

SUZHOU MINGCHUANG ELECTROMECHANICAL CO., LTD.

Build Domestic Self Developed First-class Brand Of Electric Rollers.



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VERSION 2024.6

Build Domestic Self Developed First-class Brand Of Electric Rollers.

# COMPANY PROFILE >>>

Suzhou Mingchuang Electromechanical Co., Ltd. is a technology innovation enterprise specializing in the R&D, manufacturing, and service of DC brushless motors, drivers, and electric rollers. The company operates with the concept of "focus, reputation, efficiency, and win-win", develops and manufactures high-performance DC brushless motors and electric rollers. We're focus on serving the fields of enterprise logistics transportation, sorting, and workshop automation production.

The company is located in Wujiang District, Suzhou, on the East the Taihu Lake, in the middle of the Yangtze River Delta. Wujiang is an important part of Jiangsu Yangtze River Economic Belt. The transportation is convenient, with Shanghai to the east, Jiaxing to the south, the Taihu Lake to the west, and the Yangtze River to the north. The core team of the company comes from the core departments of industry benchmark enterprises and holds important positions in the departments. They have nearly 20 years of experience in the research and development, production, manufacturing, and service of servo motors, DC brushless motors, and drivers.

We hold the dream of seeking truth from facts and industry serve the country, take cooperation and win-win as the concept to provide customers with cost-effective products. We are willing to share knowledge and make development together. Actively provide customers with high-quality services, understand customers' needs, strive for excellence in R&D, and lean production.



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Disclaimer: The data and images mentioned in this manual are limited to product promotion only, and the actual product shall prevail.

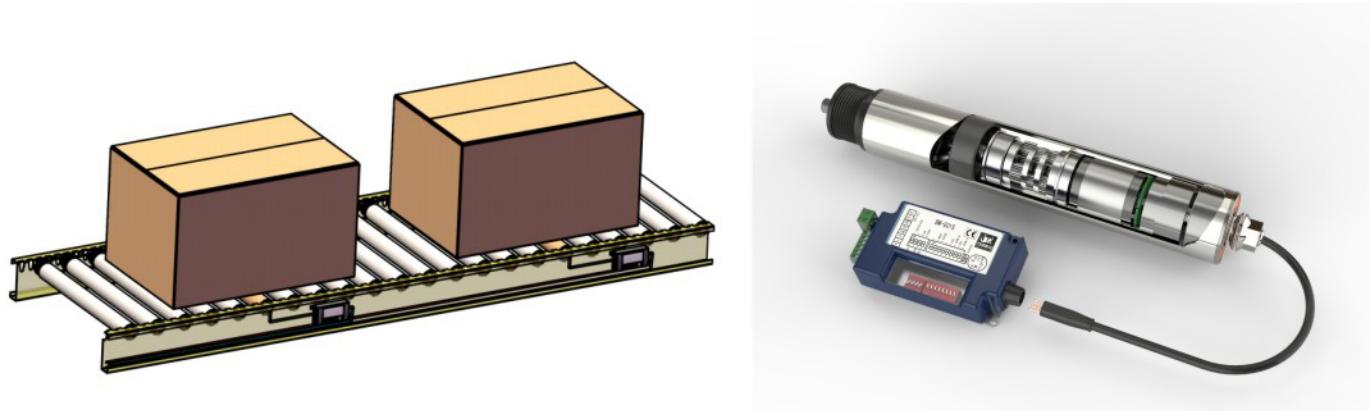
### 1.2 Certificates



**Join hands and strive for excellence**  
Build a first-class domestic self-developed electric drum brand



## ►►► BOX CONVEYOR ELECTRIC ROLLER



### ► 2.1 Features

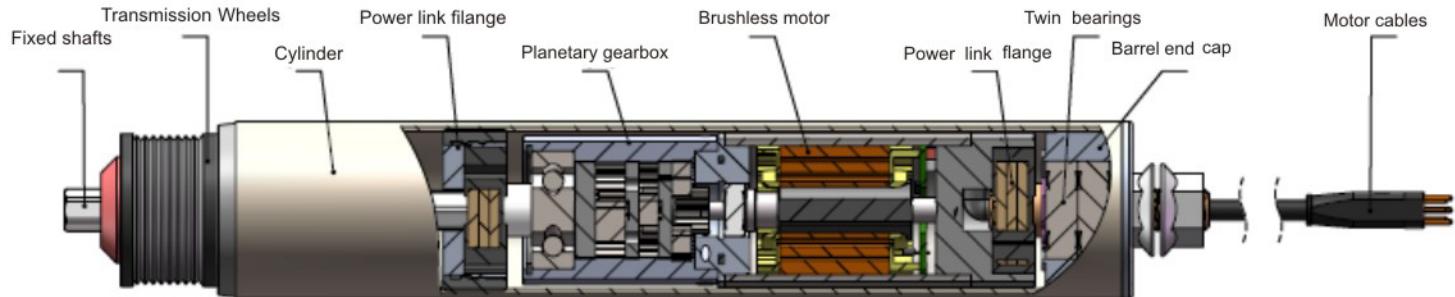
<b>Applicable industries</b>	Suitable for conveying and sorting light cargo in various distribution centers, logistics centers, and automatic production logistics lines.
<b>Safe voltage</b>	Both DC24V & 48V are safe voltages. No risk of electric shock. Safe and applicable.
<b>Ultra high torque</b>	The energy conversion efficiency from input to output is high. Depending on the type, the torque efficiency is more than 10 times higher compared to AC drums with the same outer diameter.
<b>Speed control</b>	Simple speed adjustment through a dedicated control card.
<b>Precise braking position</b>	Standard electromagnetic brake and brake point recovery servo brake mechanical brake can be selected.
<b>Fixed speed conveying</b>	Regardless of the weight of the transported goods, constant speed transportation is achieved through signal feedback.
<b>ZPA transfer (accumulation function)</b>	ZPA conveying can be easily achieved through a dedicated control card without the need for control program settings.
<b>Easy and quick installation</b>	Compared to traditional external reduction motor, electric roller is simpler and faster to install on the conveying equipment, requiring only 1/4 of the installation time of the traditional external reduction motor system.
<b>Safety in use</b>	The electric roller integrates the motor, reduction device and other components into a sealed cylinder. Only the support shafts at both ends need to be fastened to the conveying equipment, making the equipment operation safer and more reliable.

### ► 2.2 Application Fields





## ► 2.3 Basic Information



### Product Features

**Motor:** Adopt high-grade rare earth permanent magnet motor to ensure high efficiency and strong power.

**Planetary gearbox:** Adopt precision planetary gearbox with efficient, silent, and reliable transmission power.

**Power link flange:** Patented structure, rigid plum blossom structure & flexible polymer material, ensuring reliable power connection and silent operation.

**Roller bearing:** Double bearing supports transmission, more reliable and durable.

**Motor cable:** Customized injection-molded 9-core flat plug ensures easy cable plugging and reliable connection.



CE

Φ50mm



Φ60mm

### Matching driver

**Pipe material:** Steel, galvanized, stainless steel (SUS201 or 304)

- ◆ **Diameter and wall thickness:** Φ50mm-1.5mm, Φ60mm-2.0mm
- ◆ **Motor power:** Rated 50W and rated 80W
- ◆ **Voltage:** DC24V and DC48V
- ◆ **Standard cable length:** 600mm (extension cord available)
- ◆ **Ambient temperature:** -0.5°~+40°C
- ◆ **Ambient humidity:** 30-90% (no condensation)

- ◆ BM-A01S
- ◆ BM-G01S
- ◆ BM-D01S
- ◆ BM-DS1T2(one for two)

## ► 2.4 Static Load Capacity

(Unit: KG)

Diameter (mm)	Length (mm)										
	300	400	500	600	700	800	900	1000	1100	1200	1300
Φ50mm	80	70	60	55	50	45	40	35			
Φ60mm	140	140	110	110	80	80	60	60	45	30	20

## ► 2.5 Performance parameter

Pipe diameter Φ50mm, rated power: 50W, maximum power 90W

Speed code	Gearbox	Gear ratio K	Linear velocity		Roller speed (prm)		Torque (N.m)		Tangential force(N)		Current (A)	
			min	max	min	max	rated	start-up	rated	start-up	rated	start-up
A6	3级	139	1	6	7	39	13.5	72.8	539	2912		
A7		115	1	7	9	47	11.2	60.2	446	2409		
A8		100	2	8	10	54	9.7	52.4	388	2095		
A9		95	2	9	11	57	9.2	49.8	369	1990		
A11		79	2	11	13	68	7.7	41.4	307	1655		
A12		71	2	12	14	76	6.9	37.2	275	1488		
A13		68	2	12	15	79	6.6	36.1	264	1444		
A14		59	3	14	17	92	6.1	33.7	244	1348		
A15		51	3	17	20	106	5.2	28.5	208	1140		
A30		27	6	31	37	200	2.9	15.8	116	632		
A35	2级	22	7	39	45	245	2.4	12.9	96	516		
A40		19	8	45	53	284	2.1	11.8	84	472		
A50		16	10	53	63	338	1.8	9.7	72	388		
A60		14	11	61	71	386	1.5	8.5	60	340		
A160		5.2	30	163	192	1038	0.6	3.4	24	136		
A190	1级	4.3	37	197	233	1256	0.5	2.8	20	112		
A230		3.7	42	229	270	1459	0.4	2.4	16	96		

