

Huzhou ZhuangLv Machinery Technology Co., Ltd.

Developing a Domestic Market A Leading Brand in Self-Developed Electric Rollers.



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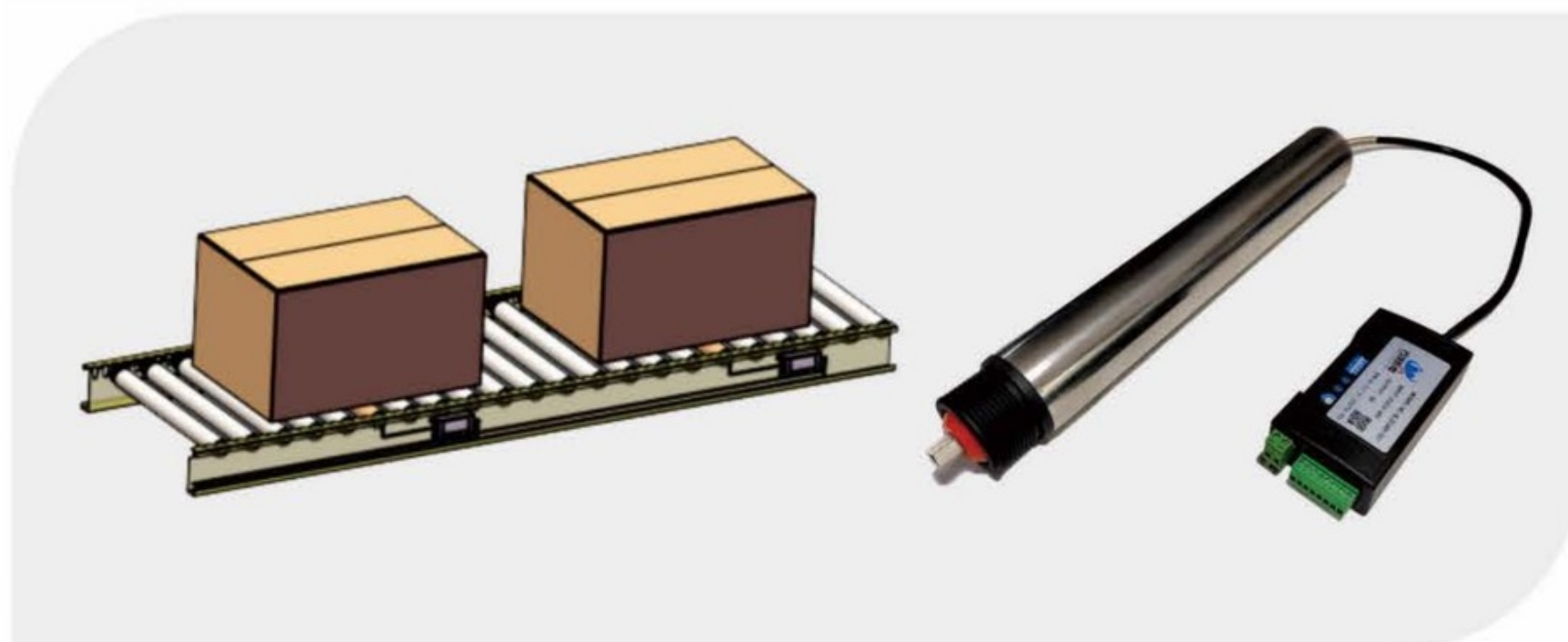
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Establish a leading domestic brand for self-developed electric rollers.



Characteristics of Brushless DC Electric Rollers



Applicable Industry	Suitable for the transportation and sorting of light-load goods in various distribution centers, logistics centers, automated production logistics lines, as well as locations with special space and environmental requirements.
Safe voltage	Both DC 24V and DC 48V are safe voltage levels, posing no risk of electric shock and making them fully suitable for use.
Extra-high torque	It exhibits high energy conversion efficiency from input to output. Depending on the type, its torque efficiency is more than 10 times higher than that of AC drums with equivalent outer diameters.
Speed Control	Easily adjust speed using a dedicated control card.
Retarder location Set Precision	Standard electromagnetic switches, electrical switches, and mechanical switches are available.
Constant-speed conveyance	Independent of the cargo weight, it achieves constant-speed delivery through signal feedback.
ZPA Transportation (Stacking Function)	Easily achieve ZPA conveyance using a dedicated control card without requiring any control program configuration.
Installation Summary Single Shortcut	With the traditional externally mounted speed-reducing motor, installing the electric roller is significantly simpler and faster—requiring only one-fourth of the time needed for a conventional external motor system.
Use Security	The electric roller integrates components such as the motor and speed reduction unit into a sealed cylindrical housing; it only requires securing the support shafts at both ends to the conveying equipment, ensuring safer and more reliable operation.

