

Provider of intelligent conveyer roller systems

www.yupack.com



YUPACKROLL

Conveyor RollersProduct Selection Manual

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YUPACKROLL

CHINA “CORE” FOR CONVEYER SYSTEMS

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Committed to becoming a driver of intelligent logistics conveyor

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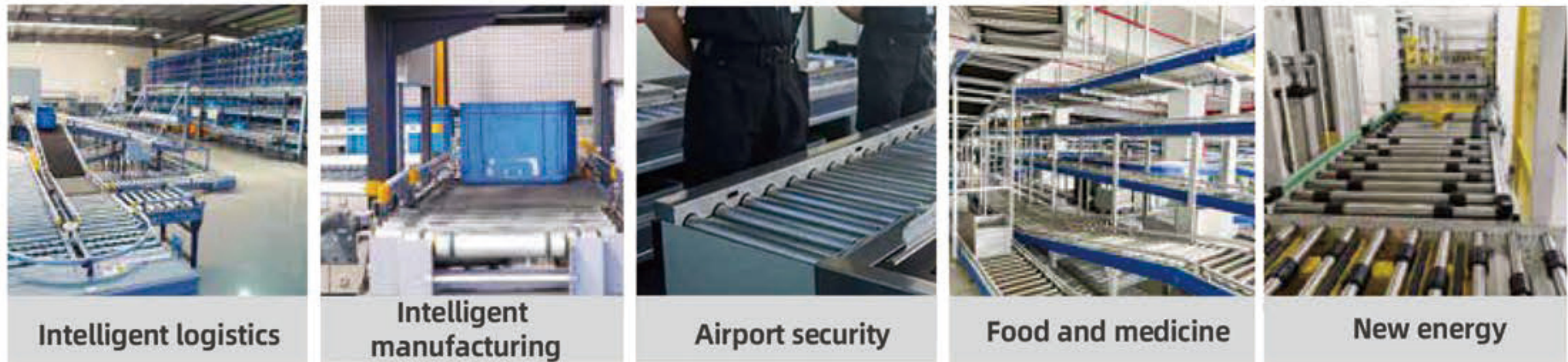


Qingdao Ausense has been established in 2008, which focus on the planning,R&D and manufacturing of automatic packaging production line.

With rich experience, we have more than 60 kinds of pack-aging equipment in 10 series, such as automatic carton forming, packing, sealing, shrinking, vacuum, bundling, stacking, wrapping and conveying. We provide intelligent, flexible and informationalized one-stop automatic packag-ing solutions by the advantages of automation industry chain, integrates technology research and development, scheme design, product production, and combines with customer field applications.

Ausense's main brand is YUPACK, which is a registered trademark of the State Administration of Industry and Com-merce of China.

✦ Main applicable industries



Intelligent logistics

Intelligent manufacturing

Airport security

Food and medicine

New energy

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 satisfac-tion 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 equip-ment enterprises at home and abroad. Customer satis-faction 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** 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

Yupackroll 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

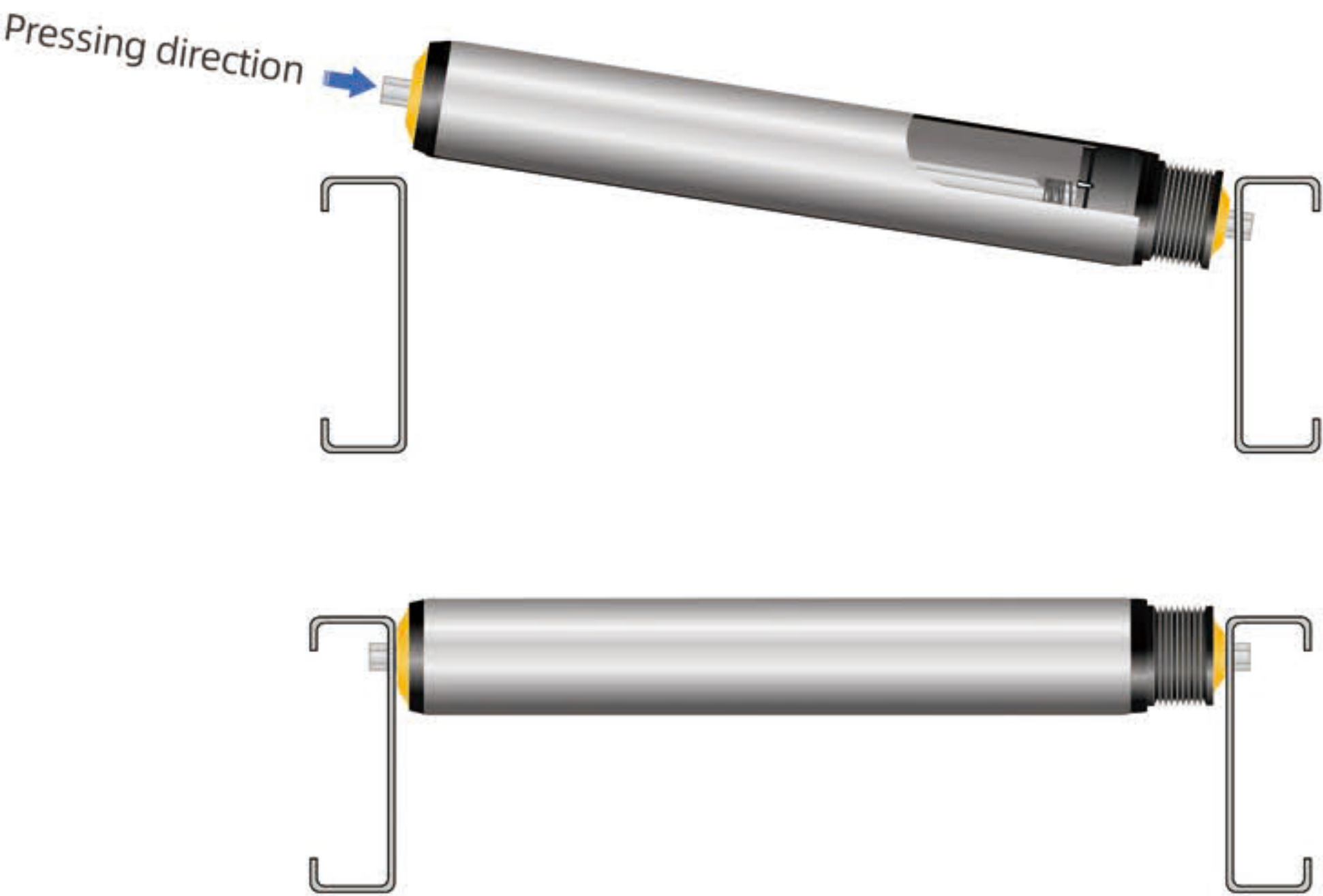
Installation method	Shaft-push	Inner thread shaft	Milled shaft	Fixed shaft
Diameter	11HEX	Φ12 (M8*15)	Φ12	11HEX
	Φ12	Φ14 (M8*15)	Φ14	Φ12
	—	Φ14 (M10*20)	Φ15	Φ14
	—	Φ15 (M10*20)	Φ20	Φ15
	—	Φ20 (M12*25)	—	Φ20



Recommendations

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

※ Shaft-push



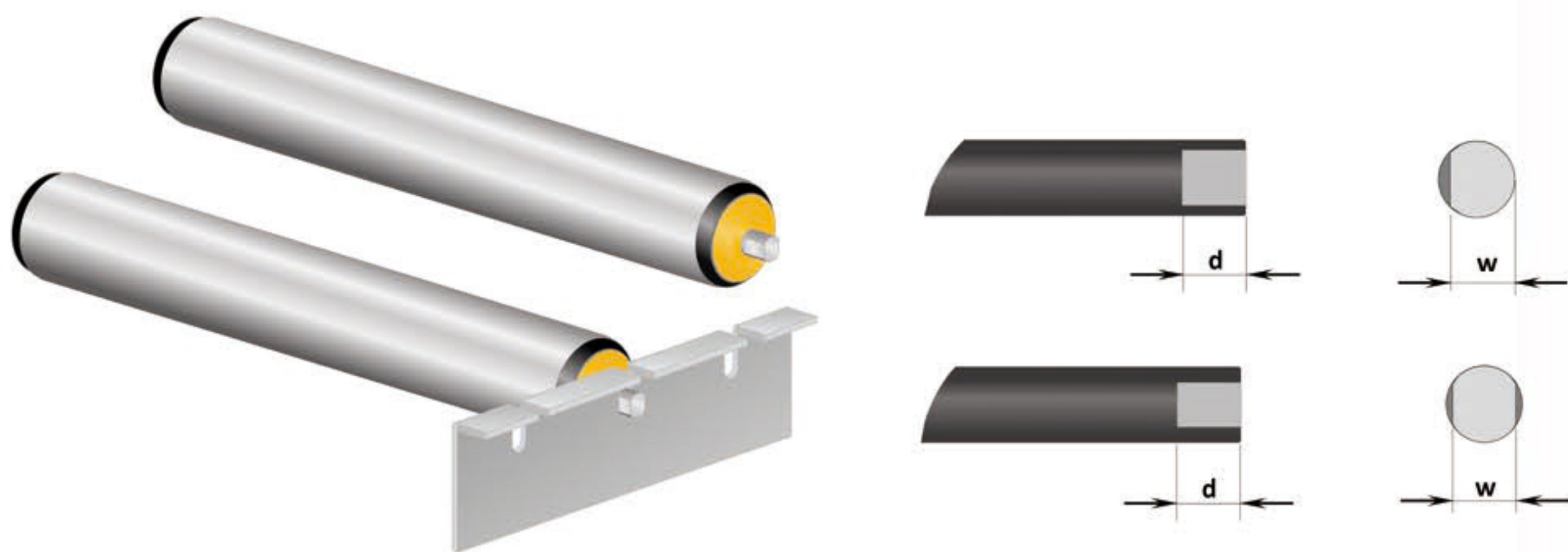
- ⦿ The most common approach of mounting rollers on conveyors.
- ⦿ Mounting and dismantling are faster and more convenient.
- ⦿ Shaft-push is not recommended for heavy duty application.

