

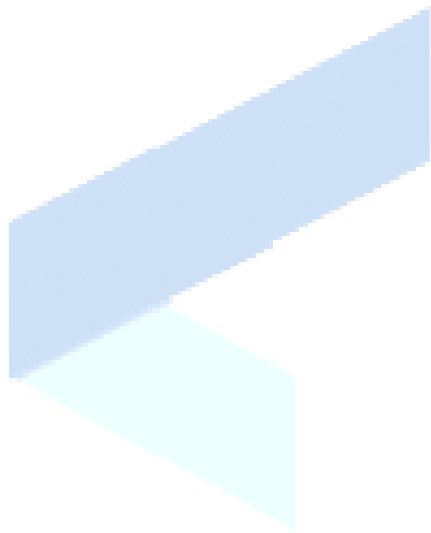
BLDC Motor & Driver

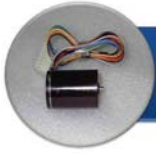


CONTENTS

- **General BLDC**
- **Driver Installed BLDC**
- **Control Driver**
 - DC Type**
 - AC Type**

General BLDC

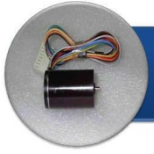


**BL1422****Series No: BL1422- - - P 2 & 8**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	6	3	3		V
2	Terminal resistance, phase to phase	R	216	216	37.3		Ω
3	Output power	P_{2max}	0.003	0.001	0.05		W
4	Efficiency	η_{max}	2	2	42		%
5	No-load speed	n_o	960	668	1620		rpm
6	No-load current	I_o	0.02	0.01	0.01		A
7	Stall torque	M_H	0.13	0.05	1.09		mNm
8	Friction torque	MF	0.33	0.12	0.15		mNm
9	Speed constant	k_n	571.43	795.24	616.67		rpm/V
10	Back-EMF constant	k_E	1.75	1.26	1.62		mV/rpm
11	Torque constant	k_M	16.71	12.01	15.49		mNm/A
12	Current constant	k_I	0.06	0.08	0.06		A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	7385.95	14304.63	1485.41		rpm/mNm
14	Mechanical time constant	T_m	52.59	101.86	10.58		ms
15	Rotor inertia	J	0.68	0.68	0.68		gcm ²
16	Angular acceleration	α_{max}	1.91	0.69	16.04		10 ³ rad/s ²
17	Sensor		Sensorless				
18	Driver		DR1802				
19	Weight		22				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Bearing		Sleeve bearing				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

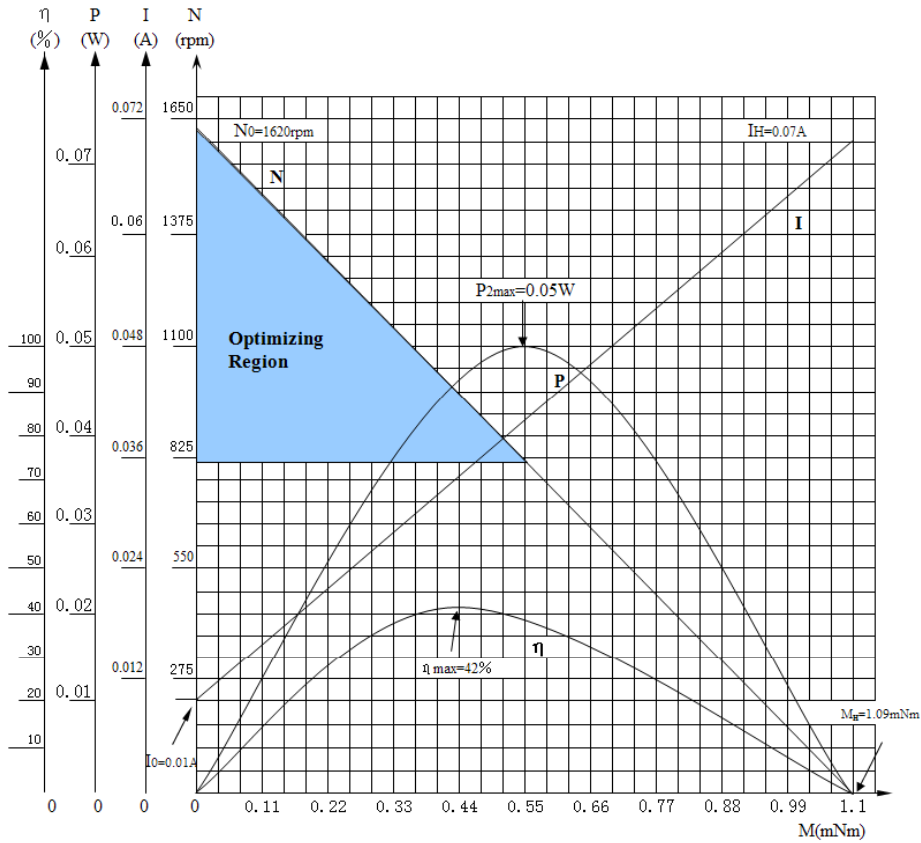
Note:

- The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- This type is reducing motor used for lowest speed controlling.



BL1422

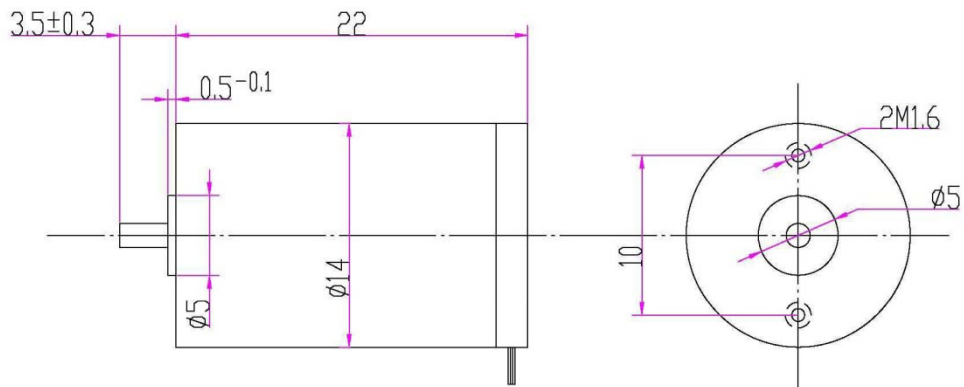
Operating Curve

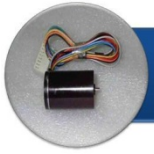


Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing



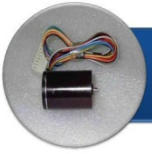
**BL1428****Report for Brushless Motor Testing Data Sheet****Series No: BL1428- - - P 2**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	10				V
2	Terminal resistance, phase to phase	R	3.6				Ω
3	Output power	P_{2max}	6.26				W
4	Efficiency	η_{max}	60				%
5	No-load speed	n_o	21520				rpm
6	No-load current	I_o	0.14				A
7	Stall torque	M_{II}	11.11				mNm
8	Friction torque	MF	0.59				mNm
9	Speed constant	k_n	2266.22				rpm/V
10	Back-EMF constant	k_E	0.44				mV/rpm
11	Torque constant	k_M	4.21				mNm/A
12	Current constant	k_I	0.24				A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	1936.13				rpm/mNm
14	Mechanical time constant	τ_m	13.79				ms
15	Rotor inertia	J	0.68				gcm ²
16	Angular acceleration	α_{max}	163.46				10 ³ rad/s ²
17	Sensor		Sensorless				
18	Driver		DR1802				
19	Weight		22				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

The Operating Data For η_{max} of Customer's Specifications

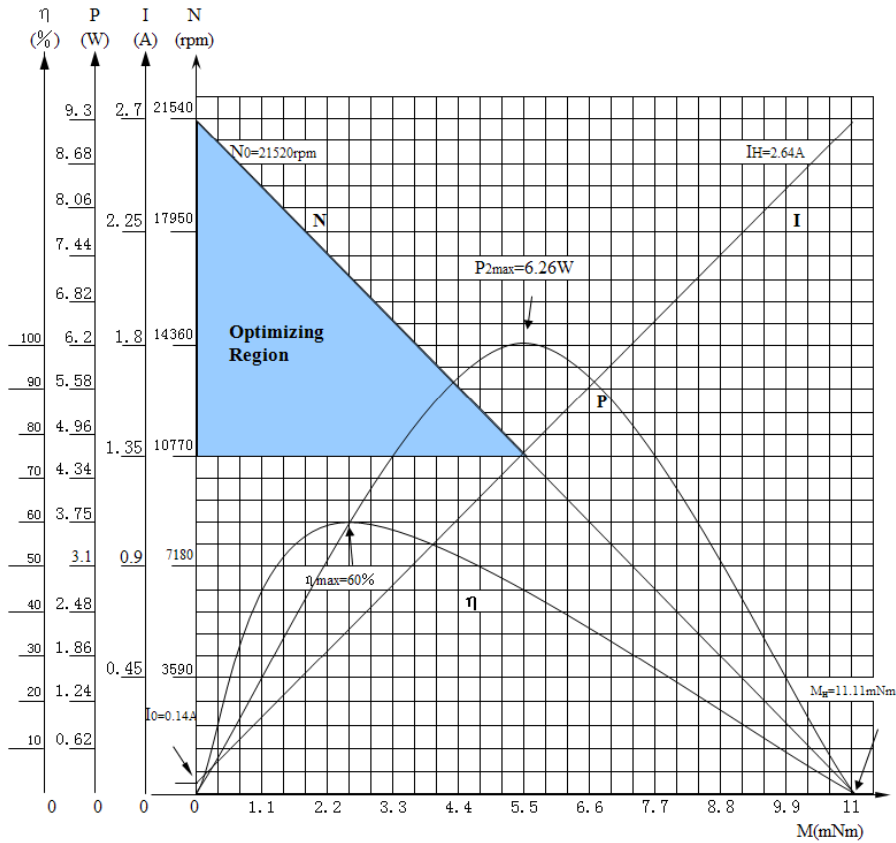
26	Output Power	P_{2opt}	3.65				W
27	Efficiency	η_{opt}	60				%
28	Speed	n_{opt}	13636				rpm
29	Load Current	I_{opt}	0.61				A
30	Operating Torque	M_{opt}	2.56				mNm

Note:The I_o is pure current of motor in this data sheet that means it not included the driver's current.



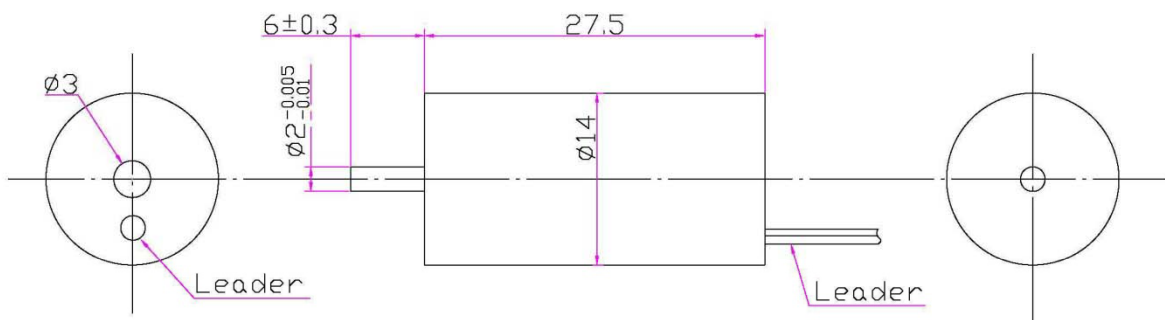
BL1428

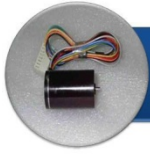
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.
(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL1630

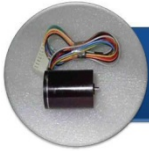
Report for Brushless Motor Testing Data Sheet

Series No: BL1630(1632)- - P 2

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	5	9	12	24	V
2	Terminal resistance, phase to phase	R	8.7	8.2	7.8	62	Ω
3	Output power	P_{2max}	0.65	2.21	4.15	1.76	W
4	Efficiency	η_{max}	60	59	60	41	%
5	No-load speed	n_o	5200	10000	14500	12010	rpm
6	No-load current	I_o	0.03	0.06	0.08	0.05	A
7	Stall torque	M_H	4.74	8.43	10.93	5.60	mNm
8	Friction torque	MF	0.26	0.49	0.60	0.83	mNm
9	Speed constant	k_n	1097.28	1175.36	1274.61	574.64	rpm/V
10	Back-EMF constant	k_E	0.91	0.85	0.78	1.74	mV/rpm
11	Torque constant	k_M	8.70	8.12	7.49	16.62	mNm/A
12	Current constant	k_I	0.11	0.12	0.13	0.06	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	1096.94	1186.28	1327.03	2143.95	rpm/mNm
14	Mechanical time constant	τ_m	6.43	6.96	7.78	12.57	ms
15	Rotor inertia	J	0.56	0.56	0.56	0.56	gcm ²
16	Angular acceleration	α_{max}	84.65	150.53	195.12	100.03	10 ³ rad/s ²
17	Sensor		Sensorless	Sensorless	SL&HS	Hall Sensor	
18	Driver		DR1802	DR1802	DR1802&DR3006	DR3006	
19	Weight		27.5				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	0.38	1.32	2.44	1.28	W
27	Efficiency	η_{opt}	60	59	60	41	%
28	Speed	n_{opt}	3267	6213	9120	5662	rpm
29	Load Current	I_{opt}	0.13	0.25	0.34	0.13	A
30	Operating Torque	M_{opt}	1.11	2.03	2.56	2.16	mNm

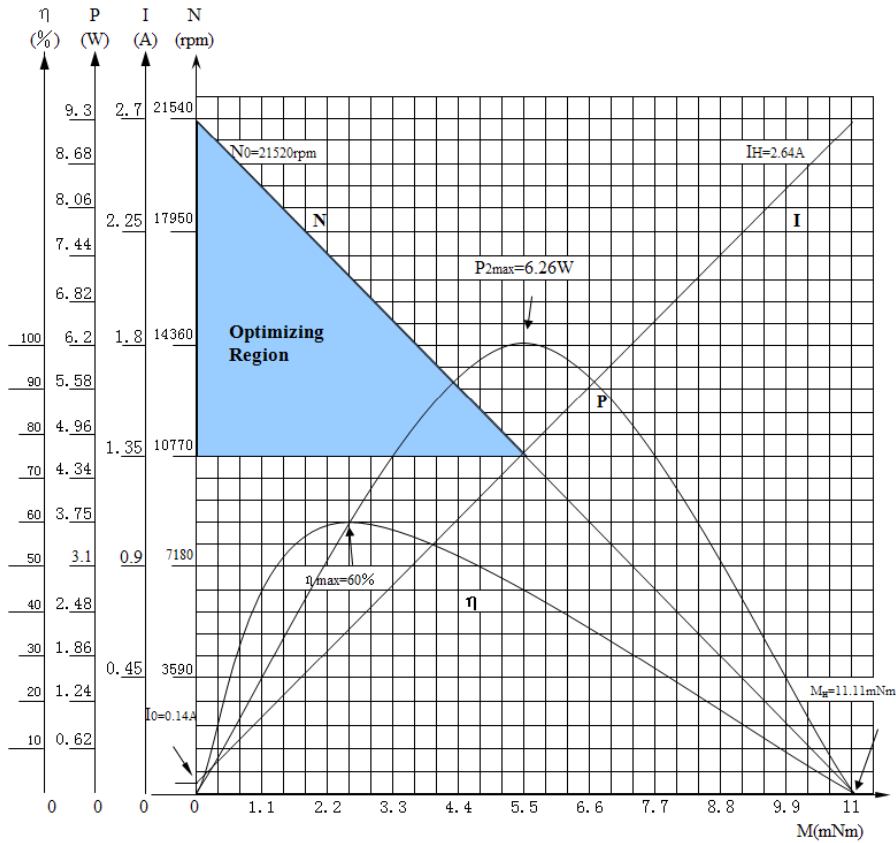
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current..
- (2) This type of motor can be assemble for planetary Gearbox which type of IG16 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL1630

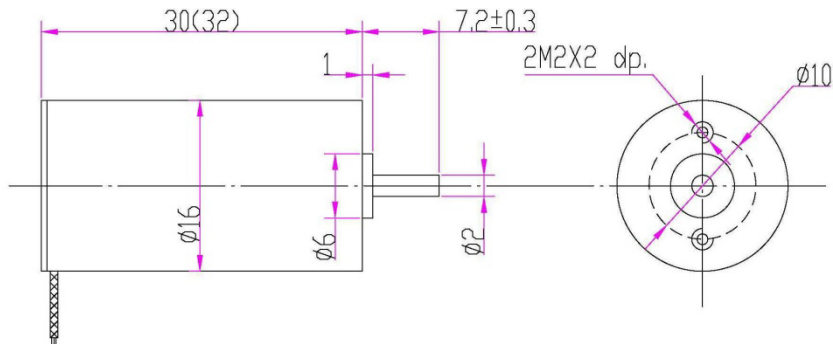
Operating Curve

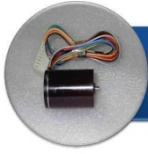


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Drawing





BL1730

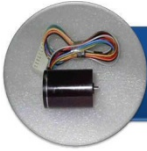
Report for Brushless Motor Testing Data Sheet

Series No: BL1730(1732)- - - P 2

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	5	9	12	24	V
2	Terminal resistance, phase to phase	R	8.7	8.2	7.8	62	Ω
3	Output power	P_{2max}	0.65	2.21	4.15	1.76	W
4	Efficiency	η_{max}	60	59	60	41	%
5	No-load speed	n_o	5200	10000	14500	12010	rpm
6	No-load current	I_o	0.03	0.06	0.08	0.05	A
7	Stall torque	M_H	4.74	8.43	10.93	5.60	mNm
8	Friction torque	MF	0.26	0.49	0.60	0.83	mNm
9	Speed constant	k_n	1097.28	1175.36	1274.61	574.64	rpm/V
10	Back-EMF constant	k_E	0.91	0.85	0.78	1.74	mV/rpm
11	Torque constant	k_M	8.70	8.12	7.49	16.62	mNm/A
12	Current constant	k_I	0.11	0.12	0.13	0.06	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	1096.94	1186.28	1327.03	2143.95	rpm/mNm
14	Mechanical time constant	τ_n	6.43	6.96	7.78	12.57	ms
15	Rotor inertia	J	0.56	0.56	0.56	0.56	gcm ²
16	Angular acceleration	α_{max}	84.65	150.53	195.12	100.03	10 ³ rad/s ²
17	Sensor		Sensorless	Sensorless	SL&HS	Hall Sensor	
18	Driver		DR1802	DR1802	DR1802&DR3006	DR3006	
19	Weight		27.5				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η max of Customer's Specifications							
26	Output Power	P_{2opt}	0.38	1.32	2.44	1.28	W
27	Efficiency	η_{opt}	60	59	60	41	%
28	Speed	n_{opt}	3267	6213	9120	5662	rpm
29	Load Current	I_{opt}	0.13	0.25	0.34	0.13	A
30	Operating Torque	M_{opt}	1.11	2.03	2.56	2.16	mNm

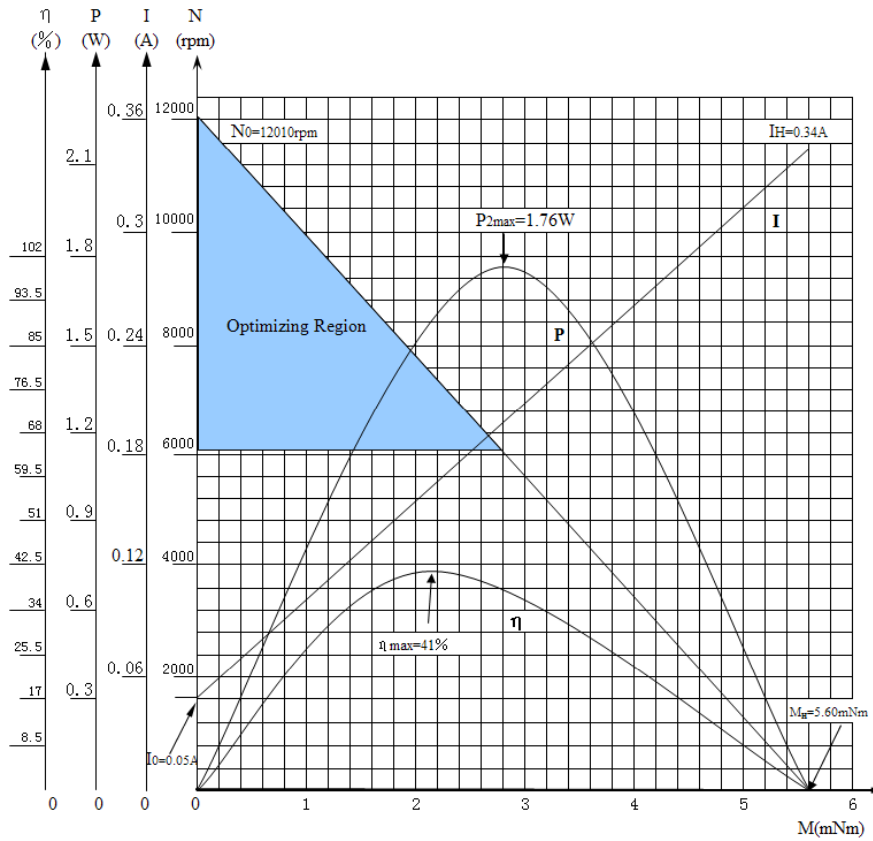
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current..
- (2) This type of motor can be assemble for planetary Gearbox which type of IG16 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL1730