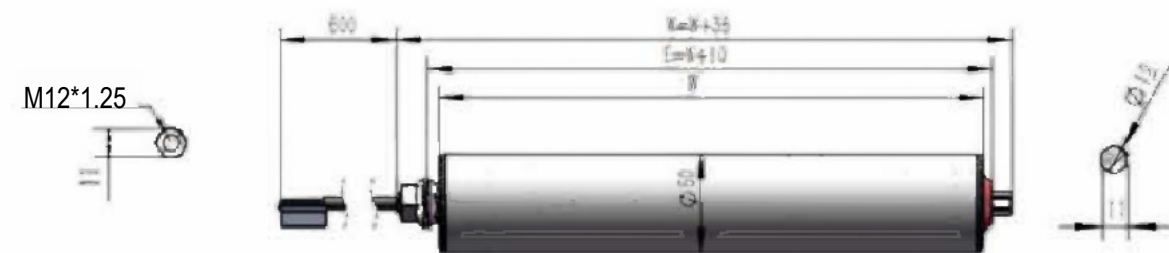
Applications of Electric Rollers



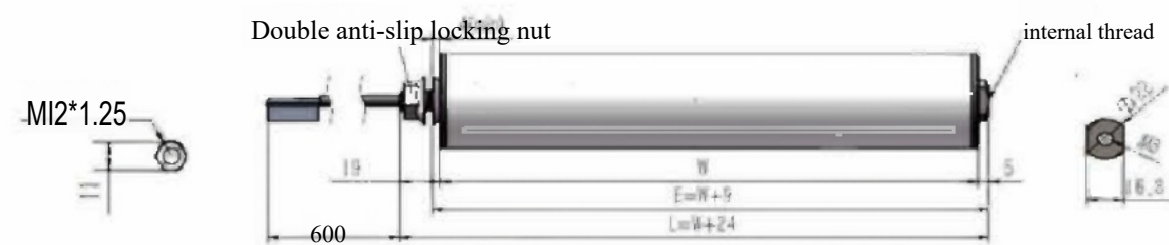
Outline Dimension



No Drive (Cylindrical Type)



Spring-Loaded



内螺纹式

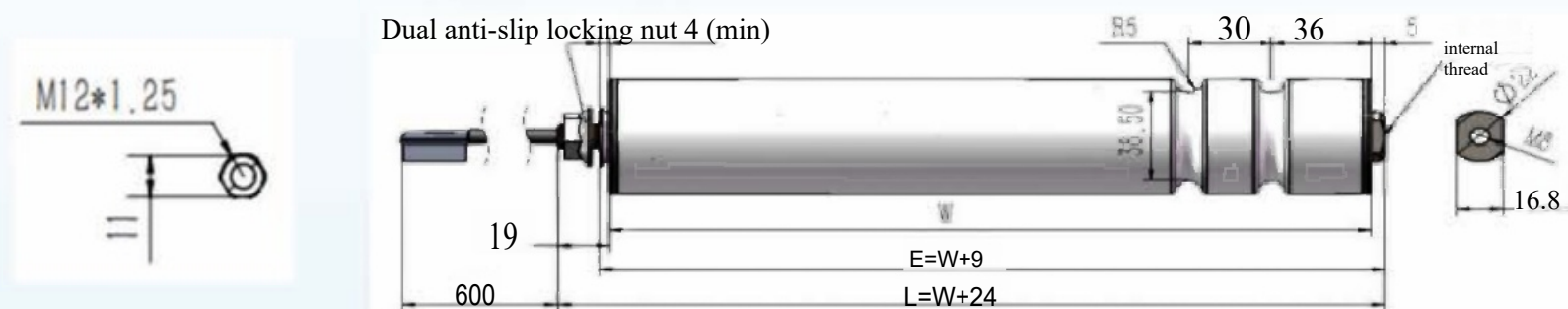


▶▶ 双铣扁式 ◀◀

Shortest distance W
(B-class speed code is 15 mm longer than A-class)

Roller outer diameter		50		
mm				
Speed Code		A10 A15 A20	A25, A30 A35, A60 A75	A95 A125 A175
Spr ing- load ed	W	256	266	276
	E	266	276	286
In- te- rnal Thr ead Typ e	W	230	240	250
	E	239	249	259
Dou ble fla- nged mm	W	180	190	200
	E	190	200	210

