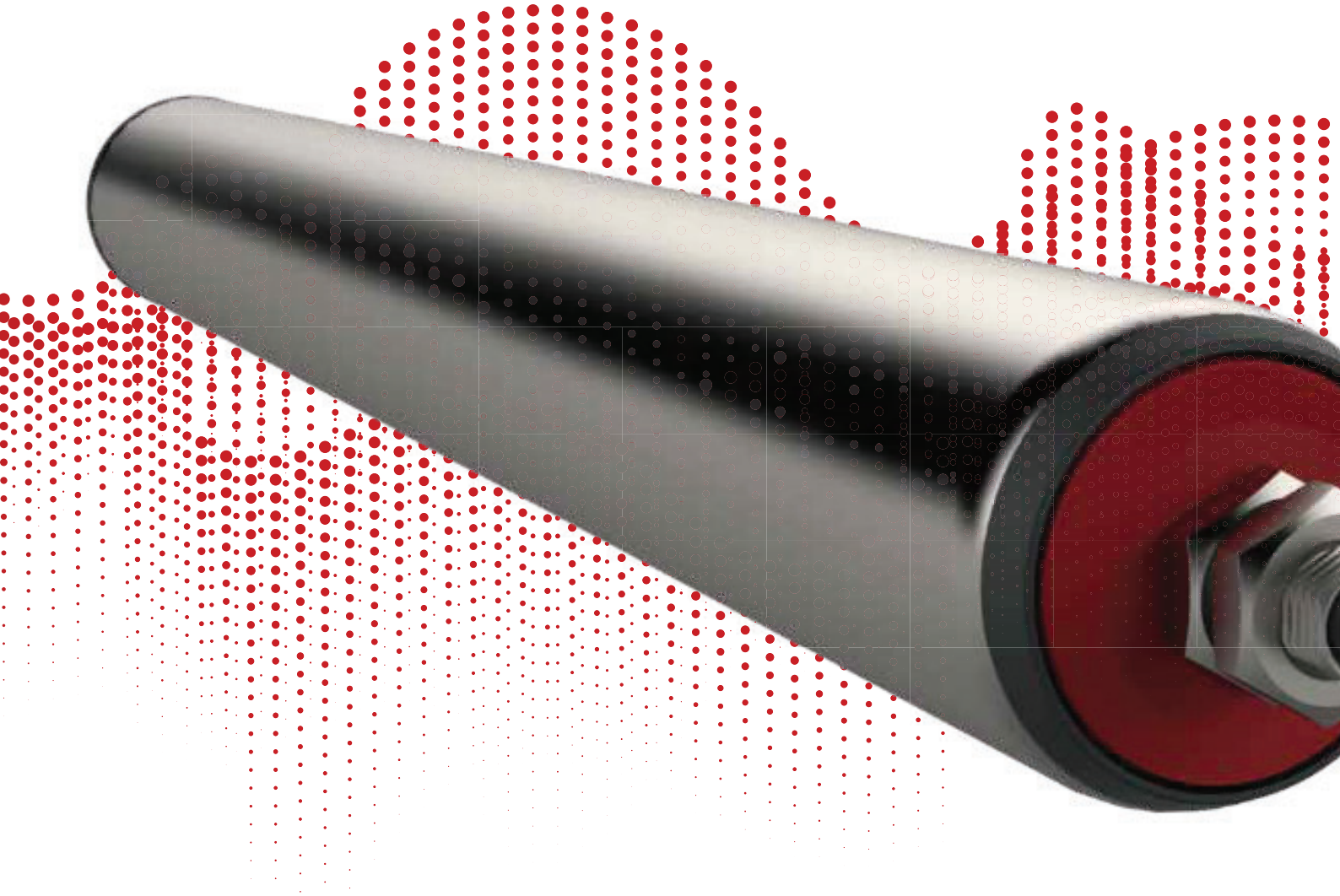
FinePower® | MTA™ innovation is our drive

CATALOG

Drum Motor DM050 D/G Sorter Motor Motor Controller



FINEPOWER TECHNOLOGY CO.,LTD

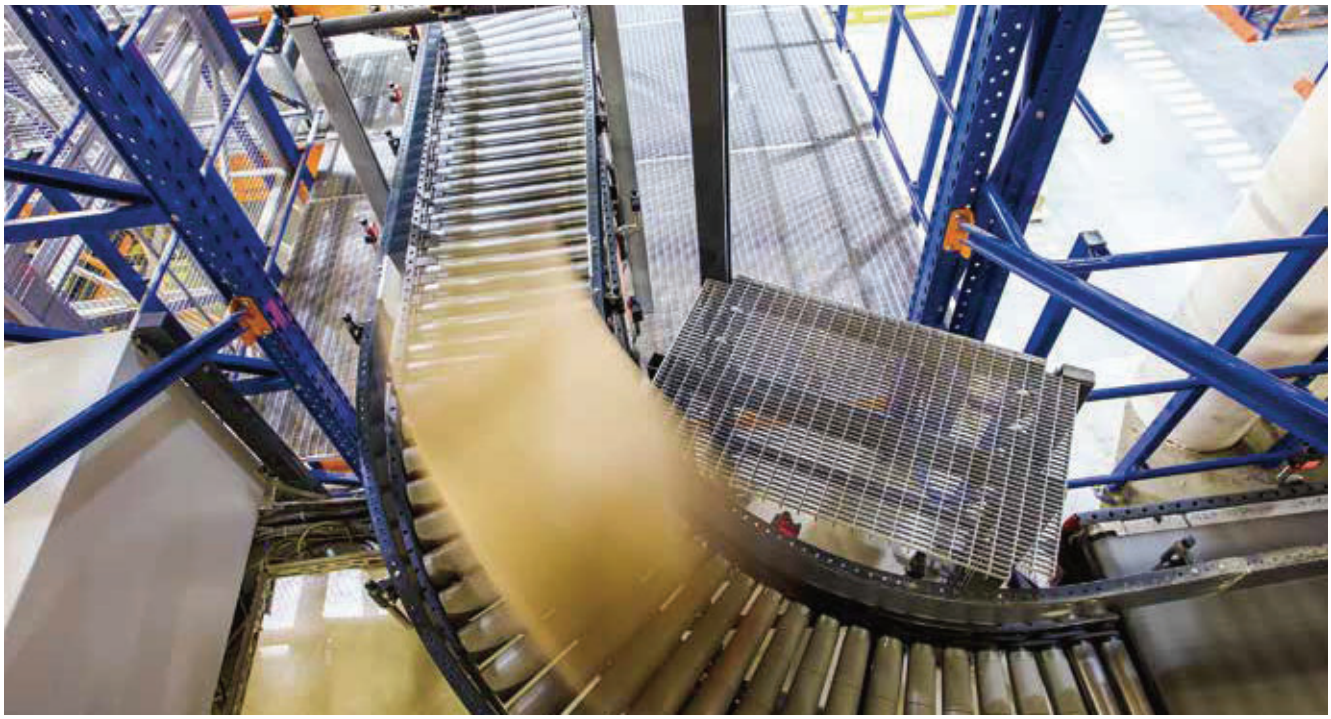
CATALOG

FinePower Technology Co.,Ltd.

COMPANY PROFILE

Joint venture,. based on the forefront of drive technology and applications, the company is committed to the research development and production of high-performance servo motors and intelligent logistics drive.

In 2019, FinePower reached a strategic cooperation with Austrian company MTA to introduce advanced technologies and processes to serve domestic logistic customers with better products and services.



