

Provider of intelligent conveyer roller systems

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MAMBAROLL

Conveyor Rollers Product Selection Manual



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MAMBAROLL

CHINA “CORE” FOR CONVEYER SYSTEMS

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Committed to becoming a driver of intelligent logistics conveyer

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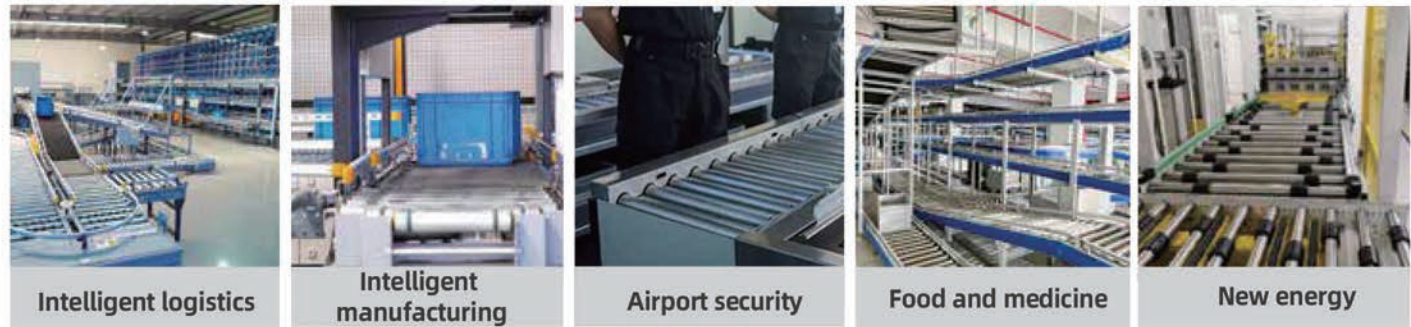
CHINA “CORE” FOR CONVEYER SYSTEMS

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Founded in 2016 and headquartered in Suzhou, Jiangsu Province, Mambaroll Drive Technology (Suzhou) Co. Ltd. is committed to be the driver of intelligent logistics conveyor. The company focuses on the research, development and production of drives, core components and high-end logistics automation equipments for intelligent conveyor systems, with more than 12,000 square meters of production bases and office space, as well as independent research and development of motors, control cards and drives, and its core products include motorized pulleys, intelligent drive cards and related equipments.

✦ Main applicable industries



Our company's business covers intelligent logistics, intelligent manufacturing, airport security, food and medicine, new energy and many other industries, we adhering to the “conveyor system of China's ‘core’” corporate vision, service-based, quality of survival, science and technology development, customer satisfaction as the goal, and strive to build a collection of R & D, production, sales, service as one of the best partners to provide intelligent drive solutions for logistics equipment enterprises at home and abroad. Customer satisfaction as the goal, and strive to build a collection of R & D, production, sales, service as one of the best partners for the logistics equipment enterprises at home and abroad to provide intelligent drive solutions.

PRODUCT OVERVIEW



PRODUCT OVERVIEW



External drive roller with non-head



External drive roller with poly-vee drive head



External drive roller with round belt drive head



External drive roller with steel timing belt drive head



External drive roller with steel single sprocket drive head



External drive roller with steel double sprockets drive head



Double groove tapered slave roller



Round belt tapered slave roller



Built-in drive tapered rollers with double groove



Built-in drive tapered rollers with round belt drive head



IRCU Control card



ERNU Multi-control card



IRDU-2 Drive card



Poly-vee belts



Swan-shaped bracket

ROLLER INTRODUCTION

Steel Tube

01 Material

Steel galvanized tube	- alvanized steel is for corrosion prevention. - The galvanized surface would be worn off with use. - Special packaging is required for sea freight or long storage period.
201 stainless steel tube	Higher hardness, less susceptible to surface rework, and the cost is lower than that of 304 stainless steel.
304 stainless steel tube	Compared with 201 stainless steel, it has stronger corrosion: resistance and is easy to further process.

02 Standard Size

Diameter	Wall thickness
Φ 38	1.2 mm
Φ 50	1.5 mm
Φ 60	2.0 mm
Φ 76	3.0 mm

03 Surface Treatment

Groove

- Steel tube is treated with one or more grooves.
- A single groove is commonly used to prevent the flat belt on conveyor from tracking-off; two grooves are used as a way of drive via round belt, to build straight roller conveyor or curve roller conveyor.
- The minimum distance of the groove from the end of the roller is required, should not less than 35mm, the minimum center distance between adjacent grooves should not less than 30mm, and the radius of the groove should be R5.
- 201 stainless steel tubes is not recommended for groove usage due to the high hardness and easy crack.

Knurl is a surface treatment method for the steel tube to increase the friction between the steel tube and the conveying product.

04 Covering

Only Φ50 steel pipe is rubberized. PVC and PU can reduce noise, increase friction and reduce vibration. PU can be applied to food grade and is more wear-resistant than PVC.

Typology	Norm (mm)	Color
PVC	2	Gray
PVC	5	Gray
PU	2	Black



Recommendations

For anti-static requirements, contact Mambaroll for anti-static gelcoat.

05 Taper Bushing

Taper bushing is used for roller turning conveyor, the common specification is 300~950mm (gray).

06 Flanged

It is used for Φ60 and Φ76 drums, welded around the steel pipe to guide the object and prevent running away.

07 Shoulder Sleeves

The material is POK, commonly used in the new energy industry on the conveyor roller, mostly used for the transportation of objects with heavy loads. It is used for transportation of heavy loaded objects, and plays the role of shock absorption, noise reduction and anti-skidding.



01 Shaft Material

Mambaroll uses carbon steel shafts, stainless steel shafts, galvanized shafts

02 Shaft Specifications

Specification	Diameter	Symbol
Circular shaft	Φ12、Φ14、Φ15、Φ20	
Hexagonal shaft	11HEX	

03 Installation Method

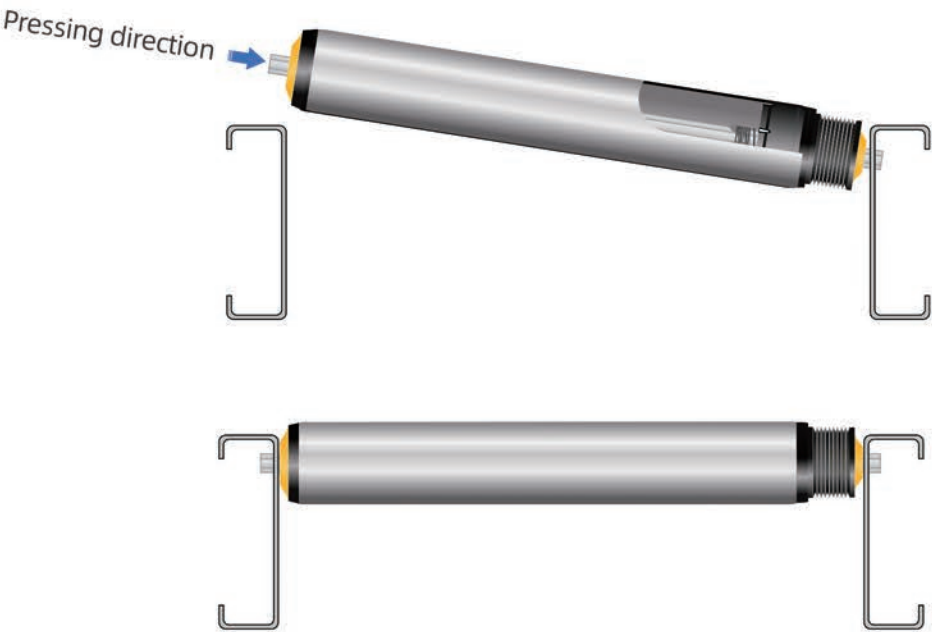
Installation method	Shaft-push	Inner thread shaft	Milled shaft	Fixed shaft
Diameter	11HEX	Φ12 (M8*15)	Φ12	11HEX
	Φ12	Φ14 (M8*15)	Φ14	Φ12
	—	Φ14 (M10*20)	Φ15	Φ14
	—	Φ15 (M10*20)	Φ20	Φ15
	—	Φ20 (M12*25)	—	Φ20



Recommendations

Mambaroll recommends 11HEX Shaft-push mounting or Φ12(M8*15) Inner thread

※ Shaft-push



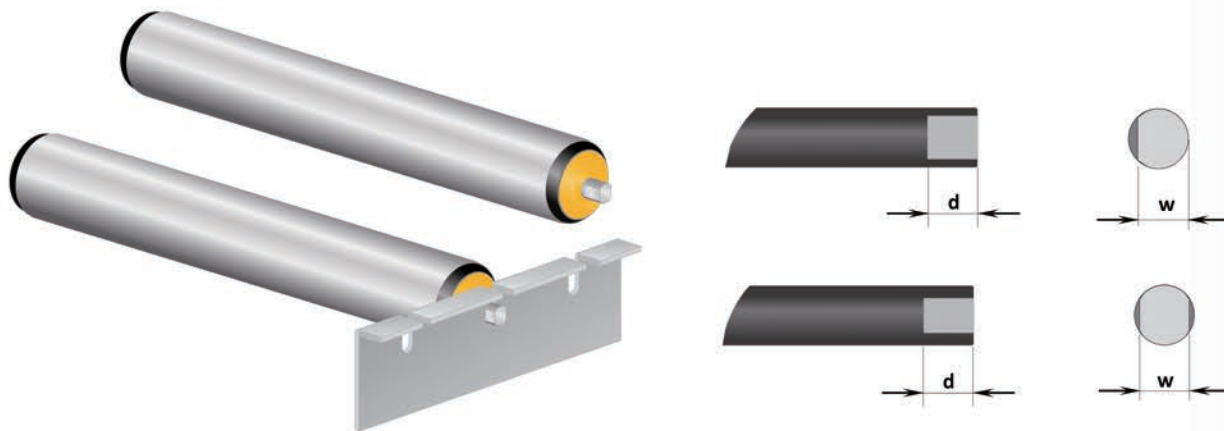
- ⦿ The most common approach of mounting rollers on conveyors.
- ⦿ Mounting and dismantling are faster and more convenient.
- ⦿ Shaft-push is not recommended for heavy duty application.

※ Inner thread



- ⦿ Common installation methods in sprocket rollers
- ⦿ Locking prevents vibration, low noise level
- ⦿ Higher load-bearing, more stable conveyor line as a whole

✂ Milled shaft (A/F)



Bearing

Mambaroll offers **precision ball bearings, stainless steel bearings and cryogenic bearings**, The following is a description of precision ball bearings only.