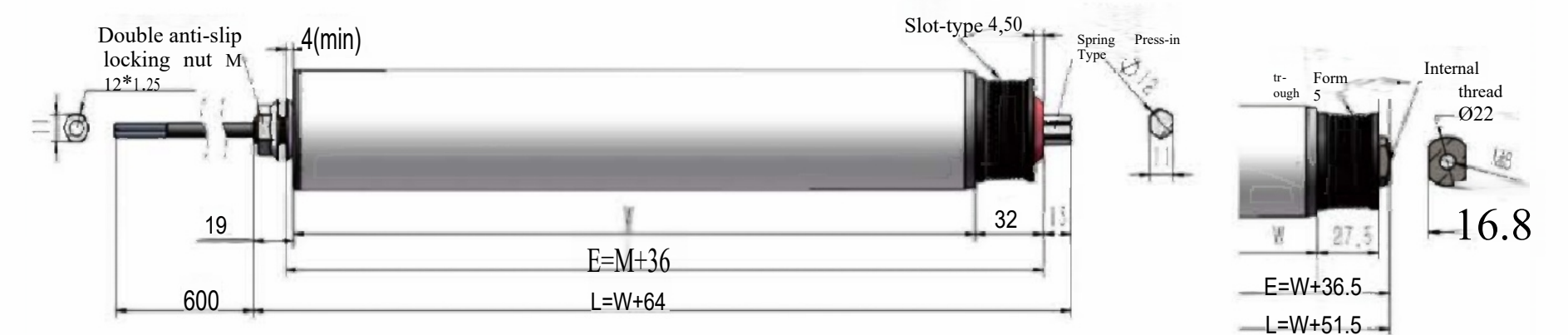
Double-Groove Type (R5)



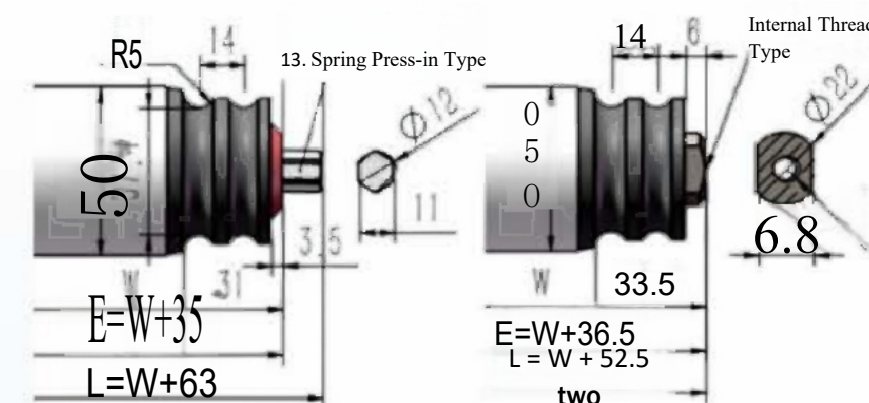
Minimum distance W (the size of the Class B speed code is 15 mm longer than that of Class A)

Roller outer diameter mm	Speed Code	Spring-pressed type mm		Internal thread type: mm	
		W	E	W	E
50	A10, A15, A20	/	/	284	293
	A25, A30, A35, A60, A75	/	/	275	284
	A95, A125, A175	/	/	265	274

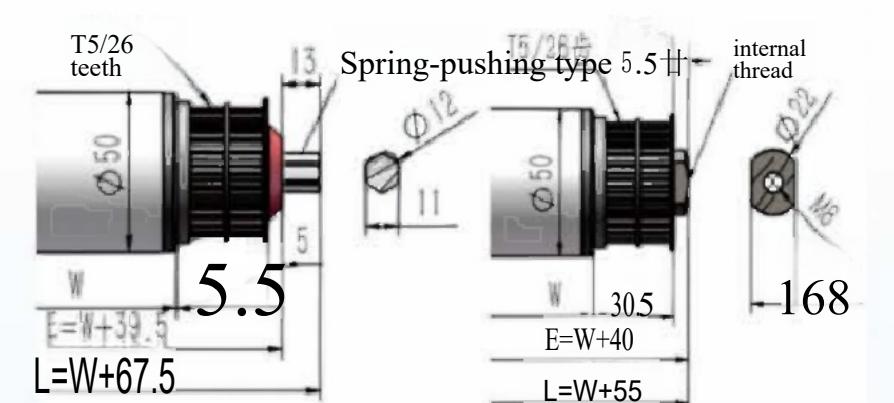
Multi-groove pulley type (PJ type) -Plastic



O pulley type – (plastic)