Pipe diameter Φ50mm, rated power: 80W, maximum power 160W

Speed code	Gearbox	Gear ratio K	Linear velocity		Roller speed (prm)		Torque (N.m)		Tangential force(N)		Current (A)	
			min	max	min	max	rated	start-up	rated	start-up	rated	start-up
B6	3级	139	1	6	7	39	18.6	100.6	745.0	4023.2		
B7		115	1	7	9	47	15.4	83.2	616.4	3328.6		
B8		100	2	8	10	54	13.4	72.4	536.0	2894.4		
B9		95	2	9	11	57	12.7	68.7	509.2	2749.7		
B11		79	2	11	13	68	10.6	57.2	423.4	2286.6		
B12		71	2	12	14	76	9.5	51.4	380.6	2055.0		
B13		68	2	12	15	79	9.10	49.1	364.0	2002.0		
B14		59	3	14	17	92	8.00	43.2	320.0	1760.0		
B15		51	3	17	20	106	6.80	36.7	272.0	1496.0		
B30		27	6	31	37	200	4.16	22.5	166.4	915.2		
B35	2级	22	7	39	45	245	3.39	18.3	135.6	745.8		
B40		19	8	45	53	284	2.92	15.8	116.8	642.4		
B50		16	10	53	63	338	2.46	13.3	98.4	541.2		
B60		14	11	61	71	386	2.15	11.6	86.0	473.0		
B160		5.2	30	163	192	1038	0.72	3.9	28.8	158.4		
B190	1级	4.3	37	197	233	1256	0.60	3.2	24.0	132.0		
B230		3.7	42	229	270	1459	0.52	2.8	20.8	114.4		



Pipe diameter  $\Phi 60\text{mm}$ , rated power: 50W, maximum power 90W

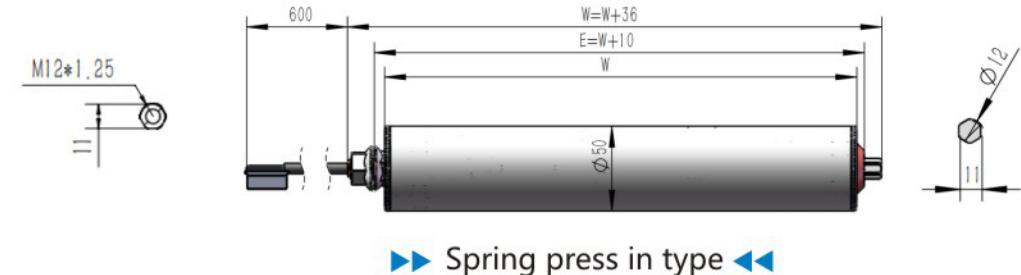
Speed code	Gearbox	Gear ratio	Linear velocity		Roller speed (prm)		Torque (N.m)		Tangential force (N)		Current (A)	
			K	min	max	min	max	rated	start-up	rated	start-up	rated
C7	3级	139	1	7	7	39	13.5	72.8	449.4	2426.9	24V/3.5A 48V/1.7A	24V/5A 48V/3.5A
C9		115	2	9	9	47	11.2	60.2	371.8	2007.9		
C10		100	2	10	10	54	9.7	52.4	323.3	1746.0		
C11		95	2	11	11	57	9.2	49.8	307.2	1658.7		
C13		79	2	13	13	68	7.7	41.4	255.4	1379.3		
C14		71	3	14	14	76	6.9	37.2	229.6	1239.7		
C15		68	3	15	15	79	6.6	36.3	220.0	1210.0		
C17		59	3	17	17	92	6.1	33.6	203.3	1118.3		
C20		51	4	20	20	106	5.2	28.6	173.3	953.3		
C35	2级	27	7	38	37	200	2.9	16.0	96.7	531.7		
C45		22	9	46	45	245	2.4	13.2	80.0	440.0		
C50		19	10	54	53	284	2.1	11.6	70.0	385.0		
C60		16	12	64	63	338	1.8	9.9	60.0	330.0		
C70		14	13	73	71	386	1.5	8.3	50.0	275.0		
C195	1级	5	36	196	192	1038	0.6	3.3	20.0	110.0	24V/5A 48V/2.4A	24V/10A 48V/4.8A
C235		4	44	237	233	1256	0.5	2.8	16.7	91.7		
C275		4	51	275	270	1459	0.4	2.2	13.3	73.3		

Pipe diameter  $\Phi 60\text{mm}$ , rated power: 80W, maximum power 160W

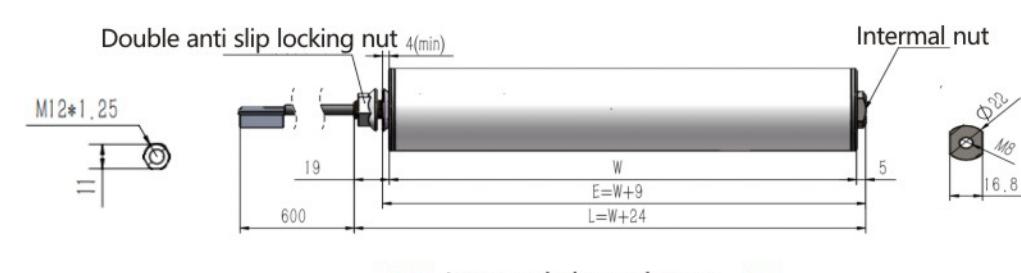
Speed code	Gearbox	Gear ratio	Linear velocity		Roller speed (prm)		Torque (N.m)		Tangential force (N)		Current (A)	
			K	min	max	min	max	rated	start-up	rated	start-up	rated
D7	3级	139	1	7	7	39	18.6	102.4	620.9	3414.8	24V/5A 48V/2.4A	24V/10A 48V/4.8A
D9		115	2	9	9	47	15.4	84.8	513.7	2825.2		
D10		100	2	10	10	54	13.4	73.7	446.7	2456.7		
D11		95	2	11	11	57	12.7	70.0	424.3	2333.8		
D13		79	2	13	13	68	10.6	58.2	352.9	1940.8		
D14		71	3	14	14	76	9.5	52.3	317.1	1744.2		
D15		68	3	15	15	79	9.1	50.1	303.3	1668.3		
D17		59	3	17	17	92	8.0	44.0	266.7	1466.7		
D20		51	4	20	20	106	6.8	37.4	226.7	1246.7		
D35	2级	27	7	38	37	200	4.2	22.9	138.7	762.7		
D45		22	9	46	45	245	3.4	18.6	113.0	621.5		
D50		19	10	54	53	284	2.9	16.1	97.3	535.3		
D60		16	12	64	63	338	2.5	13.5	82.0	451.0		
D70		14	13	73	71	386	2.2	11.8	71.7	394.2		
D195	1级	5	36	196	192	1038	0.7	4.0	24.0	132.0	24V/5A 48V/2.4A	24V/10A 48V/4.8A
D235		4	44	237	233	1256	0.6	3.3	20.0	110.0		
D275		4	51	275	270	1459	0.5	2.9	17.3	95.3		

## ► 2.6 Overall Dimensions

### No driver (straight tube type)



► Spring press in type



► Internal thread type



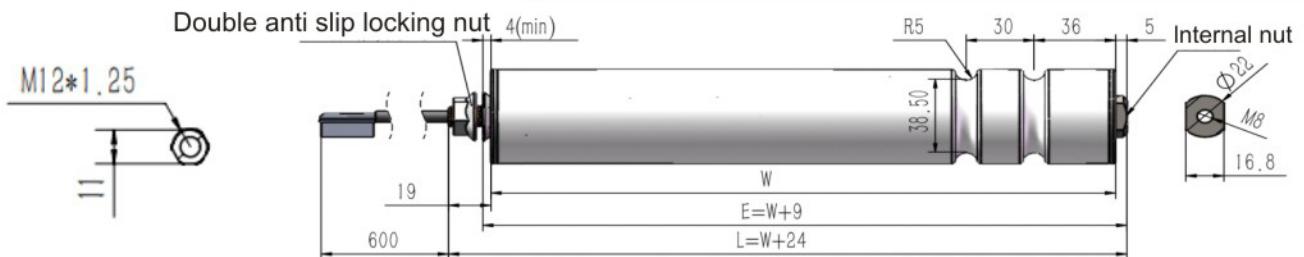
► Double milling flat type

The shortest distance W (Speed code A and C have the same dimension. Code B and D are 15mm longer than A and C) Shorter sizes can be customized.