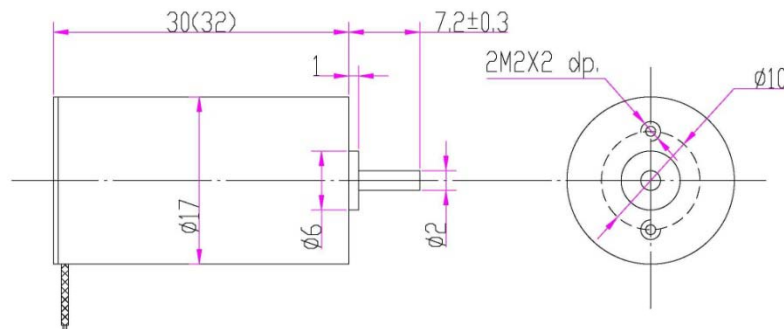
Operating Curve

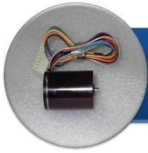


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Drawing





BL2230

Report for Brushless Motor Testing Data Sheet

Series No: BL2230(2232)- - P 2

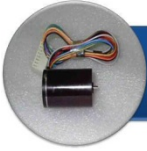
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	6	6	12	24	V
2	Terminal resistance, phase to phase	R	5.6	42	20.5	20.5	Ω
3	Output power	P_{2max}	1.43	0.19	1.36	5.99	W
4	Efficiency	η_{max}	58	54	43	52	%
5	No-load speed	n_o	6400	2100	7920	15660	rpm
6	No-load current	I_o	0.06	0.01	0.07	0.09	A
7	Stall torque	M_H	8.55	3.37	6.56	14.60	mNm
8	Friction torque	MF	0.51	0.25	0.89	1.22	mNm
9	Speed constant	k_n	1129.94	376.34	749.65	706.84	rpm/V
10	Back-EMF constant	k_E	0.89	2.66	1.33	1.41	mV/rpm
11	Torque constant	k_M	8.45	25.37	12.74	13.51	mNm/A
12	Current constant	k_I	0.12	0.04	0.08	0.07	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	748.74	622.94	1206.41	1072.56	rpm/mNm
14	Mechanical time constant	τ_m	14.82	12.33	23.88	21.23	ms
15	Rotor inertia	J	1.89	1.89	1.89	1.89	gcm ²
16	Angular acceleration	α_{max}	45.23	17.84	34.74	77.25	10 ³ rad/s ²
17	Sensor		Sensorless		SL&HS	Hall Sensor	
18	Driver		DR1802		DR1802&DR3006	DR3006	
19	Weight		44				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	0.86	0.12	0.98	3.91	W
27	Efficiency	η_{opt}	58	54	43	52	%
28	Speed	n_{opt}	3953	1222	3852	8866	rpm
29	Load Current	I_{opt}	0.25	0.04	0.19	0.31	A
30	Operating Torque	M_{opt}	2.08	0.92	2.42	4.21	mNm

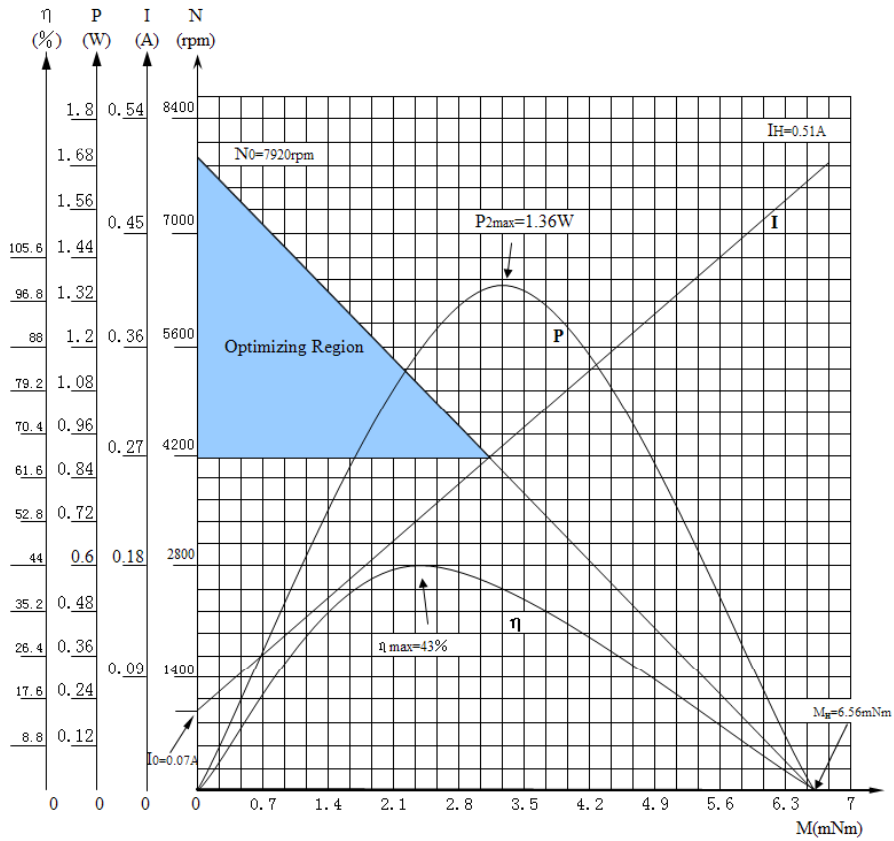
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current..
- (2) This type of motor can be assemble for planetary Gearbox which type of IG22 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL2230

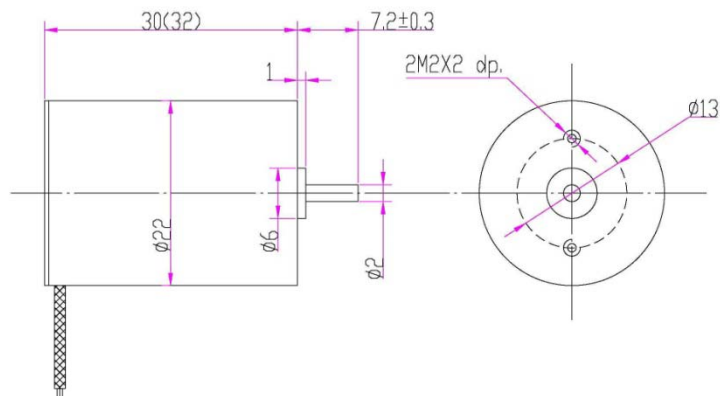
Operating Curve

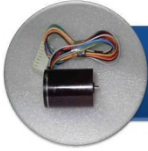


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Drawing



**BL2243****Report for Brushless Motor Testing Data Sheet****Series No: BL2243- - - P 2**

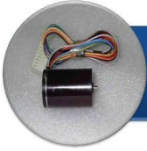
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	12	24	24		V
2	Terminal resistance, phase to phase	R	7	5.5	30.8		Ω
3	Output power	P_{2max}	4.67	23.61	3.55		W
4	Efficiency	η_{max}	61	60	41		%
5	No-load speed	n_o	7510	40200	6000		rpm
6	No-load current	I_o	0.08	0.22	0.1		A
7	Stall torque	M_H	23.77	22.43	22.61		mNm
8	Friction torque	MF	1.16	1.19	3.33		mNm
9	Speed constant	k_n	656.47	1763.93	286.81		rpm/V
10	Back-EMF constant	k_E	1.52	0.57	3.49		mV/rpm
11	Torque constant	k_M	14.55	5.41	33.30		mNm/A
12	Current constant	k_I	0.07	0.18	0.03		A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	315.90	1792.07	265.31		rpm/mNm
14	Mechanical time constant	τ_m	3.64	20.64	3.06		ms
15	Rotor inertia	J	1.10	1.10	1.10		gcm ²
16	Angular acceleration	α_{max}	216.12	203.93	205.59		10 ³ rad/s ²
17	Sensor		SL&HS	Hall sensor	Hall sensor		
18	Driver		DR1802 DR3006	DR3006	DR3006		
19	Weight		95				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	2.67	13.78	2.58		W
27	Efficiency	η_{opt}	61	60	41		%
28	Speed	n_{opt}	4844	25470	2836		rpm
29	Load Current	I_{opt}	0.36	0.95	0.26		A
30	Operating Torque	M_{opt}	5.26	5.17	8.68		mNm

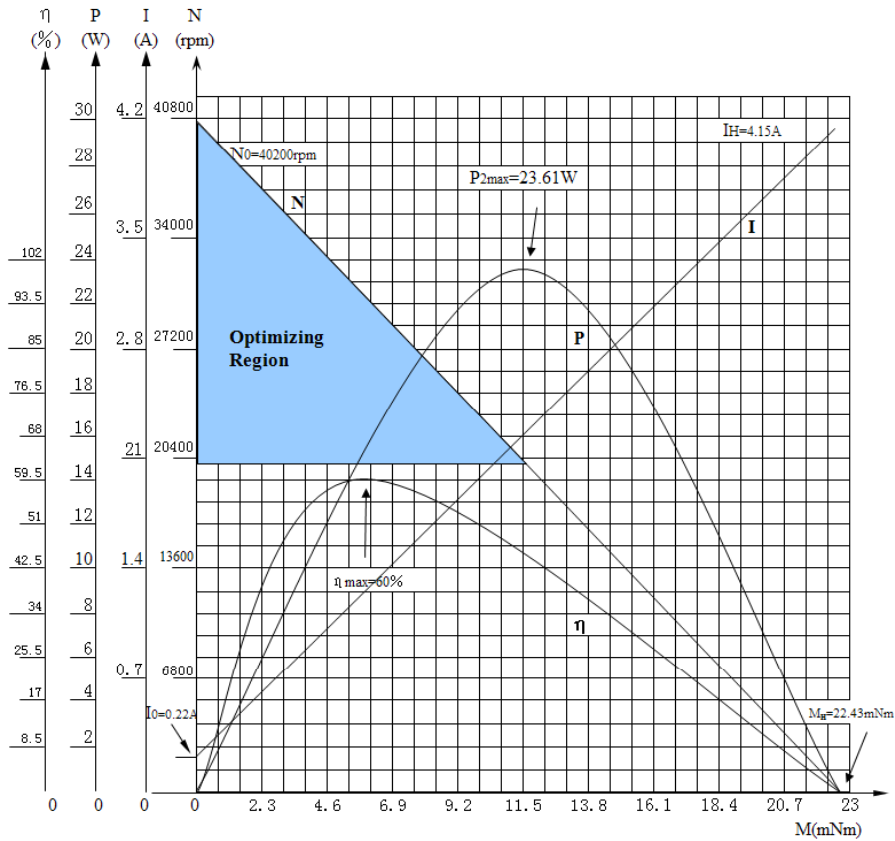
Note:

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- (2) This type of motor can be assemble for planetary Gearbox which type of IG22 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL2243

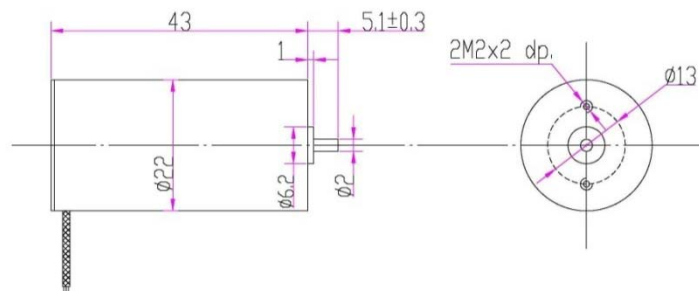
Operating Curve

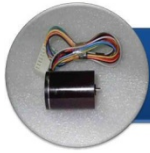


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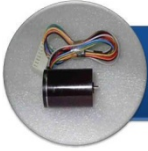
Drawing



**BL2262****Report for Brushless Motor Testing Data Sheet****Series No: BL2262- - P 2**

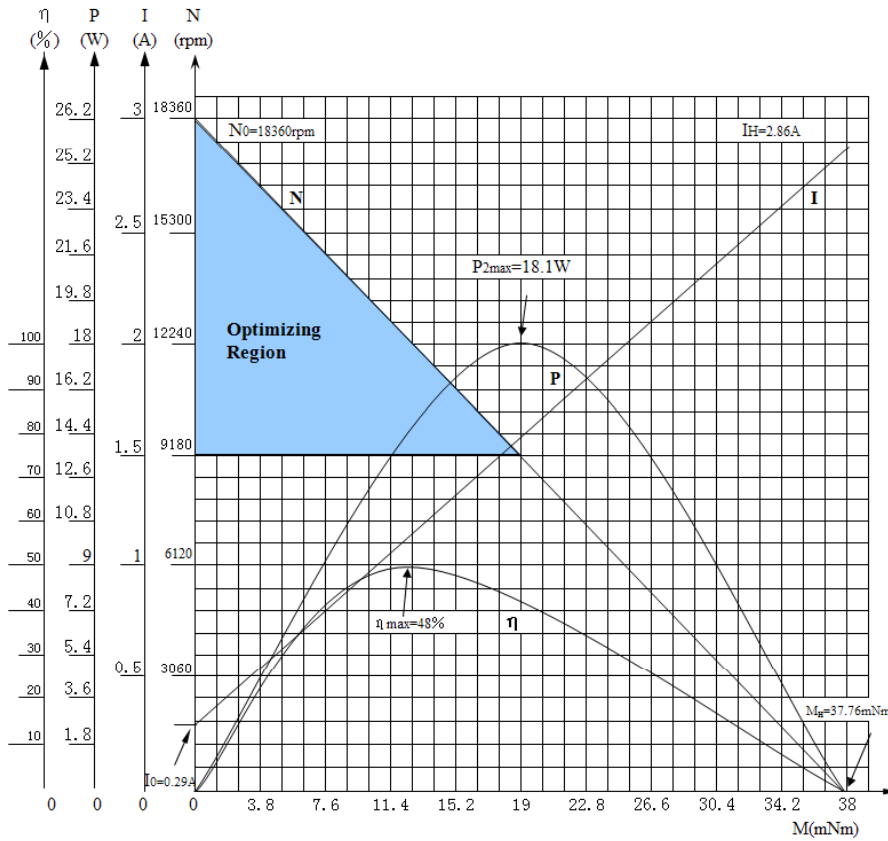
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	30	28			V
2	Terminal resistance, phase to phase	R	7.2	8.9			Ω
3	Output power	P_{2max}	27.8	18.1			W
4	Efficiency	η_{max}	58	48			%
5	No-load speed	n_o	17160	18360			rpm
6	No-load current	I_o	0.24	0.29			A
7	Stall torque	M_H	61.78	37.76			mNm
8	Friction torque	MF	3.78	3.83			mNm
9	Speed constant	k_n	606.96	722.29			rpm/V
10	Back-EMF constant	k_E	1.65	1.38			mV/rpm
11	Torque constant	k_M	15.73	13.22			mNm/A
12	Current constant	k_I	0.06	0.08			A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	277.77	486.24			rpm/mNm
14	Mechanical time constant	τ_m	11.64	20.37			ms
15	Rotor inertia	J	4.00	4.00			gcm ²
16	Angular acceleration	α_{max}	154.45	94.40			10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR3006				
19	Weight						g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	16.82	12.36			W
27	Efficiency	η_{opt}	58	48			%
28	Speed	n_{opt}	10523	9813			rpm
29	Load Current	I_{opt}	0.97	0.91			A
30	Operating Torque	M_{opt}	15.27	12.03			mNm

Note:The I_o is pure current of motor in this data sheet that means it not included the driver's current.



BL2262

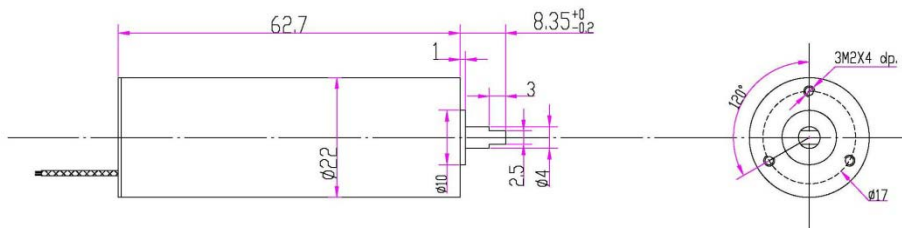
Operating Curve

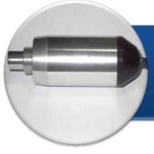


Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

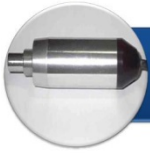
Drawing



**BL2264****Report for Brushless Motor Testing Data Sheet****Series No: BL2264- - P 2**

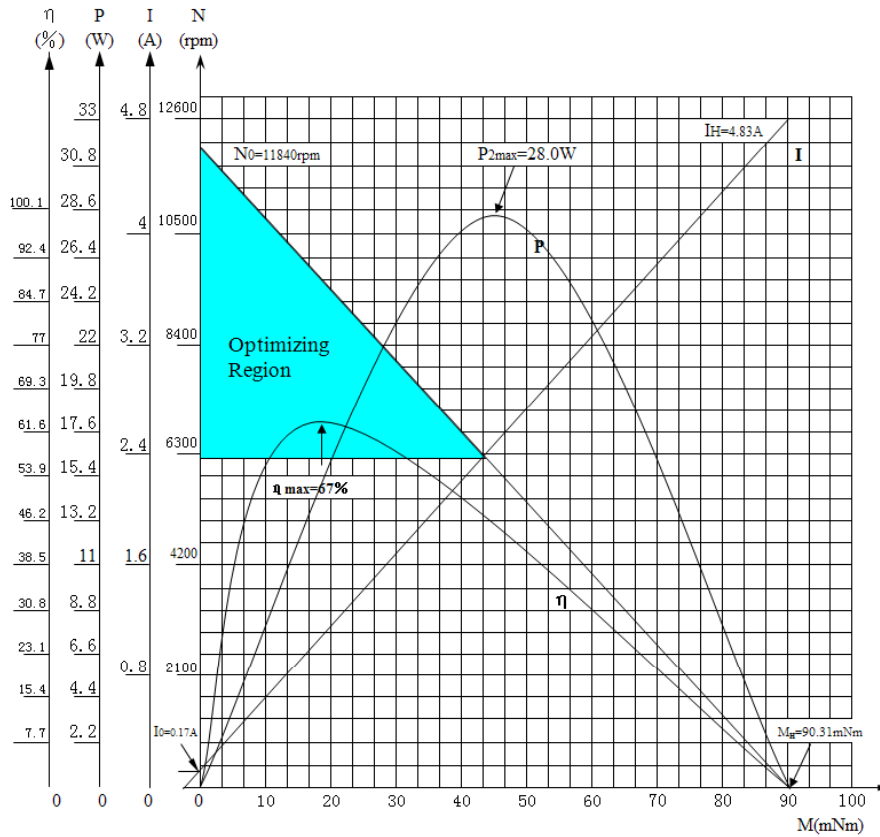
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	15				V
2	Terminal resistance, phase to phase	R	2.1				Ω
3	Output power	P_{2max}	25.38				W
4	Efficiency	η_{max}	70				%
5	No-load speed	n_o	34400				rpm
6	No-load current	I_o	0.19				A
7	Stall torque	M_H	28.18				mNm
8	Friction torque	MF	0.77				mNm
9	Speed constant	k_n	2356.00				rpm/V
10	Back-EMF constant	k_E	0.42				mV/rpm
11	Torque constant	k_M	4.05				mNm/A
12	Current constant	k_I	0.25				A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	1220.67				rpm/mNm
14	Mechanical time constant	τ_m	24.16				ms
15	Rotor inertia	J	1.89				gcm ²
16	Angular acceleration	α_{max}	149.11				10 ³ rad/s ²
17	Sensor		Sensorless				
18	Driver		DR1802				
19	Weight						g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η max of Customer's Specifications							
26	Output Power	P_{2opt}	12.08				W
27	Efficiency	η_{opt}	70				%
28	Speed	n_{opt}	24765				rpm
29	Load Current	I_{opt}	1.15				A
30	Operating Torque	M_{opt}	4.66				mNm

Note:The I_o is pure current of motor in this data sheet that means it not included the driver's current.