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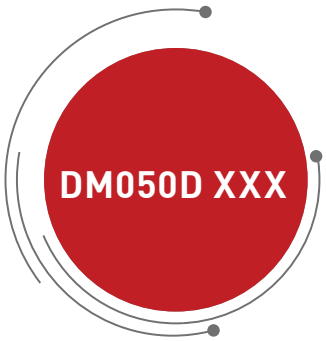
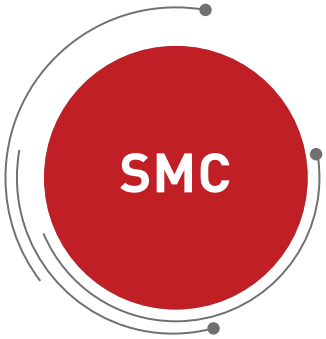
PRODUCT OVERVIEW

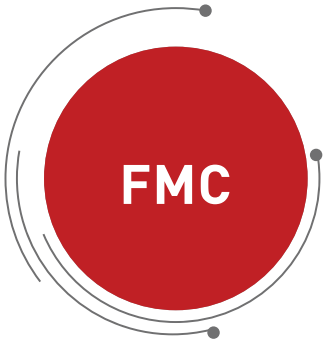


This series of electric rollers adopts innovative gearless direct drive technology, greatly improving the service life of the product. Especially in applications that frequently start and stop, this advantage is particularly important. Meanwhile, innovative gearless technology enables the electric drum to achieve unprecedented ultra-low noise levels during operation.

This series, as an indispensable component of electric rollers, has the characteristics of low speed and high output torque. By using efficient gear technology, this series of electric rollers can achieve unparalleled performance at speeds not exceeding 0.7m/s.



Adopting external rotor synchronous permanent magnet technology, this motor adopts the latest electromagnetic design scheme based on the application characteristics of the logistics industry, and has a compact structure. Gearless direct drive design, reducing mechanical components, low noise, and long service life



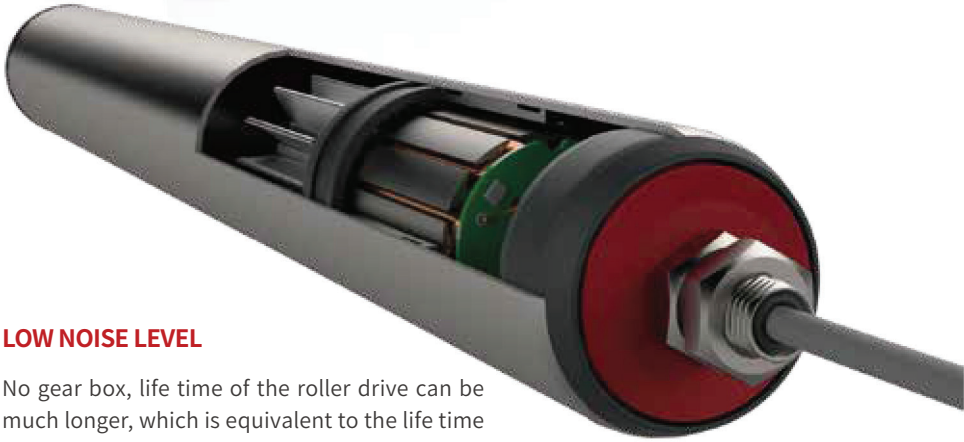
FMC provides extended connection options for controlling synchronous motors with or without sensors, with a maximum output current of 10A. The compact and economical FMC offers a wide range of functional options for logistics projects, mechanical engineering, and many efficient drive technology applications, greatly enhancing their competitiveness in the market.

DM050D XXX

PRODUCT FEATURES

GEARLESS DRIVE

On the premise of ensuring that the parameters of the roller drive fit for the requirements of the conventional on the market, gearless roller drive is used to optimize the structure to benefit customers.



LONG LIFE TIME

No gear box, life time of the roller drive can be much longer, which is equivalent to the life time of the bearing of roller.

LOW NOISE LEVEL

No gear box, life time of the roller drive can be much longer, which is equivalent to the life time of the bearing of roller.

TECHNICAL PARAMETER

Type	DM050D4-105-XXX	DM050D4-262-XXX
Rate speed	400 min^{-1}	1000 min^{-1}
Power	30W	80w
Rated Current (Bus Current)	3A	5.5A
Starting Current (Bus Current)	5A	11.5A
Noise (One Meter Distance)	＜50 dB(A)	
Protection Leve	IP54	
Rated Voltage	24V	
Cable Length	500 mm	
Roller Length Range	250~1500 mm	
Operating Ambient Temperature	-25°C to 40 °C	
Working Environment Humidity	30~90% Non condensing	
Shaft	Zinc, 11 mm HEX, M12 x 1	
Antistatic	Yes	
Tube Thickness	Diameter 50*1.5 mm	
Tube Material	Zinc plate, stainless steel, chrome plated	
Lagging	PVC tube 2 mm、5 mm / PU tube 2mm、5mm	

SINGLE MAXIMUM LOAD CAPACITY

Driving head and its length affect the maximum load capacity of DM050D.

DM050D Length	⩽ 1000 mm	1100mm	1200 mm	1300 mm	1400 mm	1500 mm
Roller Drive Without Drive Head Maximum Load Capacity	1100 N	925 N	750 N	650 N	550 N	475 N
Roller Drive With Drive Head Maximum Load Capacity	350 N					

PERFORMANCE PARAMETER

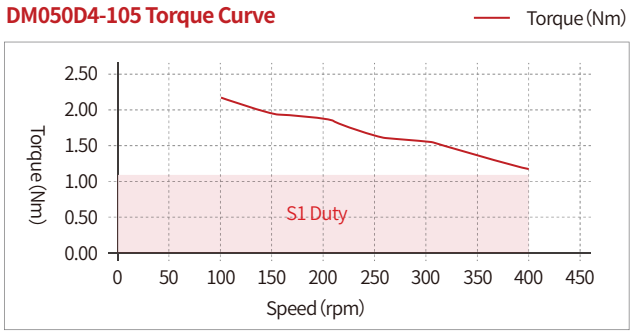
Type	DM050D4-105-XXX	DM050D4-262-XXX
Power [W]	30 (No Hall) / 50 (Hall)	65 (No Hall) / 80 (Hall)
Min Speed [m/s]	0.10	0.26
Max Speed [m/s]	1.05	2.62
Rated Torque [Nm]	0.67 (No Hall) /1.15 (Hall)	0.65 (No Hall) /0.8 (Hall)
Start Torque[Nm]	2.60	1
Holding Torque[Nm]	1.5	0.65
Standard Application Suggest Ed Load① [KG]	35	35
Standard Application Braking Distance [mm]	250	N/A

These values may vary by a maximum of ± 10%

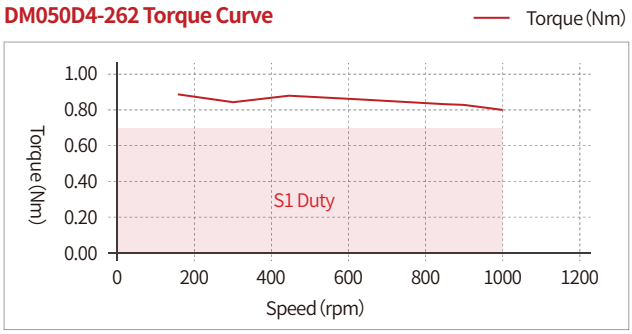
① The standard application is that the friction between the steel tube and the object is 0.04, the number of slave rollers is 9, and PolyV head.

