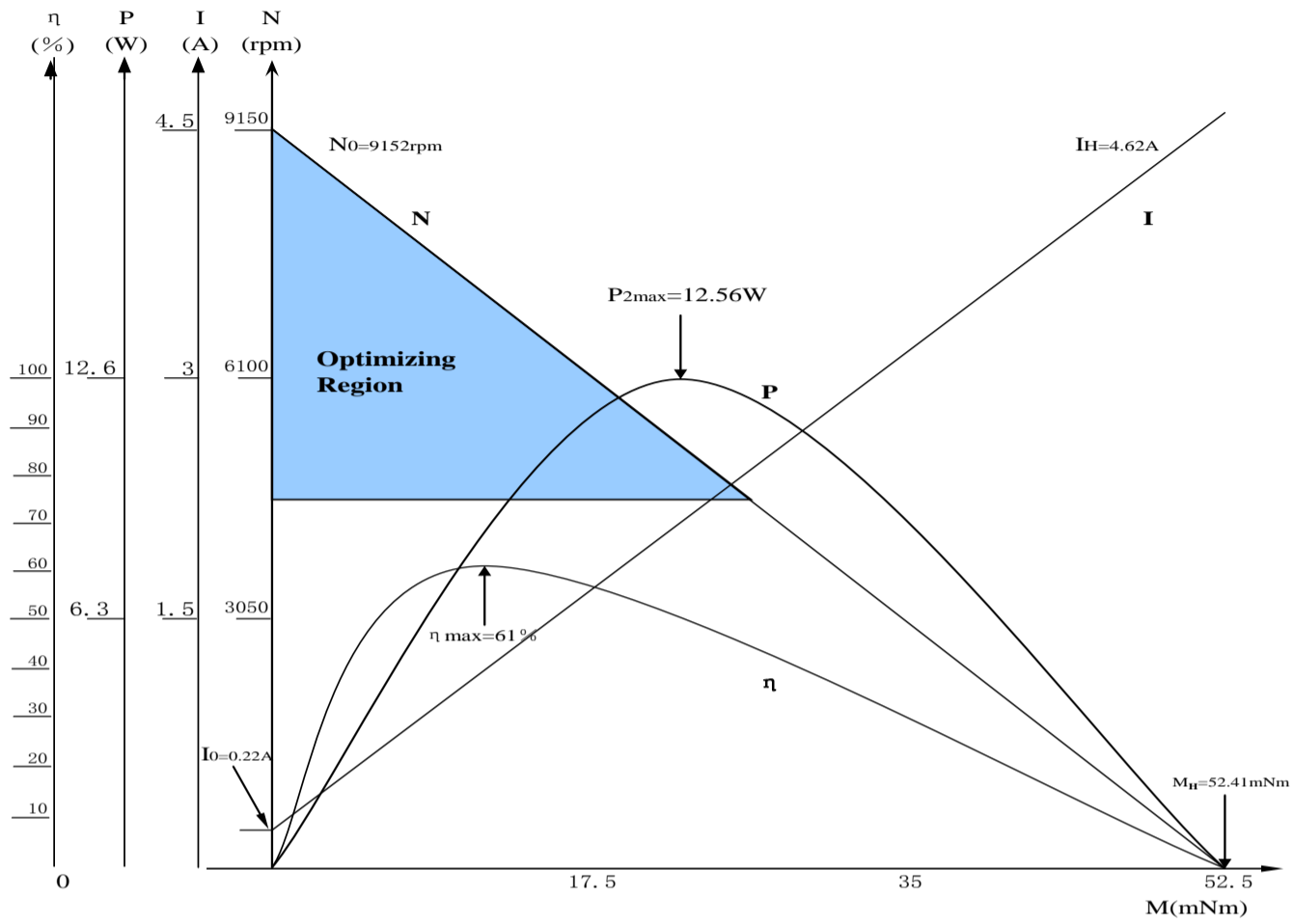
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric 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	0.57	14.64			
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