BL2264

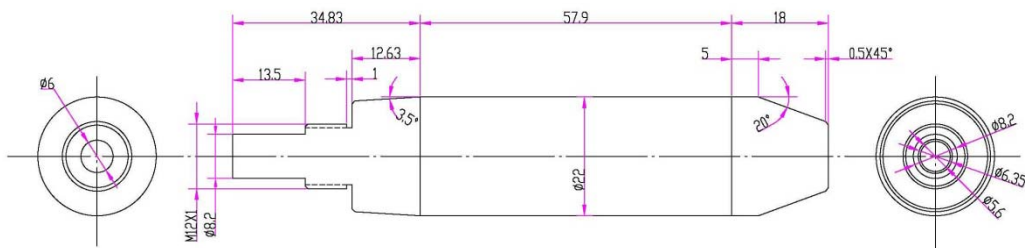
Operating Curve

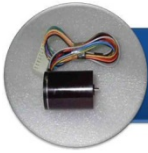


Note:

- (1) The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.
- (2) We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL2644

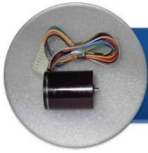
Report for Brushless Motor Testing Data Sheet

Series No: BL2644- - P 2

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	6	12	12	15	15	V
2	Terminal resistance, phase to phase	R	31	6	4	18	4	Ω
3	Output power	P_{2max}	0.2	5.4	8.4	2.8	13.2	W
4	Efficiency	η_{max}	37	60	65	57	69	%
5	No-load speed	n_o	1020	4640	6400	4620	8490	rpm
6	No-load current	I_o	0.03	0.1	0.11	0.05	0.11	A
7	Stall torque	M_H	7.76	44.58	49.85	22.83	59.61	mNm
8	Friction torque	MF	1.42	2.35	1.90	1.46	1.80	mNm
9	Speed constant	k_n	201.18	407.02	553.63	327.66	583.10	rpm/V
10	Back-EMF constant	k_E	4.97	2.46	1.81	3.05	1.71	mV/rpm
11	Torque constant	k_M	47.47	23.46	17.25	29.14	16.38	mNm/A
12	Current constant	k_I	0.02	0.04	0.06	0.03	0.06	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	131.39	104.09	128.39	202.37	142.42	rpm/mNm
14	Mechanical time constant	τ_m	1.51	1.20	1.48	2.33	1.64	ms
15	Rotor inertia	J	1.10	1.10	1.10	1.10	1.10	gcm ²
16	Angular acceleration	α_{max}	70.57	405.25	453.16	207.54	541.92	10 ³ rad/s ²
17	Sensor		Sensorless	SL&HS	SL&HS	SL&HS	SL&HS	
18	Driver		DR1802	DR1802&DR3006	DR1802&DR3006	DR1802&DR3006	DR1802&DR3006	
19	Weight		106					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	0.15	3.15	4.42	1.69	6.52	W
27	Efficiency	η_{opt}	37	60	65	57	69	%
28	Speed	n_{opt}	444	2946	4345	2803	6010	rpm
29	Load Current	I_{opt}	0.07	0.44	0.56	0.20	0.63	A
30	Operating Torque	M_{opt}	3.32	10.23	9.73	5.77	10.36	mNm

Note:

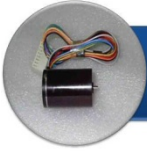
- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL2644****Report for Brushless Motor Testing Data Sheet****Series No: BL2644- - P 2**

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	15	16	18	18	24	V
2	Terminal resistance, phase to phase	R	3.6	3	8.9	6	4.8	Ω
3	Output power	P_{2max}	14.3	19.9	7.9	11.8	28.0	W
4	Efficiency	η_{max}	63	67	54	55	67	%
5	No-load speed	n_o	11640	11340	6500	7760	11840	rpm
6	No-load current	I_o	0.18	0.18	0.14	0.2	0.17	A
7	Stall torque	M_H	46.94	67.09	46.33	57.89	90.31	mNm
8	Friction torque	MF	2.12	2.34	3.45	4.13	3.18	mNm
9	Speed constant	k_n	811.04	733.51	387.97	461.90	510.70	rpm/V
10	Back-EMF constant	k_E	1.23	1.36	2.58	2.16	1.96	mV/rpm
11	Torque constant	k_M	11.77	13.02	24.61	20.67	18.70	mNm/A
12	Current constant	k_I	0.08	0.08	0.04	0.05	0.05	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	247.98	169.03	140.28	134.06	131.10	rpm/mNm
14	Mechanical time constant	τ_n	2.86	1.95	1.62	1.54	1.51	ms
15	Rotor inertia	J	1.10	1.10	1.10	1.10	1.10	gcm ²
16	Angular acceleration	α_{max}	426.72	609.91	421.22	526.24	821.04	10 ³ rad/s ²
17	Sensor		SL&HS	SL&HS	SL&HS	SL&HS	Hall Sensor	
18	Driver		DR1802&DR3006	DR1802&DR3006	DR1802&DR3006	DR1802&DR3006	DR3006	
19	Weight		106					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	7.97	10.27	5.02	7.41	14.47	W
27	Efficiency	η_{opt}	63	67	54	55	67	%
28	Speed	n_{opt}	7638	7824	3794	4577	8158	rpm
29	Load Current	I_{opt}	0.85	0.96	0.51	0.75	0.91	A
30	Operating Torque	M_{opt}	9.97	12.54	12.64	15.47	16.94	mNm

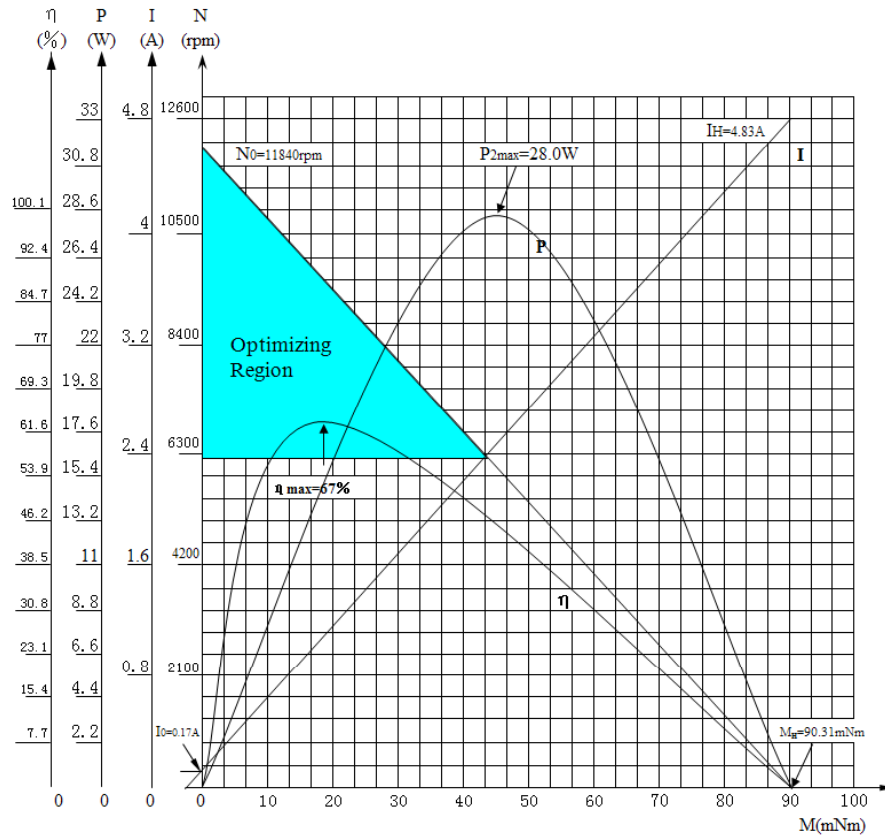
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL2644

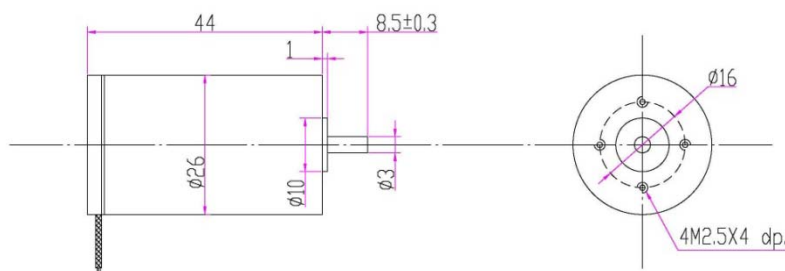
Operating Curve

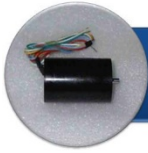


Note:

- (1) The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.
- (2) We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL3056

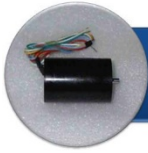
Report for Brushless Motor Testing Data Sheet

Series No: BL3056- - P 2

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	12	18	24	24	24	V
2	Terminal resistance, phase to phase	R	2.1	5.5	12	5.5	4.7	Ω
3	Output power	P_{2max}	16.14	13.84	10.94	24.88	28.86	W
4	Efficiency	η_{max}	68	68	62	71	69	%
5	No-load speed	n_o	6000	3930	4310	5590	6660	rpm
6	No-load current	I_o	0.17	0.1	0.09	0.11	0.15	A
7	Stall torque	M_H	102.74	134.53	96.99	170.00	165.55	mNm
8	Friction torque	MF	3.15	4.24	4.57	4.40	5.01	mNm
9	Speed constant	k_n	515.33	225.21	188.05	238.94	285.90	rpm/V
10	Back-EMF constant	k_E	1.94	4.44	5.32	4.19	3.50	mV/rpm
11	Torque constant	k_M	18.53	42.40	50.78	39.97	33.40	mNm/A
12	Current constant	k_I	0.05	0.02	0.02	0.03	0.03	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	58.40	29.21	44.44	32.88	40.23	rpm/mNm
14	Mechanical time constant	τ_m	9.79	4.89	7.45	5.51	6.74	ms
15	Rotor inertia	J	16.00	16.00	16.00	16.00	16.00	gcm ²
16	Angular acceleration	α_{max}	64.21	84.08	60.62	106.25	103.47	10 ³ rad/s ²
17	Sensor		SL&HS		Hall Sensor			
18	Driver		DR1802&DR3006		DR3006			
19	Weight		200					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	7.98	6.90	6.18	11.62	14.21	W
27	Efficiency	η_{opt}	68	68	62	71	69	%
28	Speed	n_{opt}	4237	2762	2803	4060	4713	rpm
29	Load Current	I_{opt}	0.97	0.56	0.41	0.68	0.86	A
30	Operating Torque	M_{opt}	17.99	23.88	21.05	27.34	28.80	mNm

Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL3056****Report for Brushless Motor Testing Data Sheet****Series No: BL3056- - P 2**

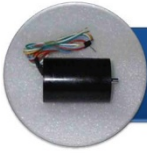
No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	24	24	24	24	24	V
2	Terminal resistance, phase to phase	R	3.5	2.8	2.3	1.5	0.9	Ω
3	Output power	P_{2max}	39.25	47.08	60.23	90.68	153.00	W
4	Efficiency	η_{max}	72	63	74	69	72	%
5	No-load speed	n_o	8470	8970	10080	17820	21120	rpm
6	No-load current	I_o	0.16	0.37	0.2	0.45	0.59	A
7	Stall torque	M_H	176.98	200.50	228.24	194.36	276.71	mNm
8	Friction torque	MF	4.23	9.05	4.46	5.62	6.26	mNm
9	Speed constant	k_n	361.35	390.61	428.21	763.99	899.91	rpm/V
10	Back-EMF constant	k_E	2.77	2.56	2.34	1.31	1.11	mV/rpm
11	Torque constant	k_M	26.43	24.45	22.30	12.50	10.61	mNm/A
12	Current constant	k_I	0.04	0.04	0.04	0.08	0.09	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	47.86	44.74	44.16	91.68	76.33	rpm/mNm
14	Mechanical time constant	τ_n	8.02	7.50	7.40	15.36	12.79	ms
15	Rotor inertia	J	16.00	16.00	16.00	16.00	16.00	gcm ²
16	Angular acceleration	α_{max}	110.62	125.31	142.65	121.48	172.94	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR3006					
19	Weight		200					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	17.83	26.24	25.49	43.98	68.22	W
27	Efficiency	η_{opt}	72	63	74	69	72	%
28	Speed	n_{opt}	6228	5887	7632	12708	15659	rpm
29	Load Current	I_{opt}	1.04	1.74	1.43	2.65	3.92	A
30	Operating Torque	M_{opt}	27.36	42.59	31.91	33.06	41.62	mNm

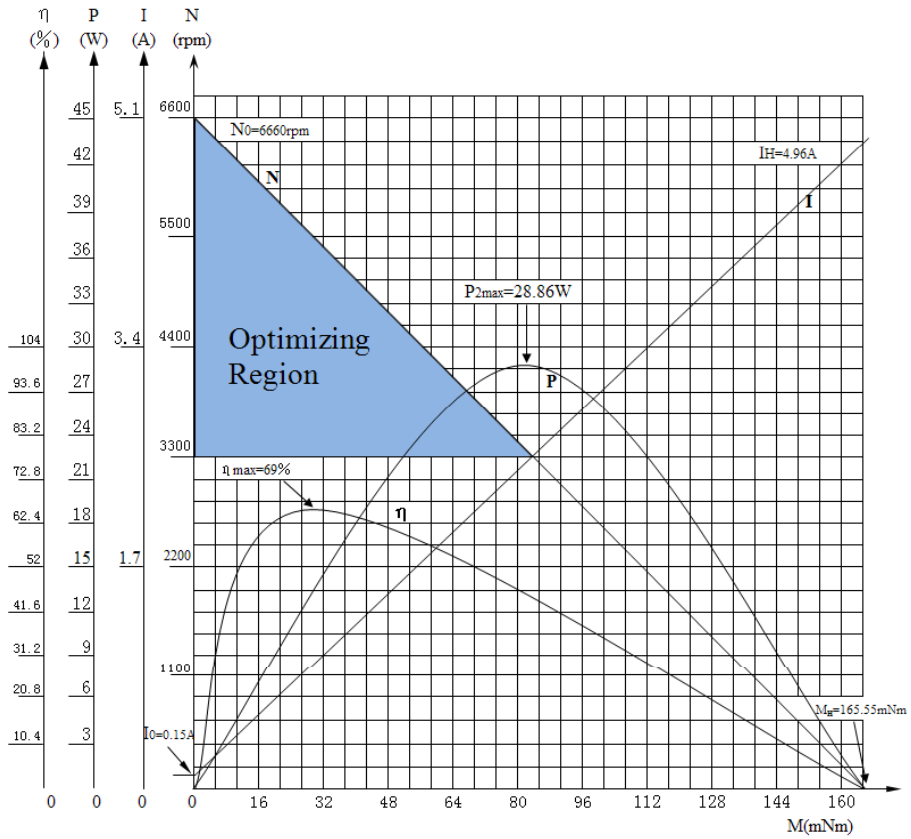
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL3056

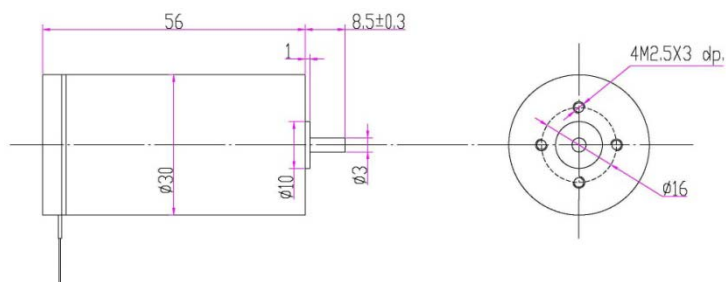
Operating Curve

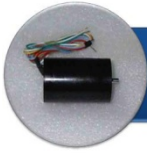


Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing



**BL3564****Report for Brushless Motor Testing Data Sheet****Series No: BL3564- - P 2**

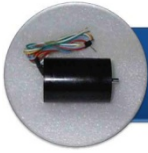
No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	12	12	18	18	24	V
2	Terminal resistance, phase to phase	R	1.8	1	2.9	1.8	2.5	Ω
3	Output power	P_{2max}	19.05	34.75	26.16	43.04	55.70	W
4	Efficiency	η_{max}	71	75	67	73	76	%
5	No-load speed	n_o	4250	6500	4670	6815	6500	rpm
6	No-load current	I_o	0.16	0.21	0.2	0.22	0.16	A
7	Stall torque	M_H	171.23	204.21	213.97	241.24	327.30	mNm
8	Friction torque	MF	4.21	3.64	7.12	5.43	5.55	mNm
9	Speed constant	k_n	362.88	551.31	268.08	387.13	275.42	rpm/V
10	Back-EMF constant	k_E	2.76	1.81	3.73	2.58	3.63	mV/rpm
11	Torque constant	k_M	26.32	17.32	35.62	24.67	34.67	mNm/A
12	Current constant	k_I	0.04	0.06	0.03	0.04	0.03	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	24.82	31.83	21.83	28.25	19.86	rpm/mNm
14	Mechanical time constant	τ_n	9.26	11.88	8.15	10.54	7.41	ms
15	Rotor inertia	J	35.64	35.64	35.64	35.64	35.64	gcm ²
16	Angular acceleration	α_{max}	48.04	57.30	60.04	67.69	91.83	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR3006					
19	Weight		300					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	8.74	14.22	13.28	19.15	22.37	W
27	Efficiency	η_{opt}	71	75	67	73	76	%
28	Speed	n_{opt}	3111	4984	3250	5057	5016	rpm
29	Load Current	I_{opt}	1.02	1.57	1.10	1.47	1.23	A
30	Operating Torque	M_{opt}	26.85	27.25	39.04	36.18	42.61	mNm

Note:

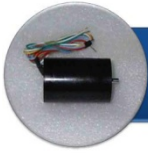
- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL3564****Report for Brushless Motor Testing Data Sheet****Series No: BL3564- - P 2**

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	24	24	24	24	24	V
2	Terminal resistance, phase to phase	R	1.6	6	3.1	2	1.8	Ω
3	Output power	P_{2max}	86.32	22.47	44.32	67.74	76.09	W
4	Efficiency	η_{max}	73	67	72	68	71	%
5	No-load speed	n_o	10000	4980	7460	10200	8400	rpm
6	No-load current	I_o	0.31	0.13	0.18	0.36	0.33	A
7	Stall torque	M_H	329.71	172.31	226.91	253.69	346.00	mNm
8	Friction torque	MF	6.96	5.79	5.40	7.85	8.78	mNm
9	Speed constant	k_n	425.46	214.47	318.23	438.14	358.88	rpm/V
10	Back-EMF constant	k_E	2.35	4.66	3.14	2.28	2.79	mV/rpm
11	Torque constant	k_M	22.44	44.53	30.01	21.79	26.61	mNm/A
12	Current constant	k_I	0.04	0.02	0.03	0.05	0.04	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	30.33	28.90	32.88	40.21	24.28	rpm/mNm
14	Mechanical time constant	τ_m	11.32	10.79	12.27	15.01	9.06	ms
15	Rotor inertia	J	35.64	35.64	35.64	35.64	35.64	gcm ²
16	Angular acceleration	α_{max}	92.51	48.35	63.67	71.18	97.08	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR3006					
19	Weight		300					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	37.55	11.44	20.11	33.58	35.30	W
27	Efficiency	η_{opt}	73	67	72	68	71	%
28	Speed	n_{opt}	7490	3460	5489	7192	6119	rpm
29	Load Current	I_{opt}	2.13	0.71	1.17	2.05	2.07	A
30	Operating Torque	M_{opt}	47.90	31.58	35.01	44.62	55.12	mNm

Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL3564****Report for Brushless Motor Testing Data Sheet****Series No: BL3564- - P 2**

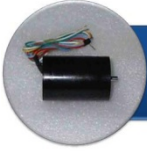
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24	30			V
2	Terminal resistance, phase to phase	R	0.7	1			Ω
3	Output power	P_{2max}	198.93	218.30			W
4	Efficiency	η_{max}	76	77			%
5	No-load speed	n_o	14580	16400			rpm
6	No-load current	I_o	0.57	0.45			A
7	Stall torque	M_H	521.17	508.44			mNm
8	Friction torque	MF	8.81	7.74			mNm
9	Speed constant	k_n	617.77	554.99			rpm/V
10	Back-EMF constant	k_E	1.62	1.80			mV/rpm
11	Torque constant	k_M	15.46	17.21			mNm/A
12	Current constant	k_I	0.06	0.06			A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	27.98	32.26			rpm/mNm
14	Mechanical time constant	τ_n	10.44	12.04			ms
15	Rotor inertia	J	35.64	35.64			gcm ²
16	Angular acceleration	α_{max}	146.23	142.66			10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR3006				
19	Weight		300				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	79.83	84.24			W
27	Efficiency	η_{opt}	76	77			%
28	Speed	n_{opt}	11255	12828			rpm
29	Load Current	I_{opt}	4.38	3.65			A
30	Operating Torque	M_{opt}	67.76	62.74			mNm