External diameter mm	Speed code	Spring press in type mm		Internal thread type mm		Double milling flat type mm	
		W	E	W	E	W	E
50	A6-A9 A11-A15	254	265	222	233	220	230
	A30、A35、 A40、A50 A60	244	255	212	223	210	220
	A160、A190、 A230	234	245	202	213	200	210



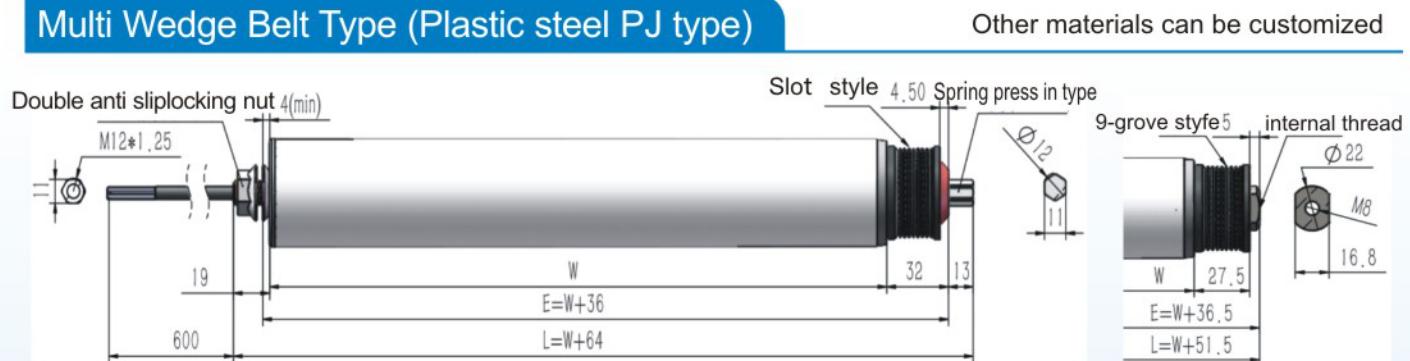
## Double Groove Type (R5)



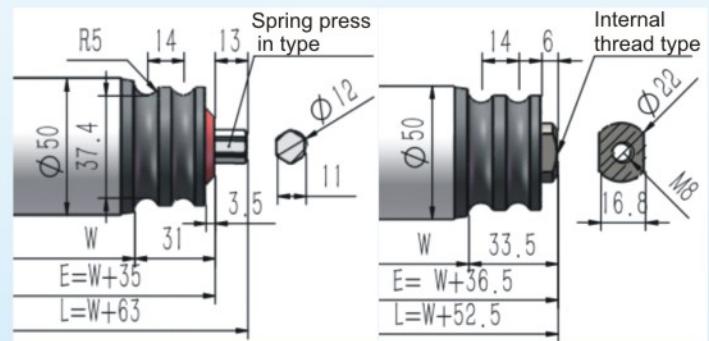
The shortest distance W (Speed code A and C have the same dimension. Code B and D are 15mm longer than A and C) Shorter sizes can be customized.

External diameter mm	Speed code	Spring press in type mm		Internal thread type mm	
		W	E	W	E
50	A6-A9、A11-A15	291	301	276	287
	A30、A35、A40、A50 A60	281	291	266	277
	A160、A190、A230	271	281	256	267

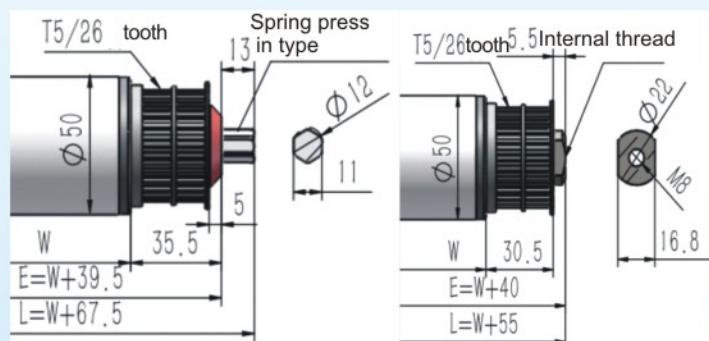
## Multi Wedge Belt Type (Plastic steel PJ type)



## O-Wheel Type (Plastic)



## Synchronous Belt Pulley(Plastic)

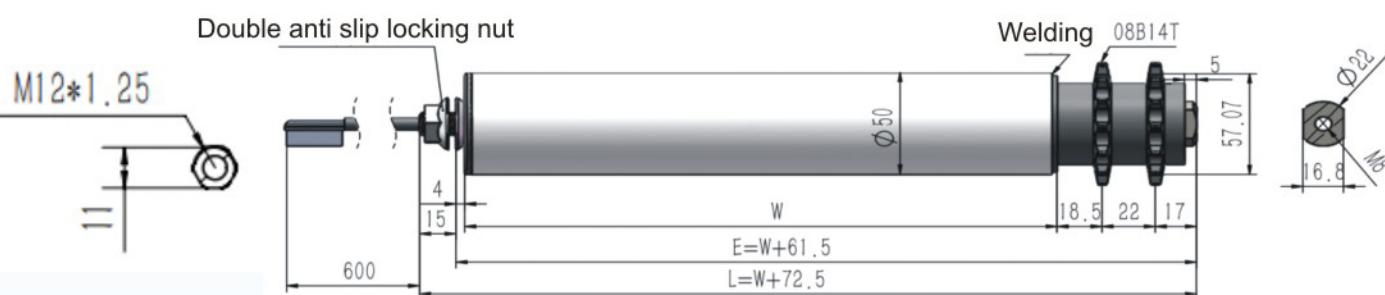


The shortest distance W (Speed code A and C have the same dimension. Code B and D are 15mm longer than A and C) Shorter sizes can be customized.

External diameter mm	Speed code	Spring press in type mm		Internal thread type mm	
		W	E	W	E
50	A6-A9、A11-A15	268	307	231	269
	A30、A35、A40、A50 A60	258	297	221	259
	A160、A190、A230	248	287	211	249

## Double Chain Wheel Type

Other sprocket structures can be customized.

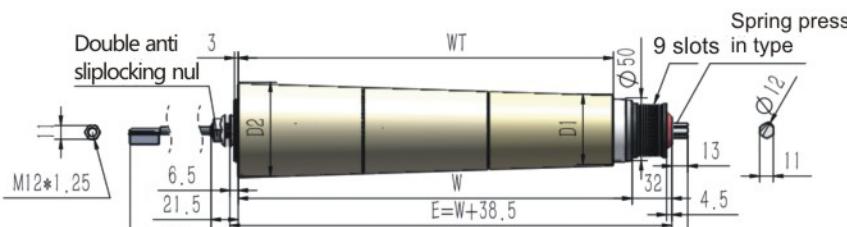


The shortest distance W (Speed code A and C have the same dimension. Code B and D are 15mm longer than A and C) Shorter sizes can be customized.

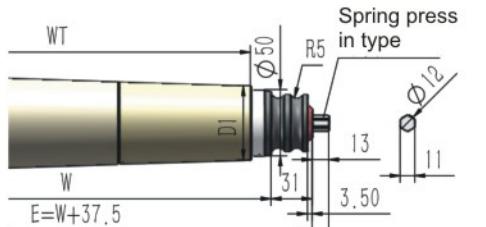
External diameter mm	Speed code	Elastic compression type mm		Internal thread type mm	
		W	E	W	E
50	A6-A9、A11-A15	/	/	225	286
	A30、A35、A40、A50 A60	/	/	215	276
	A160、A190、A230	/	/	205	266



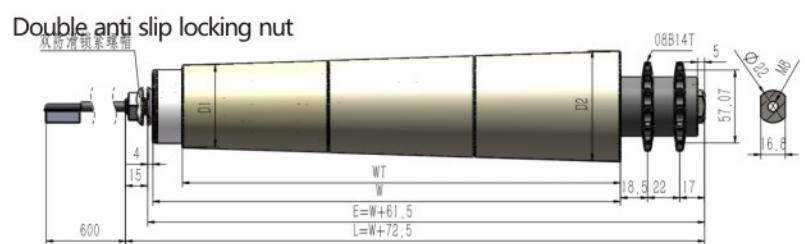
## Conical Shape



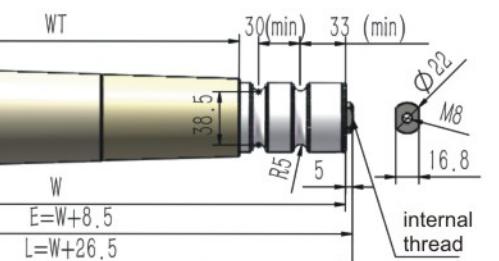
Multi Wedge Belt Type



O-Wheel Type



Double Chain Wheel Type



Double pressure groove

### Plastic Cone Sleeve Size WT

WT	300	400	500	600	700	800	900	1000
D1	Φ56	Φ56	Φ56	Φ56	Φ56	Φ56	Φ56	Φ56
D2	Φ75	Φ81	Φ87	Φ93	Φ99	Φ105	Φ111	Φ117

Unit: mm

## ► 2.7 Product Selection Rules



**BM-A D 50 600 A 15 -ABA**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Basic model  
A External thread motor output shaft + non motor end hexagonal shaft spring press in type  
B External thread motor output shaft + non motor end internal thread type  
C Double milling flat D Other non-standard

② Basic type  
A-Standard T-Cone-shaped  
C-Cam

③ Power type  
B 24V D48V

④ Roller diameter  
(50mm)

⑤ Roller length  
Reference dimension diagram (value W)

⑩ Installation method  
A No driver  
B Double steel chain (08B14T)  
C Rolling groove type (R5)  
D Plastic steel multi wedge belt (PJ)  
E Plastic steel O-wheel  
F Plastic steel synchronous belt pulley  
G Other non-standard