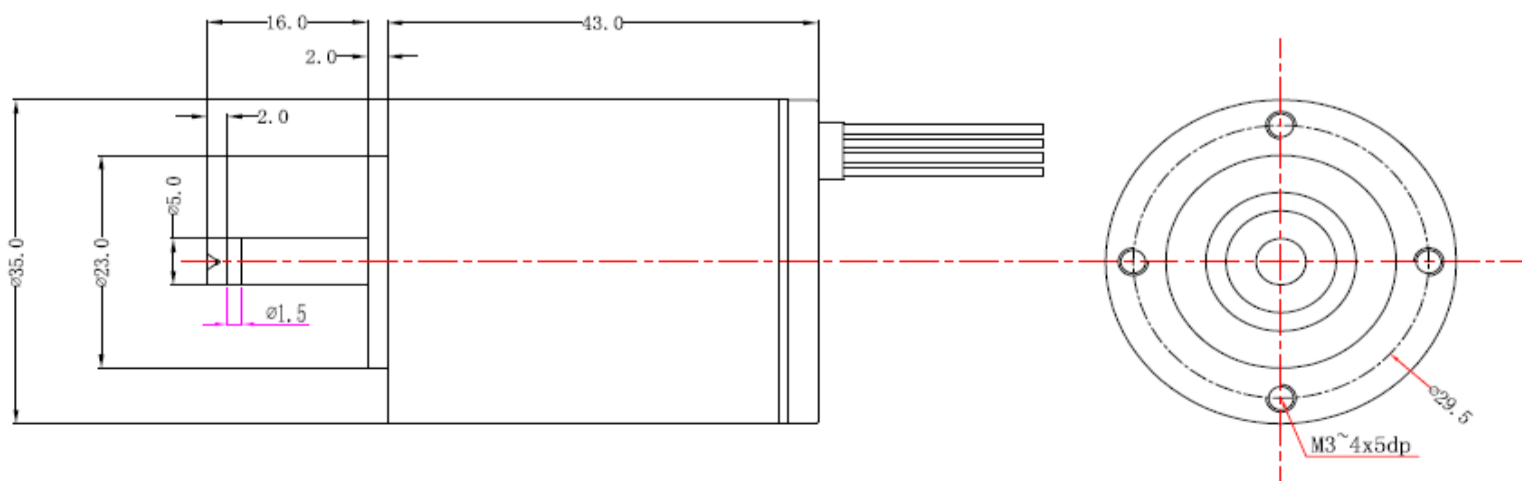
3543

## General Specifications

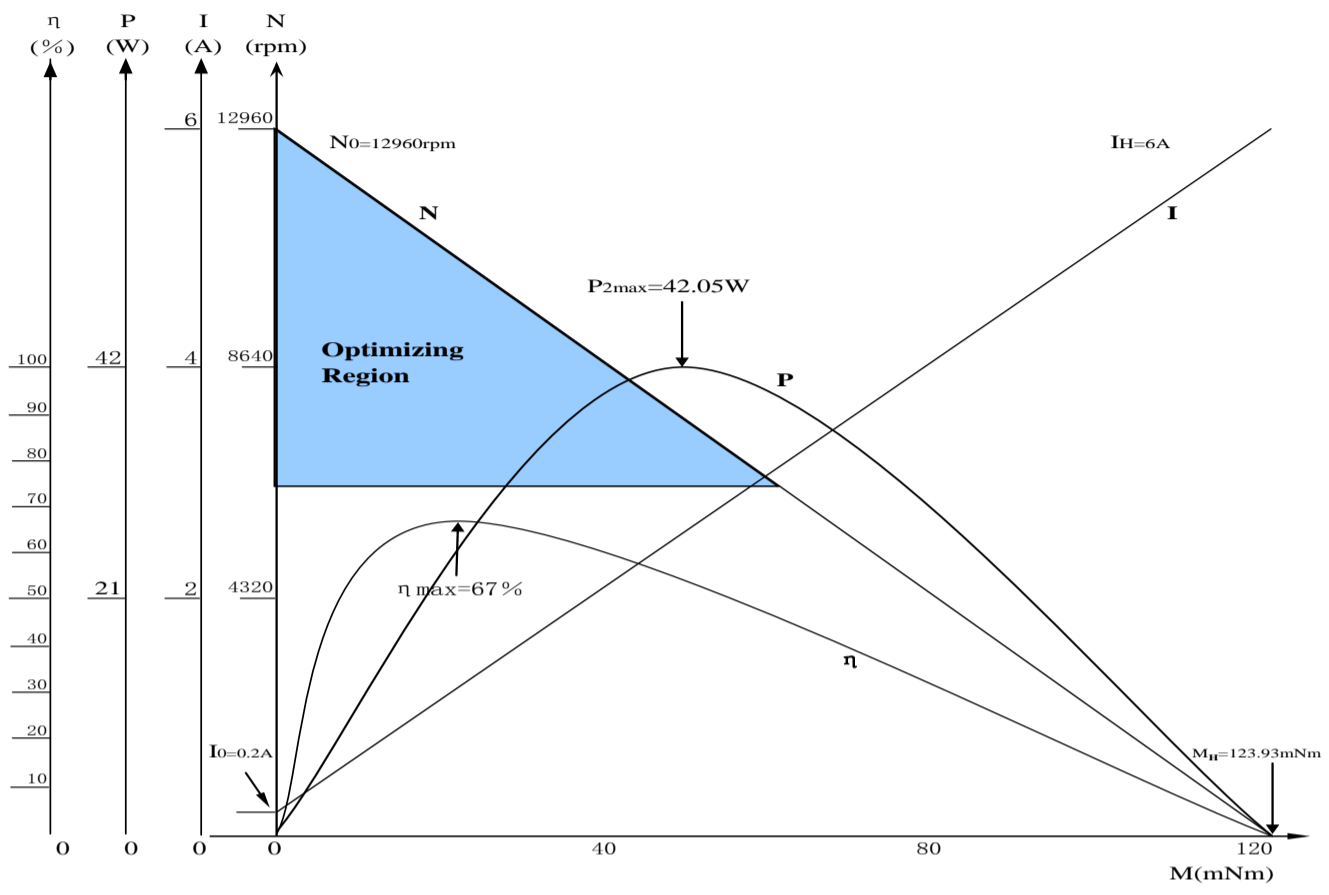
Number of phases	3
Number of poles	2
Operating temperature range	-30°C ~ 85°C
Commutation	Electrically commutated
Bearing type	Shielded ball bearings
Housing material	Black anodized aluminum
Magnet material	Sintered Nd-Fe-B
Direction of rotation	Reversible
Insulation Class	Class B (130°C max.)
Dielectric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