SPEED TORQUE CURVE

DM050D4-105 Torque Curve



DM050D4-262 Torque Curve

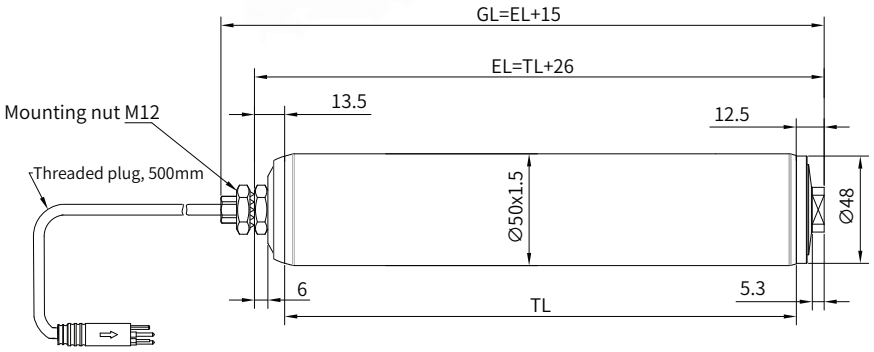


Note: Due to the error of the sample and test system, the data in the figure may have a measurement difference up less than 10%. The S1 duty area in the figure refers to the continuous loaded operation range of the roller on the premise that heat is allowed and the temperature of the outer tube does not exceed 65 degrees.

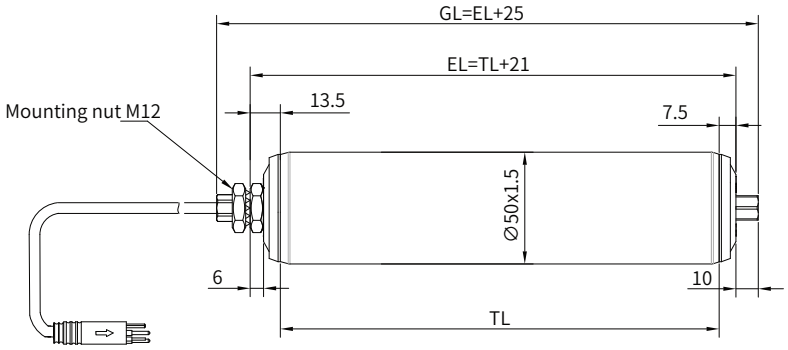
INSTALLATION DIMENSIONS

Type	Min tube length TL (mm)
DM050D4-105-XXX	250
DM050D4-262-XXX	250

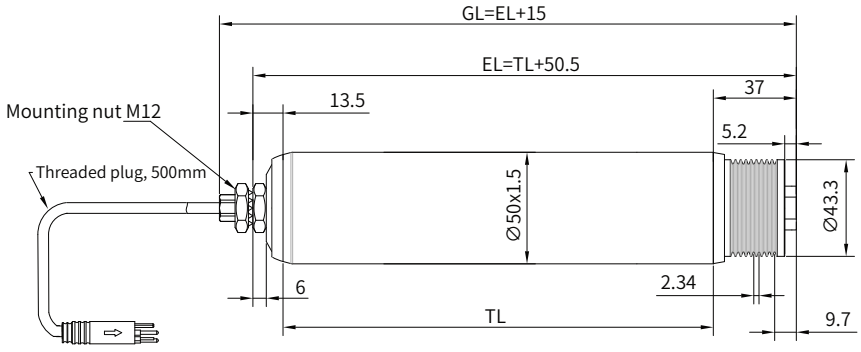
No drive head + M8 female thread



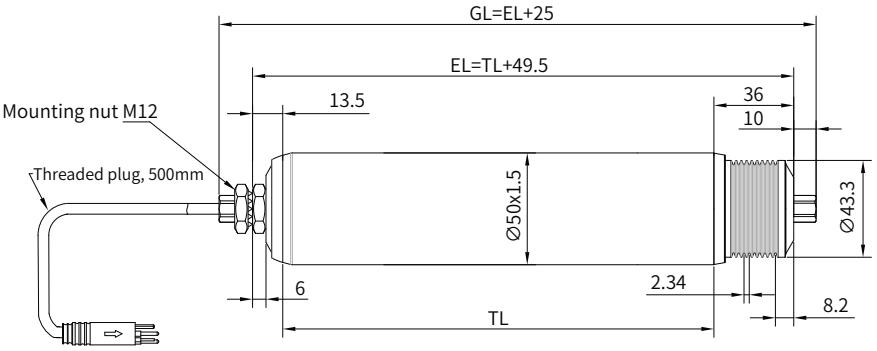
No drive head + hexagon spring shaft



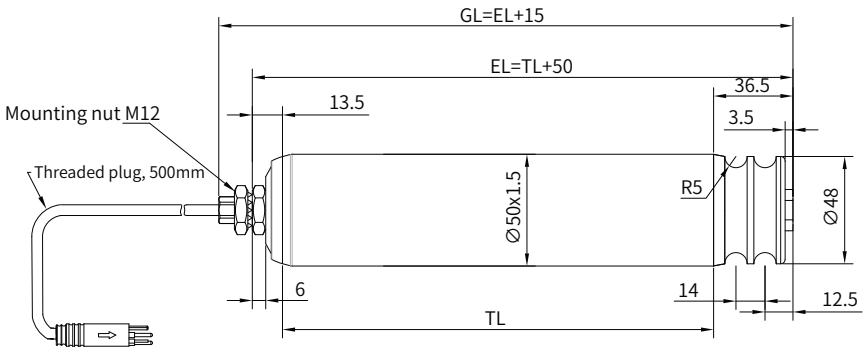
PolyV drive head + M8 female thread



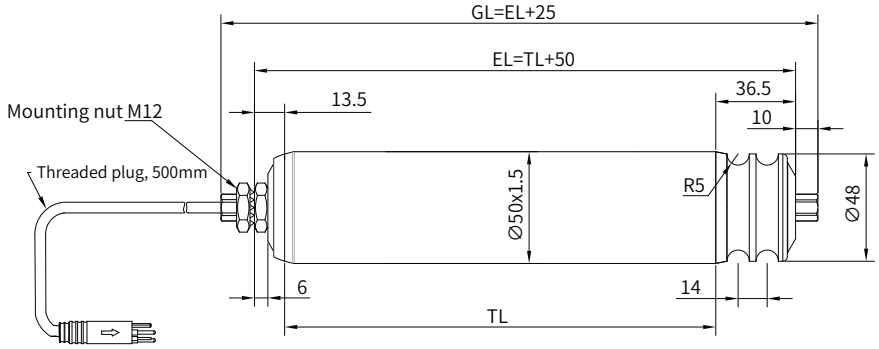
PolyV drive head + hexagon spring shaft



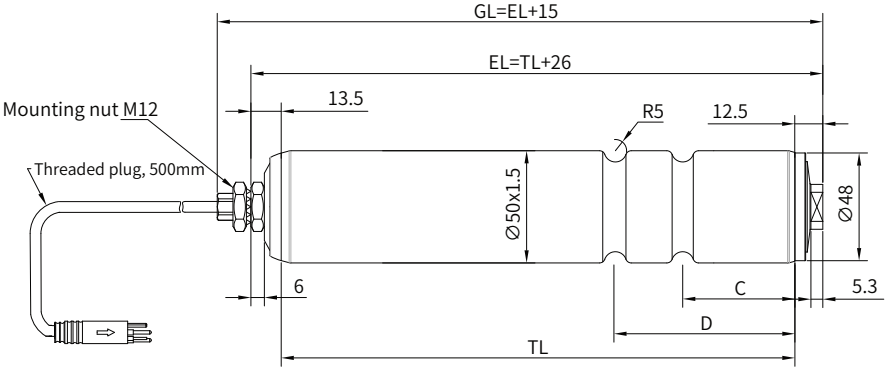
Round belt drive head + M8 female thread