⑨ Drive Type  
A No driver  
B Double steel chain (08B14T)  
C Rolling groove type (R5)  
D Plastic steel multi wedge belt (PJ)  
E Plastic steel O-wheel  
F Plastic steel synchronous belt pulley  
G Other non-standard

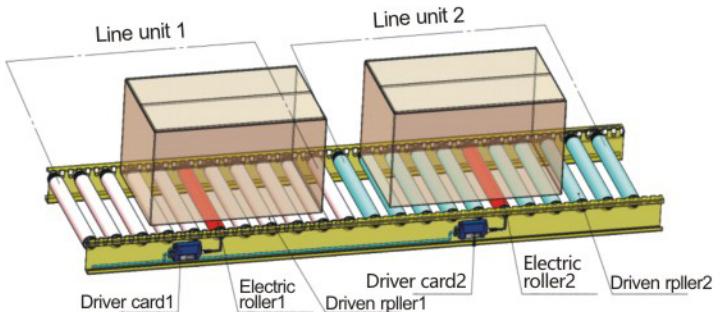
⑧ Cylinder form  
A Carbon steel galvanized  
B Stainless steel  
C Carbon steel coated with hard chromium  
D Galvanized steel pipe (Chain wheel dedicated)  
X 5mm natural rubber  
Y 5mm PU  
Z 5mm PVC soft rubber  
F Other non-standard

⑦ Speed code  
Refer to the performance parameter

⑥ Speed code type  
A-50mm pipe diameter 50W motor  
B-50mm pipe diameter 80W motor  
C-60mm pipe diameter 50W motor  
D-60mm pipe diameter 80W motor  
E-Other non-standard models



## ► 2.8 Installation Example



### Line Composition

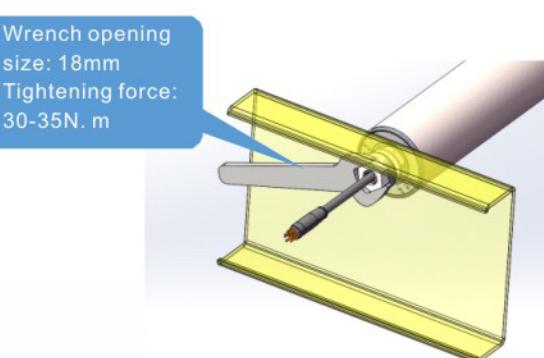
1. Each line is composed of multiple units, each unit consisting of one electric roller, matched with multiple driven rollers. The number of driven rollers is determined by the power of the electric rollers and the size of the line load.
2. The electric roller of each unit should be placed in the middle position as much as possible, as shown in the figure as a 1-to-10 line body. Five driven rollers should be placed on each side of the electric roller.
3. Each line unit is an independent unit, and the start stop action has no physical linkage with other units, only an electrical control linkage.

## Roller Fixing Method

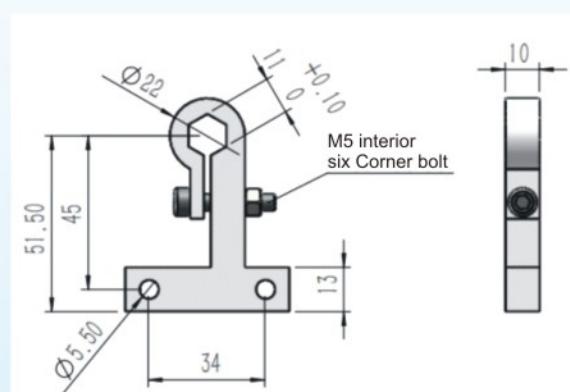
### Method 1: Double nut locking (standard type)



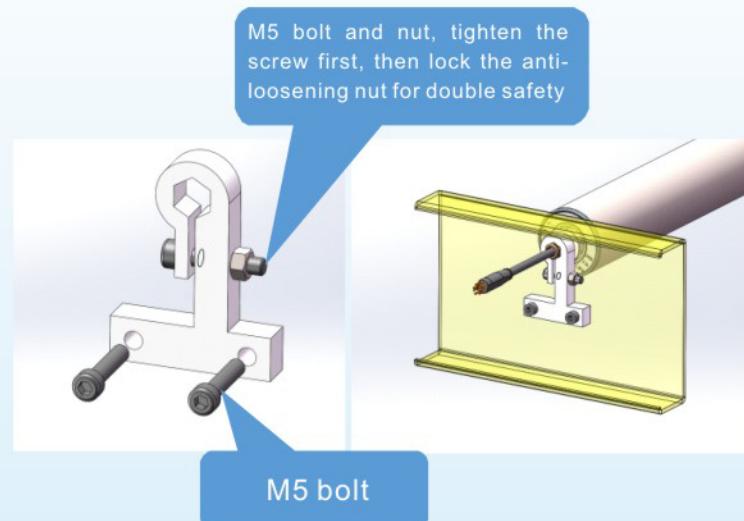
Please ensure that the tightening degree of the nut on the output shaft of the power roller cable end meets the requirements to avoid loosening the output shaft and causing the cable to rotate with the drum, resulting in the cable being twisted and damaging the roller.



### Method 2: R-type locking clamp (optional accessory)



R-type locking clamp



M5 bolt

Note: Other installation methods can be non-standard customized.

## ► 2.9 Selection Guidance

Select the appropriate motor specifications based on the following selection criteria.

### ① Determination of starting torque

The starting torque required for conveying is less than the starting torque of the electric roller (unit: N · m)

### Calculation formula

$$F=Wx\mu x 9.8/0.95n$$

$$T=F x D x S/2$$

The parameters in the above formula are explained as follows.

T= Required starting torque	F= Tangential force of demand	m=Mass(kg)	g=Gravitational acceleration 9.8m/s <sup>2</sup>
$\mu$ = friction coefficient	S= safety factor	n= Number of passive rollers	D= Roller Diamter (unit: mm)

### Friction coefficient $\mu$

Appearance material	Bottom of material			
	Steel	Plastic	Wood	Carton
Steel	0.02	0.04	0.05	0.1
2mm PVC soft rubber	0.03	0.04	0.05	0.15
5mm PU	0.02	0.04	0.05	0.15
5mm adhesive coating	0.02	0.04	0.06	0.15

### ② Passive roller quantity determination

The number of passive rollers  $x2$  is less than the rated tangential force of the electric roller, and the number of passive rollers does not exceed 24 (multi wedge belt transmission mode)

### ③ Speed

Select the code that meets the speed requirements based on conditions ① and ②. If there are multiple speed codes that meet the requirements, it is recommended to choose the speed code with the highest starting torque.

### Example

#### Load parameters

Load weight W=100kg Load material: carton roller parameters:

Roller Tube Material: Steel Galvanized Conveyor Speed: 30m/min Safety Factor: S=1.5 Passive Roller Quantity: n=10 Diameter: D=50mm

$$F=Wx\mu x 9.8/0.95n=163.68N$$

$$T=FxDxS/2000=6.86N \cdot m$$

The electric roller models operating at a speed of 40m/min are as follows:

BL-AB-50-400-A35ADA (diameter 50mm, speed code A35) starting torque: 6.86N · m

The starting torque required for the electric drum is less than the nominal value (6.86<15.82), and the selected electric roller can drive a 100kg carton

# Top Lifting Transfer Roller



## ► 3.1 Basic information



Pipe material: steel, galvanized, stainless steel (SUS201 or 304)  
 Diameter and wall thickness:  $\phi 50\text{mm}$ - $1.5\text{mm}$   
 Two voltage specifications: DC24V and DC48V; Standard cable length: 600mm (extension cable available)  
 Environmental temperature:  $-0.5\text{ }^{\circ}\text{C}$ ~ $+40\text{ }^{\circ}\text{C}$  Environmental humidity: 30~90% (no condensation)

### Match driver

- ◆ BM-A01S
- ◆ BM-D01S
- ◆ BM-G01S
- ◆ BM-DS1T2

## ► 3.2 Technical Parameter



Electric Roller size



Driven roller size

### Features:

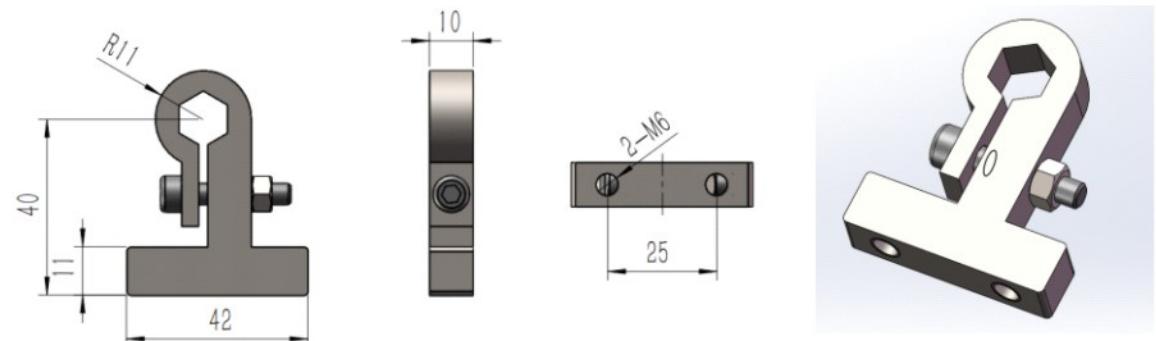
Efficient - Dual cam structure, rotating 70 degree within a single stroke to complete the switching of the transfer platform.  
 Smooth - Perfect cam curve, no impact during the lifting process.  
 Simple-Integrated lifting reciprocating mechanism, simplify the overall structure.  
 Compact - Integrated design, effectively reducing the overall height of the transfer machine to as low as 180mm.