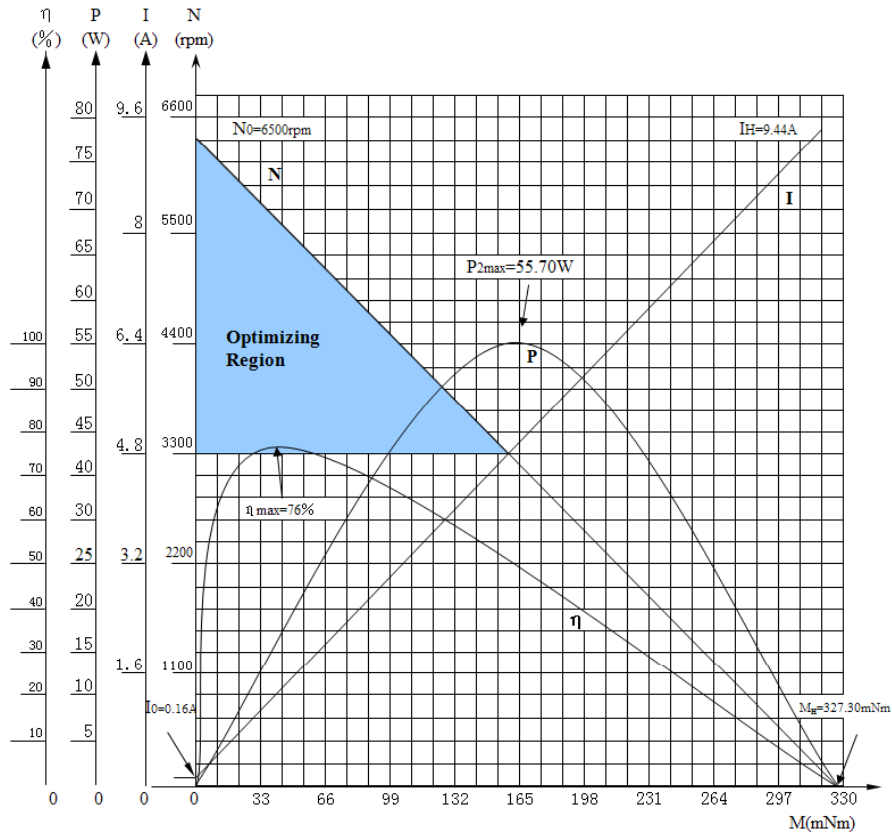
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL3564

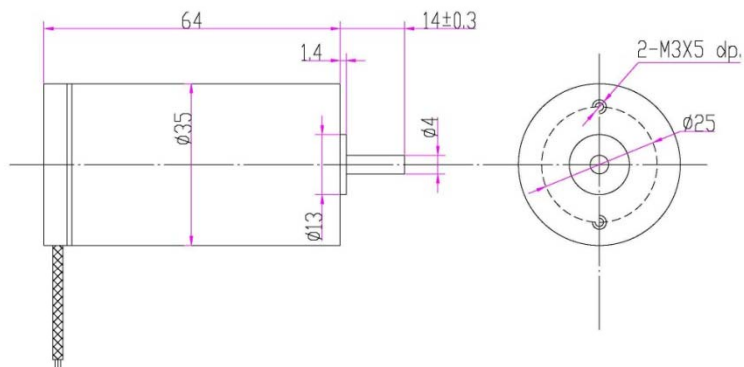
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL4373

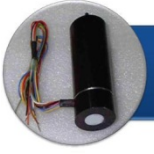
Report for Brushless Motor Testing Data Sheet

Series No: BL4373- - P 2

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	12	24	24		V
2	Terminal resistance, phase to phase	R	0.32	1.3	1.1		Ω
3	Output power	P_{2max}	109.05	105.08	126.39		W
4	Efficiency	η_{max}	77	70	75		%
5	No-load speed	n_o	7550	6630	7850		rpm
6	No-load current	I_o	0.58	0.48	0.38		A
7	Stall torque	M_H	551.69	605.42	614.99		mNm
8	Friction torque	MF	8.67	16.16	10.90		mNm
9	Speed constant	k_n	639.05	283.62	332.88		rpm/V
10	Back-EMF constant	k_E	1.56	3.53	3.00		mV/rpm
11	Torque constant	k_M	14.94	33.67	28.69		mNm/A
12	Current constant	k_I	0.07	0.03	0.03		A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	13.69	10.95	12.76		rpm/mNm
14	Mechanical time constant	τ_m	7.17	5.74	6.69		ms
15	Rotor inertia	J	50.04	50.04	50.04		gcm ²
16	Angular acceleration	α_{max}	110.25	120.99	122.90		10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR3006				
19	Weight		510				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	42.58	49.60	51.61		W
27	Efficiency	η_{opt}	77	70	75		%
28	Speed	n_{opt}	5883	4791	6023		rpm
29	Load Current	I_{opt}	4.63	2.94	2.85		A
30	Operating Torque	M_{opt}	69.15	98.91	81.88		mNm

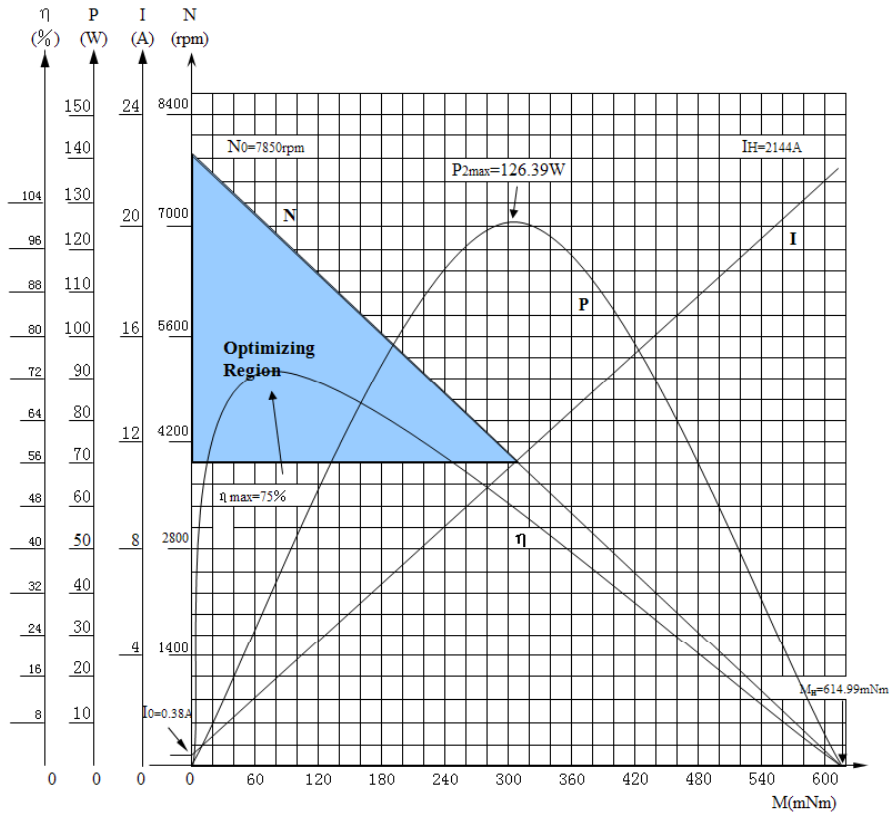
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG42 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL4373

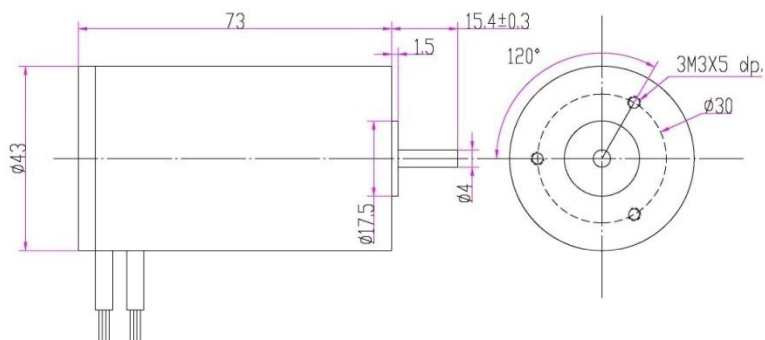
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing



**BL5883****Report for Brushless Motor Testing Data Sheet****Series No: BL5883- - P 2**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24	24	24	24	V
2	Terminal resistance, phase to phase	R	3	2.4	1.7	1.2	Ω
3	Output power	P_{2max}	45.75	57.04	81.03	117.61	W
4	Efficiency	η_{max}	72	71	73	81	%
5	No-load speed	n_o	4110	5050	7300	6420	rpm
6	No-load current	I_o	0.19	0.25	0.31	0.2	A
7	Stall torque	M_H	425.16	431.42	423.97	699.76	mNm
8	Friction torque	MF	10.34	11.06	9.52	7.07	mNm
9	Speed constant	k_n	175.42	215.81	311.00	270.20	rpm/V
10	Back-EMF constant	k_E	5.70	4.63	3.22	3.70	mV/rpm
11	Torque constant	k_M	54.44	44.25	30.71	35.34	mNm/A
12	Current constant	k_I	0.02	0.02	0.03	0.03	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	9.67	11.71	17.22	9.17	rpm/mNm
14	Mechanical time constant	τ_n	11.34	13.73	20.19	10.76	ms
15	Rotor inertia	J	112.00	112.00	112.00	112.00	gcm ²
16	Angular acceleration	α_{max}	37.96	38.52	37.85	62.48	10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR3006				
19	Weight		998				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	20.92	26.56	36.03	38.69	W
27	Efficiency	η_{opt}	72	71	73	81	%
28	Speed	n_{opt}	3014	3673	5418	5255	rpm
29	Load Current	I_{opt}	1.22	1.56	2.07	1.99	A
30	Operating Torque	M_{opt}	66.31	69.08	63.53	70.33	mNm

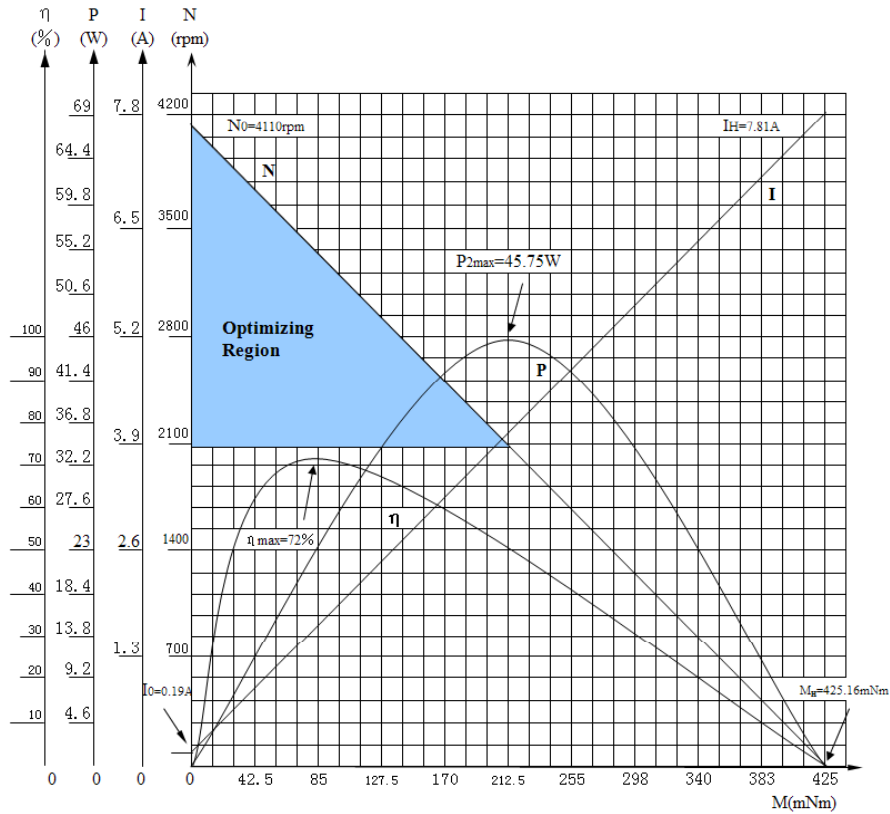
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG42 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL5883

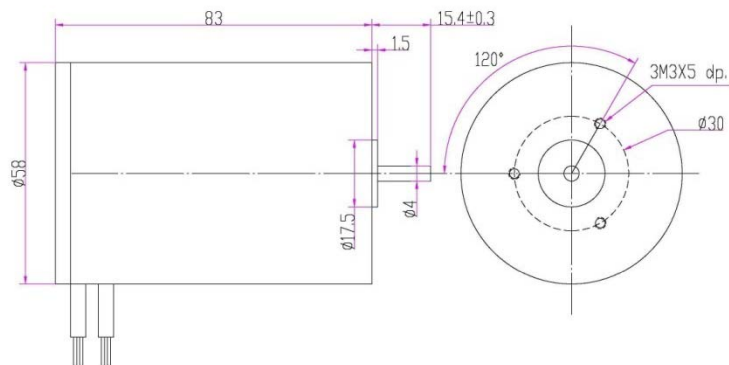
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

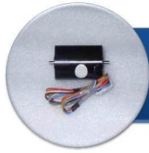
Drawing



**BL63125DS****Report for Brushless Motor Testing Data Sheet****Series No: BL63125DS- - - P 2**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	100				V
2	Terminal resistance, phase to phase	R	6.3				Ω
3	Output power	P_{2max}	393.33				W
4	Efficiency	η_{max}	87				%
5	No-load speed	n_o	3950				rpm
6	No-load current	I_o	0.07				A
7	Stall torque	M_H	3803.60				mNm
8	Friction torque	MF	16.85				mNm
9	Speed constant	k_n	39.67				rpm/V
10	Back-EMF constant	k_E	25.20				mV/rpm
11	Torque constant	k_M	240.69				mNm/A
12	Current constant	k_I	0.00				A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	1.04				rpm/mNm
14	Mechanical time constant	τ_m	2.44				ms
15	Rotor inertia	J	224.00				gcm ²
16	Angular acceleration	α_{max}	169.80				10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR3006				
19	Weight		1100				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	91.67				W
27	Efficiency	η_{opt}	87				%
28	Speed	n_{opt}	3460				rpm
29	Load Current	I_{opt}	1.05				A
30	Operating Torque	M_{opt}	253.15				mNm

Note:The I_o is pure current of motor in this data sheet that means it not included the driver's current.

**BL8488DS****Report for Brushless Motor Testing Data Sheet****Series No: BL8488DS- - - P 4**

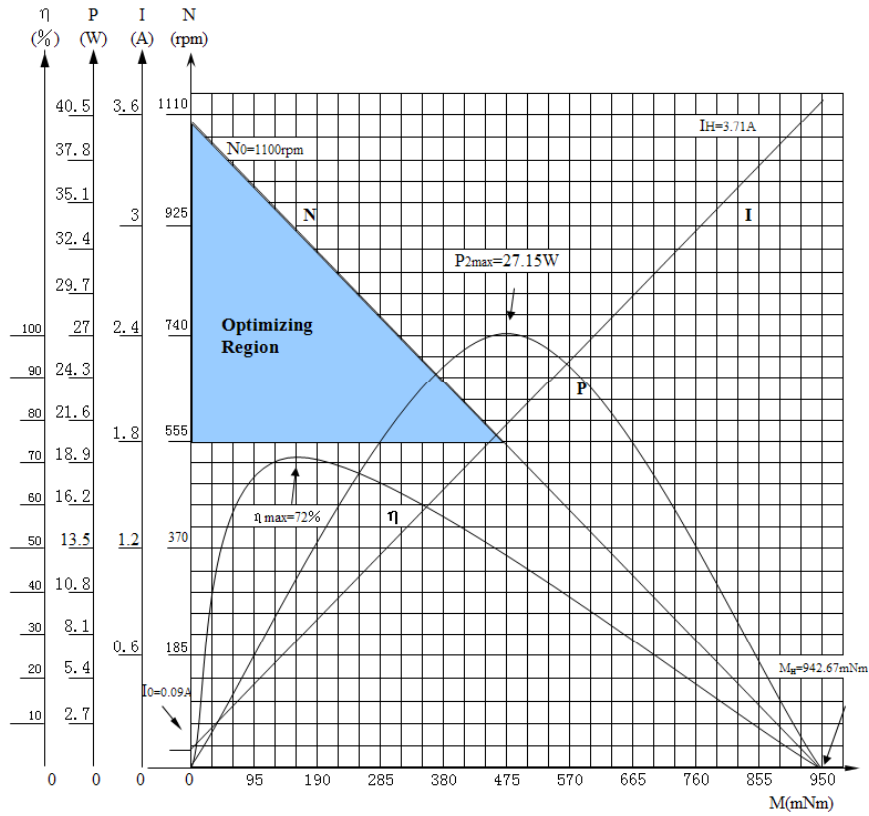
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	30	30	30		V
2	Terminal resistance, phase to phase	R	7.9	2.2	2.2		Ω
3	Output power	P_{2max}	27.15	100.33	97.68		W
4	Efficiency	η_{max}	72	81	72		%
5	No-load speed	n_o	1100	2030	7020		rpm
6	No-load current	I_o	0.09	0.13	0.31		A
7	Stall torque	M_H	942.67	1887.88	531.47		mNm
8	Friction torque	MF	22.88	18.17	12.36		mNm
9	Speed constant	k_n	37.56	68.32	239.44		rpm/V
10	Back-EMF constant	k_E	26.63	14.64	4.18		mV/rpm
11	Torque constant	k_M	254.26	139.78	39.88		mNm/A
12	Current constant	k_I	0.00	0.01	0.03		A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	1.17	1.08	13.21		rpm/mNm
14	Mechanical time constant	τ_m	6.95	6.41	78.68		ms
15	Rotor inertia	J	568.82	568.82	568.82		gcm ²
16	Angular acceleration	α_{max}	16.57	33.19	9.34		10 ³ rad/s ²
17	Sensor		Hall Sensor	Hall Sensor	Hall Sensor		
18	Driver		DR3006	DR3006	DR3006		
19	Weight		1215				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η max of Customer's Specifications							
26	Output Power	P_{2opt}	12.40	32.37	43.97		W
27	Efficiency	η_{opt}	72	81	72		%
28	Speed	n_{opt}	807	1670	5183		rpm
29	Load Current	I_{opt}	0.58	1.33	2.03		A
30	Operating Torque	M_{opt}	146.87	185.22	81.06		mNm

Note:The I_o is pure current of motor in this data sheet that means it not included the driver's current.



BL8488DS

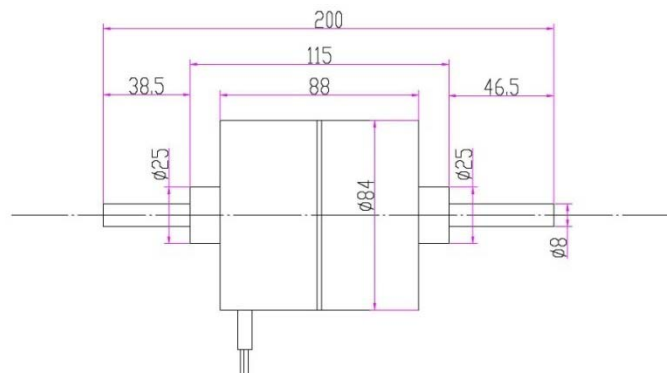
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

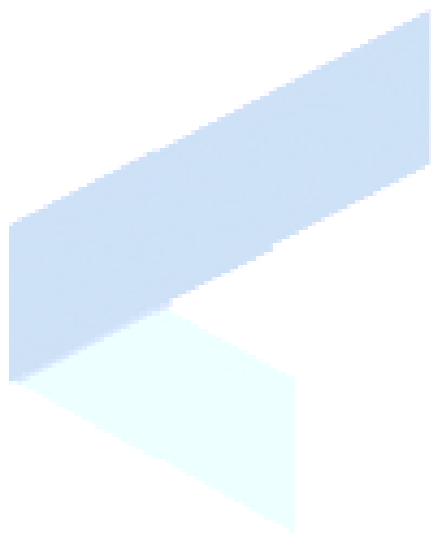
(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing



Driver Installed

BLDC



**BL2250DS****Report for Brushless Motor Testing Data Sheet****Series No: BL2250- - IE - - P 4**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	12	18			V
2	Terminal resistance, phase to phase	R	13.54	13.54			Ω
3	Output power	P_{2max}	2.42	5.54			W
4	Efficiency	η_{max}	62	65			%
5	No-load speed	n_o	9490	13870			rpm
6	No-load current	I_o	0.04	0.05			A
7	Stall torque	M_H	9.76	15.26			mNm
8	Friction torque	MF	0.46	0.60			mNm
9	Speed constant	k_n	828.21	800.67			rpm/V
10	Back-EMF constant	k_E	1.21	1.25			mV/rpm
11	Torque constant	k_M	11.53	11.93			mNm/A
12	Current constant	k_I	0.09	0.08			A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	972.59	908.98			rpm/mNm
14	Mechanical time constant	τ_m	19.25	17.99			ms
15	Rotor inertia	J	1.89	1.89			gcm ²
16	Angular acceleration	α_{max}	51.63	80.73			10 ³ rad/s ²
17	Sensor		Sensorless				
18	Driver		DR1802				
19	Weight		55				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sr. Ferrimagnet				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	1.37	2.96			W
27	Efficiency	η_{opt}	62	65			%
28	Speed	n_{opt}	6167	9369			rpm
29	Load Current	I_{opt}	0.18	0.25			A
30	Operating Torque	M_{opt}	2.12	3.02			mNm

Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current..
- (2) This type of motor can be assemble for planetary Gearbox which type of IG22 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL2250DS****Report for Brushless Motor Testing Data Sheet****Series No: BL2250- - IE - - P 4**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	12	18			V
2	Terminal resistance, phase to phase	R	13.54	13.54			Ω
3	Output power	P_{2max}	2.42	5.54			W
4	Efficiency	η_{max}	62	65			%
5	No-load speed	n_o	9490	13870			rpm
6	No-load current	I_o	0.04	0.05			A
7	Stall torque	M_H	9.76	15.26			mNm
8	Friction torque	MF	0.46	0.60			mNm
9	Speed constant	k_n	828.21	800.67			rpm/V
10	Back-EMF constant	k_E	1.21	1.25			mV/rpm
11	Torque constant	k_M	11.53	11.93			mNm/A
12	Current constant	k_I	0.09	0.08			A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	972.59	908.98			rpm/mNm
14	Mechanical time constant	τ_m	19.25	17.99			ms
15	Rotor inertia	J	1.89	1.89			gcm ²
16	Angular acceleration	α_{max}	51.63	80.73			10 ³ rad/s ²
17	Sensor		Sensorless				
18	Driver		DR1802				
19	Weight		55				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sr. Ferrimagnet				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	1.37	2.96			W
27	Efficiency	η_{opt}	62	65			%
28	Speed	n_{opt}	6167	9369			rpm
29	Load Current	I_{opt}	0.18	0.25			A
30	Operating Torque	M_{opt}	2.12	3.02			mNm

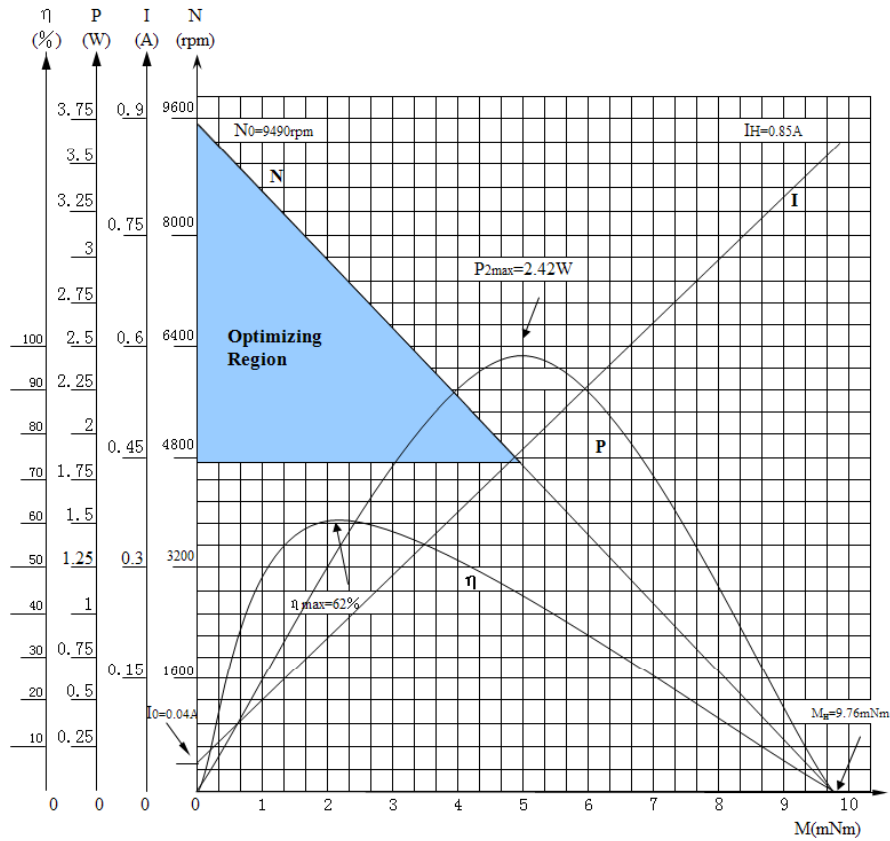
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current..
- (2) This type of motor can be assemble for planetary Gearbox which type of IG22 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL2250DS

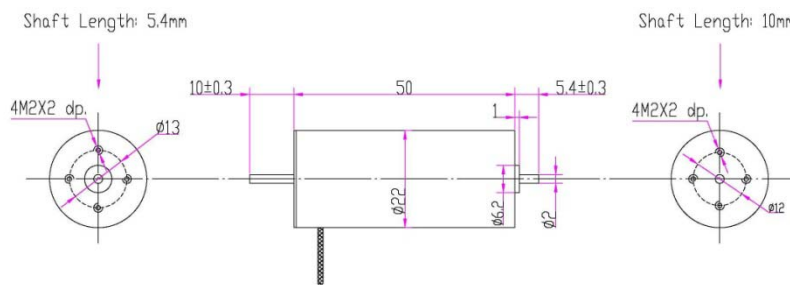
Operating Curve

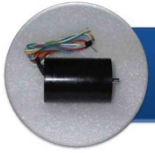


Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing

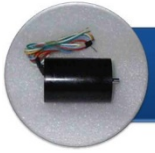


**BL2648IE****Report for Brushless Motor Testing Data Sheet****Series No: BL2648- -IE- - P 2**

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	6	12	12	15	15	V
2	Terminal resistance, phase to phase	R	31	6	4	18	4	Ω
3	Output power	P_{2max}	0.2	5.4	8.4	2.8	13.2	W
4	Efficiency	η_{max}	37	60	65	57	69	%
5	No-load speed	n_o	1020	4640	6400	4620	8490	rpm
6	No-load current	I_o	0.03	0.1	0.11	0.05	0.11	A
7	Stall torque	M_H	7.76	44.58	49.85	22.83	59.61	mNm
8	Friction torque	MF	1.42	2.35	1.90	1.46	1.80	mNm
9	Speed constant	k_n	201.18	407.02	553.63	327.66	583.10	rpm/V
10	Back-EMF constant	k_E	4.97	2.46	1.81	3.05	1.71	mV/rpm
11	Torque constant	k_M	47.47	23.46	17.25	29.14	16.38	mNm/A
12	Current constant	k_I	0.02	0.04	0.06	0.03	0.06	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	131.39	104.09	128.39	202.37	142.42	rpm/mNm
14	Mechanical time constant	τ_m	1.51	1.20	1.48	2.33	1.64	ms
15	Rotor inertia	J	1.10	1.10	1.10	1.10	1.10	gcm ²
16	Angular acceleration	α_{max}	70.57	405.25	453.16	207.54	541.92	10 ³ rad/s ²
17	Sensor		Sensorless					
18	Driver		DR1802					
19	Weight		106					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	0.15	3.15	4.42	1.69	6.52	W
27	Efficiency	η_{opt}	37	60	65	57	69	%
28	Speed	n_{opt}	444	2946	4345	2803	6010	rpm
29	Load Current	I_{opt}	0.07	0.44	0.56	0.20	0.63	A
30	Operating Torque	M_{opt}	3.32	10.23	9.73	5.77	10.36	mNm

Note:

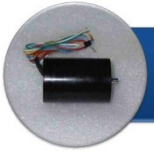
- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL2648IE****Report for Brushless Motor Testing Data Sheet****Series No: BL2648- -IE- - P 2**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	15	16	18	18	V
2	Terminal resistance, phase to phase	R	3.6	3	8.9	6	Ω
3	Output power	P_{2max}	14.3	19.9	7.9	11.8	W
4	Efficiency	η_{max}	63	67	54	55	%
5	No-load speed	n_o	11640	11340	6500	7760	rpm
6	No-load current	I_o	0.18	0.18	0.14	0.2	A
7	Stall torque	M_H	46.94	67.09	46.33	57.89	mNm
8	Friction torque	MF	2.12	2.34	3.45	4.13	mNm
9	Speed constant	k_n	811.04	733.51	387.97	461.90	rpm/V
10	Back-EMF constant	k_E	1.23	1.36	2.58	2.16	mV/rpm
11	Torque constant	k_M	11.77	13.02	24.61	20.67	mNm/A
12	Current constant	k_I	0.08	0.08	0.04	0.05	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	247.98	169.03	140.28	134.06	rpm/mNm
14	Mechanical time constant	τ_m	2.86	1.95	1.62	1.54	ms
15	Rotor inertia	J	1.10	1.10	1.10	1.10	gcm ²
16	Angular acceleration	α_{max}	426.72	609.91	421.22	526.24	10 ³ rad/s ²
17	Sensor		Sensorless				
18	Driver		DR1802				
19	Weight		106				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	7.97	10.27	5.02	7.41	W
27	Efficiency	η_{opt}	63	67	54	55	%
28	Speed	n_{opt}	7638	7824	3794	4577	rpm
29	Load Current	I_{opt}	0.85	0.96	0.51	0.75	A
30	Operating Torque	M_{opt}	9.97	12.54	12.64	15.47	mNm

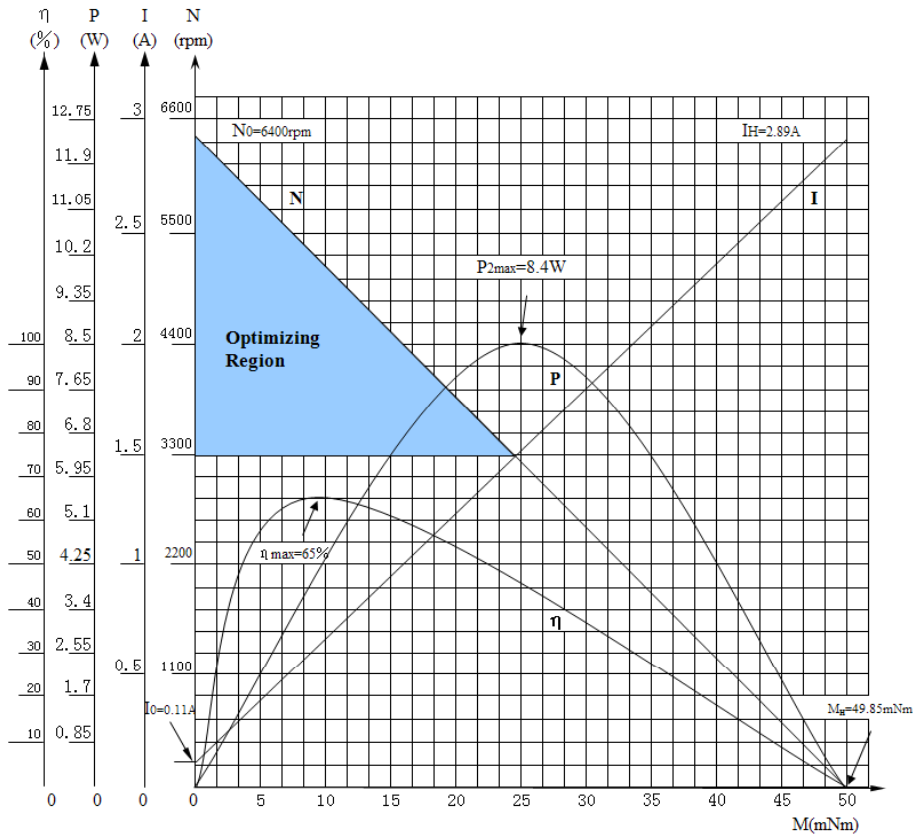
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.



BL2648IE

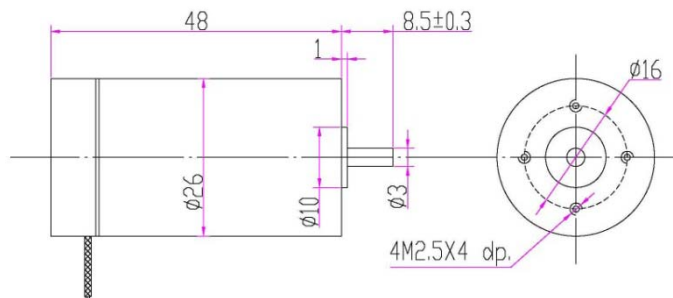
Operating Curve

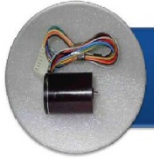


Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing

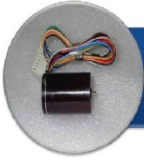


**BL2650IE****Report for Brushless Motor Testing Data Sheet****Series No: BL2650- IE- - P 2**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24				V
2	Terminal resistance, phase to phase	R	3.4				Ω
3	Output power	P_{2max}	38.6				W
4	Efficiency	η_{max}	62				%
5	No-load speed	n_o	15700				rpm
6	No-load current	I_o	0.32				A
7	Stall torque	M_H	93.91				mNm
8	Friction torque	MF	4.46				mNm
9	Speed constant	k_n	685.23				rpm/V
10	Back-EMF constant	k_E	1.46				mV/rpm
11	Torque constant	k_M	13.94				mNm/A
12	Current constant	k_I	0.07				A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	167.18				rpm/mNm
14	Mechanical time constant	τ_m	5.43				ms
15	Rotor inertia	J	3.10				gcm ²
16	Angular acceleration	α_{max}	302.94				10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR24				
19	Weight		106				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	26.30				W
27	Efficiency	η_{opt}	62				%
28	Speed	n_{opt}	12279				rpm
29	Load Current	I_{opt}	1.79				A
30	Operating Torque	M_{opt}	20.46				mNm

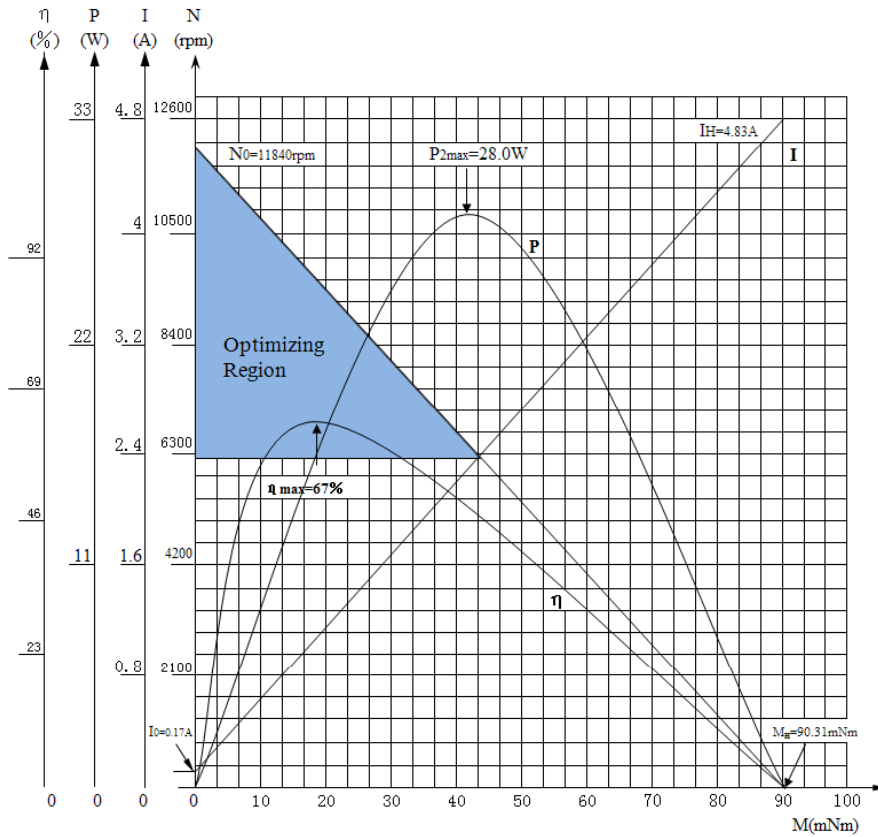
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
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BL2650IE

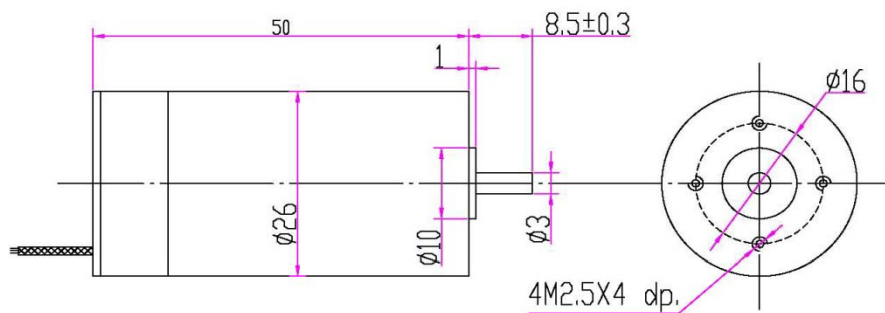
Operating Curve

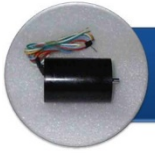


Note:

- (1) The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.
- (2) We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing

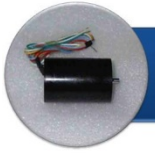


**BL3060IE****Report for Brushless Motor Testing Data Sheet****Series No: BL3060- IE- - P 2**

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	12	24	24	24	24	V
2	Terminal resistance, phase to phase	R	2.1	12	5.5	4.7	2.8	Ω
3	Output power	P_{2max}	16.14	10.94	24.88	28.86	47.08	W
4	Efficiency	η_{max}	68	62	71	69	63	%
5	No-load speed	n_o	6000	4310	5590	6660	8970	rpm
6	No-load current	I_o	0.17	0.09	0.11	0.15	0.37	A
7	Stall torque	M_{II}	102.74	96.99	170.00	165.55	200.50	mNm
8	Friction torque	MF	3.15	4.57	4.40	5.01	9.05	mNm
9	Speed constant	k_n	515.33	188.05	238.94	285.90	390.61	rpm/V
10	Back-EMF constant	k_E	1.94	5.32	4.19	3.50	2.56	mV/rpm
11	Torque constant	k_M	18.53	50.78	39.97	33.40	24.45	mNm/A
12	Current constant	k_I	0.05	0.02	0.03	0.03	0.04	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	58.40	44.44	32.88	40.23	44.74	rpm/mNm
14	Mechanical time constant	τ_m	9.79	7.45	5.51	6.74	7.50	ms
15	Rotor inertia	J	16.00	16.00	16.00	16.00	16.00	gcm ²
16	Angular acceleration	α_{max}	64.21	60.62	106.25	103.47	125.31	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR24					
19	Weight		200					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η max of Customer's Specifications								
26	Output Power	P_{2opt}	9.32	7.44	13.42	16.58	31.49	W
27	Efficiency	η_{opt}	68	62	71	69	63	%
28	Speed	n_{opt}	4949	3374	4691	5501	7065	rpm
29	Load Current	I_{opt}	1.14	0.50	0.79	1.01	2.11	A
30	Operating Torque	M_{opt}	17.99	21.05	27.34	28.80	42.59	mNm

Note:

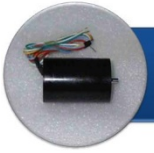
- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL3060IE****Report for Brushless Motor Testing Data Sheet****Series No: BL3060- IE- - P 2**

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24				V
2	Terminal resistance, phase to phase	R	2.3				Ω
3	Output power	P_{2max}	60.23				W
4	Efficiency	η_{max}	74				%
5	No-load speed	n_o	10080				rpm
6	No-load current	I_o	0.2				A
7	Stall torque	M_H	228.24				mNm
8	Friction torque	MF	4.46				mNm
9	Speed constant	k_n	428.21				rpm/V
10	Back-EMF constant	k_E	2.34				mV/rpm
11	Torque constant	k_M	22.30				mNm/A
12	Current constant	k_I	0.04				A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	44.16				rpm/mNm
14	Mechanical time constant	τ_m	7.40				ms
15	Rotor inertia	J	16.00				gcm ²
16	Angular acceleration	α_{max}	142.65				10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR24-1.5A				
19	Weight		200				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	28.96				W
27	Efficiency	η_{opt}	74				%
28	Speed	n_{opt}	8671				rpm
29	Load Current	I_{opt}	1.63				A
30	Operating Torque	M_{opt}	31.91				mNm

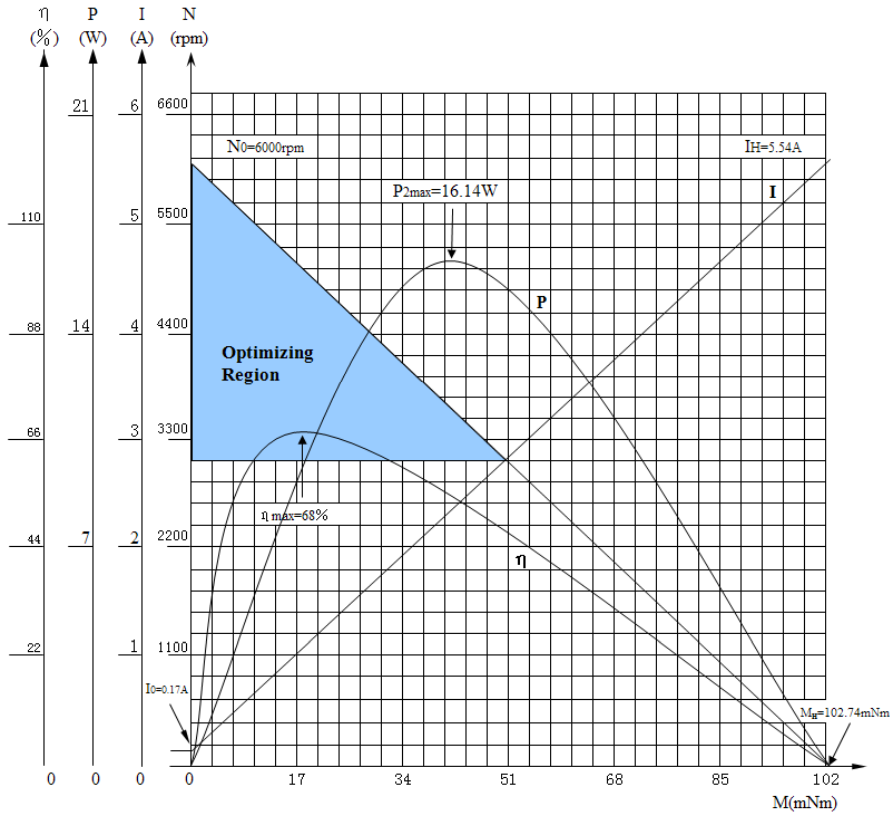
Note:

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BL3060IE

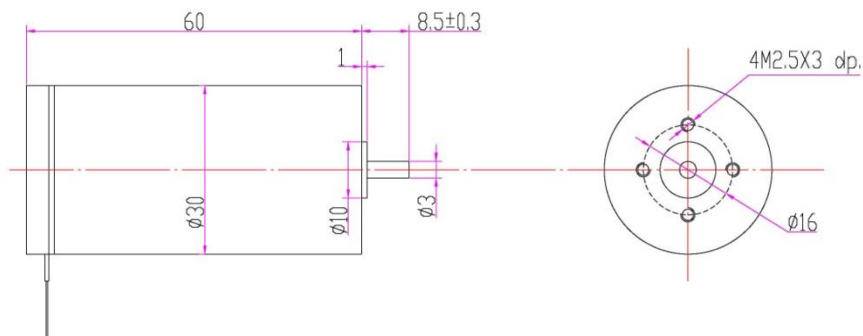
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL3560IE

Report for Brushless Motor Testing Data Sheet

Series No: BL3560- IE- - P 2

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	24	12	12	24	12	V
2	Terminal resistance, phase to phase	R	0.7	0.26	0.35	5.6	1.5	Ω
3	Output power	P_{2max}	195.29	126.15	96.77	23.83	22.47	W
4	Efficiency	η_{max}	71	62	68	65	67	%
5	No-load speed	n_o	21630	24000	15720	6700	6780	rpm
6	No-load current	I_o	0.88	2.1	1.03	0.16	0.26	A
7	Stall torque	M_H	344.87	200.77	235.14	135.86	126.57	mNm
8	Friction torque	MF	9.08	9.57	7.28	5.27	4.25	mNm
9	Speed constant	k_n	924.99	2095.34	1350.57	289.99	583.98	rpm/V
10	Back-EMF constant	k_E	1.08	0.48	0.74	3.45	1.71	mV/rpm
11	Torque constant	k_M	10.32	4.56	7.07	32.93	16.35	mNm/A
12	Current constant	k_I	0.10	0.22	0.14	0.03	0.06	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	62.72	119.54	66.85	49.32	53.57	rpm/mNm
14	Mechanical time constant	τ_m	23.41	44.61	24.95	18.41	19.99	ms
15	Rotor inertia	J	35.64	35.64	35.64	35.64	35.64	gcm ²
16	Angular acceleration	α_{max}	96.76	56.33	65.98	38.12	35.51	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR24					
19	Weight							g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	106.15	86.07	56.10	15.07	13.44	W
27	Efficiency	η_{opt}	71	62	68	65	67	%
28	Speed	n_{opt}	18119	18760	12953	5381	5537	rpm
29	Load Current	I_{opt}	6.30	11.72	6.88	0.97	1.68	A
30	Operating Torque	M_{opt}	55.97	43.83	41.38	26.75	23.20	mNm

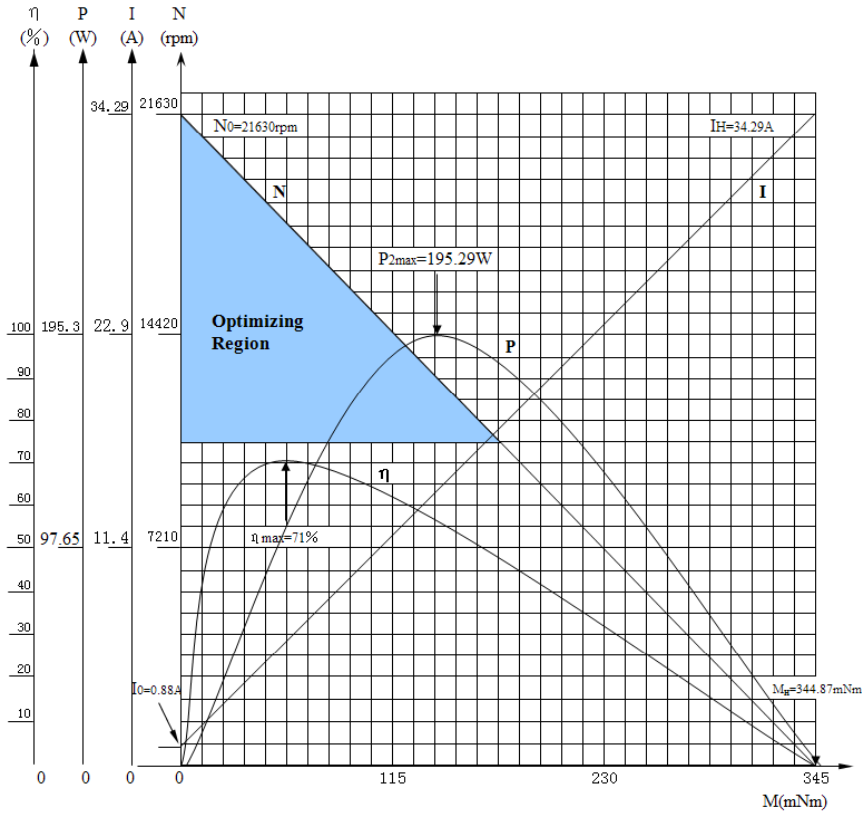
Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
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BL3560IE

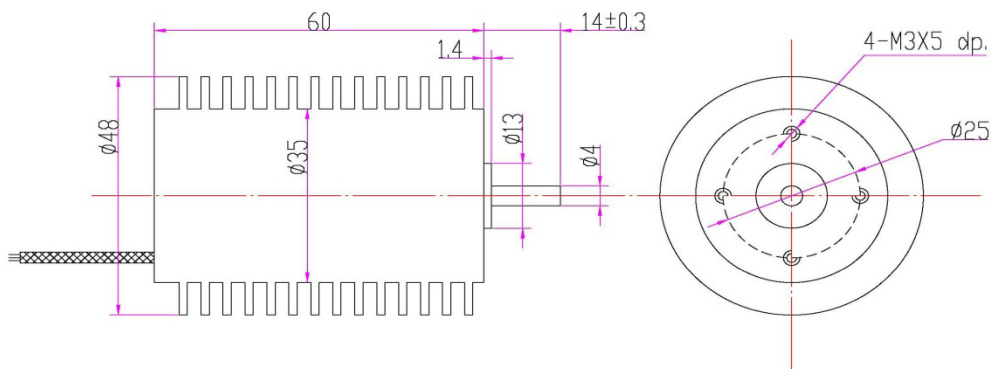
Operating Curve

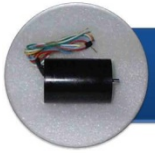


Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing

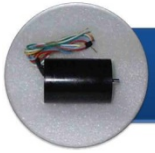


**BL3575IE****Report for Brushless Motor Testing Data Sheet****Series No: BL3575- -IE- - P 2**

No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	12	12	18	18	24	V
2	Terminal resistance, phase to phase	R	1.8	1	2.9	1.8	2.5	Ω
3	Output power	P_{2max}	19.05	34.75	26.16	43.04	55.70	W
4	Efficiency	η_{max}	71	75	67	73	76	%
5	No-load speed	n_o	4250	6500	4670	6815	6500	rpm
6	No-load current	I_o	0.16	0.21	0.2	0.22	0.16	A
7	Stall torque	M_H	171.23	204.21	213.97	241.24	327.30	mNm
8	Friction torque	MF	4.21	3.64	7.12	5.43	5.55	mNm
9	Speed constant	k_n	362.88	551.31	268.08	387.13	275.42	rpm/V
10	Back-EMF constant	k_E	2.76	1.81	3.73	2.58	3.63	mV/rpm
11	Torque constant	k_M	26.32	17.32	35.62	24.67	34.67	mNm/A
12	Current constant	k_I	0.04	0.06	0.03	0.04	0.03	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	24.82	31.83	21.83	28.25	19.86	rpm/mNm
14	Mechanical time constant	τ_m	9.26	11.88	8.15	10.54	7.41	ms
15	Rotor inertia	J	35.64	35.64	35.64	35.64	35.64	gcm ²
16	Angular acceleration	α_{max}	48.04	57.30	60.04	67.69	91.83	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR3006					
19	Weight		300					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					
The Operating Data For η_{max} of Customer's Specifications								
26	Output Power	P_{2opt}	8.74	14.22	13.28	19.15	22.37	W
27	Efficiency	η_{opt}	71	75	67	73	76	%
28	Speed	n_{opt}	3111	4984	3250	5057	5016	rpm
29	Load Current	I_{opt}	1.02	1.57	1.10	1.47	1.23	A
30	Operating Torque	M_{opt}	26.85	27.25	39.04	36.18	42.61	mNm

Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL3575IE****Report for Brushless Motor Testing Data Sheet****Series No: BL3575- -IE- - P 2**

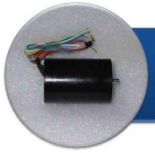
No.	Testing Item		Tested Values					Unit
1	Nominal voltage	U_N	24	24	24	24	24	V
2	Terminal resistance, phase to phase	R	1.6	6	3.1	2	1.8	Ω
3	Output power	P_{2max}	86.32	22.47	44.32	67.74	76.09	W
4	Efficiency	η_{max}	73	67	72	68	71	%
5	No-load speed	n_o	10000	4980	7460	10200	8400	rpm
6	No-load current	I_o	0.31	0.13	0.18	0.36	0.33	A
7	Stall torque	M_H	329.71	172.31	226.91	253.69	346.00	mNm
8	Friction torque	MF	6.96	5.79	5.40	7.85	8.78	mNm
9	Speed constant	k_n	425.46	214.47	318.23	438.14	358.88	rpm/V
10	Back-EMF constant	k_E	2.35	4.66	3.14	2.28	2.79	mV/rpm
11	Torque constant	k_M	22.44	44.53	30.01	21.79	26.61	mNm/A
12	Current constant	k_I	0.04	0.02	0.03	0.05	0.04	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	30.33	28.90	32.88	40.21	24.28	rpm/mNm
14	Mechanical time constant	τ_n	11.32	10.79	12.27	15.01	9.06	ms
15	Rotor inertia	J	35.64	35.64	35.64	35.64	35.64	gcm ²
16	Angular acceleration	α_{max}	92.51	48.35	63.67	71.18	97.08	10 ³ rad/s ²
17	Sensor		Hall Sensor					
18	Driver		DR3006					
19	Weight		300					g
20	Operating temperature range		-30~+85					
21	Commutation		Electronically commutation					
22	Ball Bearing		EZO & NMB					
23	Housing material		Aluminum, black anodized					
24	Magnet material		Sintered Nd-Fe-B					
25	Direction of rotation		Electronically reversible					

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	37.55	11.44	20.11	33.58	35.30	W
27	Efficiency	η_{opt}	73	67	72	68	71	%
28	Speed	n_{opt}	7490	3460	5489	7192	6119	rpm
29	Load Current	I_{opt}	2.13	0.71	1.17	2.05	2.07	A
30	Operating Torque	M_{opt}	47.90	31.58	35.01	44.62	55.12	mNm

Note:

- (1) The I_o is pure current of motor in this data sheet that means it not included the driver's current.
- (2) This type of motor can be assemble for planetary Gearbox which type of IG32 and made from Shayang Ye Co., Taiwan, and please to see Gearbox' s sheet attached if you have need it.

**BL3575IE****Report for Brushless Motor Testing Data Sheet****Series No: BL3575- -IE- - P 2**

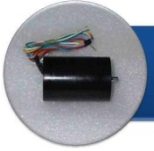
No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24	30			V
2	Terminal resistance, phase to phase	R	0.7	1			Ω
3	Output power	P_{2max}	198.93	218.30			W
4	Efficiency	η_{max}	76	77			%
5	No-load speed	n_o	14580	16400			rpm
6	No-load current	I_o	0.57	0.45			A
7	Stall torque	M_H	521.17	508.44			mNm
8	Friction torque	MF	8.81	7.74			mNm
9	Speed constant	k_n	617.77	554.99			rpm/V
10	Back-EMF constant	k_E	1.62	1.80			mV/rpm
11	Torque constant	k_M	15.46	17.21			mNm/A
12	Current constant	k_I	0.06	0.06			A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	27.98	32.26			rpm/mNm
14	Mechanical time constant	τ_n	10.44	12.04			ms
15	Rotor inertia	J	35.64	35.64			gcm ²
16	Angular acceleration	α_{max}	146.23	142.66			10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR3006				
19	Weight		300				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		EZO & NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				

The Operating Data For η_{max} of Customer's Specifications

26	Output Power	P_{2opt}	79.83	84.24			W
27	Efficiency	η_{opt}	76	77			%
28	Speed	n_{opt}	11255	12828			rpm
29	Load Current	I_{opt}	4.38	3.65			A
30	Operating Torque	M_{opt}	67.76	62.74			mNm

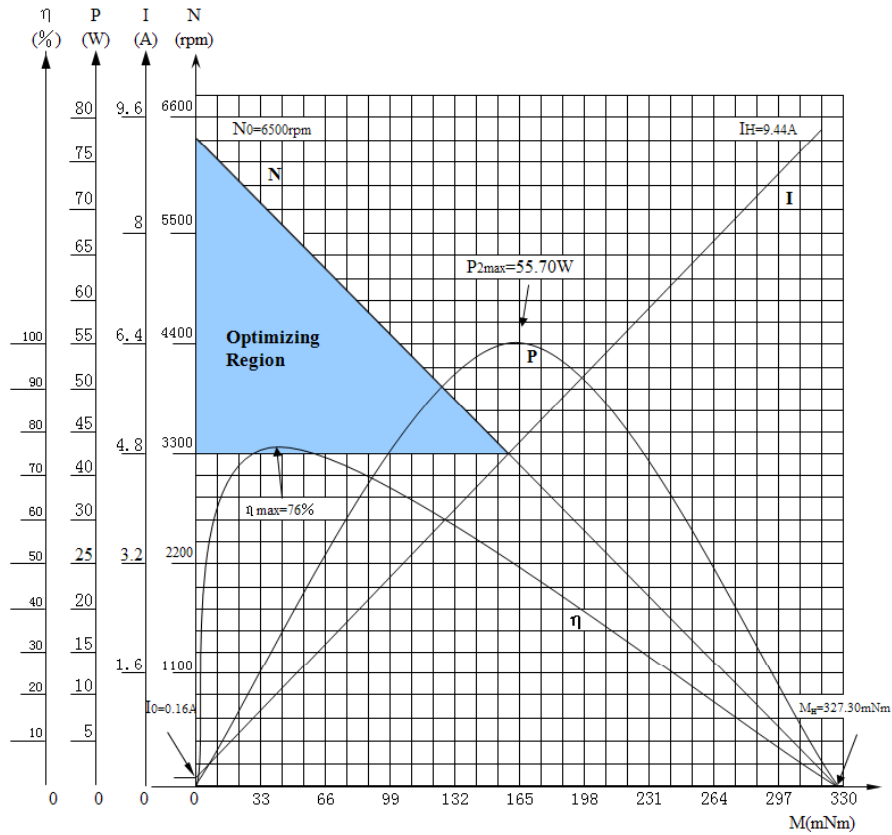
Note:

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BL3575IE

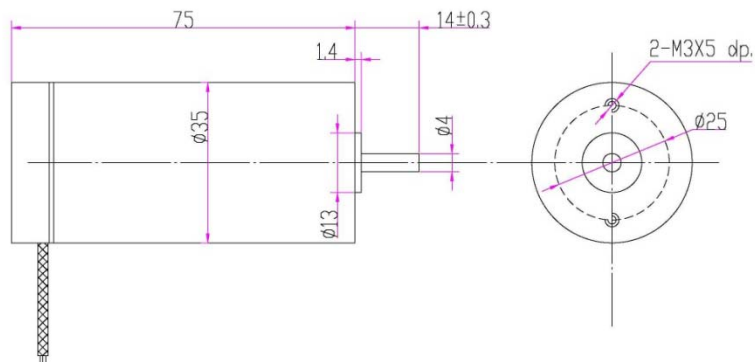
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL4384IE

Report for Brushless Motor Testing Data Sheet

Series No: BL4384- IE- - P 2

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24	24	24	24	V
2	Terminal resistance, phase to phase	R	0.9	1.3	1.1	6.2	Ω
3	Output power	P_{2max}	155.95	105.08	126.39	21.58	W
4	Efficiency	η_{max}	79	70	75	66	%
5	No-load speed	n_o	8340	6630	7850	4260	rpm
6	No-load current	I_o	0.34	0.48	0.38	0.14	A
7	Stall torque	M_H	714.23	605.42	614.99	193.46	mNm
8	Friction torque	MF	9.22	16.16	10.90	7.26	mNm
9	Speed constant	k_n	351.99	283.62	332.88	184.16	rpm/V
10	Back-EMF constant	k_E	2.84	3.53	3.00	5.43	mV/rpm
11	Torque constant	k_M	27.13	33.67	28.69	51.85	mNm/A
12	Current constant	k_I	0.04	0.03	0.03	0.02	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	11.68	10.95	12.76	22.02	rpm/mNm
14	Mechanical time constant	τ_m	6.12	5.74	6.69	11.54	ms
15	Rotor inertia	J	50.04	50.04	50.04	50.04	gcm ²
16	Angular acceleration	α_{max}	142.73	120.99	122.90	38.66	10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR24-1.5A				
19	Weight		510				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	62.80	57.43	58.32	13.47	W
27	Efficiency	η_{opt}	79	70	75	66	%
28	Speed	n_{opt}	7392	5547	6805	3435	rpm
29	Load Current	I_{opt}	3.33	3.42	3.23	0.86	A
30	Operating Torque	M_{opt}	81.17	98.91	81.88	37.48	mNm

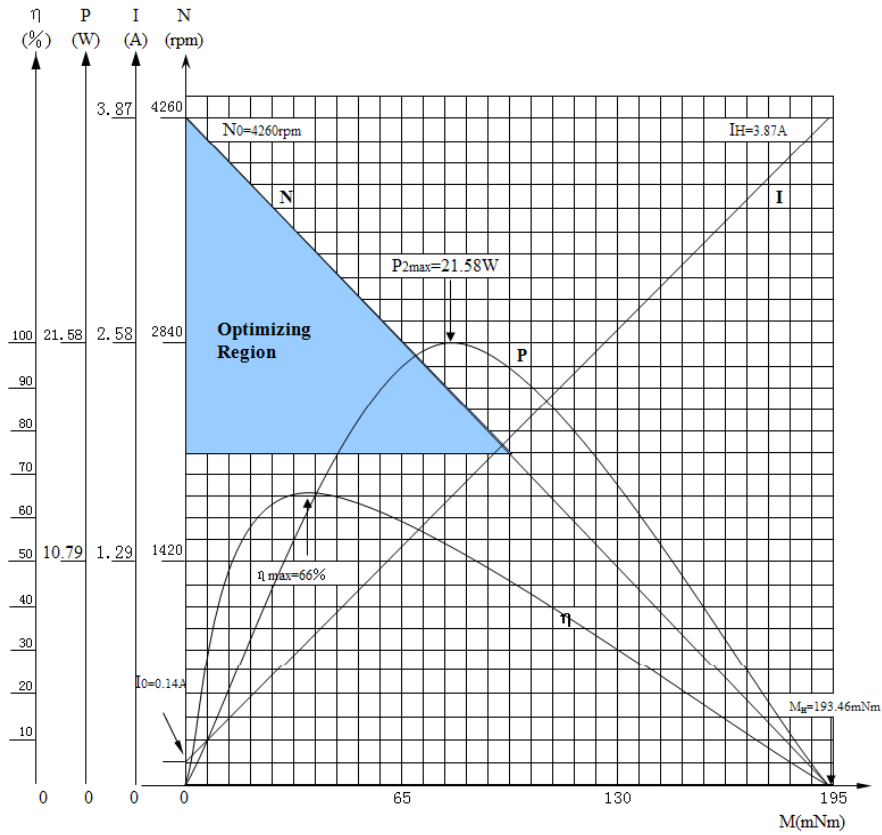
Note:

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BL4384IE

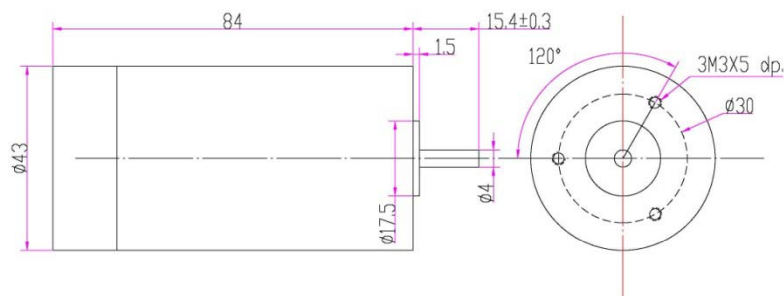
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL4449IE

Report for Brushless Motor Testing Data Sheet

Series No: BL4449- IE- - P 4

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24	24			V
2	Terminal resistance, phase to phase	R	1.6	15.1			Ω
3	Output power	P_{2max}	80.88	7.93			W
4	Efficiency	η_{max}	60	49			%
5	No-load speed	n_o	23100	6180			rpm
6	No-load current	I_o	0.78	0.14			A
7	Stall torque	M_{II}	133.75	49.02			mNm
8	Friction torque	MF	7.34	4.73			mNm
9	Speed constant	k_n	1015.30	282.37			rpm/V
10	Back-EMF constant	k_E	0.98	3.54			mV/rpm
11	Torque constant	k_M	9.41	33.82			mNm/A
12	Current constant	k_I	0.11	0.03			A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	172.72	126.08			rpm/mNm
14	Mechanical time constant	τ_n	38.98	28.45			ms
15	Rotor inertia	J	31.2	21.55			gcm ²
16	Angular acceleration	α_{max}	62.06	22.75			10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR24				
19	Weight						g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	58.00	6.79			W
27	Efficiency	η_{opt}	60	49			%
28	Speed	n_{opt}	17690	4259			rpm
29	Load Current	I_{opt}	4.11	0.59			A
30	Operating Torque	M_{opt}	31.32	15.23			mNm

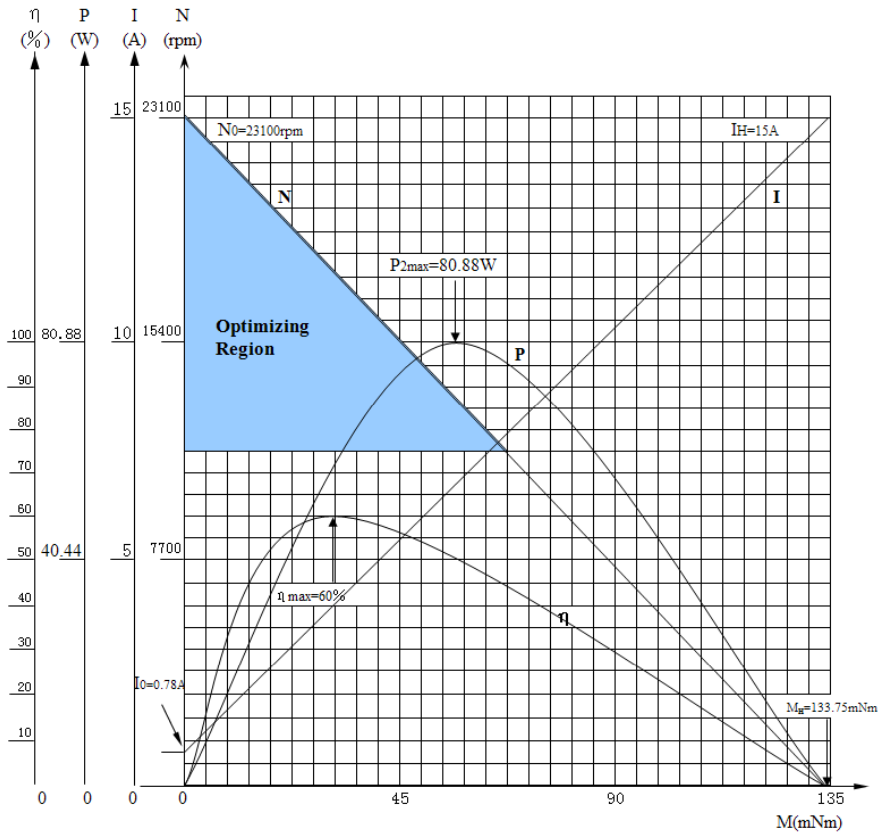
Note:

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BL4449IE

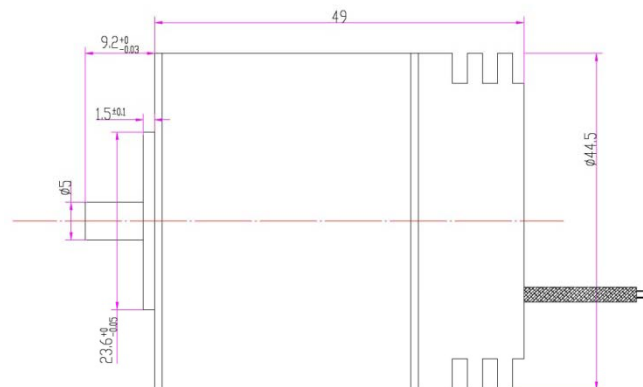
Operating Curve



Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

Drawing





BL7584IE

Report for Brushless Motor Testing Data Sheet

Series No: BL7584- IE- - P 4

No.	Testing Item		Tested Values				Unit
1	Nominal voltage	U_N	24				V
2	Terminal resistance, phase to phase	R	2.1				Ω
3	Output power	P_{2max}	63.39				W
4	Efficiency	η_{max}	65				%
5	No-load speed	n_o	5880				rpm
6	No-load current	I_o	0.44				A
7	Stall torque	M_H	411.81				mNm
8	Friction torque	MF	16.49				mNm
9	Speed constant	k_n	254.81				rpm/V
10	Back-EMF constant	k_E	3.92				mV/rpm
11	Torque constant	k_M	37.48				mNm/A
12	Current constant	k_I	0.03				A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	14.28				rpm/mNm
14	Mechanical time constant	τ_m	85.05				ms
15	Rotor inertia	J	568.82				gcm ²
16	Angular acceleration	α_{max}	7.24				10 ³ rad/s ²
17	Sensor		Hall Sensor				
18	Driver		DR24				
19	Weight		1250				g
20	Operating temperature range		-30~+85				
21	Commutation		Electronically commutation				
22	Ball Bearing		NMB				
23	Housing material		Aluminum, black anodized				
24	Magnet material		Sintered Nd-Fe-B				
25	Direction of rotation		Electronically reversible				
The Operating Data For η_{max} of Customer's Specifications							
26	Output Power	P_{2opt}	40.57				W
27	Efficiency	η_{opt}	65				%
28	Speed	n_{opt}	4703				rpm
29	Load Current	I_{opt}	2.64				A
30	Operating Torque	M_{opt}	82.40				mNm

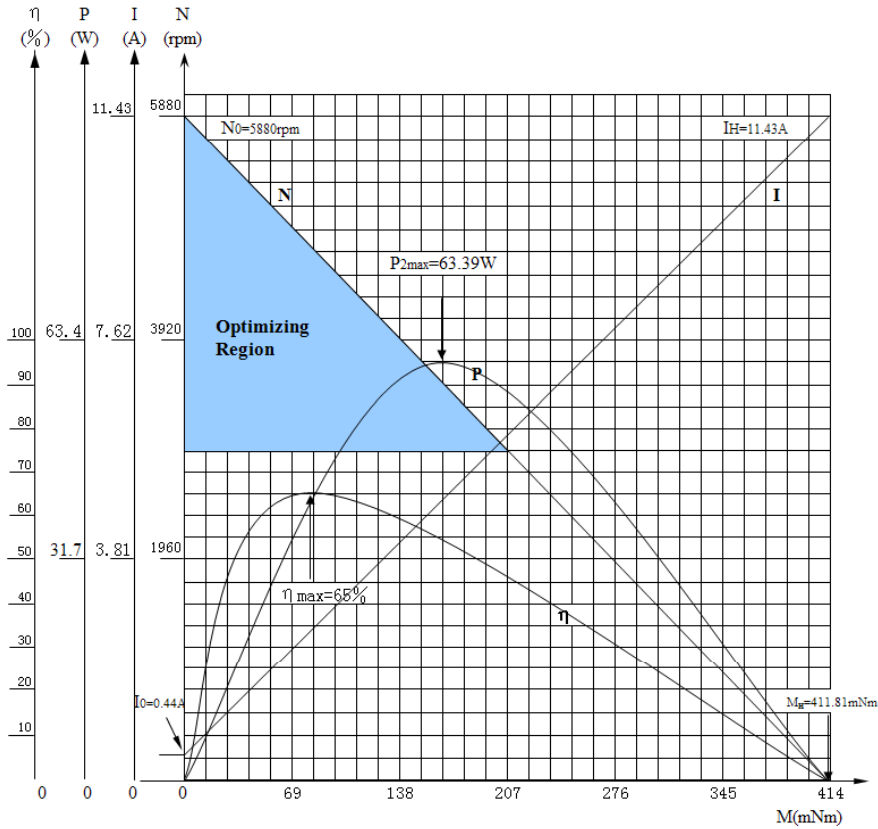
Note:

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BL7584IE

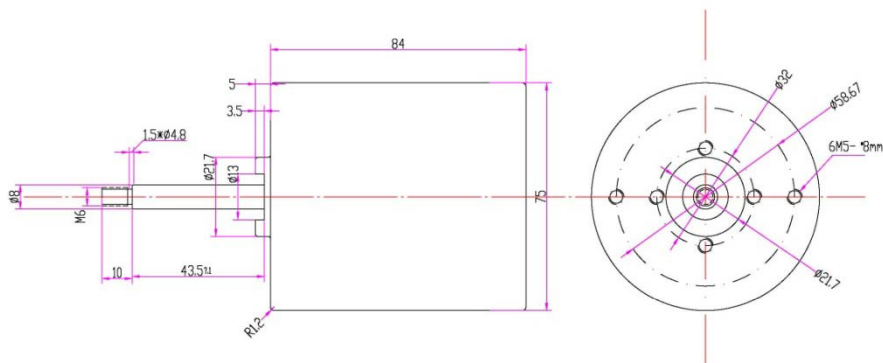
Operating Curve



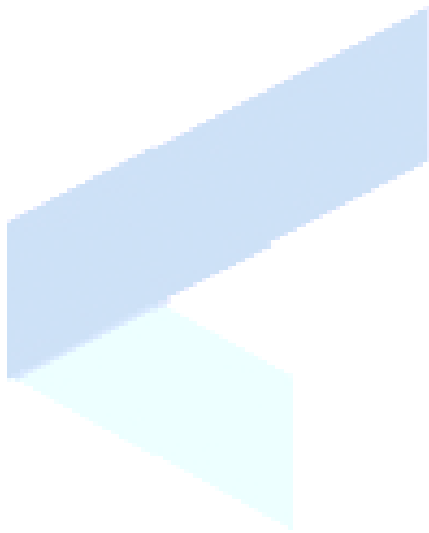
Note:(1)The I_0 is pure current of motor in this curve drawing that means it not included the driver's current.

(2)We have suggested there has a optimizing region for this motor's operating as hatched in drawing.

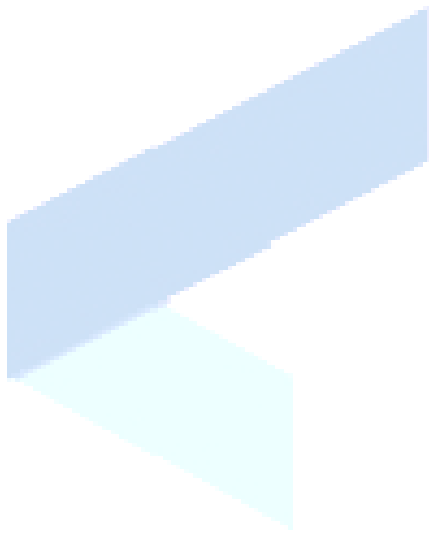
Drawing



Control Driver

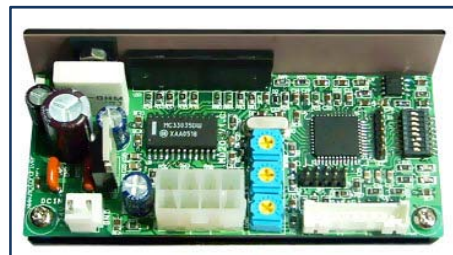


DC Type



MD20

(DC24V, 20W, BLDC Driver)



Introduction

Item	Contents
Power	Drive BLDC motor, normal 10W & max 20W
Input voltage	DC 24V
Control speed range	0~12,400 rpm,
Input speed range	1~5V, 1V=>0 rpm, & 5V=>12,400 rpm(Max.)

Power connector : PWR(JST Connector, B2P-VH)

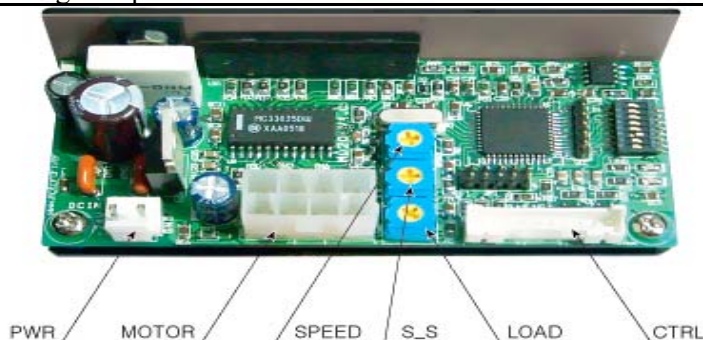
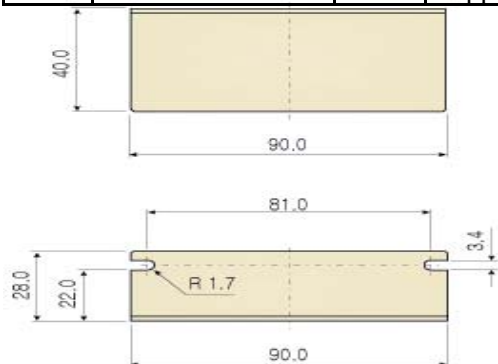
Pin No.	Signal name	Remark
1	GND	Ground
2	24V	24V, allowable deviation of input voltage is about $\pm 20\%$

Motor connector : MOTOR(MOLEX 5566-08A)

Pin No.	1	2	3	4	5	6	7	8
Signal	12V	U	V	W	GND	Hu	Hv	Hw
Remark	Motor power line					Sensor signal line		

I/O Connector : CTRL(JST connector, B10B-PASK, 3A(about 60W))

No.	Signal	Dir	Contents
1	GND		Ground
2	SPEED_V_OUT	OUT	1~5 volt out signal according to motor speed 0~12,400rpm => 1~5 volt
3	ALARM	OUT	Alarm(signal LOW=>), Normal(HIGH=>LED OFF)
4	SPEED OUT	OUT	Pulse out according to the motor speed(pulse width, about 300us)
5	ALARM RESET	IN	Alarm reset at rising edge(L->H)
6	CCW	IN	CCW, motor direction control
7	CW	IN	CW, motor direction control
8	GND		Ground
9	SPEEN IN	IN	Speed reference input (0~5 Volt).
10	5V	OUT	Supply voltage to speed set volume



ABL50

(DC24V, 50W, BLDC Driver)



Introduction

Item	Contents
Size(mm)	97(D) X 39(W) X 42(H)
Input voltage	DC 24V(±20%)
Standard output current	3.0A
Power	50W(Max.80W)

Power connector : PWR(MOLEX 5566-02A)

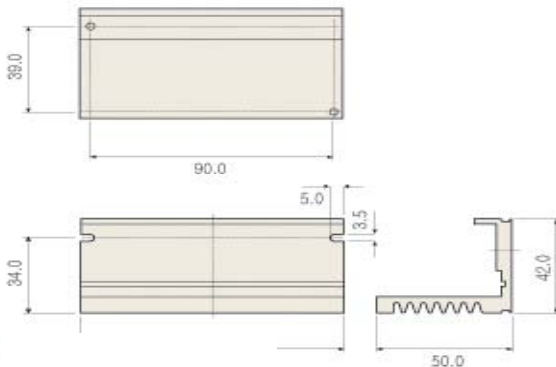
Pin No.	Signal name	Remark
1	24V	24V, allowable deviation of input voltage is ±20%
2	GND	Ground

Motor connector : MOTOR(MOLEX 5566-08A)

Pin No.	1	2	3	4	5	6	7	8
Signal	12V	U	V	W	GND	Hu	Hv	Hw
Remark	Motor power line					Sensor signal line		

I/O Connector : CTRL(MOLEX 5267-11A)

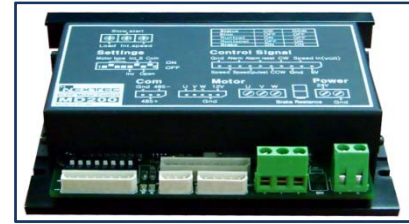
Pin No.	Signal name	Remark
1	GND	Ground
2	DIR_OUT	From the front view of motor, ON ⇒ CW, OFF ⇒ CCW
3	ALARM	- Normal status ⇒ LED OFF - Motor harness fail ⇒ - Over current ⇒ 1hz flickering
4	SPEED_OUT	Pulse out according to motor speed. 10pole ⇒ 30 pulse/rev
5	ALARM_RESET	Alarm ⇒ Motor stop ⇒ ALARM_RESET ⇒ Motor restart Signal flow : ON(L) ⇒ OFF(NC) ⇒ Motor restart
6	DIR	High(5V) ⇒ CW, Low(GND) ⇒ CCW
7	RUN/BRAKE	ON(L) ⇒ Motor ON. OFF ⇒ Brake
8	START/STOP	ON ⇒ Ready to operating OFF ⇒ Stop naturally for load or inertia.
9	GND	Ground
10	SPEED IN	Speed control input : range, 0~5V
11	5V	Power supply, 5 volt



UI, UO 커넥터 최대 허용부하 가감속 속도지정 DC.24V 전원커넥터 모터 커넥터 (MOT)

MD200

(DC24V, 200W, BLDC Driver)



Introduction

Item	Contents
Size(mm)	98(D) X 85(W) X 32(H)
Input voltage	DC 24V(±20%)
Power	200W

Power connector : PWR(SL-201V-02A)

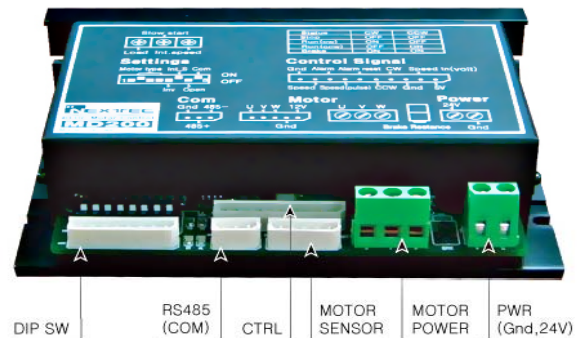
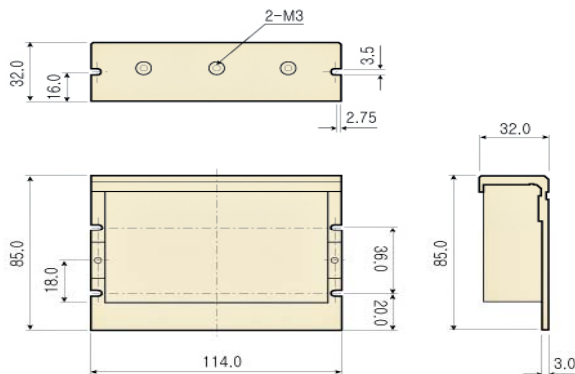
Pin No.	Signal name	Remark
1	24V	24V, allowable deviation of input voltage is ±20%
2	GND	Ground

Motor Sensor connector : Motor Sensor(MOLEX 5267-05A)

Pin No.	1	2	3	4	5
Signal	Hu	Hv	Hw	GND	+12V

I/O Connector : CTRL(User Interface, MOLEX 5267-10A)

Pin No.	Signal name	Remark
1	GND	Ground
2	SPEED_V_Out	0~5V volt out signal according to motor speed
3	ALARM	Alarm On→ LOW → LED On
4	SPEED_OUT	Pulse out according to motor speed. 10pole=>30 pulse/rev
5	ALARM_RESET	Alarm => Motor stop => ALARM_RESET => Motor restart Signal flow : ON(L) => OFF(NC) => Motor restart
6	CW/CCW	OFF, OFF → Stop(free) On, OFF → CW Off, On → CCW
7	RUN/BRAKE	On, On → Brake
8	GND	Ground
9	SPEEN_IN	Speed control input : range, 0~5V
10	5V	Power supply, 5 volt



MD750

(DC20~80V, 750W, BLDC Driver)