Precision ball bearings

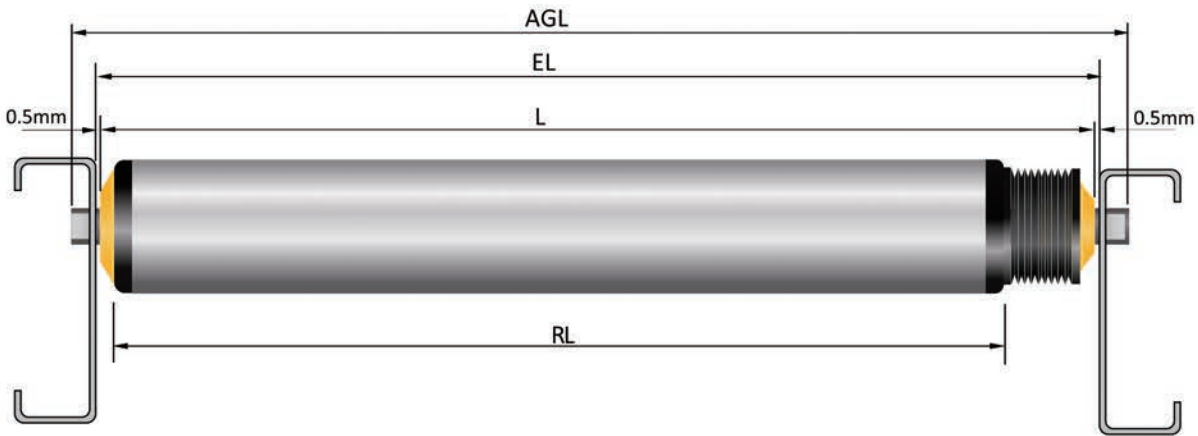
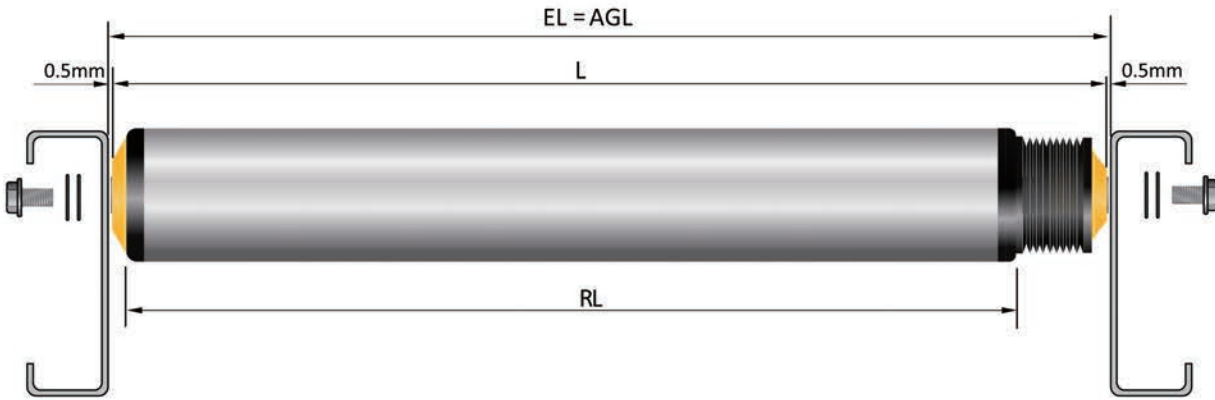
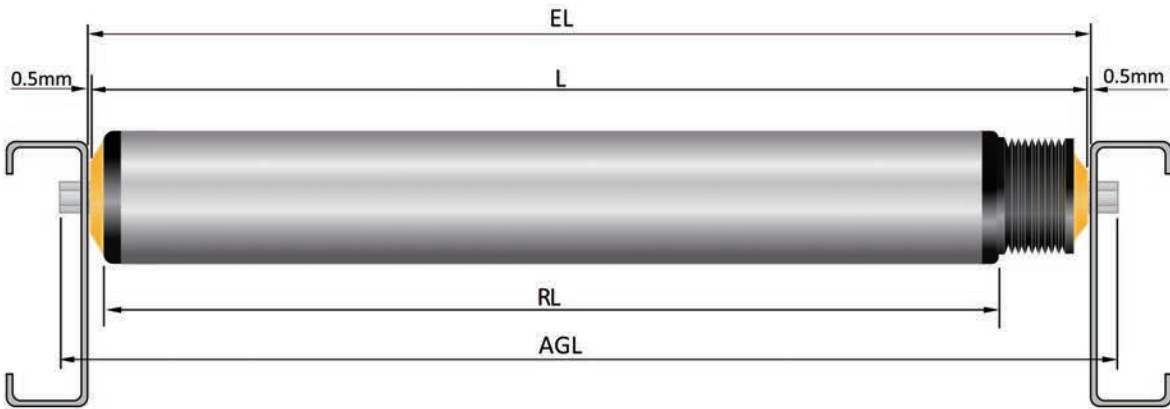


Features

- Excellent load capacity
- Long life time
- Precision ball housing
- Resistant to extreme temperature
- Low noise operation

Parameter Definition

L	_____	Roller length
EL	_____	Conveyor width
AGL	_____	Shaft length
RL	_____	Reference conveying length



ROLLER SERIES



Gravity roller



Poly-vee slave roller



Round belt slave roller



Steel synchronous belt slave Roller



Double groove slave roller



Steel single sprocket slave roller

✧ Light series—Φ38

- ⦿ Suitable for conveying light loads and small objects

✧ Light series—Φ50

- ⦿ More suitable for the transport of lightweight materials, such as small-sized cardboard, material boxes, etc., applicable for postal, express delivery, distribution center.
- ⦿ Different drive heads for various application.
- ⦿ Better environment adaptability, operate well at high and low temperatures.
- ⦿ Use precision ball bearings to reduce noise.

✧ Medium series—Φ60

- ⦿ An individual roller bears a maximum weight of 250KG and is suitable for assembly lines, sorting systems, and conveying material containers.
- ⦿ Smart Manufacturing is used more.

✧ Heavy series—Φ76

- ⦿ An individual roller bears a maximum weight of 420KG, suitable for the transport of pallets and steel material containers.
- ⦿ A steel single or double sprockets head welded onto steel tube as driving methods for higher load applications.

Typology Tube size	Driving method	Shaft/Installation method										Surface treatment				
		Steel tube material		Shaft-push		Inner thread				Fixed shaft			Tube covers			
		galvanized steel tube	201 stainless steel	11HEX	Φ12 (M8*15)	Φ12 (M8*15)	Φ14 (M10*20)	Φ14 (M10*20)	Φ15 (M12*25)	Φ12 11HEX	Φ14	Φ15				
Light Φ50*1.5	Normal tube	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NA
	Double grooved normal tube	●	NA	●	●	●	●	●	●	●	●	●	●	●	●	●
	Plastics Poly-vee drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NA
	Round belt drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Steel Poly-vee drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NA
Medium Φ60*2.0	Normal tube	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NA
	Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Stainless steel sprocket drive head	NA	NA	●	●	NA	●	●	●	●	●	●	●	●	●	●
Heavy Φ76*3.0	Normal tube	●	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●
	Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Stainless steel sprocket drive head	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	●

● :be applicable NA: Not recommended -: Not applicable

*Fixed optional milled flat installation style
Φ14, Φ15, Φ20 only

End cap		
Tube size	Steel	Plastics
Φ50	11HEX Φ12 Φ15	11HEX Φ12 Φ14
Φ60	Φ15	
Φ76	Φ20	

※ 38 Gravity roller Inner thread



Steel tube material	No drive end caps	Shaft size
Steel to be galvanized	Steel	Ø12
201 stainless steel		
304 stainless steel		

※ 50 Gravity roller Inner thread



Steel tube material	No drive end caps	Shaft size
Steel to be galvanized	Plastics	Ø12
201 stainless steel		Ø14
304 stainless steel		

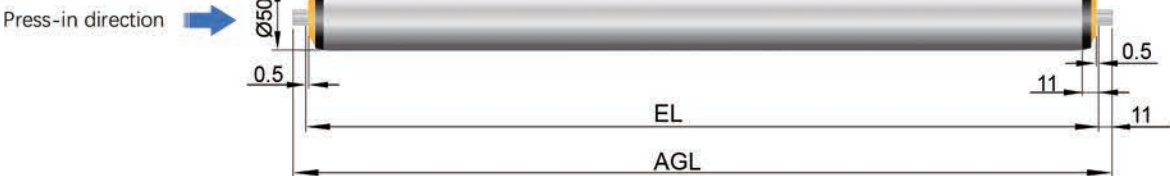
※ 50 Gravity roller Inner thread



Steel tube material	No drive end caps	Shaft size
Steel to be galvanized	Steel	Ø12
201 stainless steel		Ø15
304 stainless steel		

※ 50 Gravity roller Shaft-push

*Note: Spring-loaded press-in orientation is optional (unilateral/bilateral)



Steel tube material	Shaft Material	Shaft size
Steel to be galvanized	carbon steel	11HEX
201 stainless steel	galvanized shafts	Ø12
304 stainless steel	stainless steel	

※ Plastics Poly-vee slave roller Inner thread



Steel tube material	Shaft size
Steel to be galvanized	Ø12
201 stainless steel	Ø14
304 stainless steel	

※ Steel Poly-vee slave roller Inner thread



Steel tube material	Shaft size
Steel to be galvanized	Ø12
201 stainless steel	Ø14
304 stainless steel	

※ Plastics Poly-vee slave roller Shaft-push

*Note: Spring-loaded press-in orientation is optional (unilateral/bilateral)



Steel tube material	Shaft Material	Shaft size
Steel to be galvanized	carbon steel	11HEX
201 stainless steel	galvanized shafts	Ø12
304 stainless steel	stainless steel	

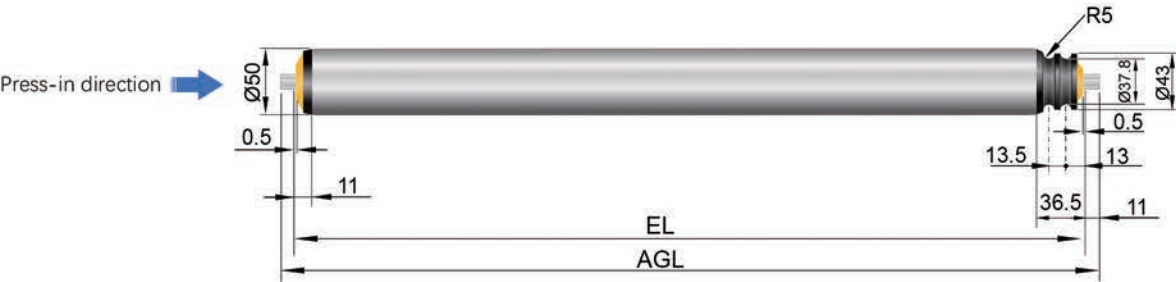
※ Round belt slave roller Inner thread



Steel tube material	Drive head	Shaft size
Steel to be galvanized	Plastics	Ø12
201 stainless steel		Ø14
304 stainless steel		

※ Round belt slave roller Shaft-push

*Note: Spring-loaded press-in orientation is optional (unilateral/bilateral)



Steel tube material

Steel to be galvanized
201 stainless steel
304 stainless steel

Shaft Material

carbon steel
galvanized shafts
stainless steel

Shaft size

11HEX

Φ12

※ Plastics Double-headed poly-vee slave roller Inner thread



Steel tube material

Steel to be galvanized
201 stainless steel
304 stainless steel

Shaft size

Φ12

※ Steel Double-headed poly-vee slave roller Inner thread



Steel tube material

Steel to be galvanized
201 stainless steel
304 stainless steel

Shaft size

Φ12

※ Plastics Double-headed poly-vee slave roller Shaft-push

*Note: Spring-loaded press-in orientation is optional (unilateral/bilateral)



Steel tube material

Steel to be galvanized
201 stainless steel
304 stainless steel

Shaft Material

carbon steel
galvanized shafts
stainless steel

Shaft size

11HEX

Φ12

※ Double groove slave roller Inner thread



Steel tube material

Steel to be galvanized
304 stainless steel

Shaft size

Φ12

Φ14

※ Double groove slave roller Shaft-push

*Note: Spring-loaded press-in orientation is optional (unilateral/bilateral)