Basic information				Performance parameter			
Rated power	Maximum power	Rated current	Voltage	Weight of transplanting platform	Rated torque	Speed range	Maximum efficiency
50W	90W	3.5A	DC24V	<90KG	6.5N.m	2-13M/mi	2500pcs/H

This load only refers to the weight of the lifting platform and is not related to the weight of the goods. When switching platforms, the horizontal position of the goods remains unchanged.  
 During the switching process between the two platforms, maintain the same height without any drop to avoid impact caused by the weight of the goods, which may result in failure or even damage.

## ► 3.3 Installation Bracket

Used for cable segment fixed shaft installation



## ► 3.4 Installation Example

1. Connect the cam electric drum and the driven drum

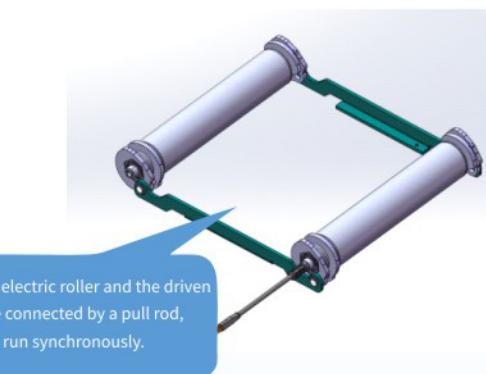


Figure 1

The cam electric roller and the driven roller are connected by a pull rod, and they run synchronously.

2. Installed on the transplanting bracket

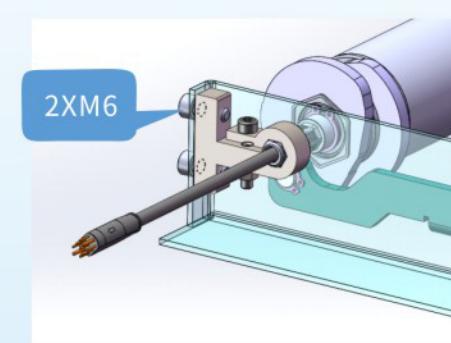


Figure 3

The outlet end is fixed on the transplanting Bracket with a dedicated bracket.

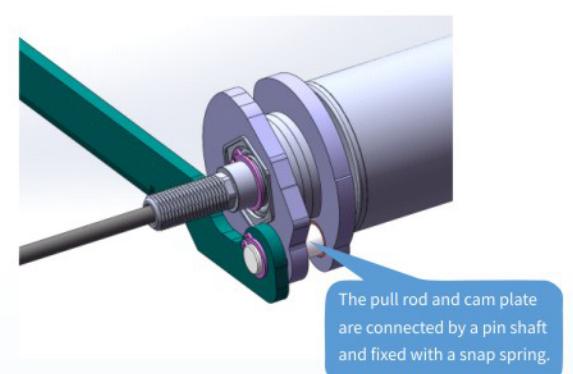


Figure 2

The pull rod and cam plate are connected by a pin shaft and fixed with a snap spring.

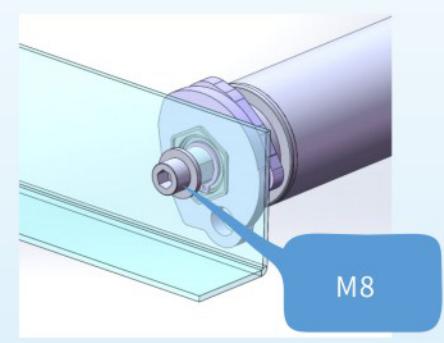


Figure 4

The non lineend of the electric roller and both ends of the driven roller are directly fastened to the transplanting bracket with M8 bolts.



## Driver Card



### ► 4.1 Overview



#### Model: BM-A01S

- Simulate voltage speed regulation
- Comes with VSP speed control knob and switch
- Dynamic braking (current lock and position lock)
- Support sensitive startup and non-sensitive operation mode
- Number of connected devices: one to one



#### Model: BM-G01S

- Digital dialing speed regulation
- Comes with VSP speed control knob and switch
- Dynamic braking (Current lock and position lock)
- Support sensitive startup and non sensitive operation mode
- Intermittent restart function due to blockage
- Number of connected devices: one to one



#### Model: BM-D01S

- Digital dialing speed regulation
- I/O multi-stage speed multi-mode control
- 485 Communication
- Dynamic braking (current lock and position lock)
- Support sensory start and non-sensitive operation mode
- Intermittent restart function due to blockage
- Number of connected devices: one to one



#### Model: BM-DS1T2

- Digital dialing speed regulation
- I/O multi-stage speed multi-mode control
- 485 Communication
- Dynamic braking (current lock and position lock)
- Support sensory start and non-sensitive operation mode
- Number of connected devices: one to two
- Sinusoidal wave control mode



#### Model: MC-BLDC-24H/48H-D01G

- Digital dialing speed regulation
- LED error prompt
- 485 Communication
- Blocked rotor protective restart function
- Number of connected devices: one to one

## ► BM-A01S

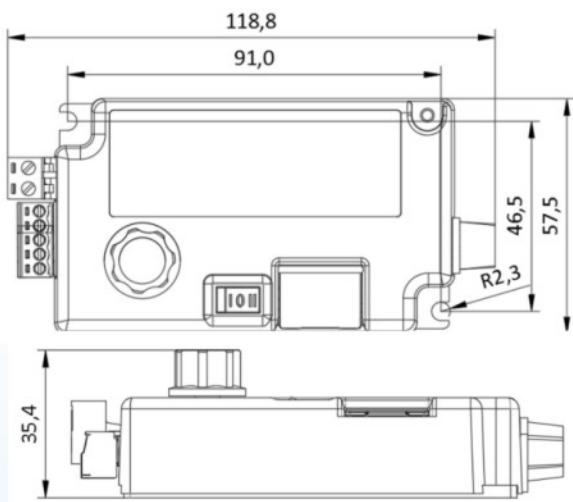
### Features

- Simulated voltage speed control
- Internal VSP adjustable potentiometer infinite speed regulation
- Internal control switch, capable of controlling motor start/stop and forward/reverse rotation
- VO point controls motor start stop and forward/reverse rotation
- Supports NPN and PNP signal input/output
- LED fault prompt
- Dynamic braking (current lock and position lock)
- Stopping and locking the vehicle is more reliable
- 4-speed acceleration/deceleration time setting
- The driving mode supports sensing start and non-sensitive operation
- The motor runs more smoothly and reliably
- Number of drive motors: 1 (one to one)

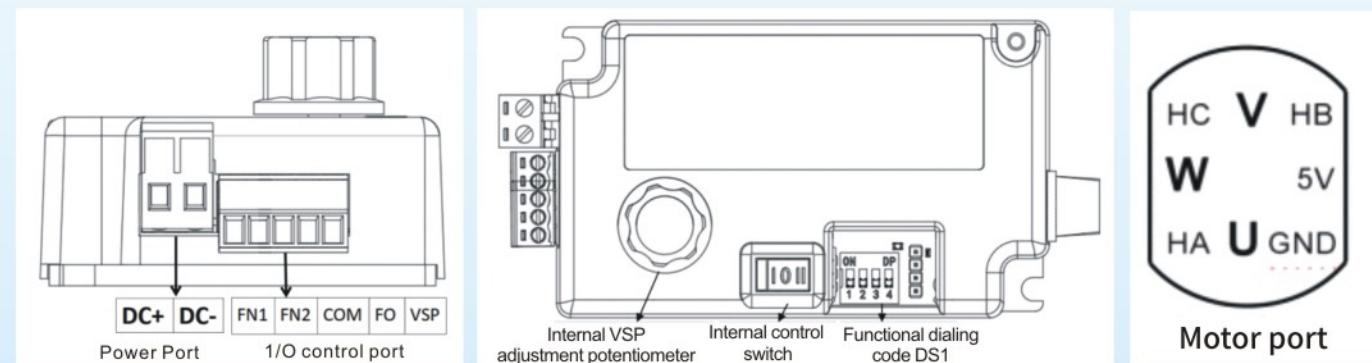
### Technical parameters

### size

Item	Unit	Specifications
Rated input voltage	V	24/28 ( $\pm 10\%$ )
Rated operating current	A	3
Peak output current	A	20
Driver size	mm	118.8*57.5*24
Driver control mode		I/O and built-in VSP potentiometer and forward/reverse switch
Operation temperature	°C	-25-60
Ambient humidity		Below 85 degrees