※ 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

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

Precision ball bearings

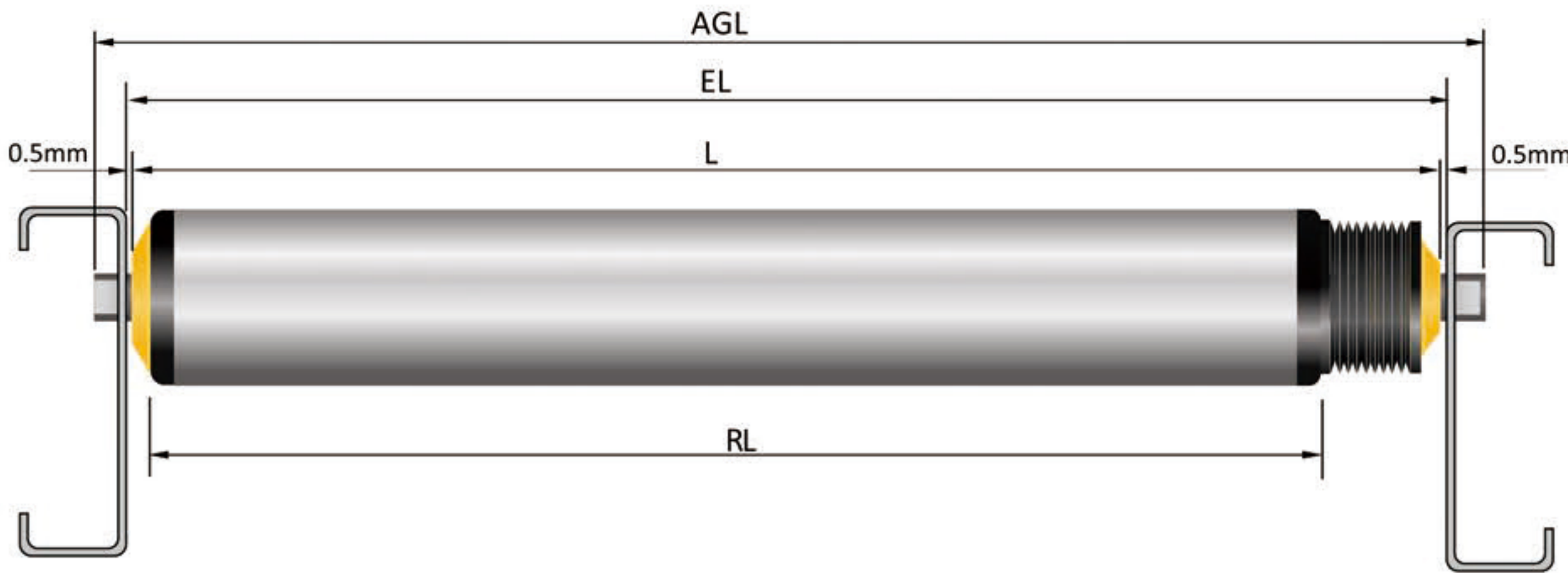
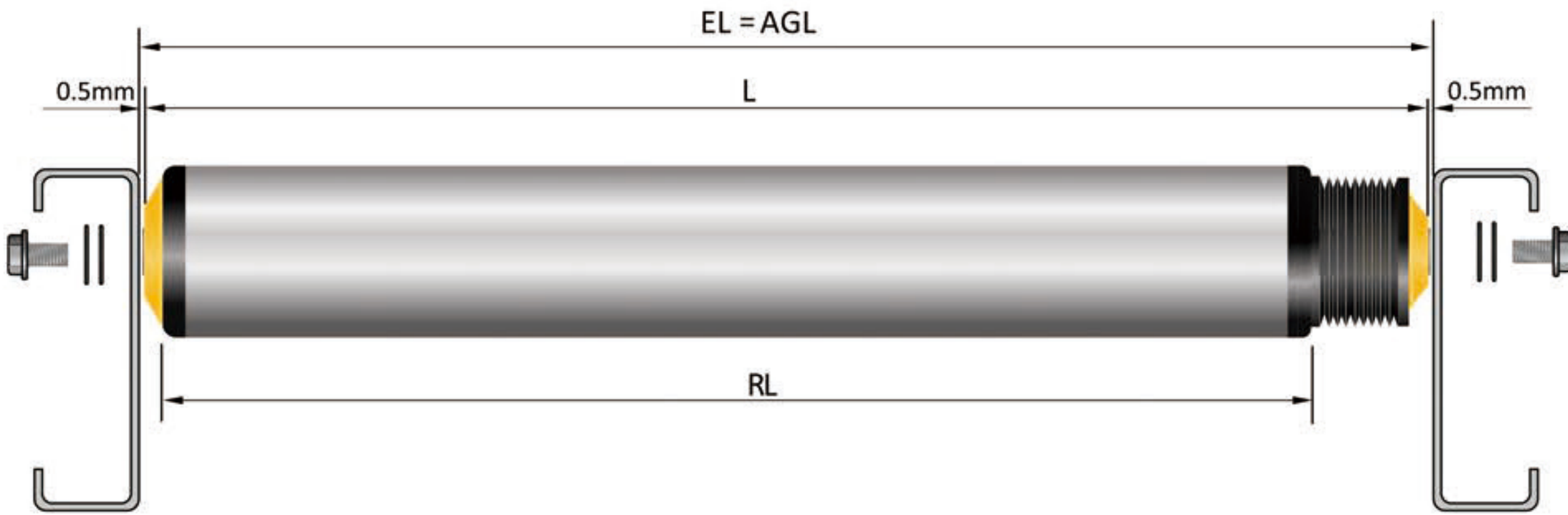
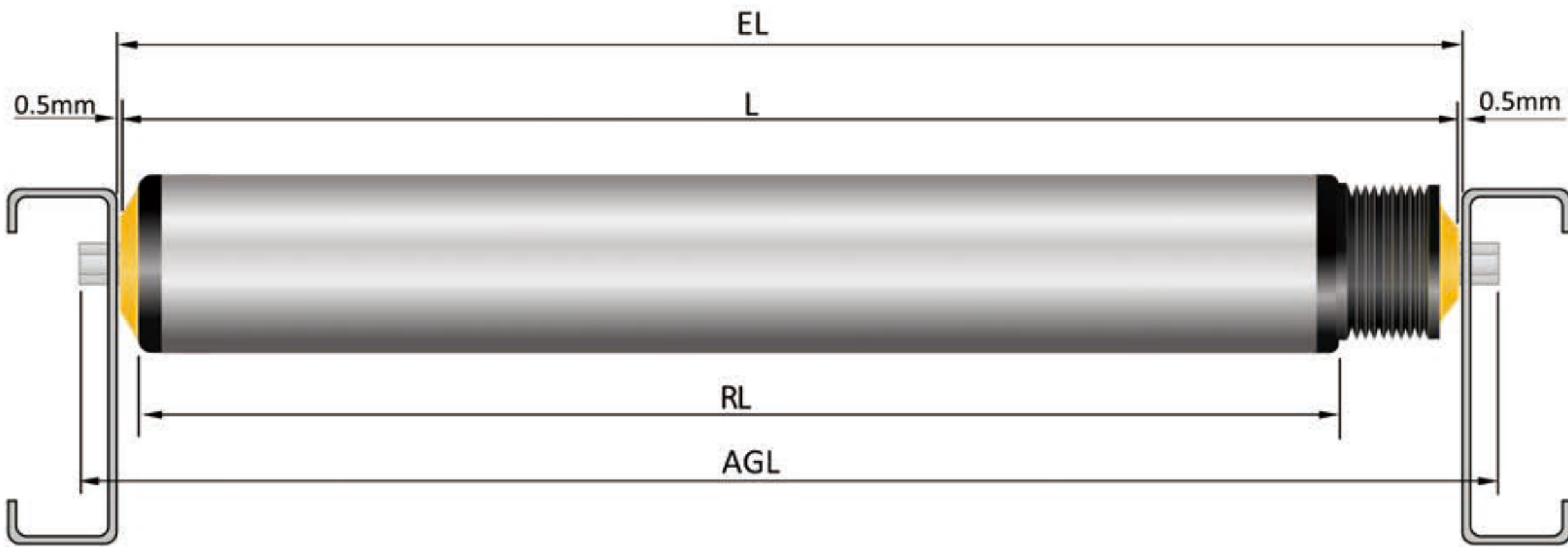


Features

- 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.

		Shaft/Installation method												Surface treatment											
Typology	Tube size	Driving method	Steel tube material		Shaft-push		Inner thread				Fixed shaft				Knurl	Flange	Shoulder sleeve POK	Tube covers							
			Galvanized steel tube	201 stainless steel	304 stainless steel	11HEX	Φ12 (M8*15)	Φ12 (M8*15)	Φ14 (M10*20)	Φ14 (M10*20)	Φ15 (M12*25)	Φ12	11HEX	Φ14				Φ15	Φ20	2mm PVC	5mm PVC	2mm PU	Conical sleeve		
Light	Φ50*1.5	Normal tube	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NA
		Double grooved normal tube	●	NA	●	●	●	●	●	●	NA	●	●	●	NA	●	●	●	●	●	●	●	●	●	●
		Plastics Poly-vee drive head	●	●	●	●	●	●	●	●	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	NA
		Round belt drive head	●	●	●	●	●	●	●	●	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	●
		Steel Poly-vee drive head	●	●	●	●	●	●	●	●	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	NA
Medium	Φ60*2.0	Steel timing belt drive head	NA	●	●	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NA
		Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Normal tube	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Stainless steel sprocket drive head	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heavy	Φ76*3.0	Normal tube	●	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Stainless steel sprocket drive head	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Normal tube	●	NA	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Steel sprocket drive head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●:be applicable NA: Not recommended -: Not applicable																									

● :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



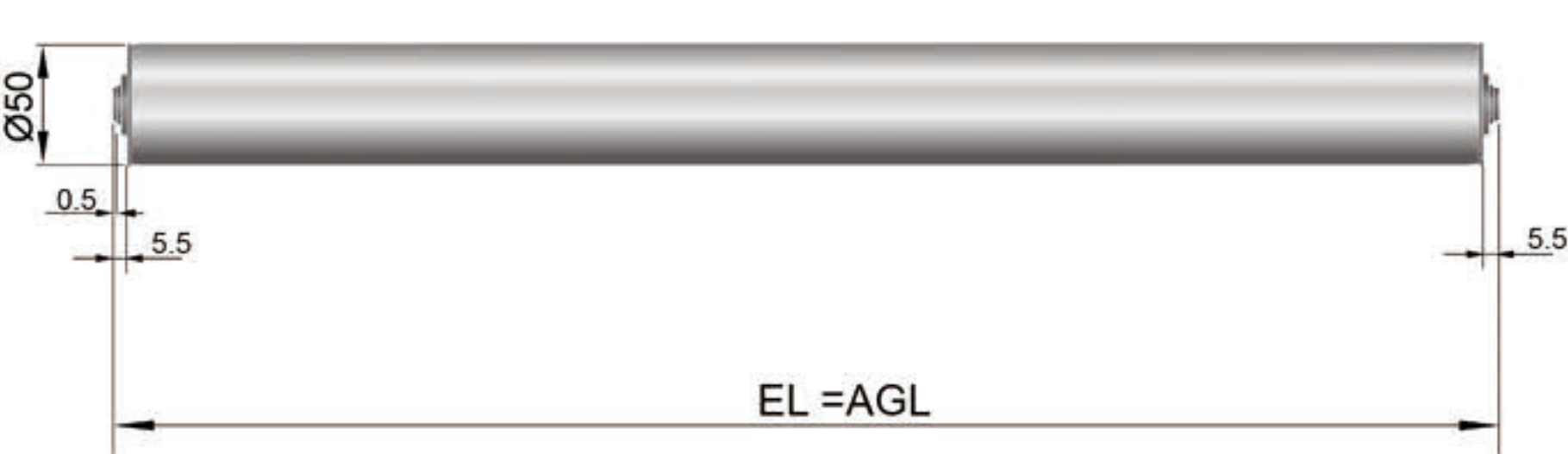
Steel tube material	No drive end caps	Shaft size
Steel to be galvanized	Steel	Ø12
201 stainless steel		
304 stainless steel		

※ 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		

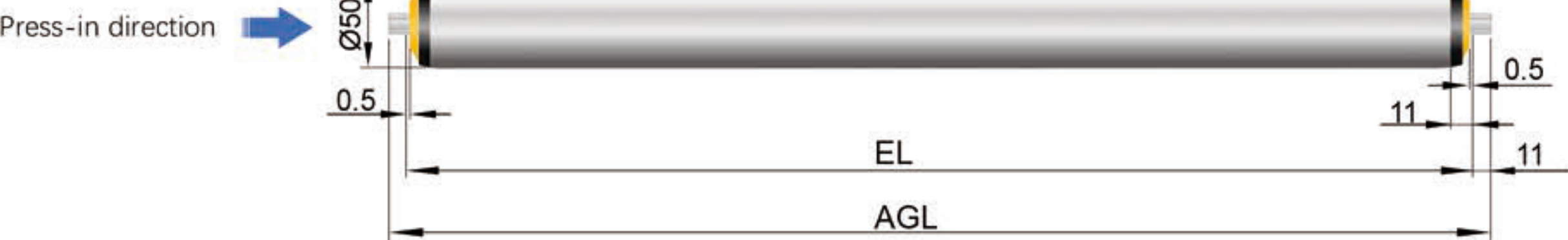
※ 50 Gravity roller Inner thread



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	

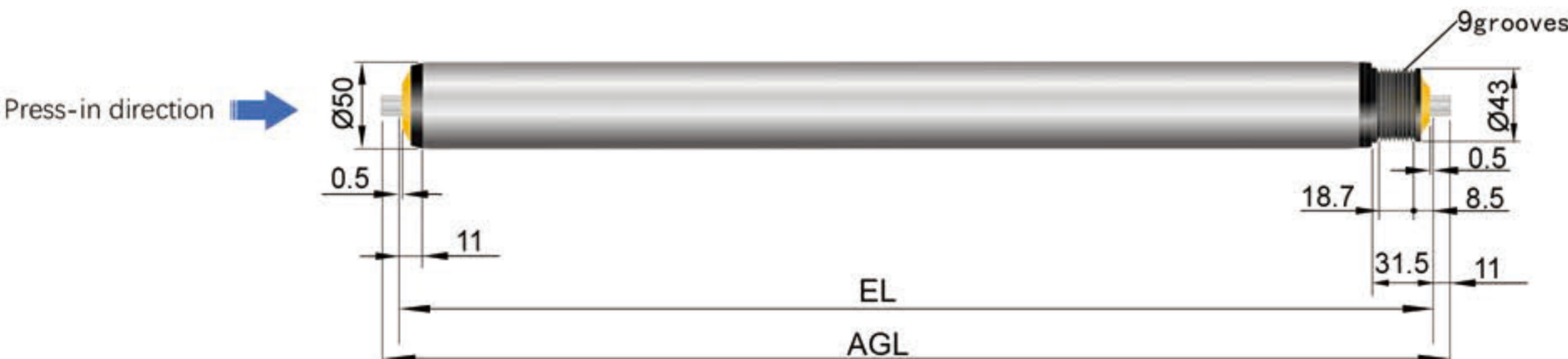
※ Steel Poly-vee slave roller Inner thread