Steel tube material

Steel to be galvanized
304 stainless steel

Shaft Material

carbon steel
galvanized shafts
stainless steel

Shaft size

11HEX

Φ12

※ Steel synchronous belt slave roller(8 spacing and 18 teeth) Inner thread



Synchronous belt head surface treatment

Carbon Steel Blackening

Steel tube material

201 stainless steel
304 stainless steel

Shaft size

Φ15

※ Steel single sprocket slave roller (08B11T-13) Inner thread



Sprocket head specifications

08B11T

Sprocket head surface treatment

Carbon Steel Galvanized

Carbon Steel Blackening

Steel tube material

Steel to be galvanized

201 stainless steel

304 stainless steel

End cap

Plastics

Φ12

※ Steel single sprocket slave roller (08B11T-13) Inner thread



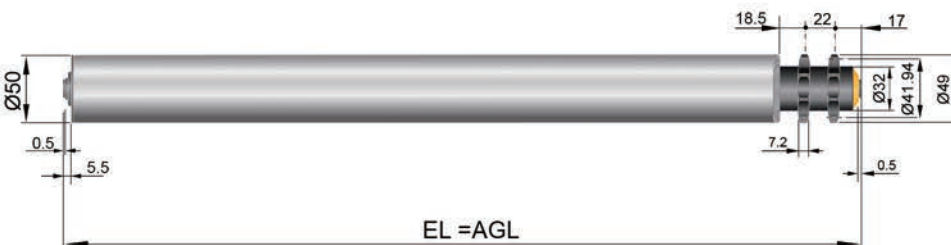
Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B11T	Carbon Steel Galvanized	Steel to be galvanized	Steel	Φ12
	Carbon Steel Blackening	304 stainless steel		

※ Steel double sprockets slave roller (08B11T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B11T	Carbon Steel Galvanized	Steel to be galvanized	Plastics	Φ12
	Carbon Steel Blackening	304 stainless steel		

※ Steel double sprockets slave roller (08B11T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B11T	Carbon Steel Galvanized	Steel to be galvanized	Steel	Φ12
	Carbon Steel Blackening	304 stainless steel		

※ Steel single sprocket slave roller (08B14T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Plastics	Φ12
	Carbon Steel Blackening	304 stainless steel		Φ14

※ Steel single sprocket slave roller (08B14T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Steel	Φ12
	Carbon Steel Blackening	304 stainless steel		

※ Steel double sprockets slave roller (08B14T-13) Inner thread



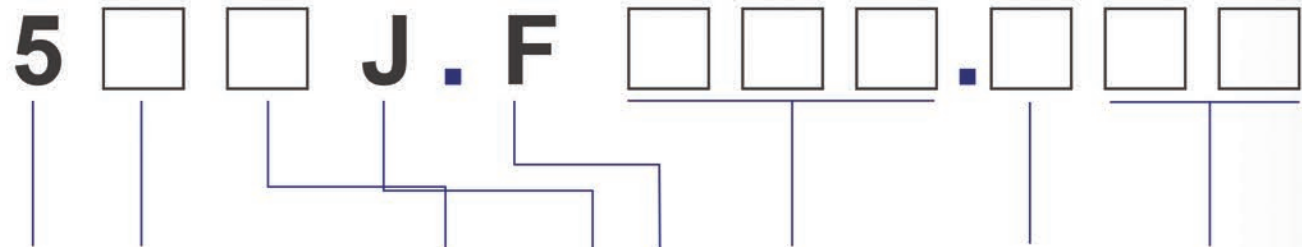
Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Plastics	Φ12
	Carbon Steel Blackening	304 stainless steel		Φ14

※ Steel double sprockets slave roller (08B14T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Steel	Φ12
	Carbon Steel Blackening	304 stainless steel		

Coding Rules



Steel tube size	Drive head form	No drive end	F: Anti-static W: non-static	steel pipe	Shaft Material	Mounting mode
Ø50*1.5	V:Poly-vee drive head (Plastics) R:Round belt drive head W:Non-head (Plastics) M:Non-head (galvanized steel) C:Non-head (carbonized steel) B:Carbonized steel timing belt drive head Y:Steel galvanized Poly-vee drive head L:Carbonized steel Poly-vee drive head B1D3:Steel double sprockets drive head 08B11T-13 B1S3:Steel single sprocket drive head 08B11T-13 B4D3:Steel double sprockets drive head 08B14T-13 B4S3:Steel single sprocket drive head 08B14T-13 (Sprocket head is determined by the steel pipe material)	W: Plastics end cap M: Steel galvanized end cap C: Carbonized steel end cap D: Dual drive head 1: Single groove 2: Double grooves 3: Three grooves 4: Four grooves	Bearing J: Precision bearing N: Stainless steel bearing L: Low-temperature bearing	J: Pre-galvanized steel tube N: 304 stainless steel tube M: 201 stainless steel tube C: Steel tube to be galvanized JAA: Pre-galvanized steel tube JEE: Knurling SJ2: Backpack UJ2: 2mmPU PJ2: 2mmPVC PJ5: 5mmPVC KJ3: KXO300 HJ3: KXO350 KJ4: KXO400 HJ4: KXO450 KJ5:KXO500 HJ5:KXO550 KJ6:KXO600 HJ6:KXO650 KJ7:KXO700 HJ7:KXO750 KJ8:KXO800 HJ8:KXO850 KJ9:KXO900 HJ9:KXO950	J: Pre-galvanized shaft N: Stainless steel shaft C: Steel shaft Z: Steel shaft to be galvanized	AH: 11HEX Shaft-push A2:φ12 Shaft-push M1: φ12 Inner thread M8*15 M2: φ14 Inner thread M8*15 M3: φ14 Inner thread M10*20 M4: φ15 Inner thread M8*15 M5: φ15 Inner thread M10*20 F1:11HEX Fixed shaft F2:φ12 Fixed shaft F4:φ14 Fixed shaft C2: φ12 Milled shaft C4: φ14 Milled shaft

- notes:
- 1. Steel drive head post galvanized by default
 - 2. Sprocket roller stainless steel barrel with steel blackened sprocket head by default
 - 3. 08B11T sprocket for φ12 shaft only
 - 4. Multi-wedge head, plastic end caps not suitable for low temperatures
- (The sprocket head used for galvanized steel tubes is made of C45 as standard.)

※ 60 Gravity roller Inner thread



Steel tube material	End cap	Shaft size
Steel to be galvanized	Steel	φ15
201 stainless steel		
304 stainless steel		

※ Steel single sprocket slave roller (08B14T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Steel	φ15
	Carbon Steel Blackening	201 stainless steel		
		304 stainless steel		

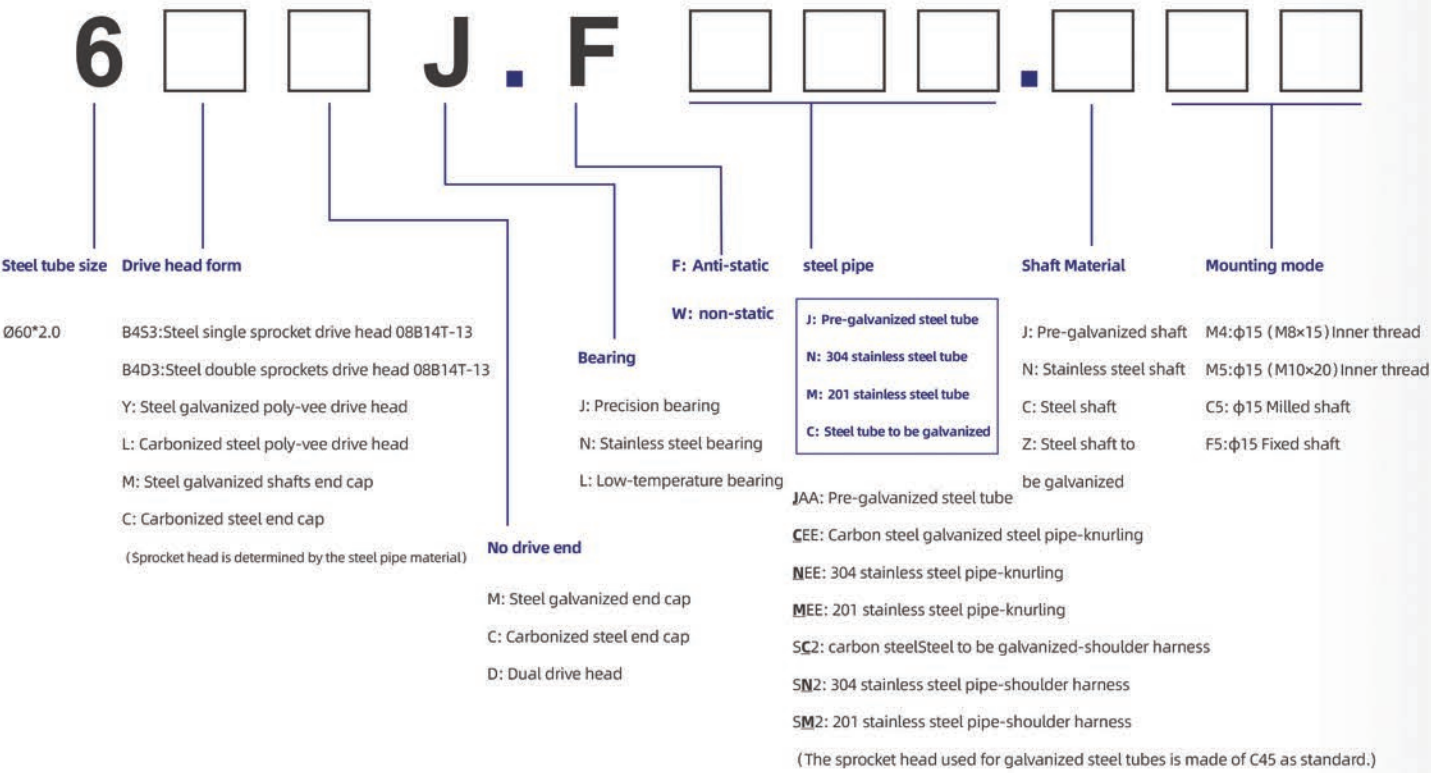
※ Steel double sprockets slave roller (08B14T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Steel	φ15
	Carbon Steel Blackening	201 stainless steel		
		304 stainless steel		