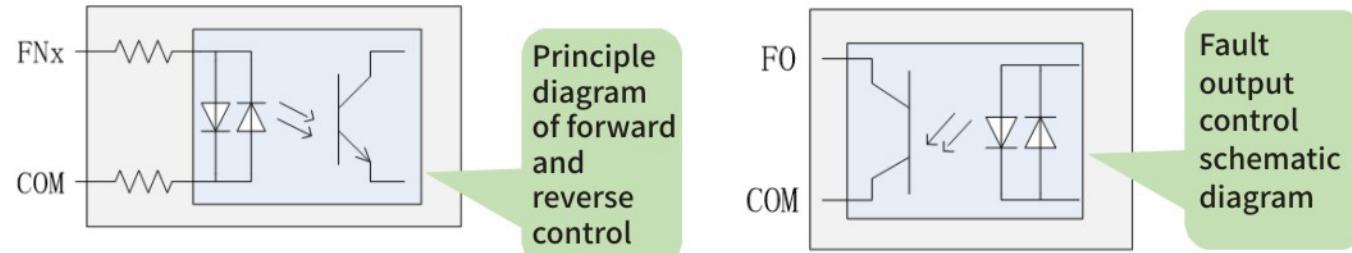
### Port definition





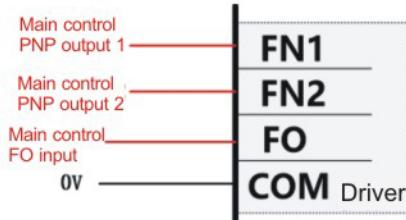
## Connection Instructions

### Explanation of Terminal Wiring Control Principle



FN2/FO are both optocoupler isolated forms, and FN1/FN2 and COM support a maximum input of 48V. When the drive fails, FO and COM are actively connected, supporting a maximum current of 100mA. When there is no fault, FO and COM are not connected. COM is the common end of FN1/FN2/FO.

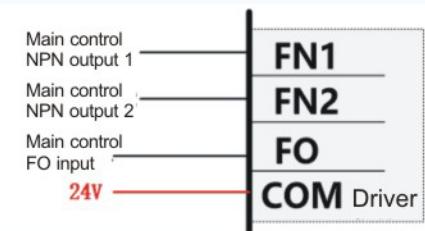
### Isolation output wiring diagram



Input PNP connection



When PNP fault output occurs, COM is connected to 0V and FO is connected to the PLC fault input point.

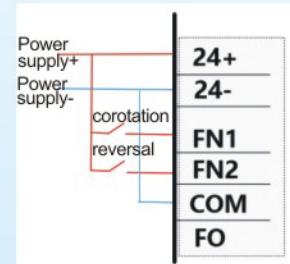


Input NPN connection



When NPN fault output occurs, COM is connected to 0V and FO is connected to the PLC fault input point.

### Forward and reverse switch control wiring diagram (non-isolated input)



The COM signal is short circuited to the power DC, and the FN1/FN2 signals are connected to the 24V port of the terminal block as switch signals.

## ► BM-G01S

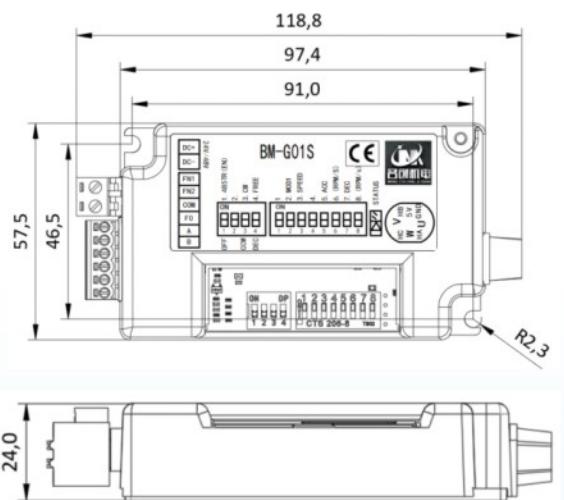
### Features

- 16 speed settings
- 4-speed acceleration/deceleration time setting
- I/O control start stop and forward/reverse rotation
- Supports NPN and PNP signal input/output
- LED fault prompt
- 485 communication control
- Dynamic braking (current lock and position lock)  
Stopping and locking the vehicle is more reliable
- The driving mode supports sensing start  
And non-sensitive operation
- The motor runs more smoothly and reliably
- Motor wiring terminal form: 9-pin plastic sealed  
flat head terminal
- Number of drive motors: 1 (one to one)

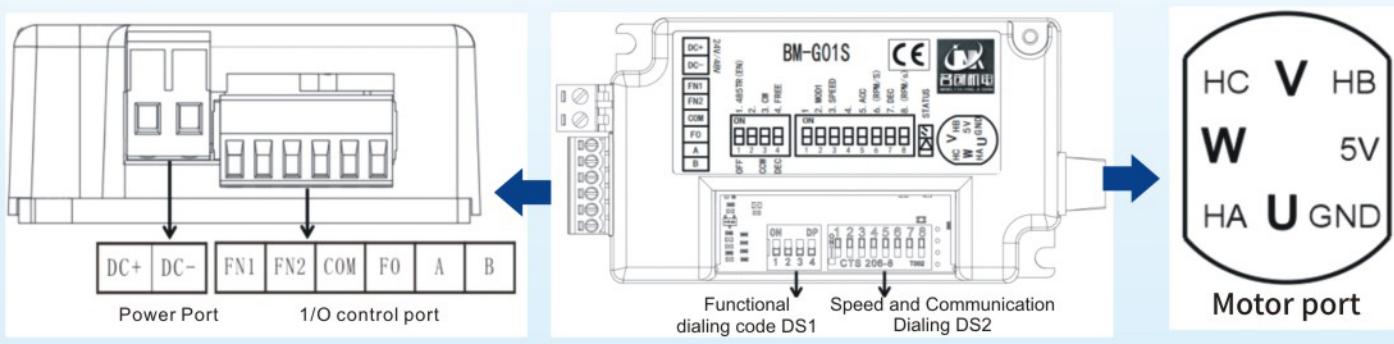
### Technical parameters

Item	Unit	Specifications
Rated input voltage	V	24/28 ( $\pm 10\%$ )
Rated operating current	A	3
Peak output current	A	20
Driver size	mm	118.8*57.5*24
Driver control mode		I/O and Communication
Driver communication method		MODBUS RTU
Operation temperature	°C	-25-60
Ambient humidity		Below 85 degrees

### size



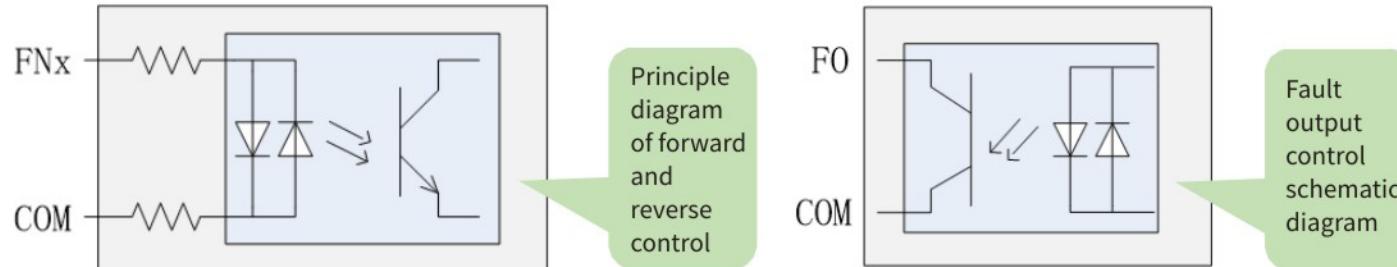
### Port definition





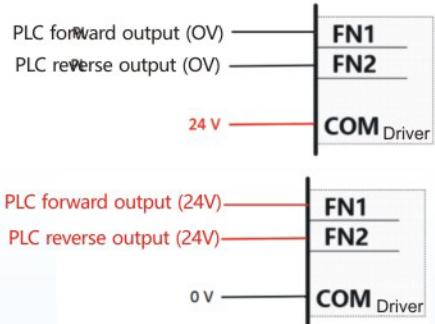
## Connecting Instructions

### Explanation of Terminal Wiring Control Principle



FN2/FO are both optocoupler isolated forms, and FN1/FN2 and COM support a maximum input of 48V. When the drive fails, FO and COM are actively connected, supporting a maximum current of 100mA. When there is no fault, FO and COM are not connected. COM is the common terminal of FN1/FN2/FO.

### Forward and reverse control PLC wiring diagram (isolated input) - FN1/FN2 ; and COM are designed in both directions.

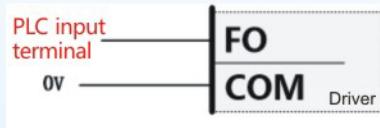


NPN input: COM connected to the positive pole (24V+) of the PLC power supply, FN1/FN2 connected to the output port of the PLC

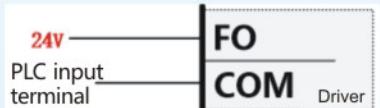


PNP input: COM connected to the negative pole (0V) of the PLC power supply, FN1/FN2 connected to the output port of the PLC

### Fault output PLC non isolated input wiring diagram (FO and COM are unidirectional designs, signals can only be sent from FO to COM)

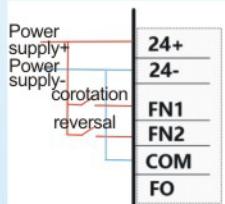


NPN output: COM connected to the negative terminal (0V) of the PLC power supply, FO connected to the input port of the PLC



PNP output: FO connected to the positive pole (24V+) of the PLC power supply, COM connected to the input port of the PLC

### Control wiring diagram for forward and reverse operation switch (non-isolated input)



COM signal and power DC short circuit, FN1/FN2 signals are respectively connected to the 24V port of the terminal block as switch values.