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	

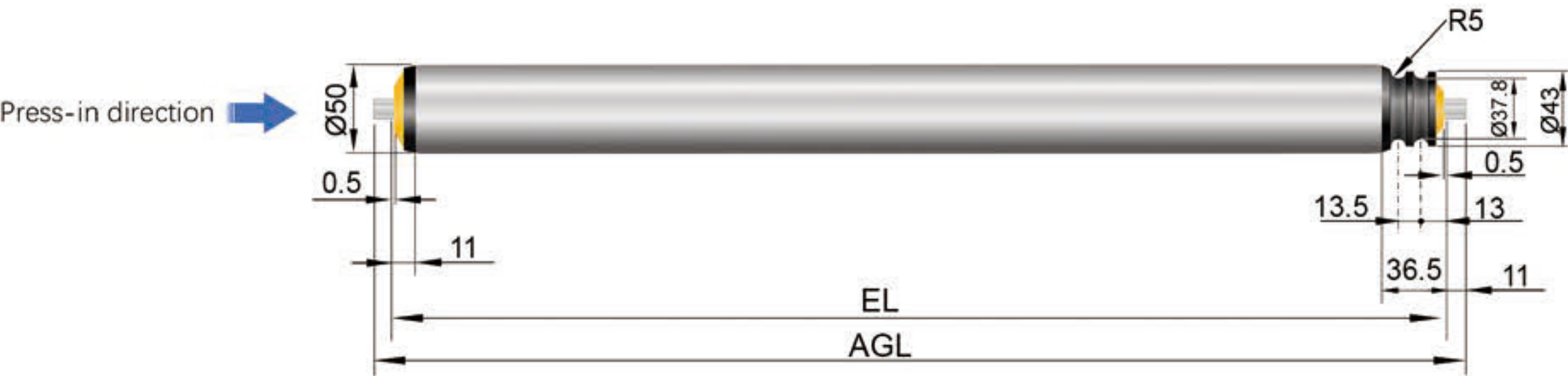
※ Round belt slave roller Inner thread



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

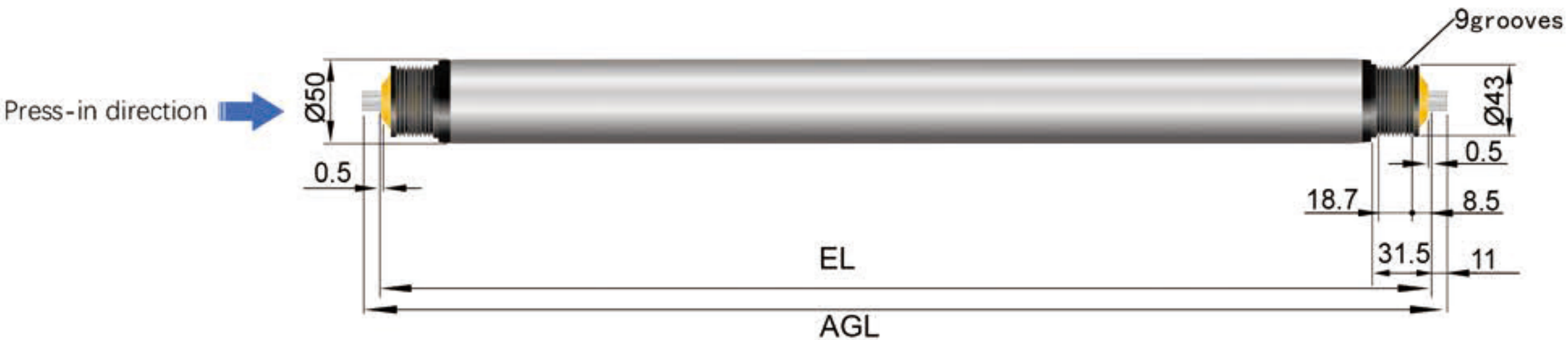
Steel to be galvanized
201 stainless steel
304 stainless steel

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

Shaft size

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	201 stainless steel 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	201 stainless steel 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	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	Plastics	Φ12
	Carbon Steel Blackening	201 stainless steel 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	201 stainless steel 304 stainless steel		

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



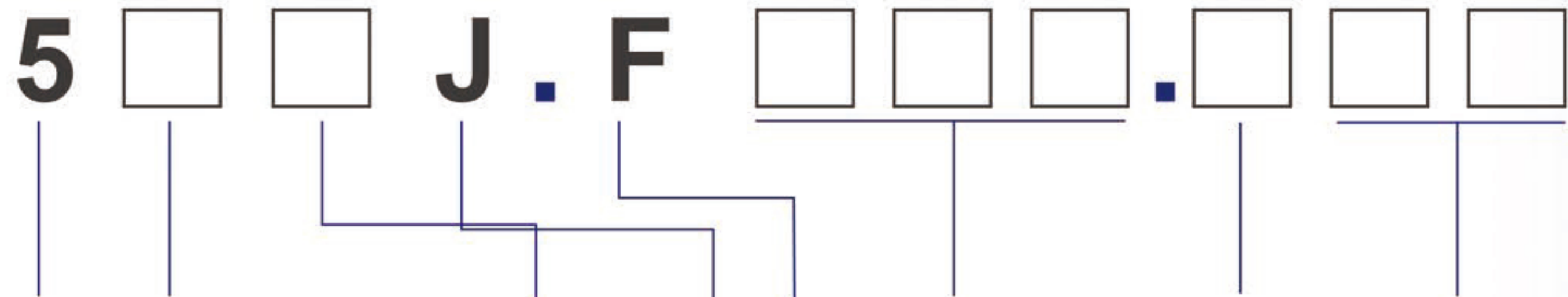
Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Plastics	Φ12
	Carbon Steel Blackening	201 stainless steel 304 stainless steel		Φ14

※ 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	201 stainless steel 304 stainless steel		

Coding Rules



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

- 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	Ø15
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	Ø15
	Carbon Steel Blackening	201 stainless steel		
		304 stainless steel		

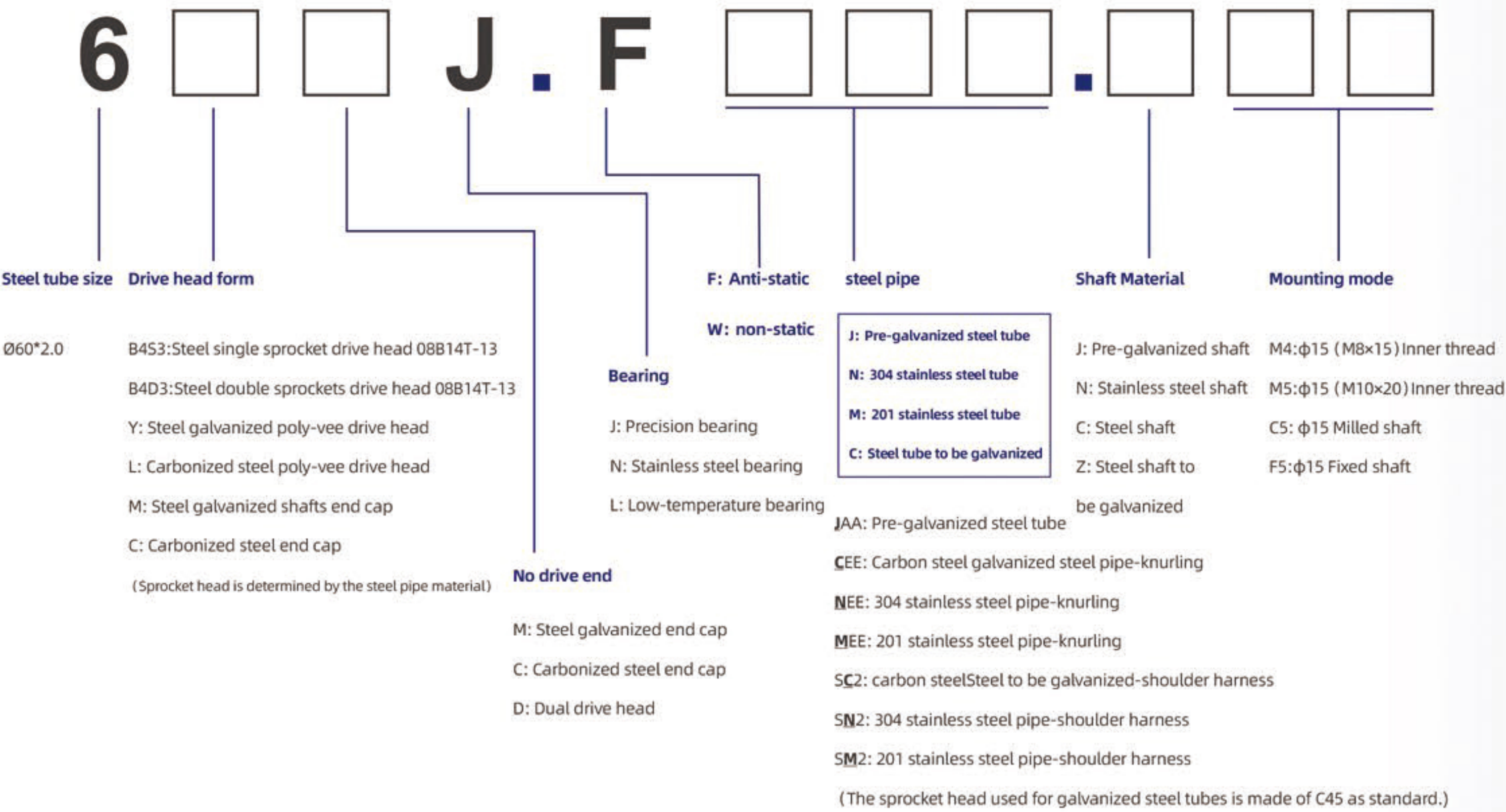
※ Steel double sprockets slave roller (08B14T-13) Inner thread



Sprocket head specifications	Sprocket head surface treatment	Steel tube material	End cap	Shaft size
08B14T	Carbon Steel Galvanized	Steel to be galvanized	Steel	Ø15
	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

7 [] [] J . F [] [] [] [] [] []

Steel tube size Drive head form Bearing F: Anti-static steel pipe Shaft Material Mounting mode

$\varnothing 76 \times 3.0$ A3S2: Steel single sprocket drive head 10A13T-8.5
A3D2: Steel double sprockets drive head 10A13T-8.5
M: Steel galvanized shafts end cap
C: Carbonized steel end cap
(Sprocket head is determined by the steel pipe material)

J: Precision bearing W: non-static
N: Stainless steel bearing
L: Low-temperature bearing

No drive end

M: Steel galvanized end cap
C: Carbonized steel end cap
D: Dual drive head

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
SC2: Carbon steel galvanized steel pipe-shoulder harness
SN2: 304 stainless steel pipe-shoulder harness
SM2: 201 stainless steel pipe-shoulder harness
FC2: Carbon steel galvanized steel pipe-flanged
FN2: 304 stainless steel pipe-flanged
FM2: 201 stainless steel pipe-flanged
(Galvanized pipe only for non-driven heads)

J: Pre-galvanized shaft M6- $\varnothing 20$ (M12 $\times$ 25) Inner thread
N: Stainless steel shaft
C: Steel shaft
Z: Steel shaft to be galvanized

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)

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 11HEX	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

