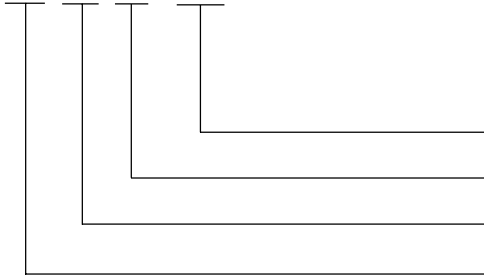


## Brushless DC Motor

◆ Product Number Code For Brushless DC Motor

BL 16 30 - 001



**Series number**

**Body length: 30mm**

**Frame size:  $\Phi$ 16mm**

**Brushless DC motor**

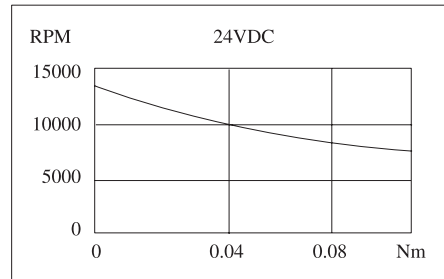
# Brushless DC Motor

## BL42

### ● GENERAL SPECIFICATIONS

No. of phase	3
No. of polar	8
Winding type	Delta
Hall effect angle	120 degree electrical angle
Shaft run out	0.025mm
Radial play	0.02mm@450g
End play	0.08mm@450g
Max. radial force	28N @ 20mm from the flange
Max. axial force	10N
Insulation class	Class B
Dielectric strength	500VDC for one minute
Insulation resistance	100M $\Omega$ Min., 500VDC

### PERFORMANCE CURVE



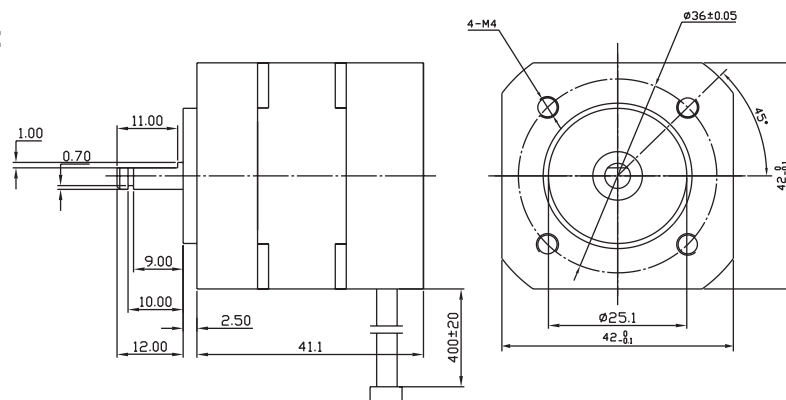
### ELECTRICAL CONNECTION

Lead No.	Lead Color	Lead Gauge	FUNCTION	DESCRIPTION
1	Red	UL1007 26AWG	VCC	SUPPLY VOLTAGE FOR HALL SENSORS
2	Blue		HALL A	
3	White		HALL B	
4	Green		HALL C	
5	Black	UL1007 20AWG	GND	GROUND FOR HALL SENSORS
6	Yellow		PHASE A	
7	Red		PHASE B	
8	Black		PHASE C	

### ● ELECTRICAL SPECIFICATIONS

Model		BL4201
Continuous stall torque( $\Delta$ tcu 80°C)	Nm	0.048
Continuous torque at rated speed	Nm	0.04
Max. peak torque(duty cycle 10%)	Nm	0.17
Rated speed	RPM	10000
Output power at rated speed	W	42
Rotor inertia	gcm <sup>2</sup>	25
Torque constant	Nm/A	0.017
Terminal resistance at 20°C	ohms	0.41
Line to line inductance	mH	0.56
B.E.M.F. at nominal speed	V	17
Locked rotor rated current	A	2.8
Max. peak current	A	10
Body length A	mm	42
Mass	Kg	0.25