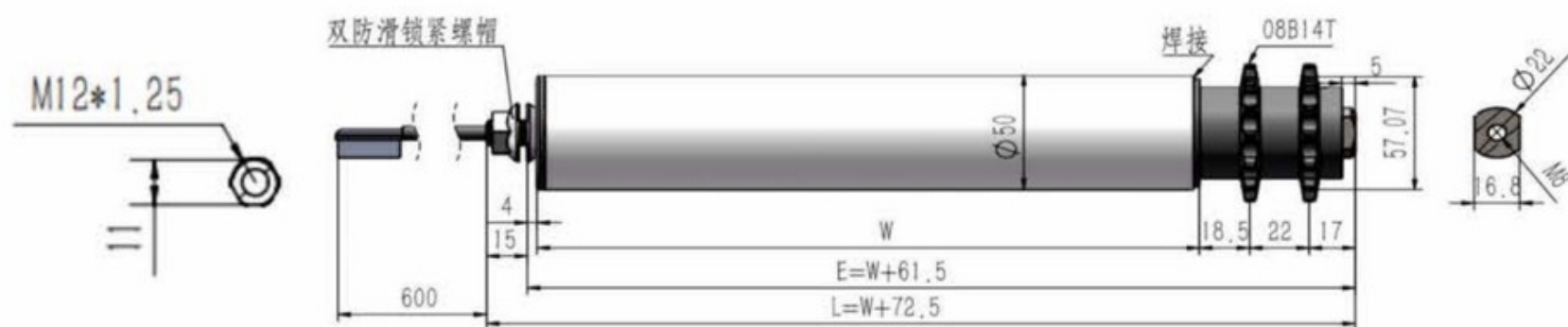
3.5 Synchronous Pulley – (Plastic)



Minimum distance w (the size ratio of Class b speed code is 15 mm longer than that of Class a Note: A shorter distance(w) can be customized per specification)

Roller outer diameter mm	Speed Code	Spring-type mm		Internal thread type mm	
		W	E	W	E
50	A10, A15, A20	256	291	256	293
	A25, A30, A35, A60, A75	247	282	247	281
	A95, A125, A175	237	272	237	274

Double-strand (08B14T) type-steel (welded); products with a diameter of 60 mm are also available

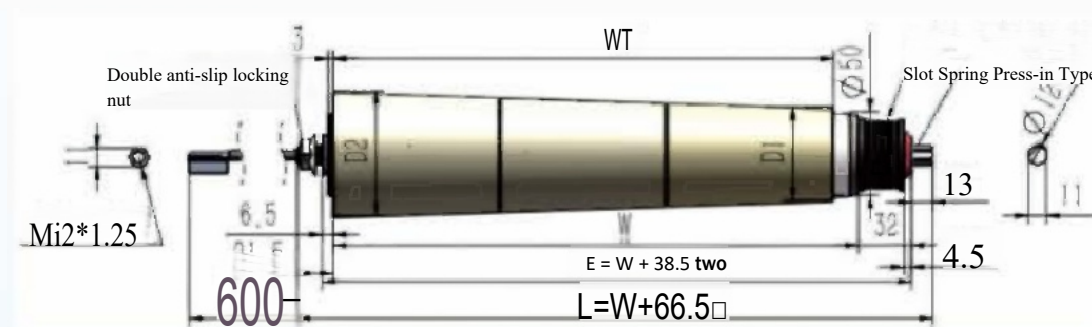


Minimum Length W; Minimum Length W (the Size Ratio of Class B Speed Code Is 15 Mm Longer than That of Class A)

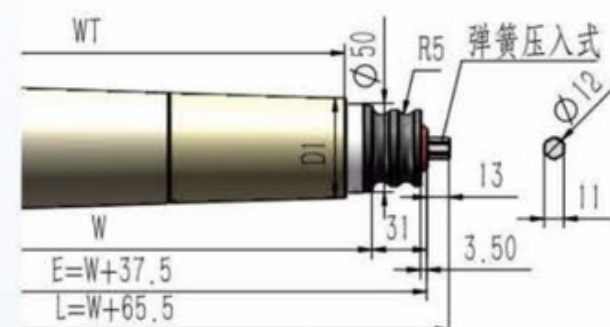
Note: Shorter Distances (w) Can Be Customized Outside Standard Specifications.

Roller outer diameter mm	Speed Code	Spring-type mm		Internal thread type mm	
		W	E	W	E
50	A10, A15, A20	/	/	225	286
	A25, A30, A35, A60, A75	/	I	235	296
	A95, A125, A175	1	/	245	306

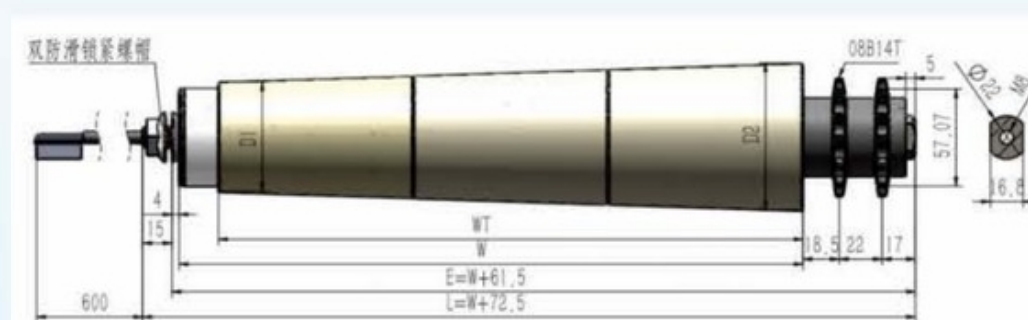
Conical roller



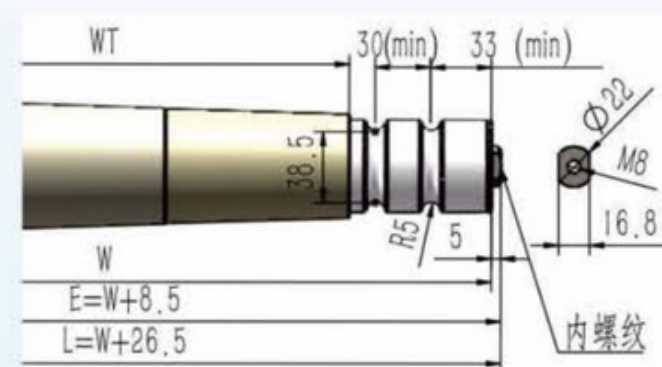
Multi-groove pulley



O pulley



Double-chain wheel

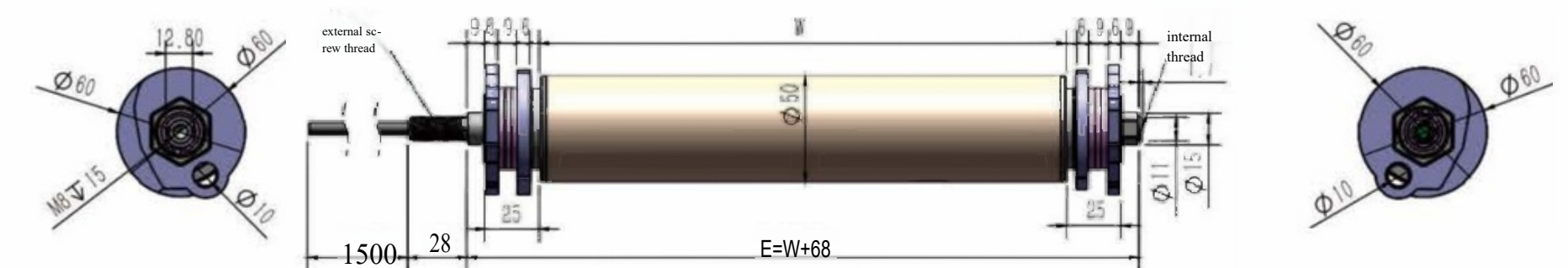


Double-Pressure Groove

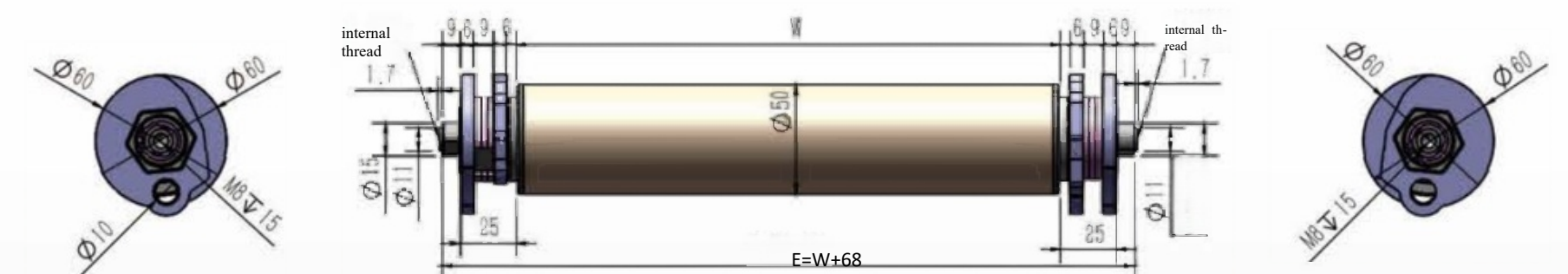
Plastic Cone Sleeve Size WT,Unit:Mm

WT	300	400	500	600	700	800	900	1000
D1	φ 56	φ 56	φ 56	φ 56	φ 56	φ 56	φ 56	φ 56
D2	φ 75	φ 81	φ 87	φ 93	φ 99	φ 105	φ 111	φ 117

φ 50 lifting and transplanting roller (cam mechanism)



Electric Roller



Driven roller

characteristic :

highly
active

Double-cam structure that rotates 70° within a single stroke to complete the transfer.

Platform Switch.

steady

**A perfect cam curve with
a smooth ascent process
without impact.**

simple

Integrate and simplify the overall structure.

compact

Integrated design effectively reduces the overall height of the transfer mechanism to as low as 180 mm.

Weight of the transplanting platform	Speed Code	Rating torque	Speed Range	Peak efficiency
<60kg	A10	6. 5N. m	2-13m/min	2,500 units per hour



This load refers solely to the weight of the lifting platform and is independent of the cargo weight. During platform switching, the horizontal position of the cargo remains unchanged.

During the platform switching process, both platforms must remain at the same height without any elevation difference to prevent impacts caused by cargo weight from leading to failure or damage.



Selection Guidance



Select the Appropriate Motor Specification Based on the Following Selection Criteria:

①Rotation Torque Determination

The required starting torque for transportation <Electric roller starting torque (unit:N·m)

computational formula :

$F=W \times \mu \times 9.8/0.95''$

$T=F \times D \times S/2$

The parameter explanations for the above formula are as follows:

T = Starting torque required for demand; μ = Friction coefficient	F = Tangential force on the demand surface S = Safety factor	m= quality (kg) n = Number of passive rollers	g = gravitational acceleration: 9.8 m/s ² Df= tube diameter (unit: mm)
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Material Bottom The exterior components of the electric roller consist of:	Friction coefficient μ			
	Steel	plastics	wood	carton
steel (2 mm thick), soft PVC rubber (gray, 5 mm thick), and PU material (black).	0.02	0.04	0.05	0.1
5 mm packaging film	0.03	0.04	0.05	0.15
	0.02	0.04	0.05	0.15
	0.02	0.04	0.06	0.15

determination of the number of spinning rollers (both power-driven and non-power-driven) used in the spinning process

Number of passive rollers:2 × rated tangential force of electric rollers (unit:mm). The number of passive rollers shall not exceed 24 (for multi-wedge belt drive configurations).

③Velocity

Select the code that meets the speed requirements based on conditions ① and ②. If multiple speed codes meet the requirements, choose the one with the highest starting torque.

instance :

Load parameters: Load weight= 100 kg; Load material: cardboard box

Roll cylinder parameters: Material of the roller tube: Steel (galvanized) Transportation speed: – 30 m/min Safety factor: –S = 1.5 Number of passive rollers: –n = 10 Diameter: –D = 50 mm

$F=W \times \mu \times 9.8/0.95=163.68N$

$T=F \times D \times S/2000=6.86N \cdot m$

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

BL-AB-50-400-A25ADA (Diameter: 50 mm,Speed Code A25)Starting torque: 15.82 N·m

The starting torque required for the electric roller is lower than the rated value (6.68 <15.82), and the selected electric roller can drive a 100-kilogram cardboard box.

Using Instructions for the Control Drive Card



model : MC-BLDC24H-DO1MC-BLDC48H-DO1

◆Adjustable start, stop, acceleration, and deceleration

⊙The speed can be increased or decreased within the range of 0–3 seconds.

⊙Mitigate the inertial impact during start-up and shutdown.

◆Servo brake system (non-mechanical brake)

⊙When the vertical slope conveyance system is stopped operating, and in areas where external forces (inertia) are likely to act.

◆Intelligent Temperature Control

⊙Temperature data is transmitted via the built-in NTC temperature sensor in the motor, providing thermal protection for the motor.

◆RS485 Communication (CN4)

⊙enables remote control and multi-device synchronization via a driver card in conjunction with a host computer.

◆Error Status Display

⊙The LED signal displays error conditions (Table 2), enabling timely monitoring and management of on-site faults.

⊙Can be reset automatically or manually.

◆Wide power input

⊙DC24V models can be connected to a power supply of 20V-28V;

⊙The DC48V model can be connected to a power supply of 40 V-56V;

◆PID Dual-loop intelligent control for speed and current

⊙Features a built-in 15-speed adjustable speed switch with intelligent constant-speed maintenance;

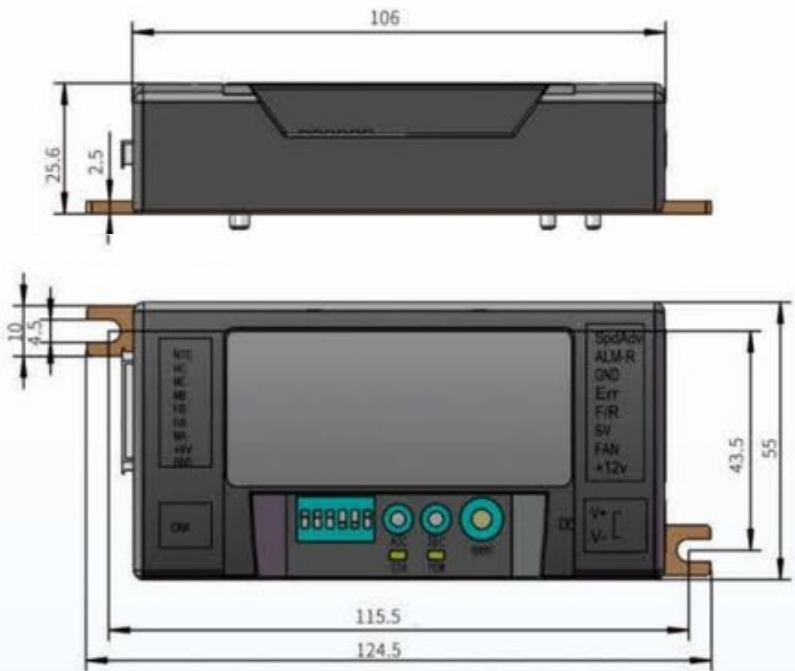
⊙Intelligent detection of cargo weight ensures constant-speed operation and enhances the precision of automated logistics.

⊙The maximum starting current is set to ≥8 A (adjustable as needed) to ensure proper motor startup under heavy loads while limiting the impact of excessive load currents on the motor.

◆Features a restart function with blockage protection

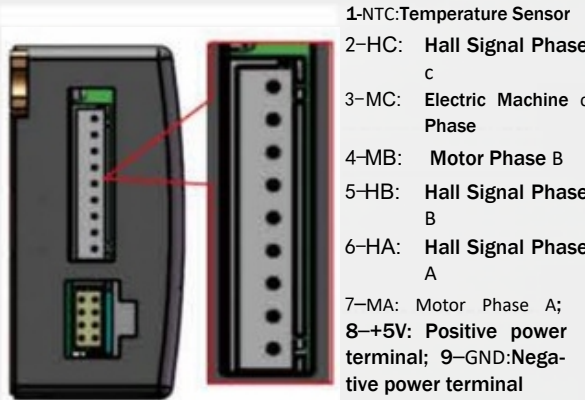
⊙When the motor experiences a locked rotor condition, it will restart intermittently for 1 second each time, repeating this process 10 times. If all restart attempts fail, the system will shut down and report a locked rotor fault.

outline dimension

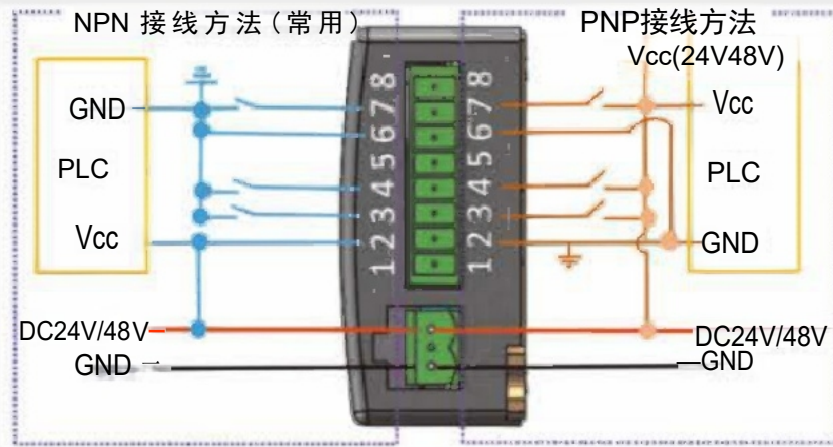


hookup

CN3 (XH2.54 terminal)



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



端子说明:

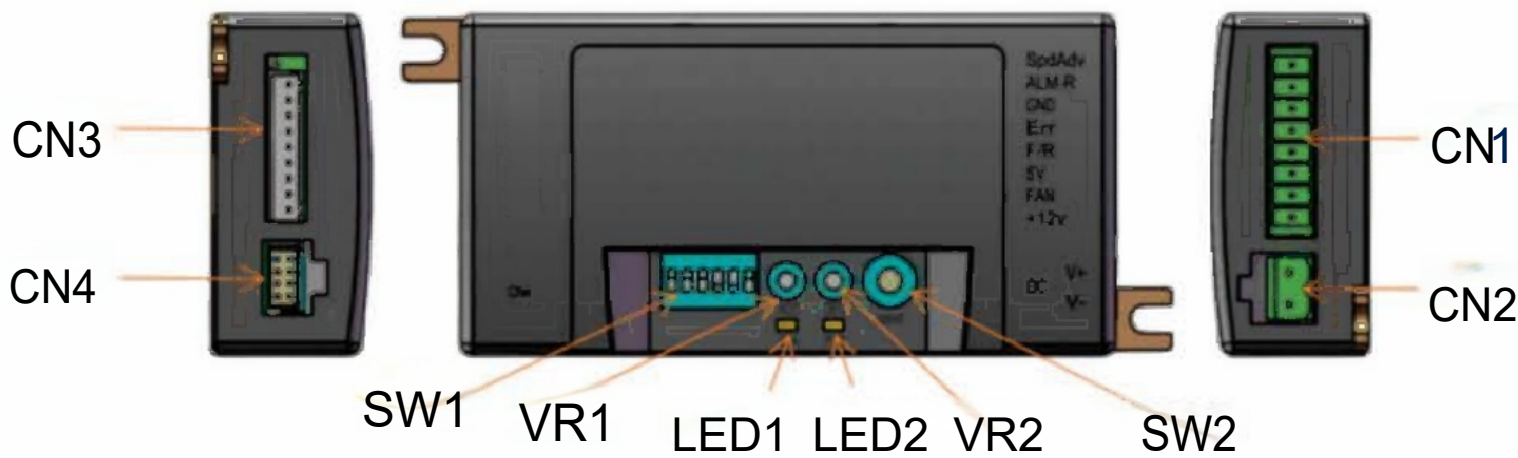
- 1、+12V输出
- 2、FAN(COM端)
- 3、SV启动/停止
- 4、F/R正反转
- 5、Err故障输出
- 6、GND接地
- 7、ALM-R故障清除
- 8、spdadv调速(0-12v)

Wiring instructions: 1. For drivers with NPN output, follow the NPN wiring method shown on the left side of the diagram;

2. Drivers that belong to PNP output should be connected using the PNP wiring method shown on the right side of the diagram.



Function Declaration



◆SW2

©15 adjustments

◆LED1/LED2

©LED1 is a fault indicator: it remains off under normal operation and flashes when faulty; the number of flashes indicates the type of fault (see Table 2).LED2 serves as an operational status indicator: it stays on when powered but not operating, and flashes continuously during operation.

◆SW1

Num-ber	Explain	When setting ON	When setting OFF	Factory Settings
1	Fault Reset	The alarm function is disabled. Block the alarm function.	Alarm has been activated; the alarm function is working normally.	OFF
2	Start/Stop	Motor startup	Motor stopped	OFF
3	Forward and Reverse	Rotate clockwise (directly facing the roller's outlet end)	Contrarotate (Directly facing the roller outlet end)	OFF
4	Speed Input Selection	Internal Speed Adjustment (SW2 Knob)	External Analog Signal Input	OFF
5	Brake mode	Electromagnetic brake	Electrical brake	OFF
6	Special function key	Set according to specific customer requirements; the standard model is reserved for use later		

◆Acceleration and deceleration settings VR1/VR2

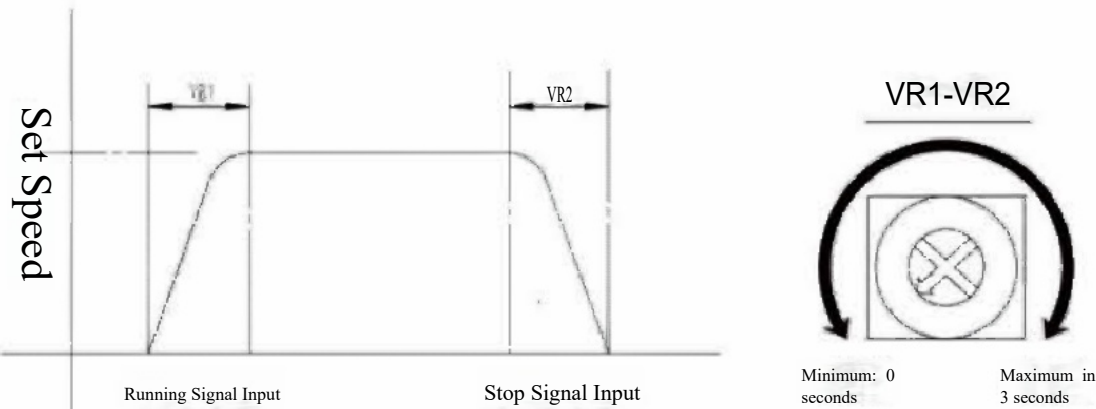
©转动VR1 switch to set the acceleration time for the operating signal input within the range of 0 to 3 seconds.

©转动VR2 switch to set the deceleration time for the shutdown signal input within the range of 0 to 3 seconds.

The acceleration and deceleration settings shall be determined based on the actual conditions at the site.



◆SW1



Fault Code Description (Table 2)

Flash Count	Fault Description
1	Abnormal Hall signal
2	Too high speed
3	Excessive current
4	High voltage
5	Voltage below level
6	Drive temperature is too high
7	The motor is overloaded.
8	Turnover
9	The motor temperature is too high.

Detail Specifications

Rated voltage	24v	48v
Power rating	250W	350W
Continuous operating current	6A	6A
Starting current	8A	8A
Overcurrent protection	12A	12A
Undervoltage/Overvoltage Values	15V/36V	36V/55V
Service environment	130℃~55, <95%RH	
Weight	115g	
Hall Position Configuration	3-phase, 120-volt electrical configuration	
Temperature Protection	Motor temperature: 105℃	