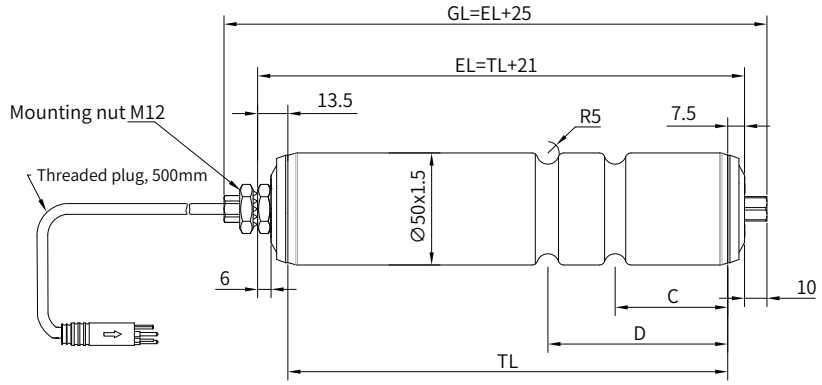
Round belt drive head + hexagon spring shaft



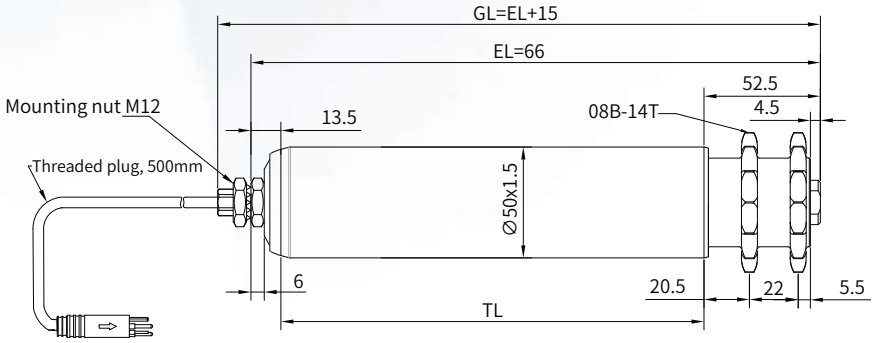
R5 grooves + M8 female thread



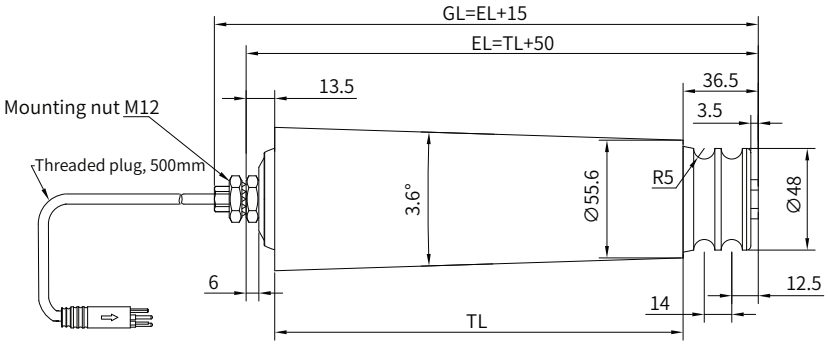
R5 grooves + hexagon spring shaft



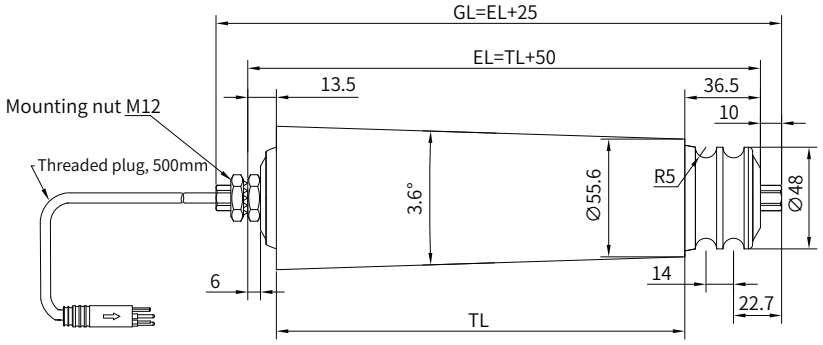
Sprocket T14 + M8 female thread



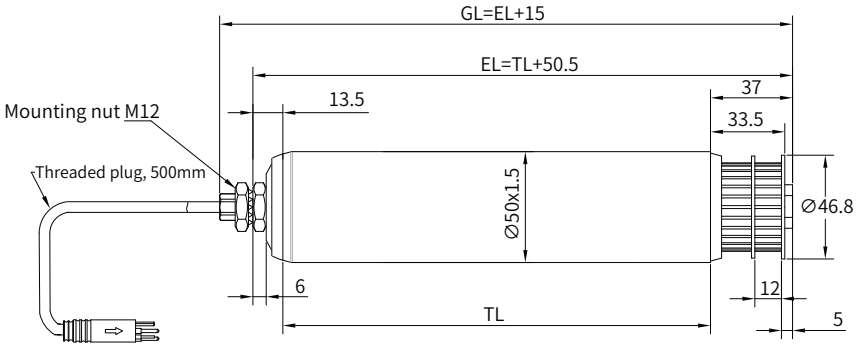
Round belt drive head + Taper sleeve+ M8 female thread



Round belt drive head + Taper sleeve+ hexagon spring shaft



Timing belt drive + M8 internal thread



DM050G XXX

PRODUCT FEATURES

HIGH TORQUE

Roller drive with gear box can provide higher torque to fit more working conditions.

EFFICIENCY AND FLEXIBILITY

The DC brushless motor is more efficient than the asynchronous motor, and can cooperate with a variety of control methods, making the product application more flexible.

TECHNICAL PARAMETER

Power	50W
Rated current (bus current)	3.8A
Starting current (bus current)	5A
Noise (one meter distance)	＜55 dB(A)
Protection level	IP54
Rated voltage	24V
Cable length	500 mm
Roller length range	300~1500 mm
Operating ambient temperature	0 to 40 °C
Working environment humidity	30~90% Non condensing
Shaft	Zinc , 11 mm HEX , M12 x 1
Antistatic	Yes
Tube thickness	Diameter 50*1.5 mm
Tube material	Zinc plate, stainless steel, chrome plated
Lagging	PVC tube 2 mm、5 mm / PU tube 2mm、5mm

SINGLE MAXIMUM LOAD CAPACITY

DRIVING HEAD AND ITS LENGTH AFFECT THE MAXIMUM LOAD CAPACITY OF ROLLER DRIVE.