### ● DIMENSIONS:



## Brushless DC Motor

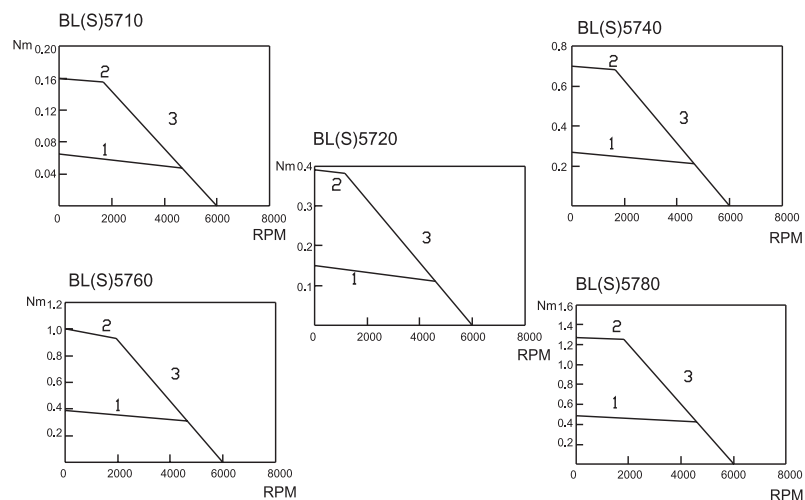
### BL(S)57 SERIES

Note: Square front end-bell BLS57; Round front end-bell BL57

#### ◆ GENERAL SPECIFICATIONS

No. of phase	3
No. of polar	4
Winding type	Delta
Hall effect angle	120 degree electrical angle
Shaft run out	0.025mm
Radial play	0.025mm@460g
End play	0.025mm@4000g
Max. radial force	75N @ 20mm from the flange
Max. axial force	15N
Operating range	Max. 1000m .above sea level
Ambient temperature	-20°C to +50°C
Insulation class	Class B
Dielectric strength	500VDC for one minute
Insulation resistance	100M Ω Min., 500VDC

#### PERFORMANCE CURVE



1 Continuous duty 2 10% duty 3 Limit curve for Vdc bus=60V

#### ELECTRICAL CONNECTION

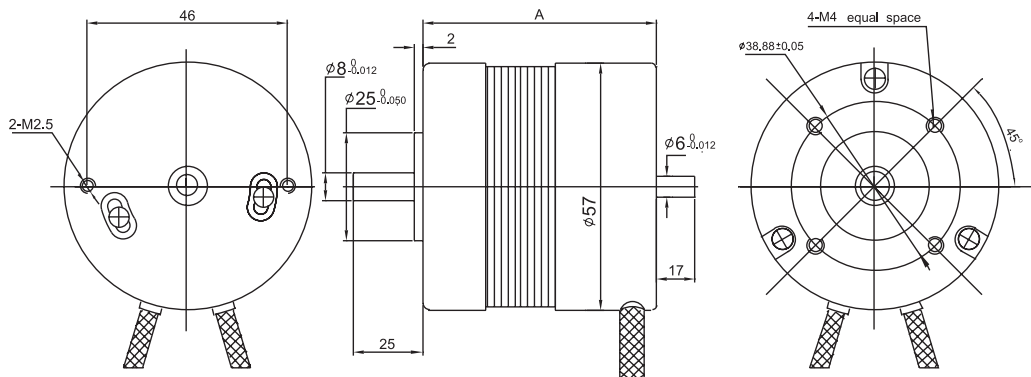
Lead No.	Lead Color	Lead Gauge	FUNCTION	DESCRIPTION
1	Red	UL1007 26AWG	Vcc	SUPPLY VOLTAGE FOR HALL SENSORS
2	Blue		HALL A	
3	Green		HALL B	
4	White		HALL C	
5	Black	UL1007 20AWG	GND	GROUND FOR HALL SENSORS
6	Yellow		PHASE A	
7	Red		PHASE B	
8	Black		PHASE C	

## ◆ ELECTRICAL SPECIFICATIONS

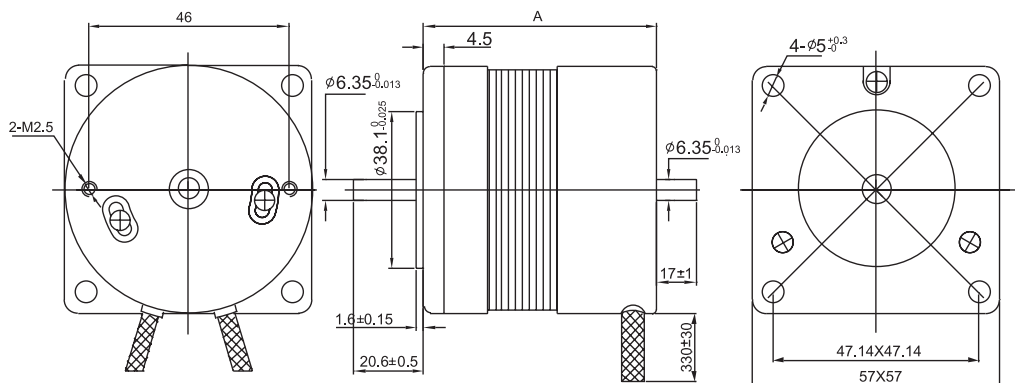
Model		BL(S)5745-001	BL(S)5755-001	BL(S)5775-001	BL(S)5795-001	BL(S)57115-001
Continuous stall torque( $\Delta t_{cu}$ 80°C)	Nm	0.065	0.15	0.27	0.39	0.49
Continuous torque at rated speed	Nm	0.055	0.11	0.22	0.32	0.43
Max. peak torque(duty cycle 10%)	Nm	0.16	0.39	0.7	1	1.27
Rated speed	RPM	4000	4000	4000	4000	4000
Output power at rated speed	W	23	46	92	133	180
Rotor inertia	Kgm <sup>2</sup>	3*10 <sup>-6</sup>	7.5*10 <sup>-6</sup>	11.9*10 <sup>-6</sup>	17.3*10 <sup>-6</sup>	23*10 <sup>-6</sup>
Torque constant	Nm/A	0.063	0.063	0.063	0.063	0.063
Terminal resistance at 20°C	ohms	5.4	1.5	0.7	0.45	0.35
Line to line inductance	mH	11	4.2	2.16	1.4	1
B.E.M.F. at nominal speed	V	26.4	26.4	26.4	26.4	26.4
Locked rotor rated current	A	1	2.4	4.3	6.2	7.8
Max. peak current	A	3	6.8	14.5	17.6	22.3
Body length A	mm	45	55	75	95	115
Mass	Kg	0.25	0.5	0.75	1	1.25