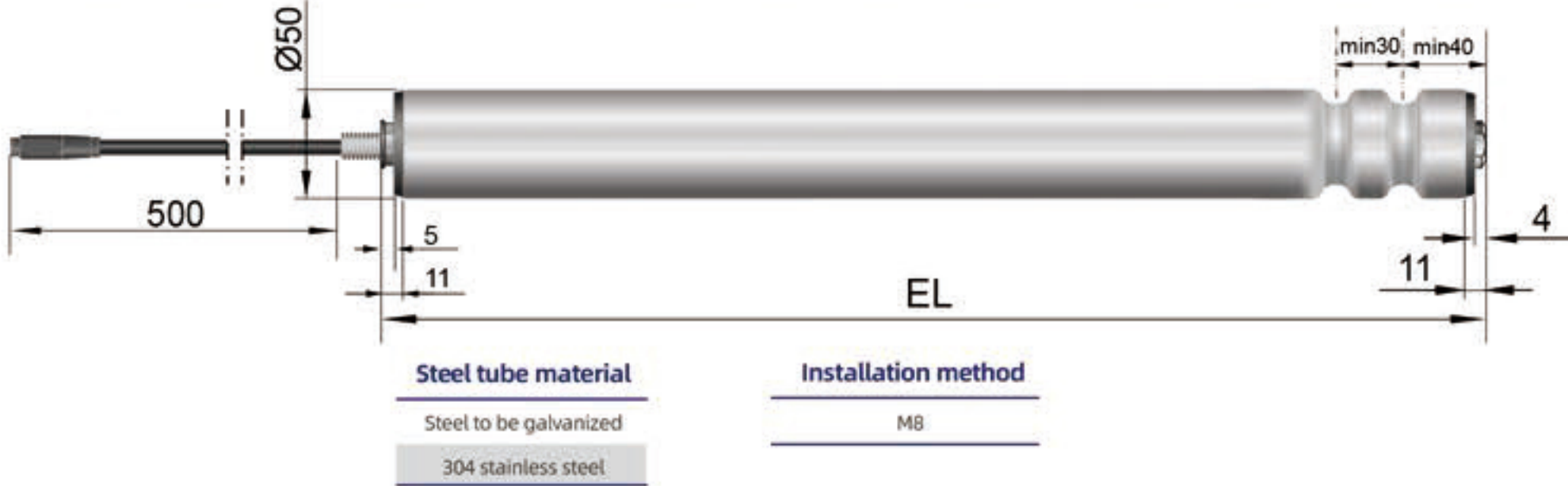
✖ Normal Tube Inner thread



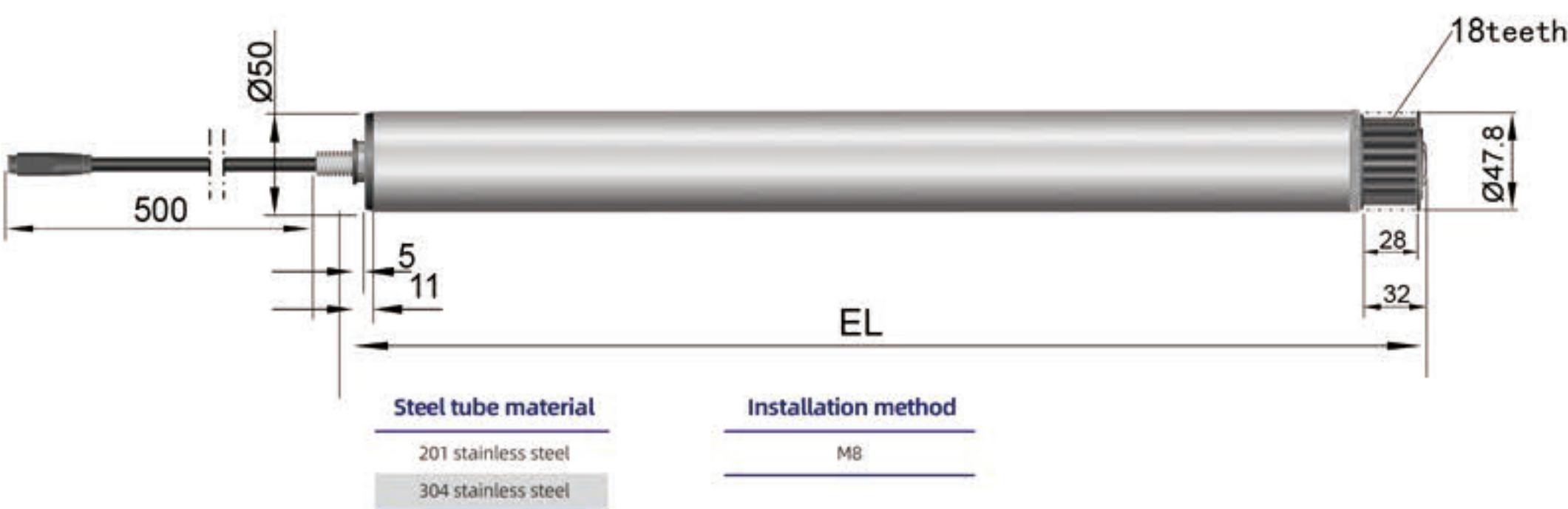
✖ Normal Tube Shaft-push



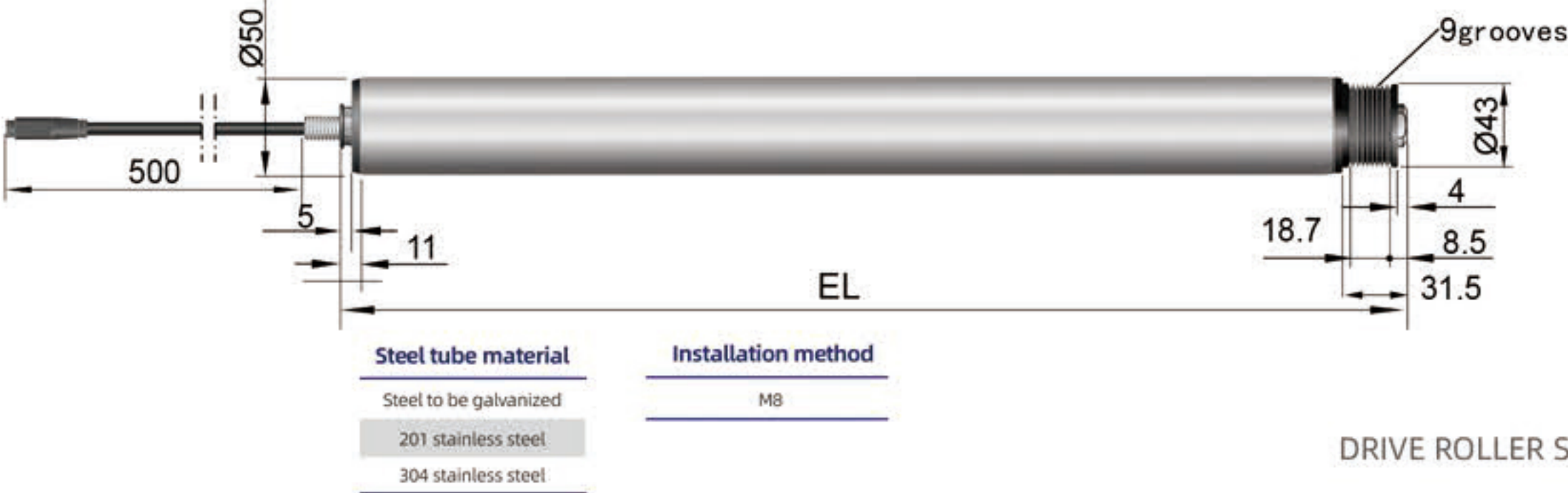
✖ Double groove drive head Inner thread



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



✖ Plastics Poly-vee drive head Inner thread



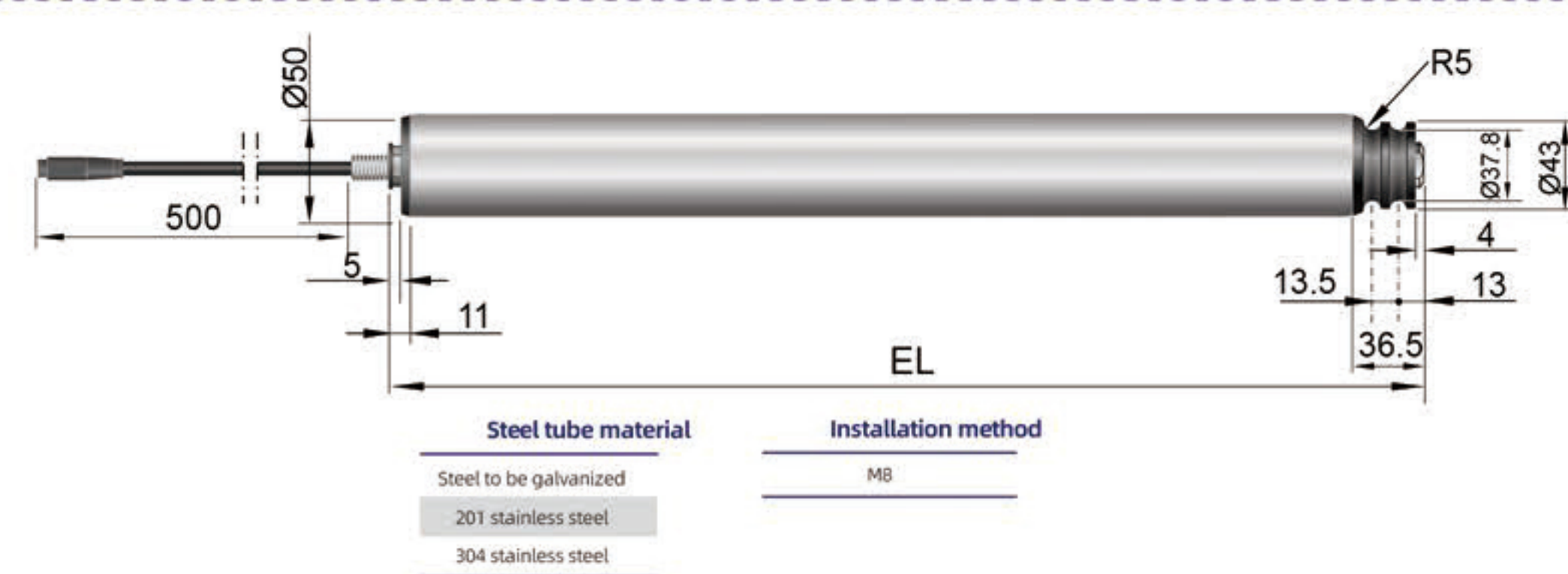
※ Steel Poly-vee drive head Inner thread