Introduction

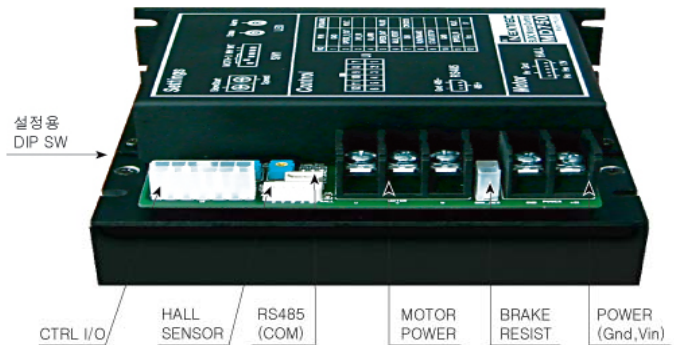
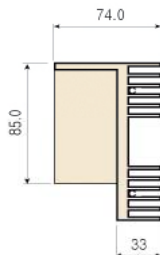
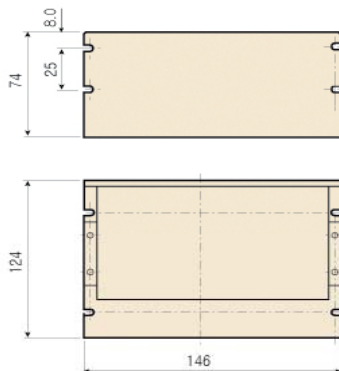
Item	Contents
Size(mm)	146(D) X 124(W) X 74(H)
Input voltage	MD750L : DC20~40V MD750H : DC40~80V
Constant Current	30A(Max.40A)
Communication	RS485
Power	750W

DIP Switch

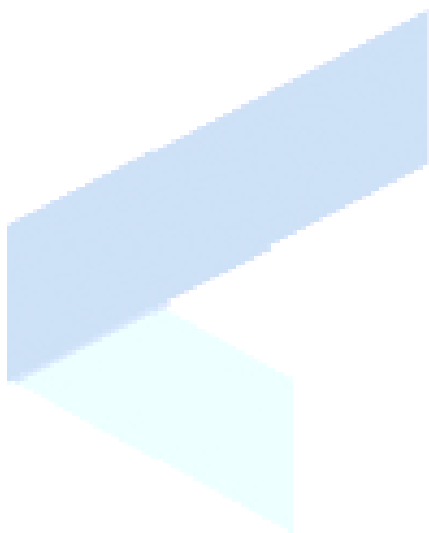
DIP	No.			Remark
6PIN DIP	1~4	DIP1~4	Motor 1~4 type MD750H → Motor 4 : On	
	5	INV	When signal of motor speed is changed, protect from reckless driving of motor	
	6	OPEN	Control motor by OPEN-LOOP On : Inner Variable resistance Off : Outer Variable resistance	

I/O Connector : CTRL

Pin No.	Signal name	Direction	Remark
1	GND	-	Ground
2	-	-	NC
3	MOTOR_V_IN	IN	DC24V or 48V
4	ALARM	OUT	Alarm On→ LOW → LED On
5	SPEED_OUT	OUT	Pulse out according to motor speed.
6	ALARM_RESET	IN	Alarm => Motor stop => ALARM_RESET => Motor restart Signal flow : ON(L) => OFF(NC) => Motor restart
7	CW/CCW	IN	Connect GND : CW
8	RUN/BRAKE	IN	On : Run Off : Brake
9	START/STOP	IN	ON : Ready on Off : Stop smoothly
10	GND	-	Ground
11	SPEED_IN	IN	0~5 volt. Control motor speed
12	5V	OUT	Use Vcc of Variable resistance Only



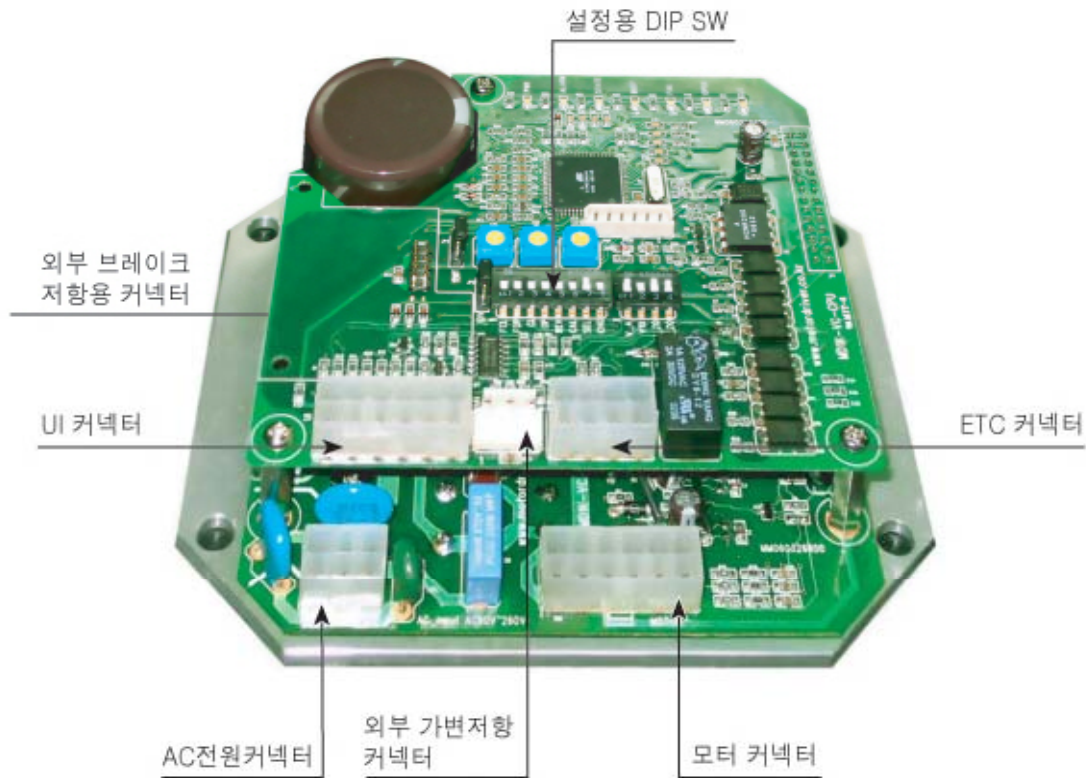
AC Type



MDAVC

(AC90~260V, 200W, BLDC Driver)

제어기 외관 및 설치 치수



입, 출력 사양

항 목	내 용	비 고
외형 사이즈	보드사이즈는 110 X 110. 2층 구성.(전원부+파워부, 제어부)	
전원입력	1. 90~260V, 프리전압입력. 2. 8A의 퓨즈 장착.	
전원출력	1. UI커넥터의 5V단자에 300mA출력 가능. 2. UI의 DO출력은 내부 점퍼핀에의하여 외부전원 24V 및 내부전원 5V를 선택. 출력신호를 24V레벨로 받고자 하는 경우, JP4의 점퍼를 EXT로 연결하고 UI커넥터의 2번핀에 24V를 공급합니다.	PLC 연계 제어
외부 입/출력	1. 입력 : (4~20mA, 1~5V) 입력조정기능 입력신호 : OPEN 또는 5V가 적용된 경우는 OFF, GND와 연결된 경우는 ON이 됩니다.	UI커넥터의 6,7,8,9
제어입력(AD)	속도지시 및 속도출력, 기타 부하, 온도 등.	AD 8CH

MDAVC

(AC90~260V, 200W, BLDC Driver)

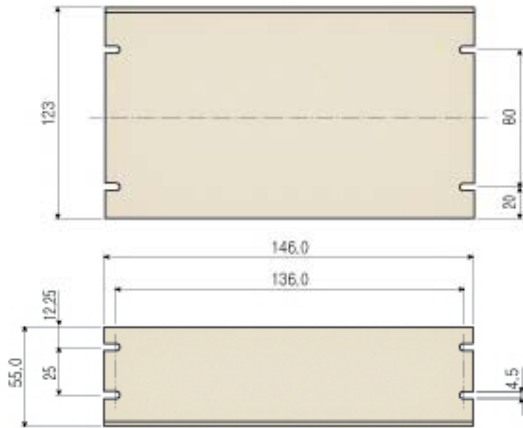
커넥터 사양

커넥터이름	핀	명명	색갈	내 용		
MOTOR (12P 커넥터)	1	W		모터 입력		
	4	Hv		홀센서 출력		
	5	Hv		홀센서 출력		
	6	Hu		홀센서 출력		
	7	V		모터 입력		
	8	U		모터 입력		
	9	FG		Frane ground		
	10	NC				
	11	Vcc		Hall sensor input voltage		
	12	GND		Hall sensor ground		
AC_INPUT (AC전원입력 6P 커넥터)	1	FG		Frane ground(FG, 녹색)		
	2	NC				
	3	AC		AC 110~220전원입력(Hot line, 흑색)		
	4	NC				
	5	AC		AC 110~220전원입력(Neutral line, 백색)		
ETC (기타 I/O, 8P 커넥터)	1	RELAY		Relay 접점	ON인 경우 서로 연결됨	
	2	CUR_OUT	회색	4~20mA출력	모터속도에 비례한 전압/전류출력	
	3	V5/10 OUT	분홍	1~5 or 2~10V출력	(최대속도에서 최대전압)	
	4	REF	주황	4~20mA, 또는 1~5V, 2~10V 전압 입력	전류입력에 비례한 속도제어 (최대속도에서 최대전류, 4~20mA)	
	5	RELAY		Relay 접점	1번핀과 동일	
	6	LIMIT1	흰색	Gnd=>ON, Open=>OFF	CCW최전인 경우, ON=> 모터 정지	
	7	LIMIT2	갈색	Gnd=>ON, Open=>OFF	CW최전인 경우, ON=>모터정지	
	8	GND	검정	Ground		
UI (User Interface, 12P 커넥터)	1	COM	검정	Ground		
	2	5V/ 24V	빨강	내부 5V출력하는 경우는 JP4의 접퍼를 INT에 맞추시고 외부전원(24V 및 기타)을 사용하고자 하는 경우는, 접퍼를 EXT에 연결합니다.		
	3	DIR_OUT	녹색	모터의 회전방향을 표시하며, 모터의 축 방향에서 보는 경우 CW방향이면 이면 ON(L), CCW 방향이면 OFF(H)을 표시합니다.		
	4	ALARM	보라	제어기의 알람신호, 제어기의 고온이나, 과부하등으로 경고일 때 신호선은 ON(GND)가 되고 LED가 점등합니다. 모터결선에 이상이 있는 경우는, 1Hz로 점멸합니다. 정상운전상태에서는 OFF(HIGH) 상태가 유지되며 LED가 소등됩니다.		
	5	SPEED_OUT	주황	BLDC모터의 홀센서(u, v, w) 상변화에 의한 펄스출력으로 다운, 즉 GND, 쪽의 펄스 폭은 320 μs이나 6,000rpm이상 회전속도를 가지는 모터인 경우, 펄스폭이 140 μs입니다.		
	6	ALARM_RESET	회색	과부하 또는 이상고온으로 제어기가 정지한 경우, 강제적으로 RESTART 시키는 경우에 사용됩니다. (ON(L) =>OFF(NC) 이면 RESTART).		
	7	CW	갈색	모터의 속도 방향 및 제어상태를 결정합니다.		
	8	CCW	흰색	상 태	ON	CCW
				TQ OFF	OFF	OFF
				CW, 회전	ON	OFF
	8	CCW	흰색	CCW 회전	OFF	ON
				BRAKE상태	ON	ON
10	COM	청색	Ground			
11	SPEED_IN	노랑	속도설정용 직류전원입력입니다. 범위는 0~5V이고, 이 구간에서 모터의 전속도 범위로 비례적으로 제어됩니다.			
12	5V	빨강	외부에서 이 전원을 공급받아 속도입력을 위한 가변저항의 Vcc로 사용이 가능하며 그 외는 사용을 금합니다.			

MDA4

(AC90~260V, 400W, BLDC Driver)

제어기 외관 및 설치 치수



입, 출력 사양

항 목	내 용	비 고
외형 사이즈	123 X 146 X 55 (케이스 포함).	
전원 입력, 제어기출력	AC90~260V, 프리 전압입력, 8A의 퓨즈, 400W	
신호 체계	입력신호는 Pull-up, 출력신호는 Open-collector Type	PLC 연계 제어
제어대상 모터	400W, BLDC 모터.	

LED 사양

번호	명 명	COLOR	내 용	비 고
1	ALARM	RED	시스템의 과부하, 과온도조건에서 점등	
2	STATUS	GREEN	1초 주기로 점멸(정상동작)	

MDA4

(AC90~260V, 400W, BLDC Driver)

커넥터 사양

커넥터이름	핀번호	명 명	내 용	비 고		
MOTOR (12P 커넥터)	1,7,8	W, V, U	모터 출력(동력선)			
	4,5,6	Hw,Hv, Hu	홀센서 입력			
	9	FG	Frame ground			
	10	NC				
	11, 12	Vcc, GND	Hall sensor input voltage, Ground			
AC_INPUT (AC전원입력 6P 커넥터)	1,3	NC				
	2,4	AC	AC 110~220전원입력	ED-350V		
	5	FG	Frame ground(FG)	(3.5피치)		
UO(User out) 사용자 제어출력 단자	GND					
	AL		알람 출력, 알람이 발생하면 LOW(Gnd)가 됩니다.	Slide SW사용		
	SPEED		속도펄스출력(펄스 폭 약300us)			
SW2(Slide스위치)	5V/EXT		내, 외부전압 선택용 스위치			
UI(User in) 사용자 제어입력 단자	GND					
	RST		알람 해제 신호(GND=>알람 해제)			
	CW / CCW	상 태	CW	CCW	TQ OFF은 모터의 제어가 되지않는 FREE한 상태를 말합니다(무부하)	
		TQ OFF		OFF		OFF
		CW회전		ON		OFF
		CCW 회전	OFF			ON
	BRAKE상태	ON		ON		
	0V			외부 속도입력을 위한 가변저항의 GND와 연결	ED-350V (3.5피치)	
	5V			외부 속도입력을 위한 가변저항 공급전원	외부가변저항 연결	
	SPEED			외부 속도제어 입력(0~5V)		

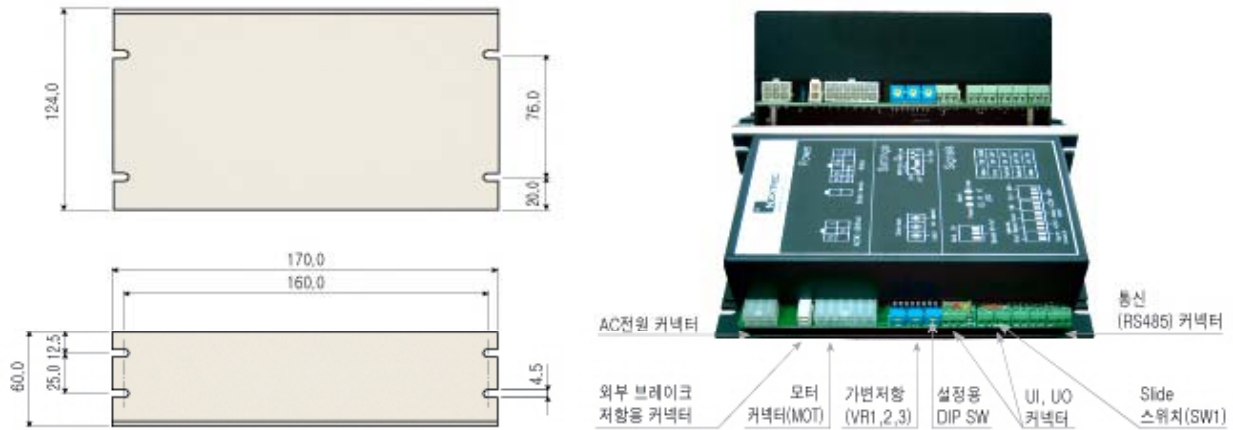
DIP 스위치 사양(SW1)

DIP이름	핀번호	명명(표기)	내 용	비 고
8PIN DIP (SW1)	1~4	MOT SEL (Motor type)	제어기가 구동할 대상(모터)을 선택합니다. 각각의 모터에 대한 설정 값은 당사에 문의 바랍니다.	DIP1~4번은 당사와 상의 후 변경바랍니다.
	5	INV	모터의 속도신호가 반대로 나오는 경우에 제어기가 폭주하게 됩니다. 이때에 설정하는 핀으로써 이의 설정 은 모터의 특성에 따릅니다.	
	6	INT (Int. speed)	모터의 속도입력으로 내부최대속도설정 저항 및 외부가변저항 선택 ON : 내부가변저항, OFF : 외부가변저항	
	7	OPEN	모터를 Open-loop로 제어합니다. 속도 피드백을 사용하지 않고 사용자가 설정한 가변저항 값에 비례하여 출력합니다.	Open-loop, Close-loop
	8	COM	통신으로 제어하는 경우 설정합니다. 기본적으로 이 핀이 OFF인 경우에 외부 가변저항 또는 내부가변저항에 의한 속도 제어모드로 동작합니다.	ON : 통신제어 OFF : 볼륨제어

MDA1K

(AC90~260V, 750W, BLDC Driver)

제어기 외관 및 설치 치수



입, 출력 사양

항 목	내 용	비 고
외형 사이즈	124 X 170 X 60(케이스 포함).	
전원 입력, 제어기출력	AC90~260V, 프리 전압입력, 8A의 퓨즈, 750W BLDC모터 구동	
신호 체계	입력신호가 GND이면 ON, 혹은 GND와 단선이면 OFF(Pull-up)	PLC 연계 제어
제어대상 모터	1마력 (750W)	

LED 사양

번호	명 명	COLOR	내 용	비 고
1	PWR	GREEN	전원이 정상인 경우 점등	
2	ALARM	RED	시스템의 과부하, 과온도조건에서 점등	
3	STATUS	YELLOW	1초 주기로 점멸(정상동작)	

MDA1K

(AC90~260V, 750W, BLDC Driver)

커넥터 사양

커넥터이름	핀번호	명 명	내 용	비 고		
MOTOR (12P 커넥터)	1,7,8	W, V, U	모터 출력(동력선)			
	4,5,6	Hw,Hv, Hu	홀센서 입력			
	9	FG	Frame ground			
	10	NC				
	11, 12	Vcc, GND	Hall sensor input voltage, Ground			
AC_INPUT (AC전원입력 6P 커넥터)	1,3	NC				
	2,4	AC	AC 110~220전원입력			
	5	FG	Frame ground(FG)			
UO(User out) 사용자 제어출력 단자		GND				
		AL	알람 출력, 알람이 발생하면 LOW(Gnd)가 됩니다.	ED-350V (3.5핀치)		
		SPEED	속도펄스출력(펄스 폭 약300us)			
SW2(Slide스위치)		5V/EXT	내, 외부전압 선택용 스위치	Slide SW사용		
		GND				
UI(User in) 사용자 제어입력 단자		RST	알람 해제 신호(GND=>알람 해제)			
	CW / CCW		상 태	CW	CCW	TO OFF은 모터의 제어가 되지않는 FREE한 상태를 말합니다(무부하)
			TO OFF	OFF	OFF	
			CW회전	ON	OFF	
			CCW 회전	OFF	ON	
		BRAKE상태	ON	ON		
		0V	외부 속도입력을 위한 가변저항의 GND와 연결		ED-350V (3.5핀치)	
		5V	외부 속도입력을 위한 가변저항 공급전원			
	SPEED	외부 속도제어 입력(0~5V)		외부가변저항 연결		
RS485(통신 단자)		GND				
		485+	RS485통신용 커넥터 (option)		ED-350V (3.5핀치)	
		485-				
ENC(Optional) (4P 엔코더 커넥터, option)	1	5V	엔코더 입력 전원			
	2	PAHSE_A	신호처리용 GAL로 엔코더의 A상, B상과 연결 됩니다.		4P 커넥터 MOLEX, 5267-04	
	3	PAHSE_B				
	4	GND(0 V)	엔코더 그라운드			

DIP 스위치 사양(SW1)

DIP이름	핀번호	명명(표기)	내 용	비 고
8PIN DIP (SW1)	1~4	MOT SEL (Motor type)	제어기가 구동할 대상(모터)을 선택합니다. 각각의 모터에 대한 설정 값은 당사에 문의 바랍니다.	DIP1~4번은 당사와 상의 후 변경바랍니다.
	5	INV	모터의 속도신호가 반대로 나오는 경우에 제어기가 폭주하게 됩니다. 이때에 설정하는 핀으로써 이의 설정 은 모터의 특징에 따릅니다.	
	6	INT (Int. speed)	모터의 속도입력으로 내부최대속도설정 저항 및 외부가변저항 선택 ON : 내부가변저항, OFF : 외부가변저항	
	7	OPEN	모터를 Open-loop로 제어합니다. 속도 피드백을 사용하지 않고 사용자가 설정한 가변저항 값에 비례하여 출력합니다.	Open-loop, Close-loop
	8	COM	통신으로 제어하는 경우 설정합니다. 기본적으로 이 핀이 OFF인 경우에 외부 가변저항 또는 내부가변저항에 의한 속도 제어모드로 동작합니다.	ON : 통신제어 OFF : 볼륨제어