※ Dimensions shown are the best recommended parameter sizes

Coding
Rules



※ 76 Gravity roller Inner thread



※ Steel single sprocket slave roller (10A13T-8.5) Inner thread



※ Steel double sprockets slave roller (10A13T-8.5) Inner thread



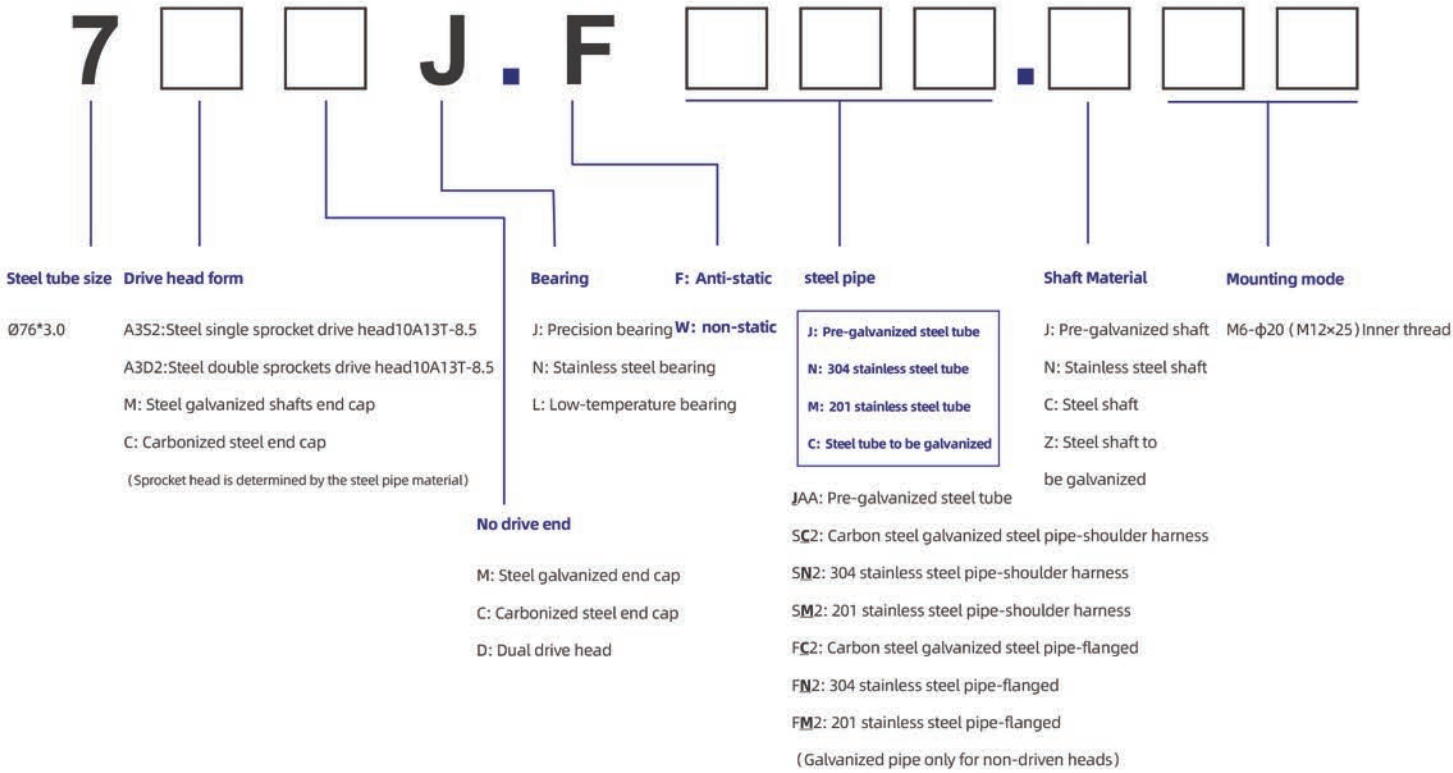
※ Steel single sprocket slave roller (10A13T-8.5) with retaining edge Inner thread



※ Steel double sprockets slave roller (10A13T-8.5) with retaining edge Inner thread



Coding Rules



BUILT-IN DRIVE ROLLER



01 Product description

- ◇ 12 gear reductions for optimized work point adjustment
- ◇ Optional gear can be configured for speed:
15 modes setting (Internally) ,
or 7 modes control (externally)
- ◇ Constant output speed
- ◇ Braking energy recycling
- ◇ Electronic holding brake
- ◇ Solid cable with 5-pole “snap-in” connector



02 Motor Technical Parameters

Motor Technical Parameters		
Rated voltage	24V	24V
Rated power	35W	50W
Nominal current	2.5Arms	2.7Arms
Start-up current	6.3Arms	6.8Arms
Max noise	55dB	
Cable lengths	500mm (Extension cables can be added)	
Protection rate	IP54	
Ambient temperature	-10°~40°	

03 Gear stage

Gear stage						
Gear ratio	24V/35W			24V/50W		
	Max conveyor speed (m/s)	Start-up torque (Nm)	Rated torque (Nm)	Max conveyor speed (m/s)	Start-up torque (Nm)	Rated torque (Nm)
9:1	2.04	1.17	0.47	2.04	1.67	0.67
12:1	1.53	1.56	0.63	1.53	2.23	0.89
16:1	1.14	2.08	0.83	1.14	2.98	1.19
18:1	1.02	2.34	0.94	1.02	3.35	1.34
24:1	0.76	3.13	1.25	0.76	4.46	1.79
27:1	0.68	3.52	1.41	0.68	5.02	2.01
36:1	0.51	4.69	1.88	0.51	6.69	2.68
48:1	0.38	6.25	2.50	0.38	8.93	3.57
54:1	0.34	7.03	2.81	0.34	10.04	4.02
64:1	0.29	8.33	3.33	0.29	11.90	4.76
72:1	0.25	9.38	3.75	0.25	13.39	5.36
96:1	0.19	12.50	5.00	0.19	17.85	7.14

04 Dial speed control table (m/s)

Gear ratios Built-in speed regulation	Gear ratios											
	9:1	12:1	16:1	18:1	24:1	27:1	36:1	48:1	54:1	64:1	72:1	96:1
1	2.04	1.53	1.14	1.02	0.76	0.68	0.51	0.38	0.34	0.29	0.25	0.19
2	1.87	1.40	1.05	0.94	0.70	0.62	0.47	0.36	0.31	0.26	0.23	0.17
3	1.73	1.29	0.97	0.87	0.65	0.58	0.44	0.32	0.29	0.24	0.22	0.16
4	1.59	1.19	0.89	0.80	0.60	0.53	0.40	0.30	0.27	0.23	0.20	0.15
5	1.46	1.09	0.83	0.73	0.55	0.49	0.37	0.28	0.24	0.21	0.18	0.14
6	1.32	0.99	0.74	0.66	0.49	0.44	0.33	0.25	0.22	0.18	0.17	0.13
7	1.18	0.89	0.66	0.59	0.45	0.39	0.30	0.22	0.20	0.17	0.15	0.11
8	1.05	0.79	0.60	0.53	0.39	0.35	0.26	0.19	0.18	0.15	0.13	0.10
9	0.92	0.69	0.52	0.46	0.34	0.31	0.23	0.17	0.15	0.13	0.12	0.08
10	0.78	0.58	0.44	0.39	0.29	0.26	0.19	0.15	0.13	0.11	0.10	0.07
11	0.64	0.48	0.37	0.32	0.24	0.21	0.16	0.13	0.11	0.09	0.08	0.06
12	0.50	0.38	0.29	0.25	0.19	0.17	0.13	0.09	0.08	0.07	0.06	0.05
13	0.37	0.28	0.21	0.19	0.14	0.12	0.09	0.07	0.06	0.06	0.05	0.03
14	0.24	0.17	0.14	0.12	0.09	0.08	0.06	0.05	0.04	0.03	0.03	0.02
15	0.10	0.08	0.06	0.05	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.01
16	Match the multi segment speed of input SPEED A B C											

Typology	Tube Size	Driving method	Voltage /Power		Steel tube material			Motor terminal		Installation method			Surface treatment				
			24V/35W	24V/50W	Galvanized steel tube	201 stainless steel	304 stainless steel	Plastics	Inner thread M8	Shaft-push T1HEX	Knurl	Shoulder sleeve POK	2mm PVC	5mm PVC	2mm PU	Conical sleeve	
Light	Φ50*1.5	Normal tube	●	●	●		●	●	●	●	●	NA	●	●	●	NA	
		Double grooved normal tube	●	●	●	NA		●	●	●	●	NA	●	●	●	●	
		Plastics Poly-vee drive head	●	●	●	●	●	●	●	●	●	NA	●	●	●	NA	
		Round belt drive head	●	●	●	●	●	●	●	●	●	NA	●	●	●	●	
		Steel Poly-vee drive head	●	●	●	●	●	●	●	●	●	NA	●	●	●	NA	
		Steel timing belt drive head	●	●	NA	●	●	●	●	●	—	NA	●	●	●	NA	
		Steel sprocket drive head	●	●	●	●	●	●	●	—	NA	●	●	●	NA		
			● :be applicable		NA: Not recommended			—: Not applicable									