※ Plastics Poly-vee drive head Shaft-push



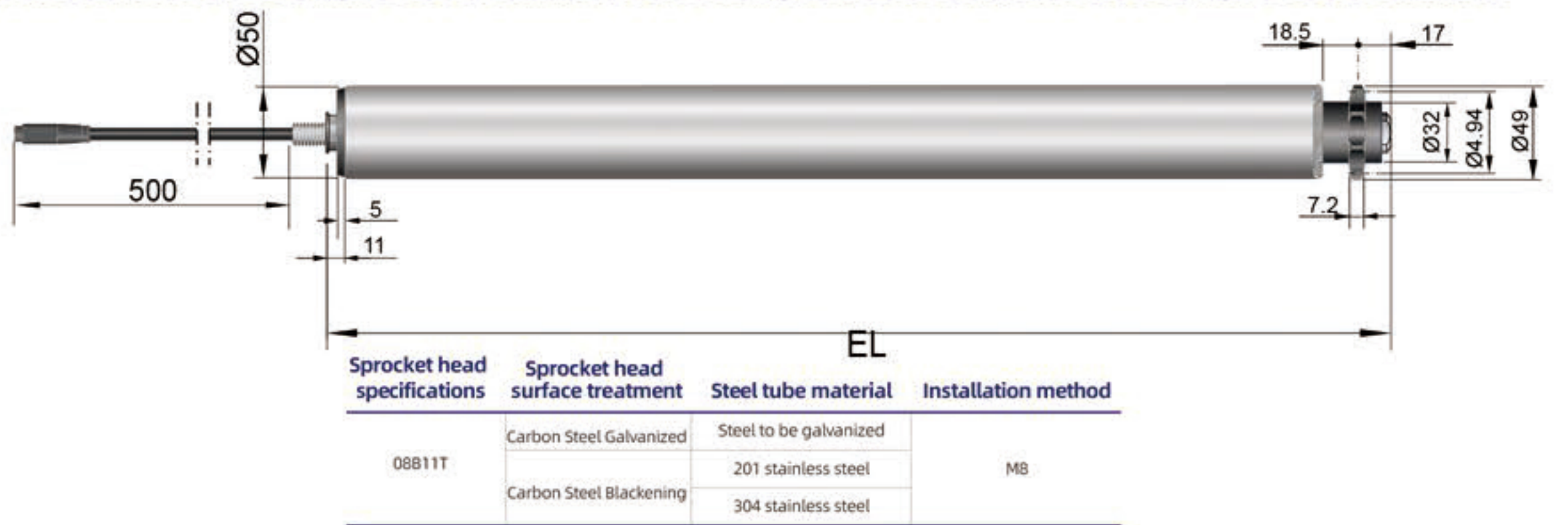
※ Round belt drive head Inner thread



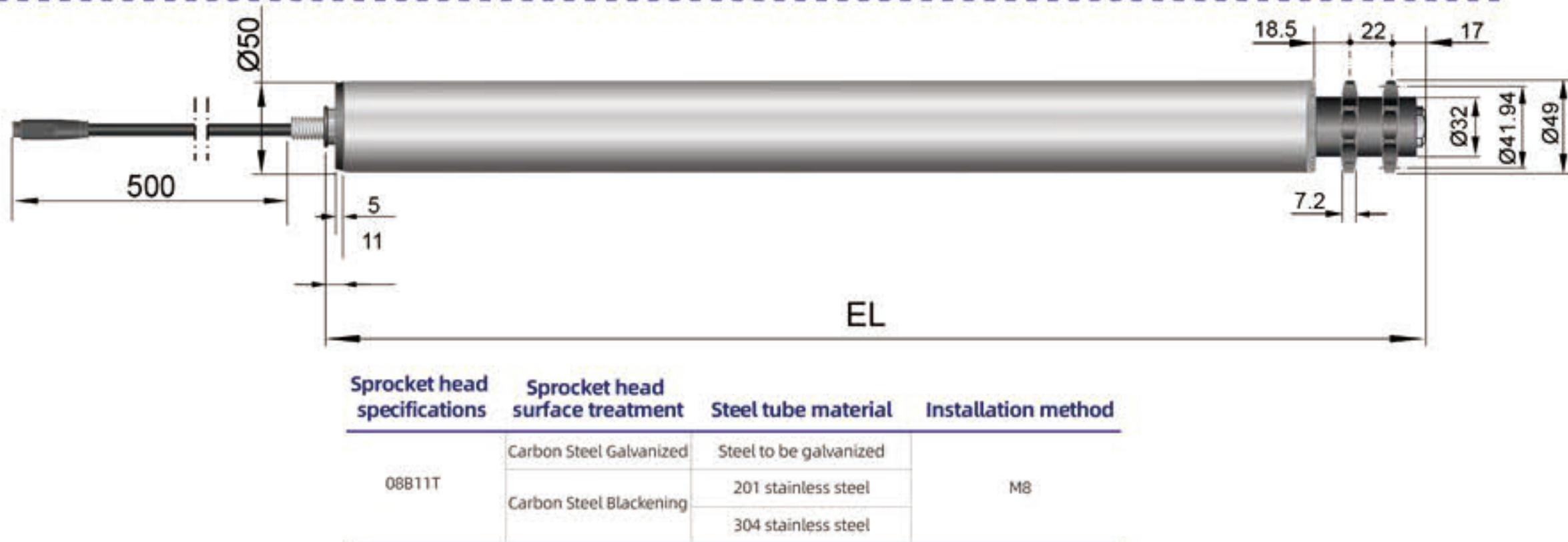
※ Round belt drive head Shaft-push



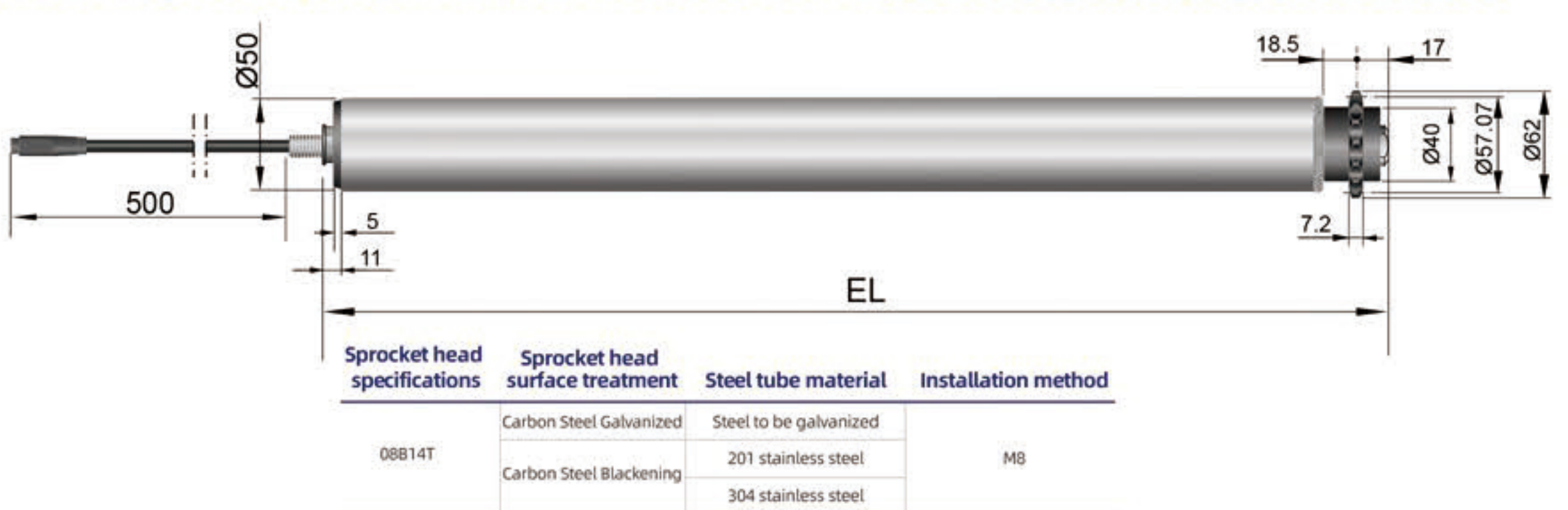
※ Steel single sprocket drive head 08B11T-13 Inner thread



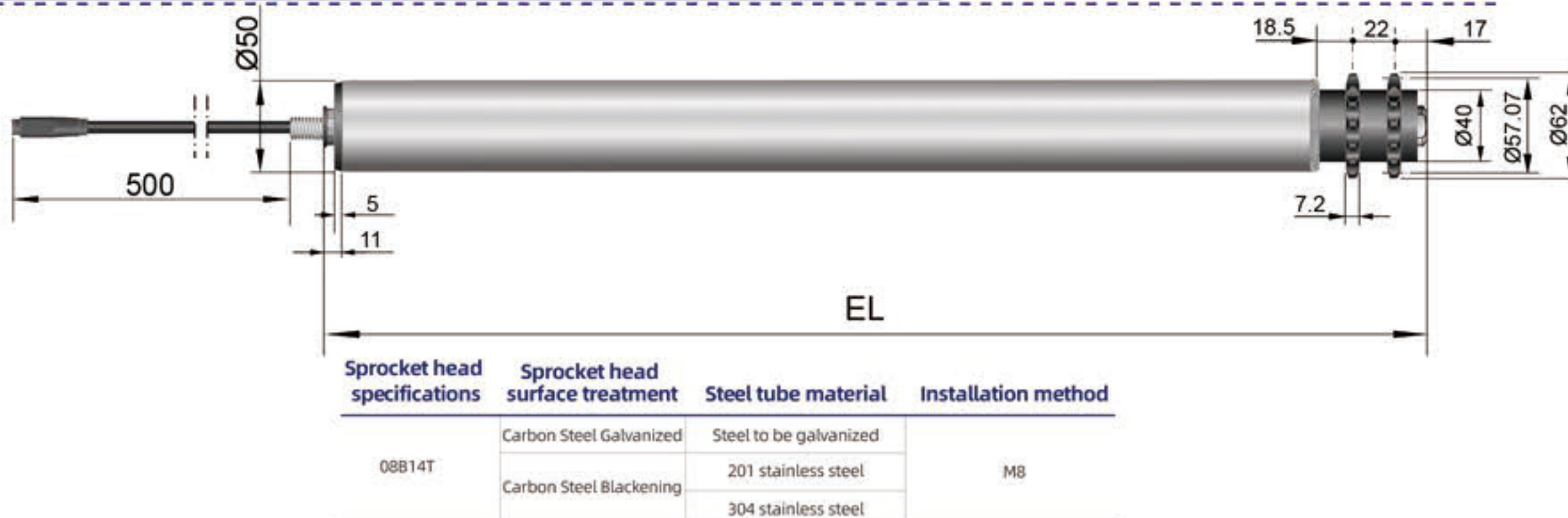
※ Steel double sprockets drive head 08B11T-13 Inner thread