## ◆ DIMENSIONS:

### BL57



### BLS57



# Brushless DC Motor

## BL5883 SERIES

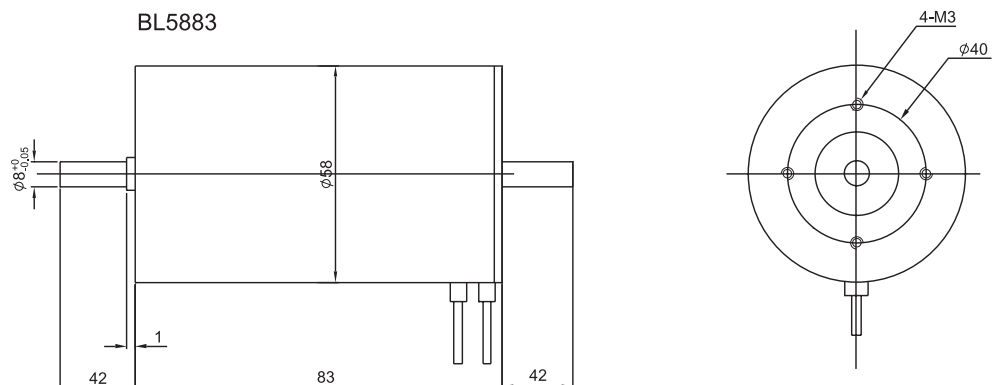
### ◆ GENERAL SPECIFICATIONS

No. of phase	3
No. of polar	2
Sensor	Hall sensor
Driver	MC33033
Length	83mm
Weight	998g
Operating temperature range	-30°C to +85°C
Commutation	Electronically commutation
Bearing	EZO & NMB
Housing material	Aluminum, black anodized
Magnet material	Nd-Fe-B
Direction of rotation	Electronically reversible
Insulation class	Class B
Dielectric strength	500VDC for one minute
Insulation resistance	100M Ω Min., 500VDC

### ◆ ELECTRICAL SPECIFICATIONS

Model		BL5883-001	BL5883-002	BL5883-003	BL5883-004
Nominal Voltage	V	24	24	24	24
Phase to phase resistance	ohms	3	2.4	1.7	1.2
Output power	W	45.75	57.04	81.03	117.61
Efficiency (max.)	%	72	71	73	81
No-load speed	rpm	4110	5050	7300	6420
No-load current	A	0.19	0.25	0.31	0.2
Stall torque	mNm	434.5	441.48	432.49	705.83
Friction torque	mNm	1	1	1	1
Back EMF constant	mV/rpm	5.70	4.63	3.22	3.70
Torque constant	mNm/A	54.44	44.25	30.71	35.34
Slope of speed vs torque curve	rpm/mNm	9.67	11.71	17.22	9.17
Mechanical time constant	mS	11.34	13.73	20.19	10.76
Rotor inertia	g.cm <sup>2</sup>			112	
Angular acceleration(max.)	10 <sup>3</sup> rad/s <sup>2</sup>	38.79	39.42	38.62	63.02