Model		TBL3543-30				
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	42.05				
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		TBL3564-12-029	TBL3564-12-044	TBL3564-12-034	TBL3564-12-069	TBL3564-12-057
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	29.05	43.75	34.16	69.15	57.1
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

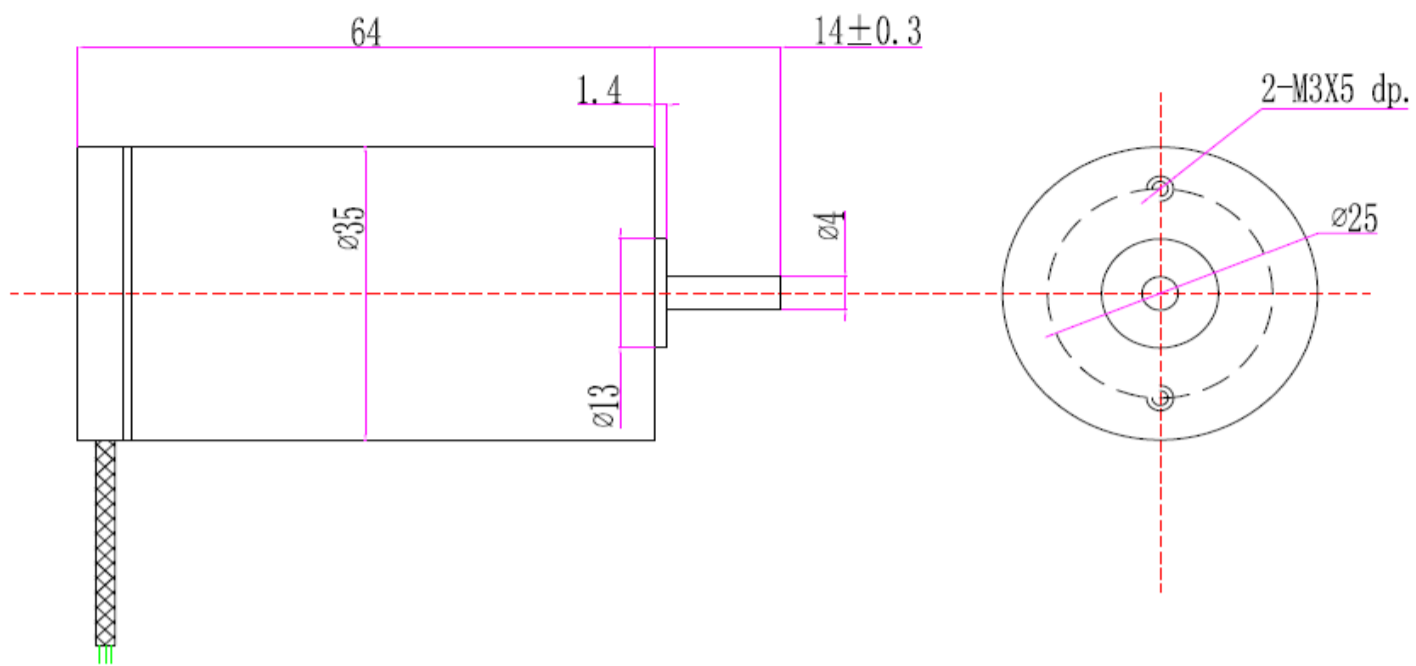
Model		TBL3564-18-052	TBL3564-24-014	TBL3564-24-021	TBL3564-24-038	TBL3564-24-023
Nominal Voltage	V	18	24	24	24	24
Rated Speed	RPM	6848	2867	3577	4530	4599
Rated Current	A	2.09	0.52	0.77	1.14	0.8
Rated Torque	mNm	37.54	28.05	33.15	41.48	27.18
Rated Efficiency	%	72	68	67	72	68
Phase Resistance	W	1.5	9.5	6.5	3.6	6
Output Power	W	51.51	14.21	20.74	38.22	22.58
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		TBL3564-24-045	TBL3564-24-056	TBL3564-24-058	TBL3564-24-069	TBL3564-24-108
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	44.79	55.7	57.86	69.38	108.03
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		TBL3564-24-087	TBL3564-24-092	TBL3564-24-139	TBL3564-24-159	TBL3564-24-153
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	86.67	92.43	138.77	159.23	153.23
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		TBL3564-24-201	TBL3564-24-468	TBL3564-24-345		
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	200.71	468.19	345.39		
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