DM050G XXX length	⩽ 1000 mm	1100mm	1200 mm	1300 mm	1400 mm	1500 mm
Roller drive without drive head maximum load capacity	1100 N	925 N	750 N	650 N	550 N	475 N
Roller drive with drive head maximum load capacity	350 N					

PERFORMANCE PARAMETER

Speed code	Min Speed [m/s]	Max Speed [m/s]	Rated torque [Nm]	Start torque [Nm]	Standard application suggested load [KG]	Standard application braking distance [mm]
12	0.13	1.25	0.9	1.8	30	240
16	0.10	1.00	1.15	2.3	50	250
24	0.07	0.67	1.75	3.5	75	150
36	0.05	0.45	2.6	5.2	100	80
49	0.03	0.33	3.2	6.4	120	55
64	0.03	0.25	4.2	8.4	140*	40
96	0.02	0.16	6.3	12.6	140*	30

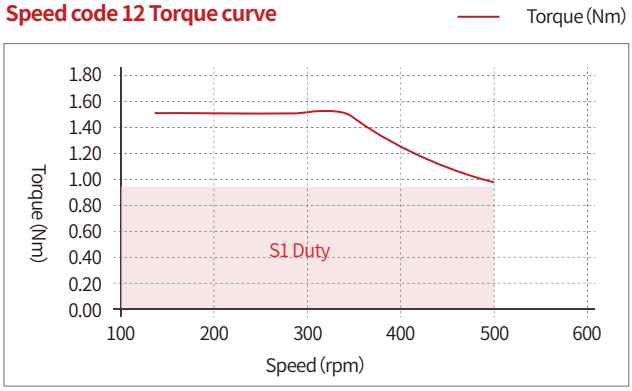
These values may vary by a maximum of ± 10%

①The standard application is that the friction between the steel tube and the object is 0.04, the number of slave rollers is 9, and PolyV head.

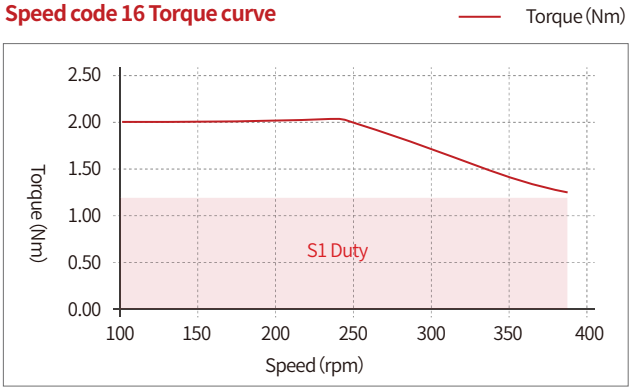
* If load more than 140KG please connect FinePower.

SPEED TORQUE CURVE

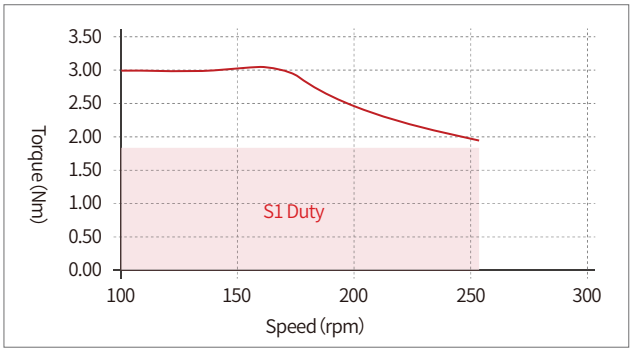
Speed code 12 Torque curve



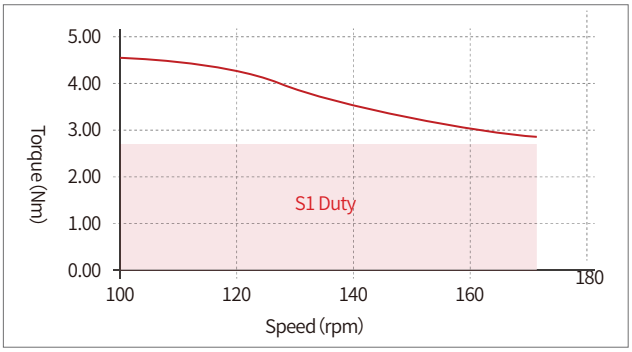
Speed code 16 Torque curve



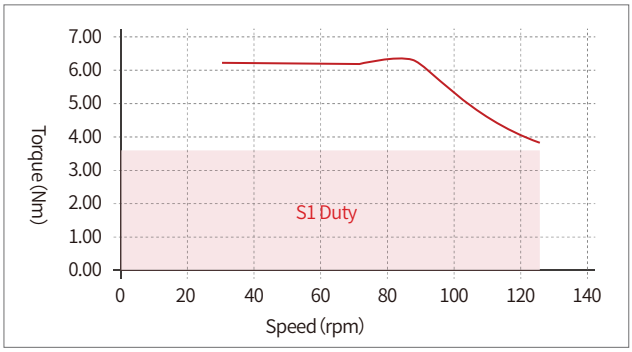
Speed code 24 Torque curve



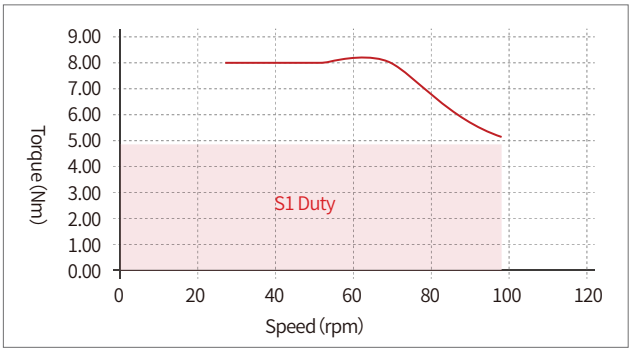
Speed code 36 Torque curve



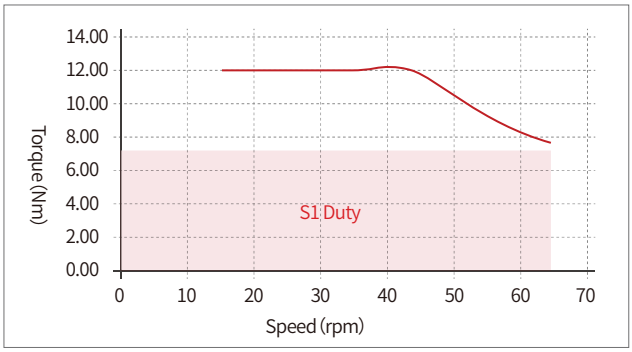
Speed code 49 Torque curve



Speed code 64 Torque curve



Speed code 96 Torque curve

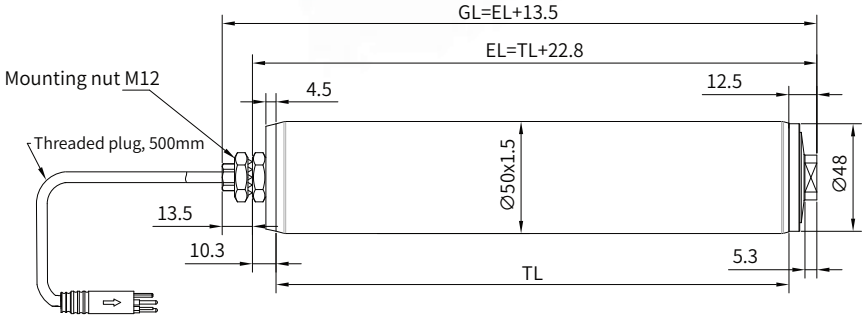


Note: Due to the error of the sample and test system, the data in the figure may have a measurement difference up less than 10%. The S1 duty area in the figure refers to the continuous loaded operation range of the roller on the premise that heat is allowed and the temperature of the outer tube does not exceed 65 degrees.