### ◆ DIMENSIONS:



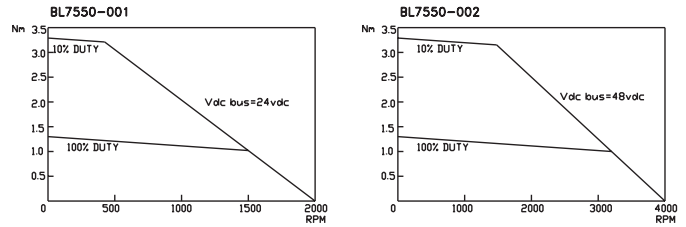
# Brushless DC Motor

## BL7550 SERIES

### ◆ GENERAL SPECIFICATIONS

No. of phase	3
No. of polar	4
Winding type	Delta
Hall effect angle	120 degree electrical angle
Shaft run out	0.025mm
Radial play	0.025mm@460g
End play	0.025mm@4000g
Max. radial force	110N @ 20mm from the flange
Max. axial force	30N
Operating range	Max. 1000m .above sea level
Ambient temperature	-20°C to +50°C
Insulation class	Class B
Dielectric strength	500VDC for one minute
Insulation resistance	100M Ω Min., 500VDC

### PERFORMANCE CURVE



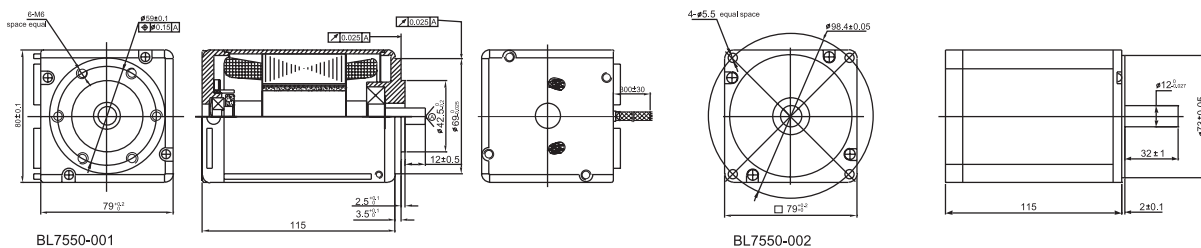
### ELECTRICAL CONNECTION

Lead No.	Lead Color	Lead Gauge	FUNCTION	DESCRIPTION
1	Red	AF150 26AWG	VCC	SUPPLY VOLTAGE FOR HALL SENSORS
2	Blue		HALL A	
3	Green		HALL B	
4	White		HALL C	
5	Black	AF150 20AWG	GND	GROUND FOR HALL SENSORS
6	Yellow		PHASE A	
7	Red		PHASE B	
8	Black		PHASE C	

### ◆ ELECTRICAL SPECIFICATIONS

Model		BL7550-001	BL7550-002
Normal voltage	DCV	24	48
Continuous stall torque(Δ tcu 80°C)	Nm	1.28	1.3
Continuous torque at rated speed	Nm	1	1
Max. peak torque(duty cycle 10%)	Nm	3.27	3.35
Rated speed	RPM	1500	3200
Output power at rated speed	W	157	335
Rotor inertia	Kgmm <sup>2</sup>	30	30
Torque constant	Nm/A	0.11	0.12
Terminal resistance at 20°C	ohms	0.3	0.35
Line to line inductance	uH	657	852
B.E.M.F. at nominal speed	V	17.2	40
Locked rotor rated current	A	11.6	11
Max. peak current	A	33	31
Mass	Kg	2.5	2.5

### ◆ DIMENSIONS:



# Brushless DC Motor

## BL8488 SERIES

### ◆ GENERAL SPECIFICATIONS

No. of phase	3
No. of polar	4
Sensor	Hall sensor
Driver	MC33033
Length	88mm
Operating temperature range	-30°C to +85°C
Commutation	Electronically commutation
Bearing	NSK
Housing material	Aluminum, black anodized
Magnet material	Nd-Fe-B
Direction of rotation	Electronically reversible
Insulation class	Class B
Dielectric strength	500VDC for one minute
Insulation resistance	100M Ω Min., 500VDC

### ◆ ELECTRICAL SPECIFICATIONS

Model		BL8488-001	BL8488-002
Nominal Voltage	V	30	30
Phase to phase resistance	ohms	7.9	2.2
Output power	W	27.15	100.33
Efficiency (max.)	%	72	81
No-load speed	rpm	1100	2030
No-load current	A	0.09	0.13
Stall torque	mNm	963.56	1904.05
Friction torque	mNm	2	2
Back EMF constant	mV/rpm	26.63	14.64
Torque constant	mNm/A	254.26	139.78
Slope of speed vs torque curve	rpm/mNm	1.17	1.08
Mechanical time constant	mS	6.95	6.41
Rotor inertia	g.cm <sup>2</sup>		568.82
Angular acceleration(max.)	10 <sup>3</sup> rad/s <sup>2</sup>	16.94	33.47

### ◆ DIMENSIONS:

