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## DC Motor

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## DC Motor

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## DC Motor

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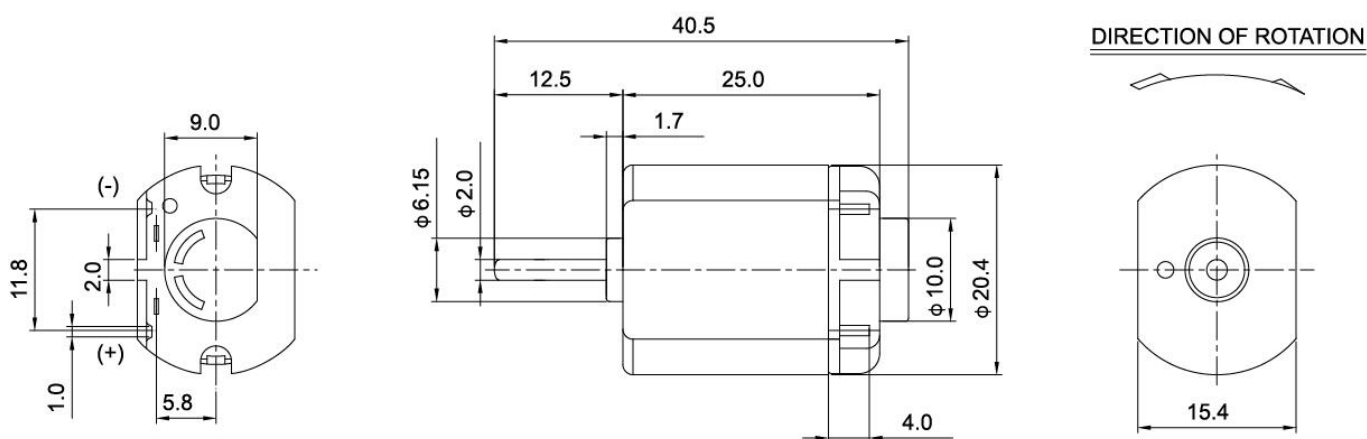
## 2025 Brush DC Motor



**Output:**  
Approx 0.2W~1.5W  
DC Motor

**Typical application:**  
Automobile:  
Rear-view mirror

### Dimensions



### Specification

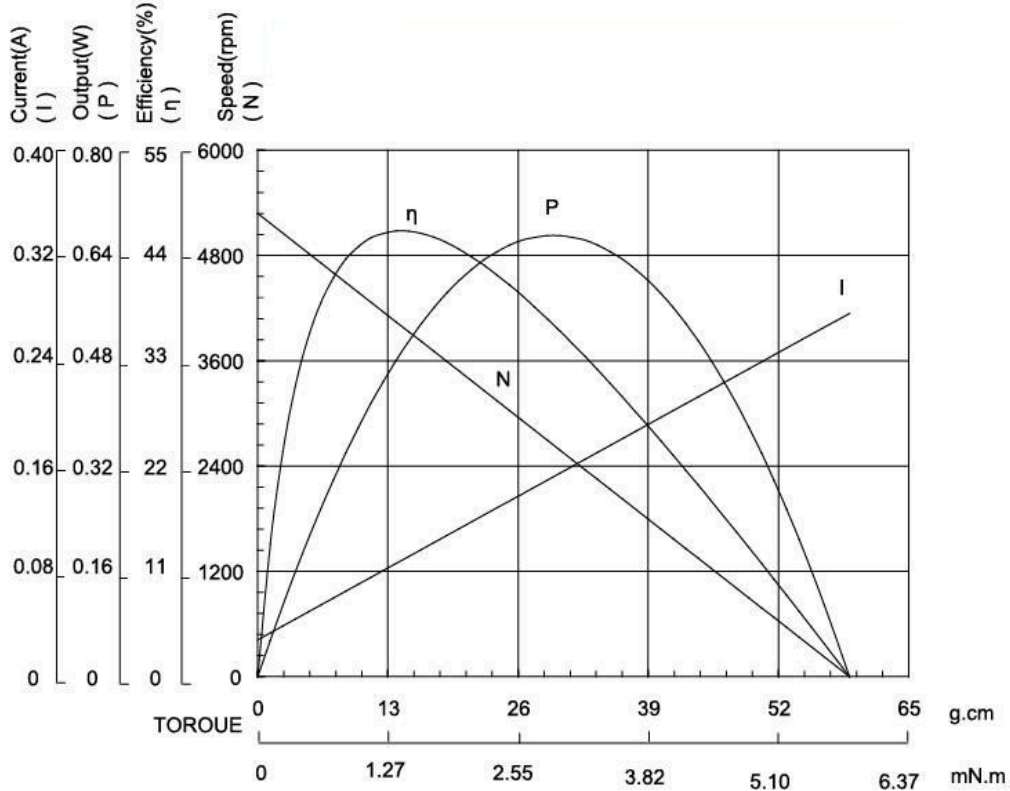
Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0001-20-25	9.0~15.0	12.0	5278	0.028	4004	0.088	1.40	0.49	5.81	0.277
M009BI0001-20-25	6.0~12.0	9.0	6122	0.037	4798	0.134	1.46	0.63	6.75	0.486

# 2025 Brush DC Motor

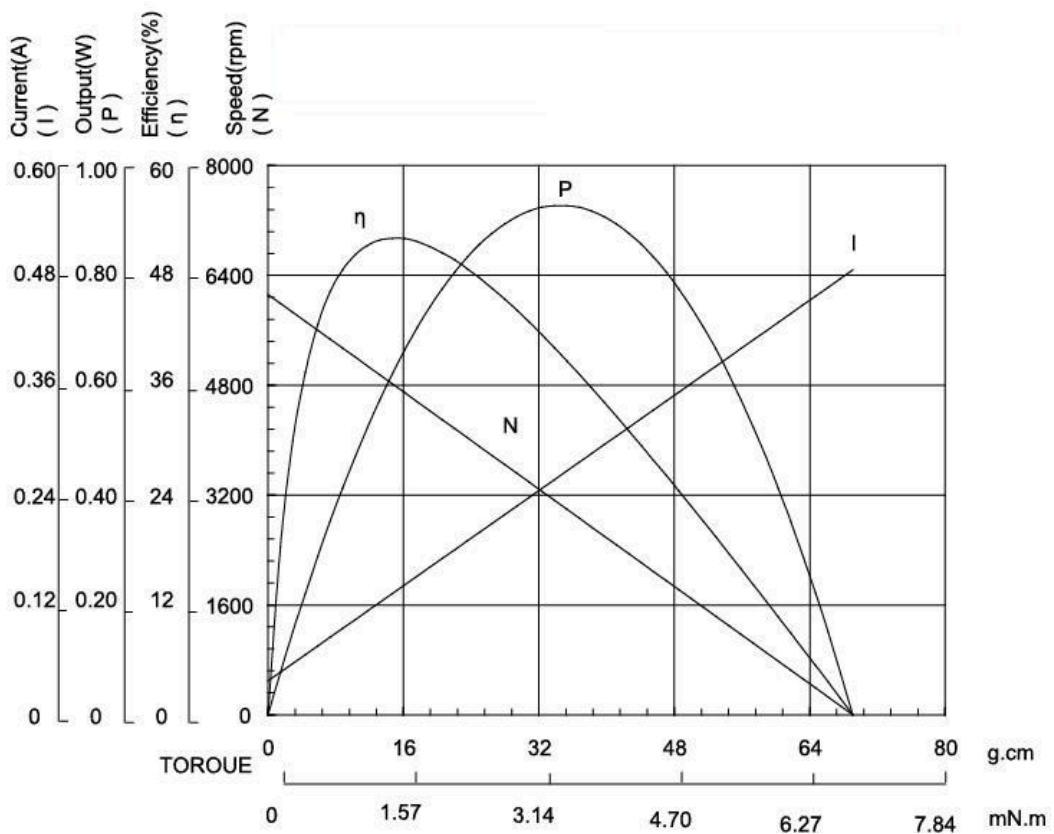


## Performance Curve

M012BI0001-20-25, 12.0V



M009BI0001-20-25, 9.0V



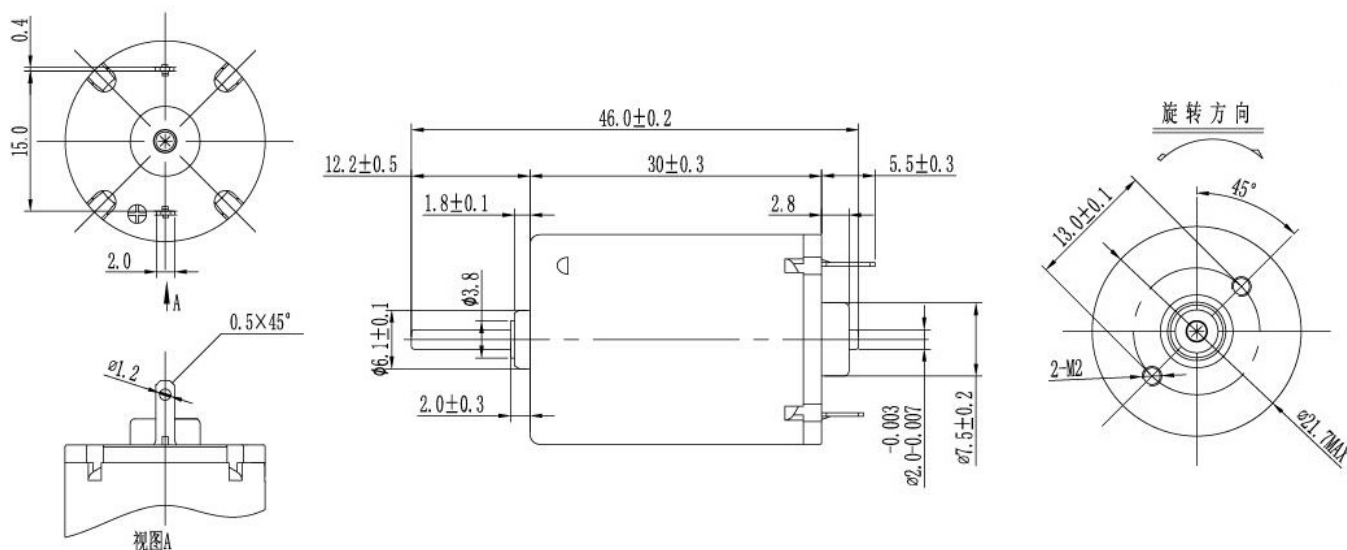
## 2230 Brush DC Motor



**Output:**  
Approx. 5W~15W  
DC Motor

**Typical application:**  
Beauty product

### Dimensions



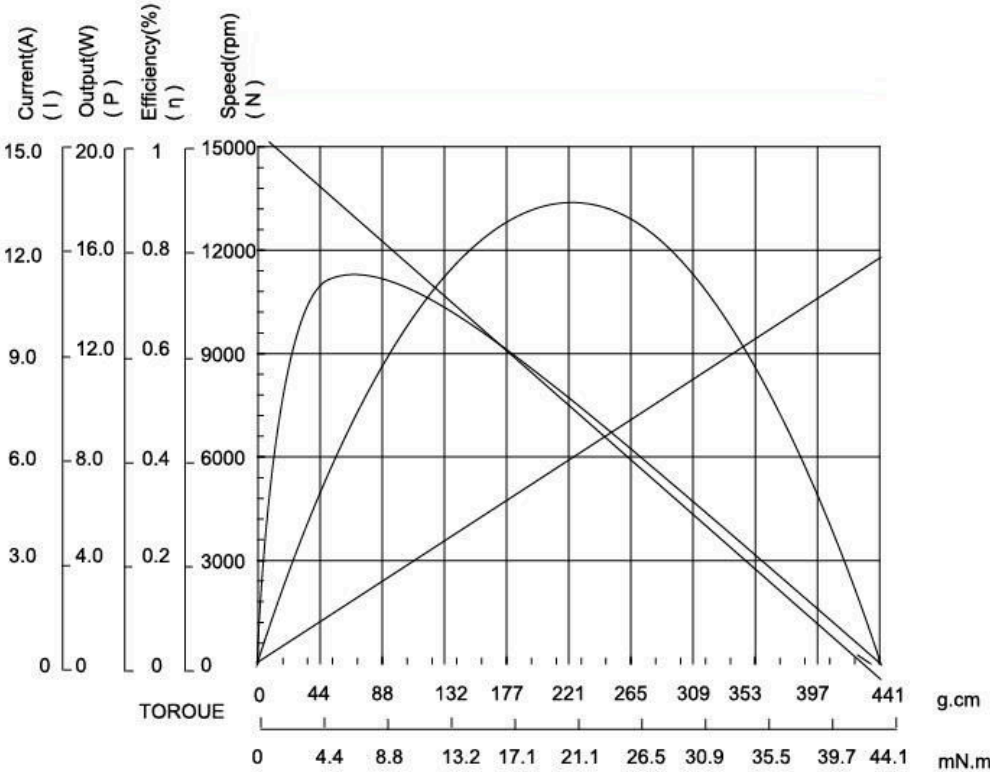
### Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M006BI0007-22-30	4.5~7.5	6.0	14300	0.4	12000	2.1	7.1	8.75	44.2	11
M024BI0006-22-30	15.0~28.0	24.0	8514	0.07	6780	0.29	6.6	4.6	32.34	1.12

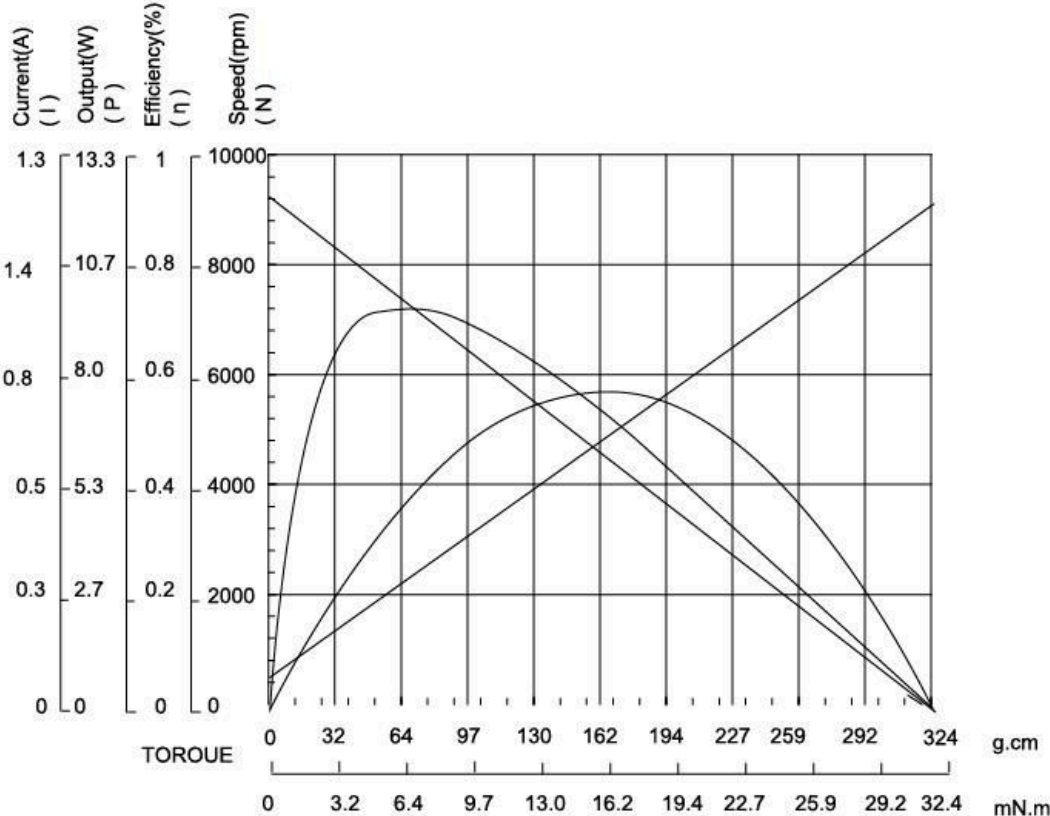
# 2230 Brush DC Motor

## Performance Curve

M006BI0007-22-30, 6.0V



BD27001002, 24V



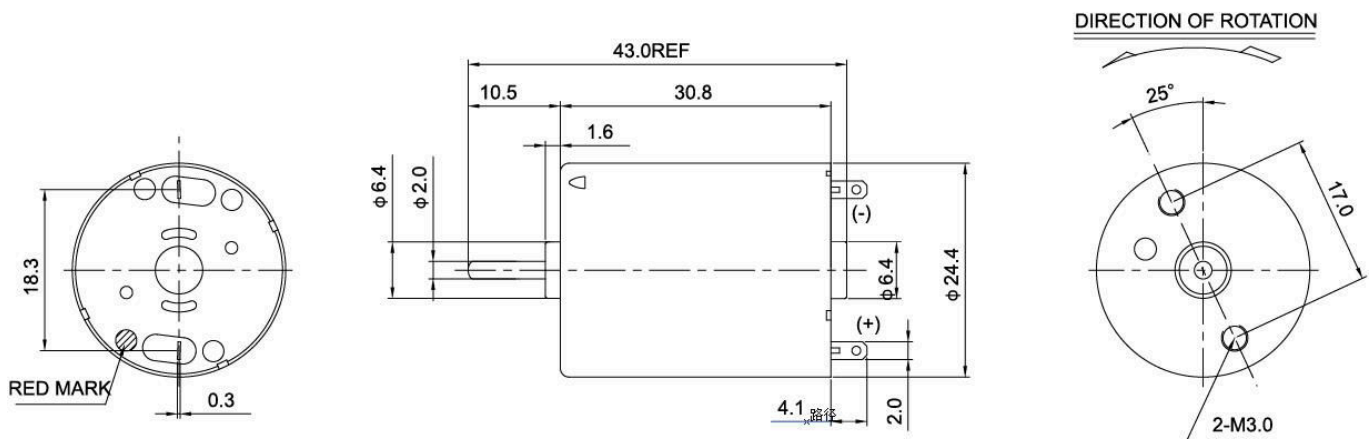
# 2431 Brush DC Motor



**Output:**  
Approx 0.5W~20W  
DC Motor

**Typical application:**  
Office automation equipments:  
Printer  
Copy machine

## Dimensions



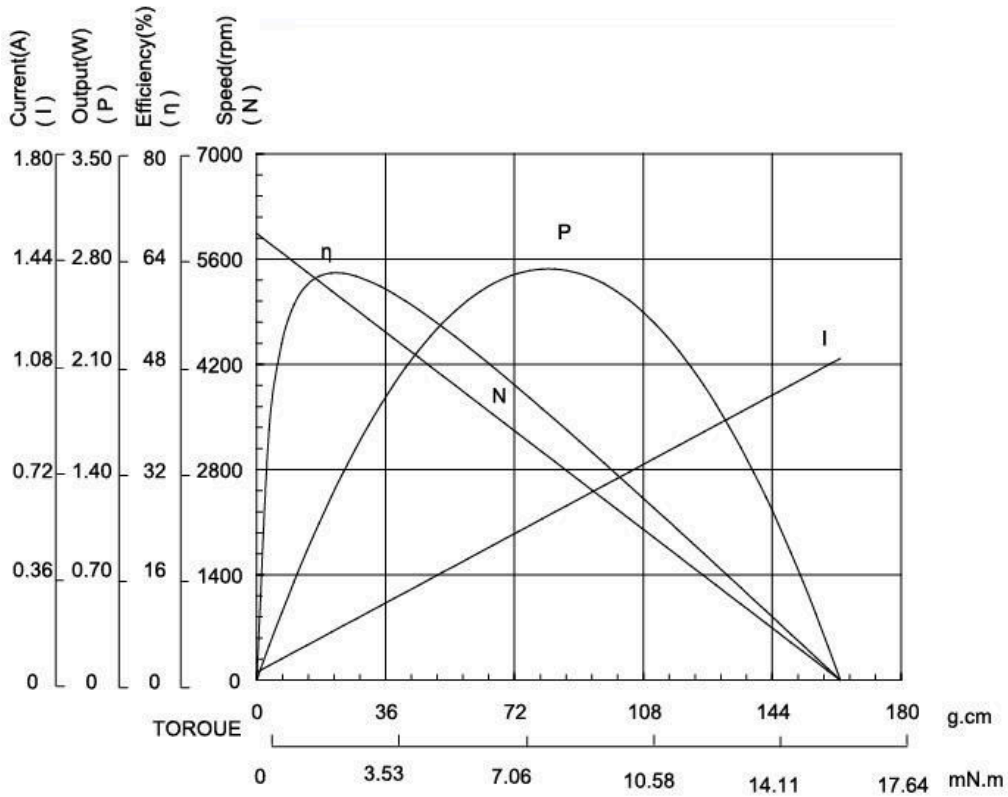
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M024BI0002-24-31	18.0~27.0	24.0	3166	0.008	2538	0.032	1.70	0.44	8.58	0.131
M012BI0002-24-31	9.0~15.0	12.0	5940	0.027	5146	0.175	2.18	1.50	16.31	1.133
M005BI0001-24-31	4.0~7.0	5.0	1991	0.012	1659	0.060	1.34	0.19	8.05	0.299
M012BI0001-24-31	9.0~15.0	12.0	3132	0.011	2645	0.060	1.77	0.48	11.39	0.325

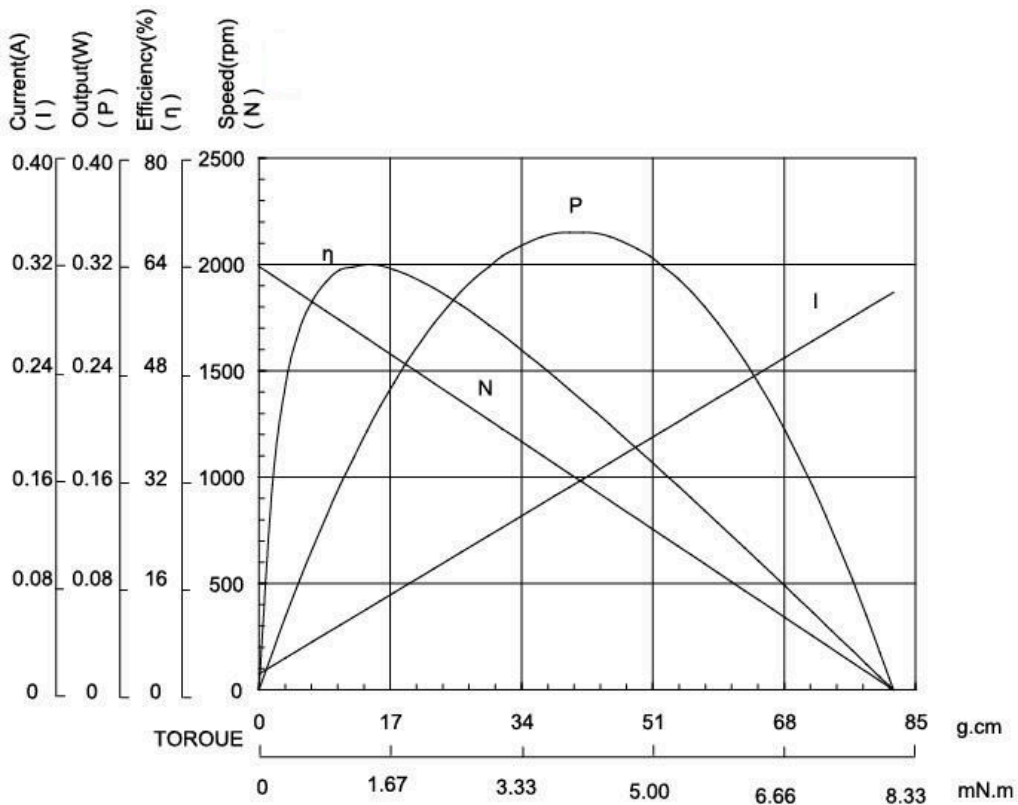
# 2431 Brush DC Motor

## Performance Curve

M012BI0002-24-31, 12.0V



M005BI0001-24-31, 5.0V



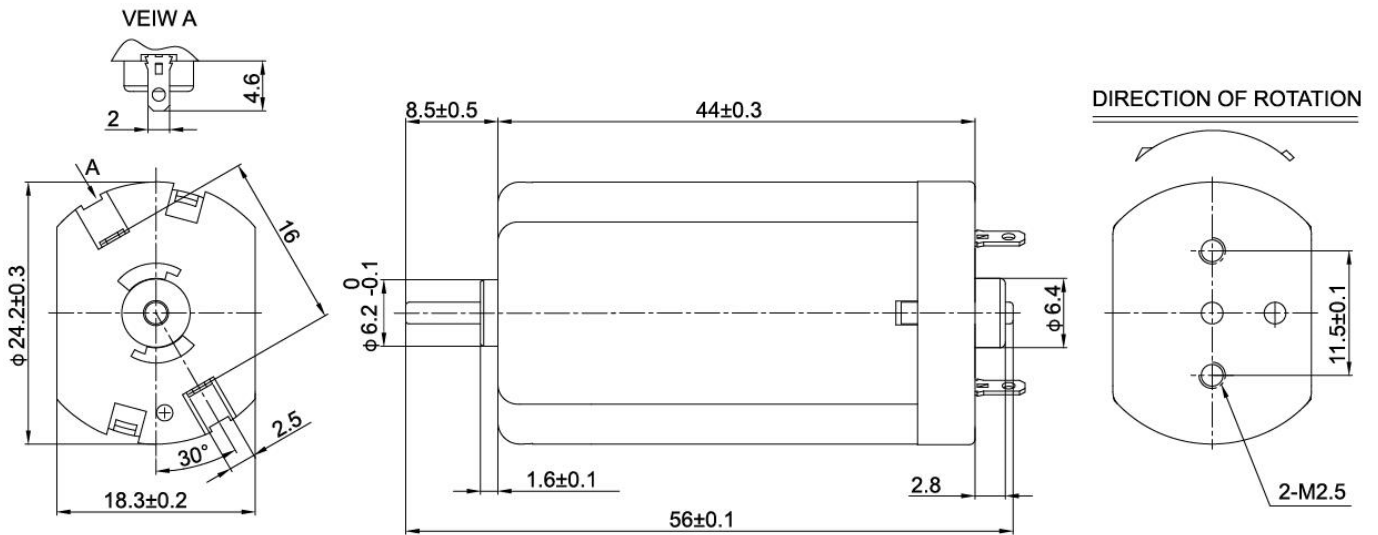
# 2444 Brush DC Motor



**Output:**  
Approx 0.5W~24W  
DC Motor

**Typical application:**  
Toys and models:  
Radio control model  
Home appliances:  
Hair clipper  
Massager/ Vibrator

## Dimensions



## Specification

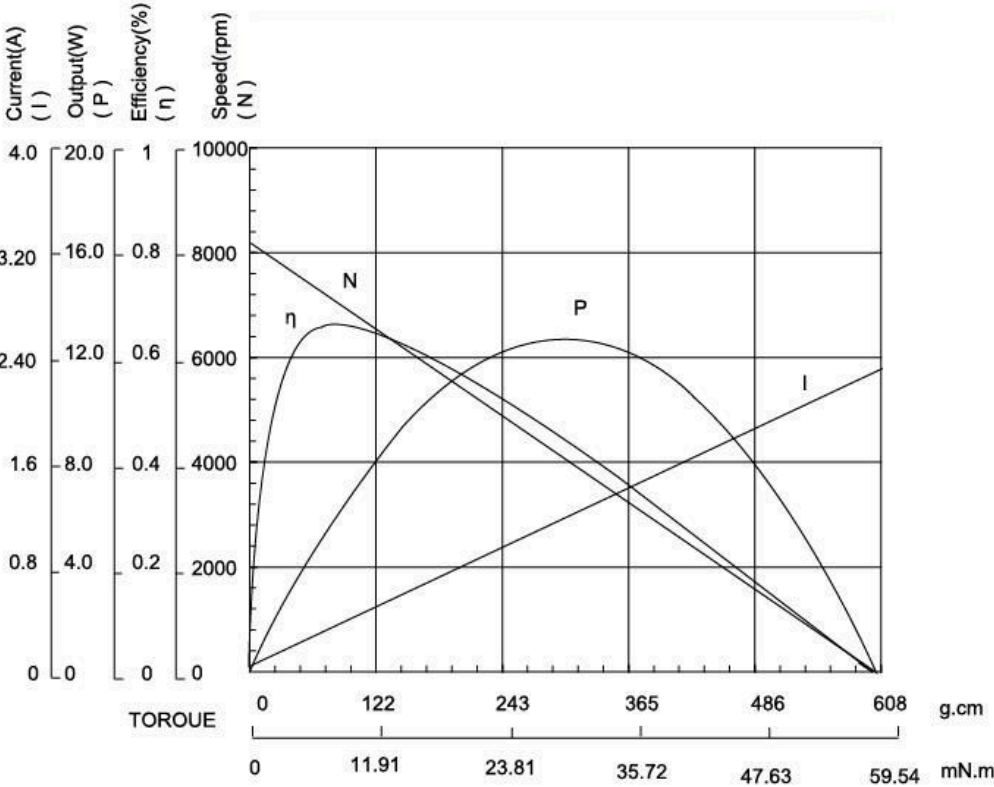
Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M024BI0009-24-44	18~27	24	8100	0.07	6900	0.4	8.82	6.37	59.535	2.3



# 2444 Brush DC Motor

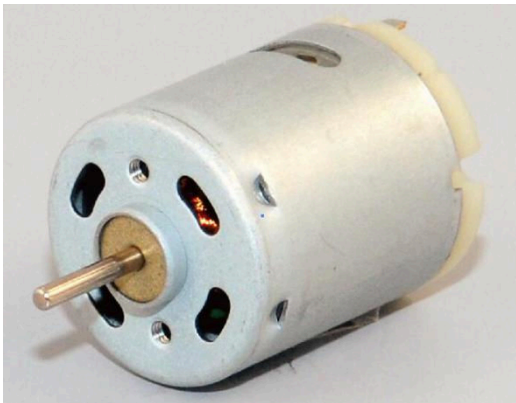
## Performance Curve

M024BI0009-24-44, 24V





## 2833 Brush DC Motor

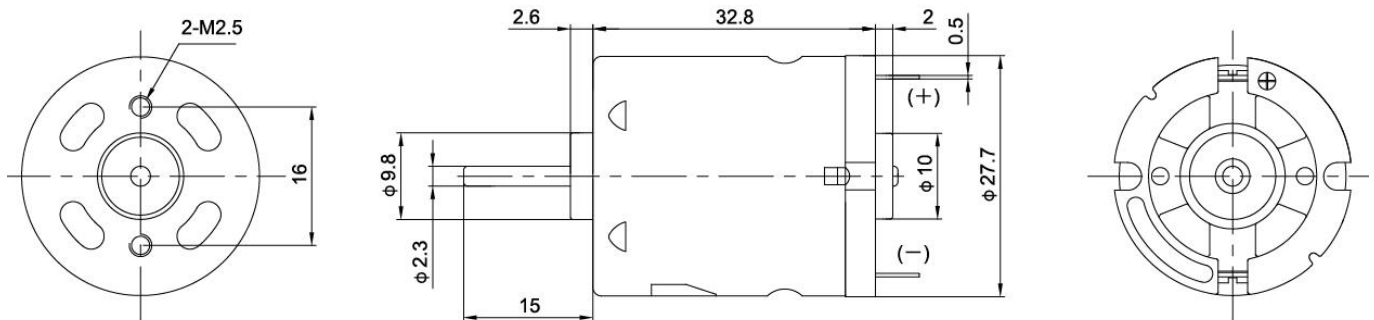


**Output:**  
Approx 0.7W~30W  
DC Motor

**Typical application:**  
Home appliances:  
Air compressor  
Hair dryer  
Massager/ Vibrator

### Dimensions

DIRECTION OF ROTATION



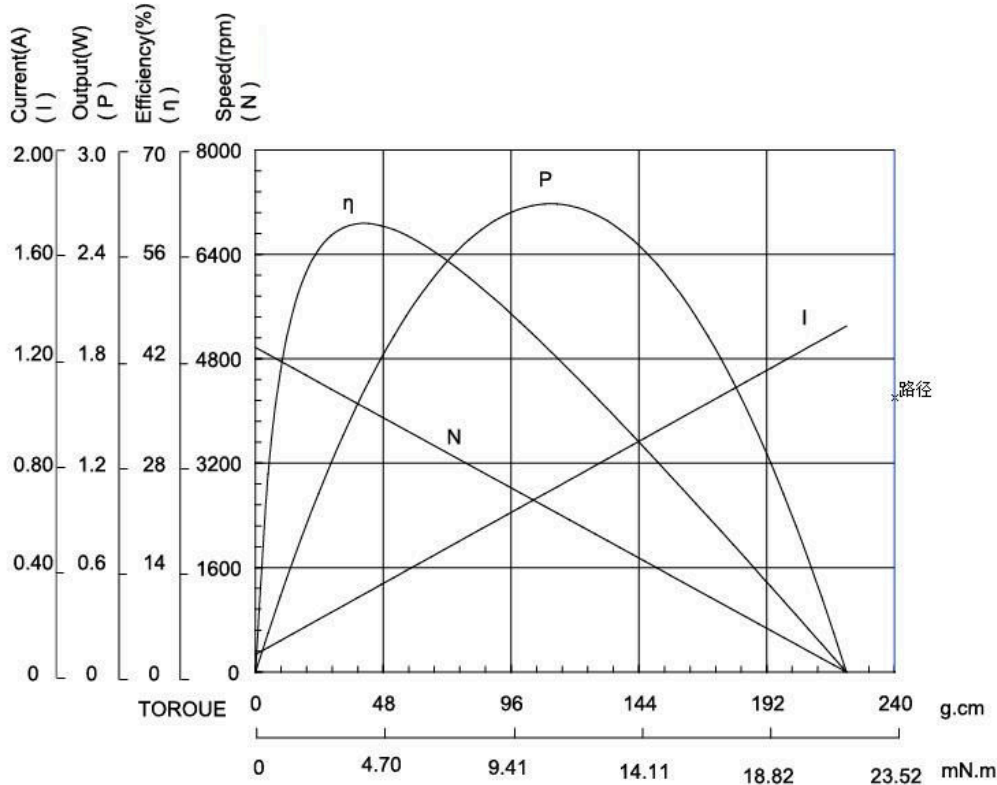
### Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M009BI0004-28-33	6.0~12.0	9.0	4972	0.067	4059	0.298	3.99	1.61	21.75	1.325
M024BI0006-28-33	18.0~30.0	24.0	12600	0.078	10545	0.400	6.29	6.23	38.59	2.055
M012BI0005-28-33	9.0~15.0	12.0	8536	0.121	6645	0.425	5.20	2.61	23.45	1.493
M024BI0004-28-33	18.0~30.0	24.0	10482	0.072	8256	0.267	4.29	3.42	20.18	0.990

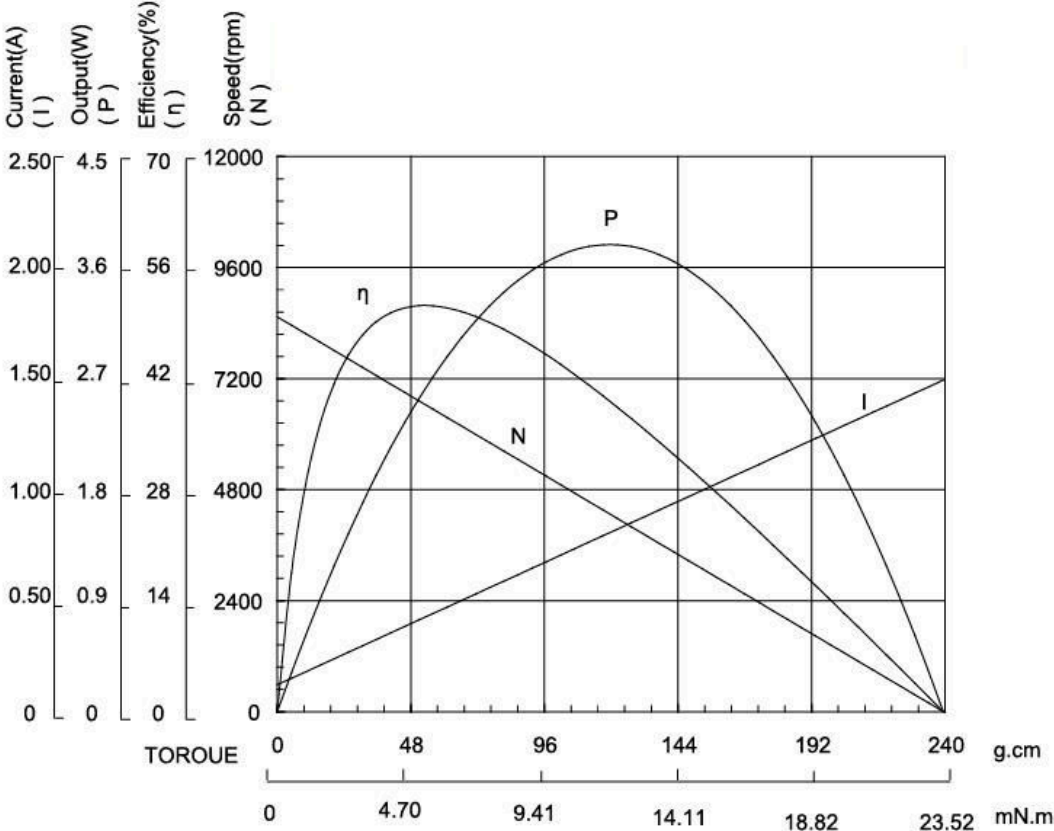
# 2833 Brush DC Motor

## Performance Curve

M009BI0004-28-33, 9.0V



M012BI0005-28-33, 12.0V



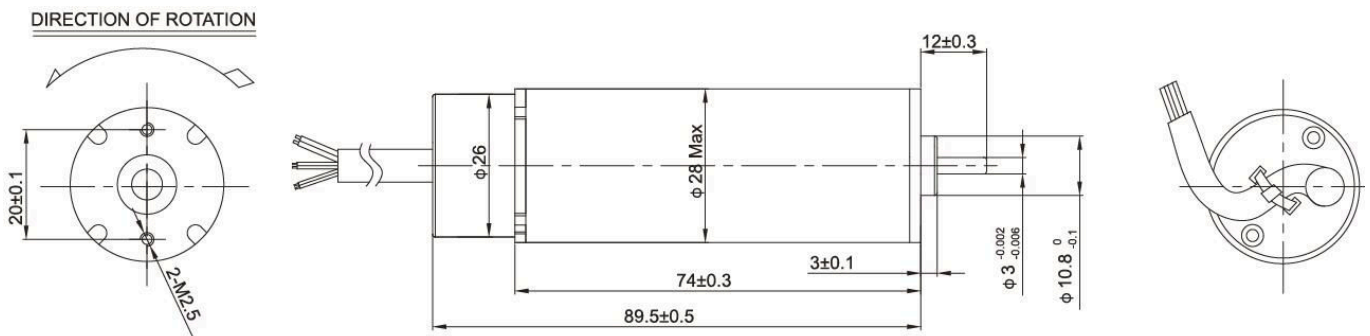
## 2874 Brush DC Motor



**Output:**  
Approx 3W~15W  
DC Motor

**Typical application:**  
Printer  
Automobile products  
Rear box of automobile  
Air pump

### Dimensions



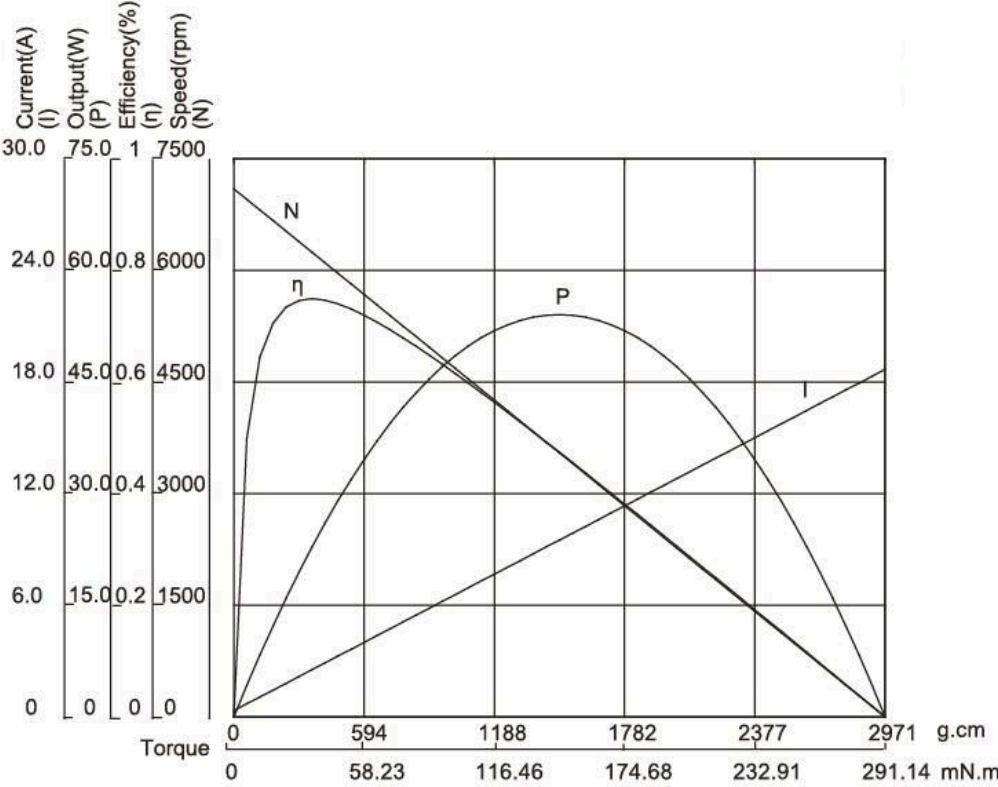
### Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0035-28-74	6.0~15.0	12.0	7096	0.33	6250	2.52	34.594	22.69	291.06	18.67

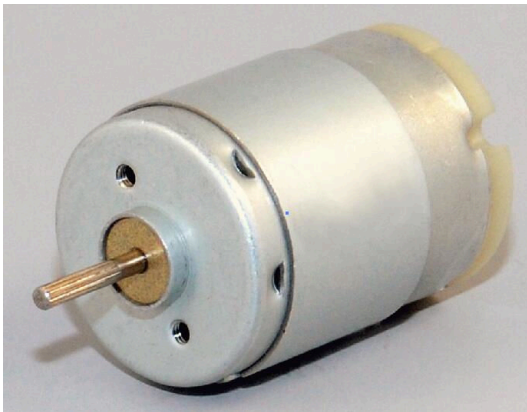
# 2874 Brush DC Motor

## Performance Curve

M012BI0035-28-74, 12.0V



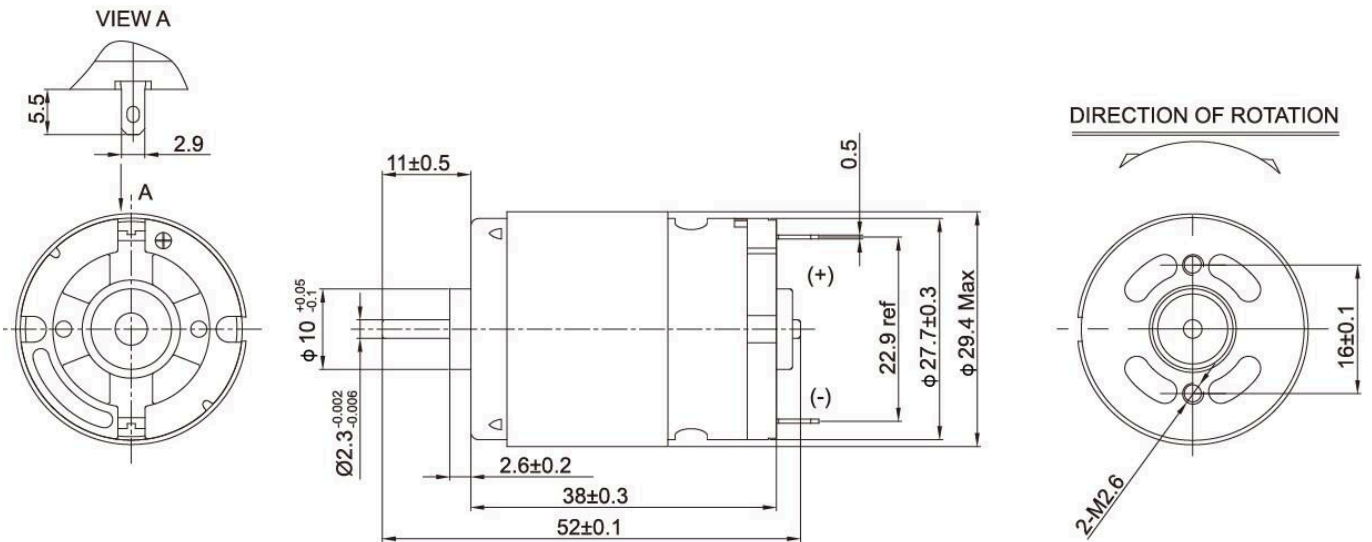
# 2938 Brush DC Motor



**Output:**  
Approx 0.9W~40W  
DC Motor

**Typical application:**  
Home appliances:  
Hair dryer

## Dimensions



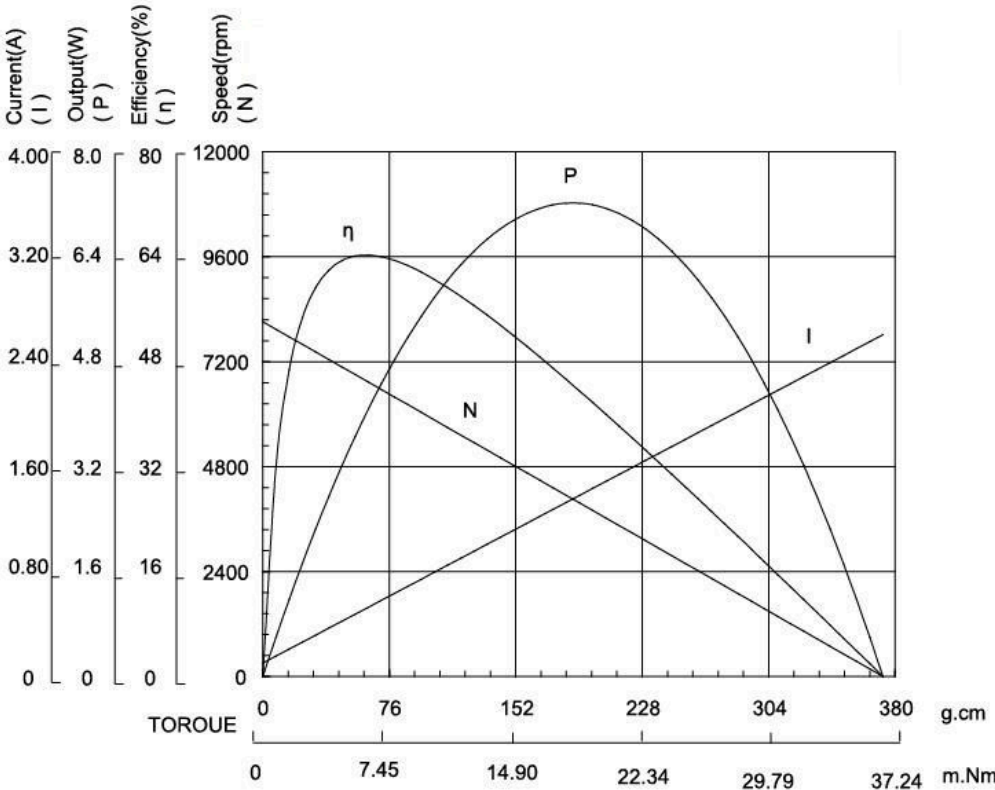
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0006-29-38	9.0~15.0	12.0	8114	0.103	6768	0.518	6.06	3.99	36.53	2.606
M012BI0005-29-38	9.0~15.0	12.0	5491	0.065	4445	0.276	4.54	1.94	23.85	1.175
M024BI0004-29-38	18.0~30.0	24.0	5276	0.033	4168	0.124	3.95	1.61	18.82	0.467
M024BI0006-29-38	18.0~30.0	24.0	6750	0.051	5525	0.230	6.30	3.34	34.69	1.038

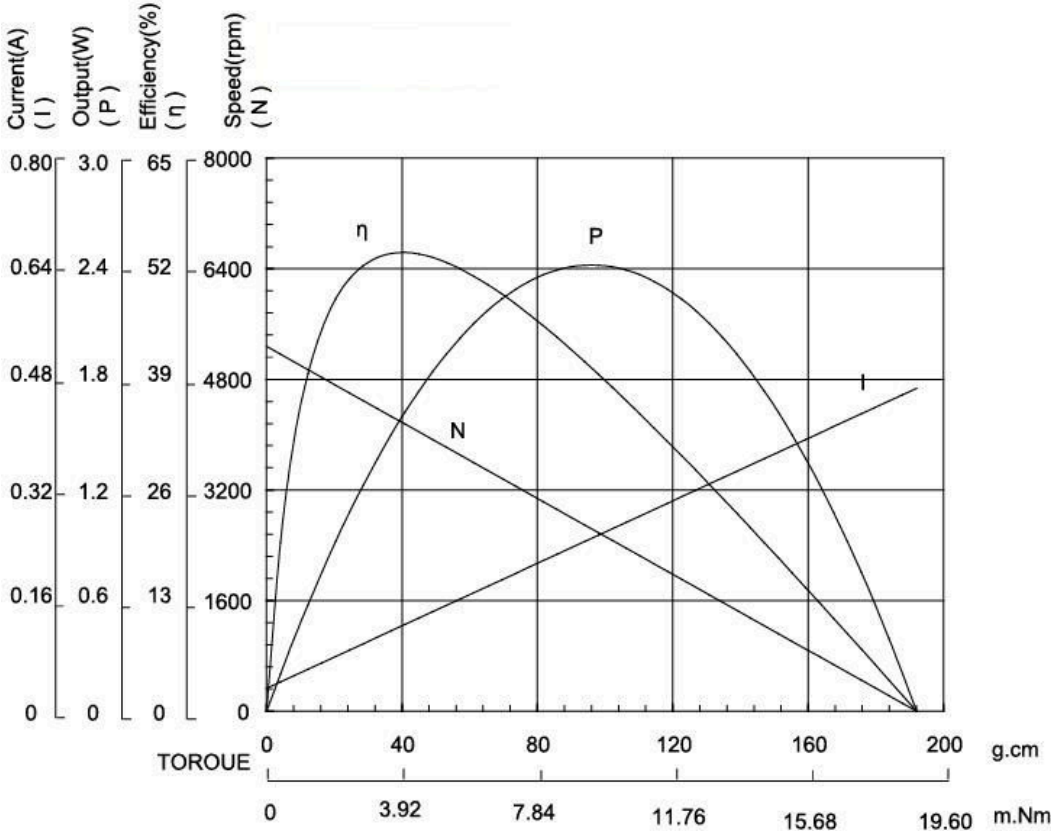
# 2938 Brush DC Motor

## Performance Curve

M012BI0006-29-38, 12.0V



M024BI0004-29-38, 24.0V





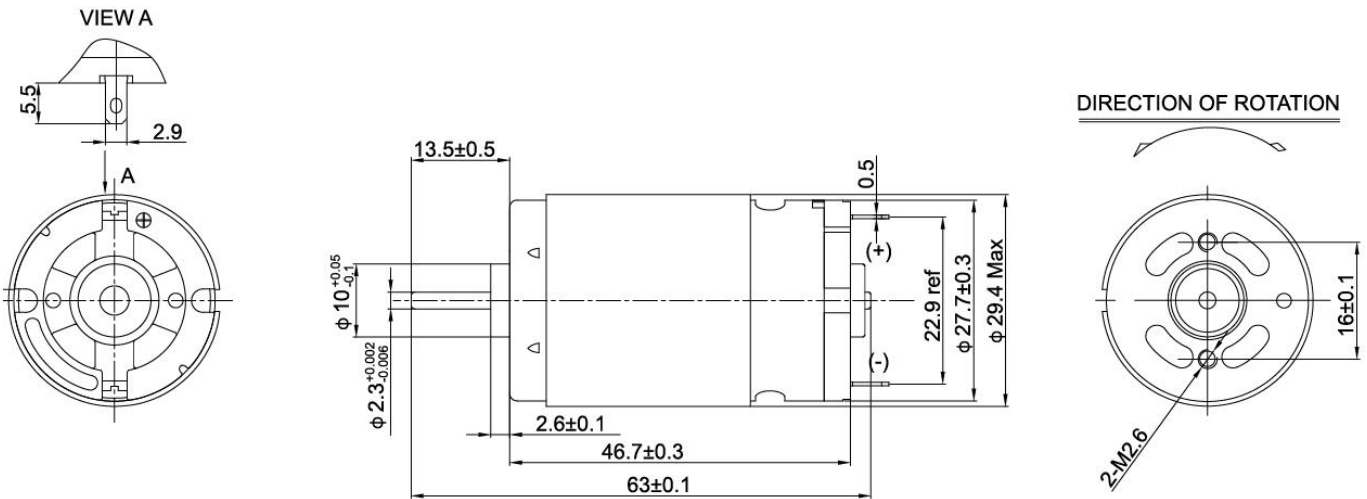
# 2947 Brush DC Motor



**Output:**  
Approx 1W~50W  
DC Motor

**Typical application:**  
Household appliances:  
Massager  
Vibrator

## Dimensions



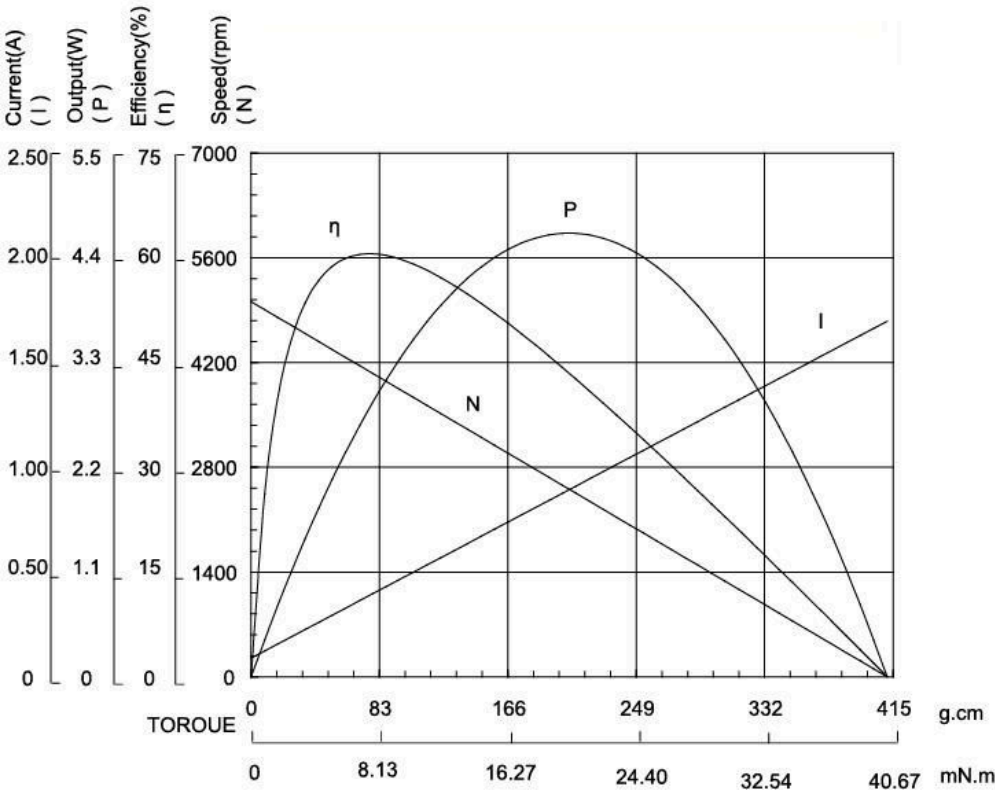
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0008-29-47	9.0~15.0	12.0	5013	0.089	4079	0.389	7.51	2.77	40.30	1.697
M012BI0007-29-47	9.0~15.0	12.0	4638	0.080	3740	0.333	6.84	2.31	35.32	1.388

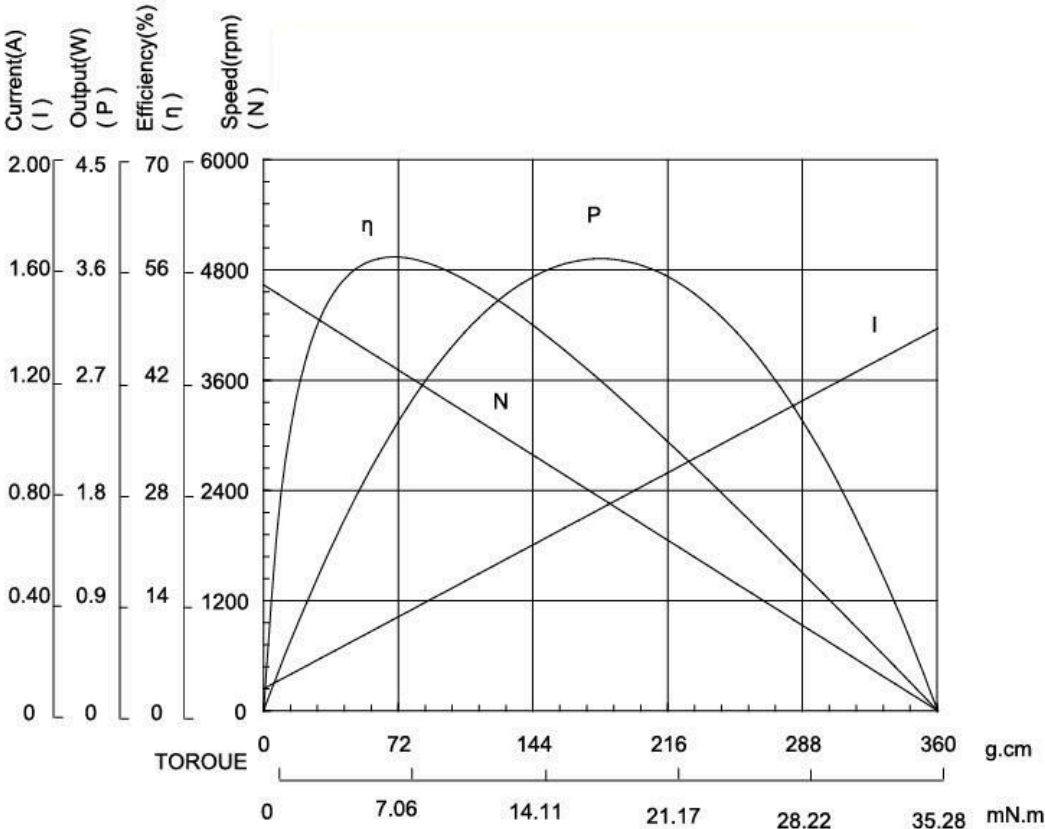
# 2947 Brush DC Motor

## Performance Curve

M012BI0008-29-47, 12.0V



M012BI0007-29-47, 12.0V





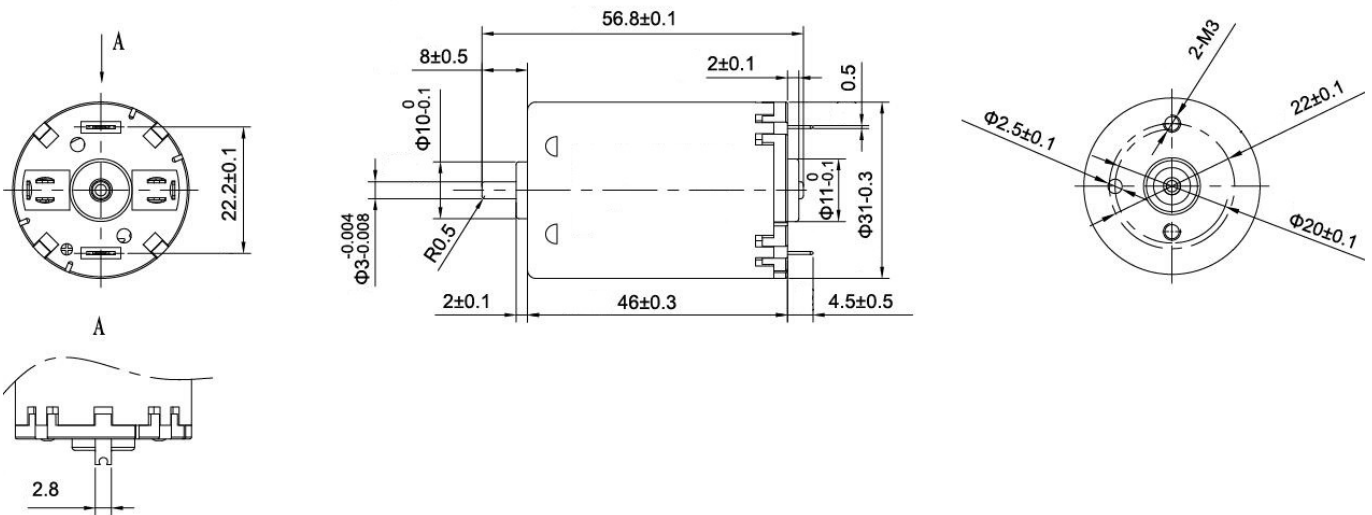
# 3146 Brush DC Motor



**Output:**  
Approx 5.6W  
DC Motor

**Typical application:**  
Swimming pool cleaner

## Dimensions



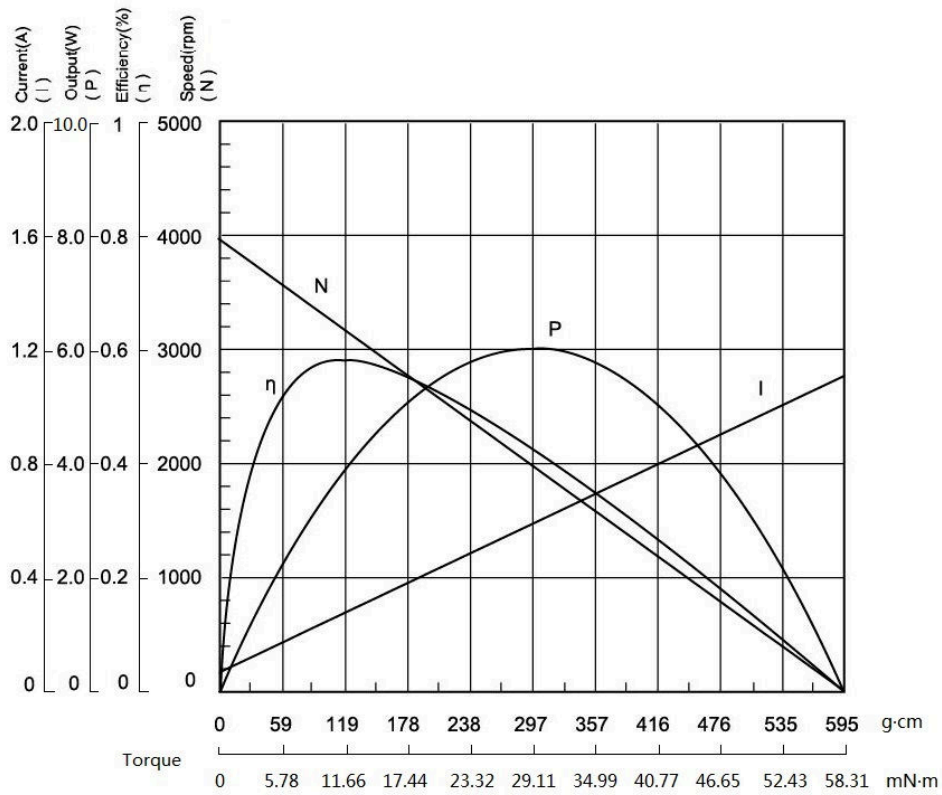
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M024BI0012-31-46	15.0~30.0	24.0	3200	0.1	2900	0.35	12	8.4	58	1.11
M014BI0008-31-46	9.0~18.0	13.5	4150	0.09	3350	0.36	8.2	4.9	40.8	1.43

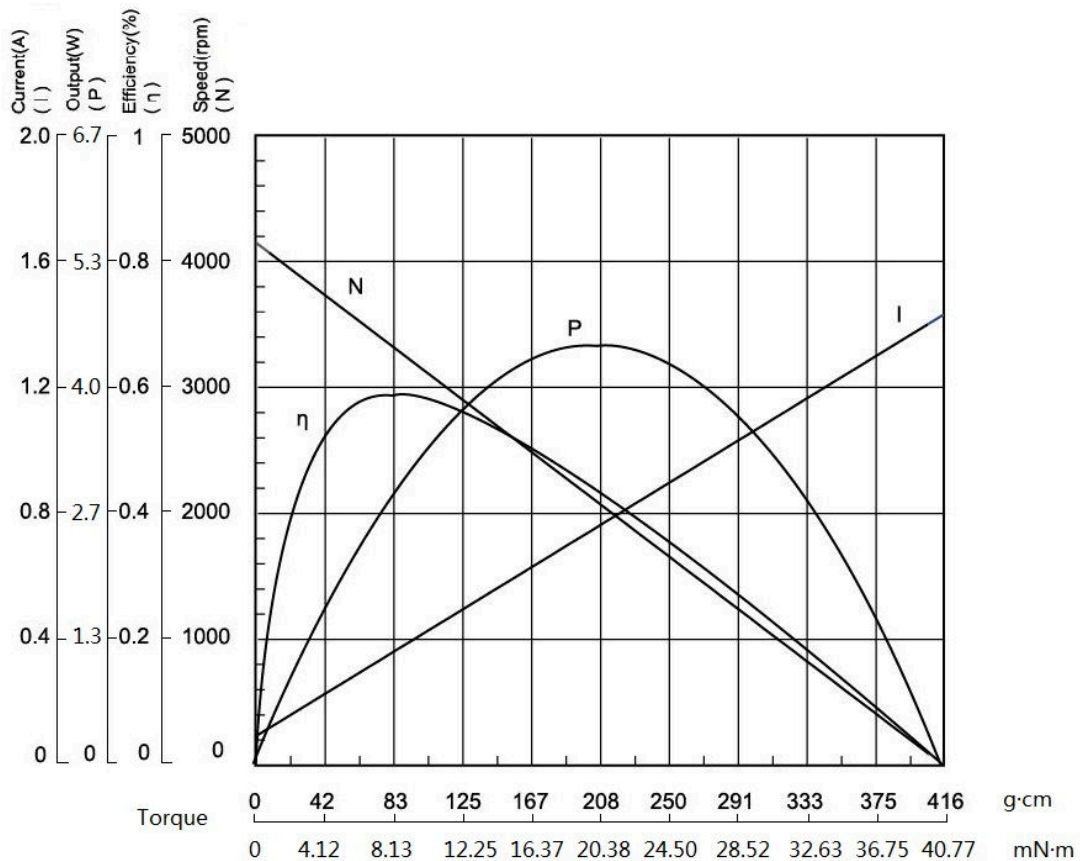
# 3146 Brush DC Motor

## Performance Curve

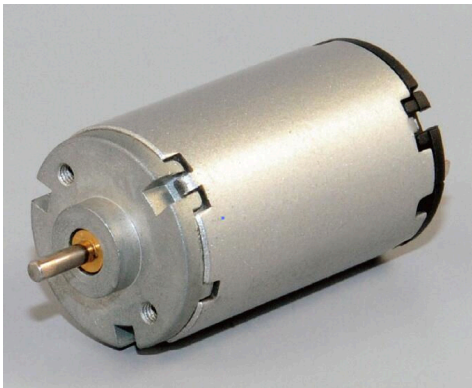
M024BI0012-31-46, 24.0V



M014BI0008-31-46, 13.5V



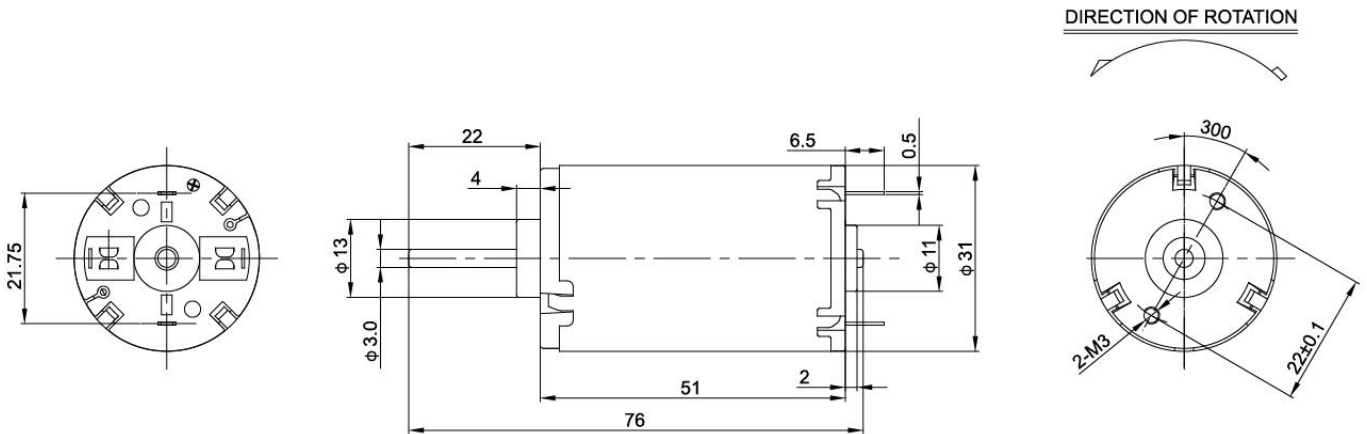
# 3151 Brush DC Motor



**Output:**  
Approx 2W~30W  
DC Motor

**Typical application:**  
Printer  
Automobile products  
Rear box of automobile

## Dimensions



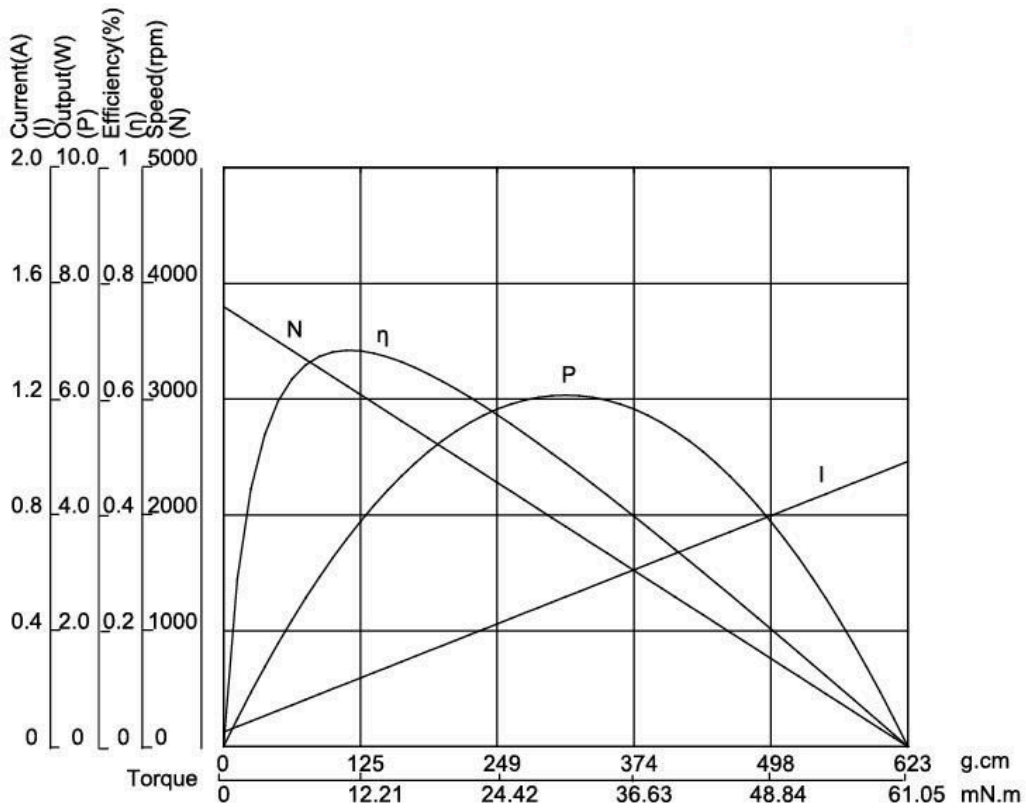
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0010-31-51	6.0~15.0	12.0	3600	0.07	3050	0.38	9.8	3.14	63.4	2.08
M024BI0011-31-51	15.0~28.0	24.0	3800	0.045	3180	0.22	10.78	3.66	66.05	1.12
M012BI0018-31-51	6.0~15.0	12.0	5950	0.14	5275	1.1	17.64	9.75	155.43	8.55

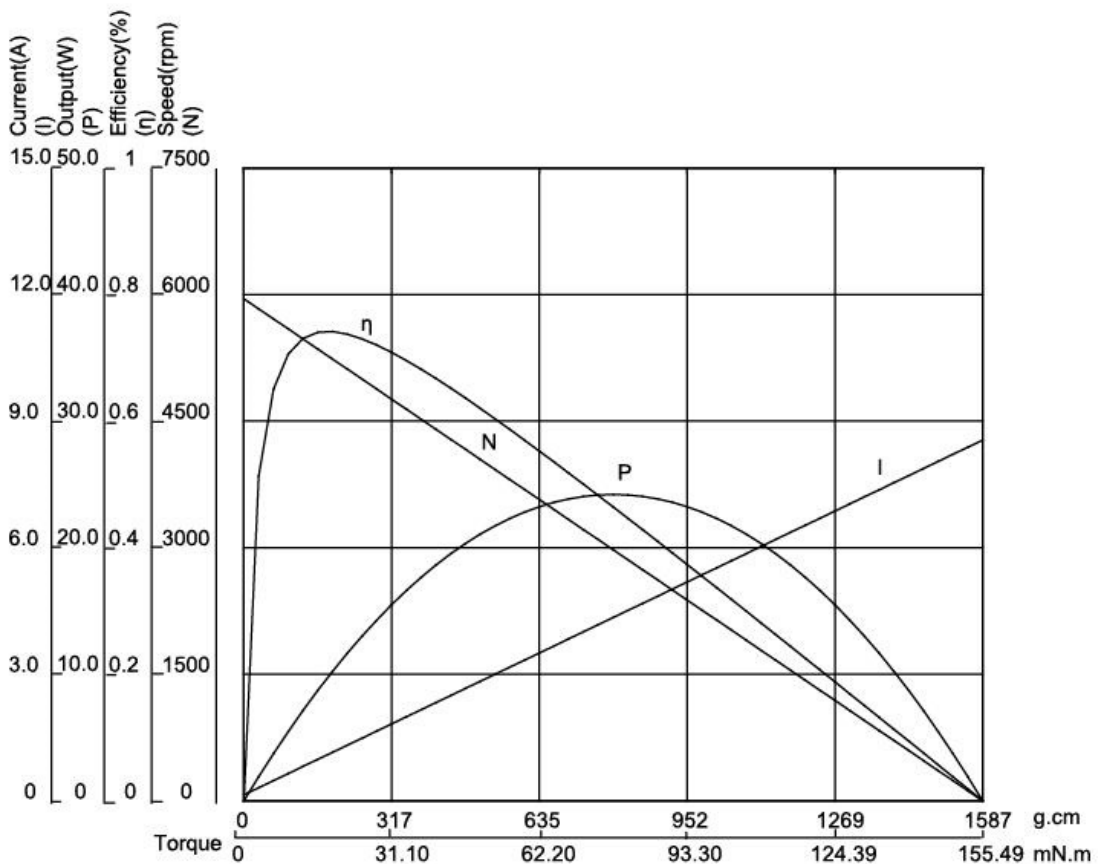
# 3151 Brush DC Motor

## Performance Curve

M024BI0011-31-51, 24.0V



M012BI0018-31-51, 12.0V



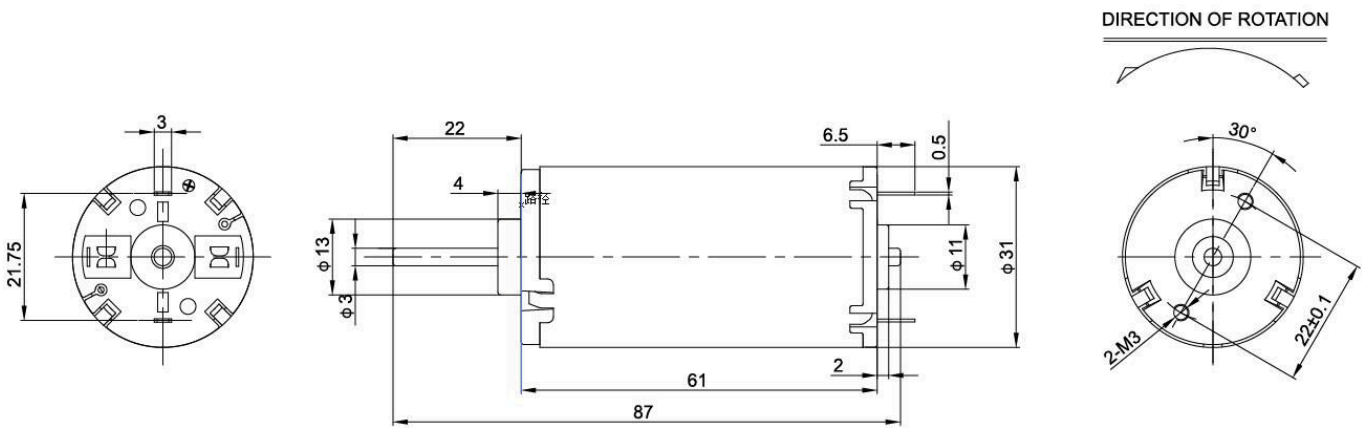
# 3161 Brush DC Motor



**Output:**  
Approx 2W~30W  
DC Motor

**Typical application:**  
Printer  
Automobile products  
Rear box of automobile

## Dimension



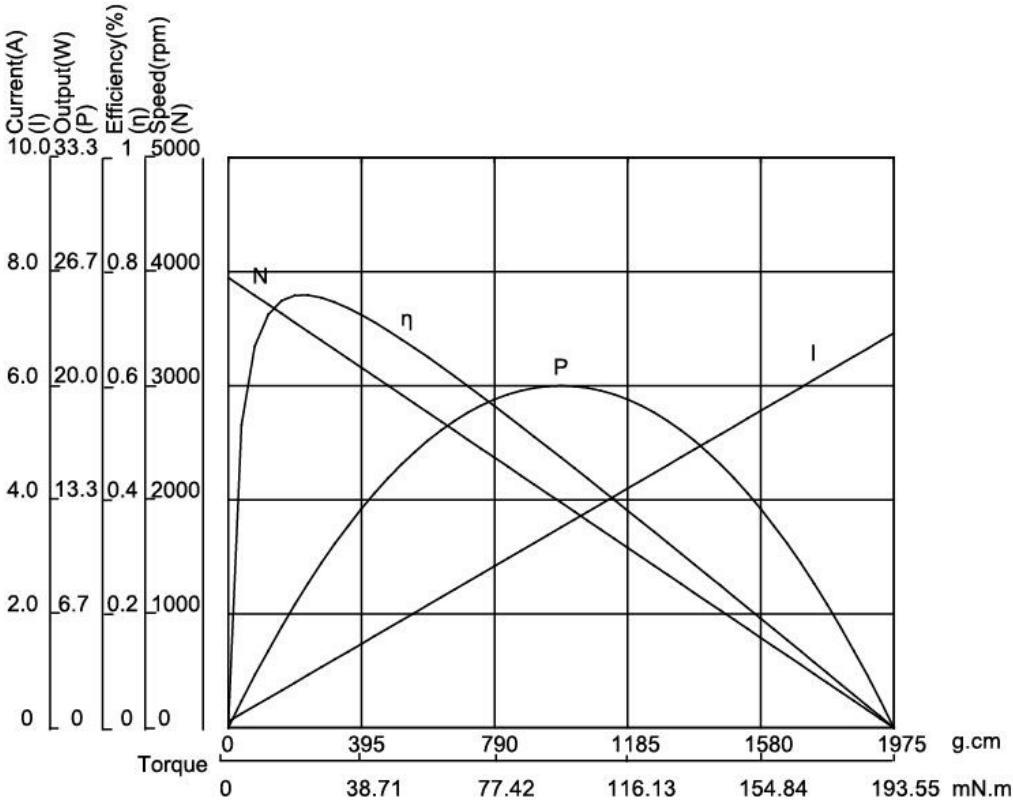
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0022-31-61	6.0~15.0	12.0	3950	0.11	3508	0.87	21.56	7.97	193.55	6.92
M009BI0025-31-61	6.0~12.0	9.0	6700	0.30	5950	2.37	25.38	15.84	226.38	18.78
M009BI0023-31-61	15.0~28.0	9.0	6700	0.06	3488	0.45	22.64	8.28	193.55	3.42
M014BI0014-31-61	6.0~15.0	13.5	4616	0.11	3907	0.62	14	8.37	90.59	3.4

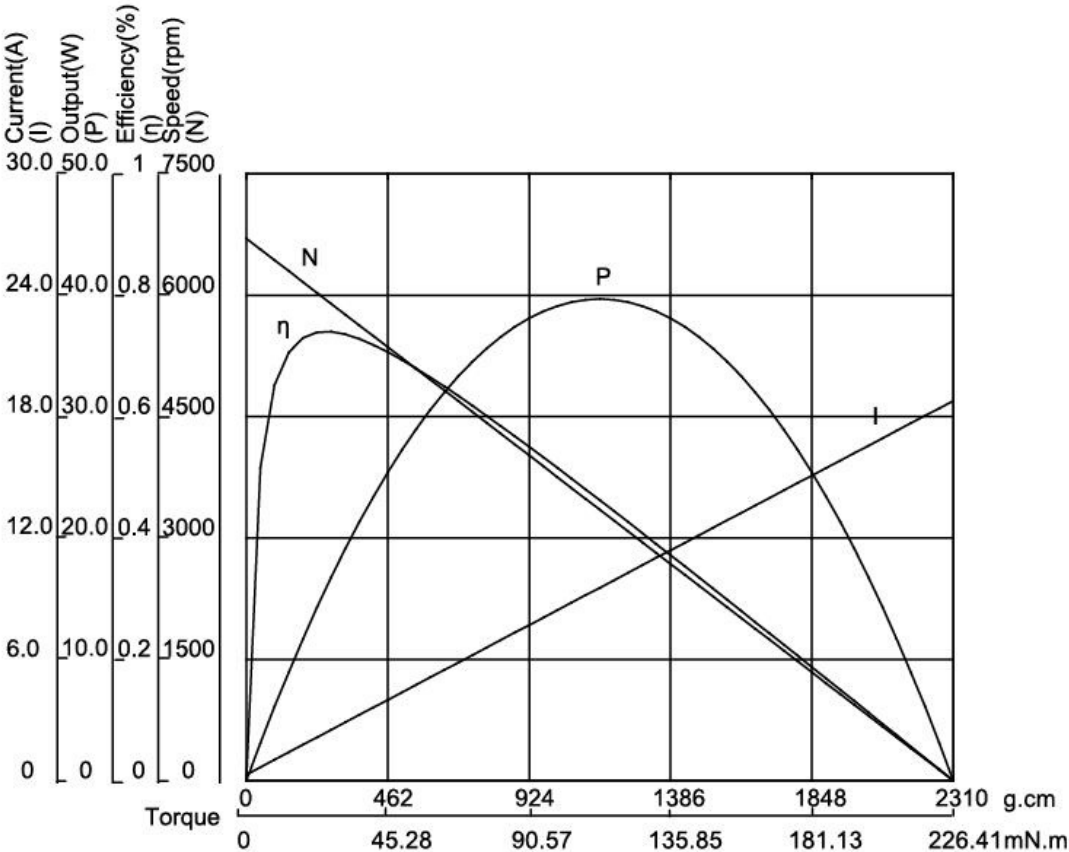
# 3161 Brush DC Motor

## Performance Curve

M012BI0022-31-61, 12.0V



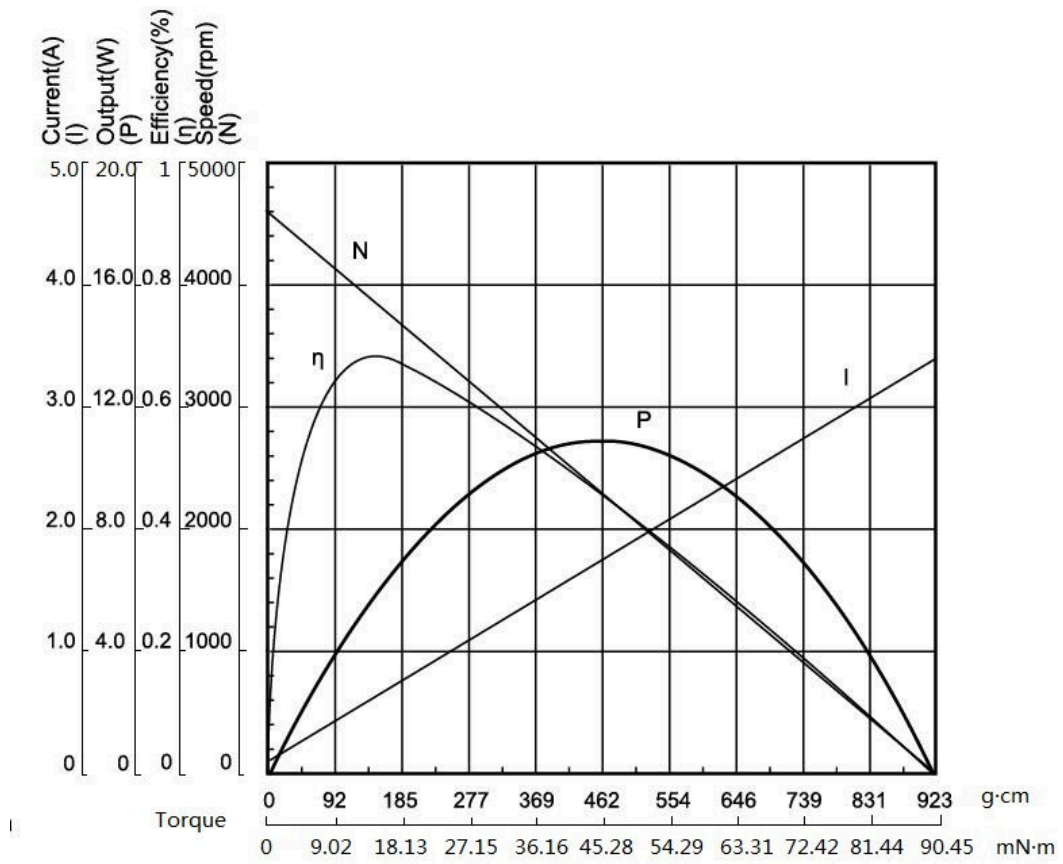
M009BI0025-31-61, 9.0V



# 3161 Brush DC Motor



M014BI0014-31-61, 13.5V





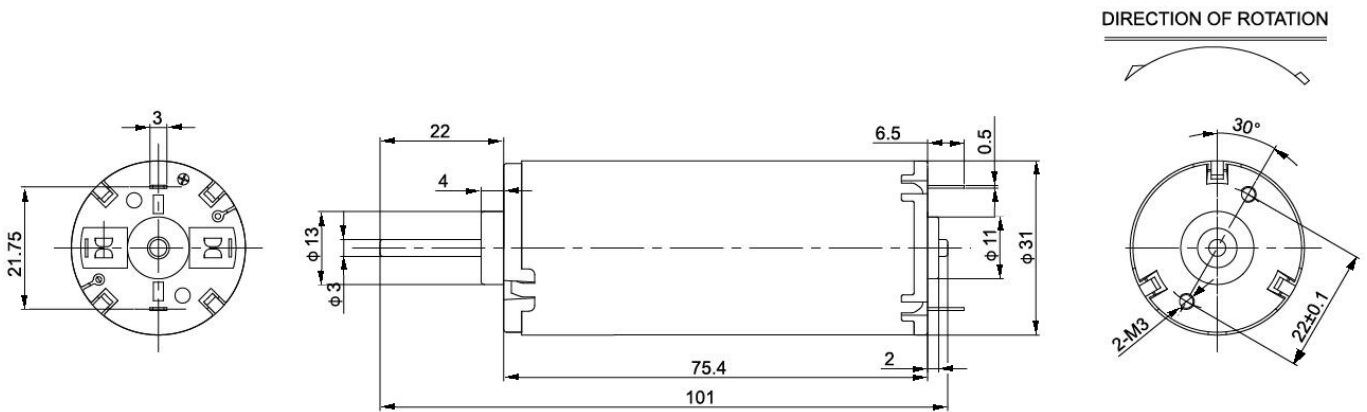
# 3175 Brush DC Motor



**Output:**  
Approx 2W~30W  
DC Motor

**Typical application:**  
Printer  
Automobile products  
Rear box of automobile

## Dimensions



## Specification

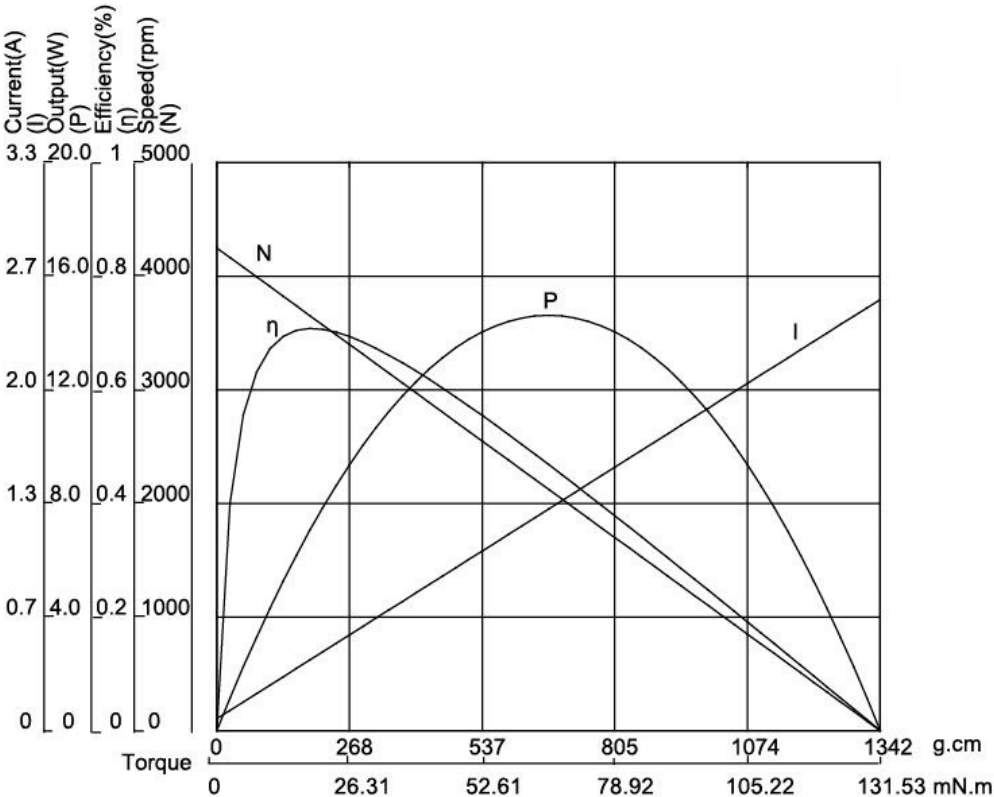
Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M024BI0019-31-75	15.0~28.0	24.0	4250	0.07	3644	0.42	18.76	7.16	131.52	2.53
M012BI0023-31-75	6.0~15.0	12.0	8630	0.21	7835	2.07	22.93	18.82	248.72	20.39
M024BI0052-31-75	15.0~28.0	24.0	8100	0.30	7090	2.11	52.08	37.71	417.77	14.79



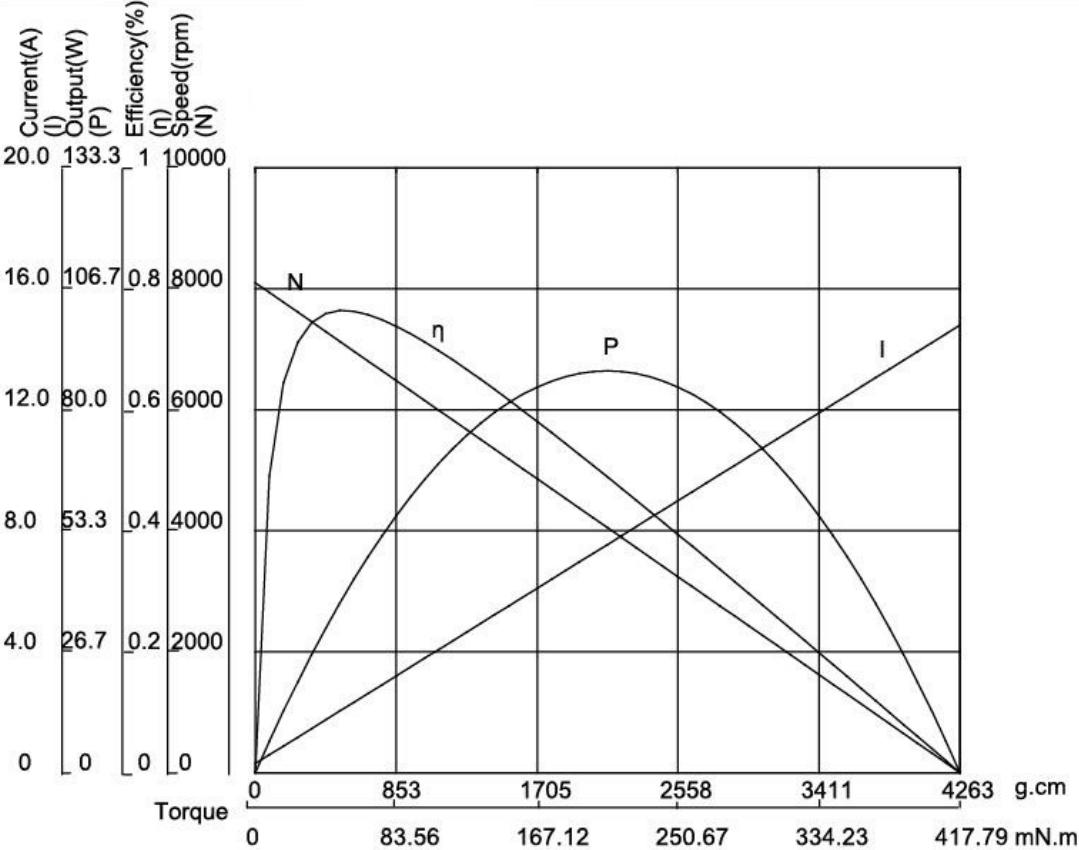
# 3175 Brush DC Motor

## Performance Curve

M024BI0019-31-75, 24.0V



M024BI0052-31-75, 24.0V



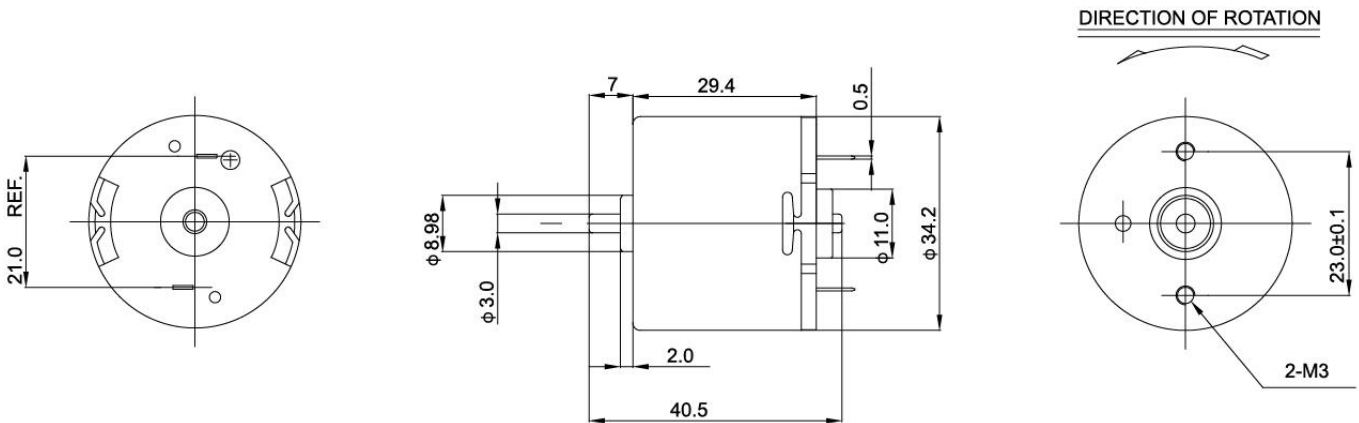
# 3429 Brush DC Motor



**Output:**  
Approx. 0.5W~10W  
DC Motor

**Typical application:**  
Industrials equipments:  
Gear head

## Dimensions



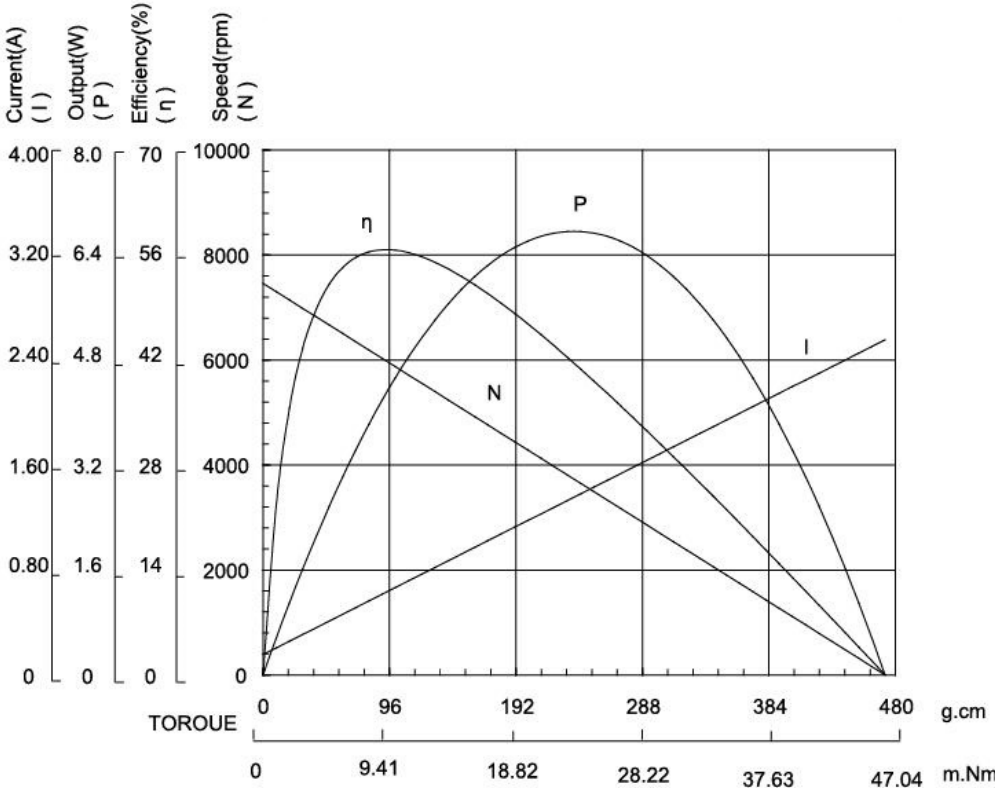
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0009-34-29	9.0~18.0	12.0	7461	0.156	5983	0.631	9.17	4.29	46.28	2.555
M012BI0008-34-29	9.0~18.0	12.0	9515	0.154	8025	0.829	8.55	6.60	54.59	4.466
M012BI0010-34-29	18.0~30.0	24.0	7550	0.075	6250	0.361	9.65	5.43	56.05	1.734
M012BI0007-34-29	18.0~30.0	24.0	4884	0.050	4031	0.236	7.48	3.52	42.81	1.116

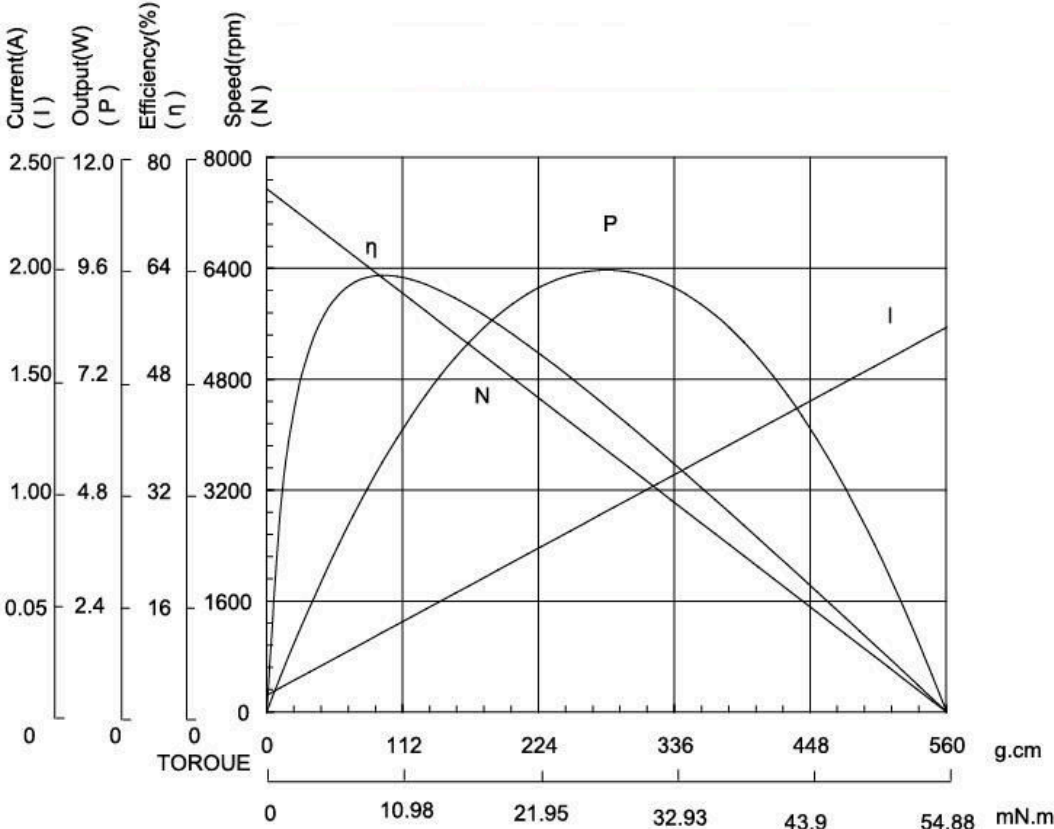
# 3429 Brush DC Motor

## Performance Curve

M012BI0009-34-29, 12.0V



M012BI0010-34-29, 24.0V



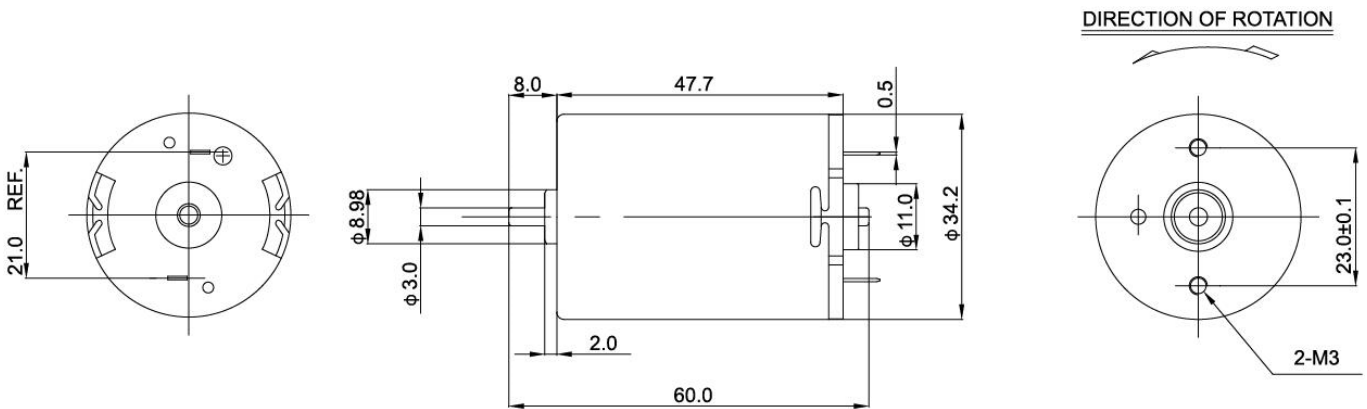
# 3448 Brush DC Motor



**Output:**  
Approx 0.5W~10W  
DC Motor

**Typical application:**  
Industrials equipments:  
Gear head

## Dimensions



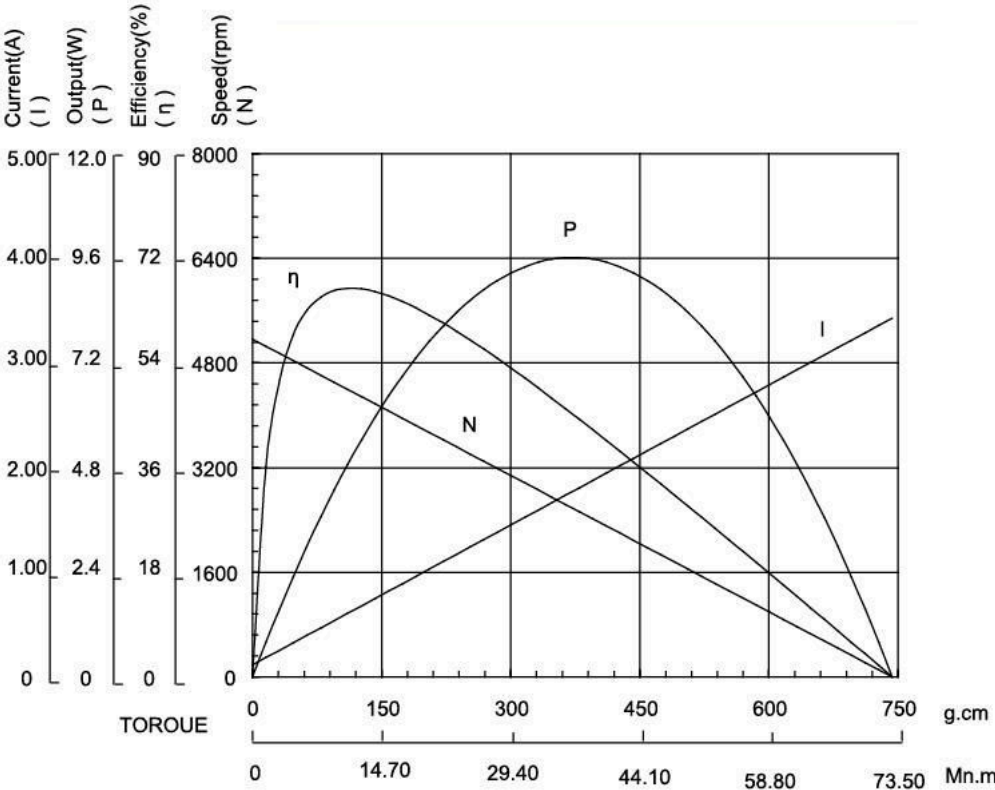
## Specification

Model	Voltage [V]		No load		At maximum efficiency				Stall	
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0011-34-48	9.0~18.0	12.0	5165	0.114	4368	0.625	11.23	5.02	72.83	3.429
M012BI0013-34-48	9.0~18.0	12.0	7273	0.165	6265	1.026	12.88	8.67	92.93	6.376
M024BI0013-34-48	12.0~28.0	24.0	5075	0.052	4344	0.309	13.26	5.13	92.10	1.838
M024BI0012-34-48	12.0~30.0	24.0	4087	0.048	3428	0.250	11.50	3.91	71.40	1.301

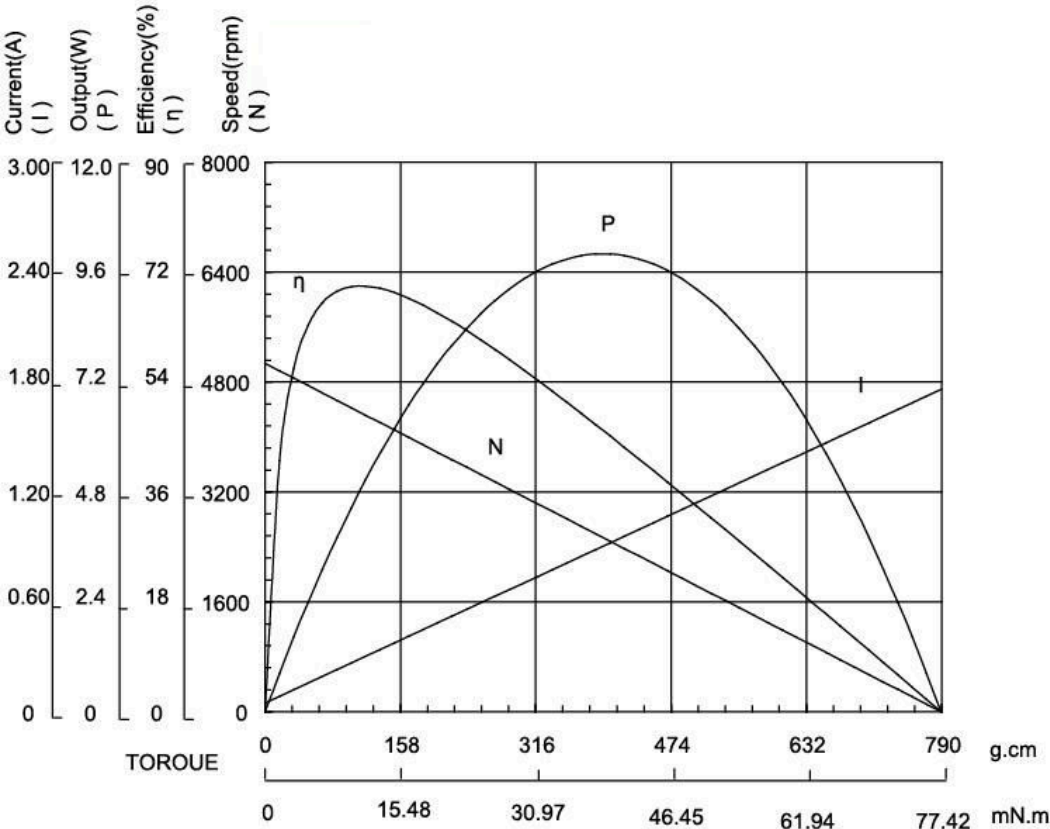
# 3448 Brush DC Motor

## Performance Curve

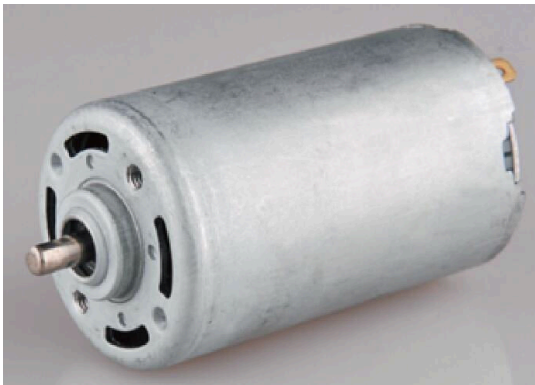
M012BI0011-34-48, 12.0V



M024BI0013-34-48, 24.0V



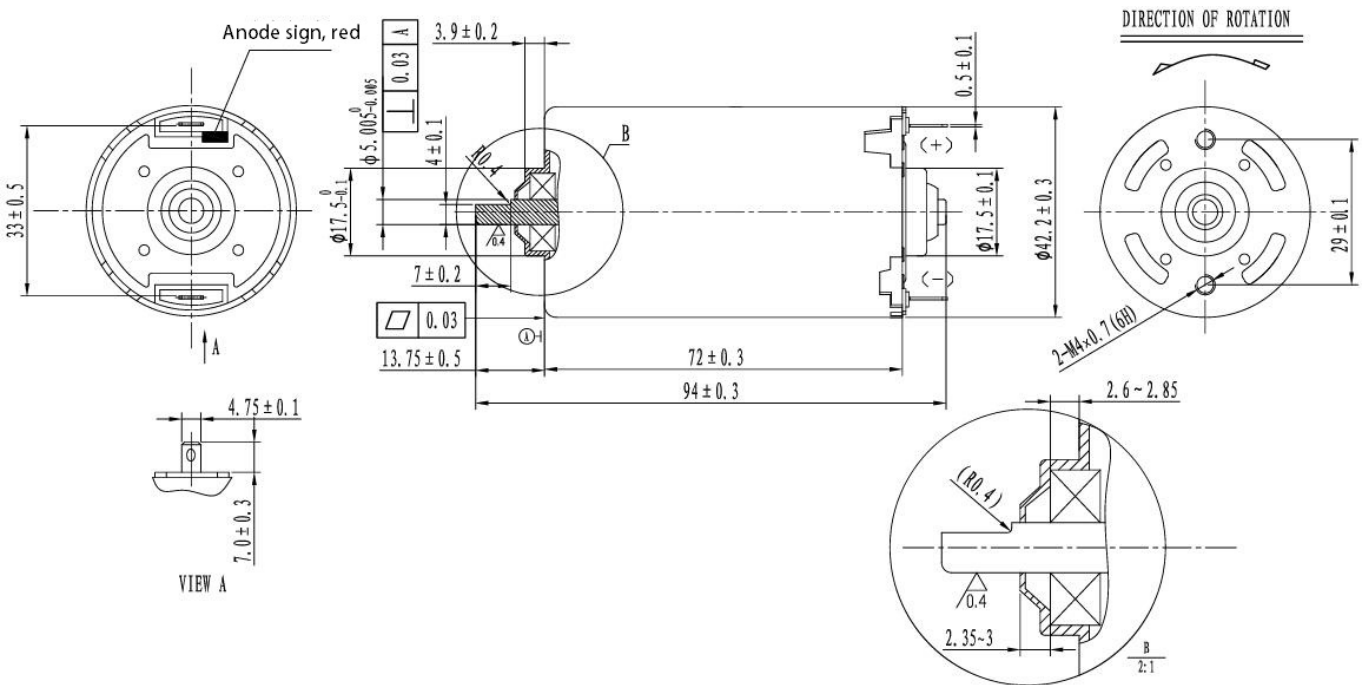
# 4272 Brush DC Motor



**Output:**  
Approx 45W~70W  
DC Motor

**Typical application:**  
Car seat

## Dimensions



## Specification

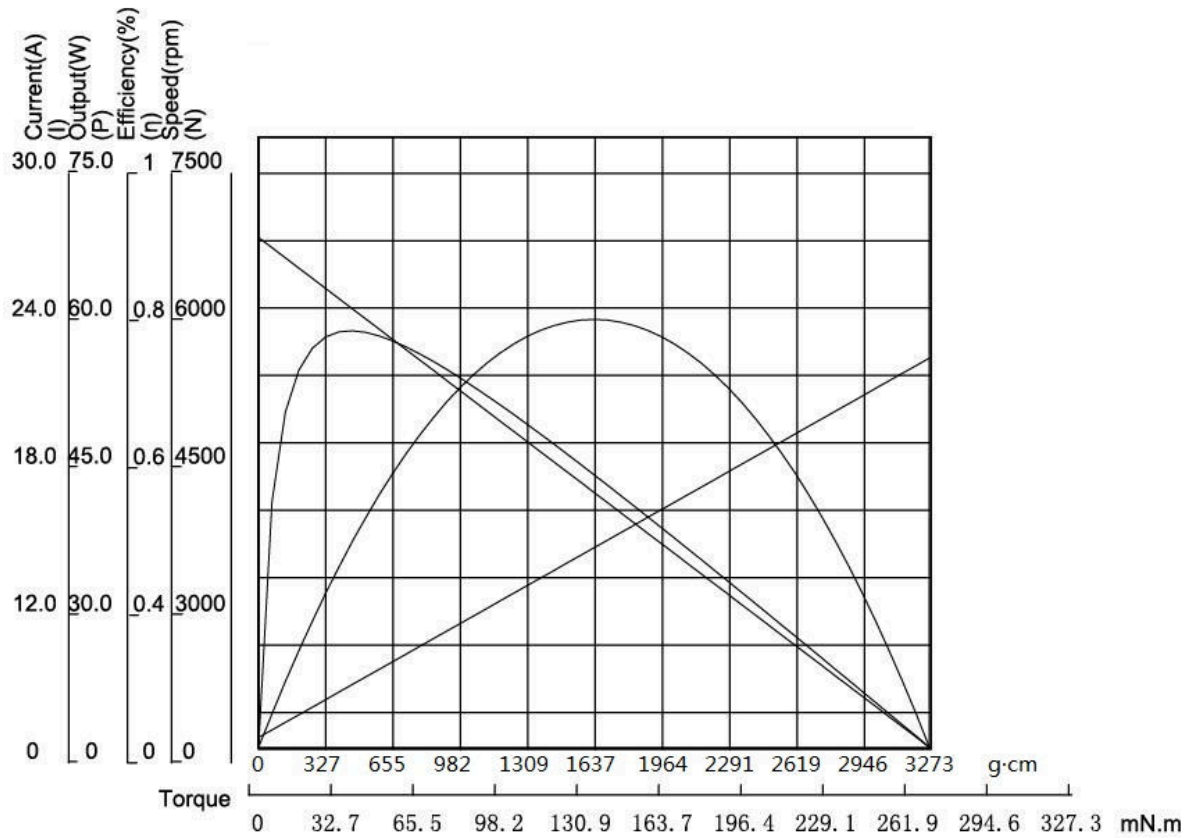
Model	Voltage [V]		No load		At maximum efficiency			Stall		
	Operating range	Nominal	Speed [rpm]	Current [A]	Speed [rpm]	Current [A]	Torque [mNm]	Output [W]	Torque [mNm]	Current [A]
M012BI0045-42-72	9.0~15.0	12.0	6265	0.48	5400	3.03	44.8	25	327.5	19.5
M024BI0052-42-72	15.0~28.0	24.0	6050	0.22	5360	1.7	51.6	28	451	13.5



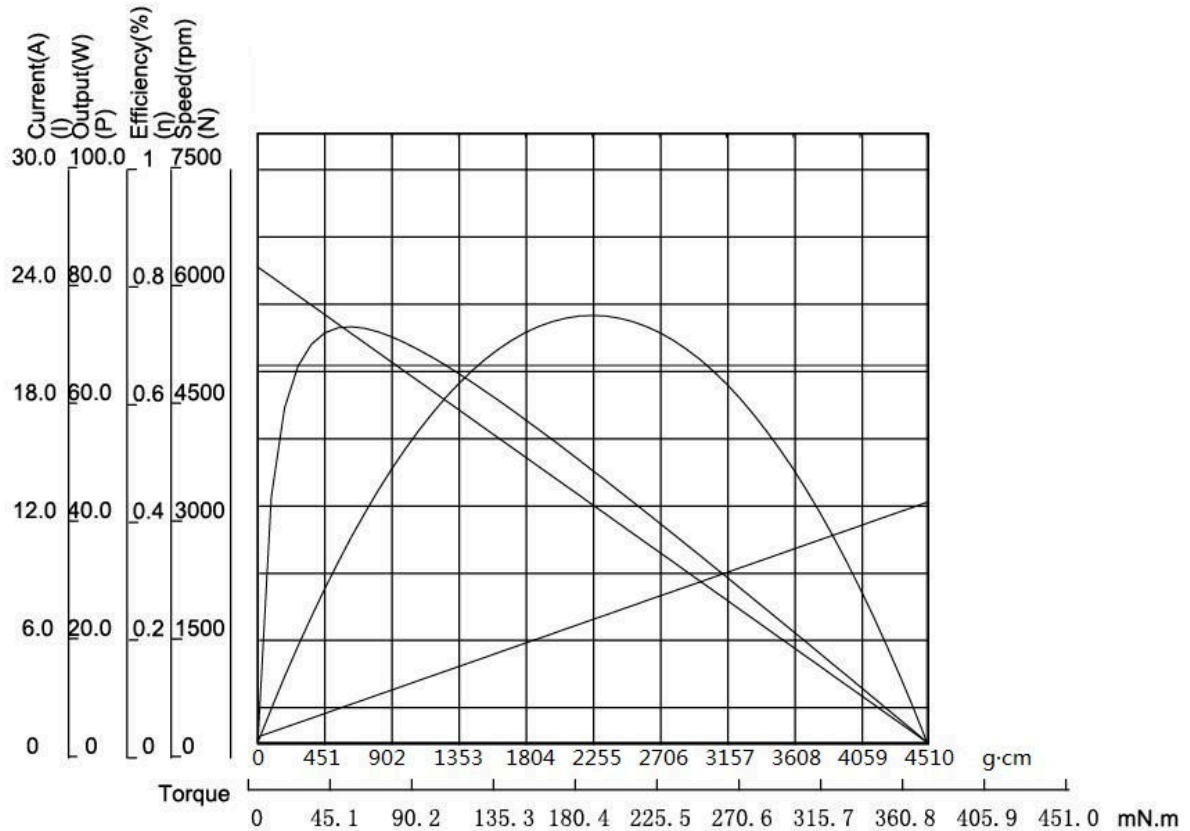
# 4272 Brush DC Motor

## Performance Curve

M012BI0045-42-72, 12.0V



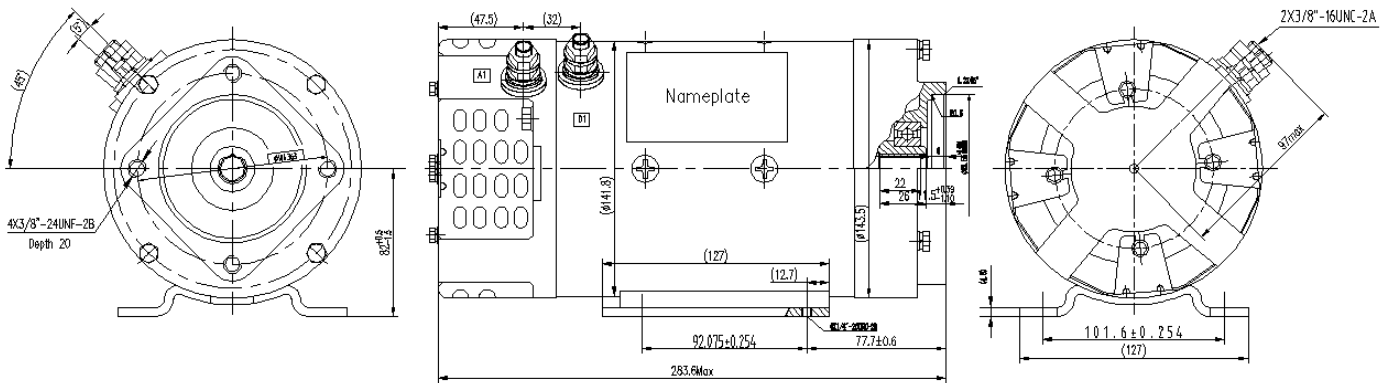
M024BI0052-42-72, 24.0V



# M024DI0680-143-284 Brush DC Motor



Basic Data	
Type	M024DI0680-143-284
Rated Voltage	24 VDC
Rated Current	180 A
Rated Power	3.3 kW
Rated Speed	2950 rpm
Duty	60 min.
Excitation Mode	Series
Protection Grade	IP20
Insulation Class	H



## Configuration

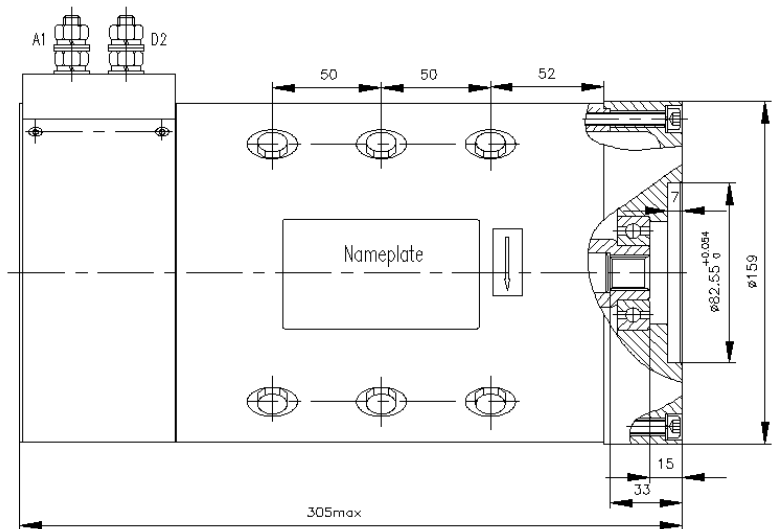
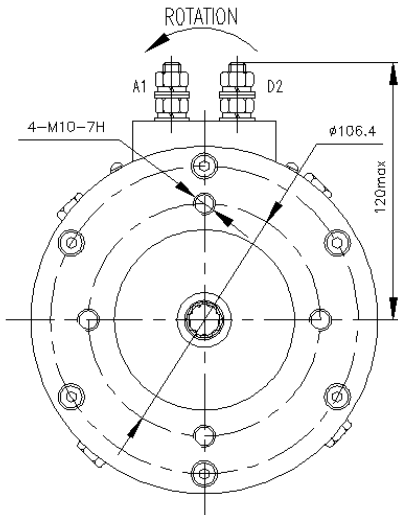
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length



# M048DI21800-159-305 Brush DC motor



Basic Data	
Type	M048DI21800-159-305
Rated Voltage	48 VDC
Rated Current	105 A
Rated Power	4 kW
Rated Speed	1750 rpm
Duty	15 min.
Excitation Mode	Series
Protection Grade	IP20
Insulation Class	H



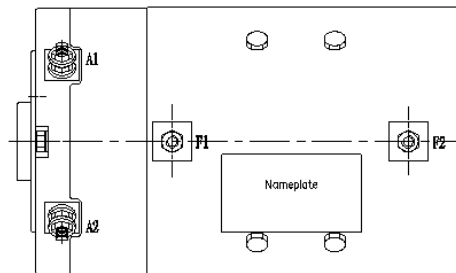
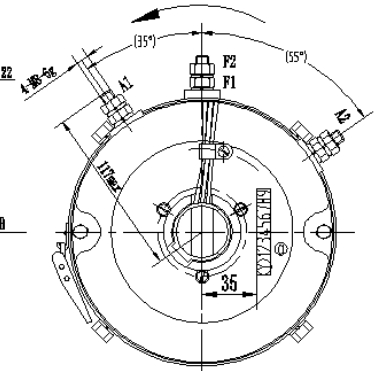
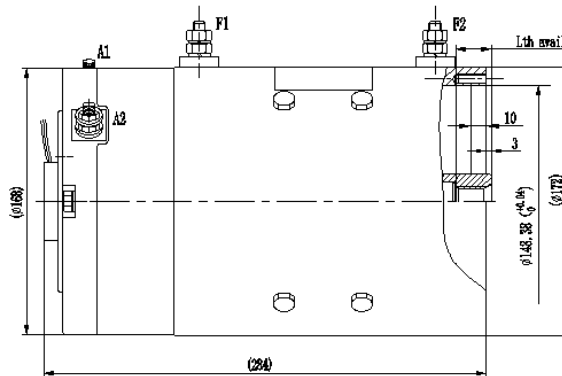
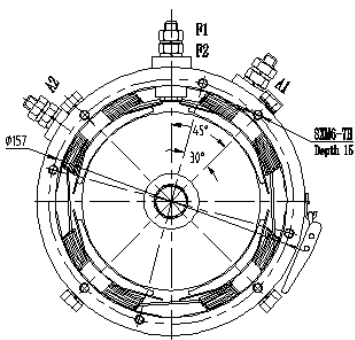
## Configuration

- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

# M048DI12730-172-284 Brush DC motor



Basic Data	
Type	M048DI12730-172-284
Rated Voltage	48 VDC
Rated Current	96 A/8.5 A
Rated Power	4 kW
Rated Speed	3000 rpm
Duty	60 min.
Excitation Mode	Seperated
Protection Grade	IP44
Insulation Class	H



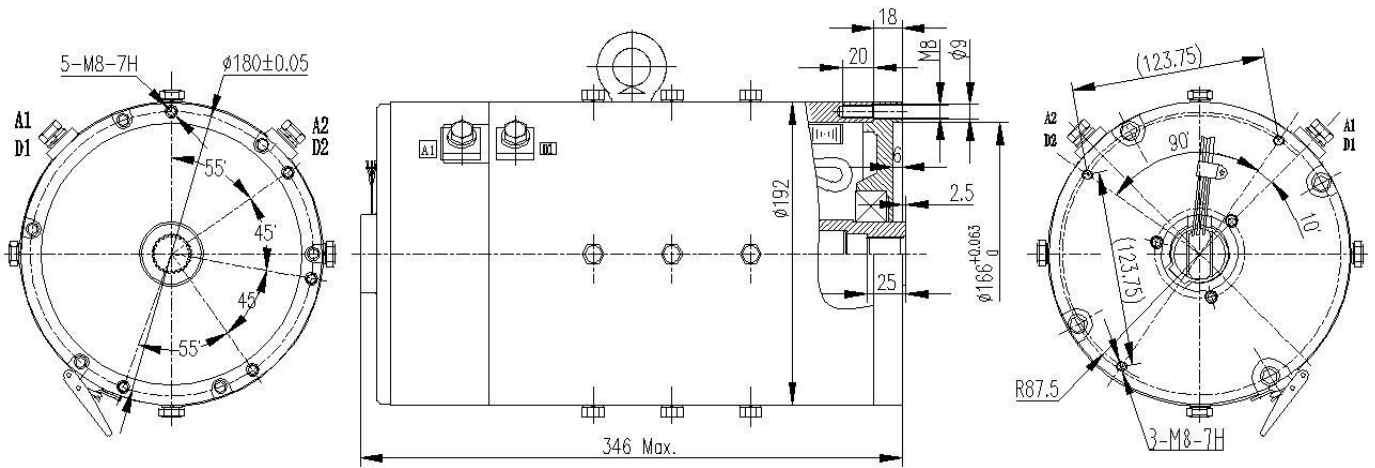
## Configuration

- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

# M072XI0170-192-346 Brush DC Motor



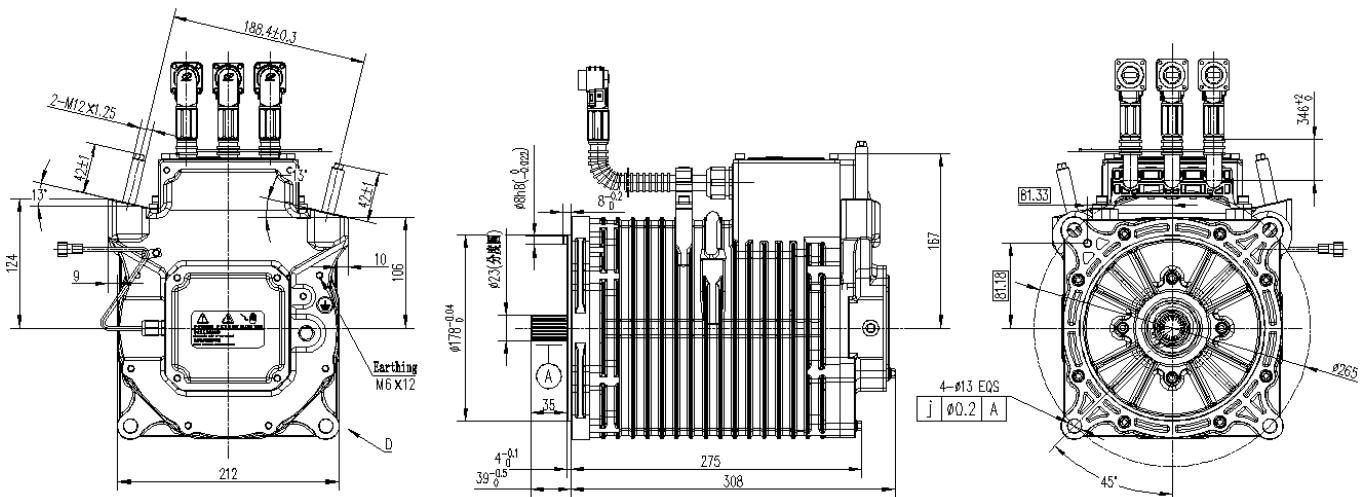
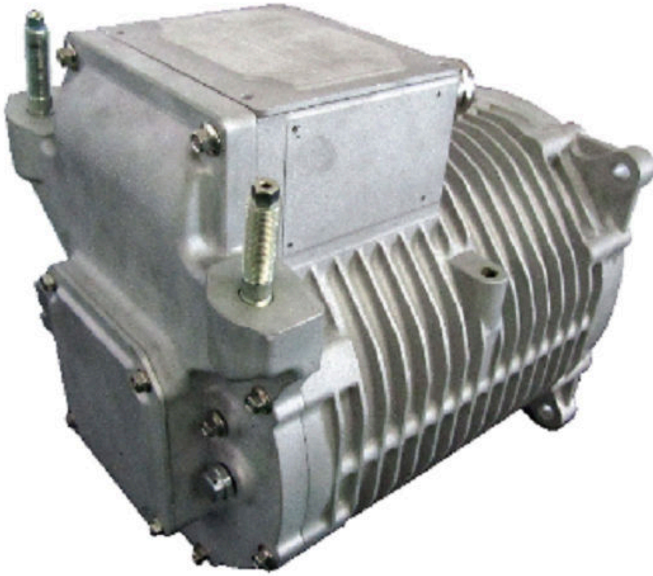
Basic Data	
Type	M072XI0170-192-346
Rated Voltage	72 VDC
Rated Current	86 A
Rated Power	5.0 kW
Rated Speed	2800 rpm
Duty	60 min.
Excitation Mode	Series
Protection Grade	IP20
Insulation Class	H



## Configuration

- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

# M144XI0470-212-275 DC Motor



## Specification

Voltage	Power	Torque	Speed	Duty	IP Grade	Insulation Class
144 VDC	15 kW	47 Nm	3000 rpm	S9	IP67	H

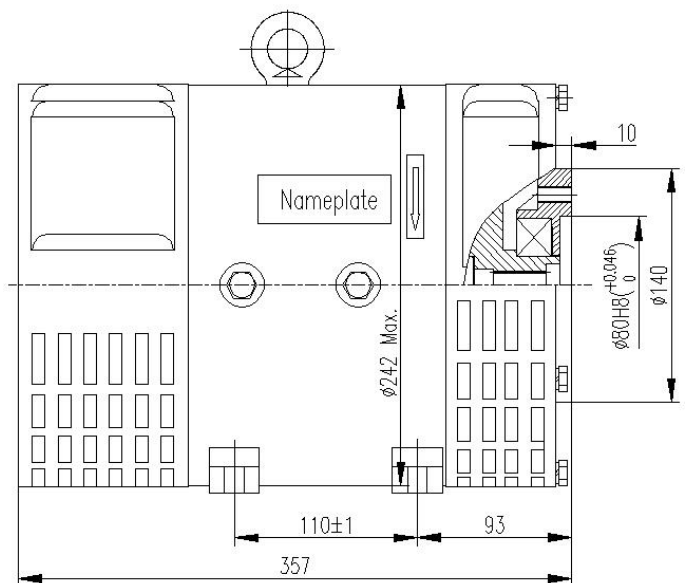
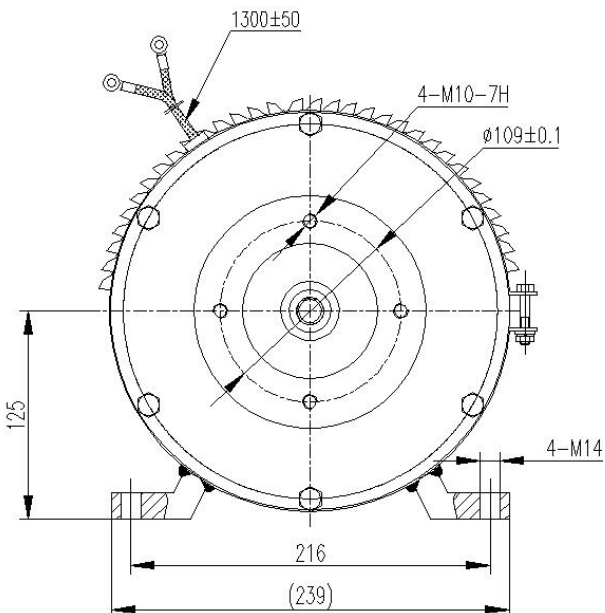
## Configuration

- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

# M045XI0600-242-357 Brush DC Motor



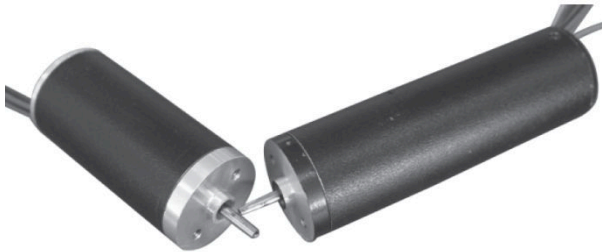
Basic Data	
Type	M045XI0600-242-357
Rated Voltage	45 VDC
Rated Current	275 A
Rated Power	10 kW
Rated Speed	1600 rpm
Duty	15 min.
Excitation Mode	Series
Protection Grade	IP20
Insulation Class	H



## Configuration

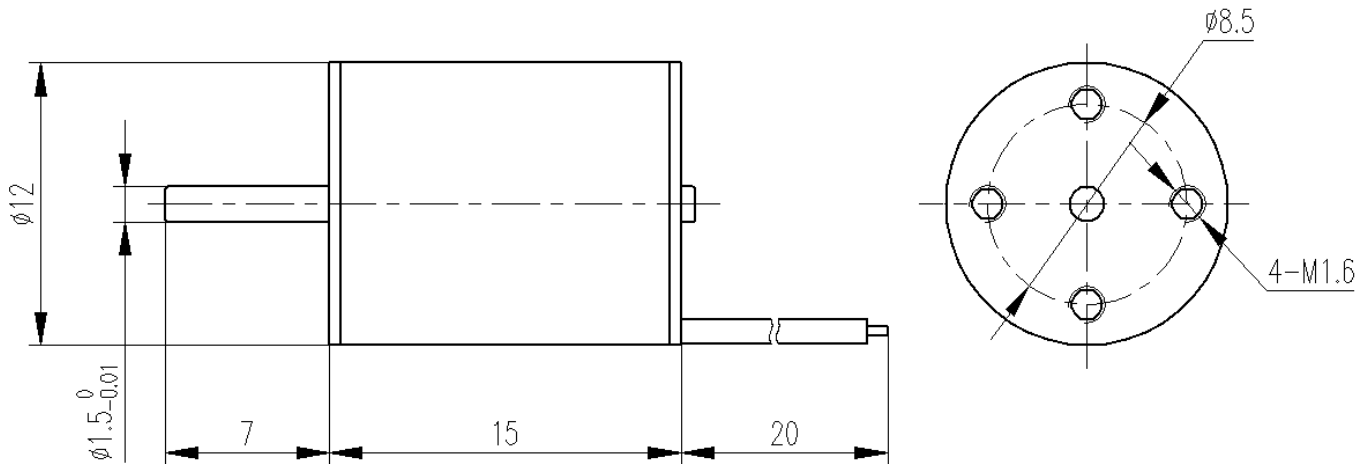
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

# 12mm R Series BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	360VAC for one second
Shaft Radial Play	max. 0.008 (450g-load)
Shaft Axial Play	max. 0.012 (450g-load)
Max. radial force	6.3N (3mm from the flange)
Max. axial force	1N

## Dimensions



## 12mm R Series BLDC Motor

### Specification

Type	M004BI0001-12-15	M005BI0001-12-15	M007BI0001-12-15
Number of Poles	2	2	2
Number of Phases	3	3	3
Nominal Voltage (VDC)	3.6	4.5	7.4
No-load Speed (RPM)	35000	14500	42500
No-load Current (A)	0.3	0.1	0.2
Rated Speed (RPM)	28200	4400	38000
Rated Current (A)	1.1	0.5	0.4
Rated Torque (mN·m)	0.7	1.0	0.3
Max. Output Power (W)	4.3	0.8	4.6
Max. Efficiency (%)	58	44	54
Resistance (ohms)	0.67	5.2	2.6
Torque Constant (mN·m/A)	0.93	2.62	1.55
Back EMF (V/KRPM)	0.10	0.27	0.16
Rotor Inertia (g·cm <sup>2</sup> )	0.14	0.14	0.14
Body Length (mm)	15	15	15
Weight (kg)	0.007	0.007	0.007

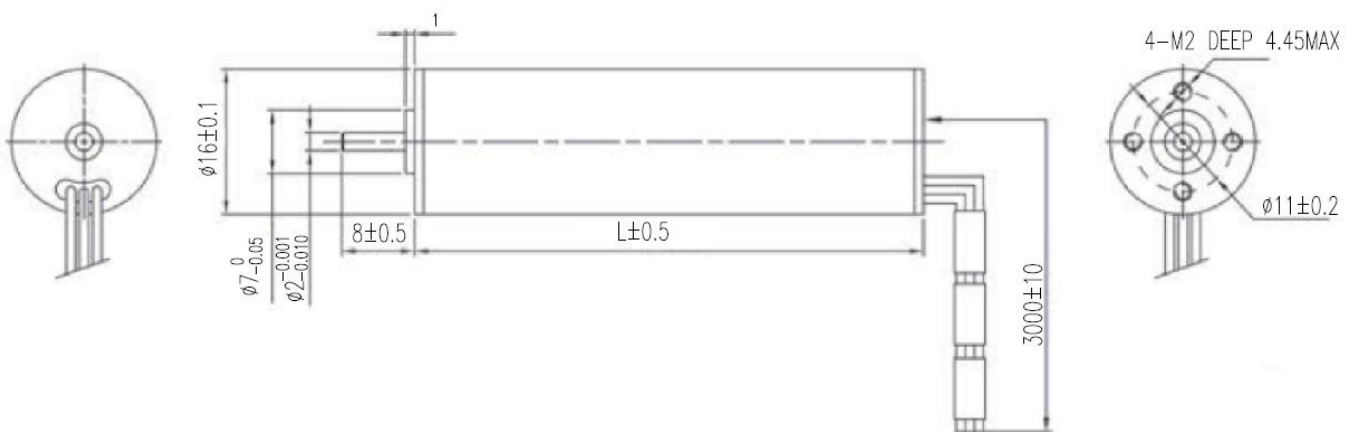


# 16mm R Series BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	360VAC for one second
Shaft Radial Play	max. 0.025 (3N-load)
Shaft Axial Play	max. 0.3 (10N-load)
Max. radial force	15N
Max. axial force	5N

## Dimensions

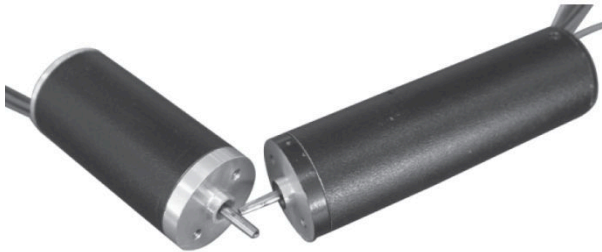


## Specification

## 16mm R Series BLDC Motor

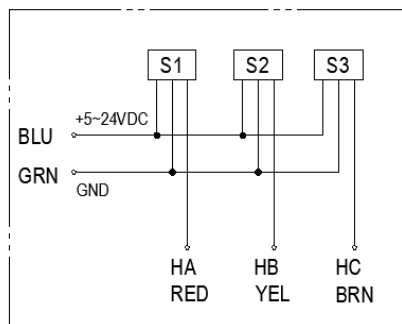
Type	M012BI0016-16-28	M024BI0040-16-40	M024BI0090-16-56
Number of Poles	2	2	2
Number of Phases	3	3	3
Nominal Voltage (VDC)	12	24	24
No-load Speed (RPM)	27300	30800	30800
Rated Speed (RPM)	22000	25000	25000
Rated Torque (mN·m)	1.6	4	9
Rated Power (W)	3.7	10	24
Peak Torque (mN·m)	4.8	12	27
Peak Current (A)	1.2	1.7	3.7
Resistance (ohms)	5.4	6.6	3.15
Inductance (mH)	0.17	0.21	0.15
Torque Constant (mN·m/A)	4.18	7.42	7.42
Back EMF (V/KRPM)	0.31	0.55	0.55
Rotor Inertia (g·cm <sup>2</sup> )	0.4	0.66	1.02
Body Length (mm) L	28	40	56
Weight (kg)	0.029	0.042	0.064

## 22mm R Series BLDC Motor

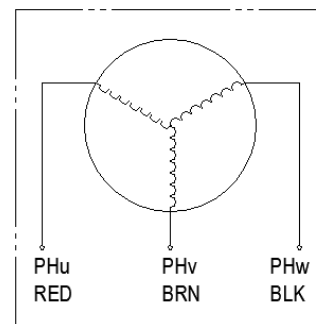


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	360VAC for one second
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	10N (10mm from the flange)
Max. axial force	2N

### Wiring Diagram

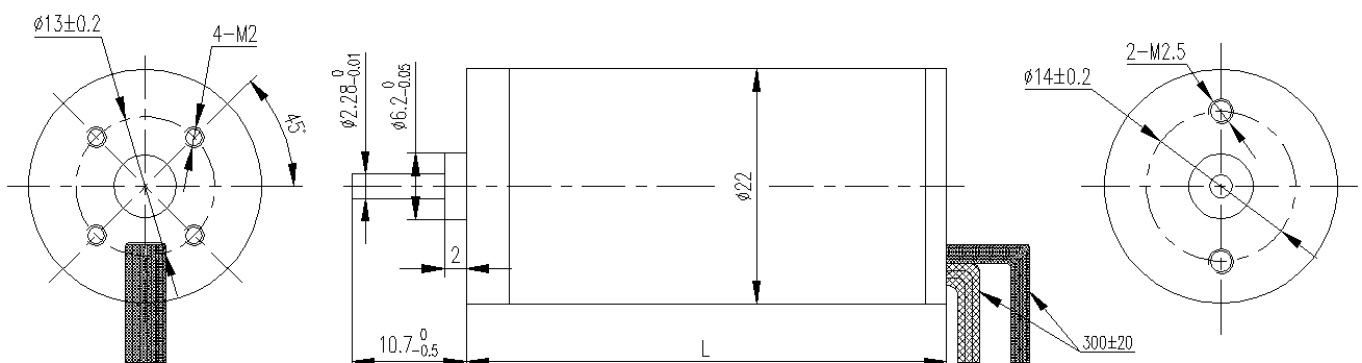


Hall sensor cable  
Note: hall sensor power supply voltage +5~24VDC



Motor wiring cable

### Dimensions



## 22mm R Series BLDC Motor



### Specification

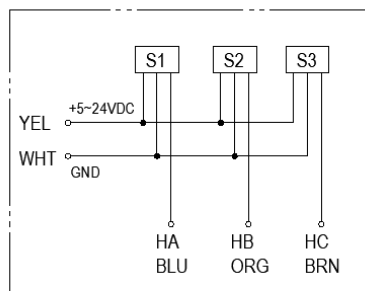
Type	M024BI0008-22R-45	M024BI0020-22R-68
Number of Poles	8	8
Number of Phases	3	3
Nominal Voltage (VDC)	24	24
Rated Speed (RPM)	4600	3800
Continuous Stall Torque (mN·m)	9.6	24
Rated Torque (mN·m)	8.0	20
Output Power (W)	3.8	8
Peak Torque (mN·m)	24	60
Peak Current (A)	1.1	2
Resistance (ohms)	23	11.6
Inductance (mH)	6.2	4.3
Torque Constant (mN·m/A)	29.7	35.8
Back EMF (V/KRPM)	2.2	2.65
Rotor Inertia (g·cm <sup>2</sup> )	0.66	1.32
Body Length (mm)	45	68
Weight (kg)	0.07	0.12

## 28mm R Series BLDC Motor

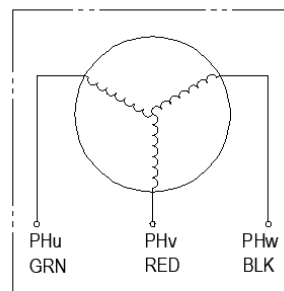


Item	General Specifications
Winding type	Star
Hall Effect Angle	120°Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	360VAC for one second
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	10N (10mm from the flange)
Max. axial force	2N

### Wiring Diagram

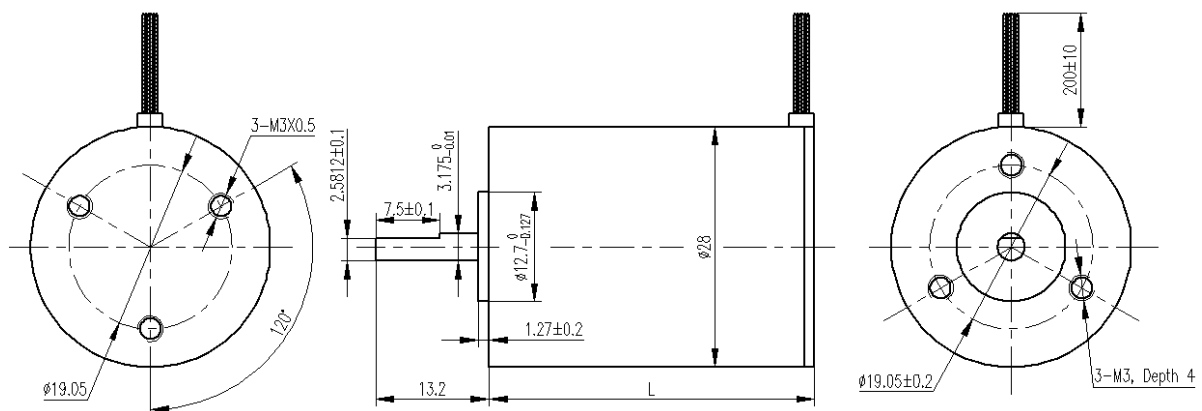


Hall sensor cable  
Note: hall sensor power supply voltage +5-24VDC



Motor wiring cable

### Dimensions



## 28mm R Series BLDC Motor

### Specification

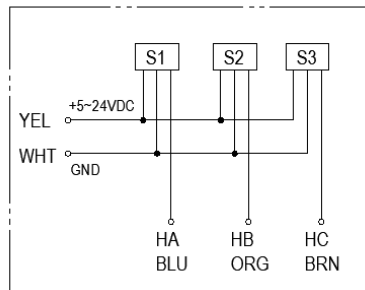
Type	M015BI0005-28- 26	M024BI0014-28- 38	M024BI0050-28-77
Number of Poles	4	4	4
Number of Phases	3	3	3
Nominal Voltage (VDC)	15	24	24
Rated Speed (RPM)	8000	10000	4000
Continuous Stall Torque (mN·m)	6	17	60
Rated Torque (mN·m)	5	14	50
Output Power (W)	4	14.78	16
Peak Torque (mN·m)	15	42	150
Peak Current (A)	1.3	2.7	4.2
Resistance (ohms)	8.2	4.2	4.2
Inductance (mH)	2.3	1.69	2.3
Torque Constant (mN·m/A)	14.3	16.9	37.4
Back EMF (V/KRPM)	1.06	1.25	2.77
Rotor Inertia (g·cm <sup>2</sup> )	2.35	3.69	10.98
Body Length (mm)	26	38	77
Weight (kg)	0.060	0.082	0.280

# 33mm R Series BLDC Motor

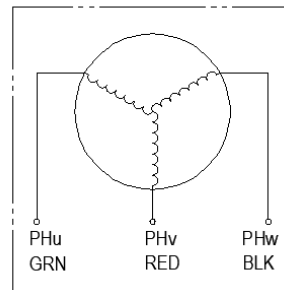


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	600VAC for one second
Shaft Radial Play	max. 0.025
Shaft Axial Play	max. 0.08
Max. radial force	10N (10mm from the flange)
Max. axial force	2N

## Wiring Diagram

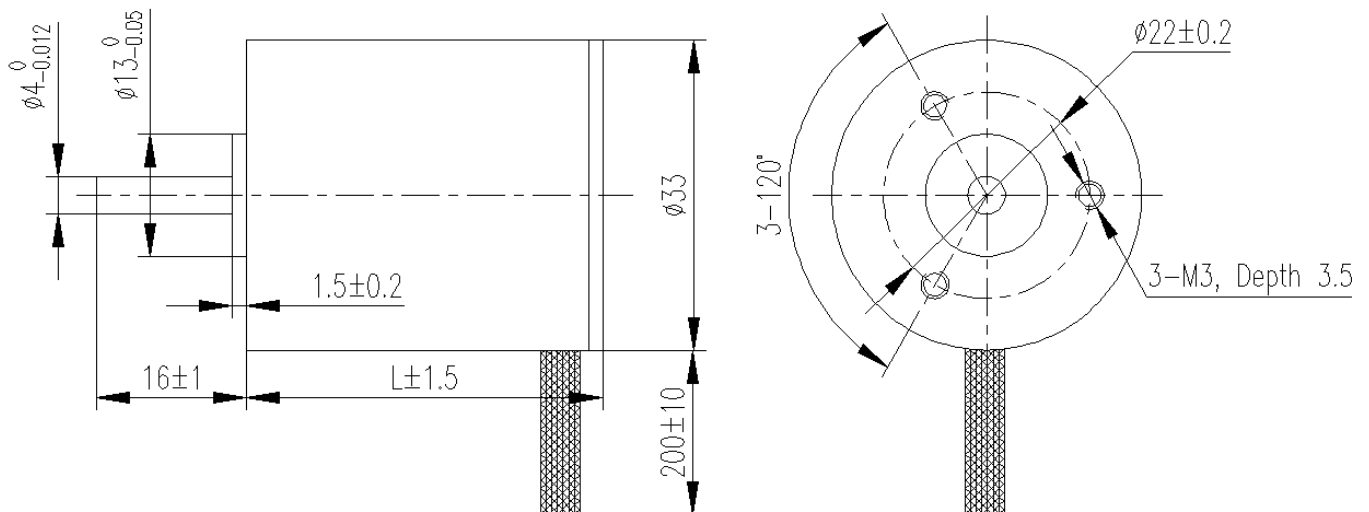


Hall sensor cable  
Note: hall sensor power supply voltage +5-24VDC



Motor wiring cable

## Dimensions





## 33mm R Series BLDC Motor

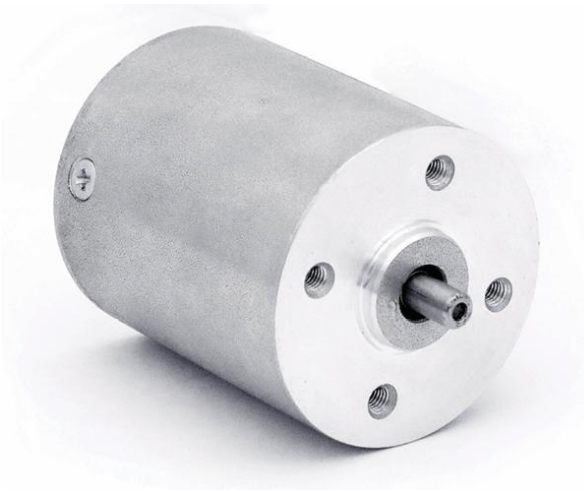


### Specification

Type	M024BI0022-33-38	M048BI0040-33-80	M024BI0050-33-80
Number of Poles	4	4	4
Number of Phases	3	3	3
Nominal Voltage (VDC)	24	48	24
Rated Speed (RPM)	3000	10000	7800
Continuous Stall Torque (mN · m)	26	48	60
Rated Torque (mN · m)	22	40	50
Output Power (W)	7	40	40
Peak Torque (mN · m)	66	120	120
Peak Current (A)	1.7	3.2	4.8
Resistance (ohms)	14.2	2.3	0.86
Inductance (mH)	7	1.45	0.55
Torque Constant (mN · m/A)	46.3	41.8	27
Back EMF (V/KRPM)	3.43	3.1	2.0
Rotor Inertia (g · cm <sup>2</sup> )	7.95	23.55	23.55
Body Length (mm)	38	80	80
Weight (kg)	0.085	0.2	0.2

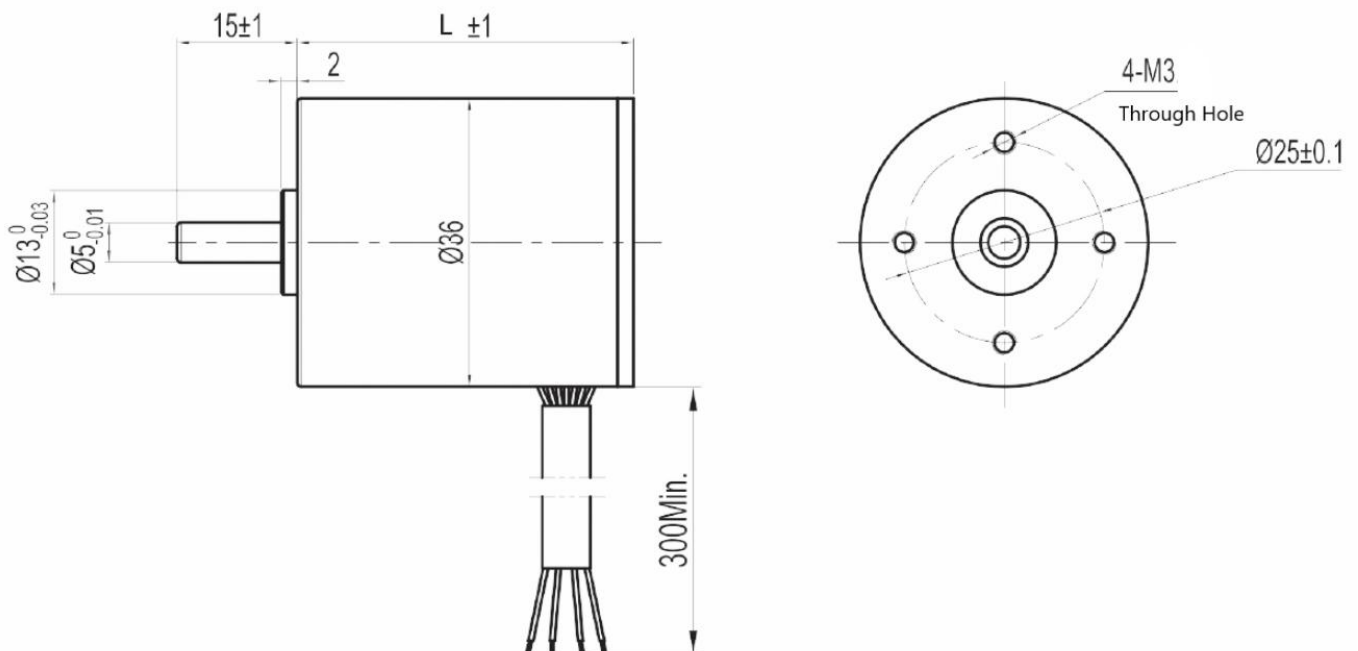
## 36mm R Series BLDC Motor

### General Specifications



Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation Class	B
Ambient Temperature	-20° C~+50° C
Insulation Resistance	100MΩ Min.500VC DC
Dielectric Strength	600VAC 1minute
Max Radial Force	15N(10mm from front flange)
Max Axial Force	10N

### Dimensions



## 36mm R Series BLDC Motor



### Technical Specifications

Item	M024BI0030-36-42
Number of Poles	4
Nominal Voltage (VDC)	24
Rated Torque (N·m)	0.03
Rated Speed (RPM)	3000
Rated Current (A)	2.0
Output Power (W)	9.4
Peak torque (N·m)	0.09
Peak current (A)	6
Torque Constant (N·m/A)	0.015
Back EMF (V/KRPM)	1.6
Body Length-L (mm)	42
Weight (kg)	0.16



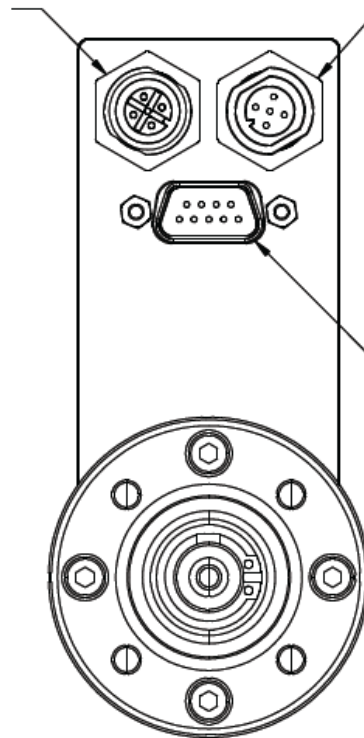
## 40 mm D Series BLDC Motor

Busstecker CAN  
Rundsteckverbinder M12x1  
5 polig Buchse

*Bus connector CAN  
5 pin female M12x1*

Busstecker CAN  
Rundsteckverbinder M12x1  
5 polig Stift

*Bus connector CAN  
5 pin male M12x1*



Versorgung  
I/O Schnittstelle  
D-Sub 9 polig Stift

*Power  
I/O interface connector  
9 pin male D-Sub*

### Pin Assignment

Power supply	Bus Interface(X1,X2)
1. Reference Input	1. Shield
2. STO-A (Safety stop 1)	2. -
3. POS-L (jog input, limit switch)	3. CAN-GND
4. POS-R (jog input, limit switch)	4. CAN-H
5. STO-B (Safety stop 2)*	5. CAN-L
6. Ground (GND)	
7. U-Bat (AME)*	
8. +24V Logic	
9. +24V DC-Link	

## 40 mm D Series BLDC Motor

### Specification

Type	M048BI0402-40D-60
Number of Poles	4
Commutation	Sinus(FOC)/Sinusoidal(FOC)
Voltage Logic (VDC)	24
Voltage DC-link (VDC)	48
Rated Current (A)	4.2
Rated Power (W)	126
Rated Velocity (rpm)	3000
Maximum Current (A)	8.5
Maximum Velocity (rpm)	3500
Rated torque (N·cm)	40.2
Maximum torque (N·cm)	88.4
Torque Constant (N·cm/A)	9.1
Rotor Inertia (g·cm <sup>2</sup> )	59
Encoder Resolution (Inkr./360°)	4.096
Digital Input/Output	3/0
CANopen profile	CiA301/Cia402
Operating Temperature Range (°C)	-5~+60
Weight (kg)	0.76
Protection Class	IP54

# 42mm S Series BLDC Motor

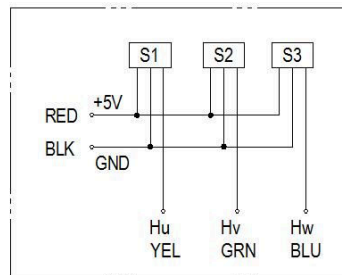


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	28N (20mm from the flange)
Max. axial force	10N

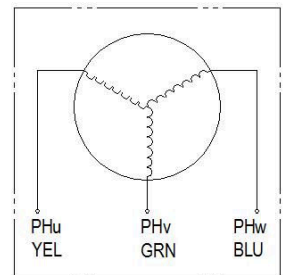
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram

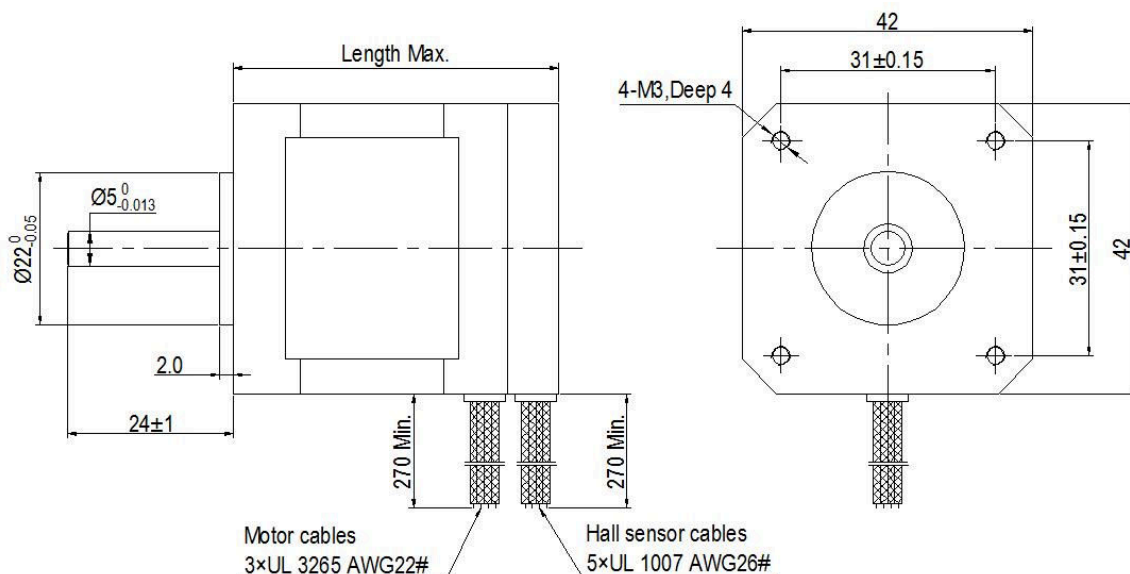


Hall sensor cable  
Note: hall sensor power supply voltage +5→+20VDC



Motor wiring cable

## Dimensions





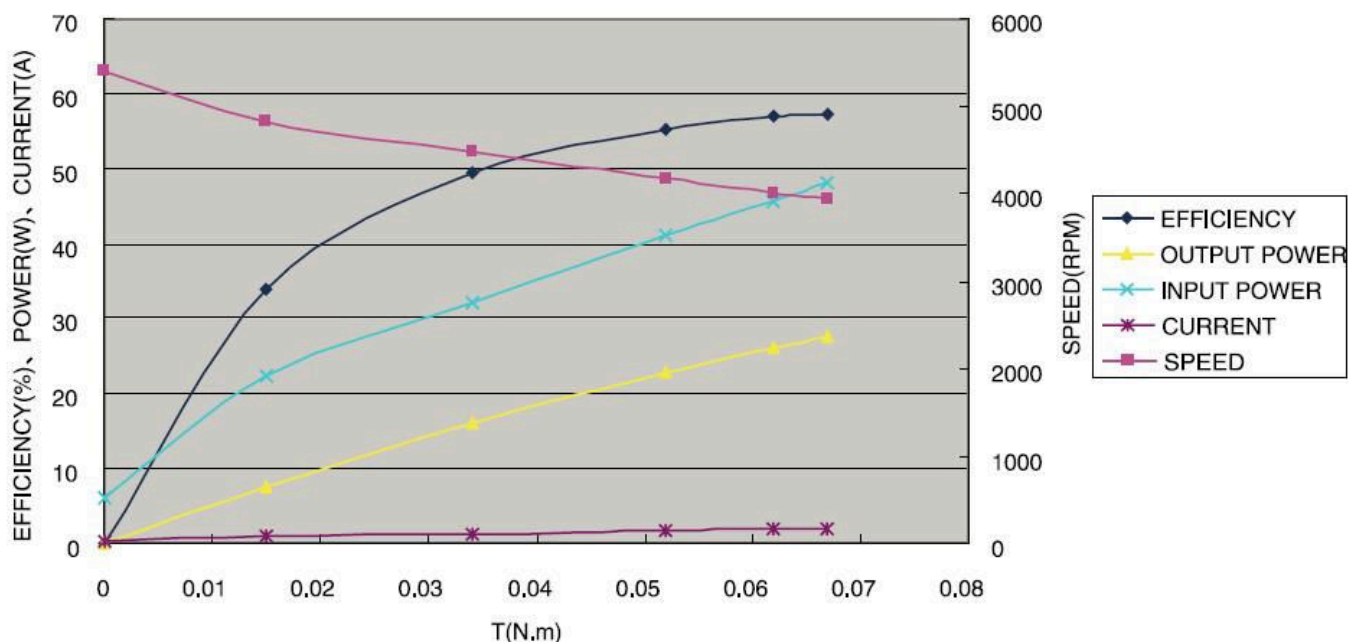
# 42mm S Series BLDC Motor

## Specification

Type	M024BI0063-42-47	M024BI0125-42-63	M024BI0188-42-79
Number of Poles	8	8	8
Number of Phases	3	3	3
Nominal Voltage (VDC)	24	24	24
Rated Speed (RPM)	4000	4000	4000
Continuous Torque (N · m)	0.063	0.125	0.188
Rated Current (A)	1.9	3.4	5.7
Output Power (W)	26	52	78
Peak Torque (N · m)	0.18	0.38	0.75
Peak Current (A)	5.7	10.2	18
Torque Constant (N · m/A)	0.035	0.036	0.036
Back EMF (V/KRPM)	3.7	3.8	3.8
Rotor Inertia (g · cm <sup>2</sup> )	24	48	72
Body Length (mm)	47	63	79
Weight (kg)	0.29	0.38	0.58

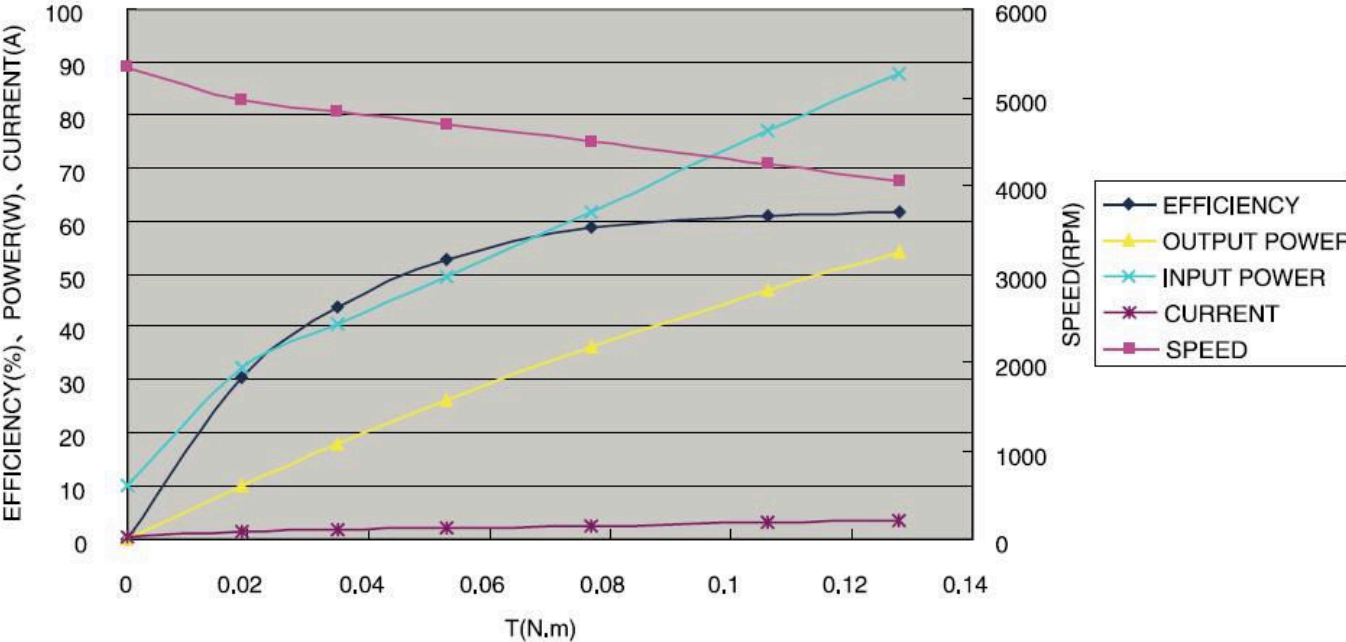
## Performance Curve

M024BI0063-42-47, 24VDC, 26W

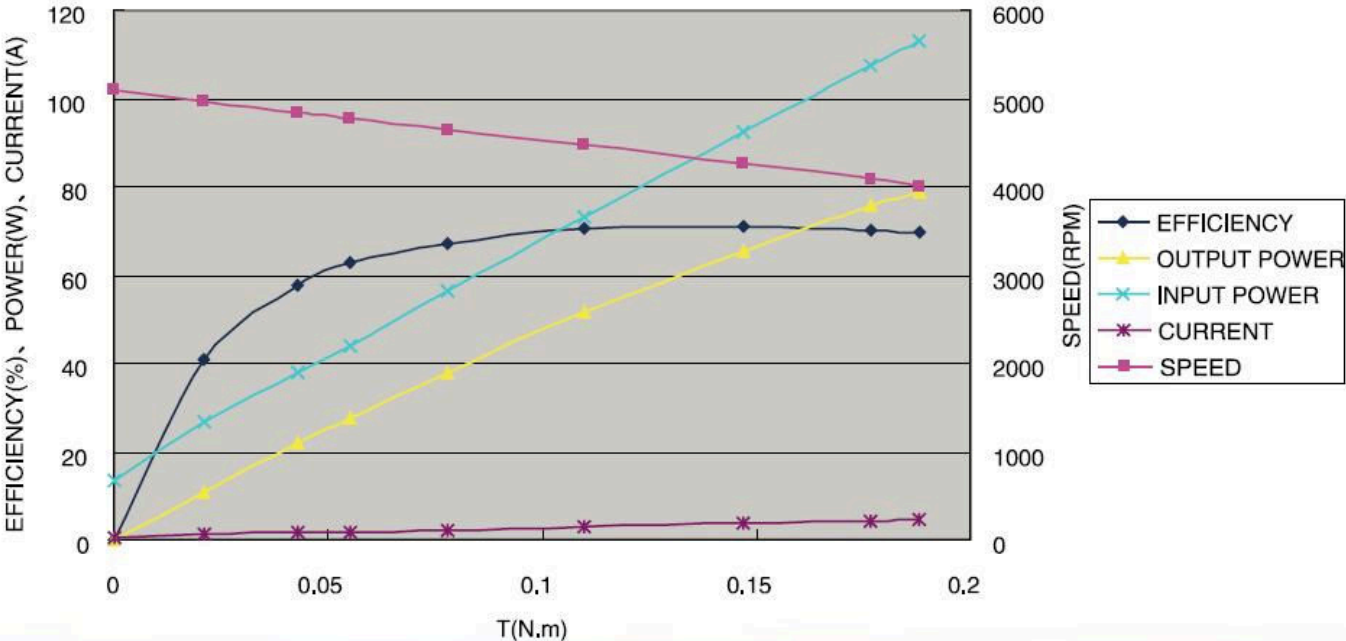


# 42mm S Series BLDC Motor

M024BI0125-42-63, 24VDC, 52W



M024BI0188-42-79, 24VDC, 78W

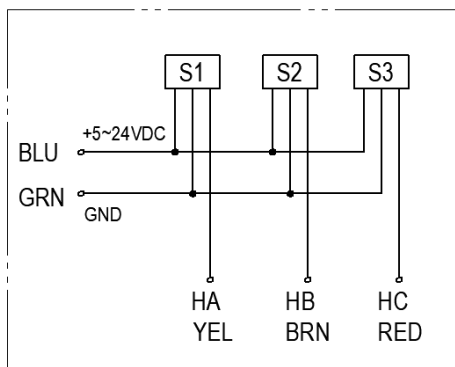


## 42 mm R Series BLDC Motor

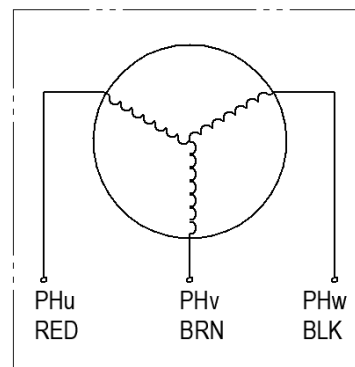


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	15N (10mm from the flange)
Max. axial force	10N

### Wiring Diagram

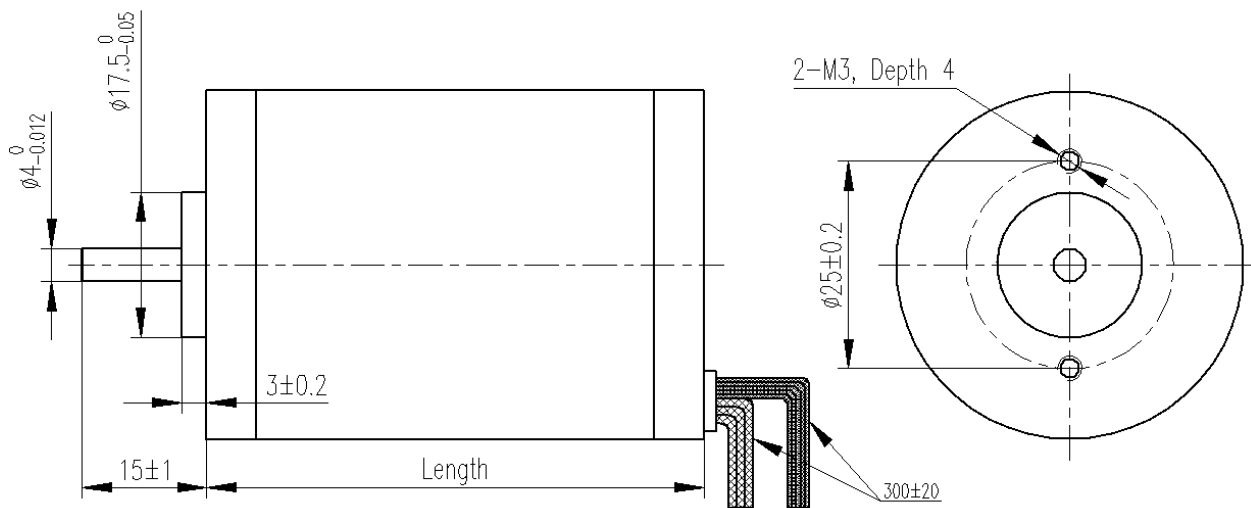


Hall sensor cable  
Note: hall sensor power supply voltage +5~24VDC



Motor wiring cable

### Dimensions



## 42 mm R Series BLDC Motor

### Specification

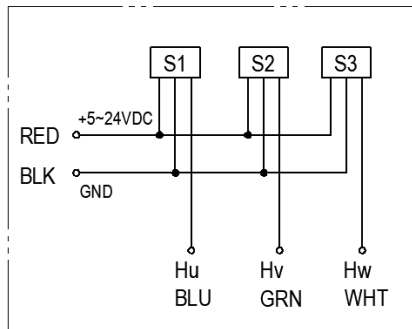
Type	M024BI0020-42-30	M024BI0056-42-60	M024BI0150-42-85	M024BI0115-42-93
Number of Poles	8	8	8	8
Number of Phases	3	3	3	3
Nominal Voltage (VDC)	24	24	24	24
Rated Speed (RPM)	4000	4200	4000	6300
Rated Torque (mN · m)	20	56	150	115
Rated Power (W)	8.4	25	62	76
Peak Torque (mN · m)	60	170	450	350
Peak Current (A)	1.7	4.4	11.4	11.8
Resistance (ohms)	5.9	1.6	0.71	0.325
Inductance (mH)	5.1	1.94	0.86	0.36
Torque Constant (mN · m/A)	39.4	40.6	40.1	30.3
Back EMF (V/KRPM)	2.95	3.04	3.0	2.27
Rotor Inertia (g · cm <sup>2</sup> )	15.6	33	84	94
Body Length (mm)	30	60	85	93
Weight (kg)	0.25	0.4	0.7	0.8

## 42 mm S Series BLDC Motor



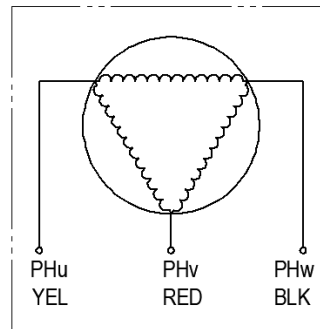
Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	28N (20mm from the flange)
Max. axial force	10N

### Wiring Diagram



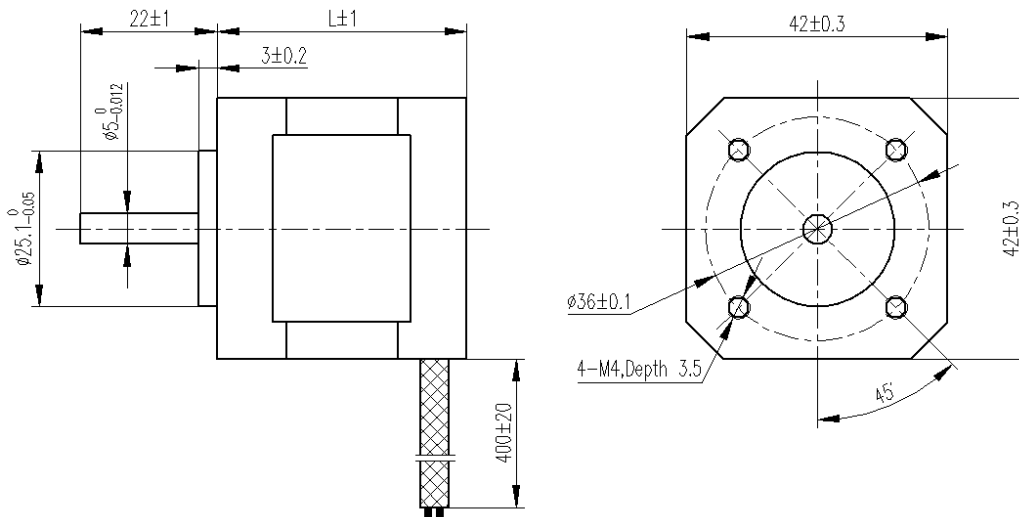
Hall sensor cable

Note: hall sensor power supply voltage +5~24VDC



Motor wiring cable

### Dimensions



## 42 mm S Series BLDC Motor

### Specification

Type	M024BI0075-42-41	M024BI0150-42-61	M024BI0220-42-81	M024BI0300-42-101
Number of Poles	8	8	8	8
Number of Phases	3	3	3	3
Nominal Voltage (VDC)	24	24	24	24
Rated Speed (RPM)	4000	4000	4000	4000
Rated Torque (mN · m)	75	150	220	300
Rated Power (W)	26	52.5	77.5	105
Peak Torque (mN · m)	190	380	560	750
Peak Current (A)	6	10.8	15.5	21.7
Resistance (ohms)	1.5	0.8	0.43	0.3
Inductance (mH)	2.1	1.2	0.71	0.5
Torque Constant (mN · m/A)	33	36	37	35
Back EMF (V/KRPM)	2.45	2.71	2.74	2.62
Rotor Inertia (g · cm <sup>2</sup> )	24	48	72	96
Body Length (mm)	40.3	60.3	80.3	100.3
Weight (kg)	0.3	0.45	0.65	0.8

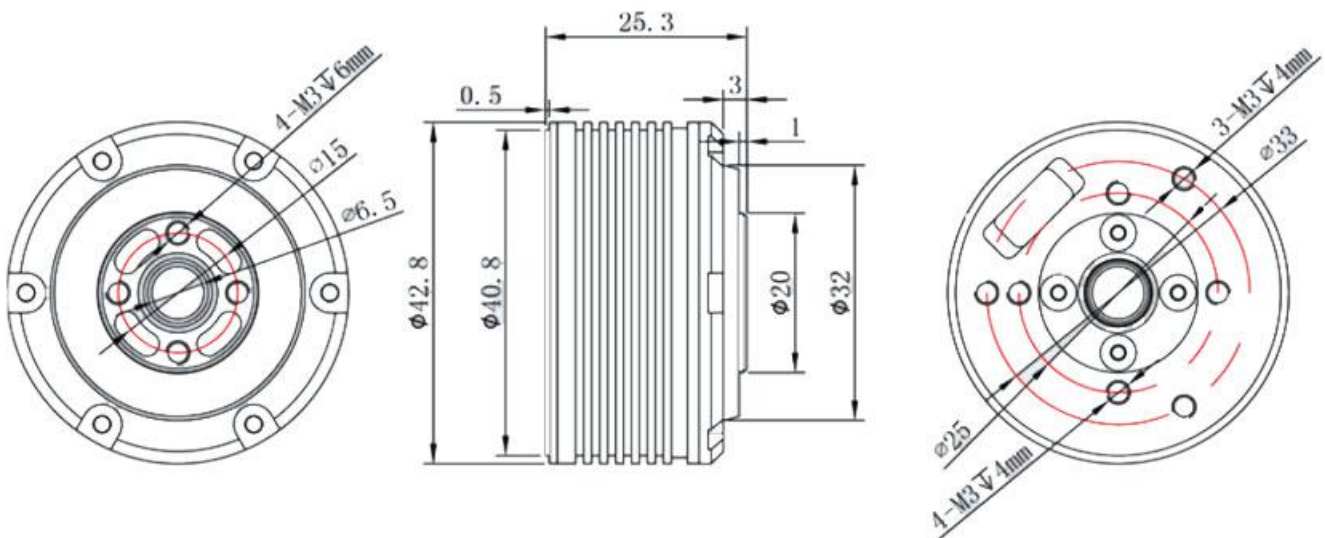
## 42mm Series BLDC Motor

### General Specifications



Item	Specifications
Resistance/Line	1.53 $\Omega$
Inductance/Line	0.33 $\mu\text{H}$
Speed constant	290 rpm/V
Torque constant	0.33 Nm/A
Rotor inertia	24.2 g/cm <sup>2</sup>

### Dimensions





## 42mm Series BLDC Motor

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### Technical Specifications

Item	M012BI0080-42-25
Number of Poles	7
Voltage (VDC)	12
Rated Current (A)	2.3
Rated Torque (N·m)	0.08
Rated speed (rpm)	2200
Max. no-load speed(rpm)	3480
Peak Torque (N·m)	0.28
Peak Current (A)	8.5
Body Length (mm)	25
Weight (g)	83

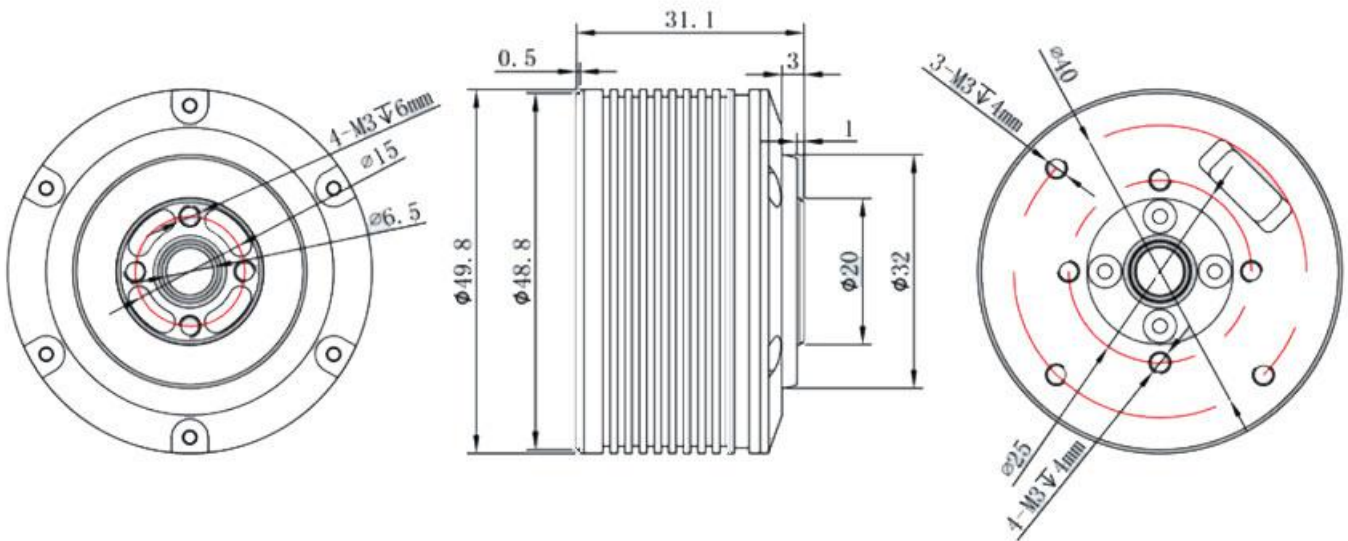
## 49mm Series BLDC Motor

### General Specifications



Item	Specifications
Resistance/Line	1.53 $\Omega$
Inductance/Line	2.1 $\mu\text{H}$
Speed constant	100 rpm/V
Torque constant	0.1 Nm/A
Rotor inertia	61 g/cm <sup>2</sup>

### Dimensions



## 49mm Series BLDC Motor

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### Technical Specifications

Item	M016BI0150-49-31
Number of Poles	7
Voltage (VDC)	16
Rated Current (A)	1.45
Rated Torque (N·m)	0.15
Rated speed (rpm)	900
Max. no-load speed(rpm)	1500
Peak Torque (N·m)	0.46
Peak Current (A)	4.5
Body Length (mm)	31
Weight (g)	83

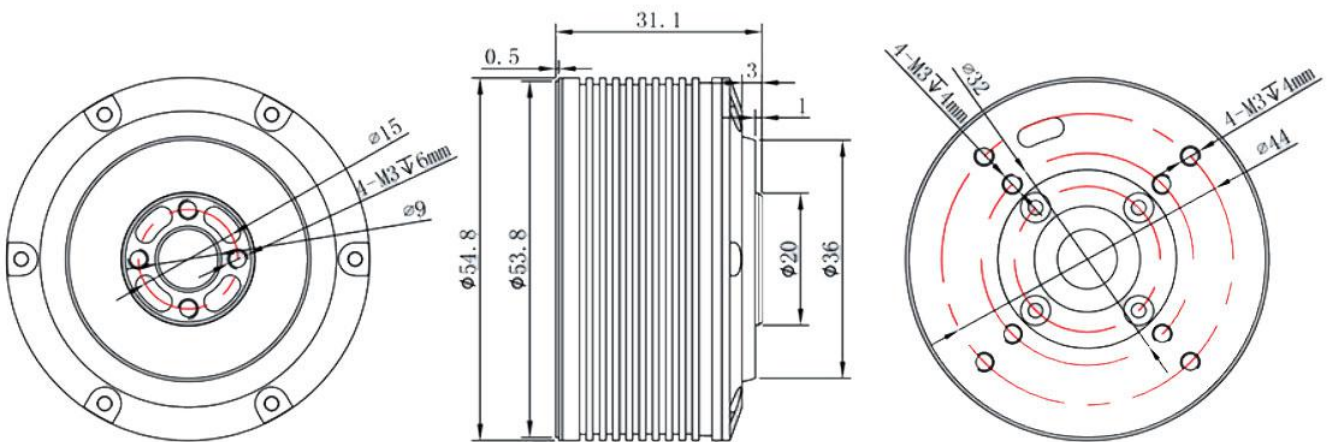
# 54mm Series BLDC Motor

## General Specifications



Item	Specifications
Resistance/Line	3.6 $\Omega$
Inductance/Line	1.8 $\mu\text{H}$
Speed constant	70 rpm/V
Torque constant	0.14 Nm/A
Rotor inertia	74 g/cm <sup>2</sup>

## Dimensions



## 54mm Series BLDC Motor

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### Technical Specifications

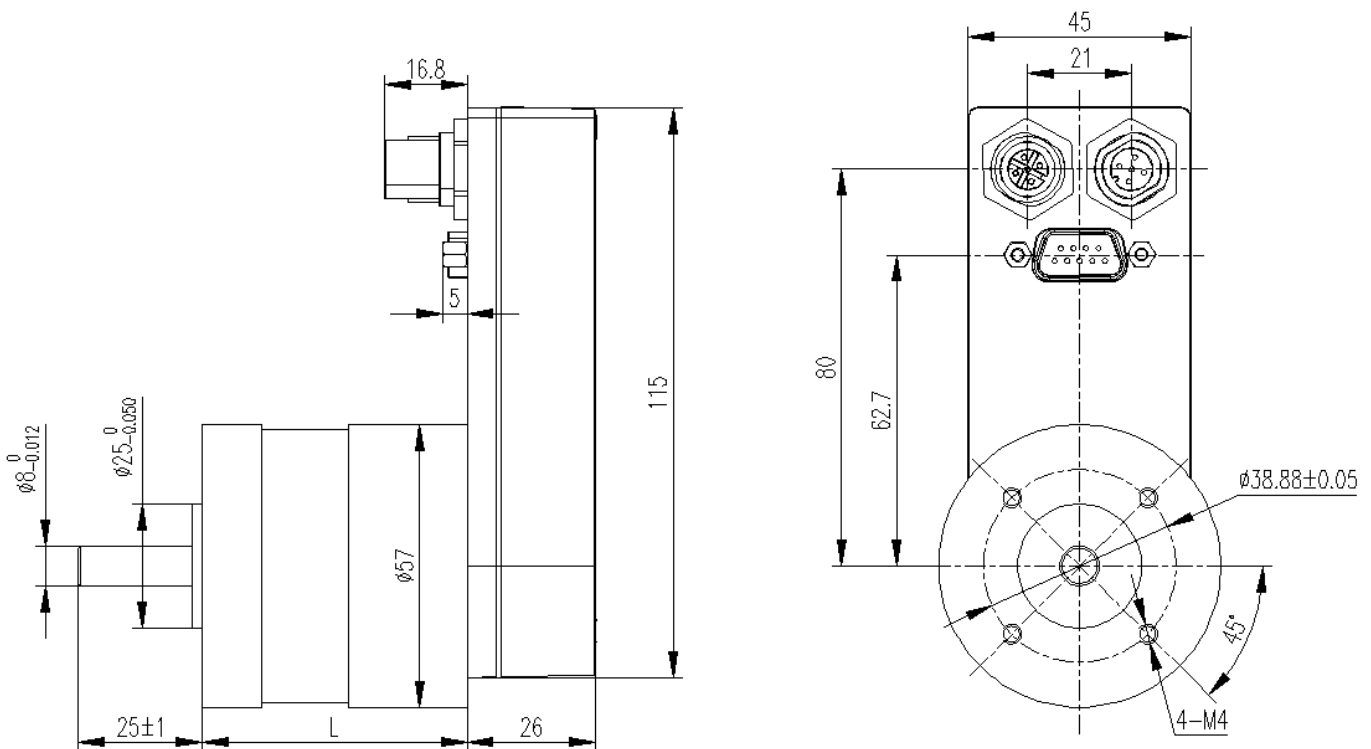
Item	M016BI0250-54-31
Number of Poles	14
Voltage (VDC)	16
Rated Current (A)	1.65
Rated Torque (N·m)	0.25
Rated speed (rpm)	600
Max. no-load speed(rpm)	1050
Peak Torque (N·m)	0.73
Peak Current (A)	5
Body Length (mm)	31
Weight (g)	183

## 57 mm D Series BLDC Motor



1. Compact EC motor units for speed, position and interpolation applications
2. Sinusoidal commutation with field-oriented control (FOC)
3. CANopen fieldbus, electrically insulated
4. Integrated brake chopper
5. Integrated single-turn absolute encoder
6. Optional multi-turn absolute encoder
7. High accuracy of speed and position control loops
8. Full torque at 0 speed
9. Emergency Stop
10. CAN-connectors in T-configuration
11. High quality planetary gear as an option (gears can be mounted directly on gear shaft)
12. Separate power supplies for logic and power unit

### Dimensions



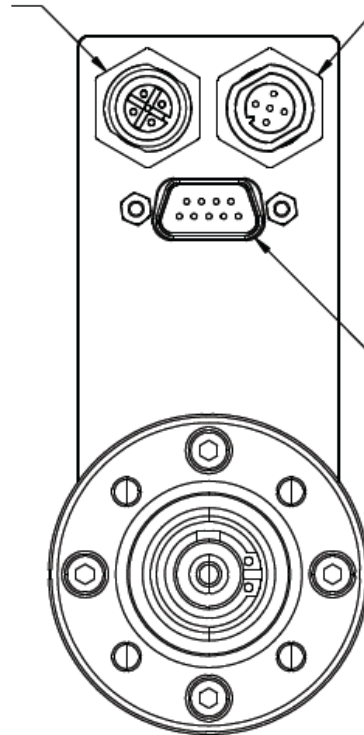
## 57 mm D Series BLDC Motor

Busstecker CAN  
Rundsteckverbinder M12x1  
5 polig Buchse

*Bus connector CAN  
5 pin female M12x1*

Busstecker CAN  
Rundsteckverbinder M12x1  
5 polig Stift

*Bus connector CAN  
5 pin male M12x1*



Versorgung  
I/O Schnittstelle  
D-Sub 9 polig Stift

*Power  
I/O interface connector  
9 pin male D-Sub*

### Pin Assignment

Power supply	Bus Interface(X1,X2)
1. Reference Input	1. Shield
2. STO-A (Safety stop 1)	2. -
3. POS-L (jog input, limit switch)	3. CAN-GND
4. POS-R (jog input, limit switch)	4. CAN-H
5. STO-B (Safety stop 2)*	5. CAN-L
6. Ground (GND)	
7. U-Bat (AME)*	
8. +24V Logic	
9. +24V DC-Link	

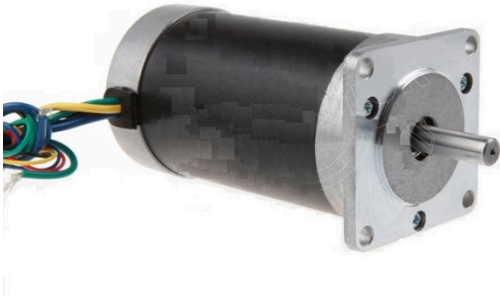
## 57 mm D Series BLDC Motor

### Specification

Type	M024BI0200-57D-80	M024BI0400-57D-100
Number of Poles	6	6
Commutation	Sinus(FOC)/Sinusoidal(FOC)	Sinus(FOC)/Sinusoidal(FOC)
Voltage Logic (VDC)	24	24
Voltage DC-link (VDC)	24	24
Rated Current (A)	4.4	8.3
Rated Power (W)	83	167
Rated Velocity (rpm)	4000	4000
Maximum Current (A)	8.6	10.0*
Maximum Velocity (rpm)	4500	4500
Rated torque (N·cm)	20.0	40.0
Maximum torque (N·cm)	60.0	120.0
Torque Constant (N·cm/A)	7.4	7.7
Rotor Inertia (g·cm <sup>2</sup> )	100	200
Encoder Resolution (Inkr./360°)	4.096	4.096
Digital Input/Output	3/0	3/0
CANopen profile	CiA301/Cia402	CiA301/Cia402
Operating Temperature Range (°C)	-5~+60	-5~+60
Motor Body Length (mm)	53.6	73.6
Weight (kg)	0.7	0.9
Protection Class	IP54	IP54



## 57mm R Series BLDC Motor

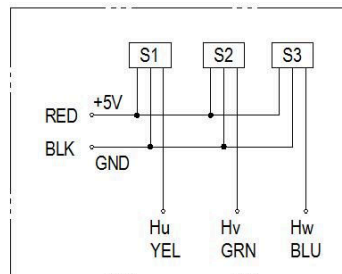


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	700VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	75N (20mm from the flange)
Max. axial force	15N

### Configuration

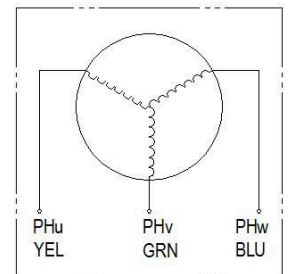
- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

### Wiring Diagram



Hall sensor cable

Note: hall sensor power supply voltage +5~+20VDC



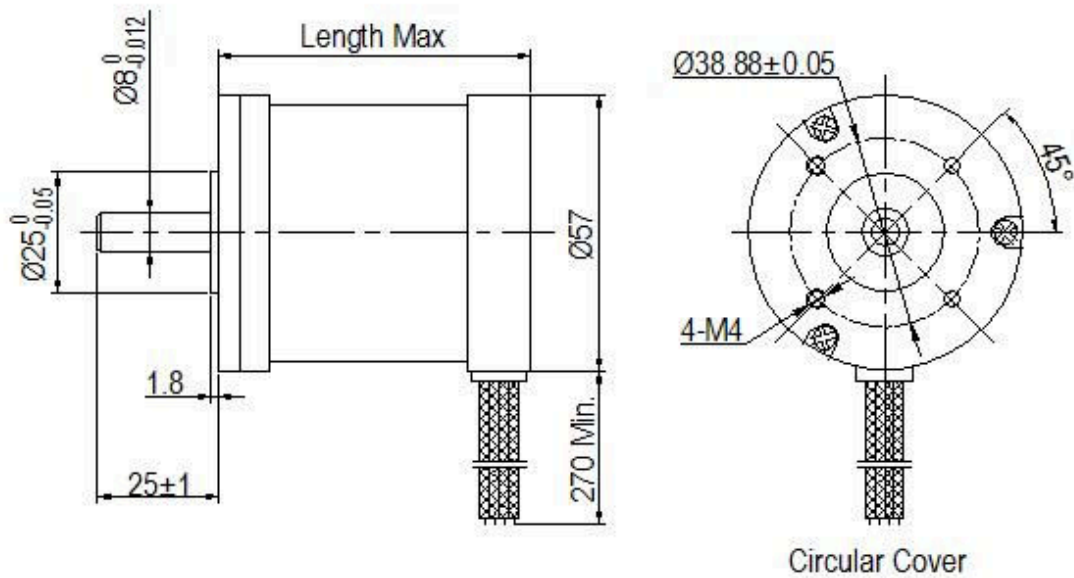
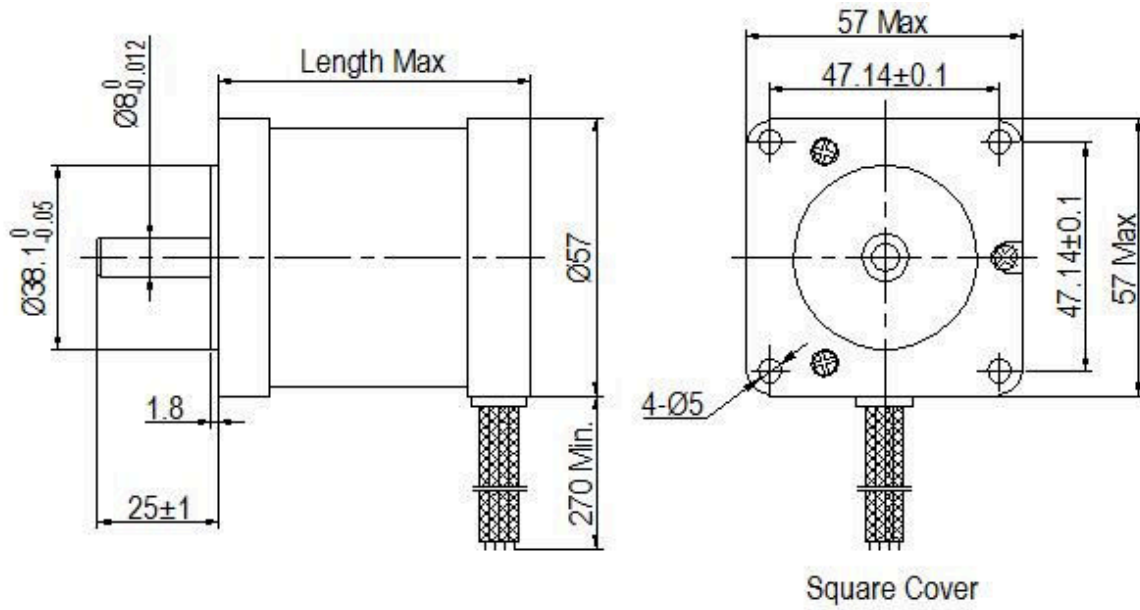
Motor wiring cable

### Specification

Model	M024BI0057 -57R-42	M024BI0110 -57R-47	M024BI0165 -57R-57	M024BI0220 -57R-67	M024BI0330 -57R-87	M024BI0440 -57R-107
Number of Poles	4	4	4	4	4	4
Number of Phases	3	3	3	3	3	3
Nominal Voltage (VDC)	24	24	24	24	24	24
Rated Speed (RPM)	2500	3000	3000	3000	3000	3000
Continuous Torque (N · m)	0.057	0.11	0.165	0.22	0.33	0.44
Rated Current (A)	1.2	2.3	3.0	4.4	6.6	8.6
Output Power (W)	15	34	52	69	103	138
Peak Torque (N · m)	0.18	0.38	0.58	0.8	1.2	1.6
Peak Current (A)	3.6	6.8	9.0	13.2	19.8	25.8
Torque Constant (N · m/A)	0.074	0.06	0.061	0.062	0.062	0.063
Back EMF (V/KRPM)	7.75	6.3	6.4	6.5	6.5	6.6
Rotor Inertia (g · cm <sup>2</sup> )	32	42	58	72	106	140
Body Length (mm)	41.5	46.5	56.5	66.5	86.5	106.5
Weight (kg)	0.34	0.42	0.55	0.66	0.89	1.15

# 57mm R Series BLDC Motor

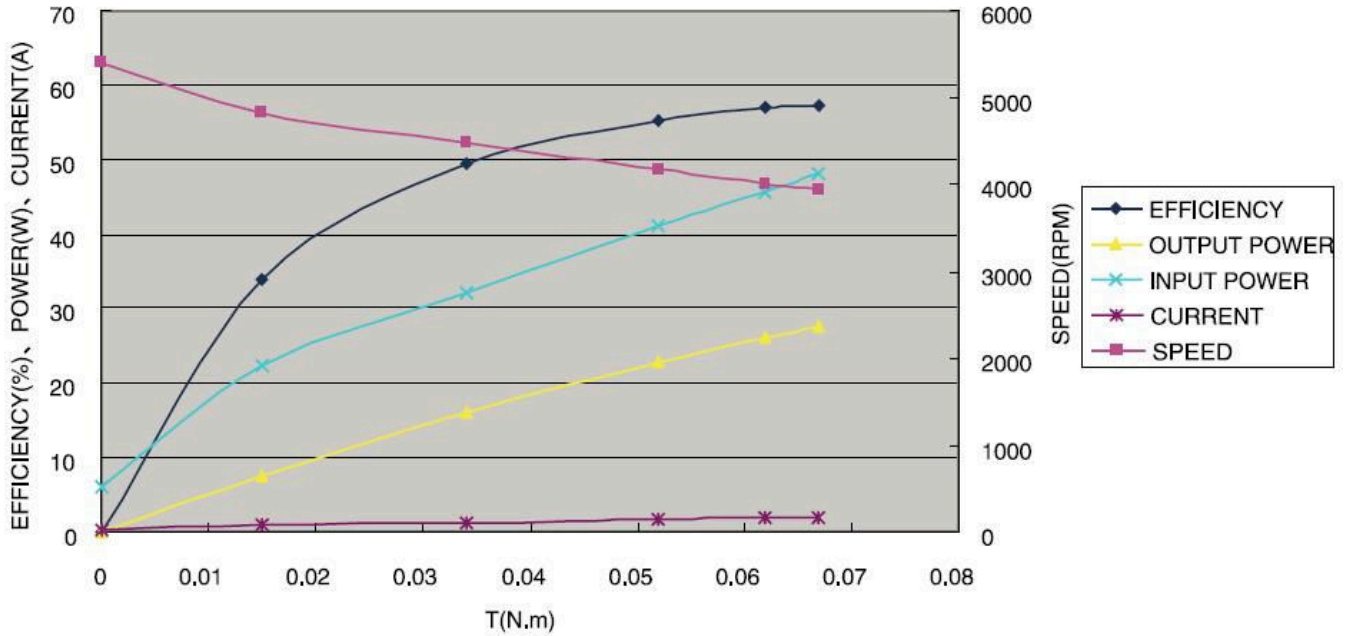
## Dimensions



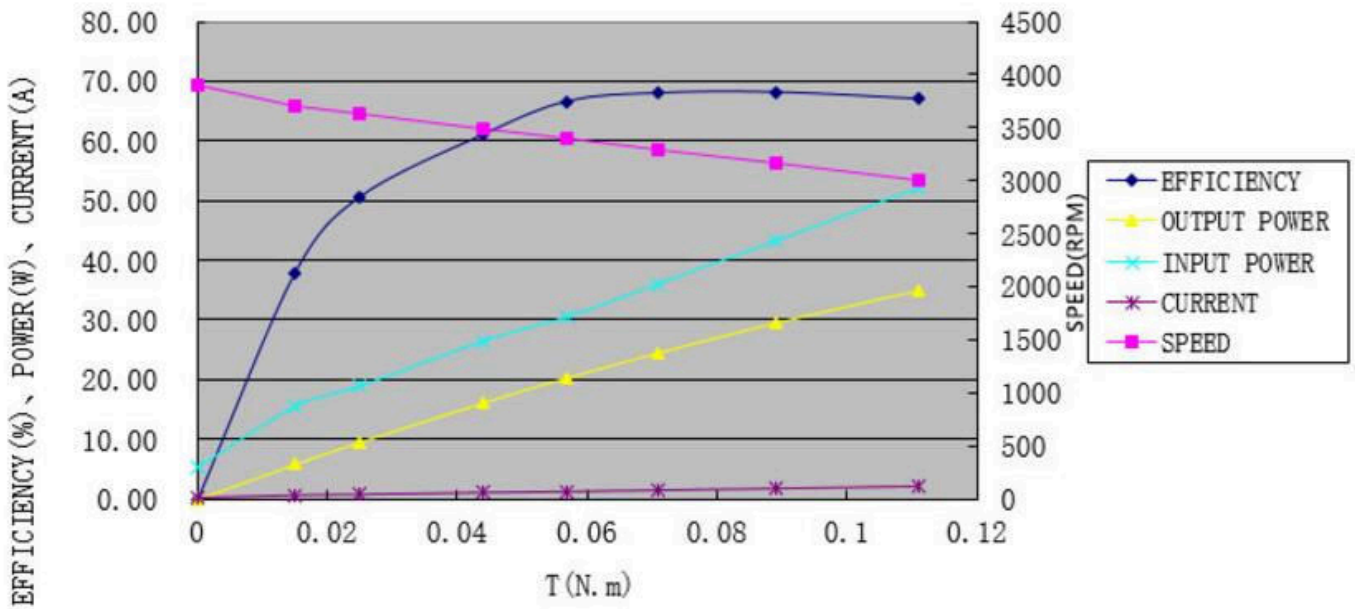
# 57mm R Series BLDC Motor

## Performance Curve

M024BI0057-57R-42, 24VDC, 15W

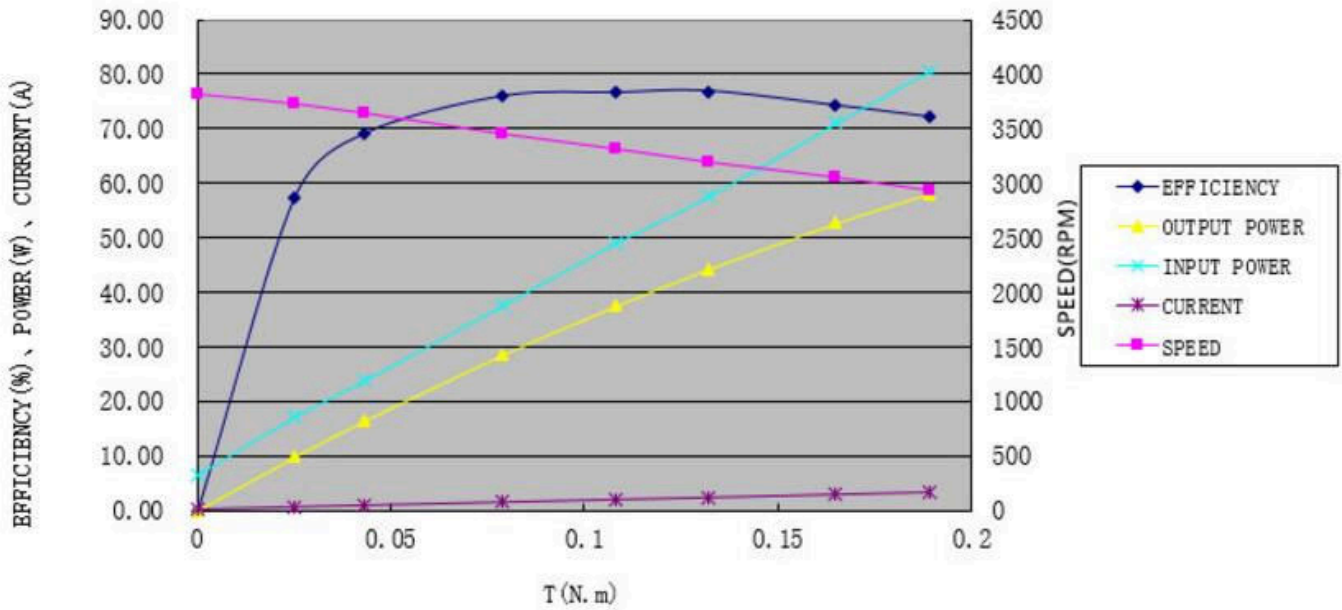


M024BI0110-57R-47, 24VDC, 34W

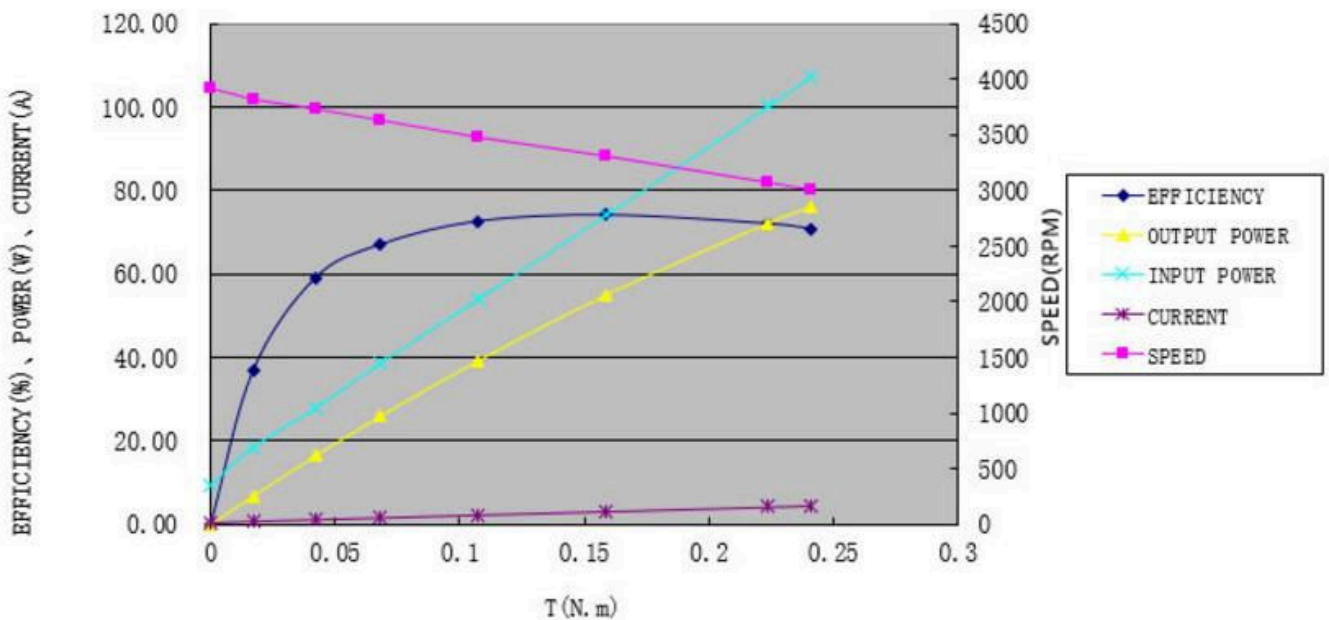


# 57mm R Series BLDC Motor

M024BI0165-57R-57, 24VDC, 52W

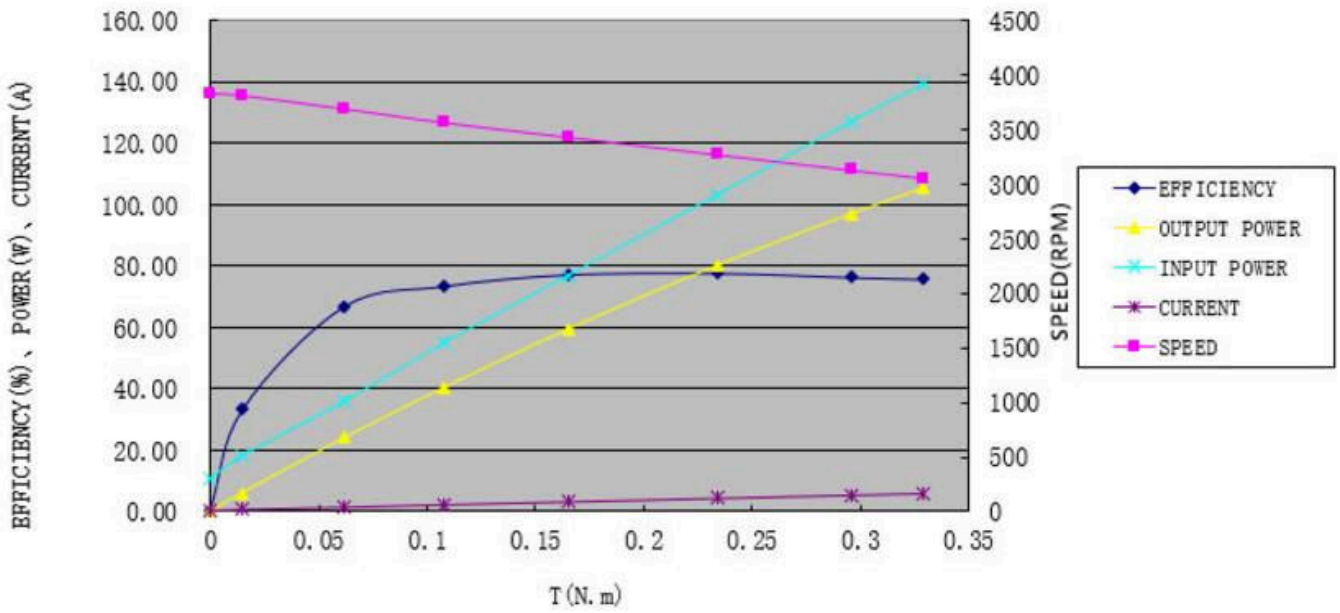


M024BI0220-57R-67, 24VDC, 69W

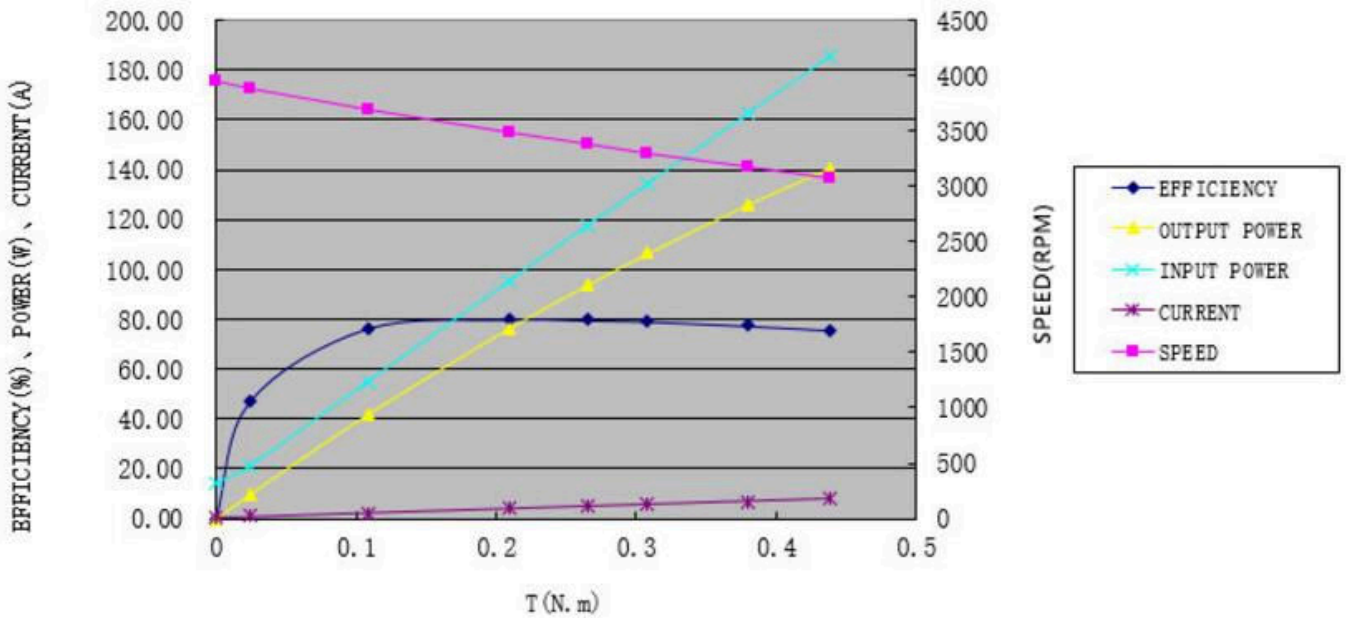


# 57mm R Series BLDC Motor

M024BI0330-57R-87, 24VDC, 103W



M024BI0440-57R-107, 24VDC, 138W

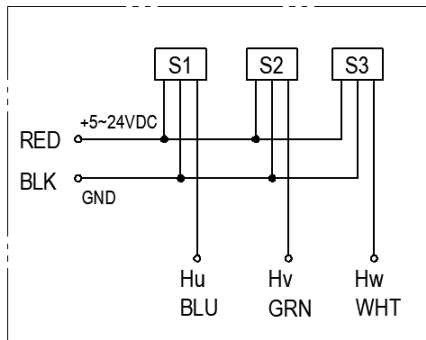


## 57 mm R Series BLDC Motor



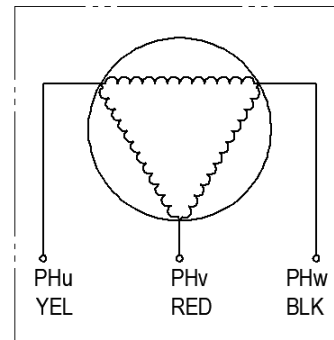
Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.025 (460g-load)
Shaft Axial Play	max. 0.025 (4000g-load)
Max. radial force	75N (20mm from the flange)
Max. axial force	15N

### Wiring Diagram



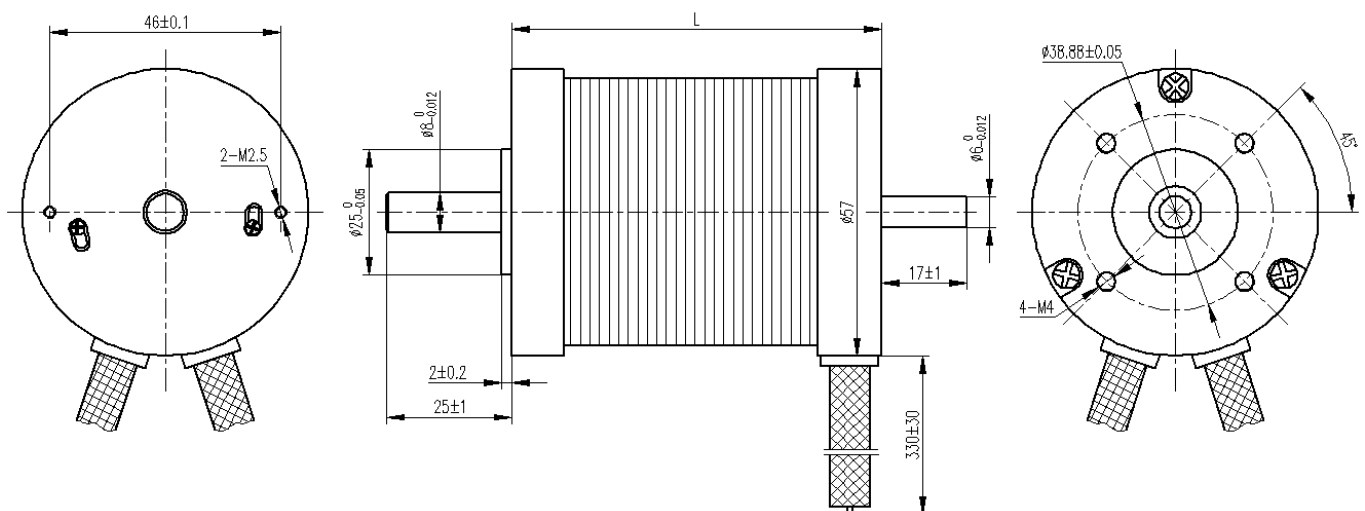
Hall sensor cable

Note: hall sensor power supply voltage +5~24VDC



Motor wiring cable

### Dimensions





## 57 mm R Series BLDC Motor

### Specification

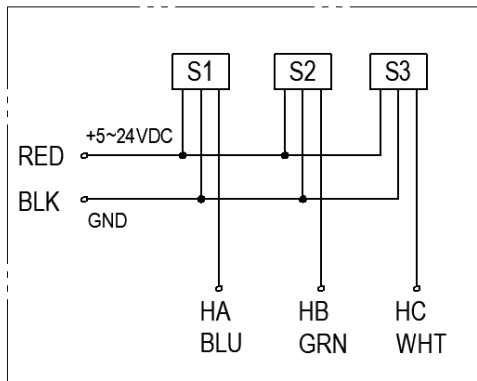
Type	M036BJ0055-57- 44	M036BJ0110-57- 54	M036BJ0220- 57-74	M036BJ0330-57- 94	M036BJ0440-57- 114
Number of Poles	4	4	4	4	4
Number of Phases	3	3	3	3	3
Nominal Voltage (VDC)	36	36	36	36	36
Rated Speed (RPM)	4000	4000	4000	4000	4000
Rated Torque (mN·m)	55	110	220	330	440
Rated Power (W)	23	46	99	138	184
Peak Torque (mN·m)	160	390	700	1000	1270
Peak Current (A)	3.5	6.8	12	16	21
Resistance (ohms)	4.3	1.63	0.64	0.45	0.33
Inductance (mH)	10	4.4	2.0	1.5	0.95
Torque Constant (mN·m/A)	52	61	60	65	62
Back EMF (V/KRPM)	3.8	4.5	4.45	4.8	4.6
Rotor Inertia (g·cm <sup>2</sup> )	30	75	119	173	230
Body Length (mm)	43.6	53.6	73.6	93.6	113.6
Weight (kg)	0.33	0.44	0.72	0.95	1.2

# 57 mm R Series BLDC Motor



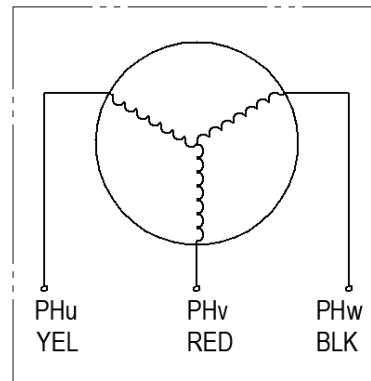
Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.025 (460g-load)
Shaft Axial Play	max. 0.025 (4000g-load)
Max. radial force	75N (20mm from the flange)
Max. axial force	15N

## Wiring Diagram



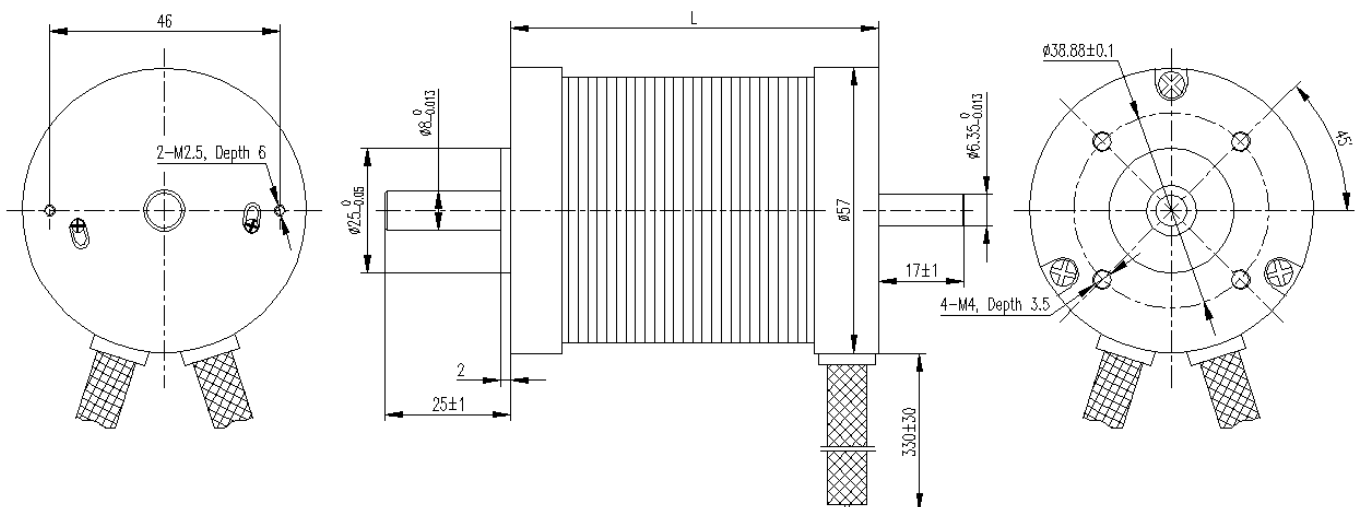
Hall sensor cable

Note: hall sensor power supply voltage +5~24VDC



Motor wiring cable

## Dimensions



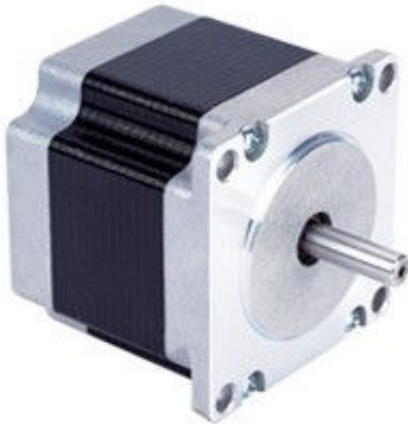


## 57 mm R Series BLDC Motor

### Specification

Type	M036BI0200-57R-54
Number of Poles	6
Number of Phases	3
Nominal Voltage (VDC)	36
Rated Speed (RPM)	4000
Rated Torque (mN·m)	200
Rated Power (W)	90
Peak Torque (mN·m)	640
Peak Current (A)	11
Resistance (ohms)	0.87
Inductance (mH)	1.0
Torque Constant (mN·m/A)	57
Back EMF (V/KRPM)	4.9
Rotor Inertia (g·cm <sup>2</sup> )	75
Body Length (mm)	53.6
Weight (kg)	0.72

# 57mm S Series BLDC Motor

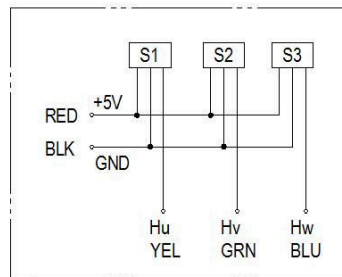


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	700VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	75N (20mm from the flange)
Max. axial force	15N

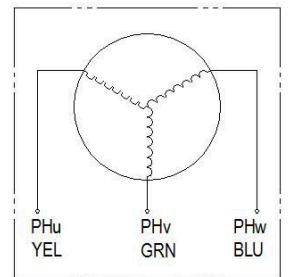
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram

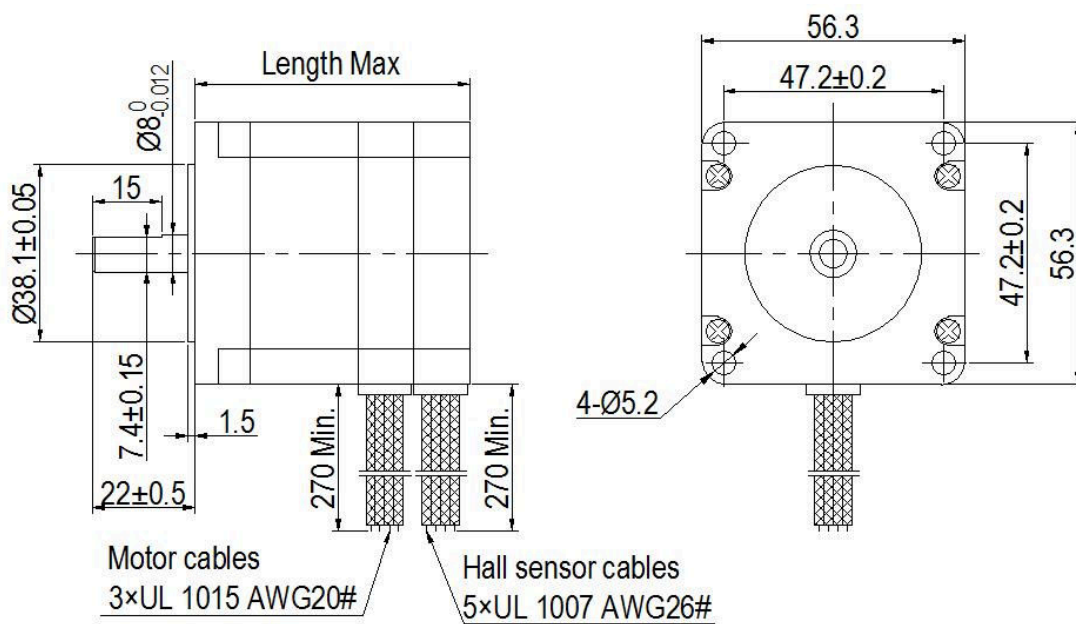


Hall sensor cable  
Note: hall sensor power supply voltage +5~+20VDC



Motor wiring cable

## Dimensions



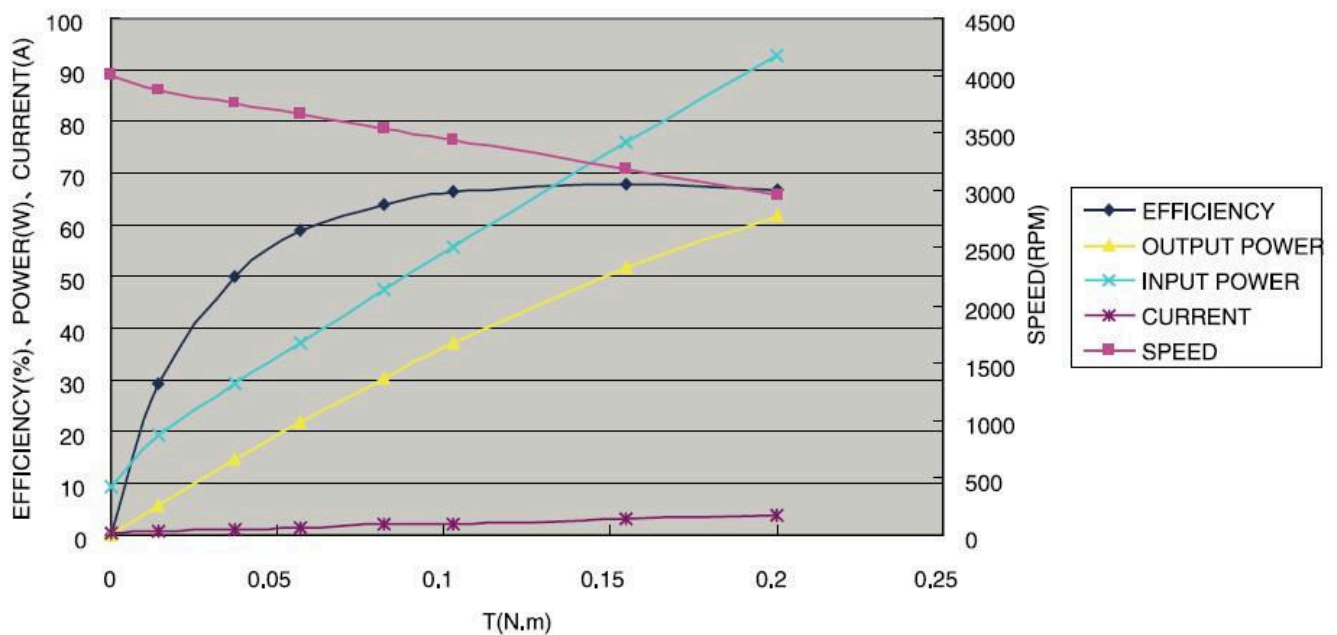
# 57mm S Series BLDC Motor

## Specification

Model	M024BI0200-57S-59	M024BI0400-57S-80	M024BI0600-57S-101
Number of Poles	8	8	8
Number of Phases	3	3	3
Nominal Voltage (VDC)	24	24	24
Rated Speed (RPM)	3000	3000	3000
Continuous Torque (N · m)	0.2	0.4	0.6
Rated Current (A)	4.0	7.8	12.0
Output Power (W)	63	125	188
Peak Torque (N · m)	0.6	1.2	1.8
Peak Current (A)	12	23.5	36
Torque Constant (N · m/A)	0.065	0.066	0.066
Back EMF (V/KRPM)	6.23	6.3	6.3
Rotor Inertia (g · cm <sup>2</sup> )	120	170	220
Body Length (mm)	59	80	101
Weight (kg)	0.59	0.92	1.24

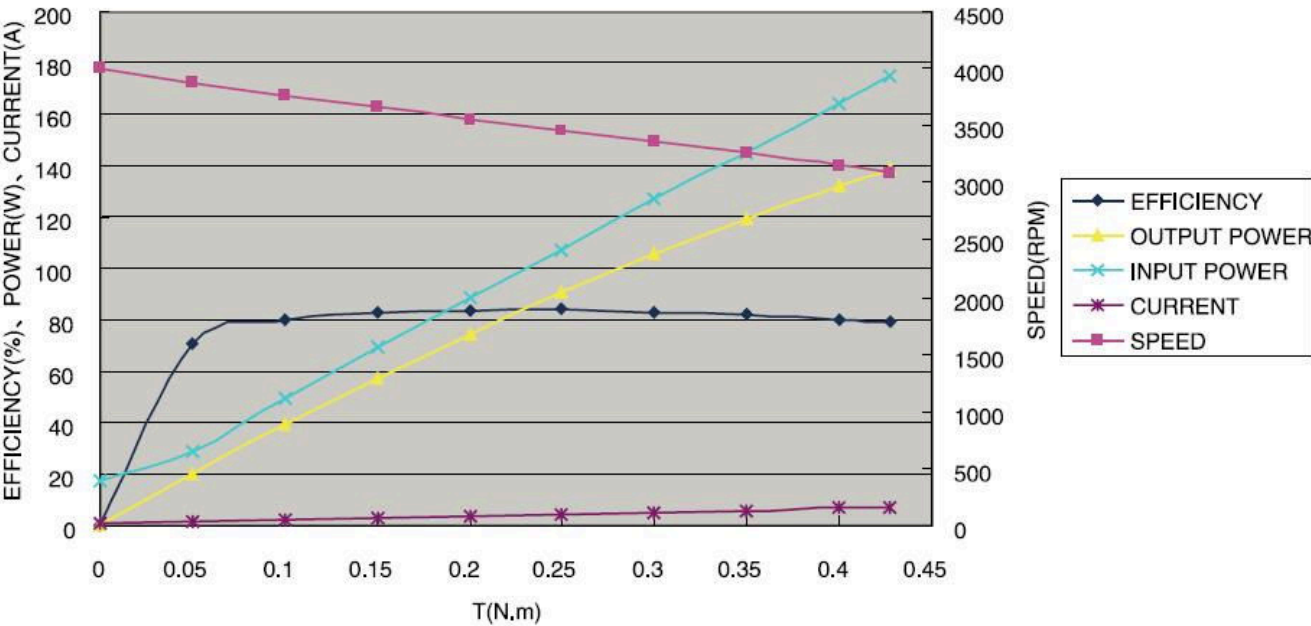
## Performance Curve

M024BI0200-57S-59, 24VDC, 63W

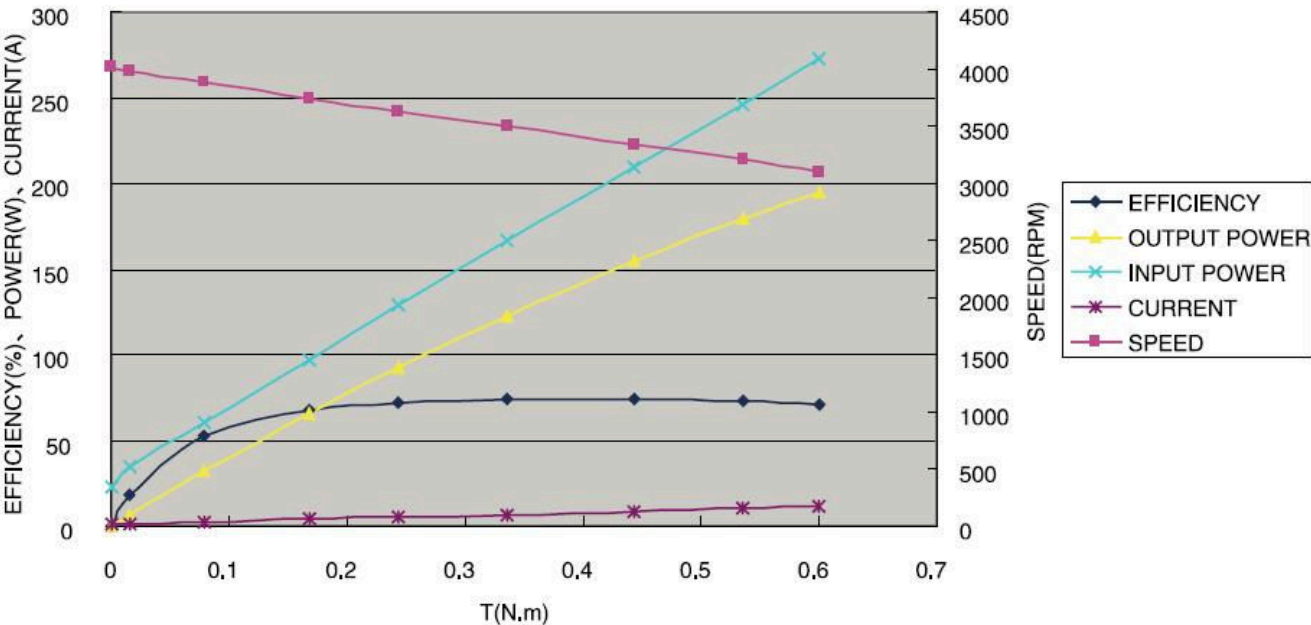


# 57mm S Series BLDC Motor

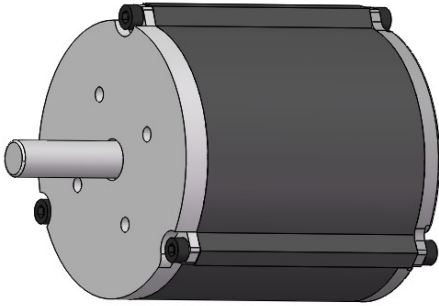
M024BI0400-57S-80, 24VDC, 125W



M024BI0600-57S-101, 24VDC, 188W

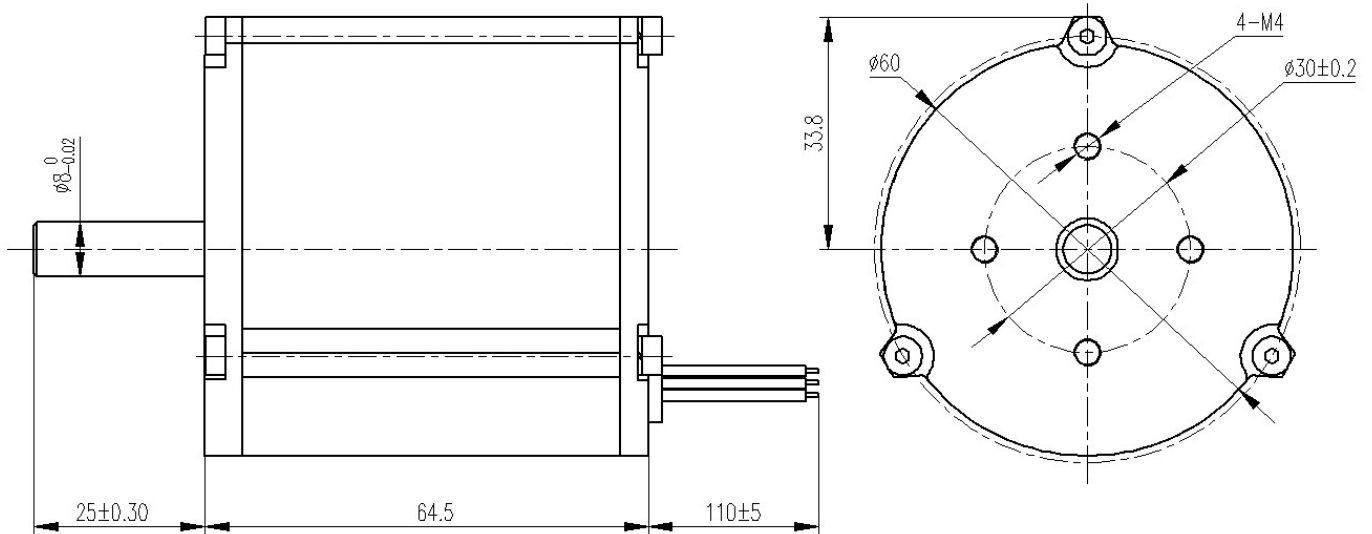


## 60 mm R Series BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C ~ +50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.025 (4N-load)
Shaft Axial Play	max. 0.025 (4N-load)
Max. radial force	75N (20mm from the flange)
Max. axial force	15N

### Dimensions:



## 60 mm R Series BLDC Motor

### Specification

Type	M024BI0200-60R-65
Number of Poles	10
Number of Phases	3
Nominal Voltage (VDC)	24
Rated Speed (RPM)	900
Rated Torque (mN · m)	550
Rated Power (W)	55
Peak Torque (mN · m)	1000
Peak Current (A)	7.1
Resistance (ohms)	0.8
Inductance (mH)	1.6
Back EMF (V/KRPM)	18.8
Body Length (mm)	64.5
Weight (kg)	0.8

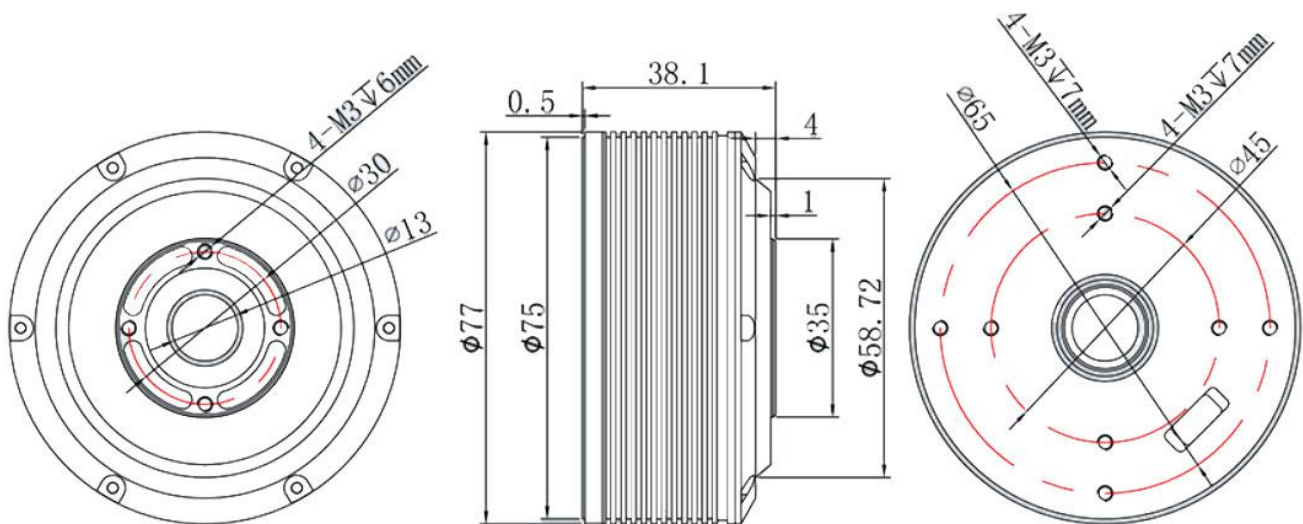
## 77mm Series BLDC Motor

### General Specifications



Item	Specifications
Resistance/Line	1.1 $\Omega$
Inductance/Line	0.9 $\mu\text{H}$
Speed constant	55 rpm/V
Torque constant	0.188 Nm/A
Rotor inertia	355 g/cm <sup>2</sup>

### Dimensions



## 77mm Series BLDC Motor

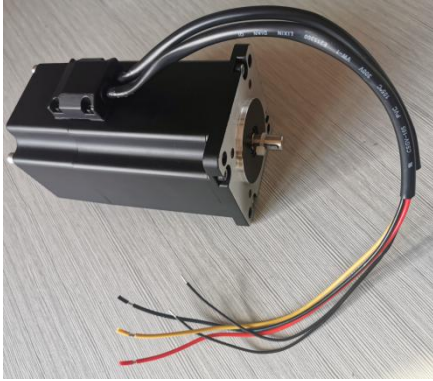
### Technical Specifications

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Item	M024BI0600-77-38
Number of Poles	14
Voltage (VDC)	24
Rated Current (A)	3.1
Rated Torque (N·m)	0.6
Rated speed (rpm)	850
Max. no-load speed(rpm)	1150
Peak Torque (N·m)	1.75
Peak Current (A)	9.5
Body Length (mm)	38
Weight (g)	364



# 80mm S Series BLDC Motor

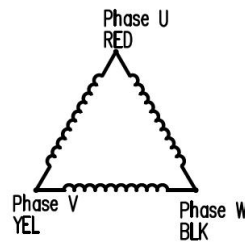


Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+40°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	1000VDC for one second
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	115N (10mm from the flange)
Max. axial force	45N

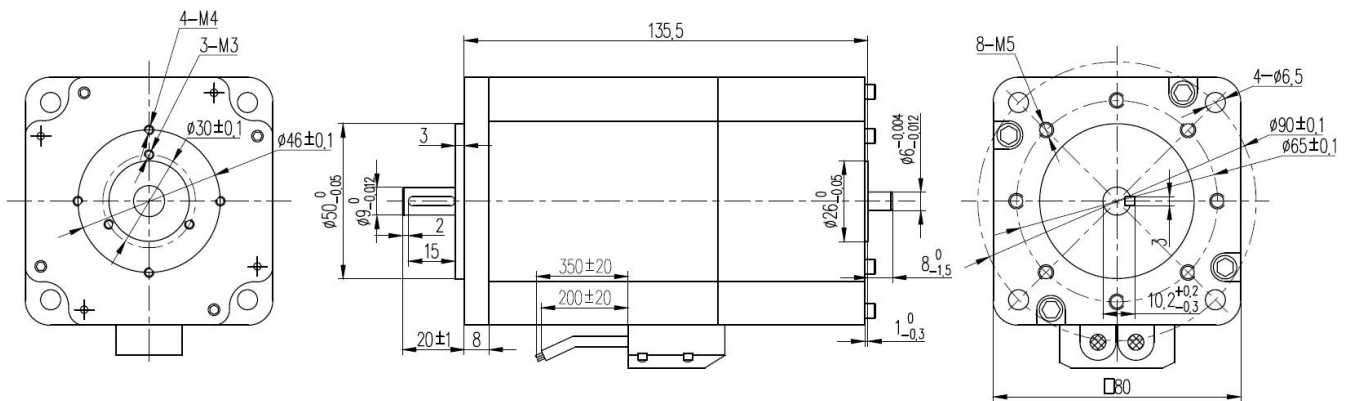
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram



## Dimensions



## 80mm S Series BLDC Motor



### Specification

Model	M048BI0700-80-136
Number of Poles	8
Number of Phases	3
Nominal Voltage (VDC)	48
Rated Speed (RPM)	4350
Continuous Torque (N · m)	0.7
Rated Current (A)	7
Output Power (W)	320
Peak Torque (N · m)	2.6
Peak Current (A)	26
Torque Constant (N · m/A)	0.1
Back EMF (V/KRPM)	6.1
Rotor Inertia (g · cm <sup>2</sup> )	1000
Body Length (mm)	136
Weight (kg)	3.0

# 83mm S Series BLDC Motor

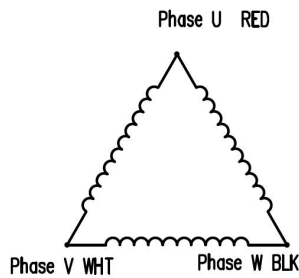


Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+40°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	600VDC for one second
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	392N (10mm from the flange)
Max. axial force	147N

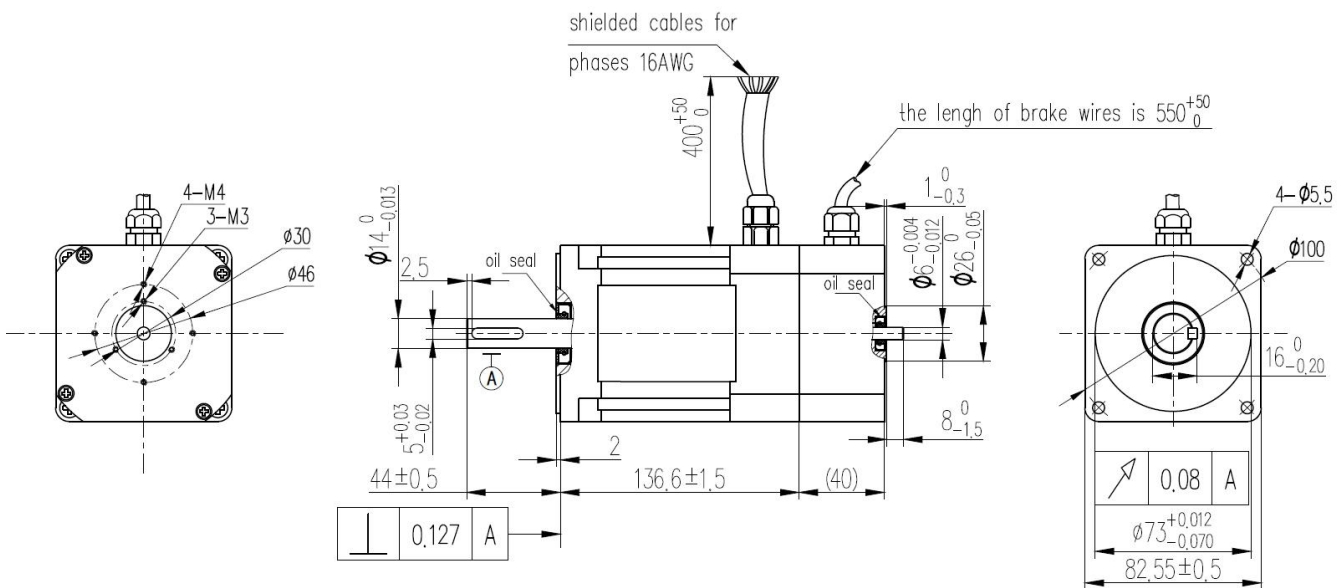
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram



## Dimensions



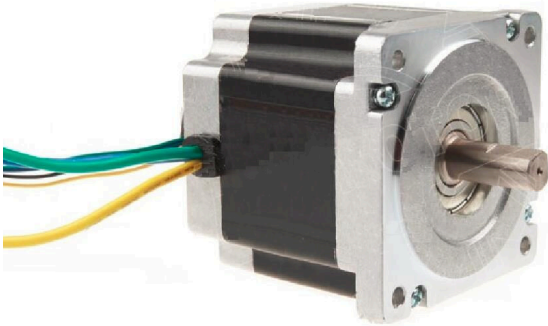
## 83mm S Series BLDC Motor



### Specification

Model	M048BI2000-83-136
Number of Poles	8
Number of Phases	3
Nominal Voltage (VDC)	48
Rated Speed (RPM)	3000
Continuous Torque (N · m)	2.0
Rated Current (A)	17
Output Power (W)	630
Peak Torque (N · m)	6.0
Peak Current (A)	33
Torque Constant (N · m/A)	0.1
Back EMF (V/KRPM)	6.7
Body Length (mm)	136
IP class	IP53
Weight (kg)	5.0

# 86mm S Series BLDC Motor

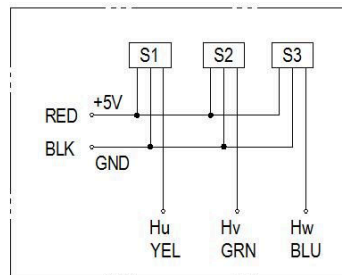


Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	700VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	220N (20mm from the flange)
Max. axial force	60N

## Configuration

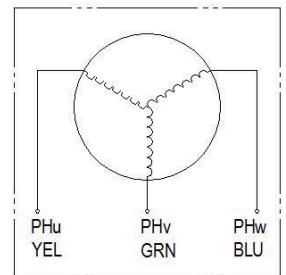
- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram



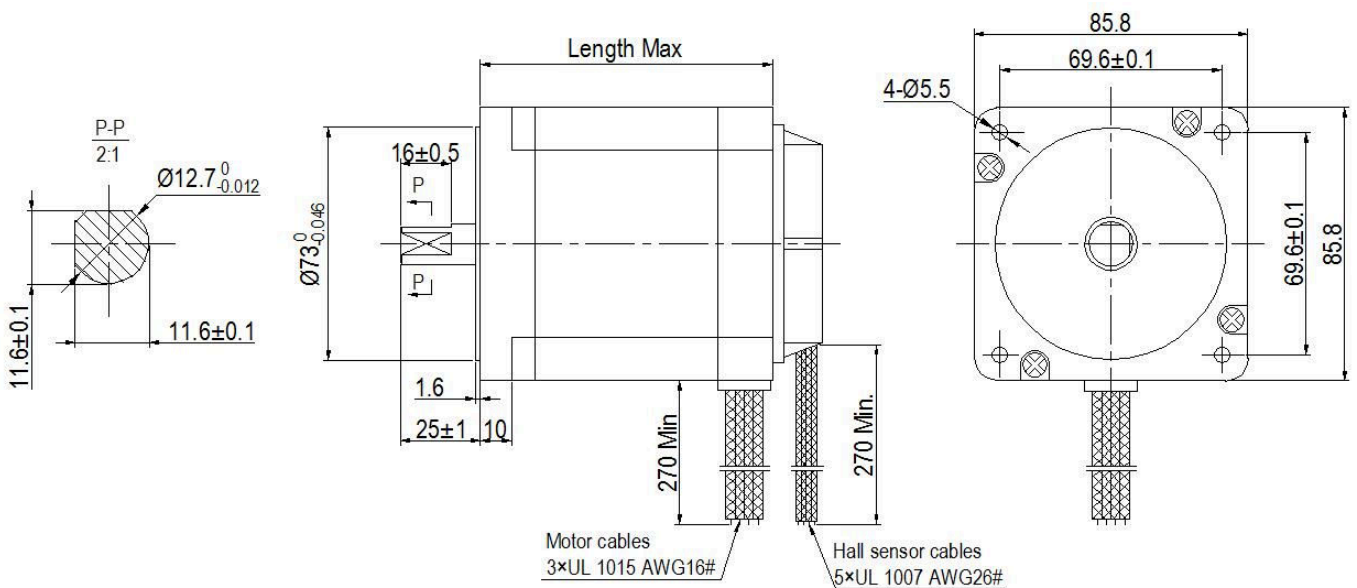
Hall sensor cable

Note: hall sensor power supply voltage +5~+20VDC



Motor wiring cable

## Dimensions



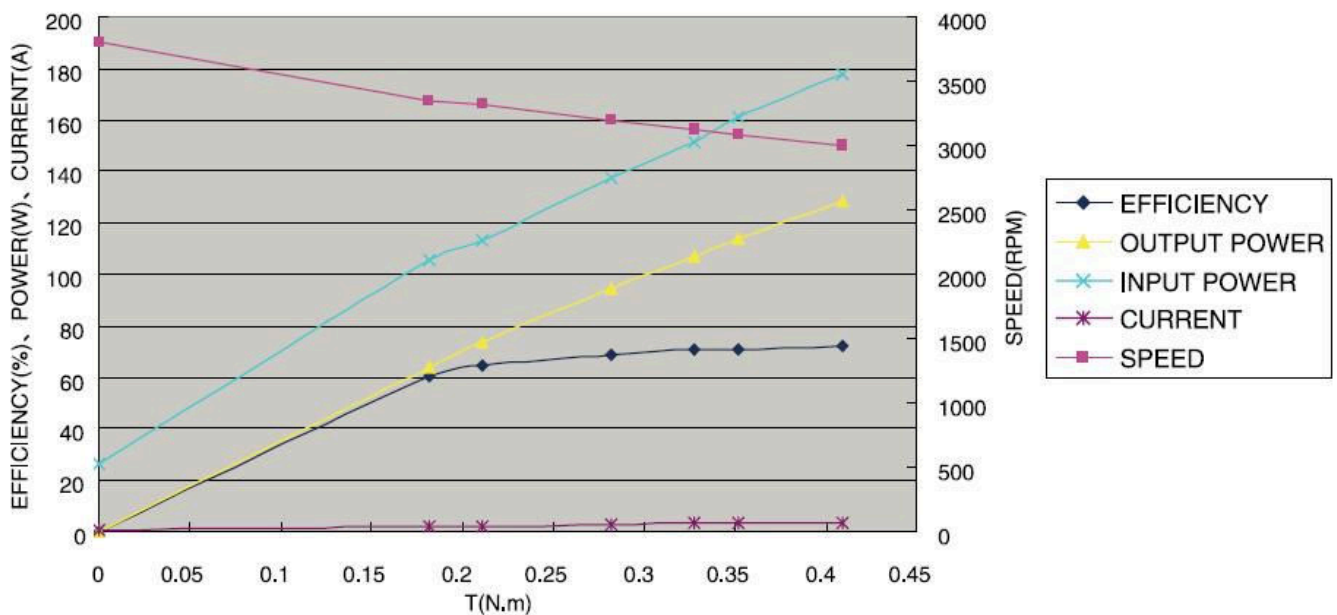
# 86mm S Series BLDC Motor

## Specification

Model	M048BI0350-86S-57	M048BI0700-86S-67	M048BI1050-86S-81	M048BI1400-86S-94
Number of Poles	8	8	8	8
Number of Phases	3	3	3	3
Nominal Voltage (VDC)	48	48	48	48
Rated Speed (RPM)	3000	3000	3000	3000
Continuous Torque (N · m)	0.35	0.7	1.05	1.4
Rated Current (A)	3.9	6.6	9.6	14.0
Output Power (W)	110	220	330	440
Peak Torque (N · m)	1.05	2.1	3.2	4.2
Peak Current (A)	10.8	19.8	29.0	38.0
Torque Constant (N · m/A)	0.11	0.11	0.11	0.128
Back EMF (V/KRPM)	11.5	11.5	11.5	13.5
Rotor Inertia (g · cm <sup>2</sup> )	350	650	950	1250
Body Length (mm)	57	67	81	94
Weight (kg)	1.1	1.75	2.2	2.75

## Performance Curve

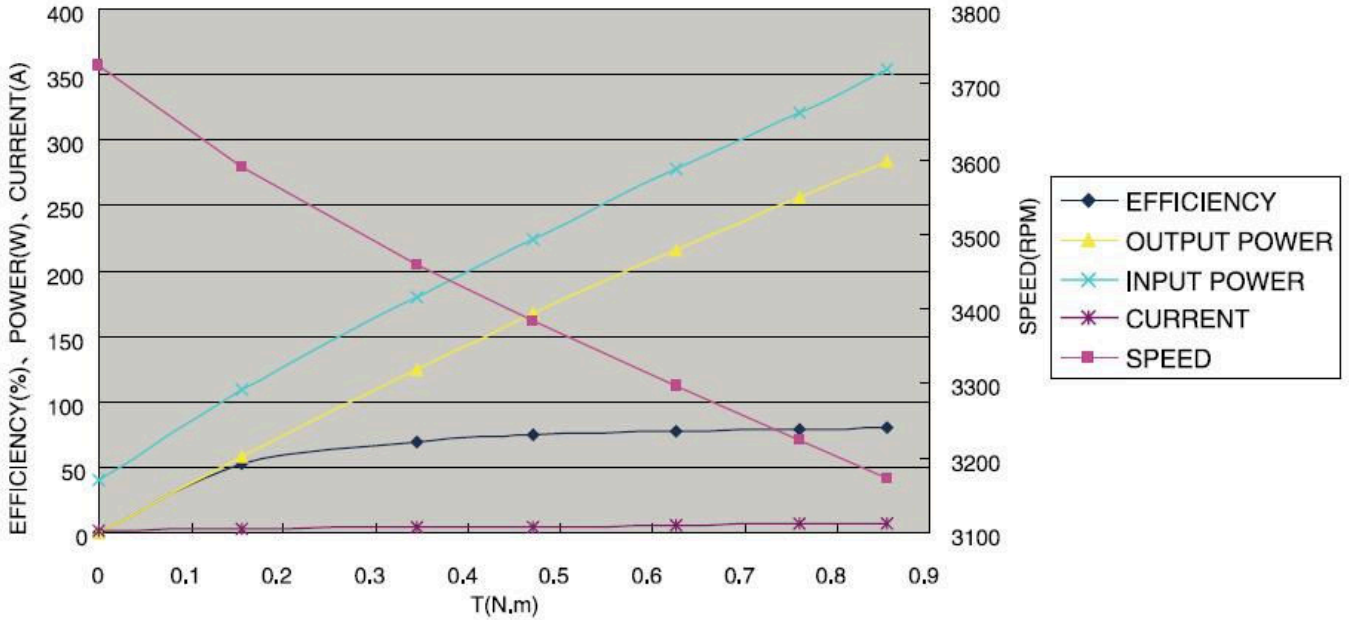
M048BI0350-86S-57, 48VDC, 110W



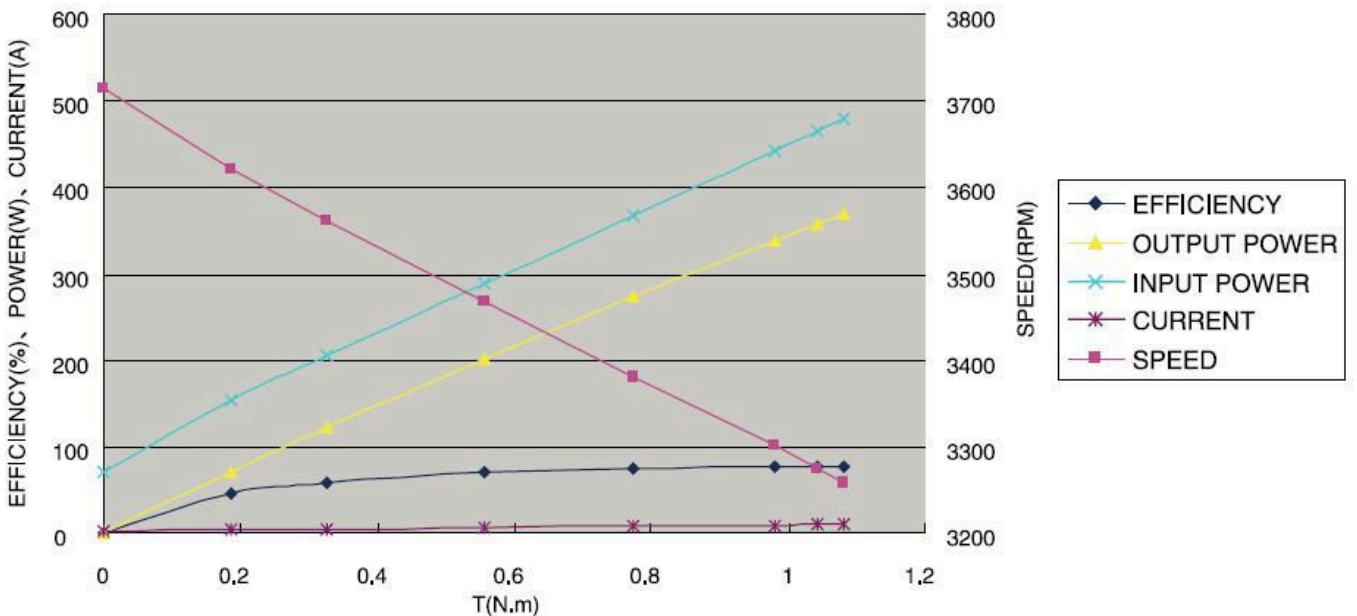
# 86mm S Series BLDC Motor



M048BI0700-86S-67, 48VDC, 220W



M048BI1050-86S-81, 48VDC, 330W

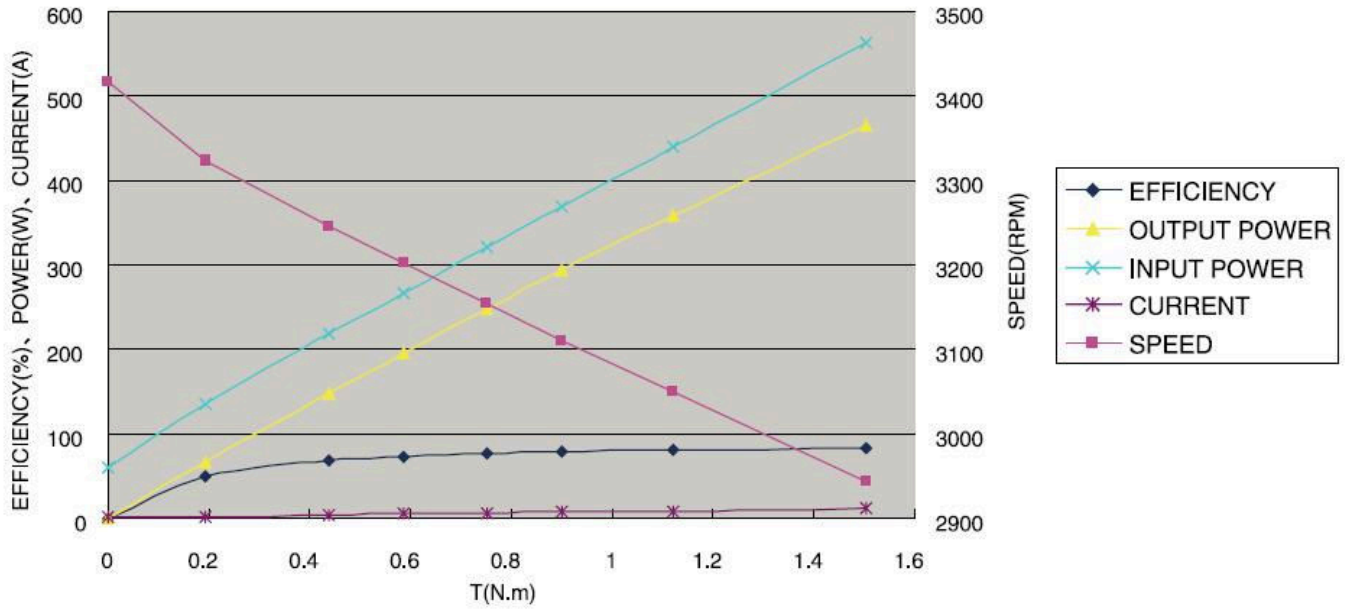




# 86mm S Series BLDC Motor

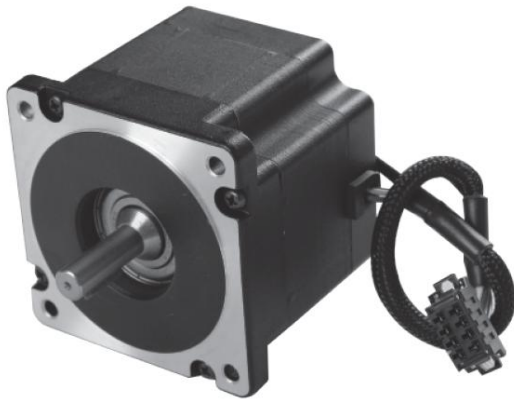


M048BI1400-86S-94, 48VDC, 440W



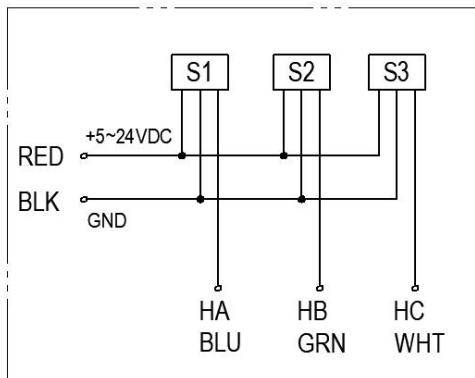


# 86 mm S-2 Series BLDC Motor



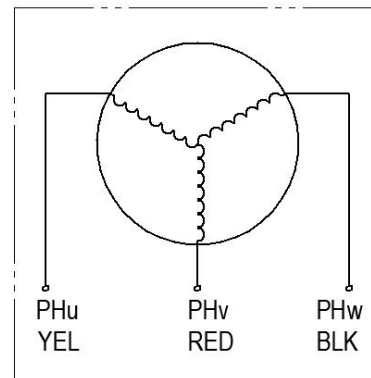
Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	220N (20mm from the flange)
Max. axial force	60N

## Wiring Diagram



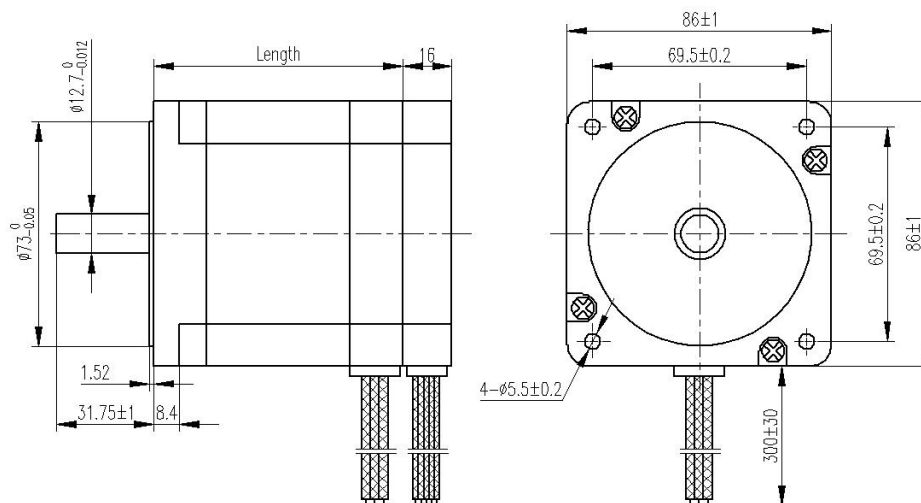
Hall sensor cable

Note: hall sensor power supply voltage +5~24VDC



Motor wiring cable

## Dimensions



## 86 mm S-2 Series BLDC Motor

### Specification

Type	M048BI0350-86-56	M048BI0700-86-70	M048BI1050-86-84	M048BI1400-86-96	M048BI2100-86-123
Number of Poles	8	8	8	8	8
Number of Phases	3	3	3	3	3
Nominal Voltage (VDC)	48	48	48	48	48
Rated Speed (RPM)	3000	3000	3000	3000	3000
Rated Torque (mN·m)	350	700	1050	1400	2100
Rated Power (W)	110	220	330	440	660
Peak Torque (mN·m)	1050	2100	3150	4200	6300
Peak Current (A)	9.5	20	24	33	56
Resistance (ohms)	0.9	0.34	0.2	0.16	0.10
Inductance (mH)	2.6	1	0.66	0.5	0.31
Torque Constant (mN·m/A)	116	124	127	127	128
Back EMF (V/KRPM)	8.6	9	9.4	9.4	9.5
Rotor Inertia (g·cm <sup>2</sup> )	400	800	1200	1600	2400
Body Length (mm)	56	70	84	96	123
Weight (kg)	1.6	2.12	2.64	3.15	4.2

## 92mm R Series BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	E
Ambient Temperature Range	-20°C~+43°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	1800VAC for one sec.

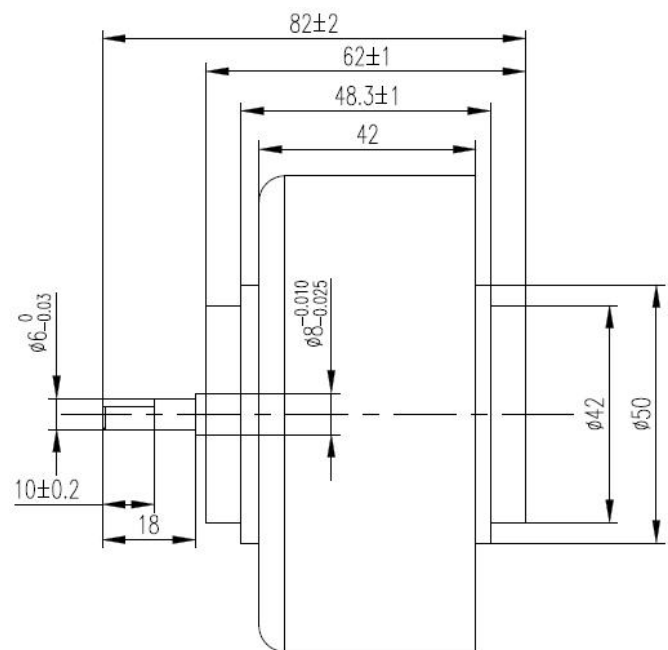
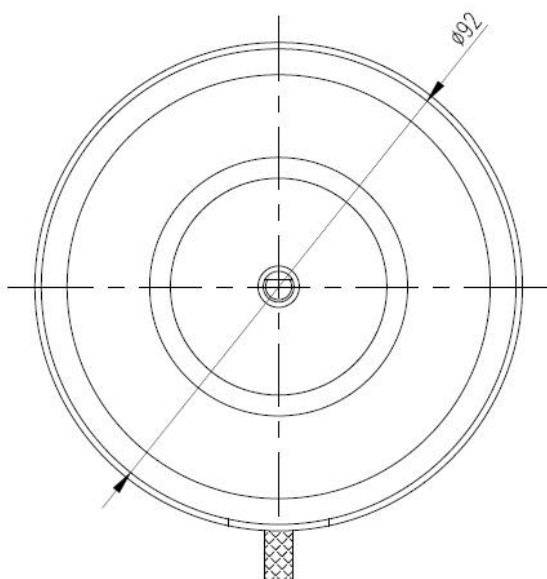
### Application

- Air purifier

### Configuration

- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

### Dimensions



## 92mm R Series BLDC Motor

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### Specification

<b>Model</b>	<b>M310BI0273-92-42</b>
Number of Poles	8
Number of Phases	3
Nominal Voltage (VAC)	310
Rated Speed (RPM)	1050
Output Power (W)	30
Peak Torque (N • m)	0.273
Body Length (mm)	42
Outer diameter (mm)	92

# 95mm S Series BLDC Motor

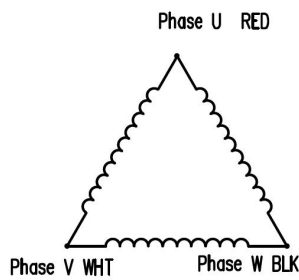


Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+40°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	600VDC for one second
Shaft Radial Play	max. 0.02 (450g-load)
Shaft Axial Play	max. 0.08 (450g-load)
Max. radial force	392N (10mm from the flange)
Max. axial force	147N

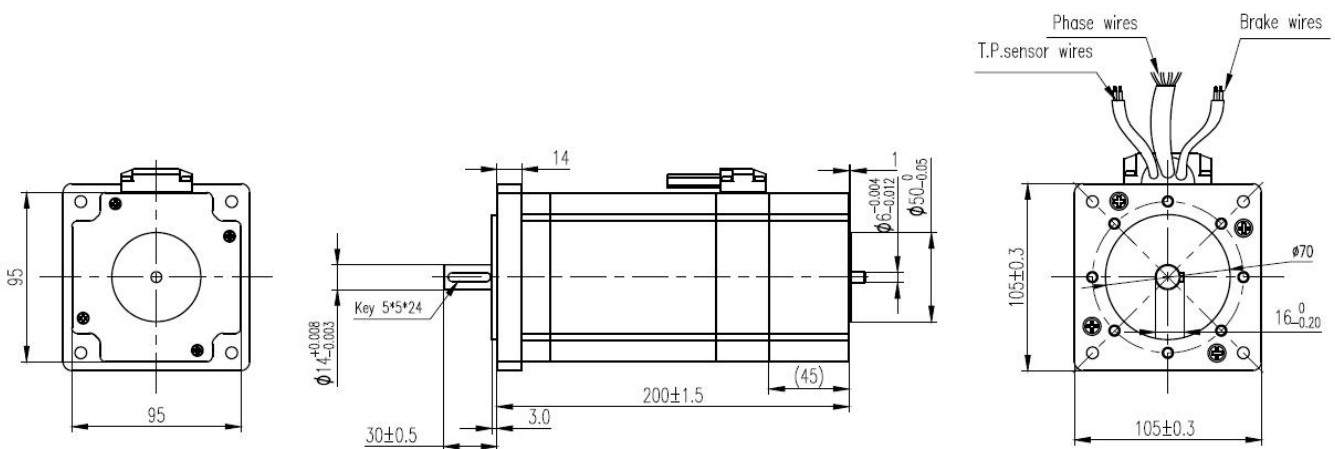
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram



## Dimensions



## 95mm S Series BLDC Motor



### Specification

Model	M048BI2000-95-155
Number of Poles	8
Number of Phases	3
Nominal Voltage (VDC)	48
Rated Speed (RPM)	3000
Continuous Torque (N · m)	2.0
Rated Current (A)	16.5
Output Power (W)	630
Peak Torque (N · m)	6.0
Peak Current (A)	33
Torque Constant (N · m/A)	0.1
Back EMF (V/KRPM)	6.7
Body Length (mm)	155
IP class	IP65
Weight (kg)	5.8

# 120mm S Series BLDC Motor

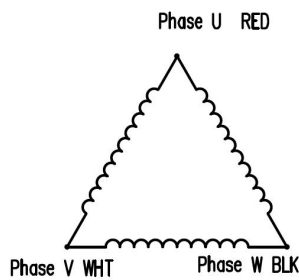


Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+40°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	600VDC for one second
Shaft Radial Play	max. 0.01 (450g-load)
Shaft Axial Play	max. 0.02 (450g-load)
Max. radial force	490N (20mm from the flange)
Max. axial force	196N

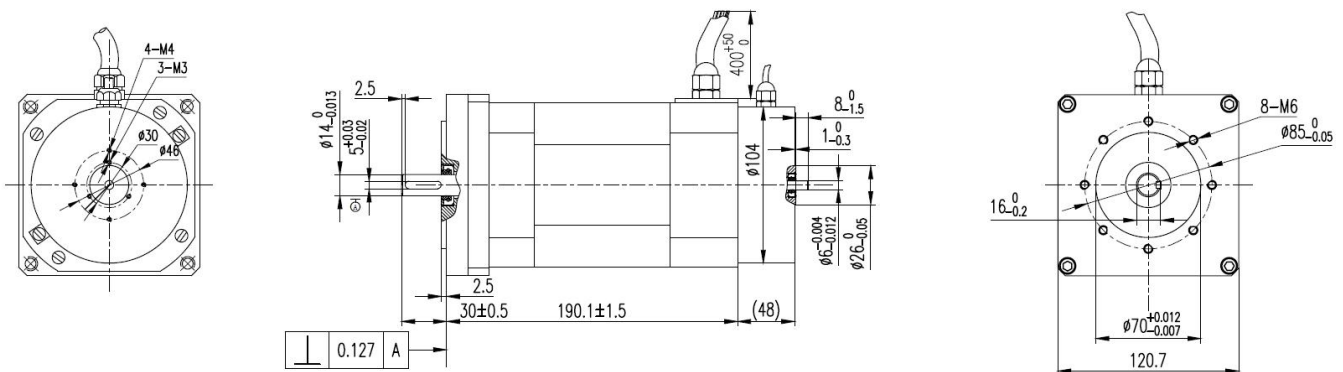
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram



## Dimensions



## 120mm S Series BLDC Motor

### Specification

Model	M048BI2000-120-190	M048BI6000-120-175(with housing)
Number of Poles	8	8
Number of Phases	3	3
Nominal Voltage (VDC)	48	48
Rated Speed (RPM)	3000	4000
Continuous Torque (N · m)	2.0	6.0
Rated Current (A)	17	65
Output Power (W)	630	2510
Peak Torque (N · m)	8.0	20
Peak Current (A)	33	-
Torque Constant (N · m/A)	0.12	0.6
Back EMF (V/KRPM)	12.6	62.9
Body Length (mm)	190	175
IP class	IP53	IP53
Weight (kg)	10.9	20



# 120mm S-1 Series BLDC Motor

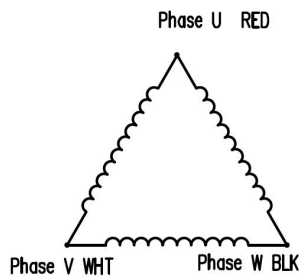


Item	General Specifications
Winding type	Delta
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+40°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	600VDC for one second
Shaft Radial Play	max. 0.01 (450g-load)
Shaft Axial Play	max. 0.02 (450g-load)
Max. radial force	490N (20mm from the flange)
Max. axial force	196N

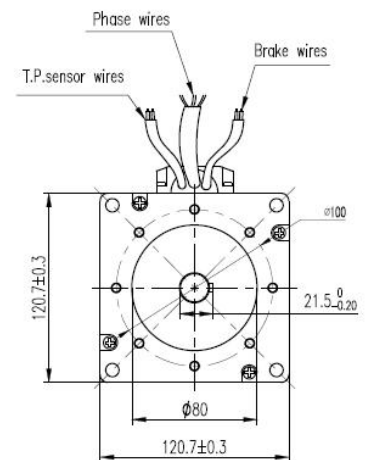
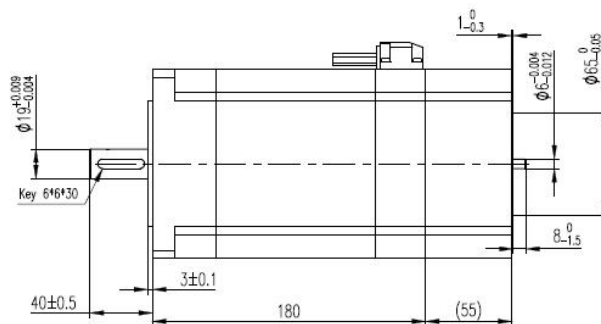
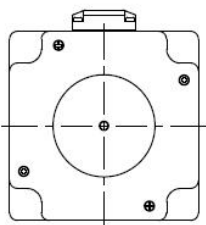
## Configuration

- Encoder
- Brakes
- Shaft Modification and double shaft
- Other winding voltage possible
- Other Types available with special length

## Wiring Diagram



## Dimensions



## 120mm S-1 Series BLDC Motor

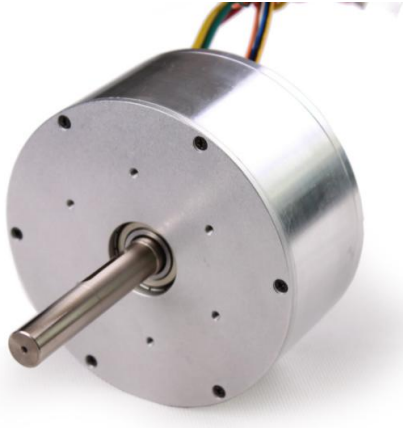
### Specification

Model	M048BI2000-120-180	M048BI3500-120-180	M048BI4200-120-180
Number of Poles	8	8	8
Number of Phases	3	3	3
Nominal Voltage (VDC)	48	48	48
Rated Speed (RPM)	3300	3300	3300
Continuous Torque (N • m)	2.0	3.5	4.2
Rated Current (A)	17	27	30
Output Power (W)	690	1200	1450
Peak Torque (N • m)	8.0	8.0	8.0
Peak Current (A)	33		
Torque Constant (N • m/A)	0.12		
Back EMF (V/KRPM)	9.1		
Body Length (mm)	180	180	180
IP class	IP65	IP65	IP65
Weight (kg)	11.4	11.4	11.4

# 125mm Series BLDC Motor

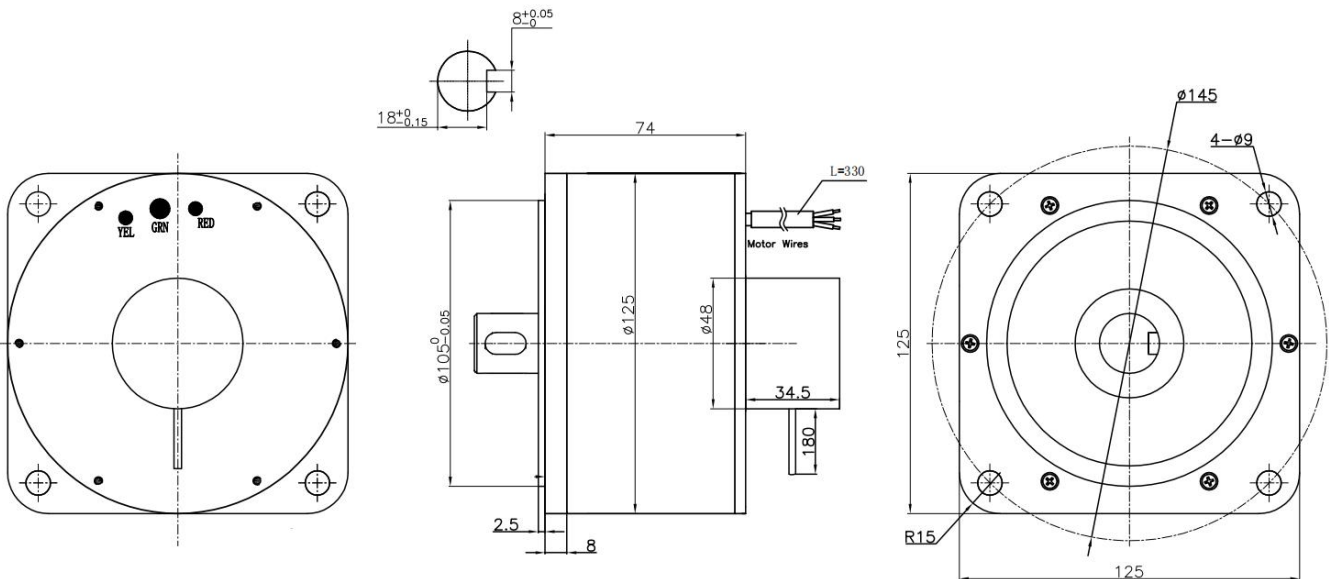
**Description:** This is a disk-type brushless motor with encoder (17-bit absolute optical encoding). It can be used in the field of AGV and robotics.

## General Specifications



Item	Specifications
Back EMF	13 V/krpm
Torque constant	0.175 N.m/A
Insulation class	B 130° C
Ambient Temperature	-20° C~+50° C
Dielectric streng	600VAC 1SEC
Insulation resist	100MOhm@500VDC
Speed constant	100 rpm/V
Storage ambient	-20° C~+85° C

## Dimensions



## 125mm Series BLDC Motor

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### Technical Specifications

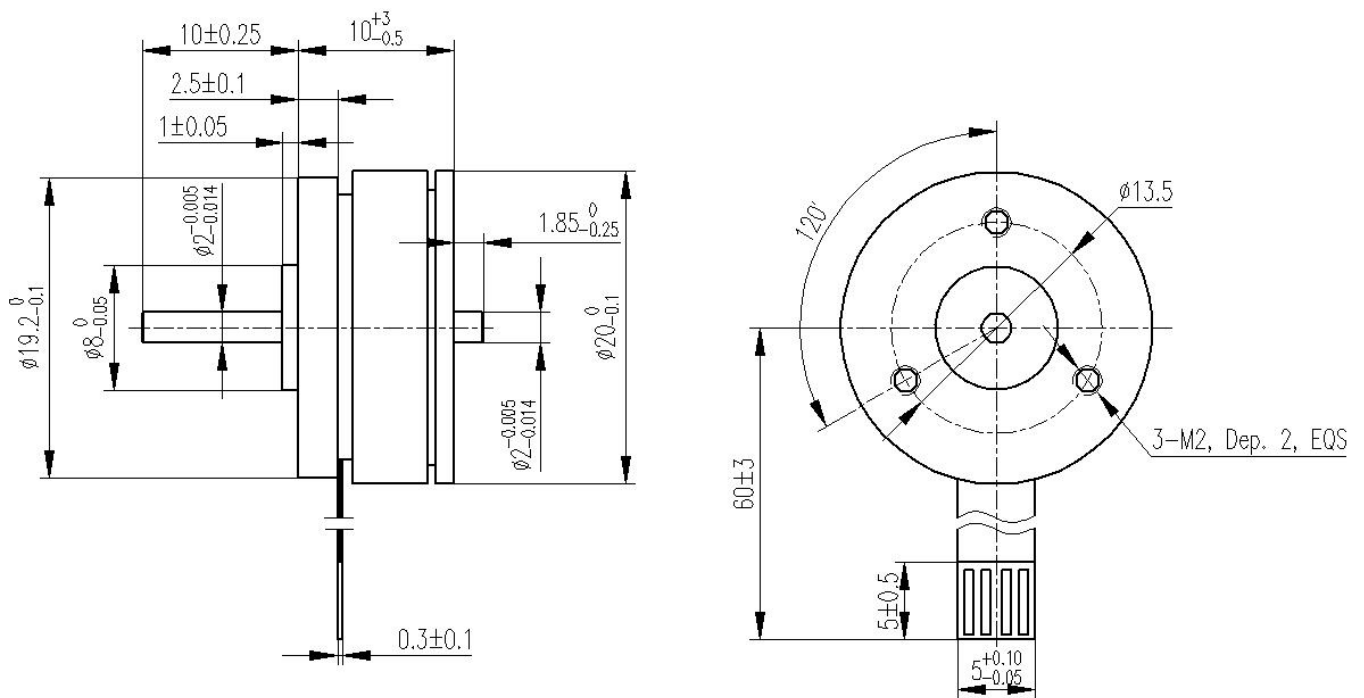
Item	M024BI4000-125-74
Number of Poles	28
Voltage (VDC)	24
No load speed (rpm)	1300
No load current (A)	1
Rated Torque (N.m)	4
Rated speed (rpm)	1000
Rated Current (A)	23
Peak torque (N.m)	12
Peak current (A)	69
Length (mm)	74

# 20 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.08 (2N-load)
Max. radial force	5N
Max. axial force	2N

## Dimensions



## 20 mm Series Outer Rotor BLDC Motor



### Specification

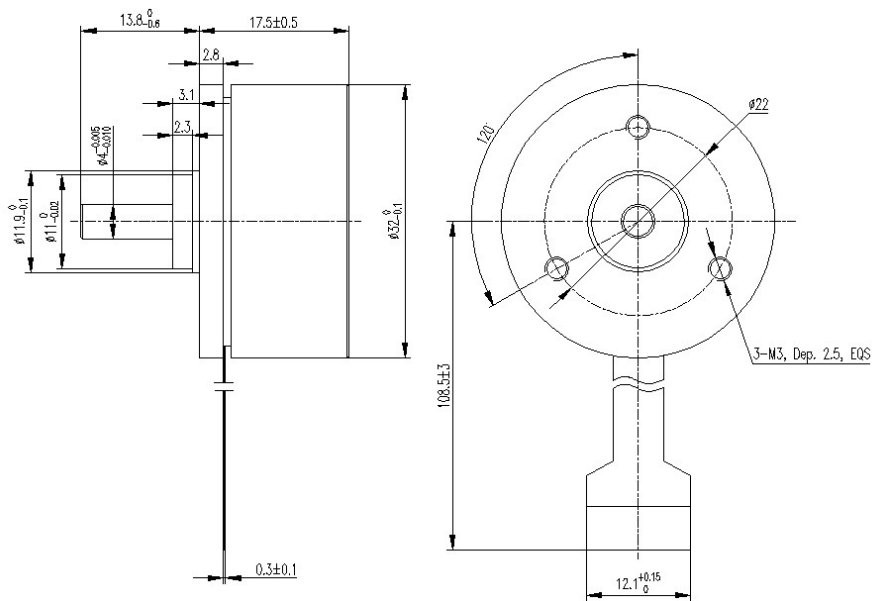
Type	M009BE0004-20-10
Number of Poles	8
Number of Phases	3
Nominal Voltage (VDC)	9
No-load Speed (RPM)	9760
No-load Current (A)	0.35
Rated Speed (RPM)	4180
Rated Torque (mN·m)	4.05
Rated Power (W)	1.8
Peak Torque (mN·m)	12
Peak Current (A)	1.05
Resistance (ohms)	9.4
Inductance (mH)	1.3
Torque Constant (mN·m/A)	8.4
Back EMF (V/KRPM)	0.65
Rotor Inertia (g·cm <sup>2</sup> )	3.9
Body Length (mm)	10
Weight (kg)	0.015

# 32 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.15 (4N-load)
Max. radial force	14N
Max. axial force	4.8N

## Dimensions



## 32 mm Series Outer Rotor BLDC Motor



### Specification

Type	M009BE0025-32-18	M012BE0025-32-18	M024BE0025-32-18	M048BE0025-32-18
Number of Poles	8	8	8	8
Number of Phases	3	3	3	3
Nominal Voltage (VDC)	9	12	24	48
No-load Speed (RPM)	3720	4610	4530	4780
No-load Current (A)	0.252	0.29	0.14	0.077
Rated Speed (RPM)	2090	2810	2760	2940
Rated Torque (mN · m)	24.6	25.1	25.5	24.7
Rated Power (W)	6	7	7	8
Peak Torque (mN · m)	73.8	75.3	76.5	74.1
Peak Current (A)	3.18	3	1.5	0.78
Resistance (ohms)	2.87	3.43	13.7	53
Inductance (mH)	1.61	1.87	7.73	27.8
Torque Constant (mN · m/A)	23	24.5	50	95
Back EMF (V/KRPM)	1.7	1.84	3.75	7.1
Rotor Inertia (g · cm <sup>2</sup> )	35	35	35	35
Body Length (mm)	17.5	17.5	17.5	17.5
Weight (kg)	0.05	0.05	0.05	0.05



# 41 mm Series Outer Rotor BLDC Motor

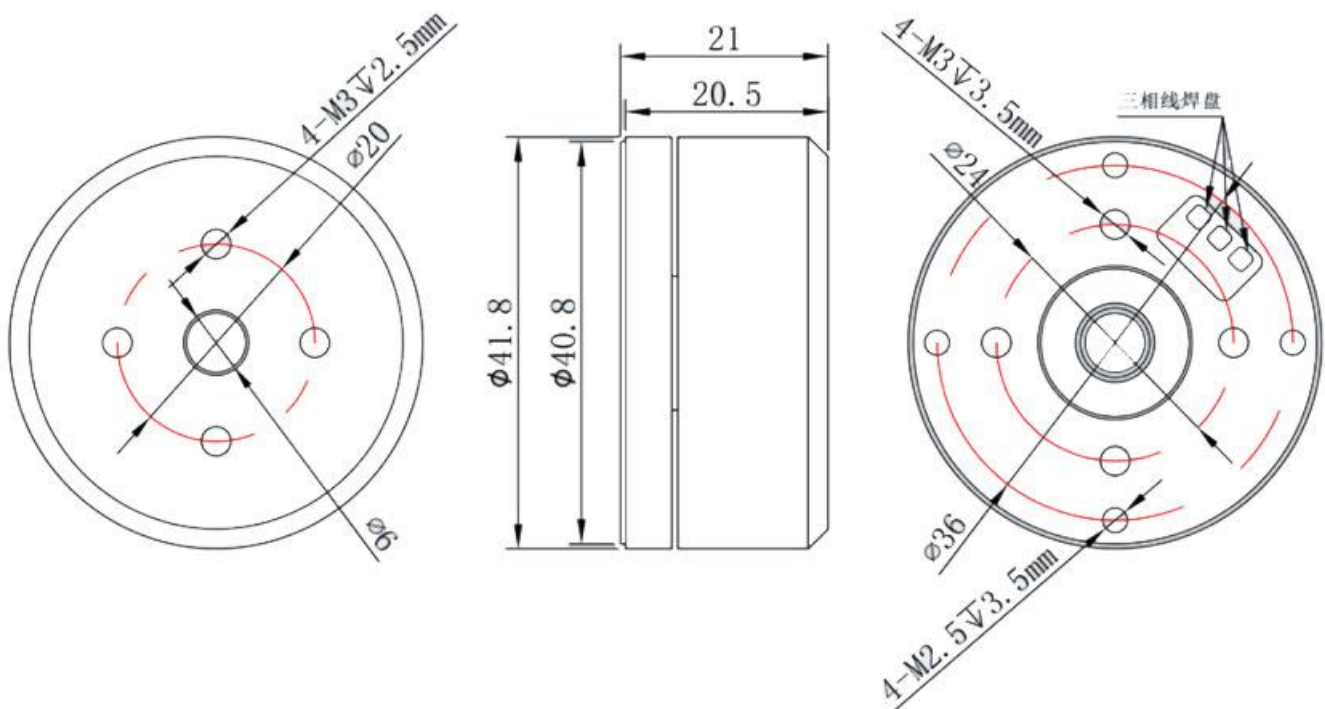


## General Specifications



Item	Specifications
Resistance/Line	3.5 $\Omega$
Inductance/Line	2.1 mH
KV	KV100
Torque constant	0.15 Nm/A
Rotor inertia	61 g/cm <sup>2</sup>
IP Class	IP45
Magnet temperature resistance class	H 180° C

## Dimensions



## 41 mm Series Outer Rotor BLDC Motor

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### Technical Specifications

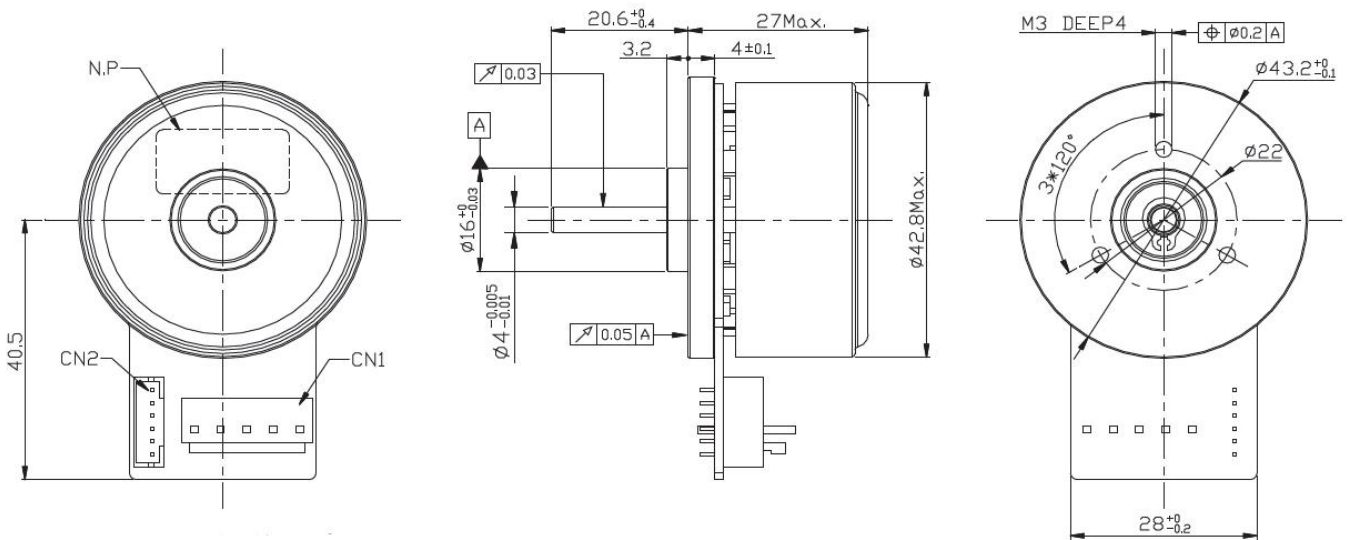
Item	M016BE0150-41-21
Number of poles	12N14P
Voltage (VDC)	16
Rated Current (A)	1.45
Rated Torque (N·m)	0.15
Rated speed (rpm)	900
Peak Current (A)	4.5
Peak Torque (N·m)	0.46
Body Length (mm)	21
Weight (g)	90

# 45 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.14 (4N-load)
Max. radial force	28N
Max. axial force	10N

## Dimensions



## 45 mm Series Outer Rotor BLDC Motor



### Specification

Type	M024BE0050-45-18	M024BE0084-45-21	M024BE0130-45-27
Number of Poles	16	16	16
Number of Phases	3	3	3
Nominal Voltage (VDC)	24	24	24
No-load Speed (RPM)	6500	6700	6100
No-load Current (A)	0.27	0.33	0.38
Rated Speed (RPM)	5000	5260	4840
Rated Torque (mN·m)	50	84	130
Rated Power (W)	30	50	70
Peak Torque (mN·m)	150	250	390
Peak Current (A)	4.8	7.8	11
Resistance (ohms)	1.42	0.70	0.56
Inductance (mH)	0.59	0.33	0.27
Torque Constant (mN·m/A)	35.3	34.2	37.2
Back EMF (V/KRPM)	2.61	2.53	2.75
Rotor Inertia (g·cm <sup>2</sup> )	99	135	181
Body Length (mm)	18	21	27
Weight (kg)	0.08	0.12	0.15

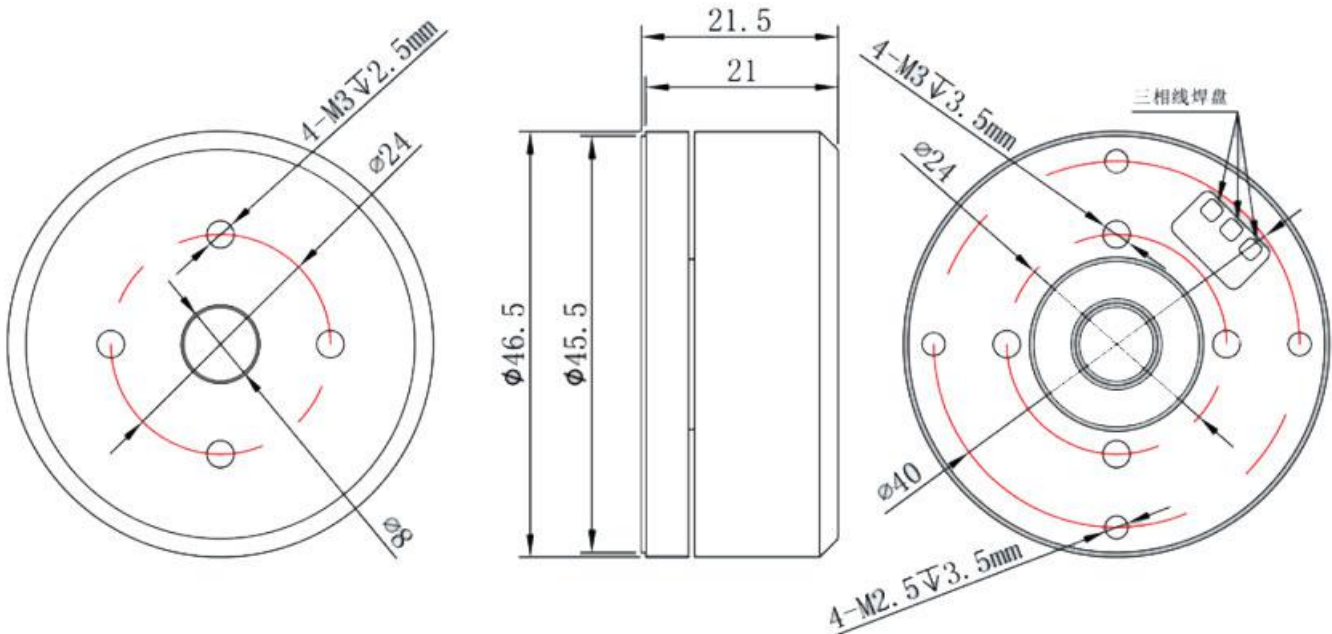
# 46mm Series Outer Rotor BLDC Motor

## General Specifications



Item	Specifications
Resistance/Line	4.5 $\Omega$
Inductance/Line	1.8 mH
KV	KV70
Torque constant	0.14 Nm/A
Rotor inertia	74 g/cm <sup>2</sup>
IP Class	IP45
Magnet temperature resistance class	H 180° C

## Dimensions



## 46mm Series Outer Rotor BLDC Motor

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### Technical Specifications

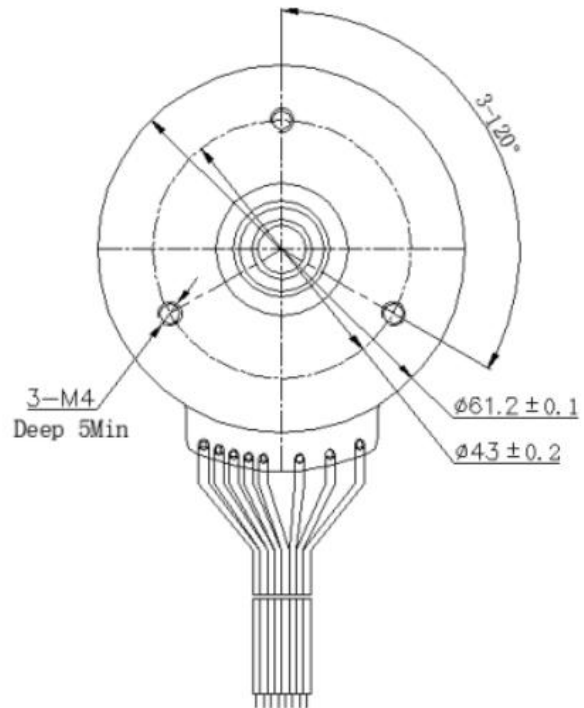
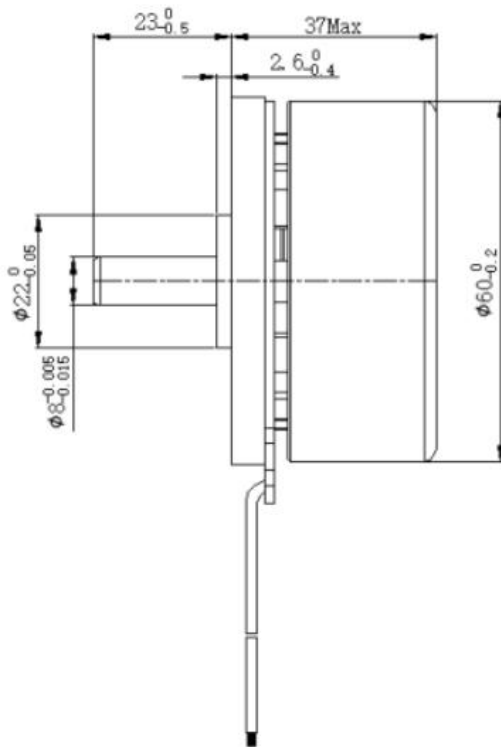
Item	M016BE0250-46-21
Number of poles	24N28P
Voltage (VDC)	16
Rated Current (A)	1.65
Rated Torque (N·m)	0.25
Rated speed (rpm)	600
Peak Current (A)	5
Peak Torque (N·m)	0.73
Body Length (mm)	21
Weight (g)	107

# 60 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.15 (4N-load)
Max. radial force	40N
Max. axial force	15N

## Dimensions



## 60 mm Series Outer Rotor BLDC Motor



### Specification

Type	M012BE0267-60-37	M024BE0284-60-37	M048BE0317-60-37
Number of Poles	14	14	14
Number of Phases	3	3	3
Nominal Voltage (VDC)	12	24	48
No-load Speed (RPM)	3710	4250	3970
No-load Current (A)	<0.5	<0.5	<0.5
Rated Speed (RPM)	3190	3740	3500
Rated Torque (mN·m)	267	284	317
Rated Power (W)	90	110	120
Peak Torque (mN·m)	800	852	950
Peak Current (A)	26.64	16.2	8.3
Resistance (ohms)	0.128	0.307	1.1
Inductance (mH)	0.0615	0.188	0.864
Torque Constant (mN·m/A)	30	52.7	114
Back EMF (V/KRPM)	2.22	3.9	8.43
Rotor Inertia (g·cm <sup>2</sup> )	1210	1210	1210
Body Length (mm)	37	37	37
Weight (kg)	0.48	0.48	0.48

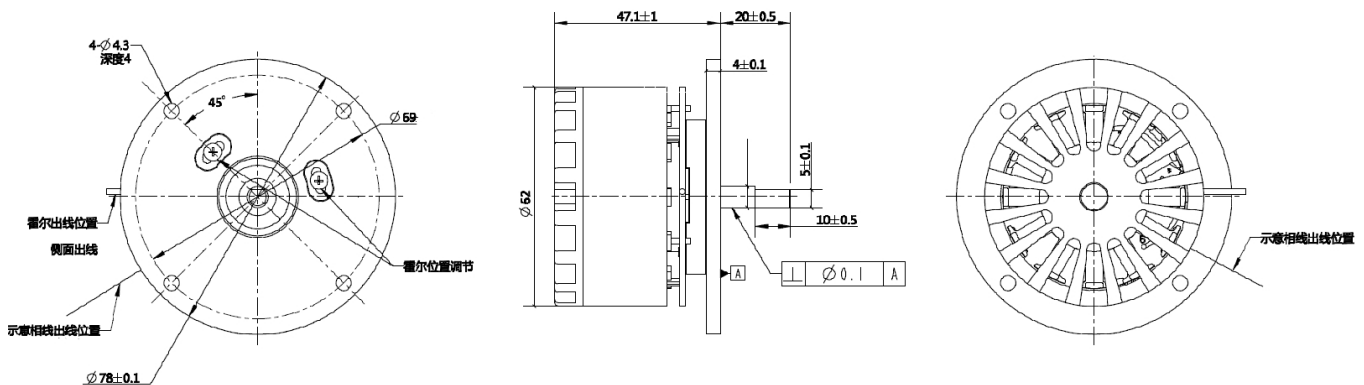


# 62 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.08 (4N-load)
Max. radial force	28N
Max. axial force	10N

## Dimensions



## Specification

Type	M025BE0800-62-47
Number of Poles	14
Number of Phases	3
Nominal Voltage (VDC)	25
No-load Speed (RPM)	7000
No-load Current (A)	3
Rated Speed (RPM)	5850

## 62 mm Series Outer Rotor BLDC Motor

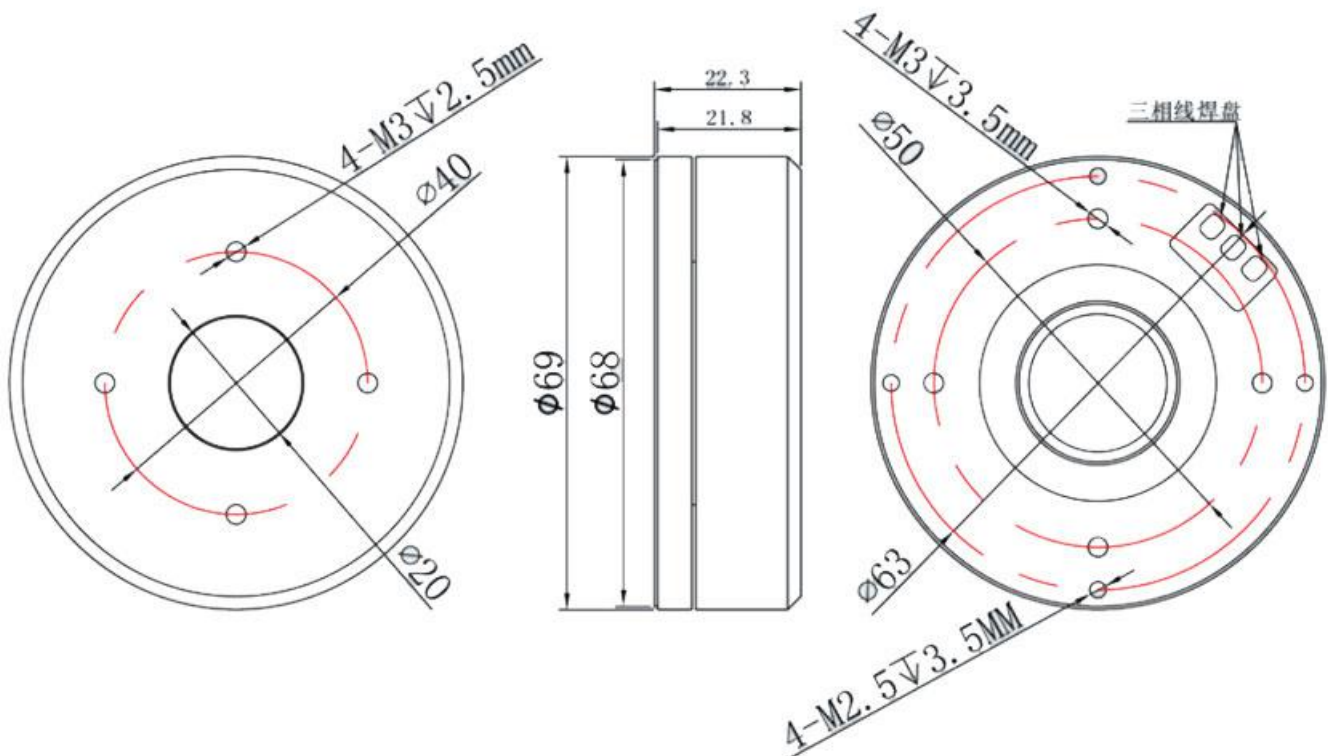
Rated Torque (mN·m)	800
Rated Power (W)	490
Peak Torque (mN·m)	2400
Peak Current (A)	60
Resistance (ohms)	0.05
Inductance (mH)	0.05
Torque Constant (mN·m/A)	33
Back EMF (V/KRPM)	2.55
Rotor Inertia (g·cm <sup>2</sup> )	1100
Body Length (mm)	47
Weight (kg)	0.5

## General Specifications



Item	Specifications
Resistance/Line	5.5 $\Omega$
Inductance/Line	2.72 mH
KV	KV25
Torque constant	0.4 Nm/A
Rotor inertia	355 g/cm <sup>2</sup>
IP Class	IP45
Magnet temperature resistance class	E 180° C

## Dimensions



## 69 mm Series Outer Rotor BLDC Motor



### Technical Specifications

Item	M024BE0600-69-22
Number of poles	24N28P
Voltage (VDC)	24
Rated Current (A)	1.43
Rated Torque (N·m)	0.6
Rated speed (rpm)	350
Peak Current (A)	4.2
Peak Torque (N·m)	1.75
Body Length (mm)	22
Weight (g)	230

# 87 mm Series Outer Rotor BLDC Motor

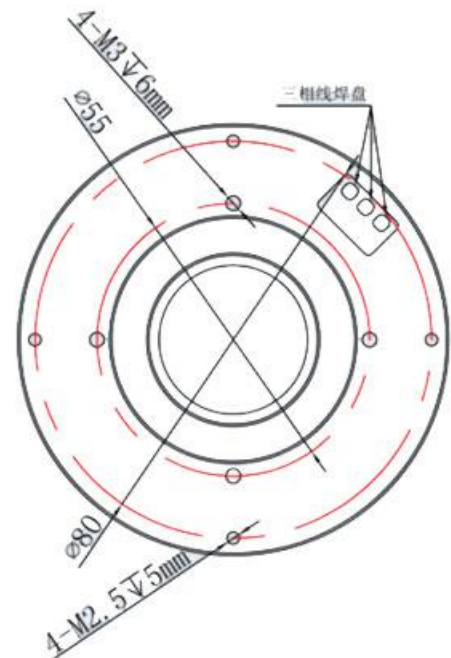
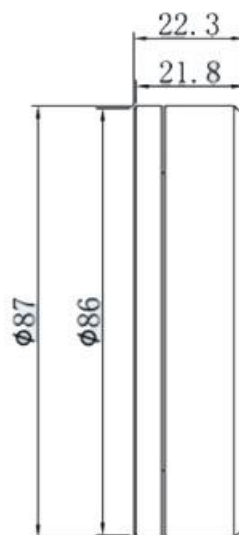
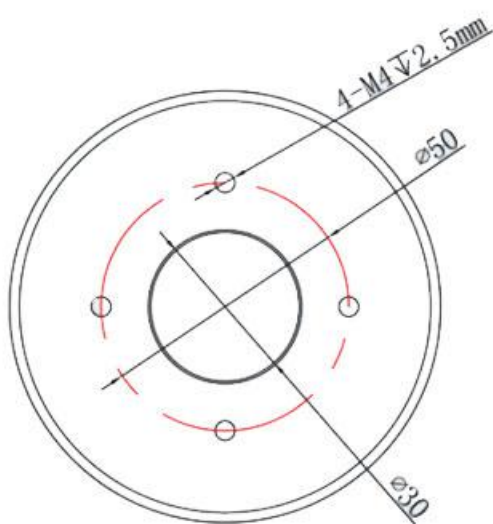


## General Specifications



Item	Specifications
Resistance/Line	1.8 $\Omega$
Inductance/Line	1.1 mH
KV	KV30
Torque constant	0.17 Nm/A
Rotor inertia	650 g/cm <sup>2</sup>
IP Class	IP45
Magnet temperature resistance class	E 150° C

## Dimensions



## 87 mm Series Outer Rotor BLDC Motor



### Technical Specifications

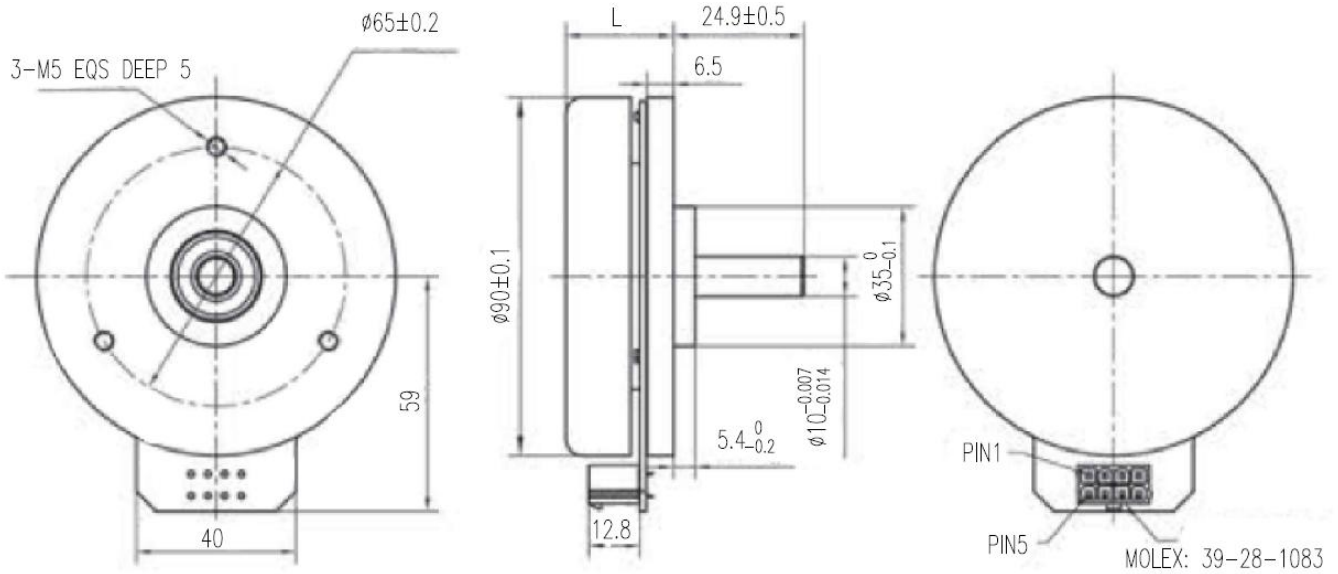
Item	M024BE1000-87-22
Number of poles	36N42P
Voltage (VDC)	24
Rated Current (A)	2.8
Rated Torque (N·m)	1
Rated speed (rpm)	450
Peak Current (A)	8.3
Peak Torque (N·m)	2.9
Body Length (mm)	22
Weight (g)	315

# 90 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	600VAC for one second
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.14 (4N-load)
Max. radial force	110N @10mm from the flange
Max. axial force	45N

## Dimensions



## Specification

Type	M024BE0457-90-27	M048BE0964-90-40
Number of Poles	22	22
Number of Phases	3	3
Nominal Voltage (VDC)	24	48
No-load Speed (RPM)	3200	1900
Rated Speed (RPM)	2700	1670
Rated Torque (N·m)	0.457	0.964
Rated Power (W)	130	169
Peak Torque (N·m)	1.6	3
Peak Current (A)	23	13
Resistance (ohms)	0.21	0.65
Inductance (mH)	0.19	0.9
Torque Constant (mN·m/A)	63	241
Back EMF (V/KRPM)	5.2	17.9
Rotor Inertia (g·cm <sup>2</sup> )	3000	5000
Body Length (mm) L	27	40
Weight (kg)	0.6	1



## 90 mm Series Outer Rotor BLDC Motor

### M024BE33500-90-45 Characteristics

It can adapt to a variety of heavy load mechanical equipment such as legged robot. More torque. More stable

The maximum output torque is 33.5N.m. Easy to achieve powerful instant power  
21 rad / s joint maximum speed makes the instantaneous speed increase beyond imagination



Outstanding  
Power



Highly  
Integrated



Cross Roller  
Bearing



Temperature &  
Position Sensor



Low Copper  
consumption coil

Function	Parameter
Maximum Torque	33.5 N.m
Weight	about 605g
Operating Voltage	12~30V (Recommended Voltage:24V)
Maximum Current	40A
Maximum Speed	21.0 rad/s (24V Power Supply)
Torque Constant	0.8372N.m/A
Communication Method	RS 485
Communication Control Frequency	1k
Temperature Sensor	Equipped
Motor End Encoder Resolution	15bit
Motor-aware Feedback	Torque, Angle, Angular Velocity,Angular Acceleration, Temperature
Motor Control Instructions	Torque, Angle,Angular Velocity,Stiffness, Damping

### Highly Integrated

It integrates motor body and controller, and thus removes cumbersome connecting lines.

Outlet connectors support plug-and-play function.

Quick disassembly design makes maintenance easier

The enclosed design can prevent dust from entering into the motor



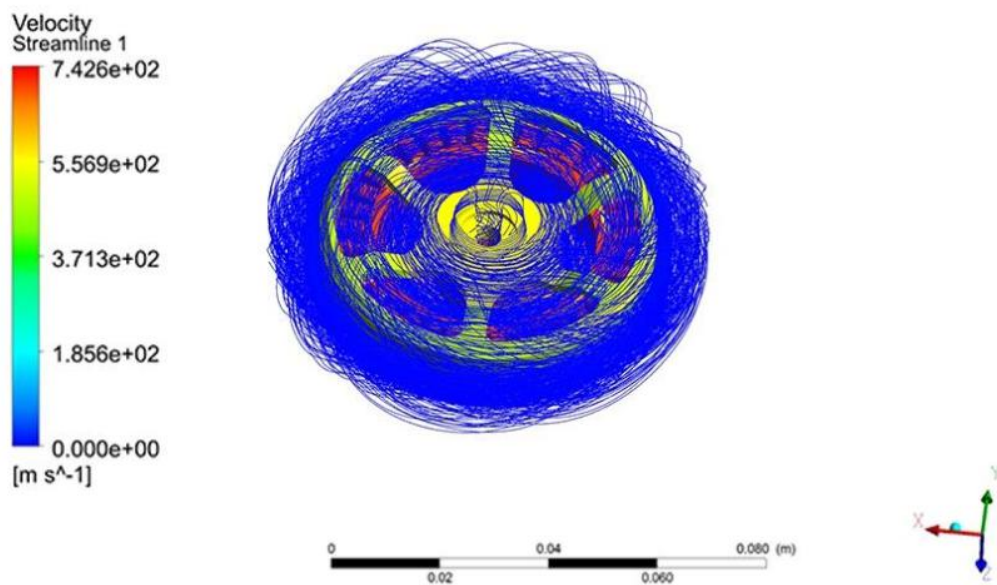
### Reasonable Body Design



- Ultra thin design
- Use every 0.1mm space accurately
- Planetary reducer with limit optimization
- Multi-function. Small fuselage. Weight only 605g

## Motor Velocity Field Chart

Thousands of times of velocity streamline calculation  
Ensure the stability and reliability of the motor in any scenario



### High Quality Electromagnetic Wire And Iron Core Technology

- The electromagnetic wire adopts the technology of dipping paint to make the motor temperature get better heat dissipation
- Single stranded copper wire. Reduce copper consumption and current interference between copper wires. At the same time, make the motor more beautiful



- The iron core adopts electrophoresis and high temperature resistant coating technology. It can pass the 48 hour salt spray test. Super rust proof, temperature resistant and pressure resistant
- Choose 0.2mm silicon steel sheet material to reduce iron consumption

### Super large industrial grade cross roller bearing

Resistance to axial impact  
High precision and long life



### Read sensor data in real time

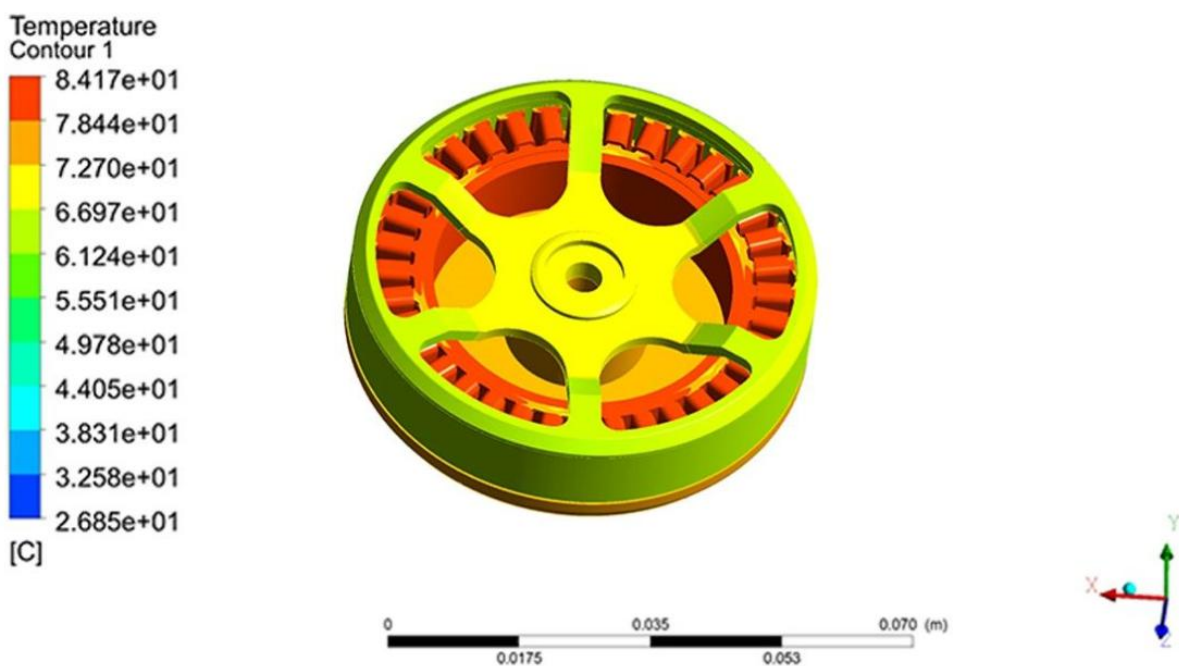
Motor perception feedback: torque, angle, angular speed, angular acceleration, temperature  
Motor control command: torque, angle, angular speed, stiffness, damping



## Temperature Detection Sensor

Motor with temperature detection sensor

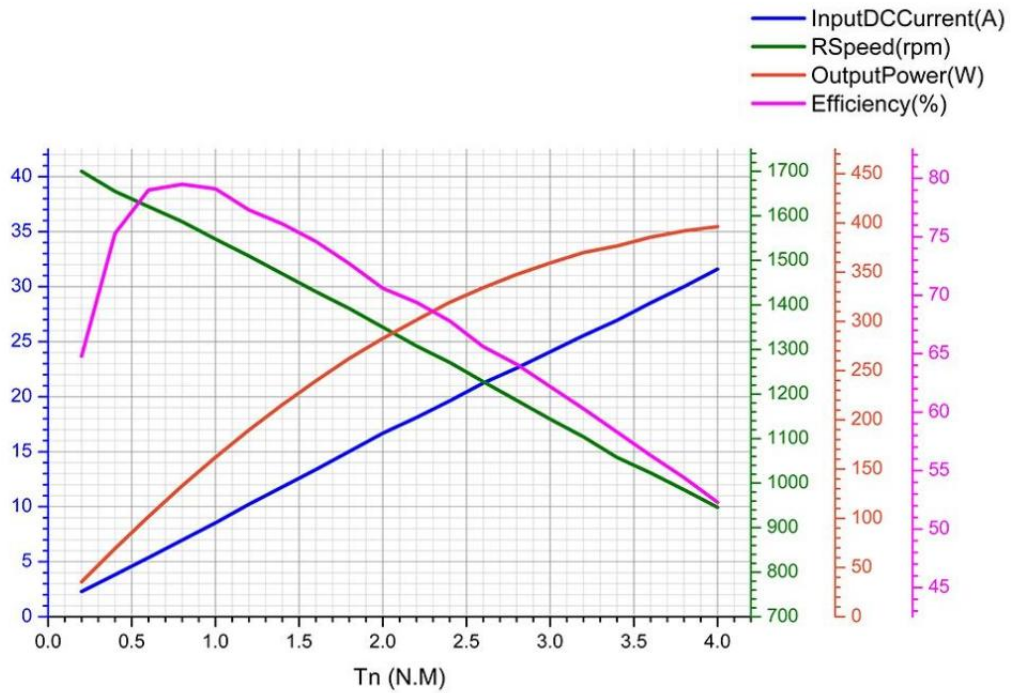
It can effectively prevent the motor from being damaged due to abnormal temperature





## FOC Control Characteristic Curve

FOC control. Torque fluctuation is small. Low noise. Smoother operation



# 93 mm Series Outer Rotor BLDC Motor



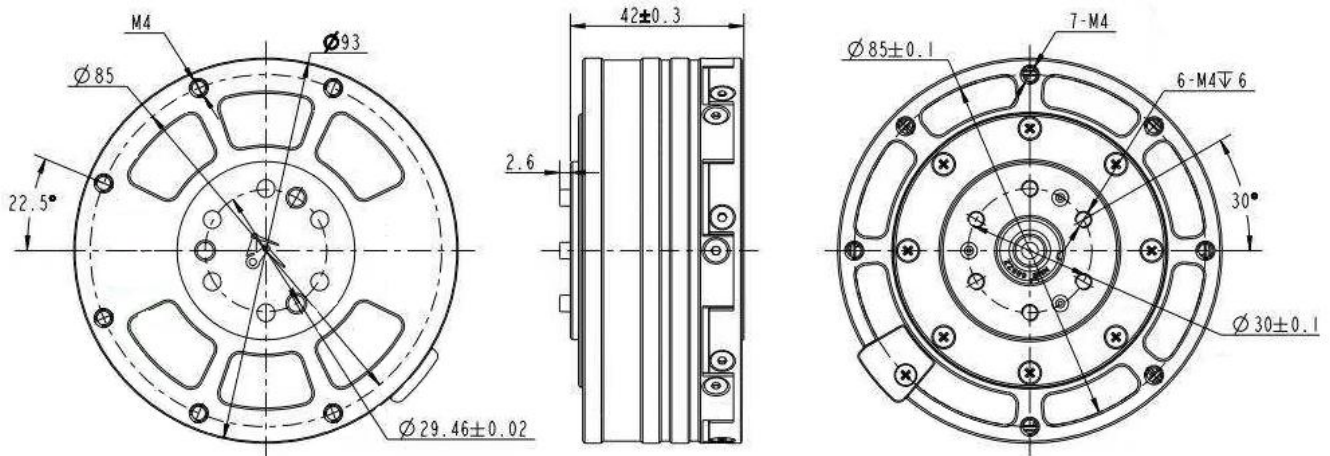
**Description:** This is a brushless motor with gearbox. This motor is mainly used in the joints of robots.

## General Specifications

Item	Specifications
Back EMF	2.07 V/krpm
Torque constant	0.342 N.m/A
Insulation class	F 155° C
Ambient Temperature	-20° C~+50° C
Dielectric streng	600VAC 1SEC
Insulation resist	100MOhm@500VDC
Resistance/Line	0.5 ohms@20° C
Inductance/Line	0.4 mH



## Dimensions



## 93 mm Series Outer Rotor BLDC Motor



### Technical Specifications

Item	M036BE2750-93-42
Number of Poles	42
Voltage (VDC)	36
No load speed (rpm)	1200
No load current (A)	0.4
Rated Torque (N.m)	2.75
Rated speed (rpm)	700
Rated Current (A)	8
Peak torque (N.m)	7
Peak current (A)	20.5
Shaft radial play(mm)	0.02 Max@4N
Shaft Axial play	0.14 Max@4N
Length (mm)	42



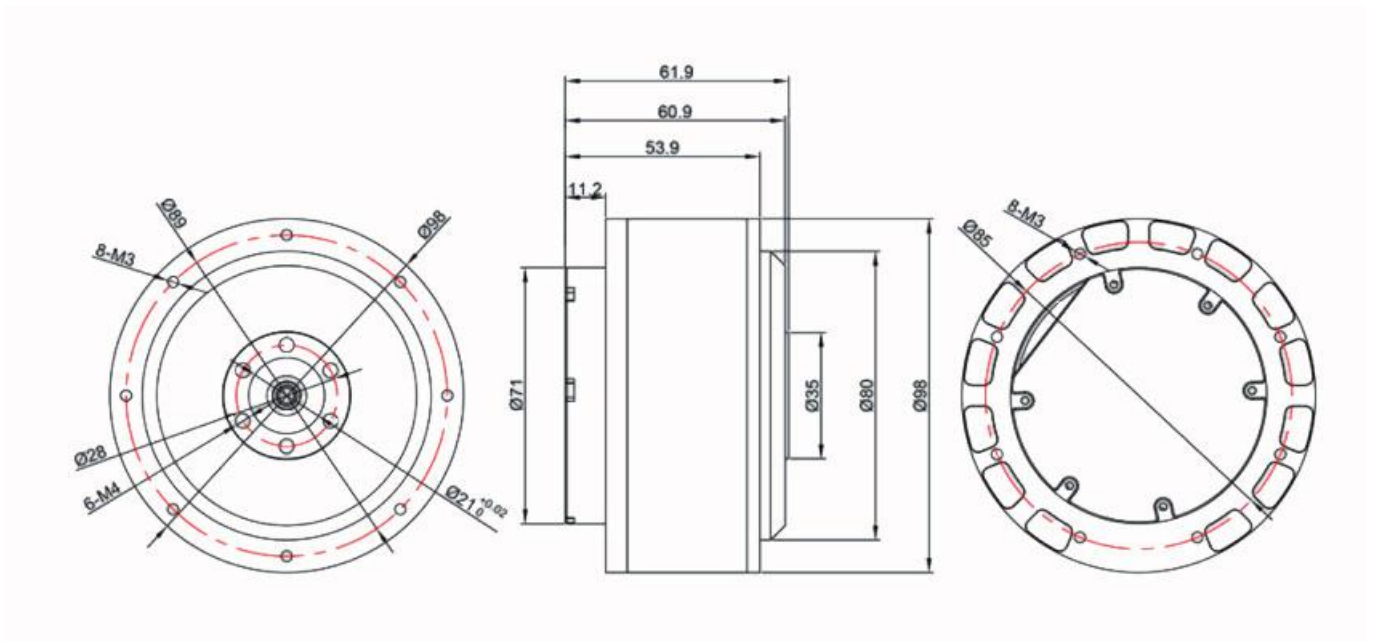
# 98 mm Series Outer Rotor BLDC Motor



## General Specifications

Item	Specifications
Back EMF	0.01 V/rpm
Resistance/Line	161 mΩ
Inductance/Line	73.2 uH
Ambient Temperature	-20° C ~ +50° C
Motor Constant	0.01 Nm/√w
Torque constant	0.095 Nm/A
Speed constant	100 rpm/V
Ratio	80:1

## Dimensions

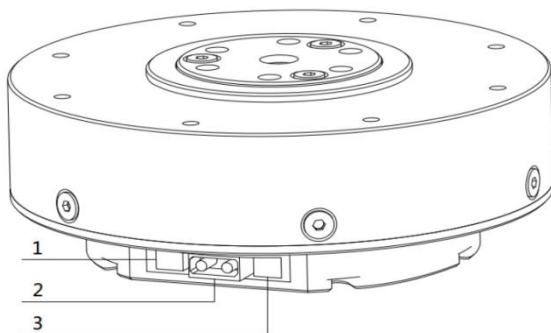


# 98 mm Series Outer Rotor BLDC Motor

## Technical Specifications

Item	M024BE48000-98-42
Number of Poles	21
Voltage (VDC)	24/48
Continuous Torque (N·m)	48
Peak Torque (N·m)	144
Continuous torque max speed (rpm)	28/57
Continuous Current (A)	13
Peak Current (A)	40
Body Length (mm)	42.7
Weight (kg)	0.79

## Description



This is a high-end actuator including brushless DC motor, integrated planetary gear reducer, encoder and driver. It can be widely used in the fields of exoskeleton, walking robot, automation equipment, scientific research and education. The driver uses field oriented control (FOC) algorithm, with high precision angle sensor, precise position and torque control can be achieved. The design of 36N42P, rare earth material magnet and high precision planetary gear reducer can provide more stable and larger torque for the motor. The motor supports a variety of communication protocols, it provides a human-machine interaction interface through

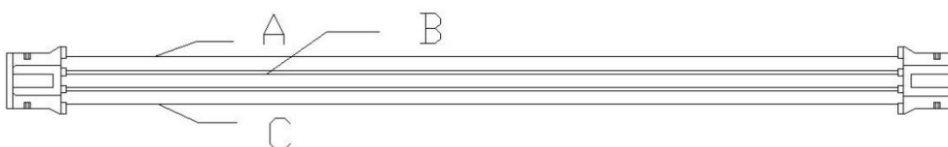
communication with the PC, enabling users to control the motor faster and more accurately.

## Interface

### 1. Serial Signal Port

Link to PC via UART to set motor zero position, calibrate encoder, set driver ID, Max. current and other parameters.

A:GND B:RX C:TX Length of wire:200mm



## 2. Power interface

The power (rated voltage 24V) is connected to the motor through the XY30 connector.

A:Power(-)—Black B:Power(+)—Red



## 3. CAN signal interface

External equipment can send control instructions through CAN signal and feedback status information of motor. The CAN bus bit rate is 1 Mbps, the host ID number is 0x00 by default.

A:CAN\_H B:CAN\_L Length of wire:200mm



### CAN Communication Protocol

CAN Rate: 1 MHz

Motor receives message format.

It is used to send control commands to the motor to control the position, speed and current.

### Special CAN Code

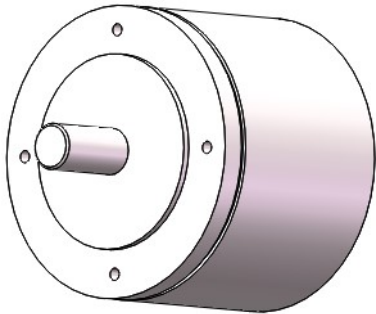
Enter motor control mode {0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0XFC }

Exit motor control mode {0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0XFD }

Set the current position of the motor to zero {0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0XFE }

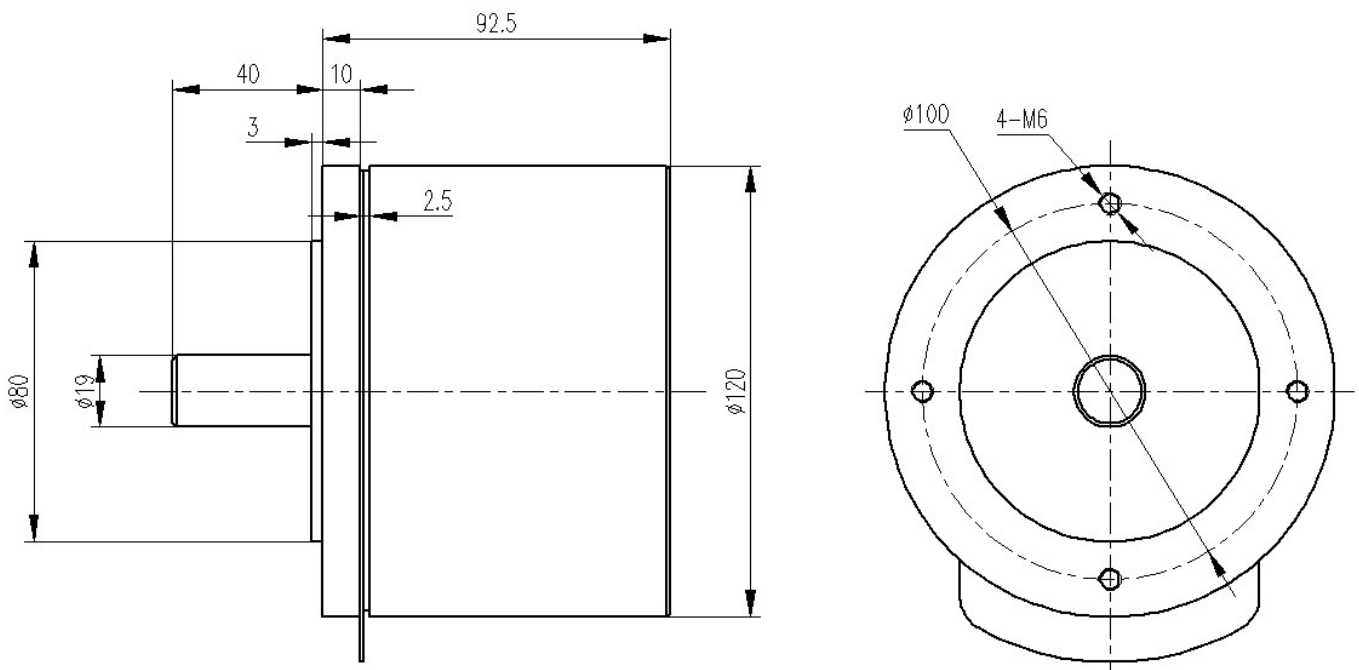
**Attention:** When using the CAN communication to control motor, you must enter the motor control mode first!

# 120 mm Series Outer Rotor BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	B/F
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	500VAC for one minute
Shaft Radial Play	max. 0.02 (4N-load)
Shaft Axial Play	max. 0.08 (4N-load)
Max. radial force	120N @ 10mm from flange
Max. axial force	45N

## Dimensions



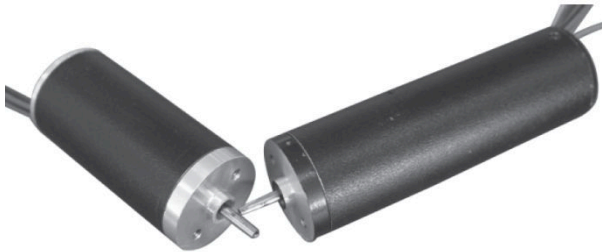
## 120 mm Series Outer Rotor BLDC Motor



### Specification

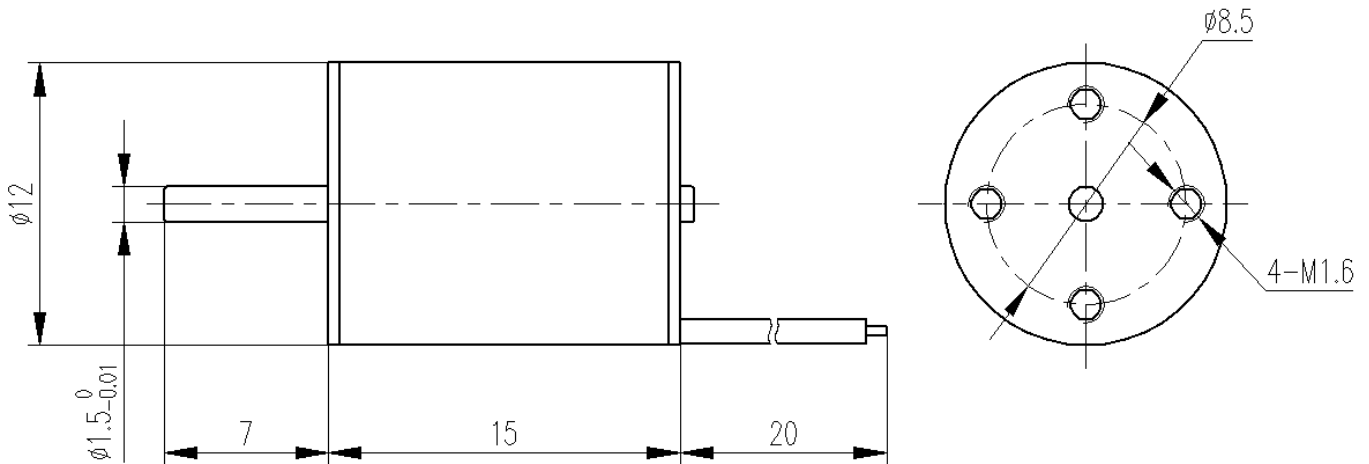
Type	M012BE0267-60-37	M024BE0284-60-37
Number of Poles	24	24
Number of Phases	3	3
Nominal Voltage (VDC)	24	36
Rated Speed (RPM)	800	500
Rated Torque (N·m)	4.8	10.5
Rated Power (W)	400	550
Peak Torque (N·m)	12.5	25
Peak Current (A)	60	35
Back EMF (V/KRPM)	21.1	50.8
Body Length (mm)	37	37
Weight (kg)	3.6	3.6

# 12mm R Series BLDC Motor



Item	General Specifications
Winding type	Star
Hall Effect Angle	120° Electrical angle
Insulation Class	F
Ambient Temperature Range	-20°C~+50°C
Insulation Resistance	min. 100MΩ, 500VDC
Dielectric Strength	360VAC for one second
Shaft Radial Play	max. 0.008 (450g-load)
Shaft Axial Play	max. 0.012 (450g-load)
Max. radial force	6.3N (3mm from the flange)
Max. axial force	1N

## Dimensions



## 12mm R Series BLDC Motor

### Specification

Type	M004BI0001-12-15	M005BI0001-12-15	M007BI0001-12-15
Number of Poles	2	2	2
Number of Phases	3	3	3
Nominal Voltage (VDC)	3.6	4.5	7.4
No-load Speed (RPM)	35000	14500	42500
No-load Current (A)	0.3	0.1	0.2
Rated Speed (RPM)	28200	4400	38000
Rated Current (A)	1.1	0.5	0.4
Rated Torque (mN·m)	0.7	1.0	0.3
Max. Output Power (W)	4.3	0.8	4.6
Max. Efficiency (%)	58	44	54
Resistance (ohms)	0.67	5.2	2.6
Torque Constant (mN·m/A)	0.93	2.62	1.55
Back EMF (V/KRPM)	0.10	0.27	0.16
Rotor Inertia (g·cm <sup>2</sup> )	0.14	0.14	0.14
Body Length (mm)	15	15	15
Weight (kg)	0.007	0.007	0.007



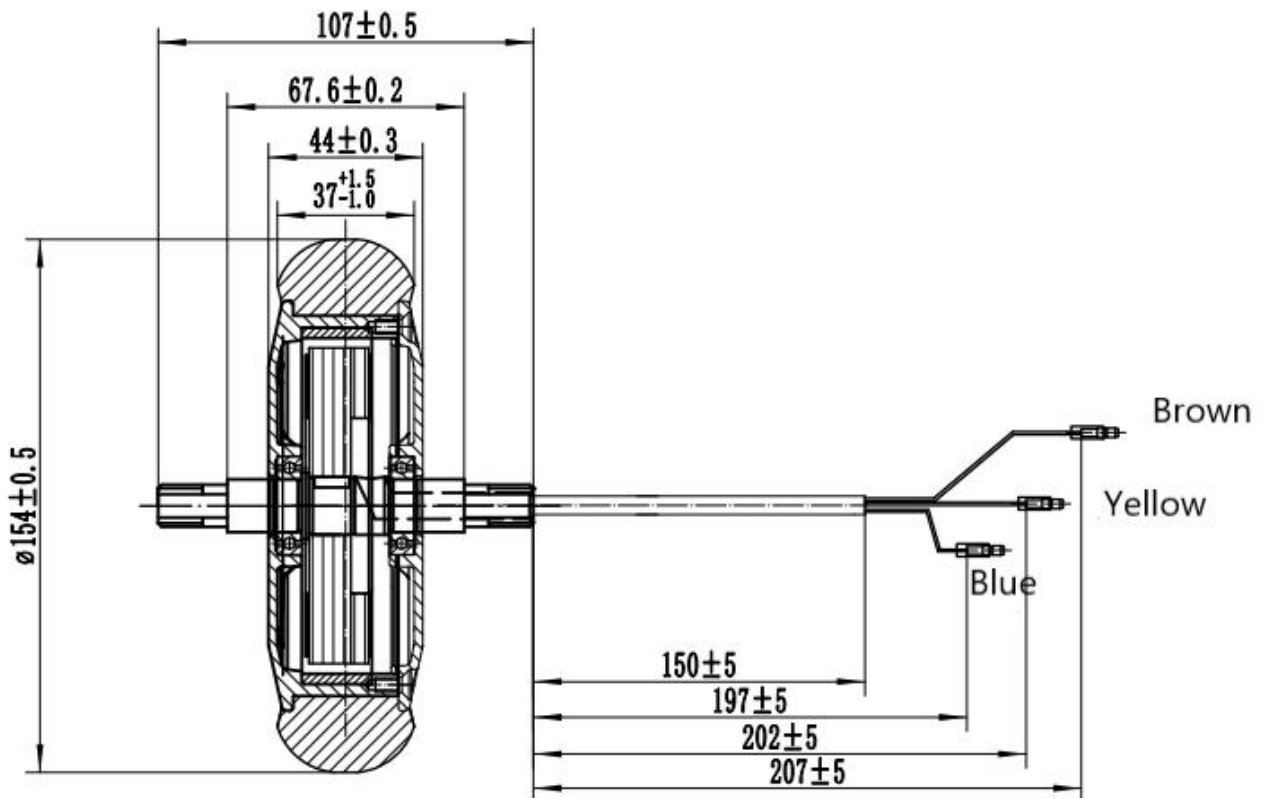


# 154 HUB Motor



Item	General Specifications
Rated Voltage	24 VDC
Rated Power	100 W
No load speed	900 rpm
Brake Type	Electronic brake
Protection class	TPX4
Motor type	Outer Rotor BLDC Motor
Part no.	M024XE0080-154-44

## Dimensions

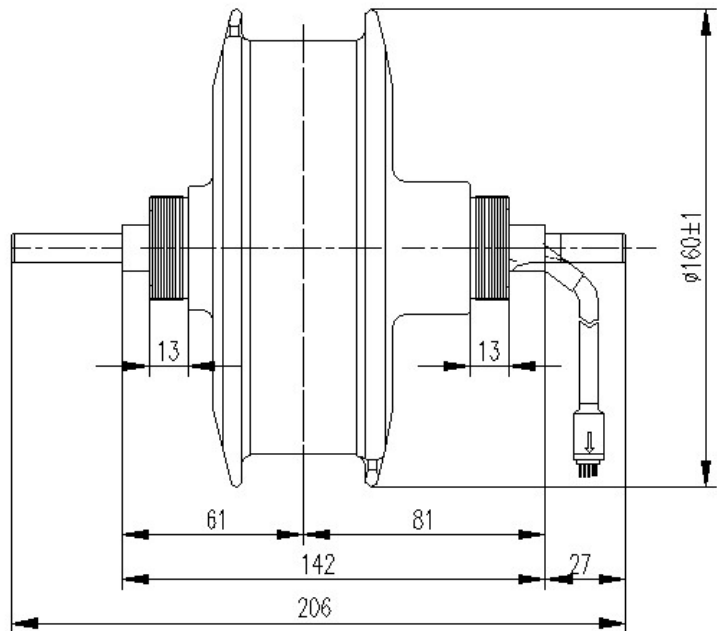
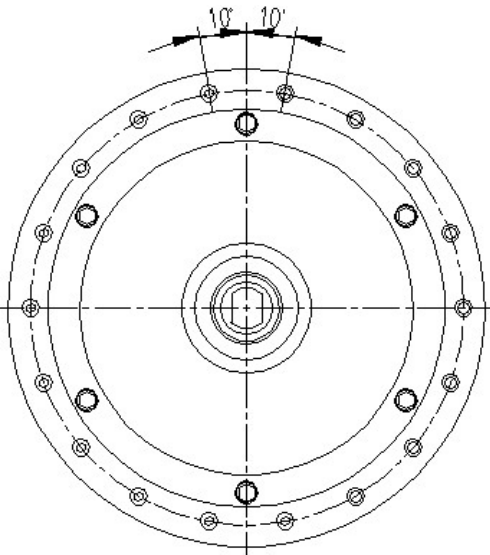


# 160 HUB Motor



Item	General Specifications	
Motor type	Outer Rotor BLDC Motor	
Rated Voltage	36 VDC	48 VDC
Rated Power	180 W	250 W
Speed	250 rpm	360 rpm
Max. Torque	20 Nm	30 Nm
Part no.	M036XE0200-160-142	M048XE0300-160-142

## Dimensions

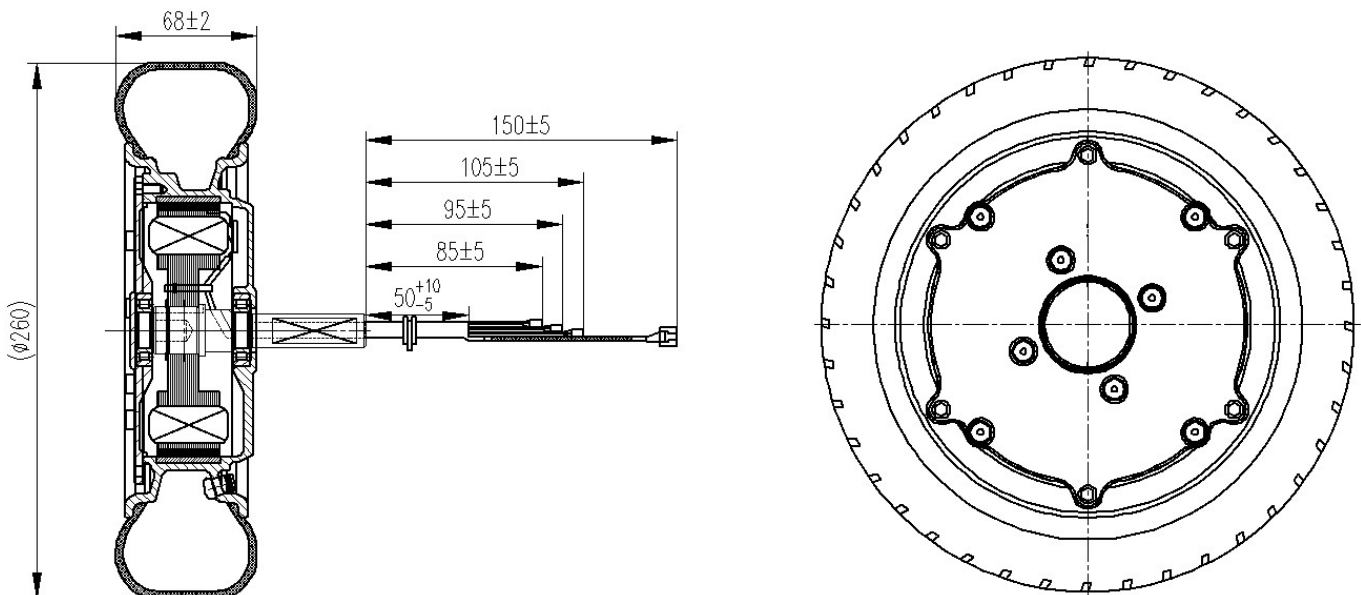


# 165 HUB Motor



Item	General Specifications
Motor type	Outer Rotor BLDC Motor
Rated Voltage	60 VDC
Rated Power	350 W
Rated Speed	760 rpm
Max. Torque	35 Nm
Part no.	M060XE0350-250-68

## Dimensions

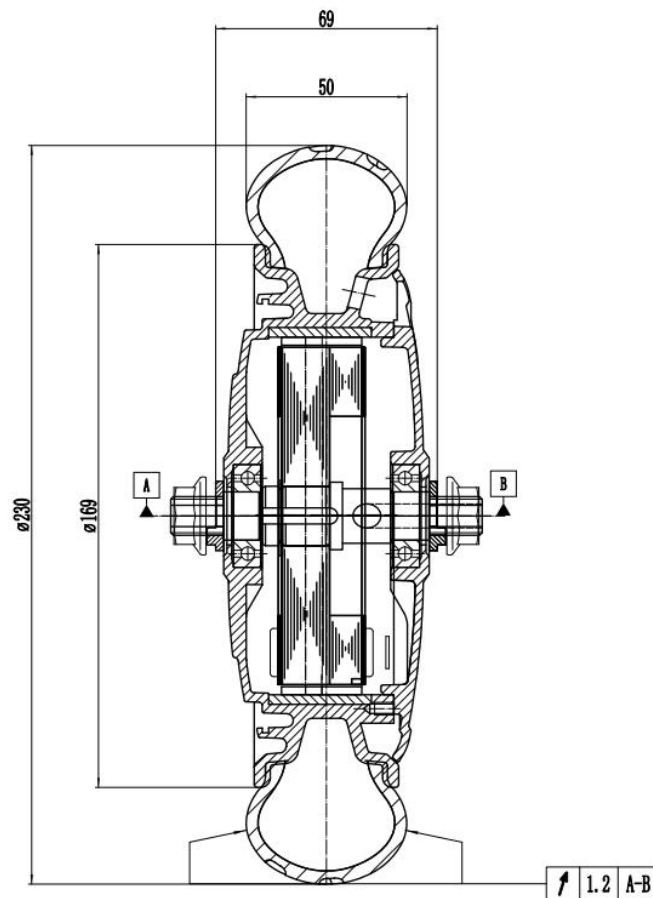


## 230 HUB Motor



Item	General Specifications
Rated Voltage	36 VDC
Rated Power	250-300 W
No load speed	650-720 rpm
Brake Type	Electronic brake
Protection class	IP54
Motor type	Outer Rotor BLDC Motor
Part no.	M036XE0100-230-69

### Dimensions

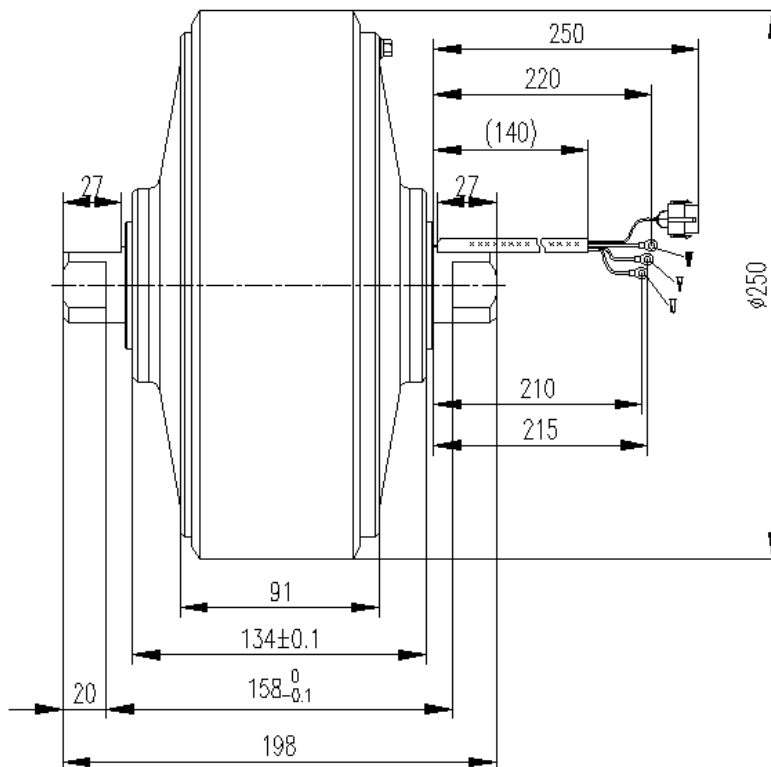


## 250 HUB Motor



Item	General Specifications
Motor type	Outer Rotor BLDC Motor
Rated Voltage	48 VDC
Rated Power	600 W
Rated Speed	100 rpm
Max. Torque	110 Nm
Part no.	M048XE1100-250-134

### Dimensions

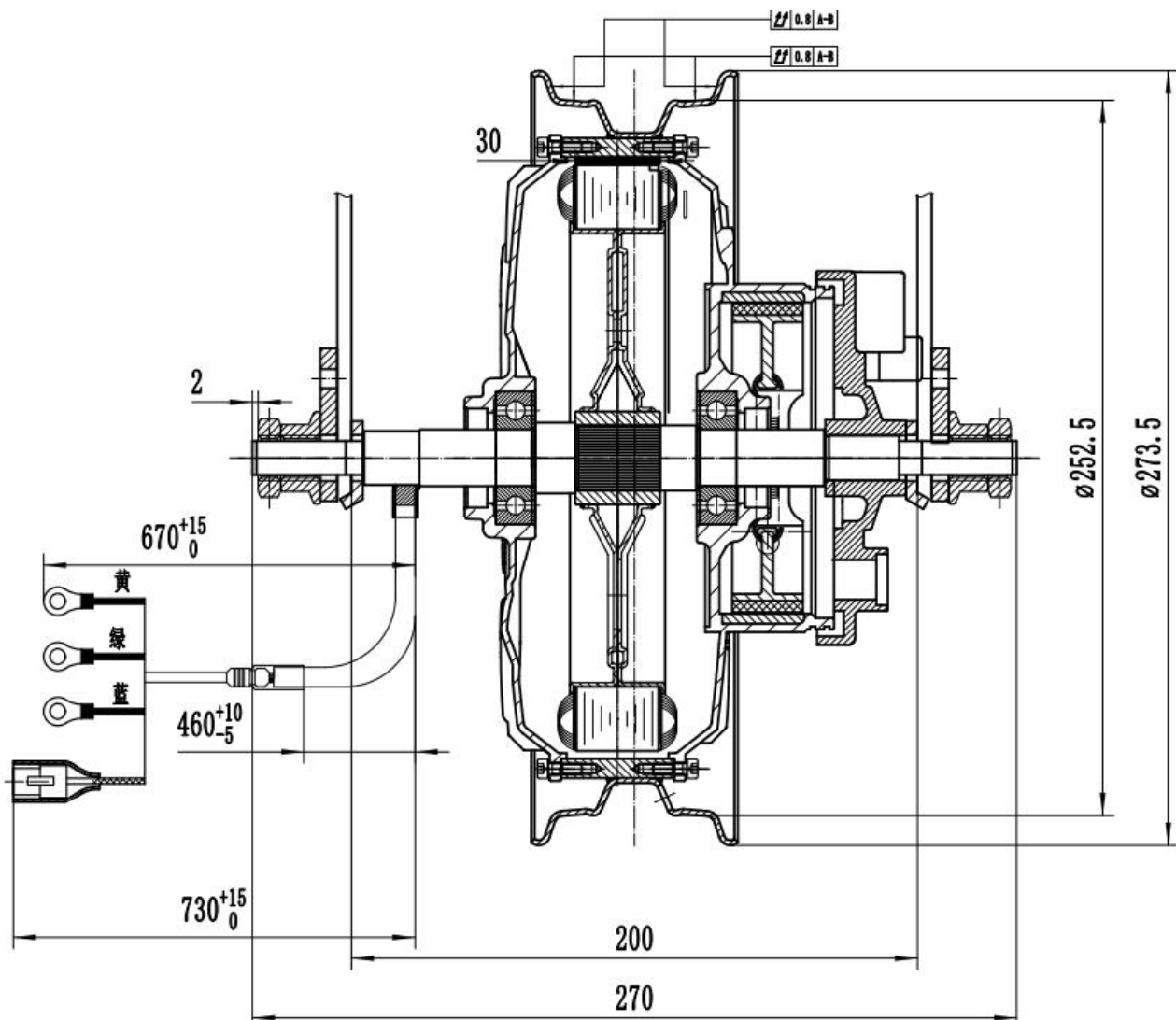


## 252 HUB Motor



Item	General Specifications
Rated Voltage	60-72 VDC
Rated Power	500-1100 W
No load speed	530-700 rpm
Brake Type	Drum Brake
Part No.	M072XE2300-252-200

### Dimensions



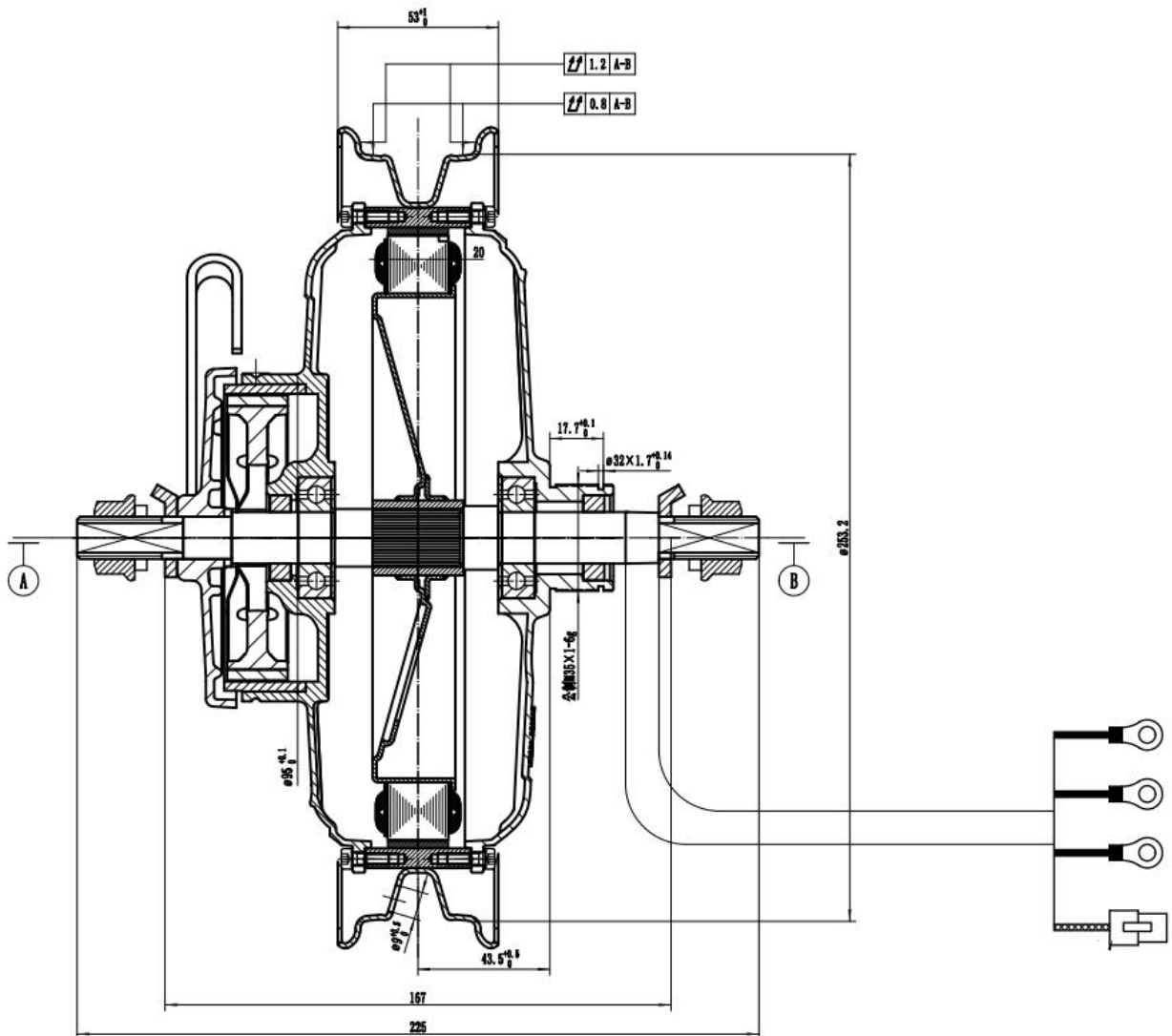


# 253 HUB Motor



Item	General Specifications
Rated Voltage	48 VDC
Rated Power	400 W
No load speed	450 rpm
Protection class	IP54
Brake Type	Drum Brake
Part no.	M048XE3500-253-167

## Dimensions

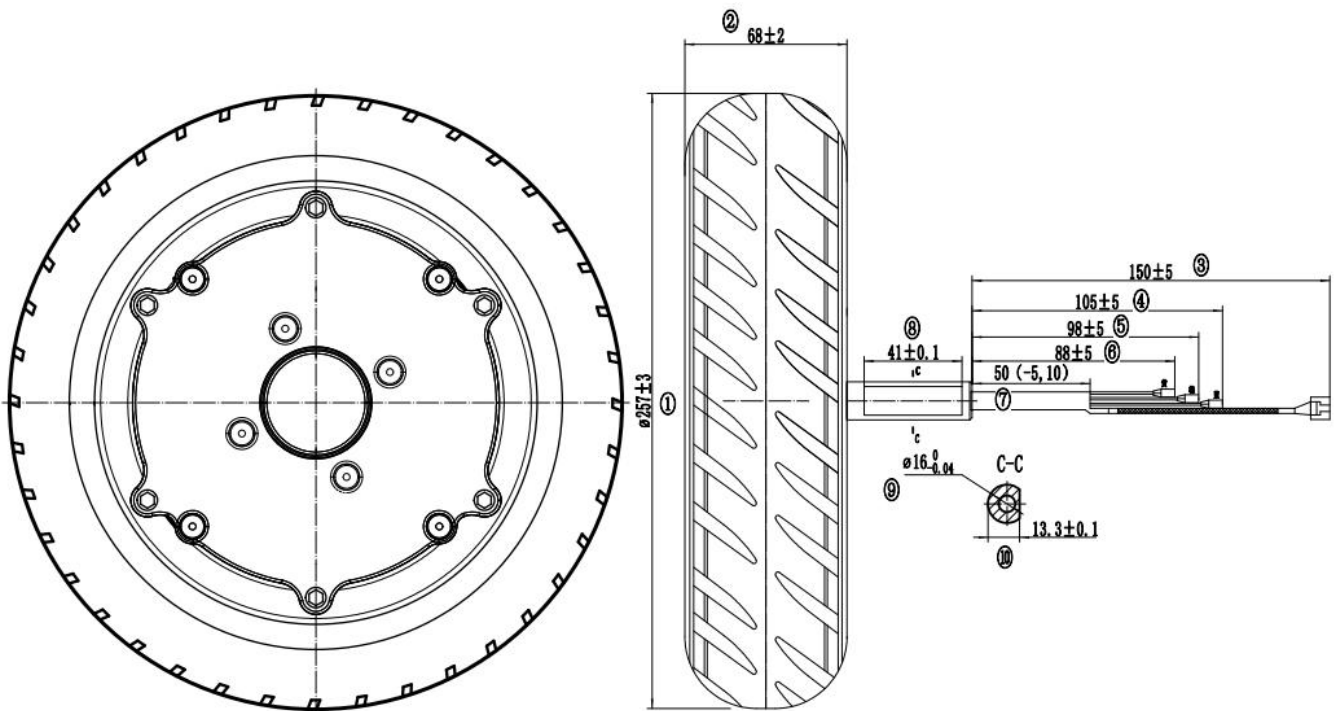


## 257 HUB Motor



Item	General Specifications
Rated Voltage	60 VDC
Rated Power	350 W
No load speed	780 rpm
No load current	$\leq 0.8A$
Protection class	IPX4
Brake Type	Electronic brake
Part no.	M060XE3000-257-68

### Dimensions



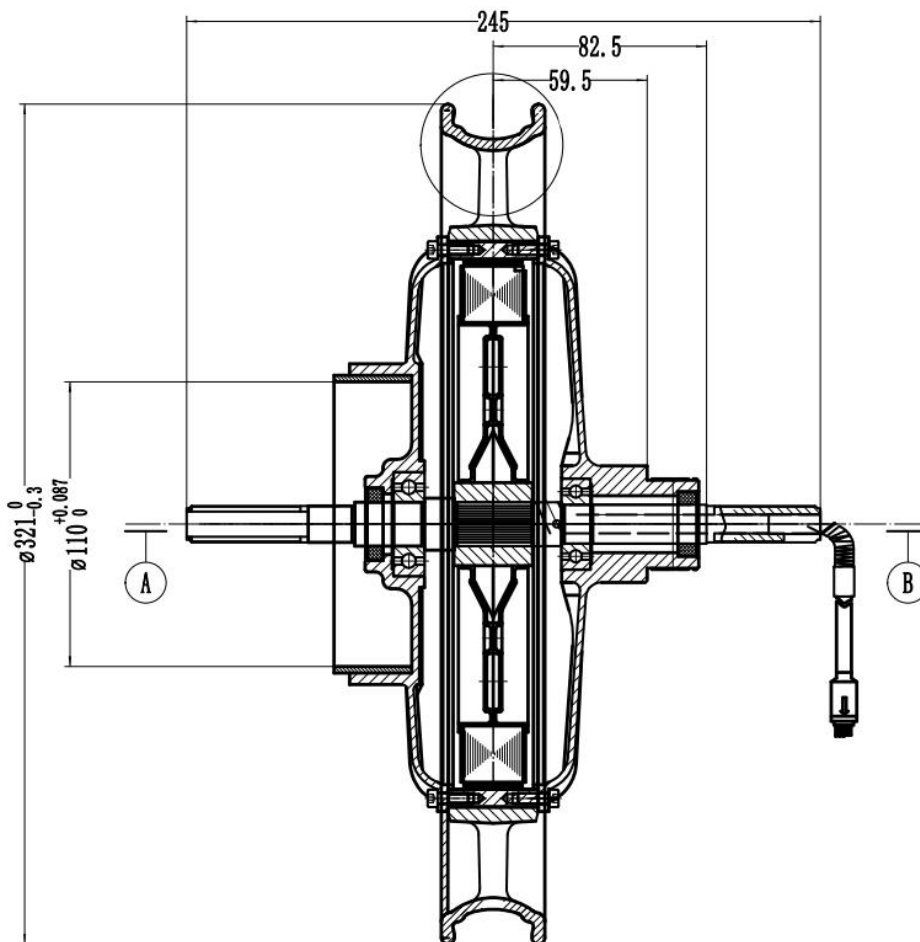


## 321 HUB Motor



Item	General Specifications
Rated Voltage	48 VDC
Rated Power	350 W
No load speed	330 rpm
Brake Type	Drum Brake
Protection class	IPX7
Part No.	M048XE4700-321-118

### Dimensions

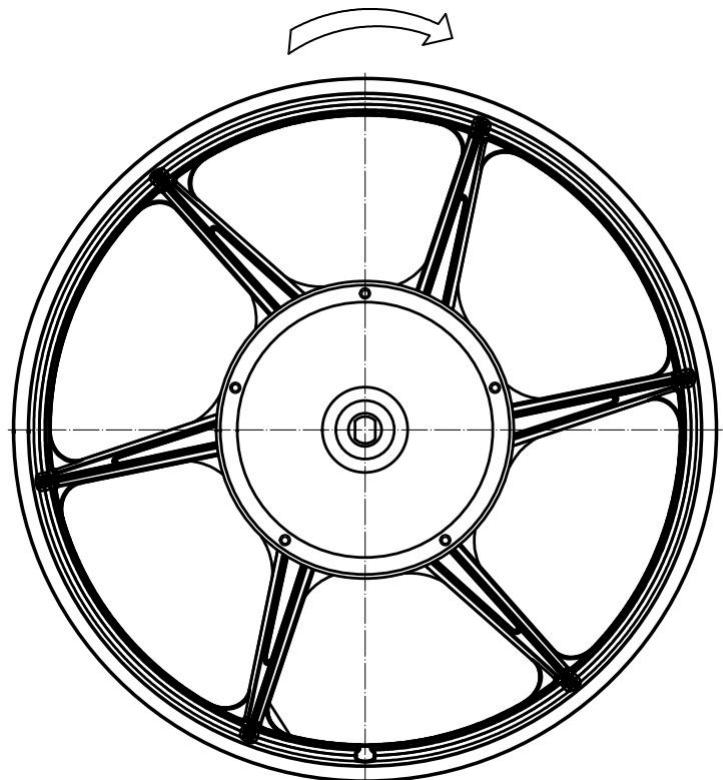
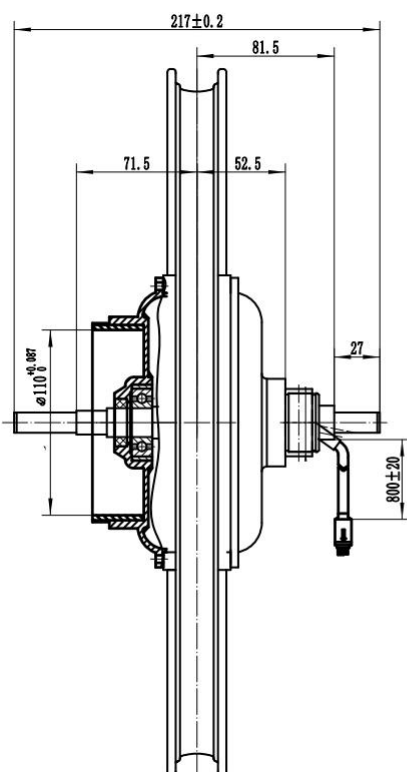


## 420 HUB Motor

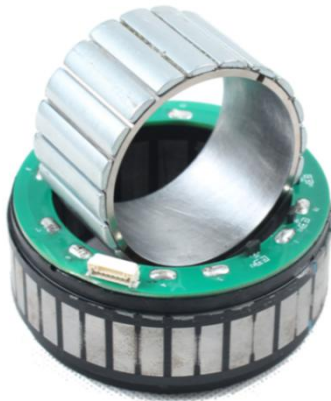


Item	General Specifications
Rated Voltage	48 VDC
Rated Power	350 W
No load speed	400 rpm
No load current	$\leq 0.8A$
Protection class	IPX7
Brake Type	Drum brake
Part no.	M048XE4700-420-105

### Dimensions



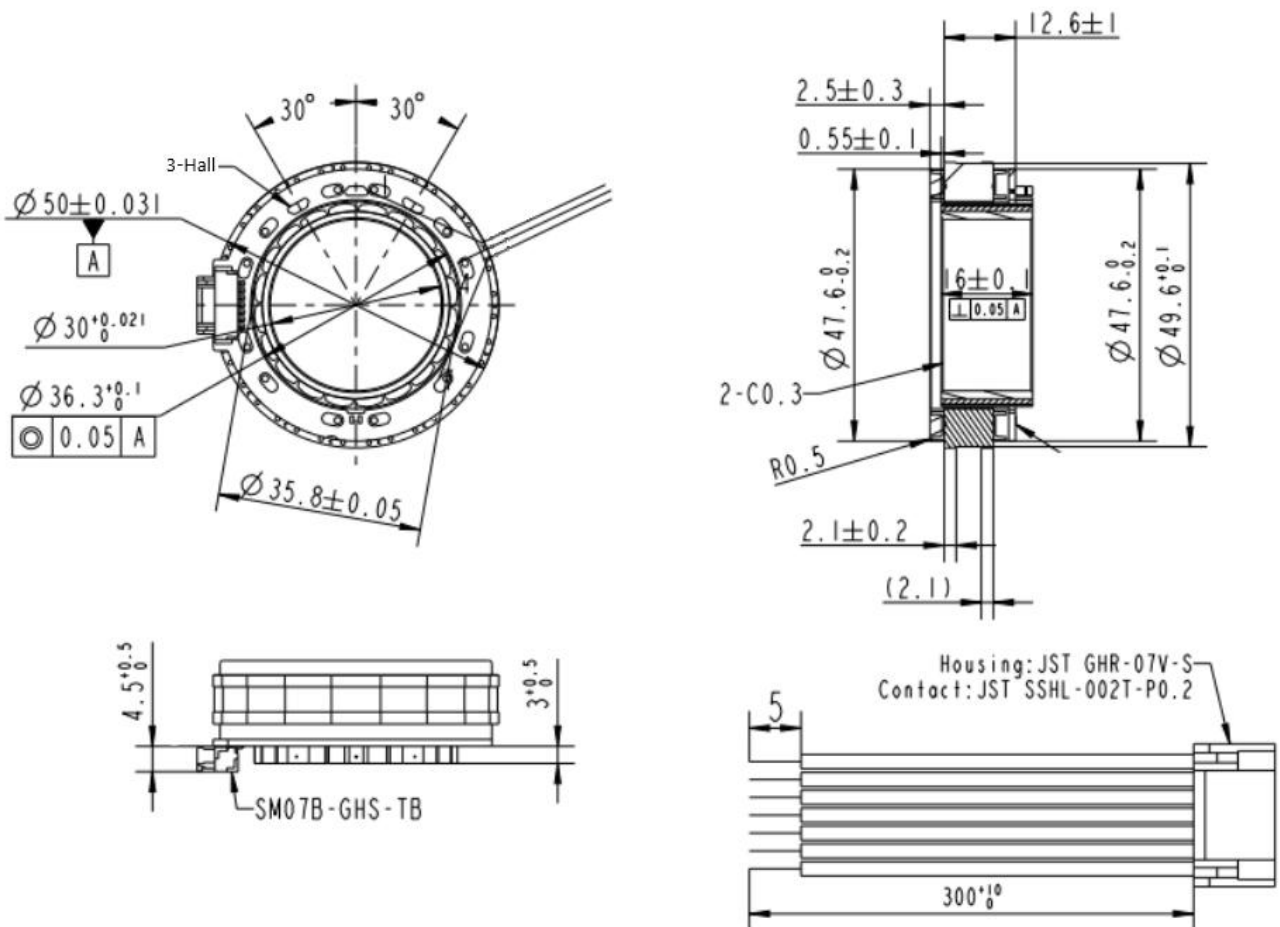
# 50mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation class	B
Ambient Temperature	-20° C~+50° C
Dielectric streng	1000VAC/1S
Insulation resistance	100MΩ@500VDC
Back EMF	5.4 Vrms/Krpm
Torque constant	0.089 N.m/A

## Dimensions



## 50mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M048BI0500-50-26	M048BI0300-50-20
Number of Poles	20	20
Voltage (VDC)	48	48
Rated Torque (N.m)	0.5	0.3
Continuous torque (N.m)	0.6	0.36
Rated speed (rpm)	3500	5000
Rated power (W)	183	157
Rated current (A)	4.8	3.6
Peak torque (N.m)	1.5	0.96
Peak current (A)	14.5	11.6
Length (mm)	26	20
Weight (g)	135	87

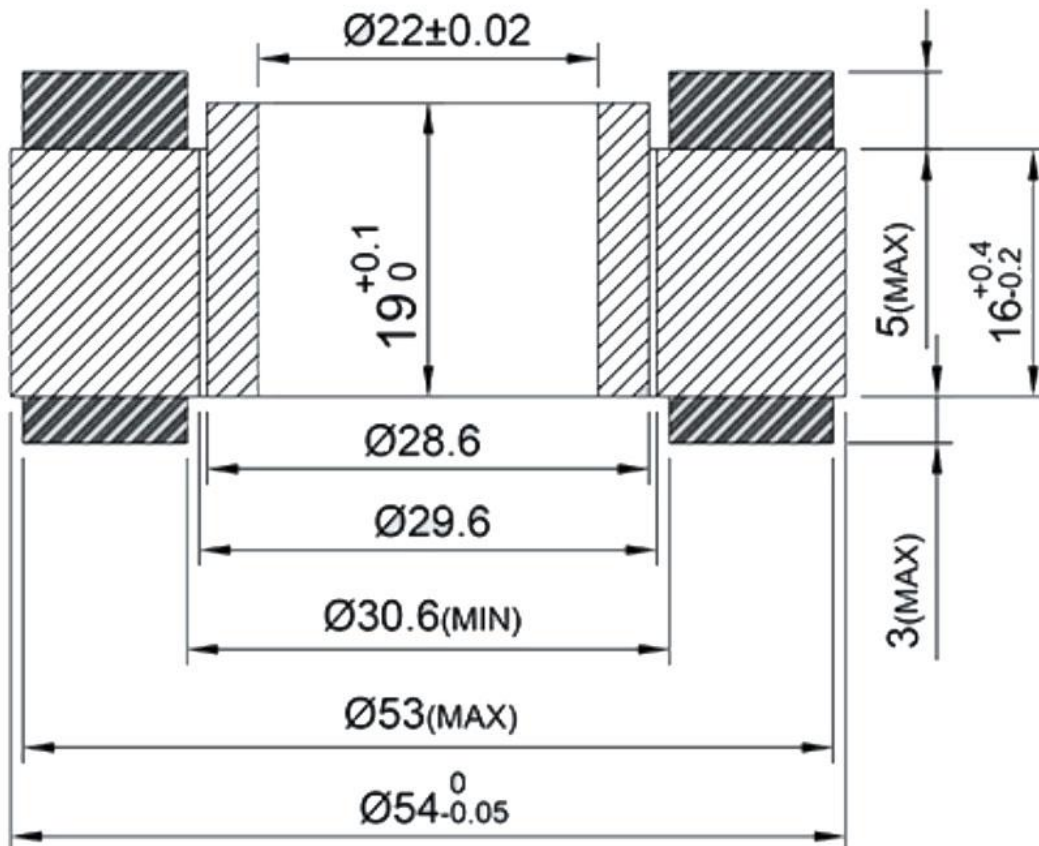
## 54mm Series Frameless BLDC Motor



### General Specifications

Item	Specifications
Back EMF	0.0115 V/rpm
Resistance/Line	1420 m $\Omega$
Inductance/Line	1500 $\mu$ H
Max. torque to weight ratio	9.24 Nm/kg
Motor Constant	0.0835 Nm/ $\sqrt{w}$
Torque constant	0.1095 Nm/A
Speed constant	96 rpm/V
Rotor inertia	22.81 g/cm <sup>2</sup>