—: Not applicable

NA: Not recommended

● :be applicable

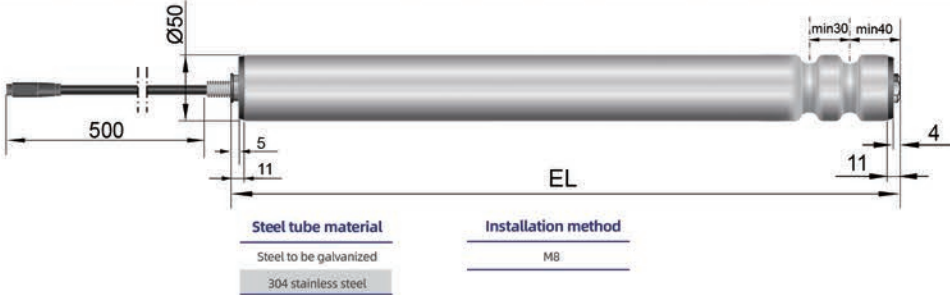
✖ Normal Tube Inner thread



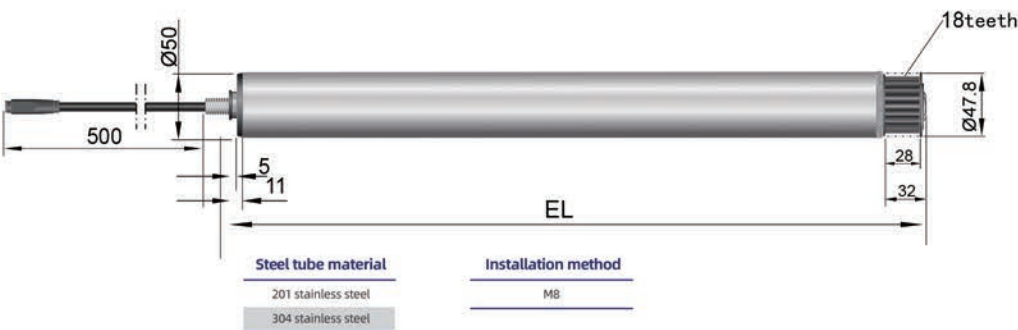
✖ Normal Tube Shaft-push



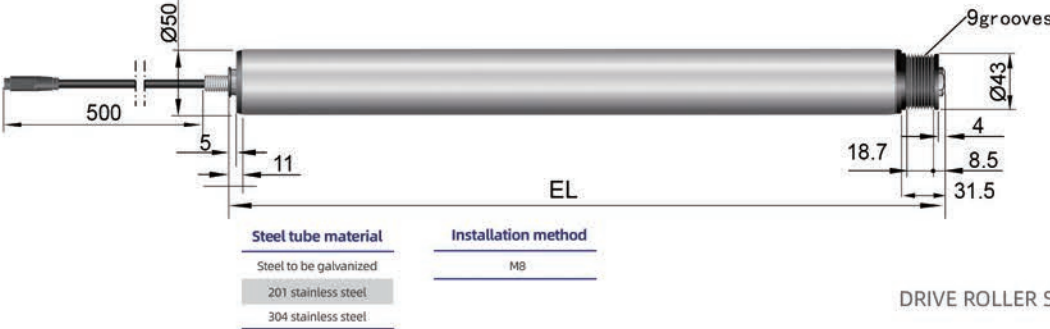
✖ Double groove drive head Inner thread



✖ Steel synchronous belt drive head(8 spacing and 18 teeth) Inner thread



✖ Plastics Poly-vee drive head Inner thread



※ Steel Poly-vee drive head Inner thread



※ Plastics Poly-vee drive head Shaft-push



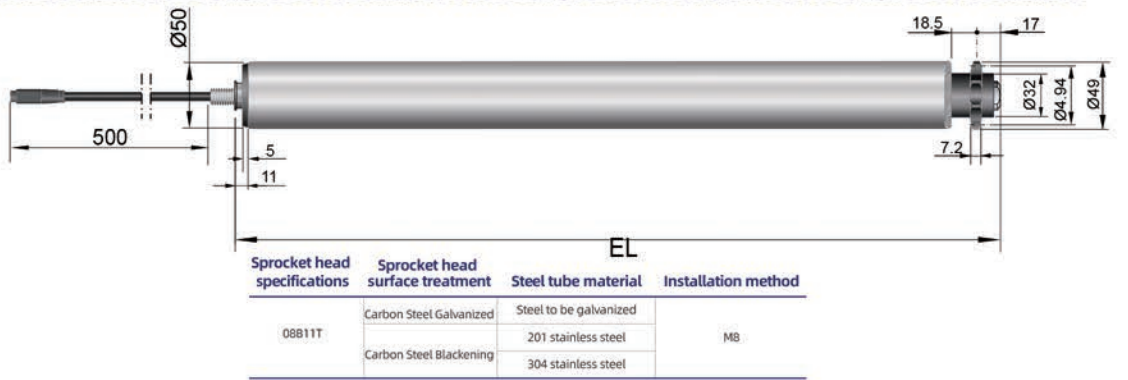
※ Round belt drive head Inner thread



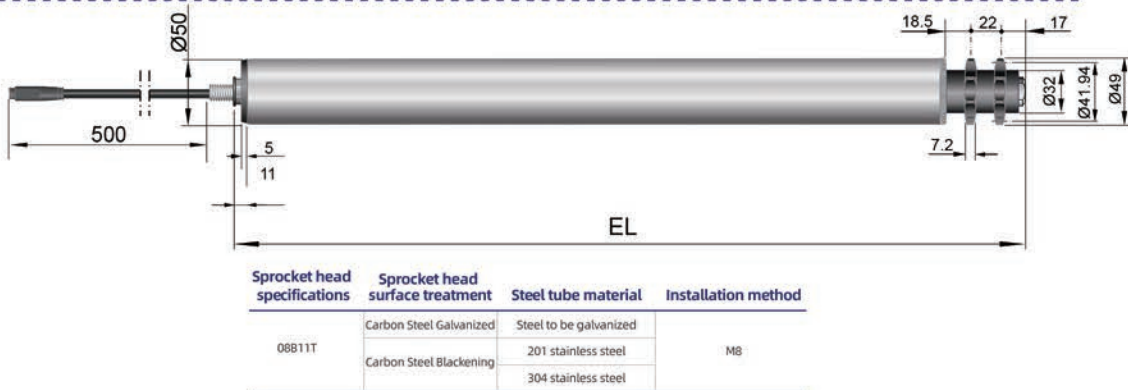
※ Round belt drive head Shaft-push



※ Steel single sprocket drive head 08B11T-13 Inner thread



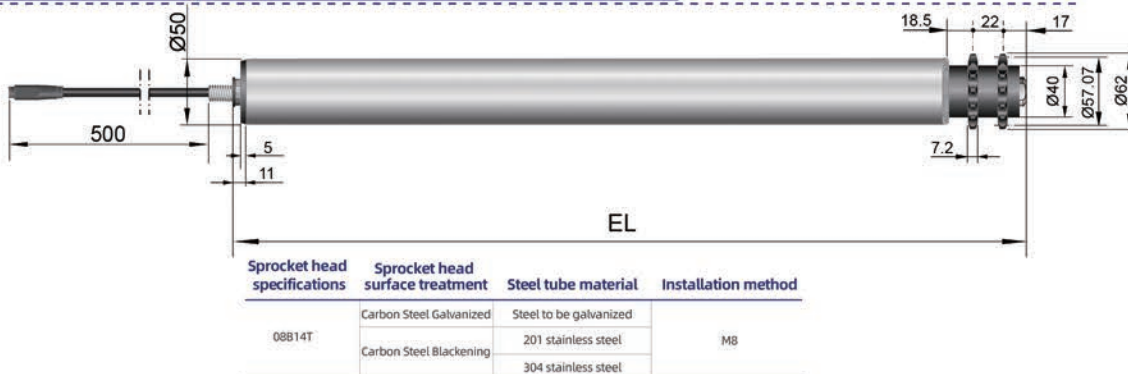
※ Steel double sprockets drive head 08B11T-13 Inner thread



※ Steel single sprocket drive head 08B14T-13 Inner thread



※ Steel double sprockets drive head 08B14T-13 Inner thread



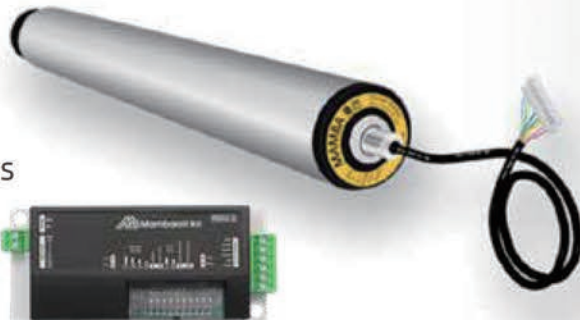
※ 所示尺寸图皆为最佳推荐参数尺寸

EXTERNAL DRIVE ROLLER



01 Product description

- ◇ 12 gear stage ratios
- ◇ Optional gears can be configured for speed:
48 combinations of internal and external speeds
- ◇ Constant output speed
- ◇ Braking energy recovery
- ◇ Electronic holding brake
- ◇ Cable with 9-core JST bar connection



02 Motor Technical Parameters

Motor Technical Parameters				
Rated voltage	24V		48V	
Rated power	50W	75W	50W	75W
Nominal current	2.7Arms	4.1Arms	1.4Arms	2.1Arms
Start-up current	6.8Arms	10.3Arms	3.5Arms	5.3Arms
Max noise	55dB			
Cable lengths	600mm			
Protection rate	IP54			
Ambient temperature	-10~40°			

03 Gear stage

Gear stage								
Gear ratio	50W				75W			
	Max conveyor speed (m/s)	Start-up torque (Nm)	Rated torque (Nm)	Blocking torque (Nm)	Max conveyor speed (m/s)	Start-up torque (Nm)	Rated torque (Nm)	Blocking torque (Nm)
9:1	2.04	1.67	0.67	1.67	2.04	2.51	1.01	2.51
12:1	1.53	2.23	0.89	2.23	1.53	3.35	1.34	3.35
16:1	1.15	2.98	1.19	2.98	1.15	4.47	1.79	4.47
18:1	1.02	3.35	1.34	3.35	1.02	5.03	2.01	5.03
24:1	0.76	4.46	1.79	4.46	0.76	6.69	2.69	6.69
27:1	0.68	5.01	2.01	5.01	0.68	7.53	3.02	7.53
36:1	0.51	6.69	2.68	6.69	0.51	10.04	4.02	10.04
48:1	0.38	8.93	3.57	8.93	0.38	13.40	5.36	13.40
54:1	0.34	10.04	4.02	10.04	0.34	15.06	6.03	15.06
64:1	0.29	11.90	4.76	11.90	0.29	17.85	7.14	17.85
72:1	0.25	13.39	5.36	13.39	0.25	20.09	8.04	20.09
96:1	0.19	17.85	7.14	17.85	0.19	26.78	10.71	26.78

04 Dial speed control table (m/s)

External signal Run A input												
Speed Code	9:1	12:1	16:1	18:1	24:1	27:1	36:1	48:1	54:1	64:1	72:1	96:1
1	0.34	0.25	0.19	0.17	0.13	0.11	0.08	0.06	0.06	0.05	0.04	0.03
2	0.45	0.34	0.25	0.23	0.17	0.15	0.11	0.08	0.08	0.06	0.06	0.04
3	0.56	0.42	0.32	0.28	0.21	0.19	0.14	0.11	0.09	0.08	0.07	0.05
4	0.68	0.51	0.38	0.34	0.25	0.23	0.17	0.13	0.11	0.10	0.08	0.06
5	0.79	0.59	0.44	0.40	0.30	0.26	0.20	0.15	0.13	0.11	0.10	0.07
6	0.90	0.68	0.51	0.45	0.34	0.30	0.23	0.17	0.15	0.13	0.11	0.08
7	1.02	0.76	0.57	0.51	0.38	0.34	0.25	0.19	0.17	0.14	0.13	0.10
8	1.13	0.85	0.64	0.57	0.42	0.38	0.28	0.21	0.19	0.16	0.14	0.11
9	1.24	0.93	0.70	0.62	0.47	0.41	0.31	0.23	0.21	0.17	0.16	0.12
10	1.36	1.02	0.76	0.68	0.51	0.45	0.34	0.25	0.23	0.19	0.17	0.13
11	1.47	1.10	0.83	0.73	0.55	0.49	0.37	0.28	0.24	0.21	0.18	0.14
12	1.58	1.19	0.89	0.79	0.59	0.53	0.40	0.30	0.26	0.22	0.20	0.15
13	1.70	1.27	0.95	0.85	0.64	0.57	0.42	0.32	0.28	0.24	0.21	0.16
14	1.81	1.36	1.02	0.90	0.68	0.60	0.45	0.34	0.30	0.25	0.23	0.17
15	1.92	1.44	1.08	0.96	0.72	0.64	0.48	0.36	0.32	0.27	0.24	0.18
16	2.04	1.53	1.15	1.02	0.76	0.68	0.51	0.38	0.34	0.29	0.25	0.19