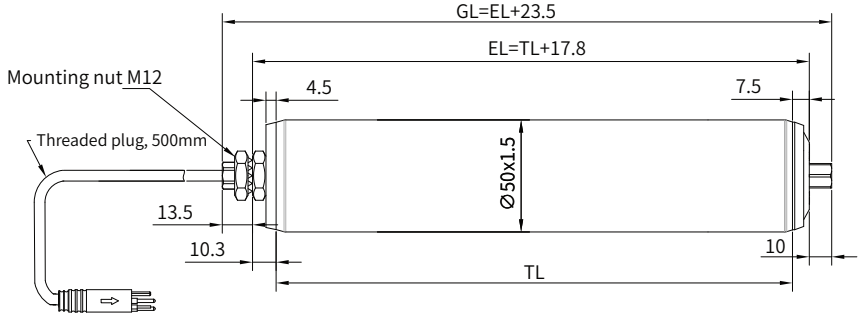
INSTALLATION DIMENSIONS

Speed code	12	16	24	36	49	64	96
Min tube lengthTL(mm)	282	282	282	282	294	294	294

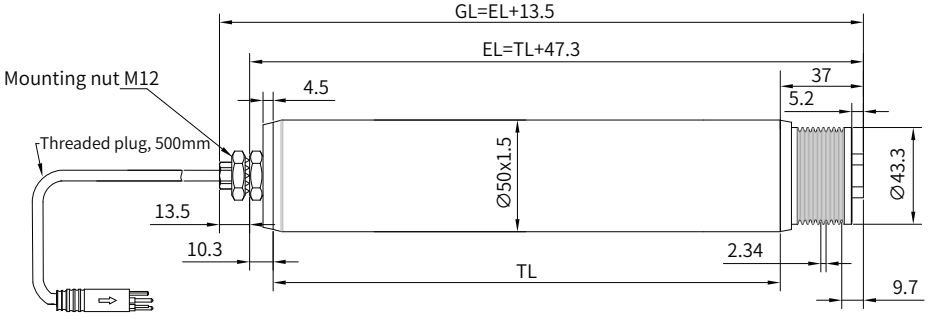
No drive head + M8 female thread



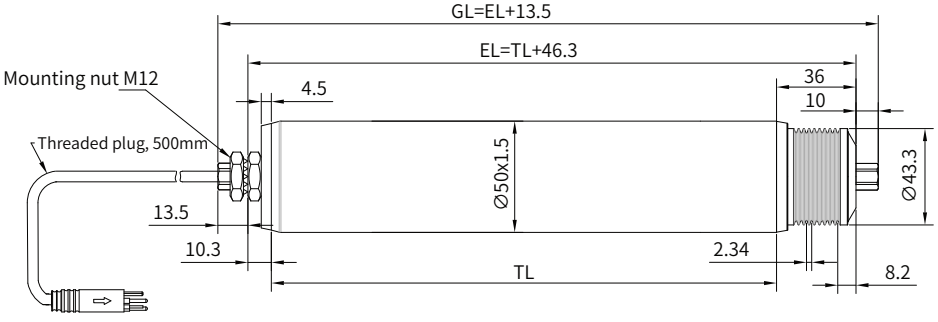
No drive head + hexagon spring shaft



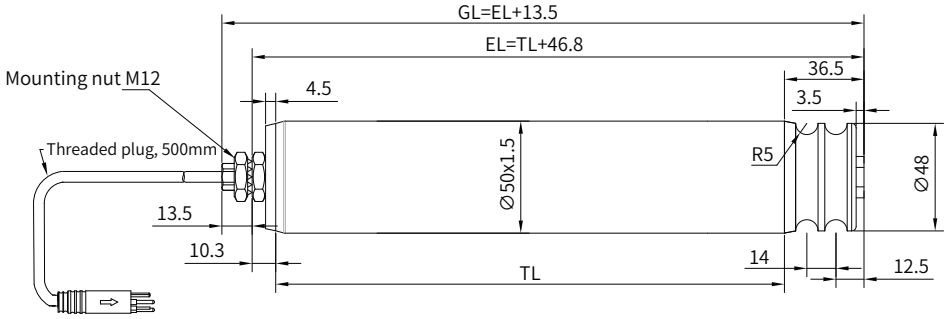
PolyV drive head + M8 female thread



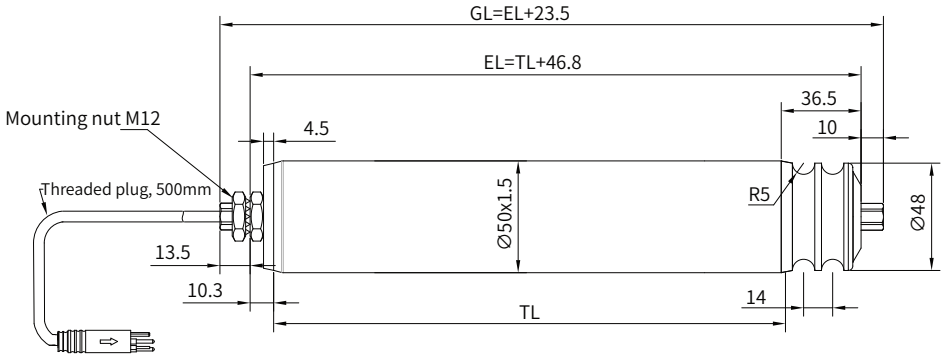
PolyV drive head + hexagon spring shaft



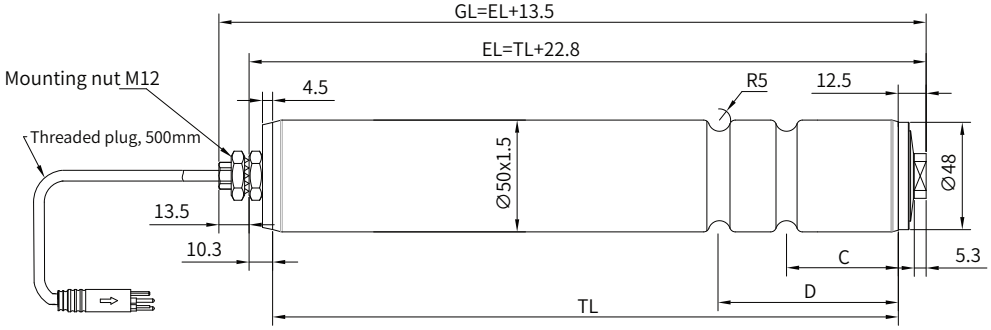
Round belt drive head + M8 female thread



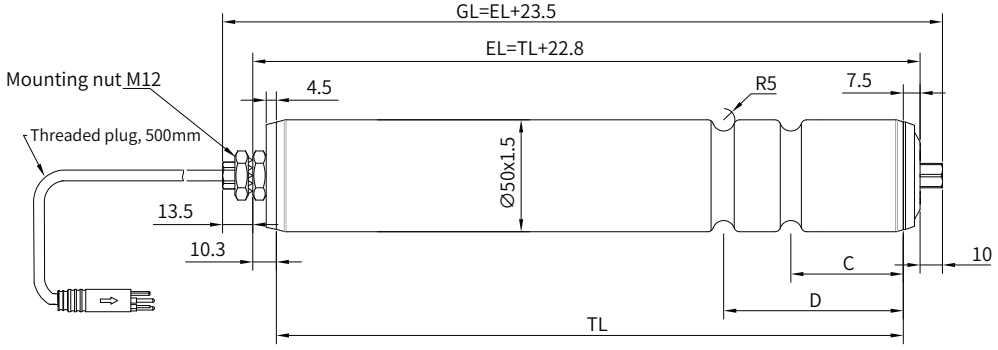
Round belt drive head + hexagon spring shaft