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



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



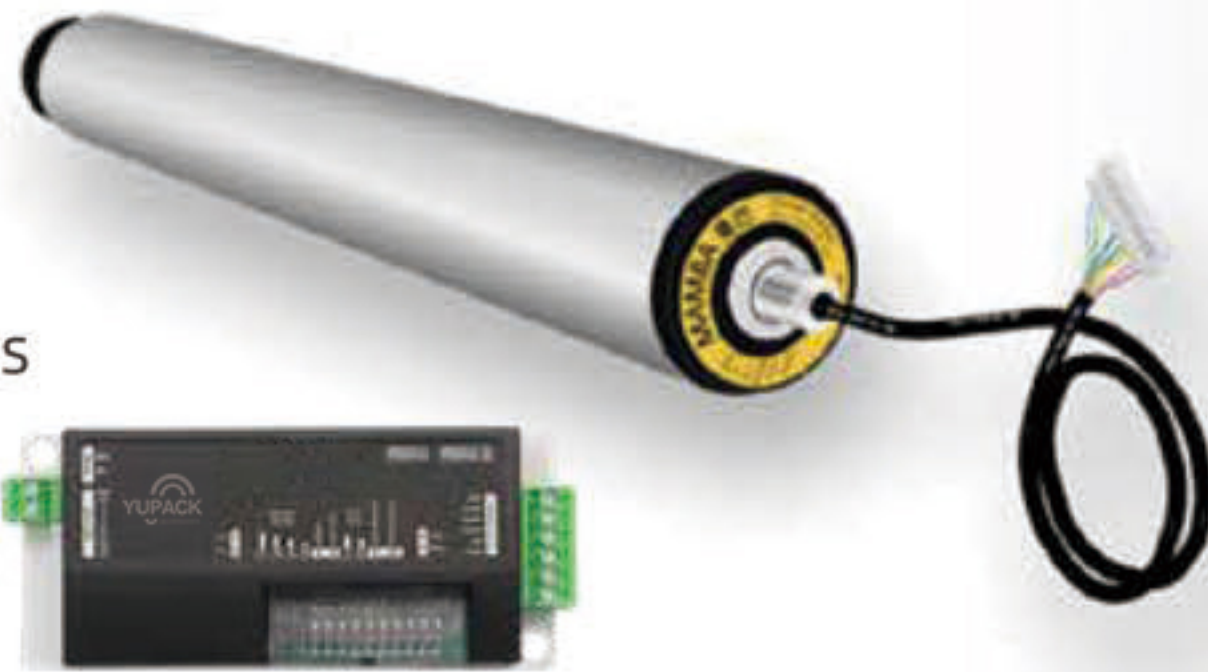
※ 所示尺寸图皆为最佳推荐参数尺寸

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

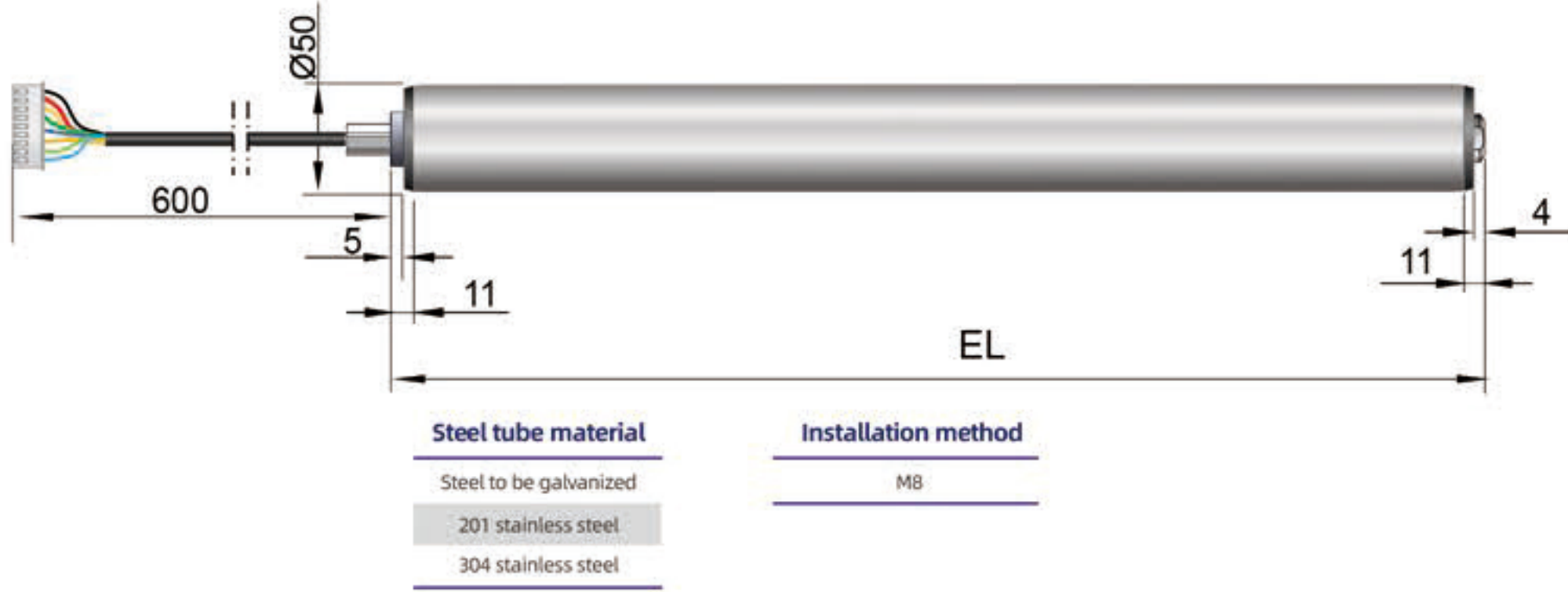
Typology	Tube size	Driving method	Voltage/Power					Steel tube material			Installation method		Surface treatment	
			24V/50W	24V/75W	48V/50W	48V/75W	48V/120W	Galvanized steel tube	201 stainless steel	304 stainless steel	Shaft-push T1HEX	Inner thread M8	Knurl	Shoulder sleeve POK
Light	Φ50*1.5	Normal tube	●	●	●	●	-	●	●	●	●	●	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	-	-	-	-	●	●	●	●	-	●	●	●

—: Not applicable

NA: Not recommended

●: be applicable

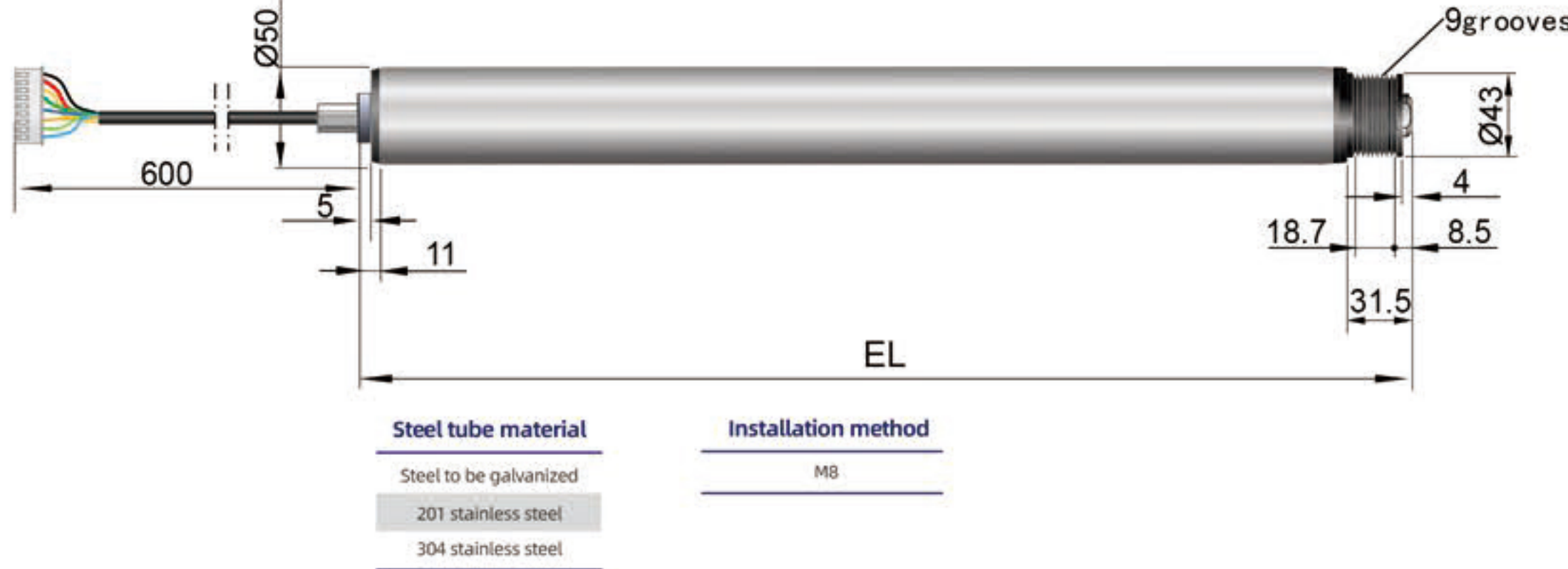
✦ Normal Tube Inner thread



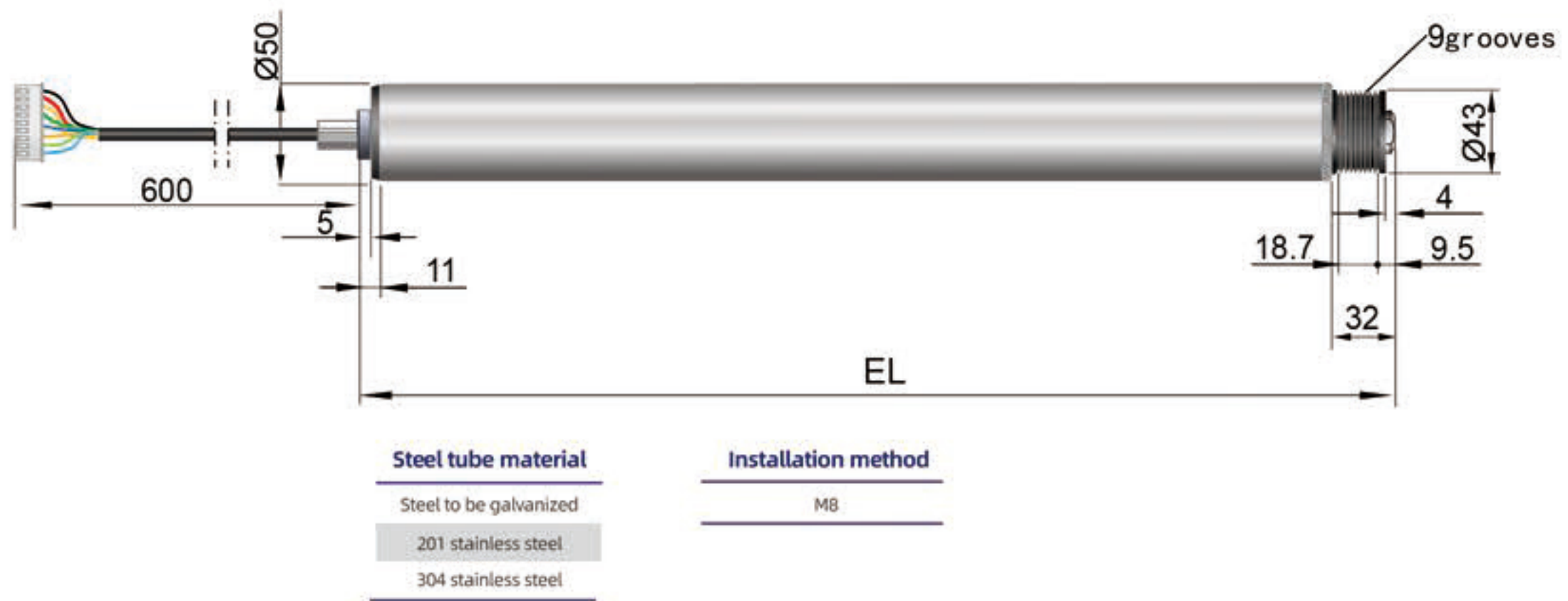
✦ Normal Tube Shaft-push



✦ 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



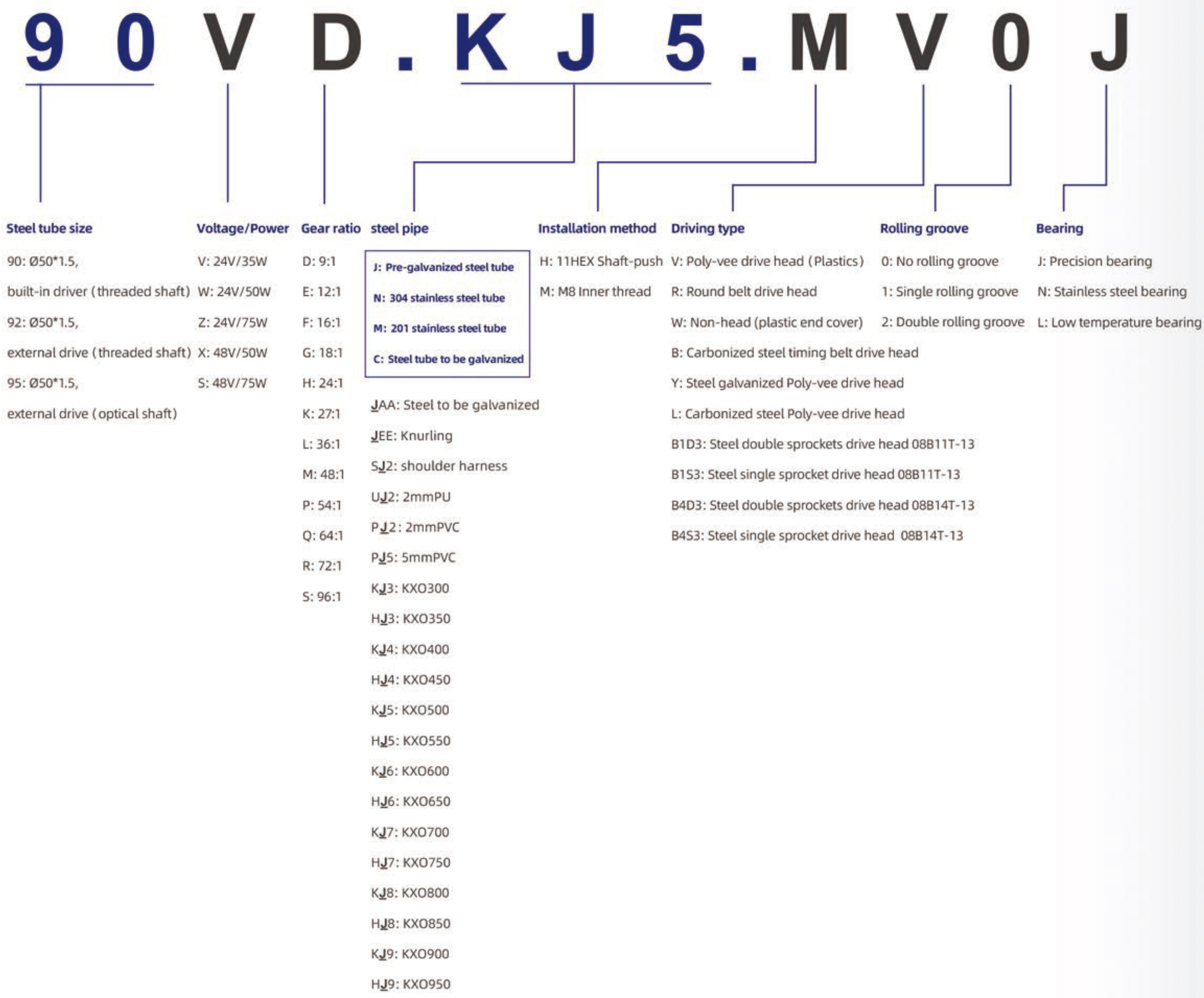
Sprocket head specifications	Sprocket head surface treatment	Steel tube material	Installation method
08B14T	Carbon Steel Galvanized	Steel to be galvanized	M8
	Carbon Steel Blackening	201 stainless steel	
		304 stainless steel	