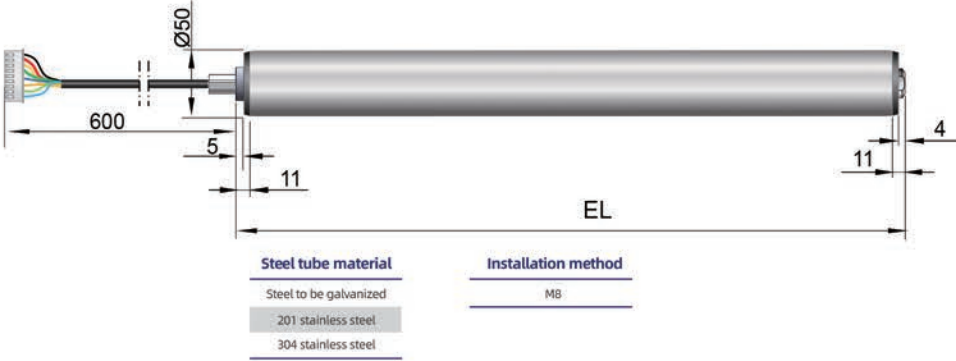
Typology	Tube size	Driving method	Voltage/Power					Steel tube material			Installation method		Surface treatment	
			24V/50W	24V/75W	48V/50W	48V/75W	48V/120W	Galvanized steel tube	201 stainless steel	304 stainless steel	Shaft-push T1HEX	Inner thread MB	Knurl	Shoulder sleeve POK
Light	Φ50*1.5	Normal tube	●	●	●	●	—	●	●	●	●	●	NA	●
		Double grooved normal tube	●	●	●	●	—	●	NA	●	●	●	NA	●
		Plastics Poly-vee drive head	●	●	●	●	—	●	●	●	●	●	NA	●
		Round belt drive head	●	●	●	●	—	●	●	●	●	●	NA	●
		Steel Poly-vee drive head	●	●	●	●	—	●	●	●	●	●	NA	●
		Steel timing belt drive head	●	●	●	●	—	NA	●	●	—	●	NA	●
Medium	Φ60*2.0	Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●
		Stainless steel sprocket drive head	NA	NA	●	●	●	NA	NA	●	—	●	●	●
		Normal tube	●	●	●	●	●	●	●	—	●	●	●	●
Heavy	Φ76*3.0	Steel sprocket drive head	—	—	—	—	●	●	●	—	●	●	●	●
		Stainless steel sprocket drive head	—	—	—	—	●	●	●	—	●	●	●	●
		Normal tube	—	—	—	—	●	NA	NA	●	—	●	●	●
● :be applicable NA: Not recommended —: Not applicable														

—: Not applicable

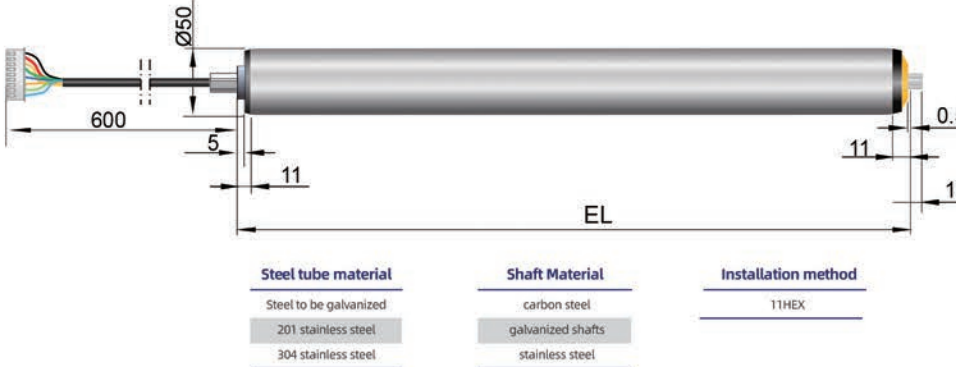
NA: Not recommended

●: be applicable

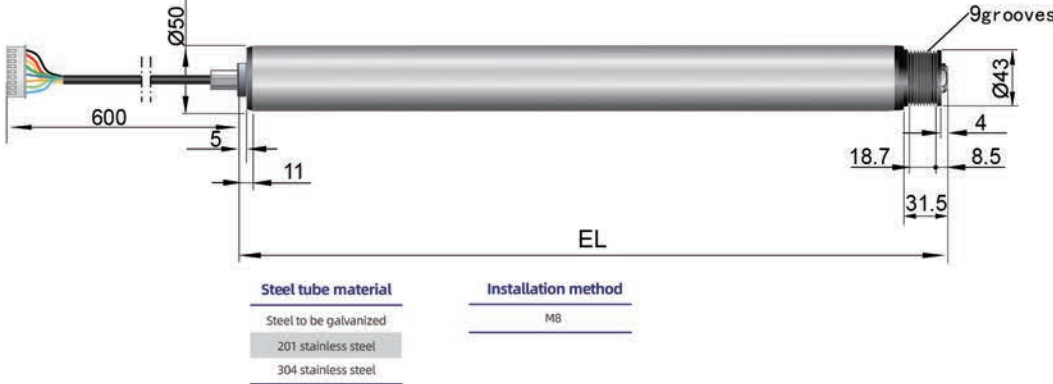
✦ Normal Tube Inner thread



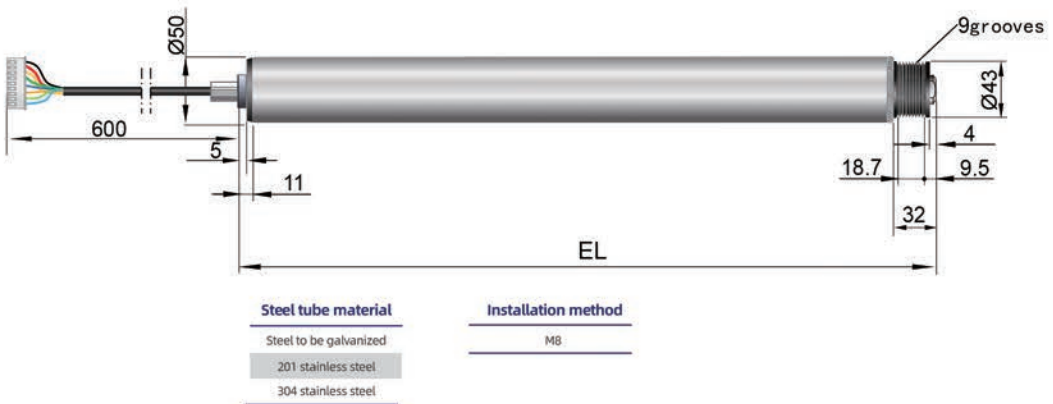
✦ Normal Tube Shaft-push



✦ Plastics Poly-vee drive head Inner thread



✦ Steel Poly-vee drive head Inner thread



※Plastics Poly-vee drive head Shaft-push



Steel tube material	Shaft Material	Installation method
Steel to be galvanized	carbon steel	11HEX
201 stainless steel	galvanized shafts	
304 stainless steel	stainless steel	

※Round belt drive head Inner thread



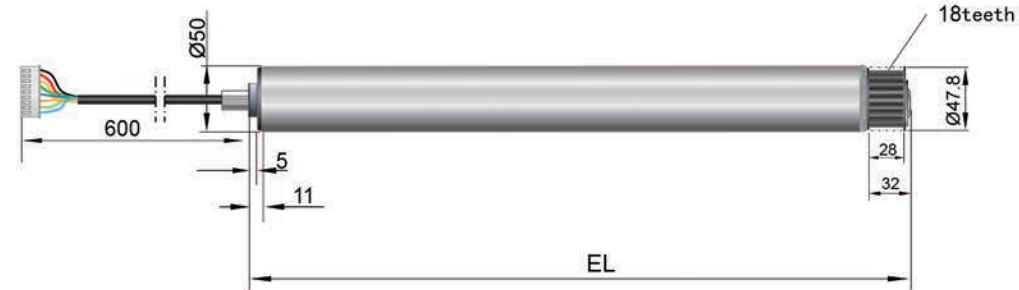
Steel tube material	Installation method
Steel to be galvanized	M8
201 stainless steel	
304 stainless steel	

※Round belt drive head Shaft-push



Steel tube material	Shaft Material	Installation method
Steel to be galvanized	carbon steel	11HEX
201 stainless steel	galvanized shafts	
304 stainless steel	stainless steel	

※Steel synchronous belt drive head(8 spacing and 18 teeth) Inner thread



Steel tube material	Installation method
201 stainless steel	M8
304 stainless steel	

※Steel single sprocket drive head 08B11T-13 Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	Installation method
08B11T	Carbon Steel Galvanized	Steel to be galvanized	M8
	Carbon Steel Blackening	201 stainless steel	
		304 stainless steel	

※Steel double sprockets drive head 08B11T-13 Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	Installation method
08B11T	Carbon Steel Galvanized	Steel to be galvanized	M8
	Carbon Steel Blackening	201 stainless steel	
		304 stainless steel	

※Steel single sprocket drive head 08B14T-13 Inner thread



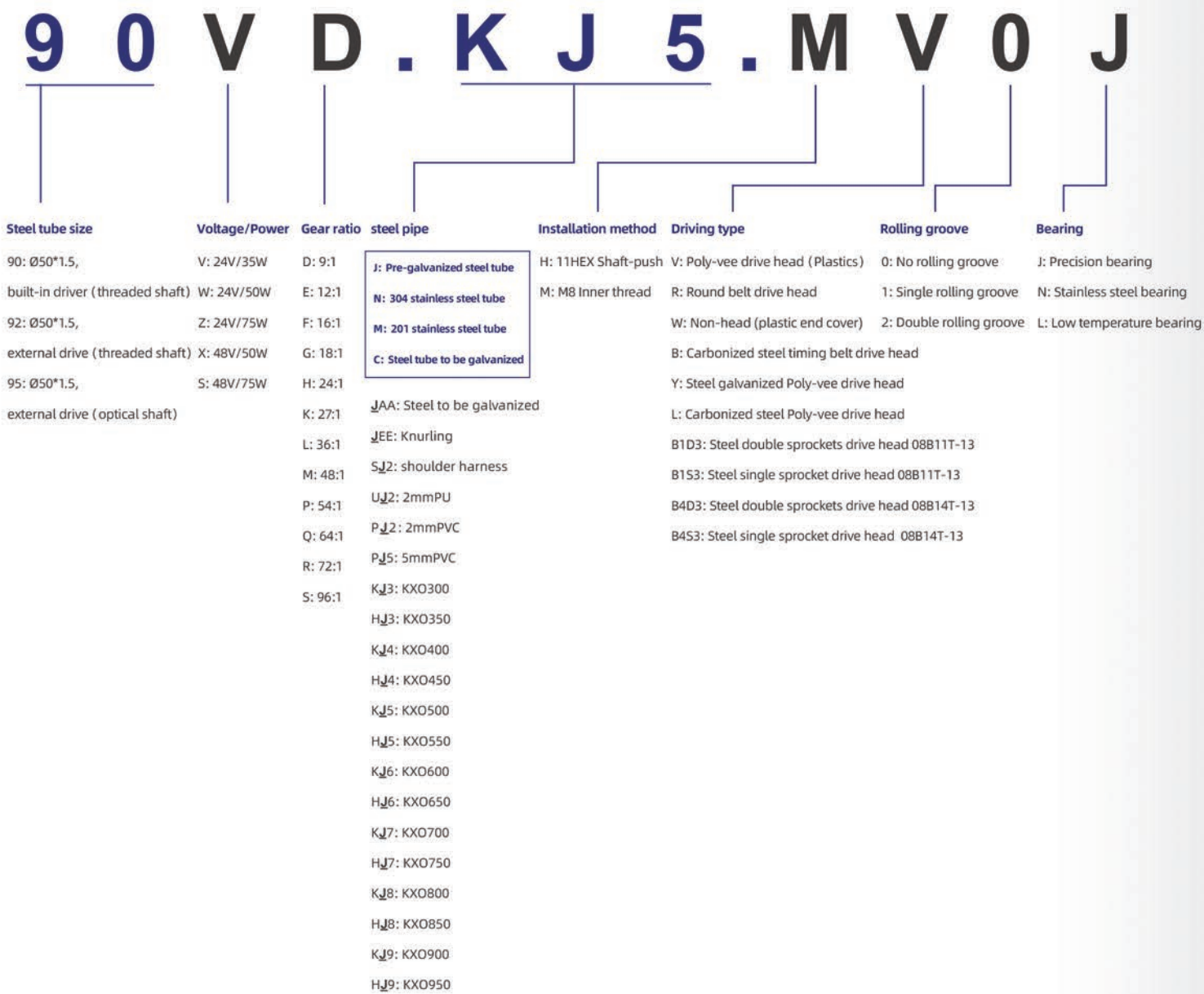
Sprocket head specifications	Sprocket head surface treatment	Steel tube material	Installation method
08B14T	Carbon Steel Galvanized	Steel to be galvanized	M8
	Carbon Steel Blackening	201 stainless steel	
		304 stainless steel	

※Steel double sprockets drive head 08B14T-13 Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	Installation method
08B14T	Carbon Steel Galvanized	Steel to be galvanized	M8
	Carbon Steel Blackening	201 stainless steel	
		304 stainless steel	

编码规则



TAPERED ROLLER SERIES

Mambaroll offers a wide range of rollers for turning conveyors with KXO in the name. steel tubes are press-fitted with conical main parts. The use of conical rollers with different sized ends of different diameters produces different line speeds, thus enabling smooth turning conveyance of the goods.