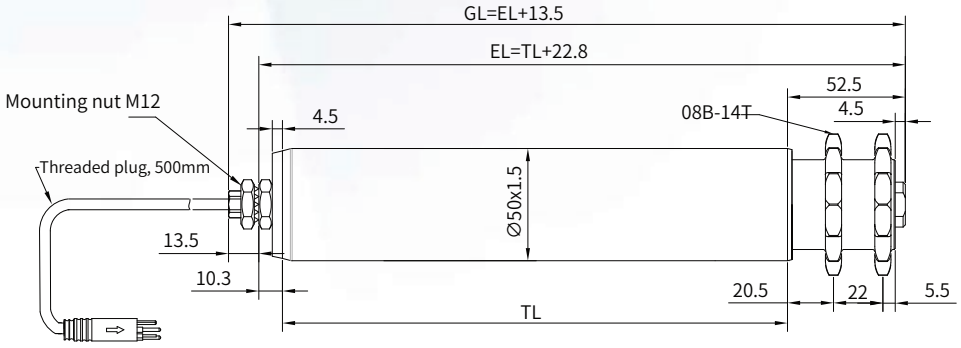
R5 grooves + M8 female thread



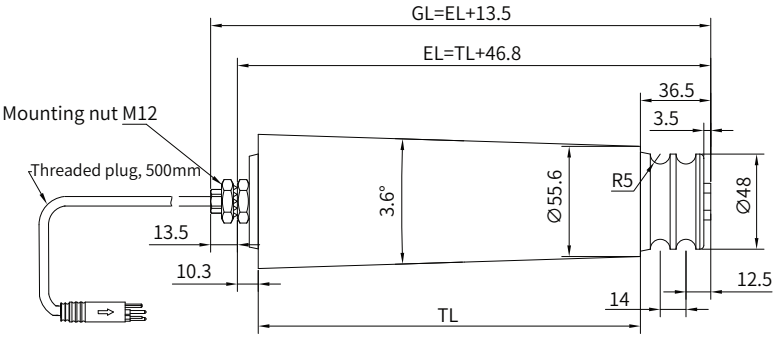
R5 grooves + hexagon spring shaft



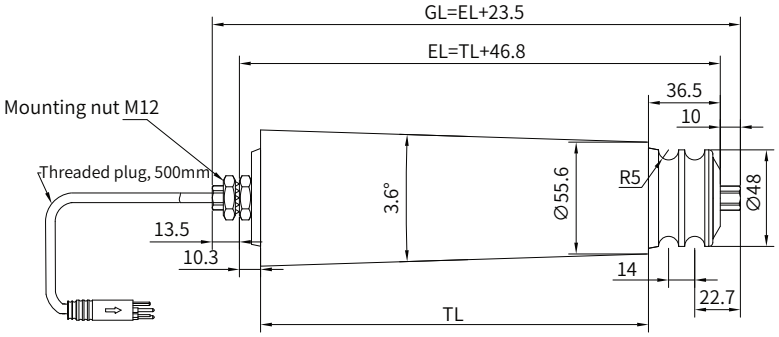
Sprocket T14 + M8 female thread



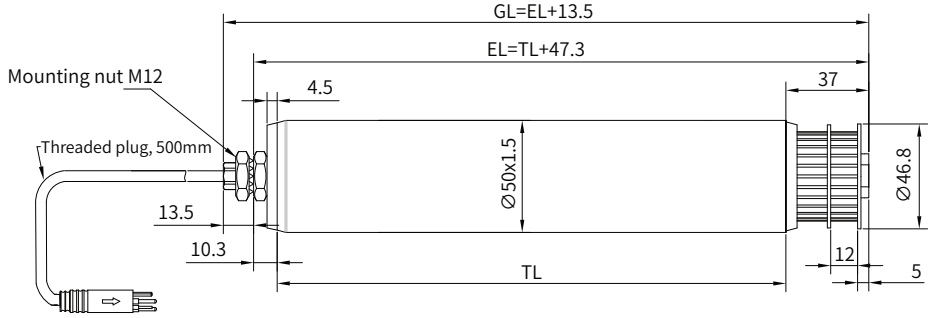
Round belt drive head + Taper sleeve+ M8 female thread



Round belt drive head + Taper sleeve+ hexagon spring shaft



Timing belt drive + M8 internal thread



MODEL DESCRIPTION OF MOTOR ROLLER

DM 050 D 4 - 105 - 1 1 V A A - 0650 - AA - 00

① Roller drive with out controller

② Roller outer diameter：050 50mm
30mm/50mm/60mm/80mm/89mm/113mm
/132mm/168mm.....)

③ Drive form
D No gearbox G Gear box

④ Motor series
4

⑤ Speed level
MAX Speed (m/s) x100 (Round) Example: 1.05 m/s code 105

⑥ Voltage level
1 24VDC 3 48VDC 7 220Vac 9 400Vac

⑦ Feedback
1 No feedback 2 Hall 3 Encoder 4 Resolver

⑧ B side
A Without drive head B sprocket R Round belt
V PloyV(M8 female thread) S Enforced B side W PloyV(hexagon spring shaft)
H Tube with single groove G Tube with double groove

⑨ Protection level
A IP54 B IP67 C IP69

⑩ Tube material
A Galvanized steel B Stainless steel C Rubber tube with Zinc plate

⑪ Installation length
EL: 0650 650mm

⑫ Cable plug
AA 500mm M8 thread plug AB 500mm terminal

⑬ Customer material
Code/ vision-00

SMC

PRODUCT FEATURES

The outer rotor synchronous permanent magnet technology is adopted. According to the application characteristics of the logistics industry, the motor adopts the latest electromagnetic design scheme and has a compact structure. Gearless direct drive design, reduce mechanical parts, low noise, long service life.

TECHNICAL PARAMETER

Type	Synchronous motor
Insulation class	F
Voltage	24VDC
Protection level	IP54
Noise	< 48 dB (Depend application)
Cable length	1000mm
Installation dimension	43mm
Ambient temperature	-25°C to 40°C
A-plane structure (with wire)	Shaft Ø 12h7, SW10+/- 0.05 mm
Tube thickness	Ø 51 x 2mm
Tube material	PA6, Antistatic
Rubber lagging	PU, 80° Shore A (+/- 3) , color black
Tube	Ball R86, 1