## ►BM-D01S

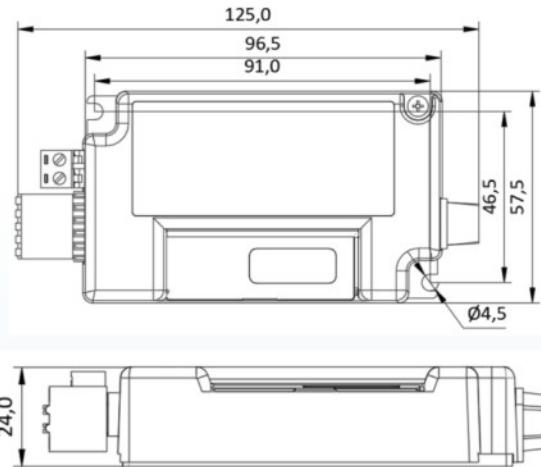
### Features

- 16 speed settings
- Setting of 8-speed acceleration/deceleration time
- I/O control start stop and forward/reverse rotation
- Supports NPN and PNP signal input output
- LED fault prompt
- I/O multi speed, multiple operating modes
- Dynamic braking (current lock and position lock)
- Stopping and locking the vehicle is more reliable;
- The driving mode supports sensing start and non-sensitive operation
- The motor runs more smoothly and reliably
- 485 communication control
- Motor wiring terminal form: 9-pin plastic sealed flat head terminal
- Number of drive motors: 1 (one to one)

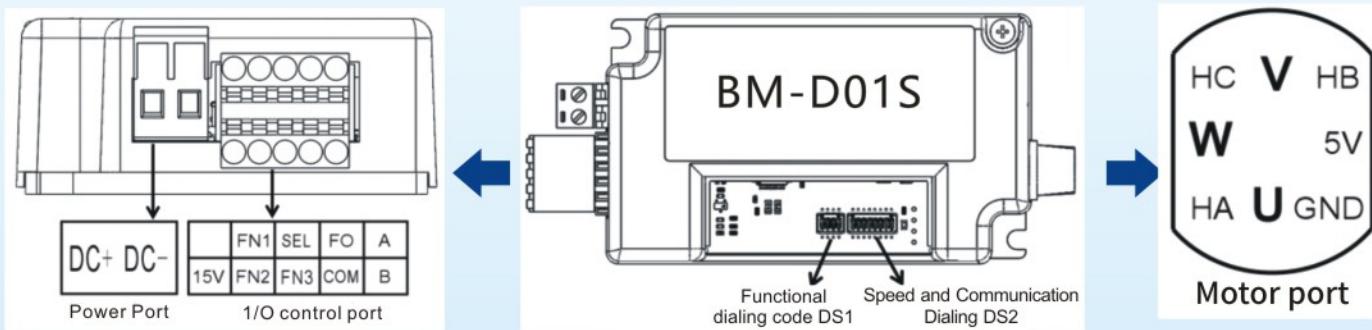
### Technical parameters

Item	Unit	Specifications
Driver model	V	BD201S
Rated input voltage	A	24/28 ( $\pm 10\%$ )
Rated operating current	A	3
Peak output current	mm	20
Driver size		125*57.5*24
Driver control mode		I/O and Communication
Driver communication method	°C	MODBUS RTU
Operation temperature		-25-60
Ambient humidity		Below 85 degrees

### size



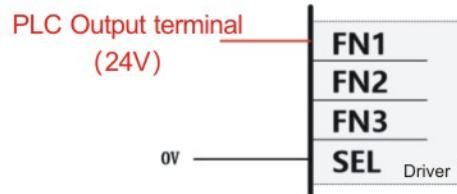
### Port definition



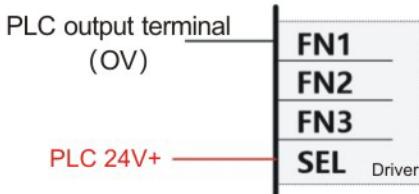


## Connection instructions

### A. Input PNP connection method

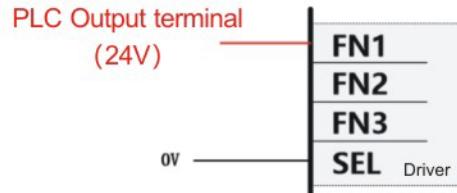


### B. Input NPN connection method

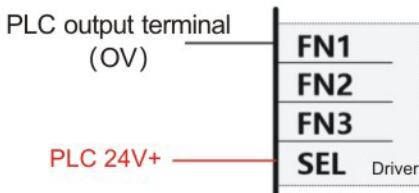


## Start operation mode from forward to low-speed gear

### A. Input PNP connection method

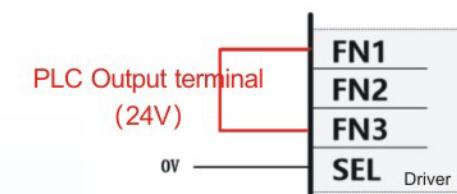


### B. Input NPN connection method

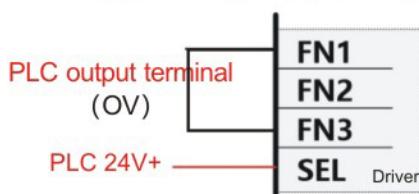


## Start operation mode from reverse to low-speed gear

### A. Input PNP connection method

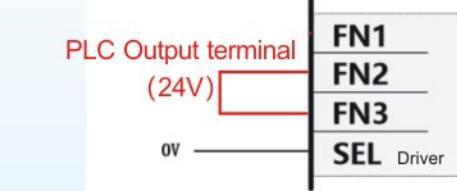


### B. Input NPN connection method

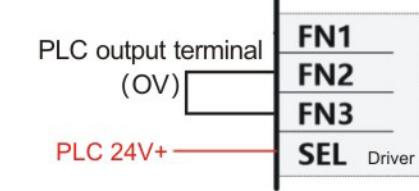


## Start operation mode from forward to high gear

### A. Input PNP connection method



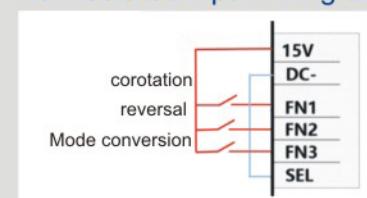
### B. Input NPN connection method



► PNP input: SEL is connected to the negative terminal (0V) of the PLC power supply, FN1/FN2/FN3 is connected to the output port of the PLC.

► NPN input: SEL is connected to the positive pole (24V+) of the PLC power supply, and FN1/FN2/FN3 is connected to the output port of the PLC.

### Non-isolated input wiring diagram



### Fault output wiring diagram



## ►BM-DS1T2

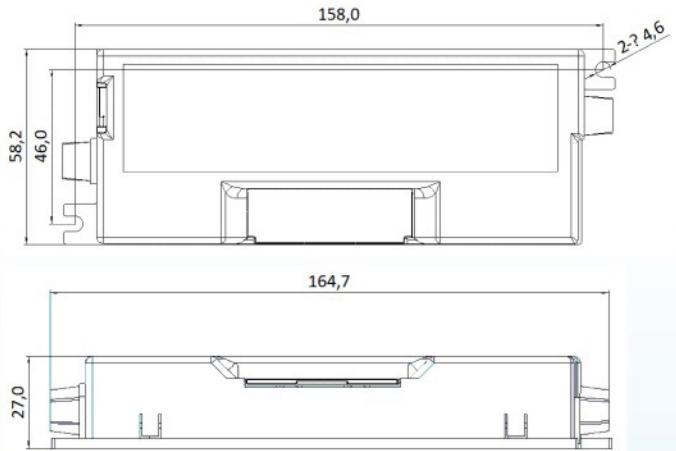
### Features

- 16 speed settings
- Dynamic braking (current lock and position lock)
- 4-speed acceleration/deceleration time setting
- Stopping and locking the vehicle is more reliable.
- I/O control start stop and forward/reverse rotation
- The driving mode supports sensing start and non-sensitive operation
- Supports NPN and PNP signal input/output
- The motor runs more smoothly and reliably
- LED fault prompt
- 485 communication control
- I/O multi-stage speed, multiple operating mode control
- Motor wiring terminal form: 9-pin plastic sealed flat head terminal
- Number of drive motors: 1 (one to two)
- Sinusoidal wave control mode