※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

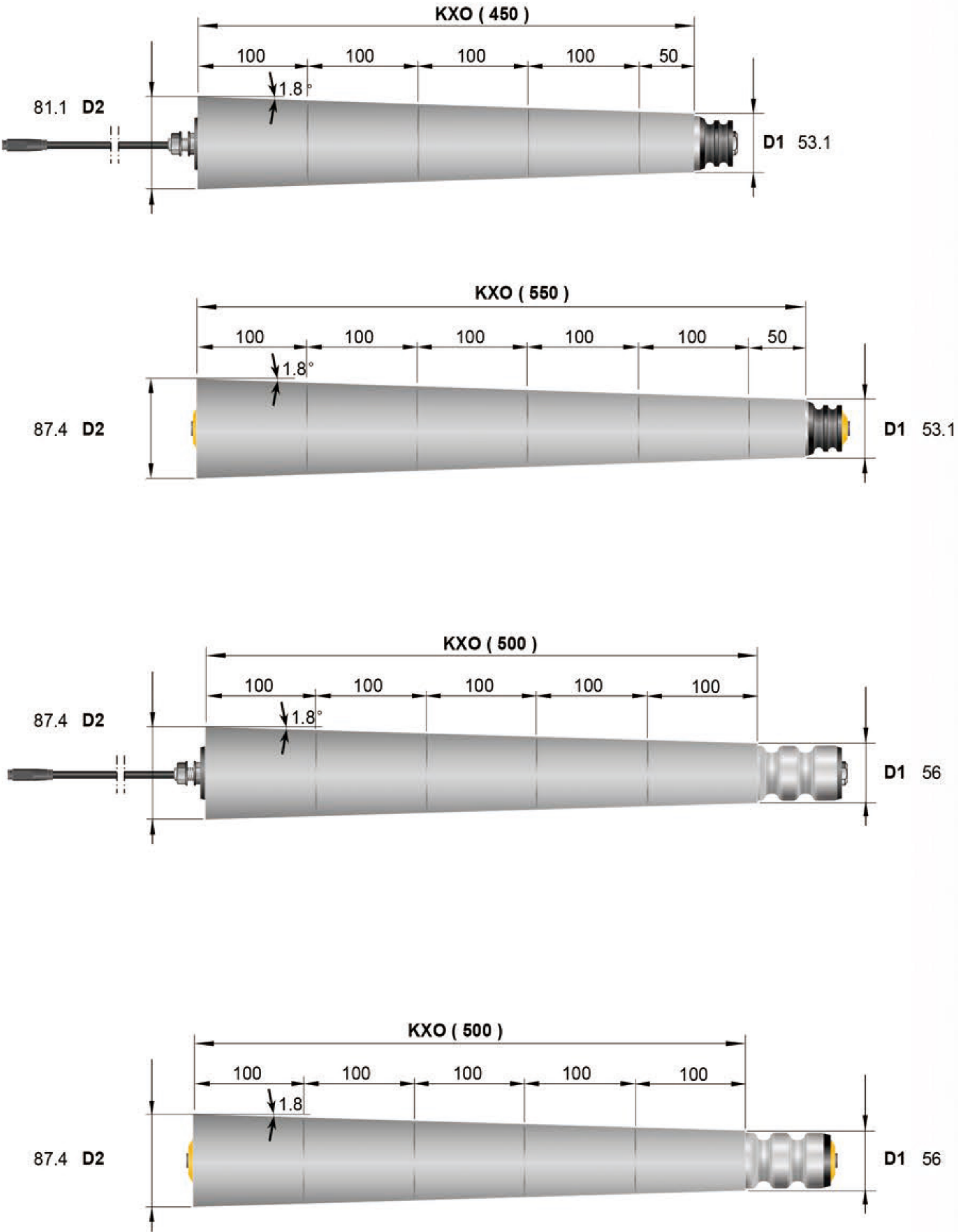
Class	Based on diameter (mm)	Taper	Transmission medium
Tapered roller	50	1.8°	Round belt

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.

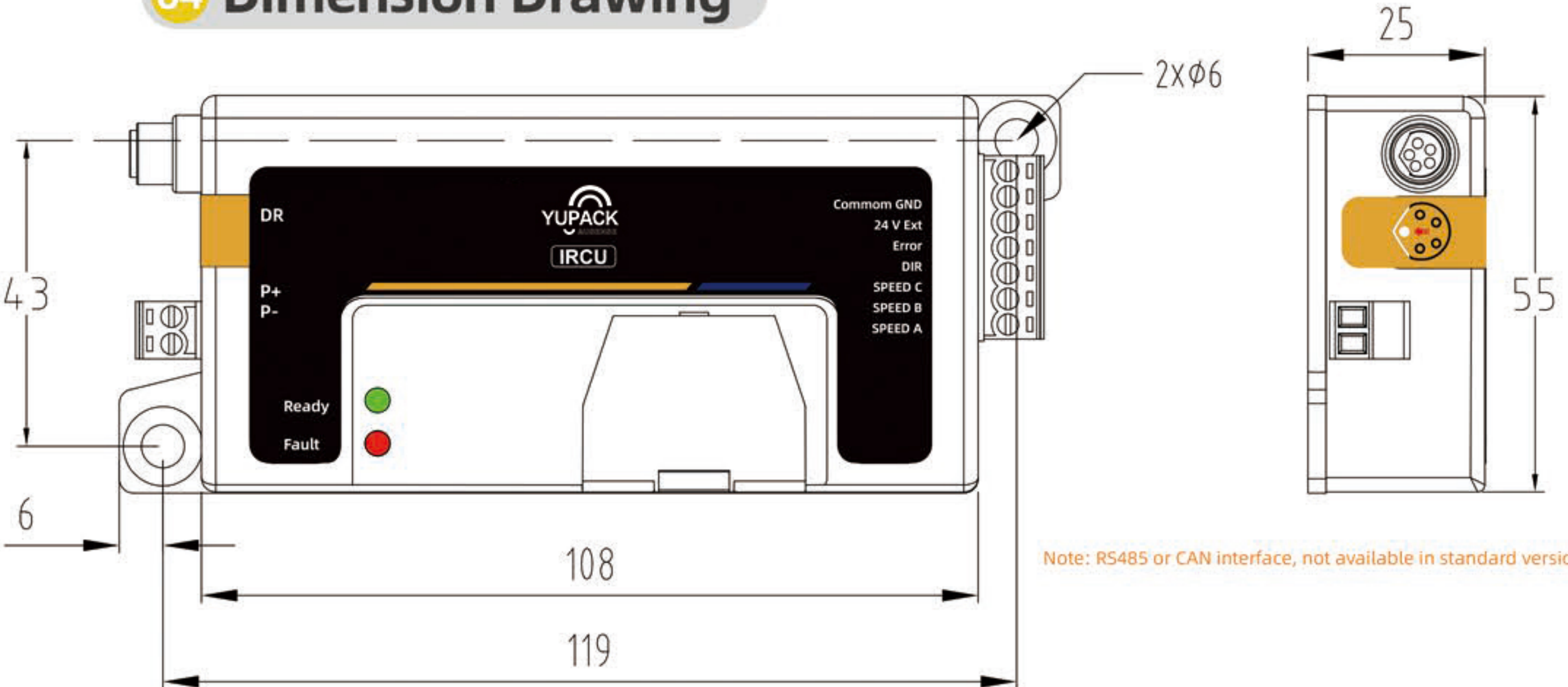
03 Technical Data

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

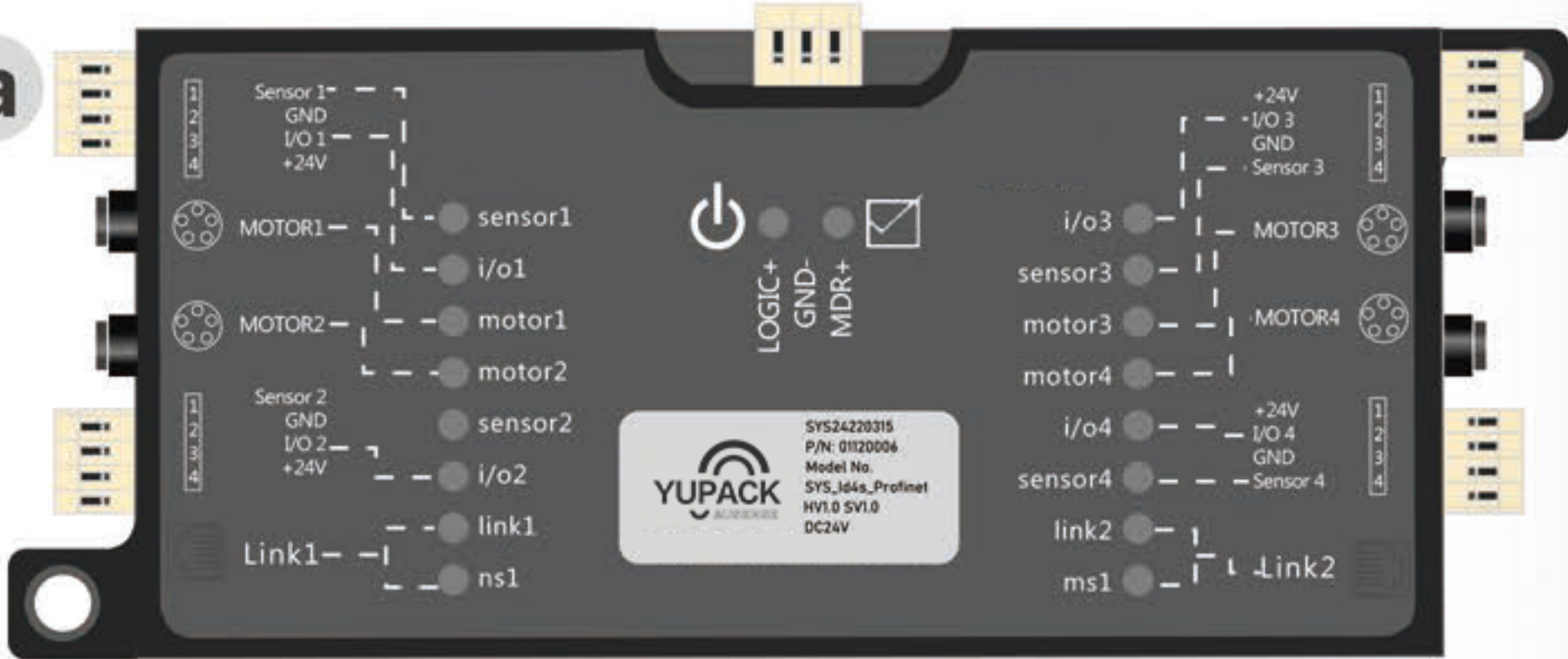
The control card supports multiple Mamba 90 in-drive drum motors and is adapted for Profinet bus control. The solution offers the advantages of low wiring and flexible expansion. It also meets the requirements of Industry 4.0 applications.