Double groove tapered slave roller



Round belt tapered slave roller



Built-in drive tapered rollers with double groove



Built-in drive tapered rollers with round belt drive head

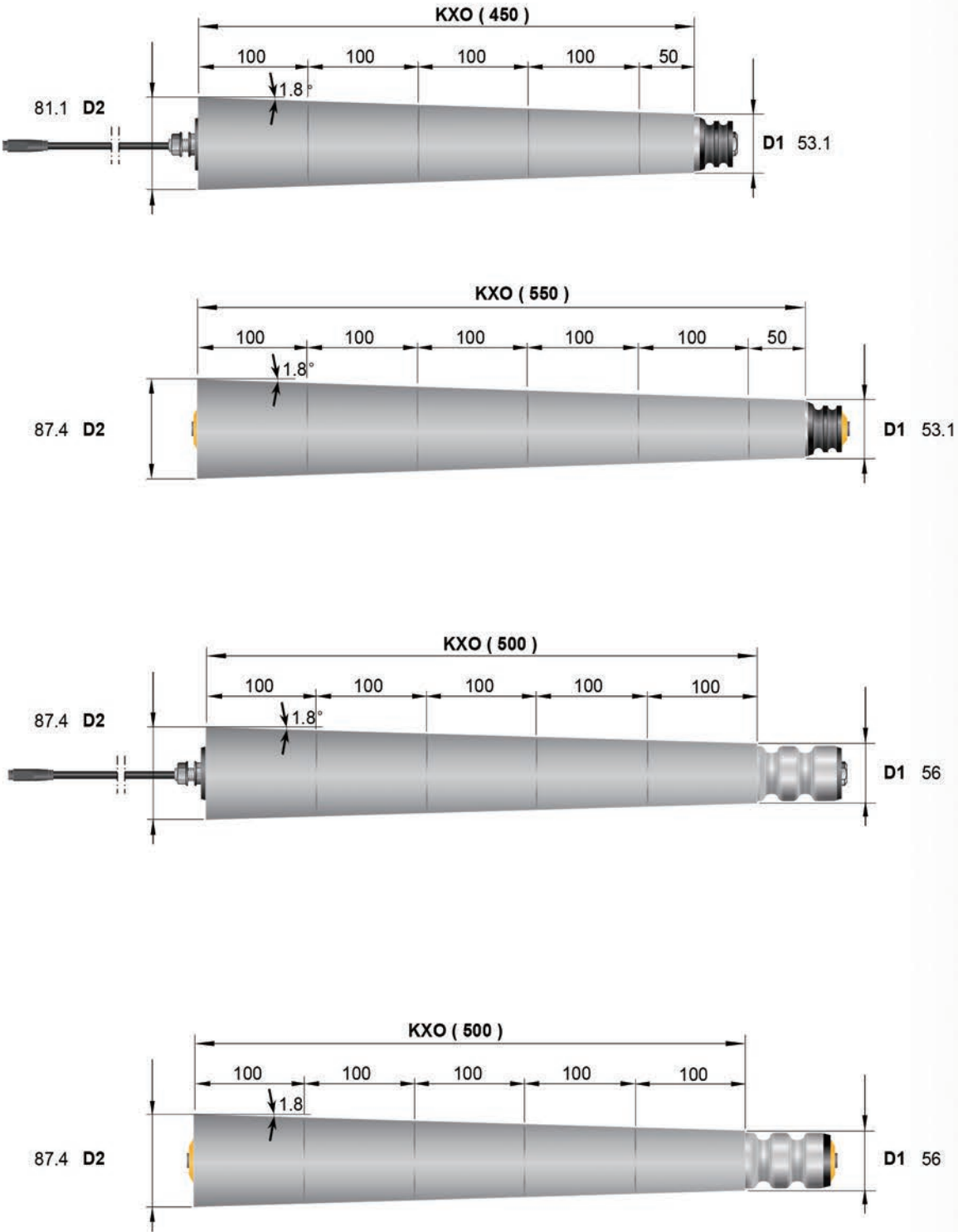
Class	Based on diameter (mm)	Taper	Transmission medium
Tapered roller	50	1.8°	Round belt

01 Roller Installation

For roller curve conveyor, it must be considered that the top of the conical rollers is horizontal, that means rollers have to be mounted with tilting certain angle. Normally, 1.8° is applicable.

The lane width of the roller curve conveyor should be greater than that of the straight conveyor to ensure that the material could not transport onto the side guide rail of the roller curve.

KXO	300	350	400	450	500	550	600	650	700	750	800	850	900	950
D1	56	53.1	56	53.1	56	53.1	56	53.1	56	53.1	56	53.1	56	53.1
D2	74.9	74.9	81.1	81.1	87.4	87.4	93.7	93.7	100	100	106.3	106.3	112.6	112.6



CONTROL CARD AND DRIVER SERIES

Control Card

01 Profile



The IRCU is Mamba's new generation of controllers designed for internal drive pulleys (Mamba 90 series motorized pulleys), based on years of experience in the market.

The IRCU accepts remote speed+direction (or run+direction) control commands to regulate the speed of the drum, and the IRCU monitors the operating conditions and status of the drum for real-time diagnostics and adjustments. This ensures safe, efficient and stable pulley operation.

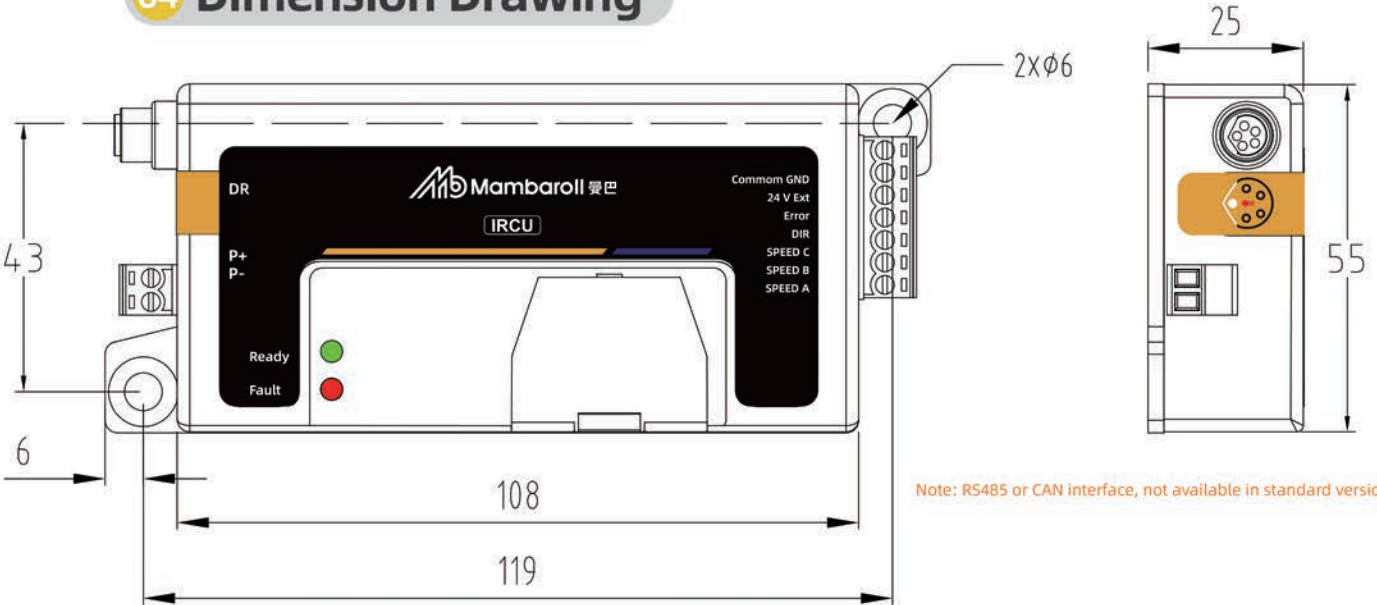
03 Technical Data

Housing Material	PA66 + 30%GF, heat resistance<120°C
Housing Size	L x W x H = 119 x 55 x 25 mm
Wiring Method	5 pole quick plug + plug-in screw terminals
Weight	About 97g (Includes terminals)
Supply Voltage	+24 VDC ±20% (Integrated reverse polarity protection)
Overvoltage/recovery threshold	29V/28.5V ±0.3V
Undervoltage/recovery threshold	19V/19.5V ±0.3V
Current consumption	Without roller<0.1mA@24V, Includes rollers<5A@24V
Terminal signal	Import 0 ...60 VDC, <6mA / Export 0 ...60 VDC, <300mA
Storage temperature	-25 °C ...+85 °C
Operating Temperature	-10 °C ...+40°C
Humidity	95% maximum, non-condensing
Cooling	Convection (natural air cooling)
Altitude	1000 m (3300 ft) maximum

02 Main Function

- ◇ Speed setting: 15-segment speed selection (internal dial), 7-segment speed selection (external signal)
- ◇ Internal (Dial)/External (Signal) Direction Control
- ◇ Fast start/stop/slow start/stop setting (internal dial)
- ◇ Provides fault signal output
- ◇ Supports all NPN/PNP wiring combinations
- ◇ Dual LED combined status indication
- ◇ Failure protection and self-recovery function
- ◇ Detachable power and signal terminals
- ◇ Power over-voltage protection (29.0v/1s) and over-voltage self-recovery (28.5v/2s)
- ◇ Power supply under-voltage protection (19.0v/1s), under-voltage self-recovery (19.5v/2s)
- ◇ Over-current and short-circuit protection on drum side (fuse)
- ◇ Over-voltage relief protection for roller braking and abnormal speed difference (30v)
- ◇ Isolation of braking energy from power supply, reducing EMI and power supply capacity requirements
- ◇ Power supply anti-reverse connection protection (optional version with indication)
- ◇ Supports RS485 or CAN communication (customized version, 2 options. Protocol can be customized)

04 Dimension Drawing





Multi-control card

01 Profile

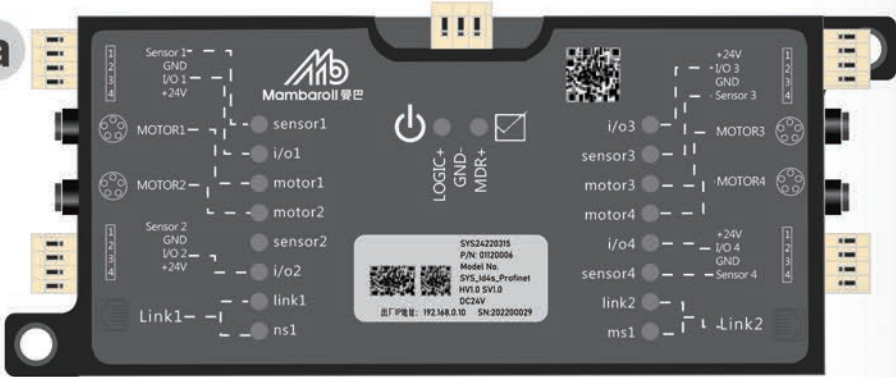
The control card supports multiple Mamba 90 in-drive drum motors and is adapted for Profinet bus control. The solution offers the advantages of low wiring and flexible expansion. It also meets the requirements of Industry 4.0 applications.