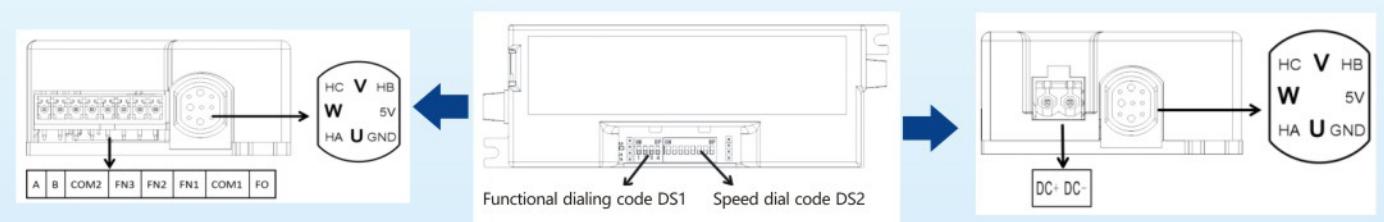
### Technical parameters

### size

Item	Unit	Specifications
Rated input voltage	V	24/28 ( $\pm 10\%$ )
Rated operating current	A	3
Peak output current	A	20
Driver size	mm	158*58.2*27
Driver control mode		I/O and Communication
Driver communication method		MODBUS RTU
Operation temperature	°C	-25-60
Ambient humidity		Below 85 degrees



### Port definition

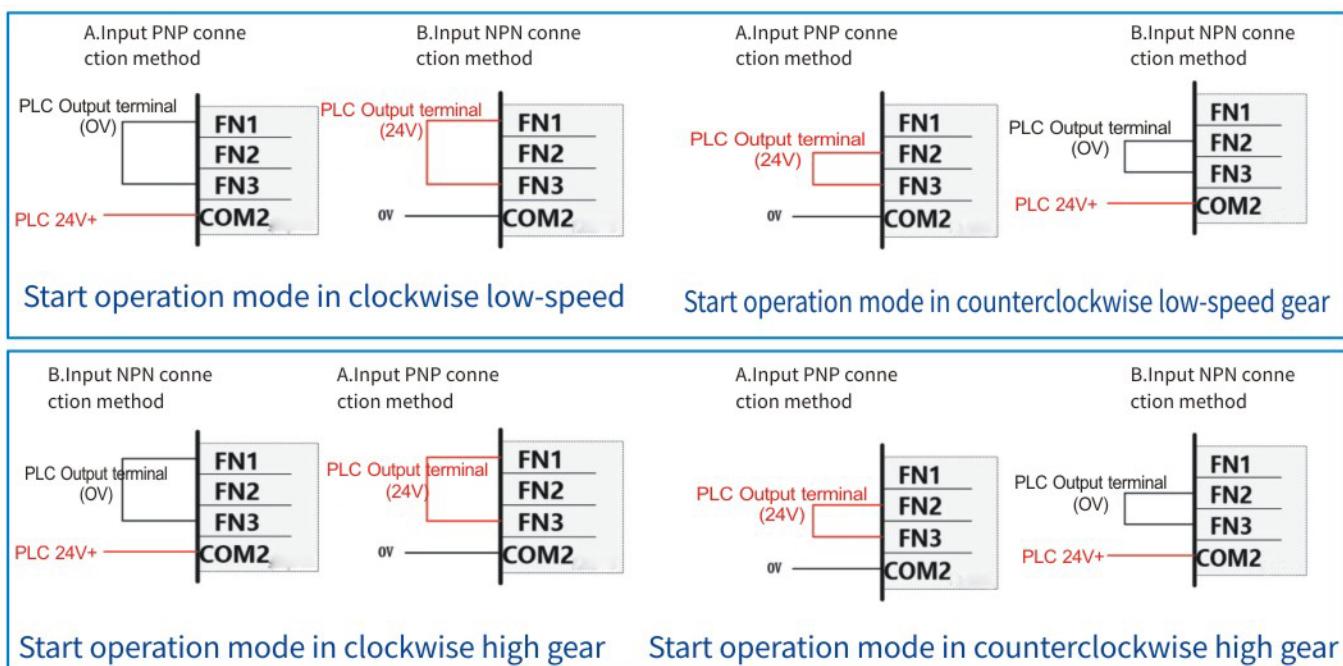




## Connection instructions

### Connection method for Mode 1

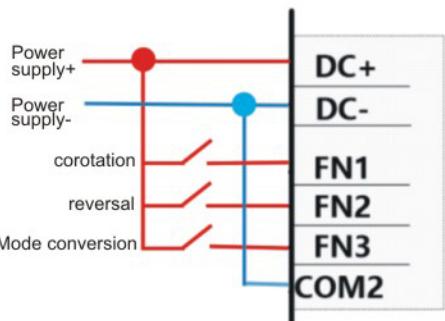
Isolation input connection method (FN1/2/3 and COM2 are bidirectional designs)



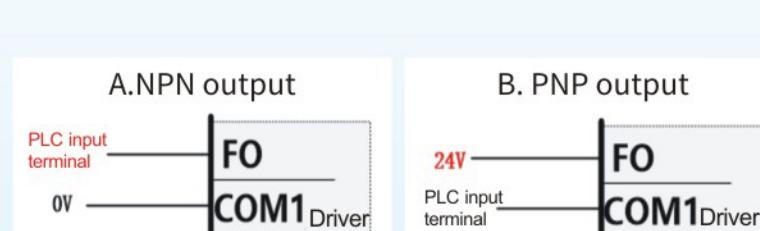
PNP input: COM2 is connected to the negative terminal (0V) of the PLC power supply, FN1/FN2/FN3 is connected to the PNP output port of the PLC.

NPN input: COM2 is connected to the positive pole (24V+) of the PLC power supply, and FN1/FN2/FN3 is connected to the NPN output port of the PLC.

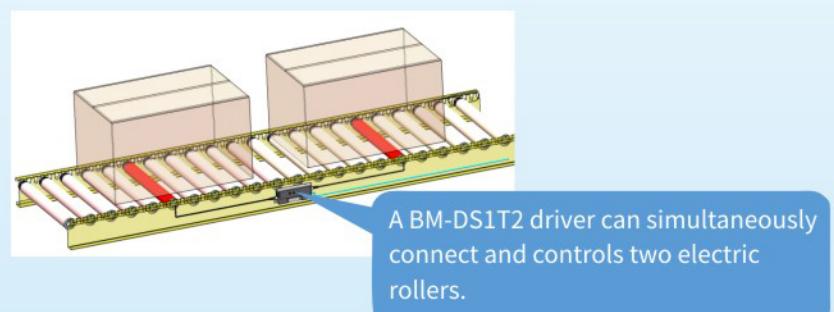
### Non-isolated input wiring diagram



### Fault output isolation input wiring diagram



### Installation Example

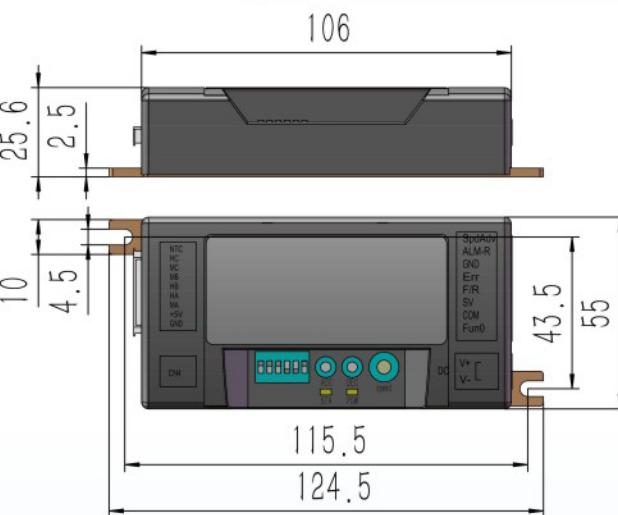


## ►MC-BLDC-24H/48H-D01G

### Features

- 16 speed settings
- 6-speed acceleration/deceleration time setting
- I/O control start stop and forward/reverse rotation
- Supports NPN and PNP signal input/output
- LED fault prompt
- 485 communication control
- Intelligent motor temperature control
- PID speed and current dual loop control intelligent control
- Motor wiring terminal form: 9-pin JST connection terminal
- Number of drive motors: 1 (one to one)

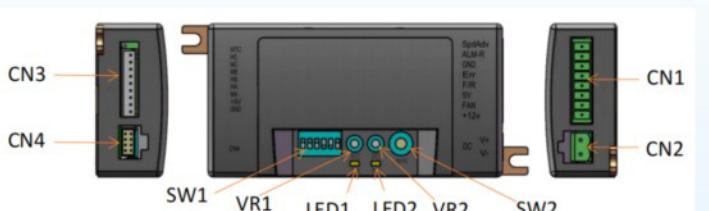
### size



### Technical parameters

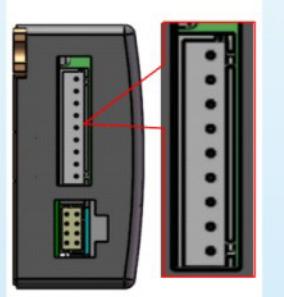
Item	Unit	Specifications
Rated input voltage	24V	48V
Rated power	100W	150W
Continuous operating	6A	3A
Starting current current	8A	8A
Overcurrent protection	12A	12A
Undervoltage/Ovvoltage	15A/36V	36V/55V
Operation temperature	130°C-55°C, <95%RH	
weight	115g	
Hoare position configuration	3-phase 120 electrical angle	
Temperature protection	Motor 105°C	

### Port definition



### Connection instruction

CN3 (XH2.54 TERMINAL)



CN1 (2EDGVC-3.5 TERMINAL), CN2 (2EDG-5.08VR TERMINAL)