### Dimensions



## 54mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M024BI0580-54-24
Number of Poles	7
Voltage (VDC)	24/36/48
Continuous Torque (N·m)	0.58
Peak Torque (N·m)	1.67
Continuous torque max speed (rpm)	1365/2240/3020
Continuous Current (A)	5.3
Peak Current (A)	15.25
Body Length (mm)	24
Weight (g)	180.8



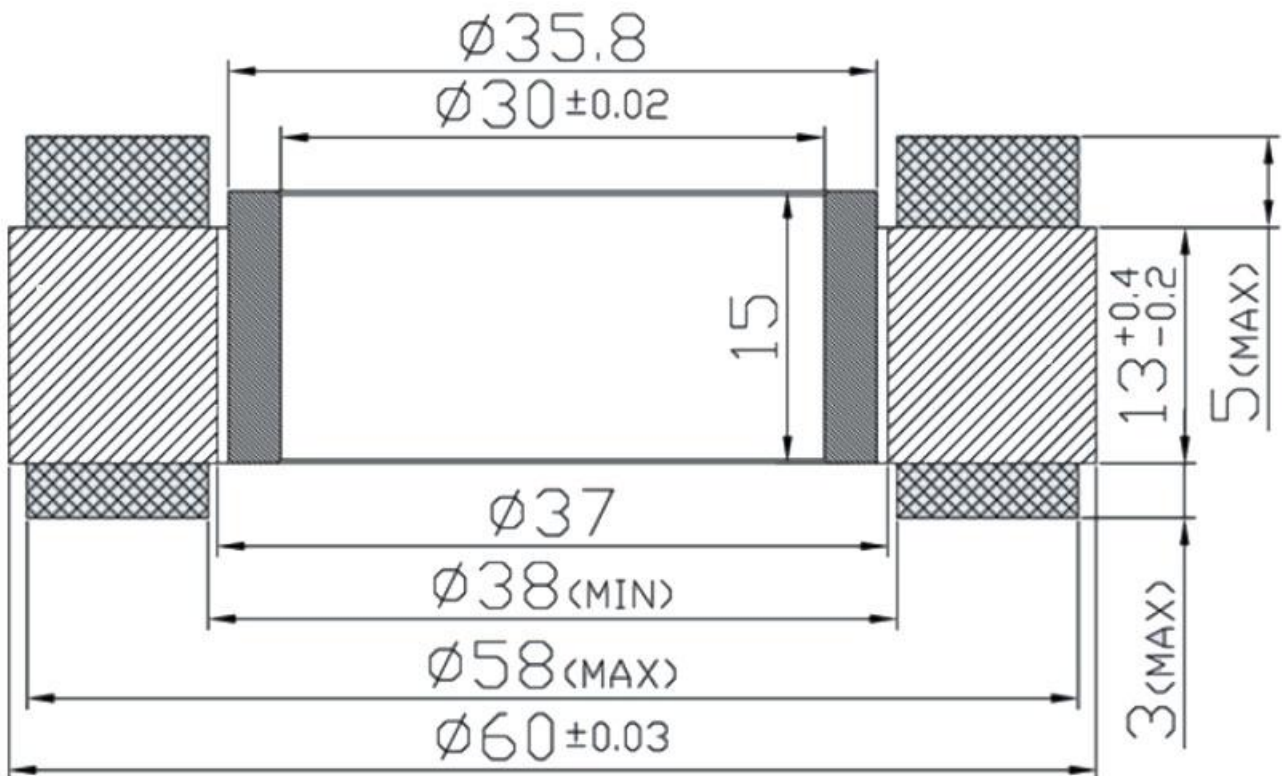
# 60mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Back EMF	0.0089 V/rpm
Resistance/Line	900 mΩ
Inductance/Line	877.5 uH
Max. torque to weight ratio	10.46 Nm/kg
Motor Constant	0.0812 Nm/√w
Torque constant	0.085 Nm/A
Speed constant	124 rpm/V
Rotor inertia	33.05 g/cm <sup>2</sup>

## Dimensions



## 60mm Series Frameless BLDC Motor

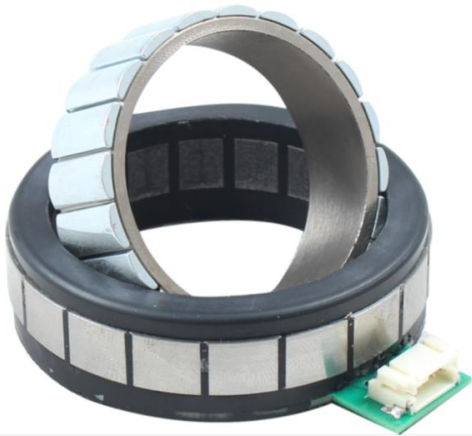
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### Technical Specifications

Item	M024BI0570-60-22
Number of Poles	14
Voltage (VDC)	24/36/48
Continuous Torque (N·m)	0.57
Peak Torque (N·m)	1.63
Continuous torque max speed (rpm)	1610/2560/3495
Continuous Current (A)	6.7
Peak Current (A)	19.2
Body Length (mm)	22
Weight (g)	155.9



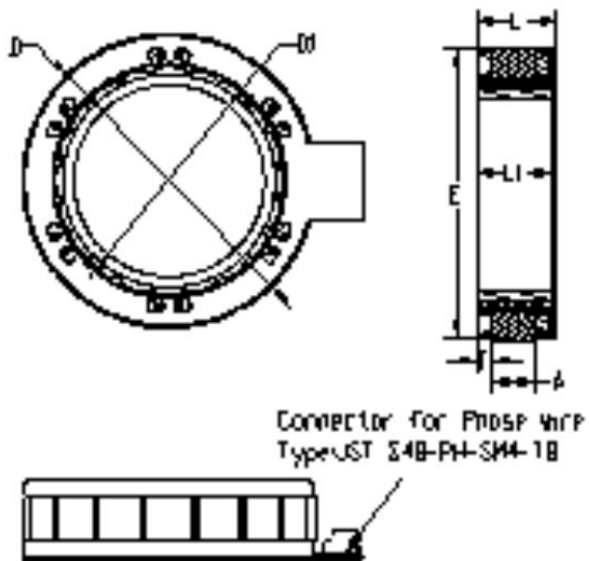
## 63mm Series Frameless BLDC Motor



### General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation class	B
Ambient Temperature	-20° C~+50° C
Dielectric streng	600VAC/1S
Insulation resistance	100MΩ@500VDC
Back EMF	29 Vrms/Krpm
Torque constant	0.39 N.m/A

### Dimensions



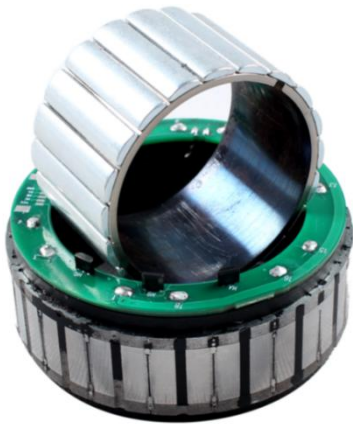
## 63mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M024BI0250-63-17
Number of Poles	20
Voltage (VDC)	24
Rated Torque (N.m)	0.25
Continuous torque (N.m)	0.3
Rated speed (rpm)	390
Rated power (W)	0.2
Rated current (A)	0.72
Peak torque (N.m)	0.6
Peak current (A)	1.73
Length (mm)	17.2
Weight (g)	150

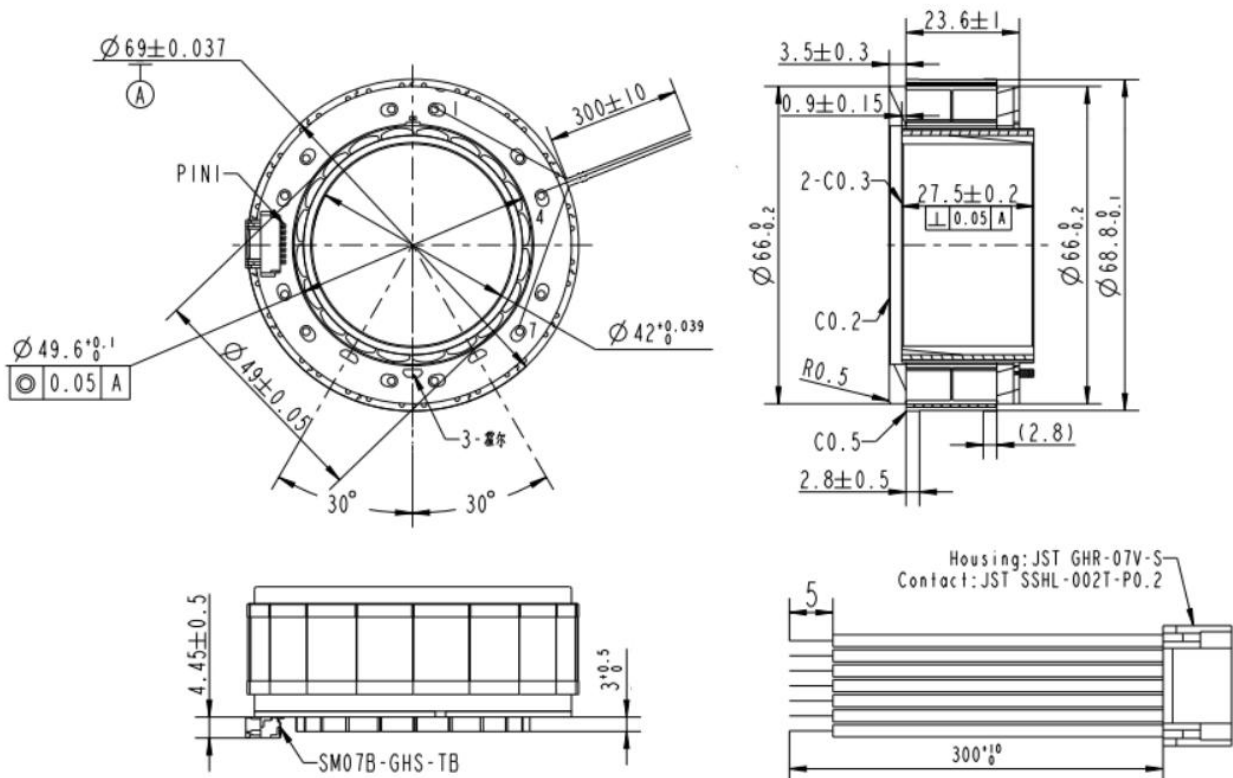
# 70mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation class	B
Ambient Temperature	-20° C~+50° C
Dielectric streng	1000VAC/1S
Insulation resistance	100MΩ@500VDC
Back EMF	7.4 Vrms/Krpm
Torque constant	0.12 N.m/A

## Dimensions



## 70mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M048BI1000-70-32	M048BI0660-70-27
Number of Poles	20	20
Voltage (VDC)	48	48
Rated Torque (N.m)	1.0	0.66
Continuous torque (N.m)	1.2	0.79
Rated speed (rpm)	3500	3650
Rated power (W)	366	250
Rated current (A)	9.2	6.1
Peak torque (N.m)	3.0	1.98
Peak current (A)	28	18.5
Length (mm)	32	27.5
Weight (g)	320	220

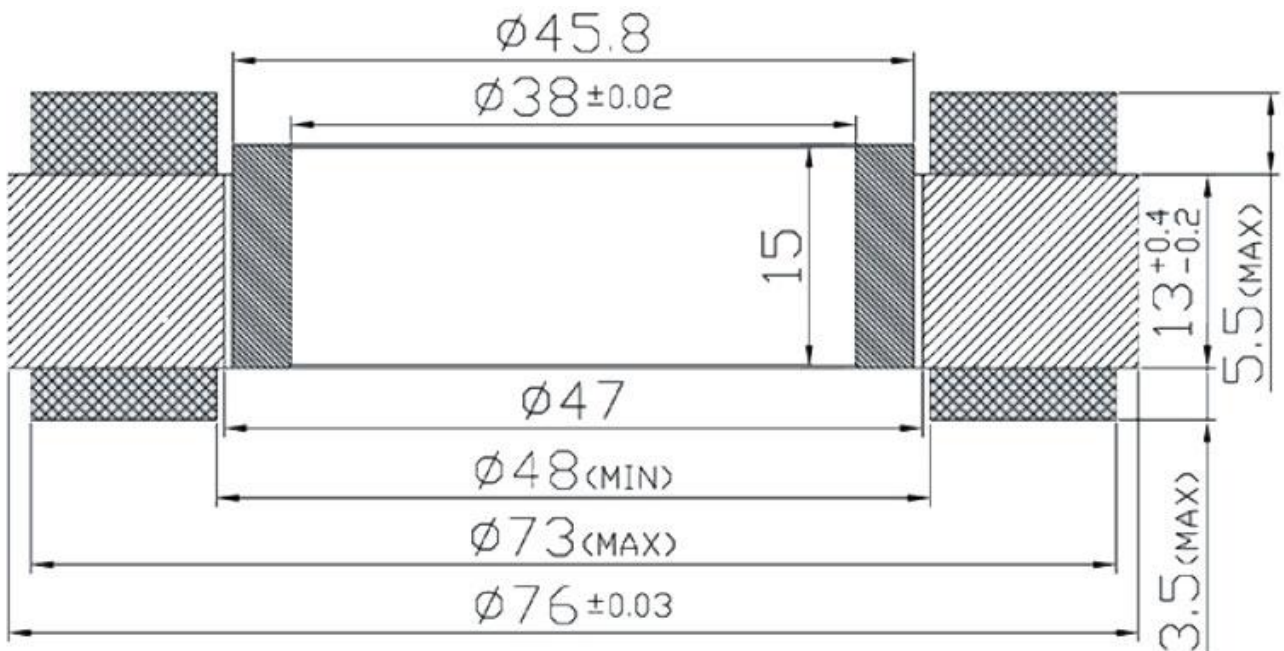
## 76mm Series Frameless BLDC Motor



### General Specifications

Item	Specifications
Back EMF	0.0117 V/rpm
Resistance/Line	418 m $\Omega$
Inductance/Line	622.7 $\mu$ H
Max. torque to weight ratio	9.91 Nm/kg
Motor Constant	0.1571 Nm/ $\sqrt{w}$
Torque constant	0.1118 Nm/A
Speed constant	95 rpm/V
Rotor inertia	91.15 g/cm <sup>2</sup>

### Dimensions



## 76mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M024BI0940-76-22
Number of Poles	14
Voltage (VDC)	24/36/48
Continuous Torque (N·m)	0.94
Peak Torque (N·m)	2.68
Continuous torque max speed (rpm)	1450/2300/3125
Continuous Current (A)	8.4
Peak Current (A)	24
Body Length (mm)	22
Weight (g)	270.4

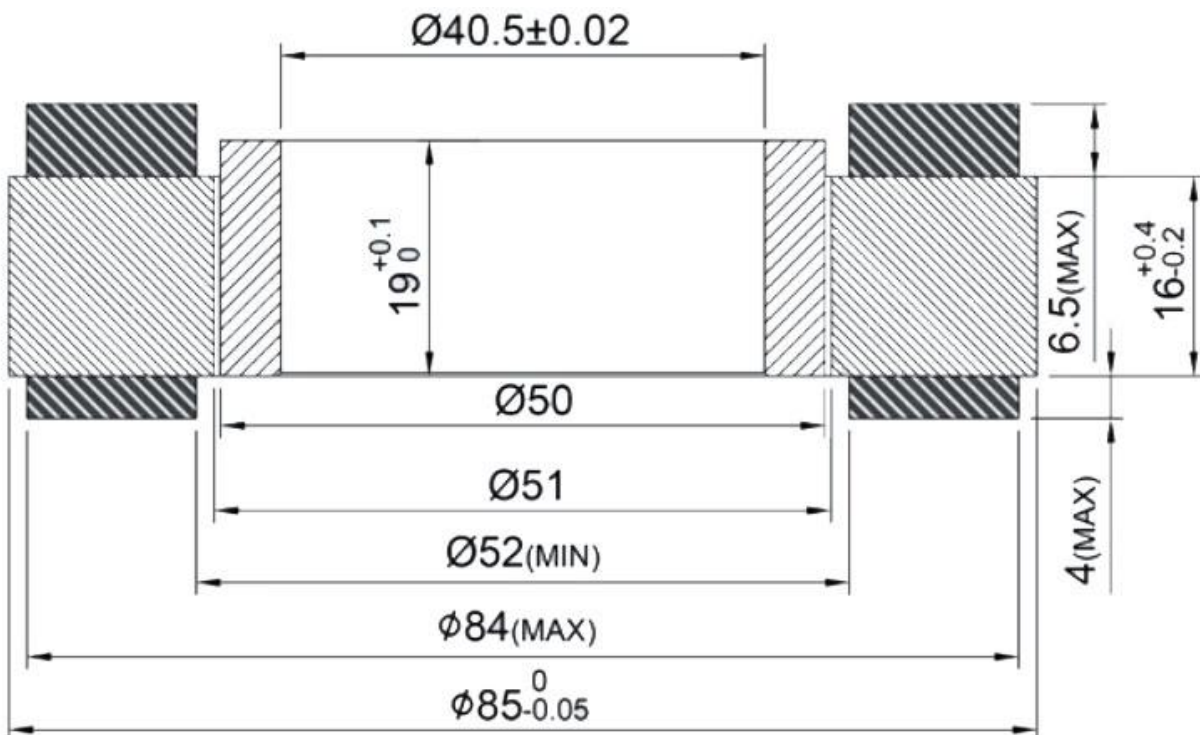
# 85mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Back EMF	0.0147 V/rpm
Resistance/Line	280 mΩ
Inductance/Line	988.3 uH
Max. torque to weight ratio	9.97 Nm/kg
Motor Constant	0.2406 Nm/√w
Torque constant	0.14 Nm/A
Speed constant	75 rpm/V
Rotor inertia	176.68 g/cm <sup>2</sup>

## Dimensions



## 85mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M024B11450-85-26
Number of Poles	7
Voltage (VDC)	24/36/48
Continuous Torque (N·m)	1.45
Peak Torque (N·m)	4.1
Continuous torque max speed (rpm)	1280/1980/2805
Continuous Current (A)	10.4
Peak Current (A)	29.3
Body Length (mm)	26
Weight (g)	411.2



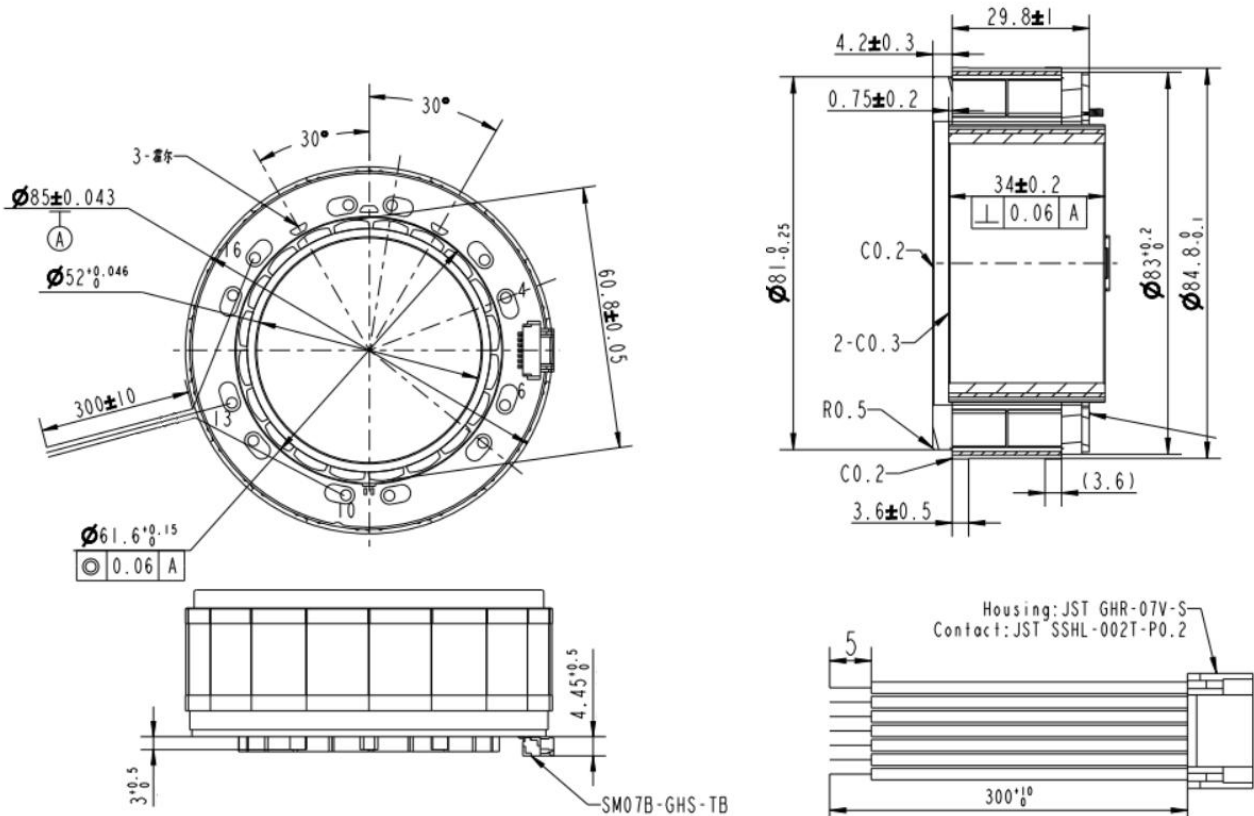
# 85mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation class	B
Ambient Temperature	-20° C~+50° C
Dielectric streng	1000VAC/1S
Insulation resistance	100MΩ@500VDC
Back EMF	8.3 Vrms/Krpm
Torque constant	0.11 N.m/A

## Dimensions



## 85mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M048BI2000-85-35	M048BI1440-85-27
Number of Poles	20	20
Voltage (VDC)	48	48
Rated Torque (N.m)	2.0	1.44
Continuous torque (N.m)	2.4	1.73
Rated speed (rpm)	732	2950
Rated power (W)	366	440
Rated current (A)	15	10.8
Peak torque (N.m)	6.0	4.66
Peak current (A)	45	35.5
Length (mm)	35	27.5
Weight (g)	580	420

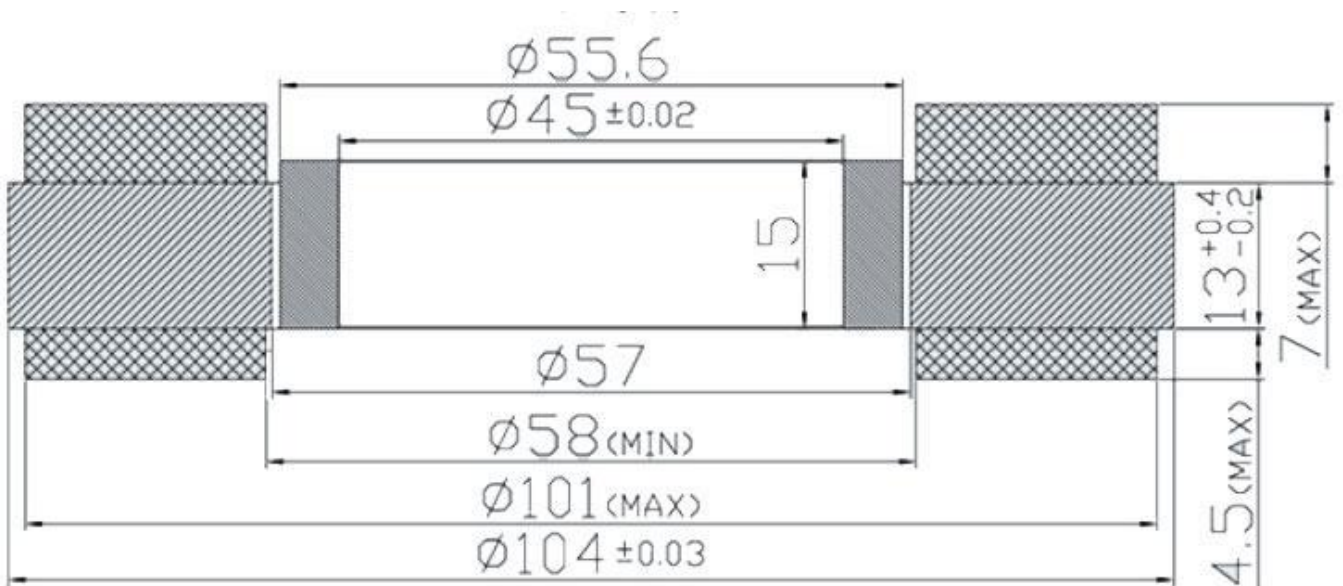
# 104mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Back EMF	0.0109 V/rpm
Resistance/Line	126 mΩ
Inductance/Line	322.7 uH
Max. torque to weight ratio	9.9 Nm/kg
Motor Constant	0.2664 Nm/√w
Torque constant	0.104 Nm/A
Speed constant	105 rpm/V
Rotor inertia	215.51 g/cm <sup>2</sup>

## Dimensions



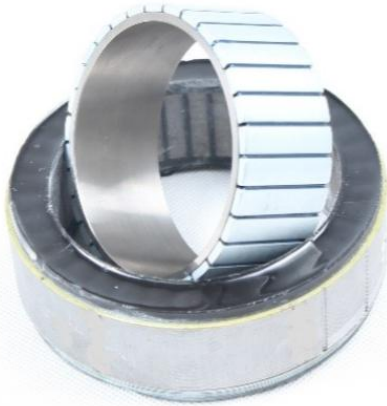
## 104mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M024BI1760-104-26
Number of Poles	14
Voltage (VDC)	24/36/48
Continuous Torque (N·m)	1.76
Peak Torque (N·m)	4.95
Continuous torque max speed (rpm)	1460/2220/3230
Continuous Current (A)	16.9
Peak Current (A)	47.6
Body Length (mm)	26
Weight (g)	500

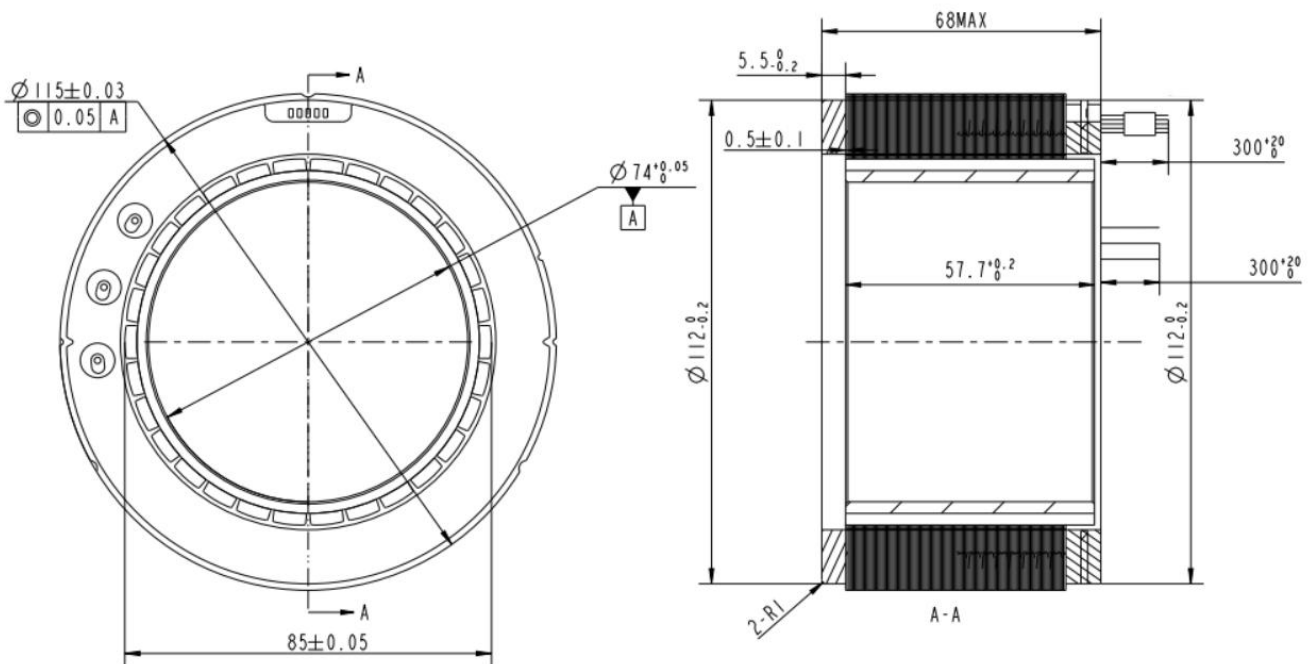
# 115mm Series Frameless BLDC Motor



## General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation class	B
Ambient Temperature	-20° C~+50° C
Dielectric streng	1000VAC/1S
Insulation resistance	100MΩ@500VDC
Back EMF	40 Vrms/Krpm
Torque constant	0.662 N.m/A

## Dimensions



## 115mm Series Frameless BLDC Motor

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### Technical Specifications

Item	M048BI2000-85-35	M048BI1440-85-27
Number of Poles	30	30
Voltage (VDC)	48	48
Rated Torque (N.m)	9.51	3.9
Continuous torque (N.m)	11.41	4.68
Rated speed (rpm)	620	1400
Rated power (W)	620	570
Rated current (A)	15.1	14.1
Peak torque (N.m)	31.4	17.1
Peak current (A)	52	49
Length (mm)	68	39
Weight (kg)	2.2	1.1

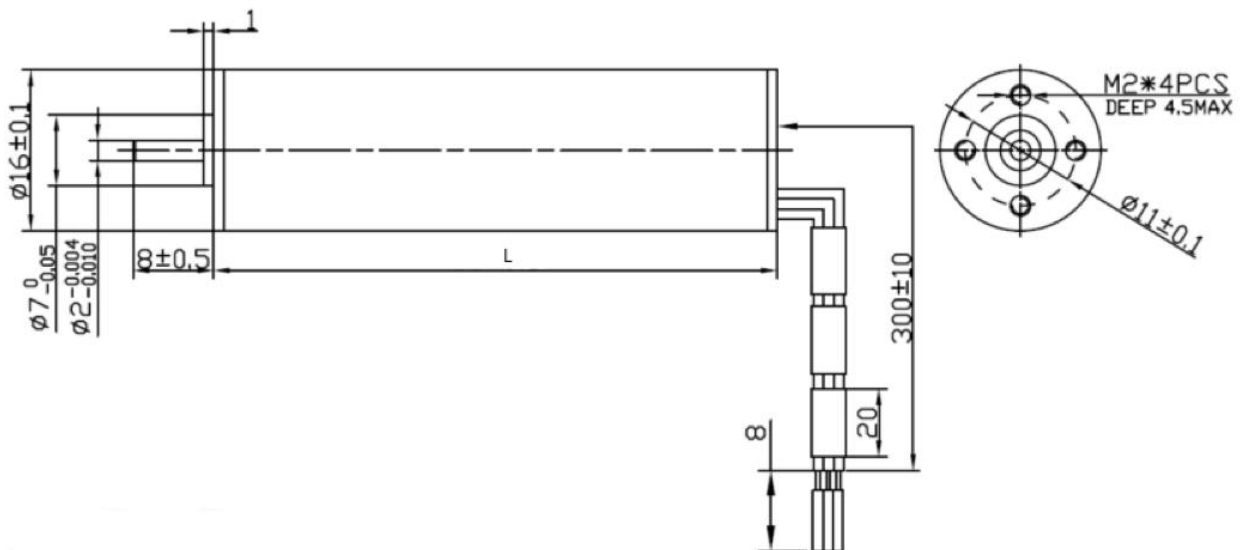
# 16mm R Slotless BLDC Motor



## General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation Class	B
Ambient Temperature	-20° C~+55° C
Insulation Resistance	100MΩ
Dielectric Strength	360VAC 1S
Radial Play	0.02mm@400g
Axial Play	0.08mm@400g
IP Class	IP40

## Dimensions



## 16mm R Slotless BLDC Motor

### Technical Specifications

Item	M024BI0010-16-56	M012BI0001-16-28	M024BI0004-16-40
Number of Poles	2	2	2
Nominal Voltage (VDC)	24	12	24
Rated Torque (mN·m)	10	1.6	4
Rated Speed (RPM)	24000	22000	25000
Rated Current (A)	1	0.38	0.41
Rated Power (W)	25	37	10.5
Peak torque (mN·m)	30	4.8	12
Peak current (A)	4	1.2	1.4
Torque Constant (mN·m/A)	7.5	4.18	8.6
Back EMF (V/KRPM)	0.56	0.31	0.64
Body Length-L (mm)	56	28	40
Weight (g)	64	29	42



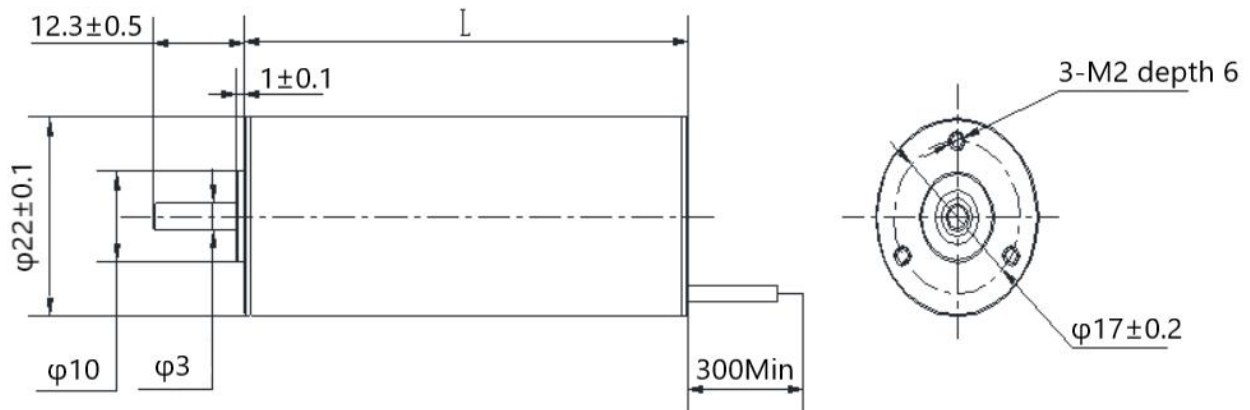
## 22mm R Slotless BLDC Motor



### General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation Class	B
Ambient Temperature	-25° C~+40° C
Insulation Resistance	100MΩ
Dielectric Strength	360VAC 1S
Radial Play	0.02mm@450g
Axial Play	0.14mm@450g
IP Class	IP40

### Dimensions



## 22mm R Slotless BLDC Motor

### Technical Specifications

Item	M024BI0025-22-70	M036BI0021-22-60	M024BI0006-22-40
Number of Poles	2	2	2
Nominal Voltage (VDC)	24	36	24
Rated Torque (mN·m)	25	21	6
Rated Speed (RPM)	22000	32000	35000
Rated Current (A)	3.5	3.8	1.1
Rated Power (W)	50	65	25
Peak torque (mN·m)	50	63	24
Peak current (A)	10.5	7.6	3.2
Torque Constant (mN·m/A)	7.42	8.37	5.67
Back EMF (V/KRPM)	0.55	0.62	0.42
Body Length-L (mm)	70	60	40
Weight (g)	200	150	40

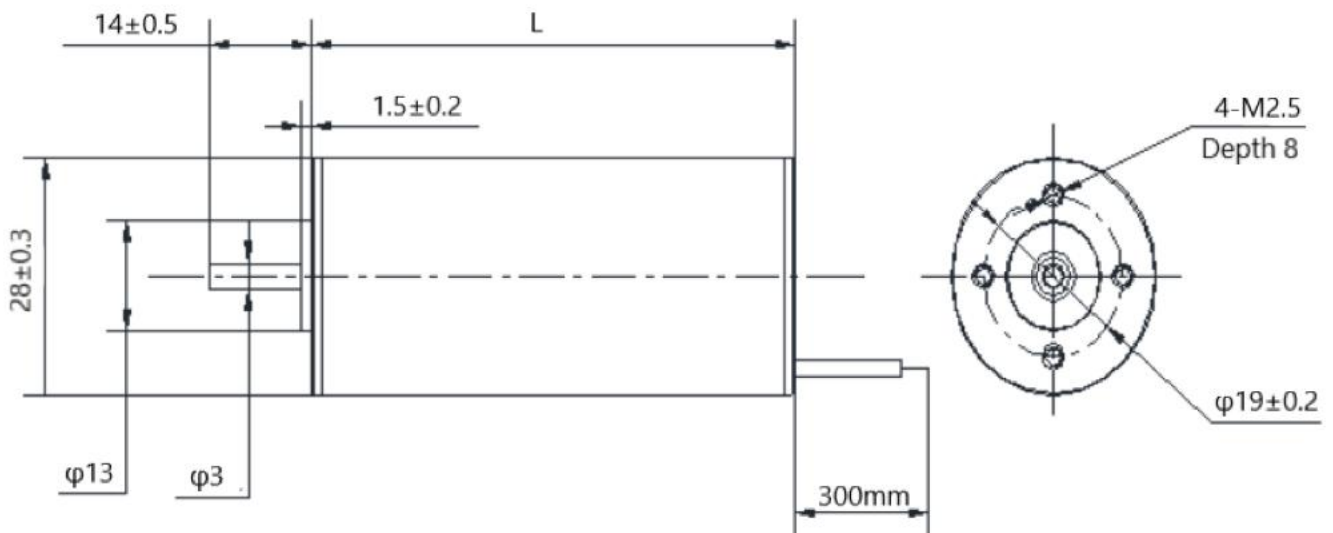
## 28mm R Slotless BLDC Motor



### General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation Class	B
Ambient Temperature	-20° C ~ +55° C
Insulation Resistance	100MΩ
Dielectric Strength	360VAC 1S
Radial Play	0.02mm@400g
Axial Play	0.08mm@400g
IP Class	IP40

### Dimensions



## 28mm R Slotless BLDC Motor

### Technical Specifications

Item	M012BI0060-28-80	M024BI0054-28-66	M024BI0018-28-45
Number of Poles	2	2	2
Nominal Voltage (VDC)	12	24	24
Rated Torque (mN·m)	60	54	18
Rated Speed (RPM)	7500	14000	8000
Rated Current (A)	4	3.5	0.8
Rated Power (W)	47	79	15
Peak torque (mN·m)	90	162	55
Peak current (A)	6	11	2.5
Torque Constant (mN·m/A)	15	15.3	23
Back EMF (V/KRPM)	1.12	1.13	1.7
Body Length-L (mm)	80	66	45
Weight (g)	250	225	140

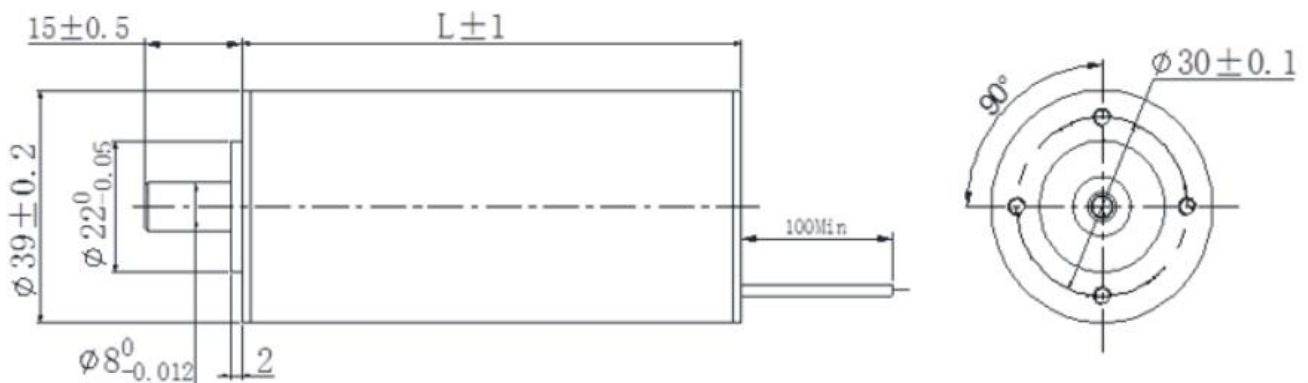
## 39mm R Slotless BLDC Motor



### General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation Class	F
Ambient Temperature	-25° C~+55° C
Insulation Resistance	100MΩ
Dielectric Strength	2000VAC 1S
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
IP Class	IP40

### Dimensions



## 39mm R Slotless BLDC Motor

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### Technical Specifications

Item	M048BI0140-39-80	M320BI0450-39-120
Number of Poles	2	2
Nominal Voltage (VDC)	48	320
Rated Torque (mN·m)	100	150
Rated Speed (RPM)	14000	15000
Rated Current (A)	5	1
Rated Power (W)	140	235
Peak torque (mN·m)	300	450
Peak current (A)	15	3
Torque Constant (mN·m/A)	21.6	152
Back EMF (V/KRPM)	1.6	11.33
Body Length-L (mm)	80	120
Weight (kg)	0.5	0.7

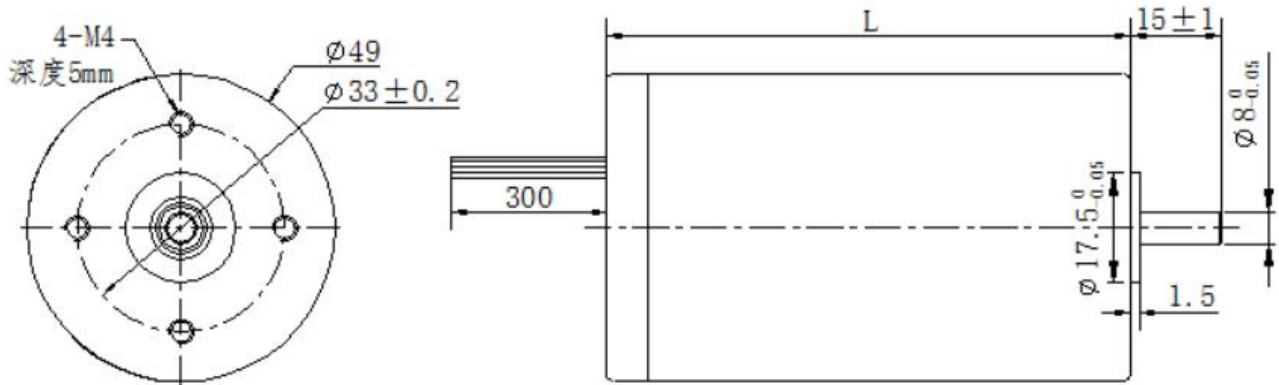
# 49mm R Slotless BLDC Motor



## General Specifications

Item	Specifications
Winding Type	Star
Hall effect angle	120° Electrical angle
Insulation Class	B
Ambient Temperature	-25° C~+85° C
Insulation Resistance	100MΩ
Dielectric Strength	1000VAC 1S
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
IP Class	IP00

## Dimensions



## 49mm R Slotless BLDC Motor

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### Technical Specifications

Item	M048BI0200-49-120	M110BI0140-49-90
Number of Poles	2	2
Nominal Voltage (VDC)	48	110
Rated Torque (mN·m)	200	140
Rated Speed (RPM)	24000	13000
Rated Current (A)	13	2.2
Rated Power (W)	502	190
Peak torque (mN·m)	600	420
Peak current (A)	38	6
Torque Constant (mN·m/A)	16.8	71.5
Back EMF (V/KRPM)	1.25	5.3
Body Length-L (mm)	120	90
Weight (kg)	1.5	1.1



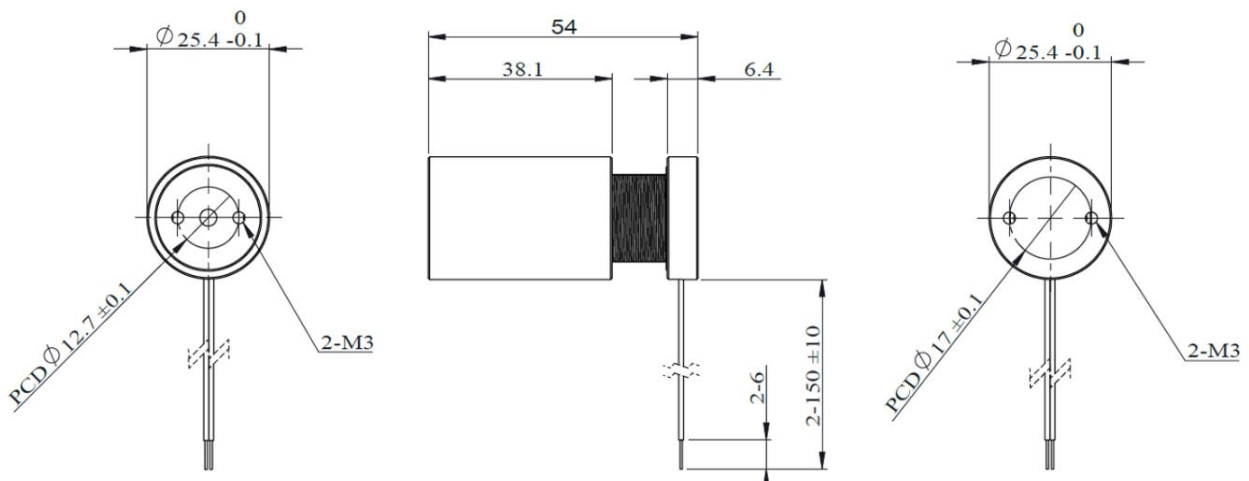
## 25mm Voice coil motor

### M025038-9VC Specifications



Item	Specifications
Stroke (mm)	9.5
Back EMF Constant(V/m/s)	9
Continuous Force(N)	11
Continuous Current Coil@100°C	1.25
Peak Thrust Force(N)	31
Force Sensitivity N(Middle Position)	9
Resistance/Phase (Ω)	6.9
Inductance/Phase (mH)	2
Coil Gap(mm)	0.38
Coil Max. Temperature (°C)	100
Coil Assembly Mass (g)	33
Body Assembly Mass (g)	102

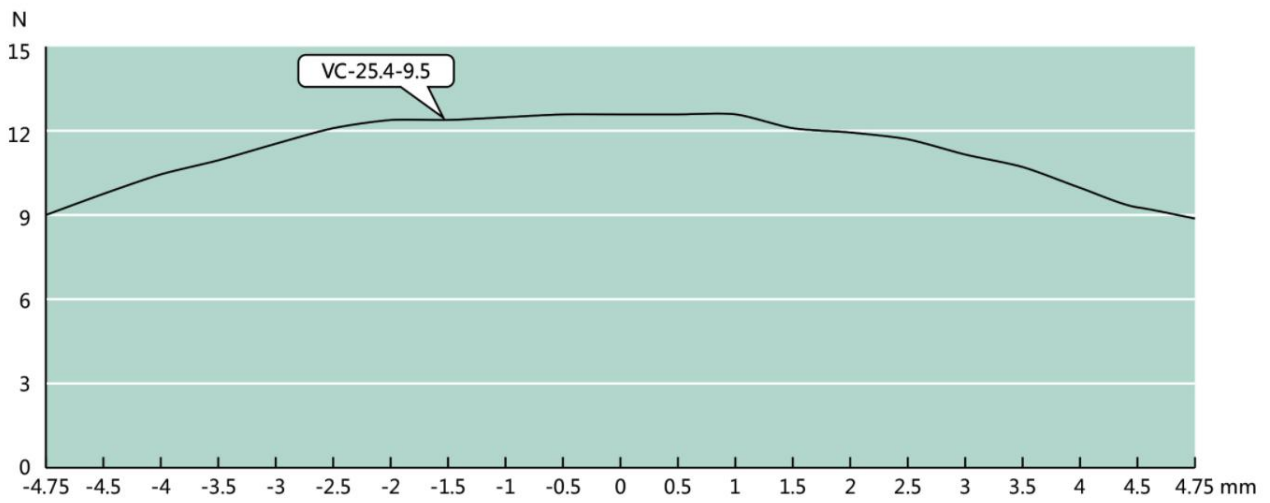
### Dimensions



## 25mm Voice coil motor

### Force Curve

\* This curve is the thrust curve under the rated current and the thrust is affected by the current change.



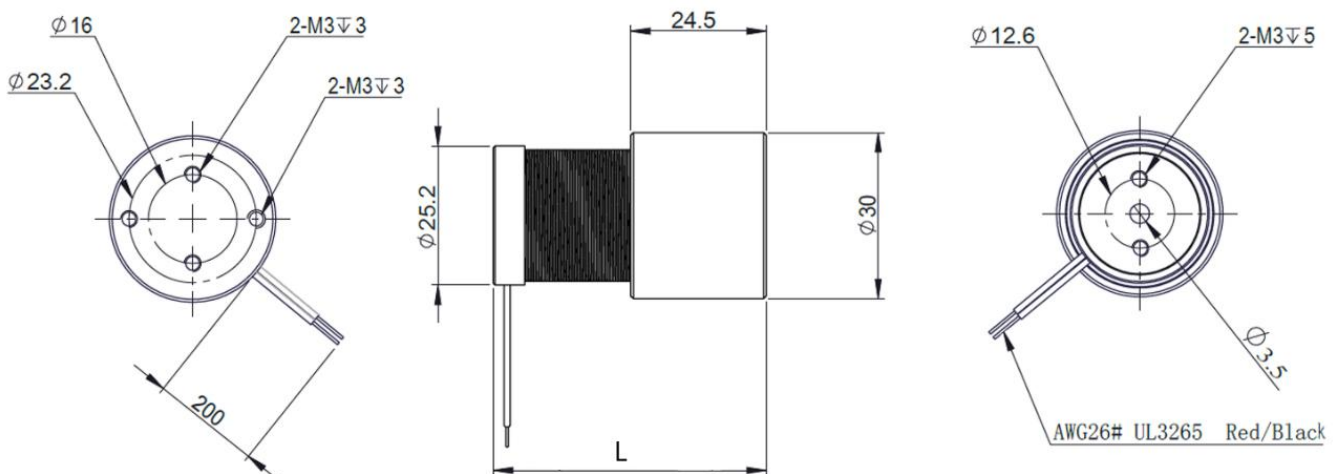
## 30mm Voice coil motor

### M030024-13VC Specifications



Item	Specifications
Stroke (mm)	13/15
Back EMF Constant(V/m/s)	7.35
Continuous Force(N)	4.63
Continuous Current Coil@100°C	0.63
Peak Thrust Force(N)	29.4
Force Sensitivity N(Middle Position)	10.2
Resistance/Phase ( $\Omega$ )	2.63
Inductance/Phase (mH)	0.6
Coil Gap(mm)	25
Coil Max. Temperature ( $^{\circ}\text{C}$ )	96
Coil Assembly Mass (g)	13
Body Assembly Mass (g)	7.35
Length-L (mm)	38(At mid stroke)sotrke=13±6.5/ 39(At mid stroke)sotrke=15±7.5

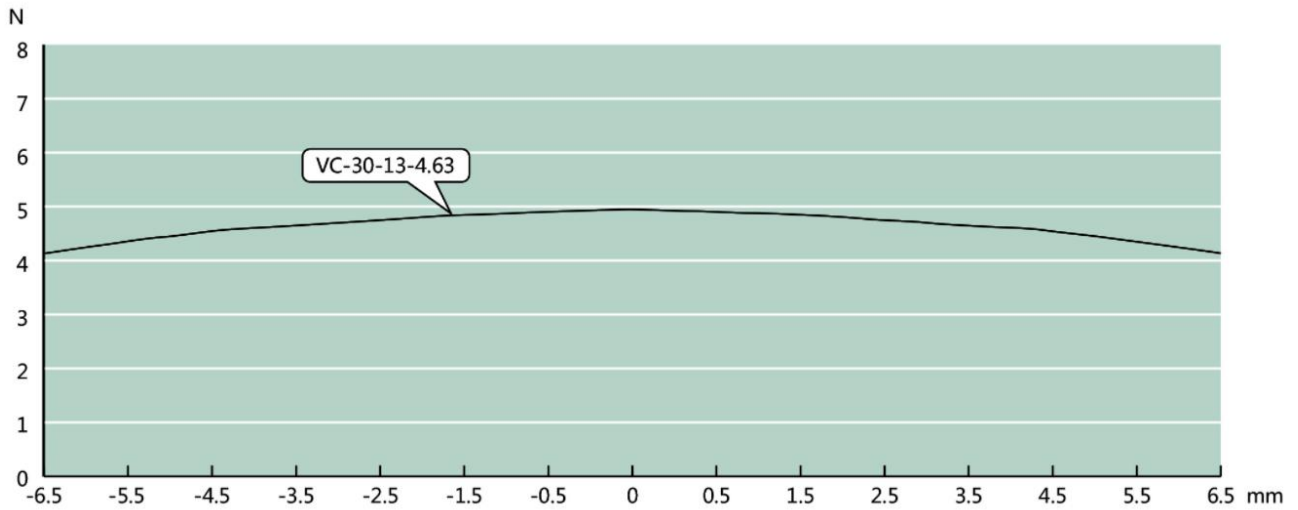
### Dimensions



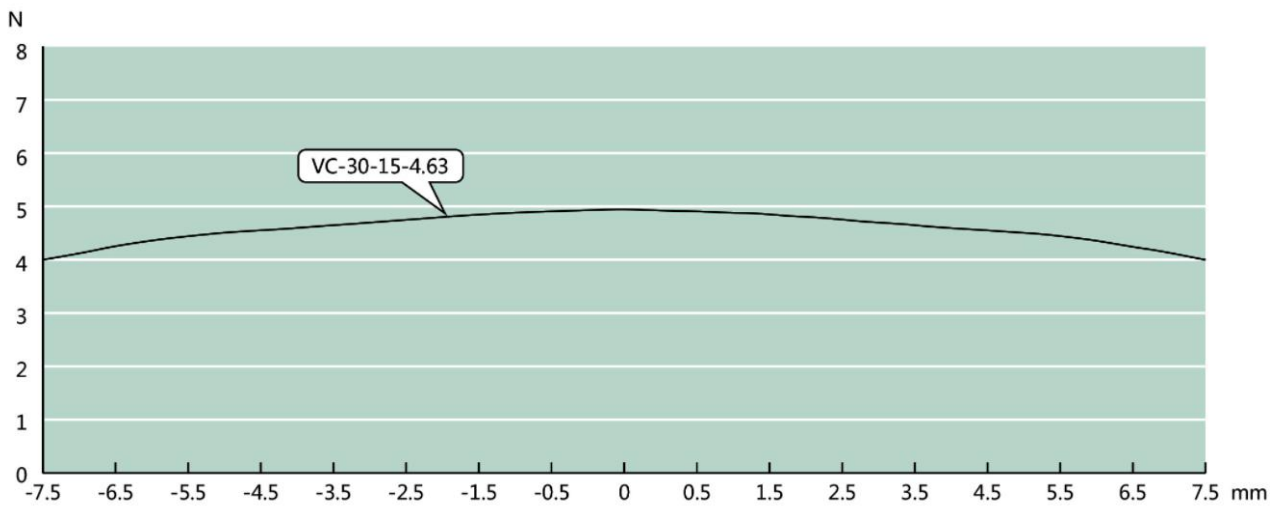
## 30mm Voice coil motor

### Force Curve

\* This curve is the thrust curve under the rated current and the thrust is affected by the current change.



Stroke=13mm



Stroke=15mm