02 Main Function

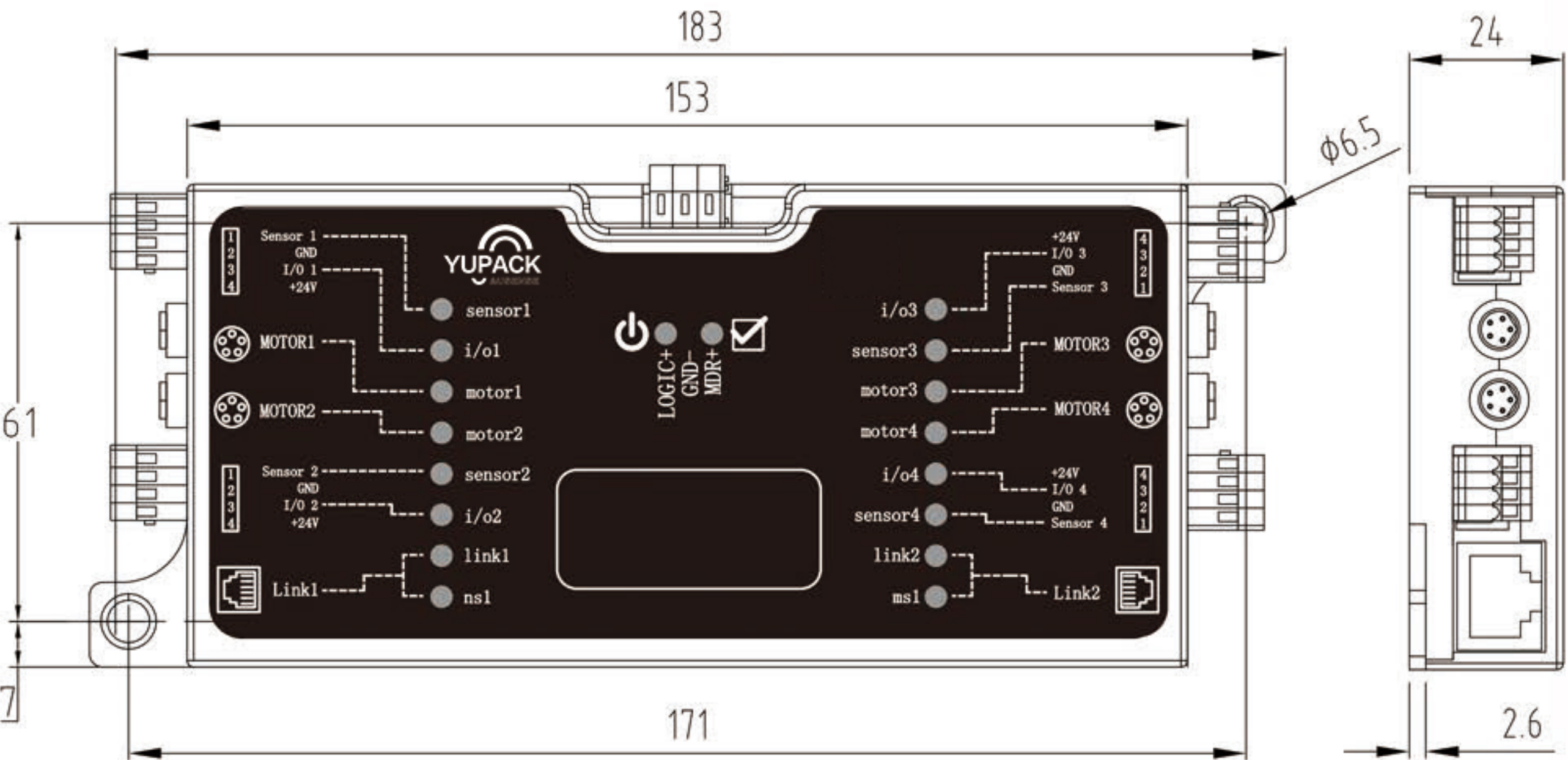
- ◇ The control power supply (DC 24V) and drive power supply (DC 24V) are separated, which enhances the reliability of the system.
- ◇ Multiple drums can be flexibly configured according to the actual application, and a single controller can connect up to 4 drums.
- ◇ Abundant status indications (controller, 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 Yupackroll'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

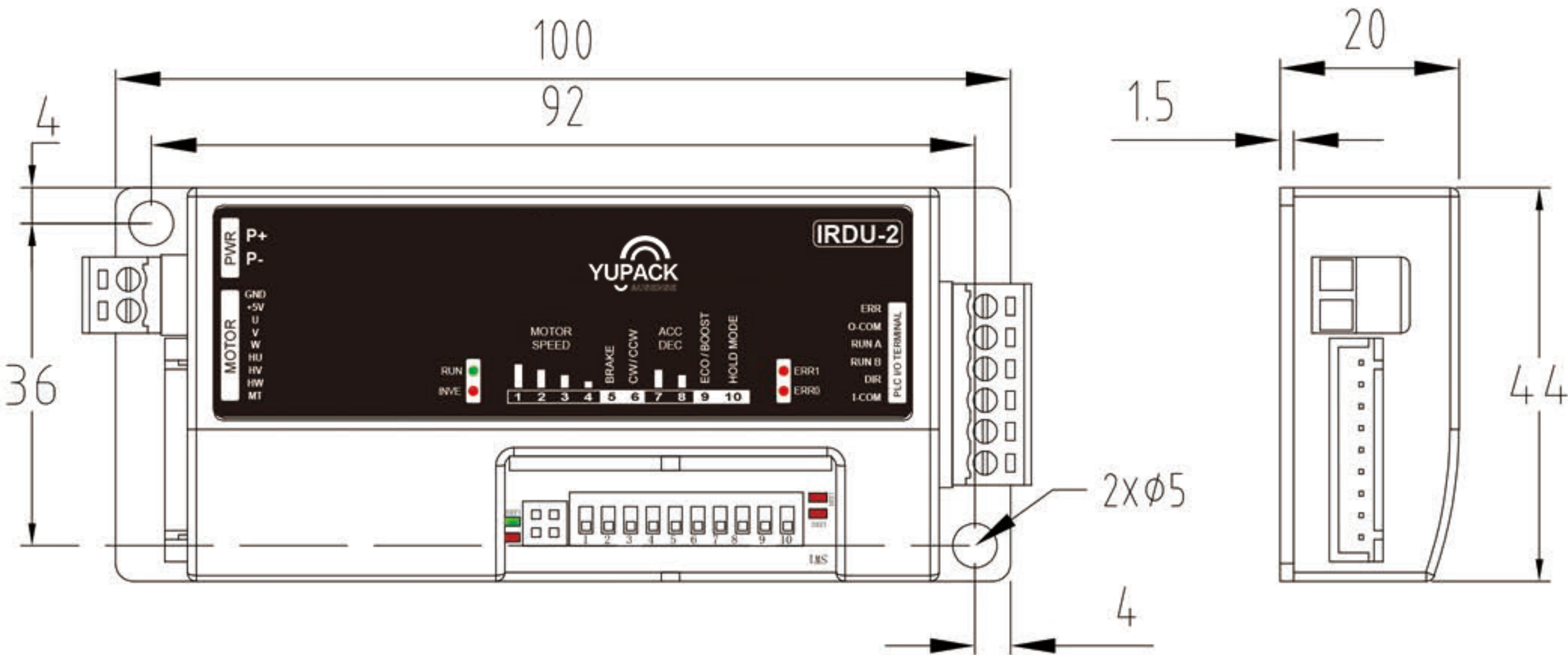
- ◇ Stop/start, forward/reverse rotation
- ◇ Dial code and remote PLC control
- ◇ Acceleration/deceleration adjustment
- ◇ Input/output interface mode: PNP/NPN compatible
- ◇ Optional stopping brake mode: winding short braking/free stopping
- ◇ Optional stopping brake mode: electronic stopping mode/neutral 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

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

04 Dimension Drawing



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).

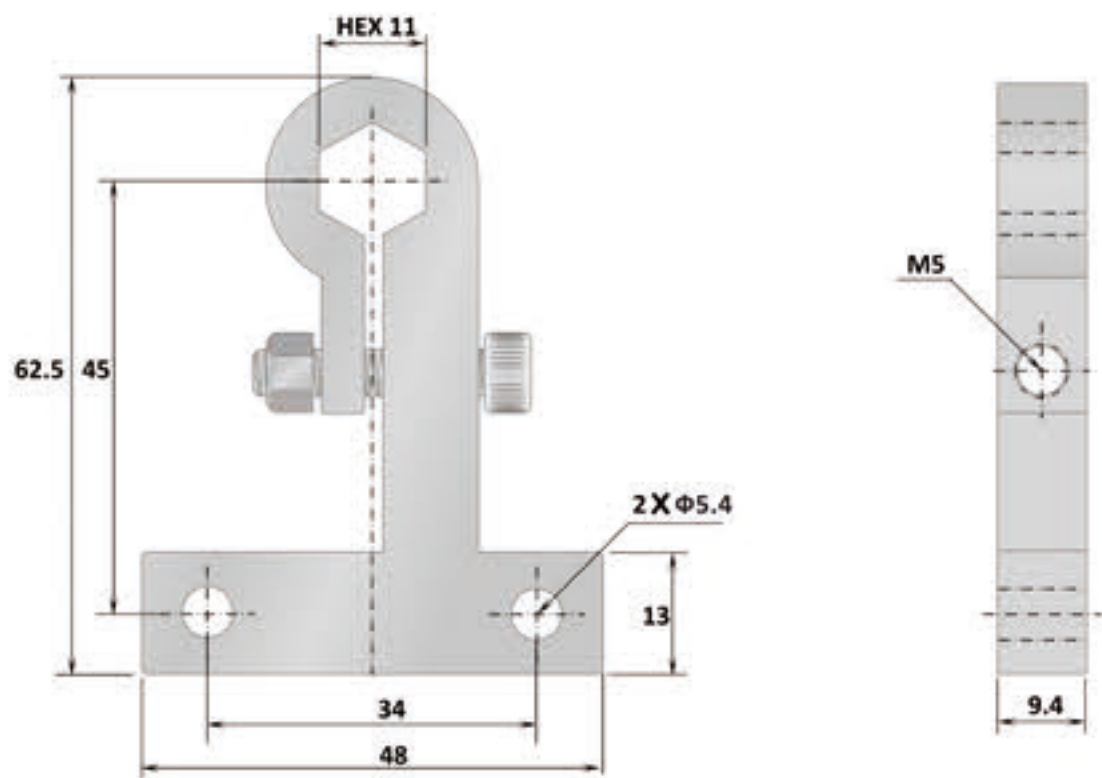
PJ Series Selection

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.

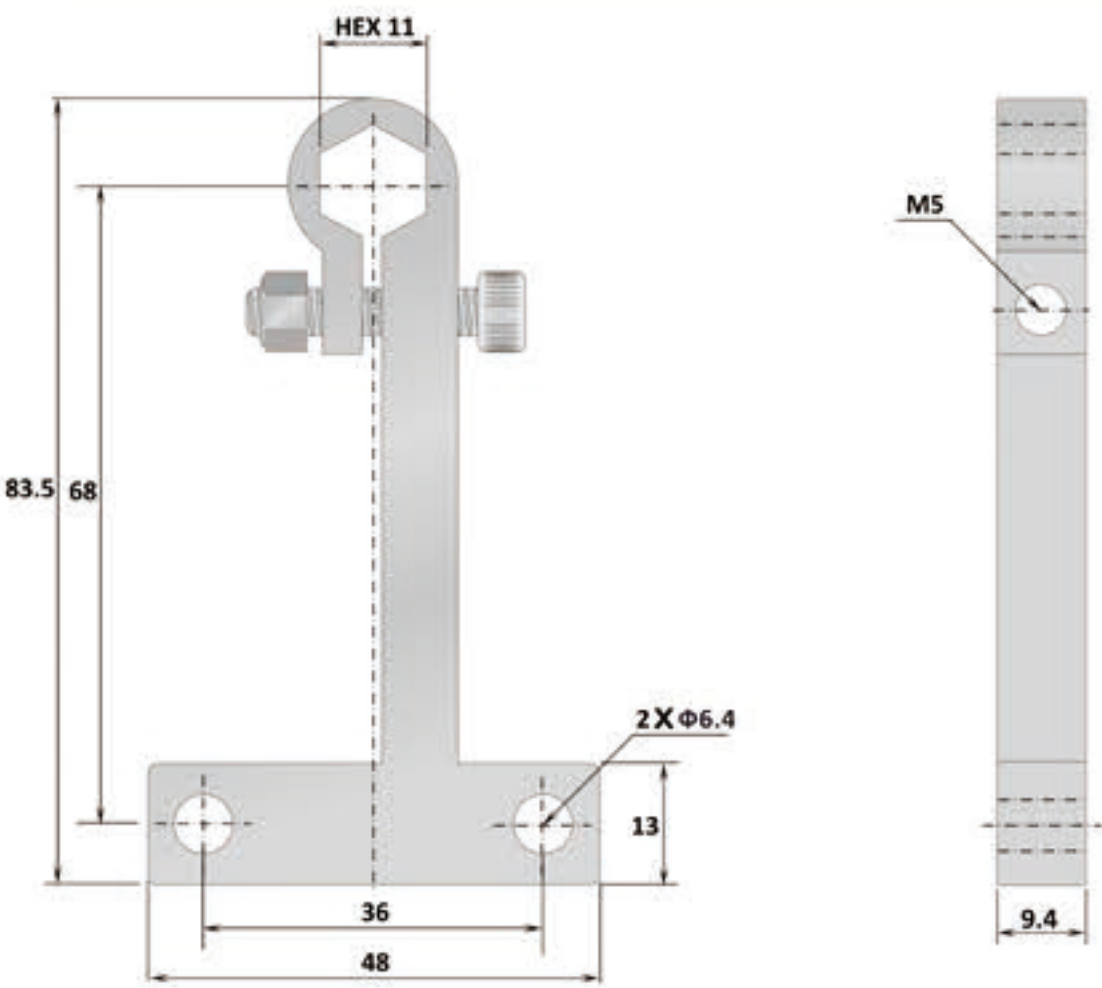
Mounting Brackets

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