02 Main Function

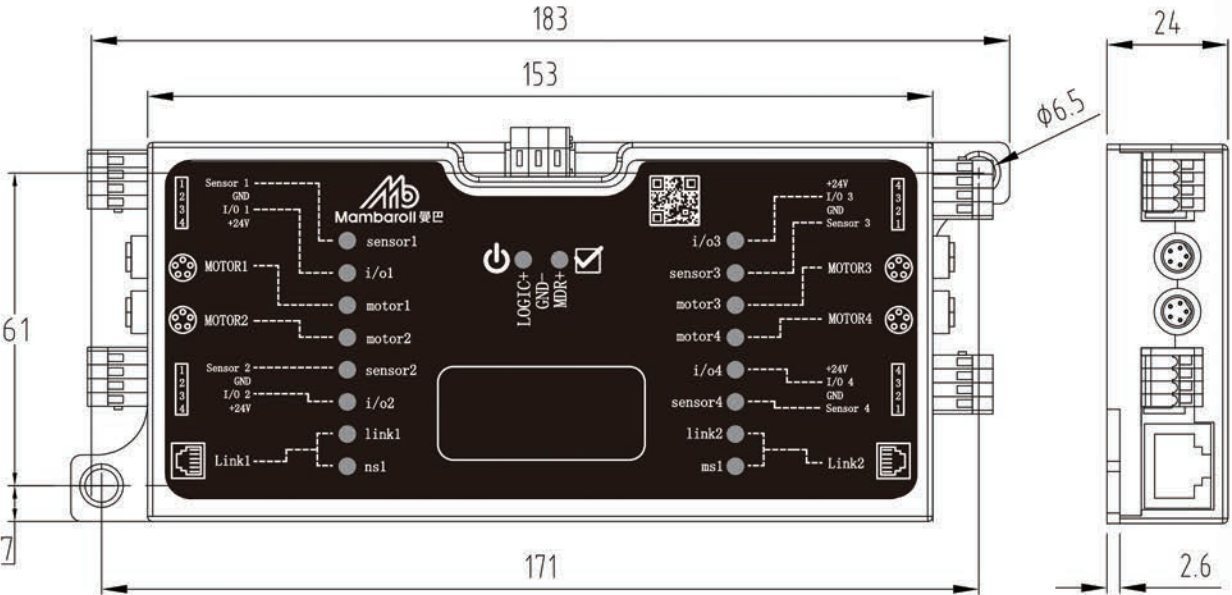
- ◇ The control power supply (DC 24V) and drive power supply (DC 24V) are separated, which enhances the reliability of the system.
- ◇ Multiple drums can be flexibly configured according to the actual application, and a single controller can connect up to 4 drums.
- ◇ Abundant status indications (controller, drums, sensors) facilitate application and maintenance.
- ◇ Offline control (controller+sensor) and online control (PLC+Profinet) can be configured for multi-region assembly lines, making applications more flexible
- ◇ Braking energy treatment and stabilization of power supply voltage (optional, to be procured independently)
- ◇ Configuration can be realized simply and flexibly by means of the accompanying upstream computer software, and online testing and upgrading can be realized at the same time

03 Technical Data

LOGIC Rated operating voltage	24±2V
MDR Rated operating voltage	24±2V
Operating voltage range	18~28V
Rated total input power	180±20W
Rated stand-alone output power	45±5W
operating environment temperature	-10°C~40°C



04 Dimension Drawing



Drive card

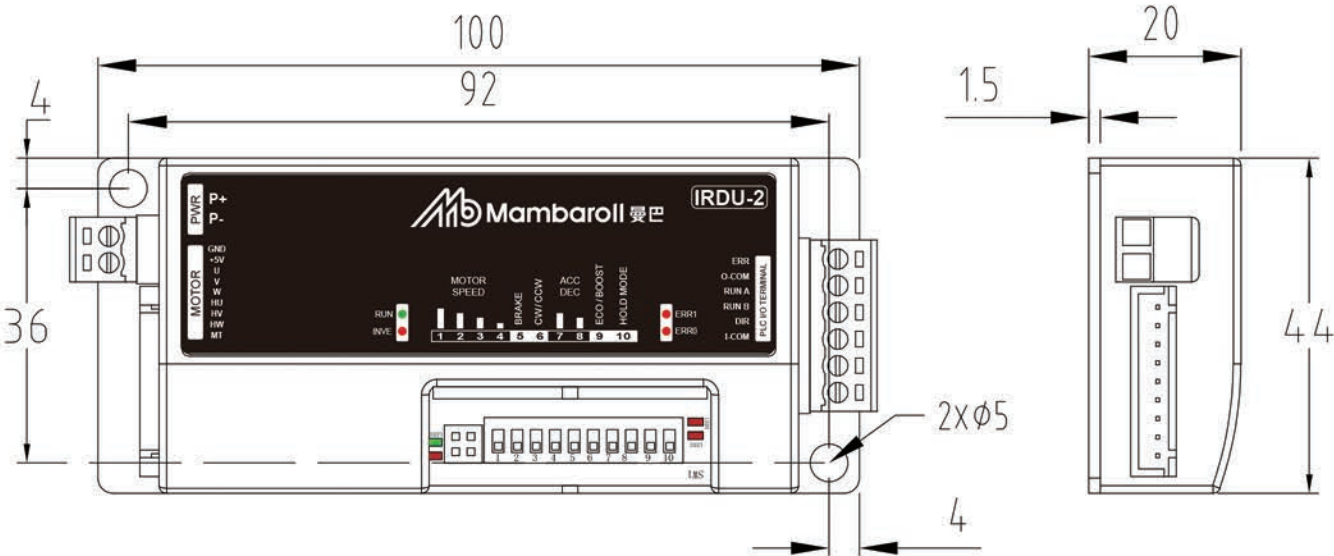
01 Profile

The IRDU-2 is Mambaroll's iteration of an external drive card for electric drums, available in 24V and 48V applications, covering most drum applications. It adopts 16-segment speed control, along with multi-baseline speed setting to expand the flexibility of speed selection. Input and output circuits are re-optimized (both inputs and outputs support PNP and NPN modes) for seamless matching of PNP/NPN interface types (no additional internal selection settings required). New brake energy processing unit optimizes product space and heat dissipation. Also supports locking axle and e-brake functions.

02 Main Function

- ◇ Stop/start, forward/reverse rotation
- ◇ Dial code and remote PLC control
- ◇ Acceleration/deceleration adjustment
- ◇ Input/output interface mode: PNP/NPN compatible
- ◇ Optional stopping brake mode: winding short braking/free stopping
- ◇ Optional stopping brake mode: electronic stopping mode/neutral stopping mode
- ◇ Built-in brake resistor to protect power supply:
automatic identification of power supply type
- ◇ Over-current/overheating protection
- Over-voltage/under-voltage protection
- ◇ Short-circuit protection
- ◇ Motor temperature protection
- ◇ Blocking protection/speed abnormality protection
- ◇ Electrical isolation between main control circuit and interface circuit.
Reverse connection protection for both main control circuit and interface circuit.
- ◇ Compatible with 24V and 48V power supply mode
- ◇ Multiple LED indications

04 Dimension Drawing



03 Technical Data

	24V	48V
Power supply voltage input range	18~32V	42~56V
Standby current consumption	29ma	15ma
Starting peak current	Eco Boost	6A 10A
Maximum Output Current	Eco Boost	3A 5A
Maximum rated current	3.8A	
fuse wire	10A	
Initialization delay	100ms	
Starting motor time	≤5ms	
operating environment temperature	-10~40°C	

* Recommended to use the standard mode to select the adapted power supply

ACCESSORY SERIES

Poly-vee belts

Poly-vee belts are used for transmission between conveyor rollers, and the type is selected according to the center distance of the rollers.

Profile



- Standard belts have 1~3% preload elasticity.
- Longer service life than round belts.
- Torque transmission is up to 300% higher compared to equivalent round belts.
- Suitable for normal and low temperature environments (-10°C).

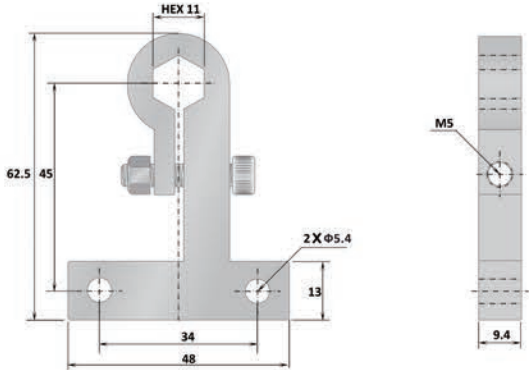
PJ Series Selection

2PJ 1~200kg	3PJ 201~300kg	4PJ 301~400kg	Rated center distance (tolerance range)mm
	PJ236		50
	PJ246		53~56
	PJ256		60~63
	PJ263		63~65
	PJ270		66~67
	PJ282		71~72
	PJ286		73~75
	PJ290		76~78
	PJ302		80~84
	PJ314		87~91
	PJ316		92~95
	PJ336		97~101
	PJ346		103~107
	PJ376		119~121
	PJ388		123~128
	PJ416		129~134
	PJ435		145~152
	PJ456		157~161
	PJ486		170~176
	PJ536		196~202
	PJ570		208~215
	PJ636		254~258
	PJ746		305~310

*Note: This model is designed for 50mm diameter pulley and 43mm diameter polygonal pulley;
If there are other non-standard sizes for the demand calculation, please let us know, we provide one-stop solution.

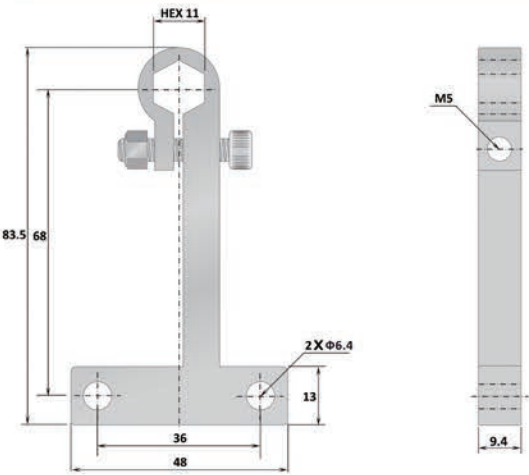
Mounting Brackets

Swan-shaped bracket (short)



※ Swan shaped fixing block N583
For conventional roller installation to avoid
cable stranding at the motor end

Swan shaped stand (long)



※ Swan shaped fixing block N584
For taper roller locking installation to avoid
cable stranding at the motor end