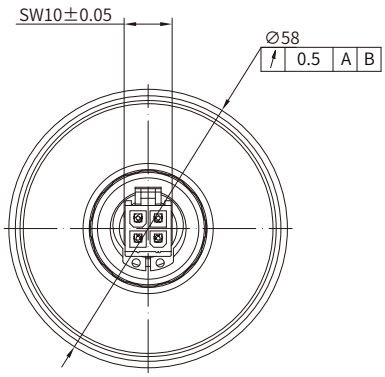
ELECTRICAL CONNECTION

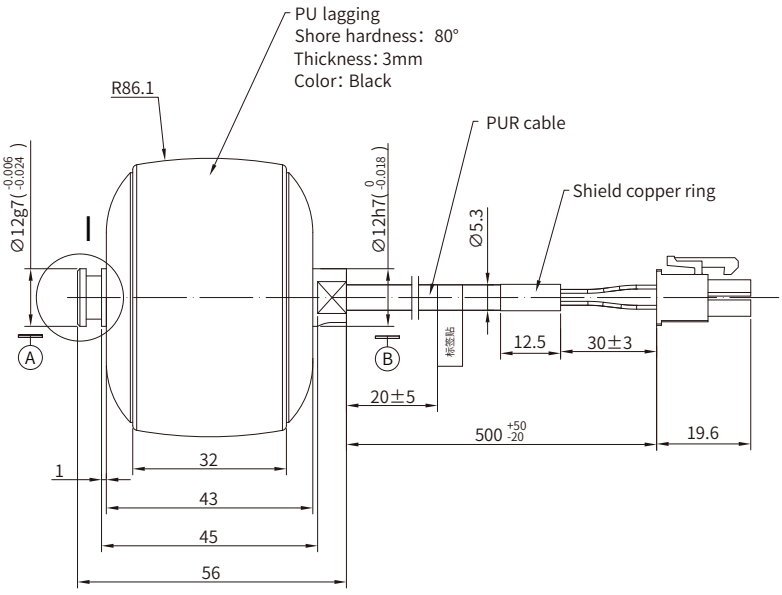
信号	描述	颜色
U	Motor phase U	Brown
V	Motor phase V	White
W	Motor phase W	Green
NP	Neutral point	Yellow
PE	Earth line	Screen

PERFORMANCE PARAMETER

Rated voltage	24VDC
Rated current	1.4A
Rated torque	0.15Nm
Rated speed	900rpm
Peak current	3.49A
Max Torque	0.25Nm
Output power	14W

OVERALL DIMENSIONS





SORTING MOTOR MODEL DESCRIPTION

SMC 5 D 1 - 1 4 1 - A A - 0032 - AA - 00

① Sorter code

② Stator core length

5 58mm 6 61mm

③ Drive mode

D Direct drive

④ Voltage

1 24V 3 48V

⑤ Power

1 15W 2 25W 3 35W

⑥ Speed

1 1.0m/s 2 1.5m/s 3 2.0m/s 4 2.5m/s 5 3.0m/s

⑦ Feedback

1 Sensorless

⑧ Tube material

A PU 80°black B 80°red

⑨ Protection level

A IP54

⑩ Installation length

0032 32mm

⑪ Cable

AA Length 0.5m, mini plug AB Length 0.46m, socket strip XHP-4

⑫ Customer material code / Version

Standard code 00, optional

FMC024 | FMC048

PRODUCT FEATURES

Speed setting
(9 positions of knob and
8 positions of digital input)

Acceleration and
deceleration slope setting
(10 gears for each)

Low speed full torque output

LED status display

CAN communication
can be added

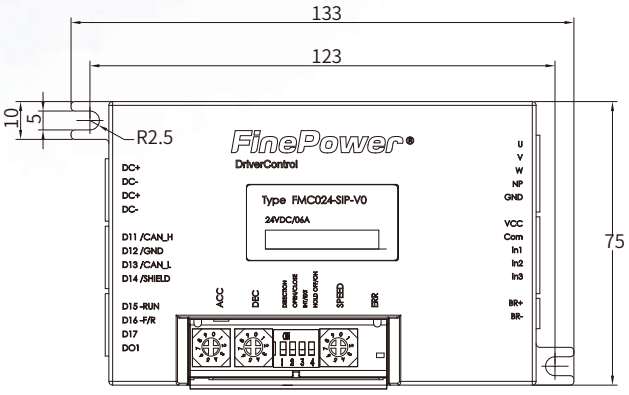
Braking resistance
can be increased

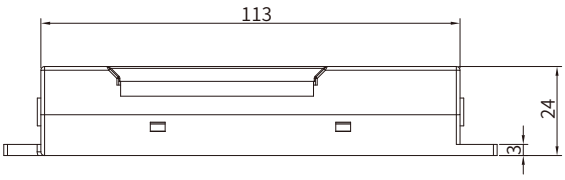
TECHNICAL PARAMETER

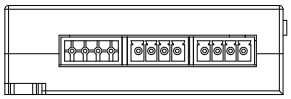
Controller	FMC024	FMC048
Input voltage	24VDC (18~28VDC)	48VDC(36~55VDC)
Maximum altitude	1000m	
Operating ambient temperature	-25°C~40°C	
Storage ambient temperature	-40°C~60°C	
Maximum current	8ADC	8ADC
Digital input	6DI,24VDC	
Digital output	1DO,24VDC	
CAN communication	Optional	
External braking resistor	Optional	
Protecttion level	IP20/IP30	
Version	V0：no feedback V1：with feedback	

OVERALL DIMENSIONS

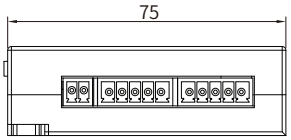
◉ Version - V0





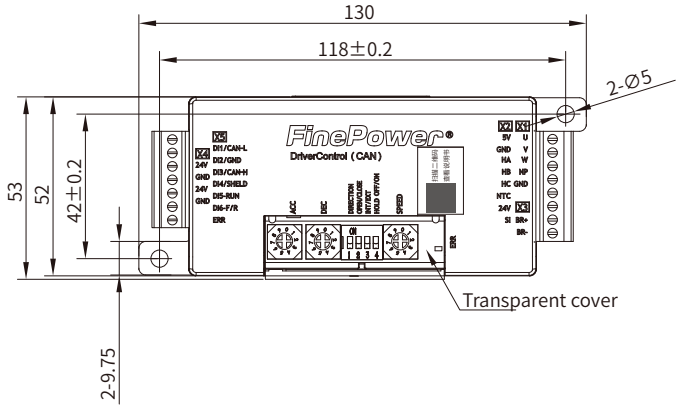


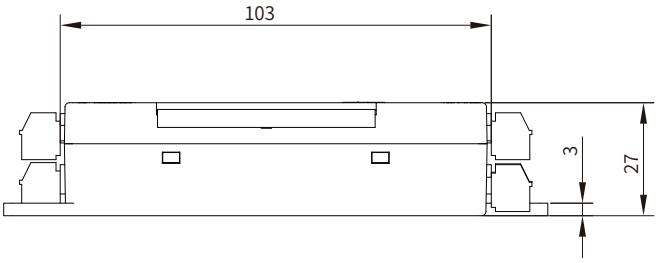
Left

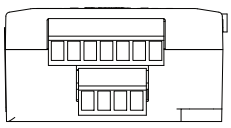


Right

◉ Version - V1







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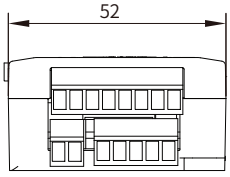
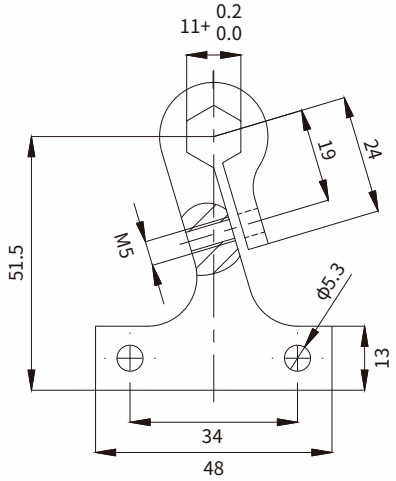


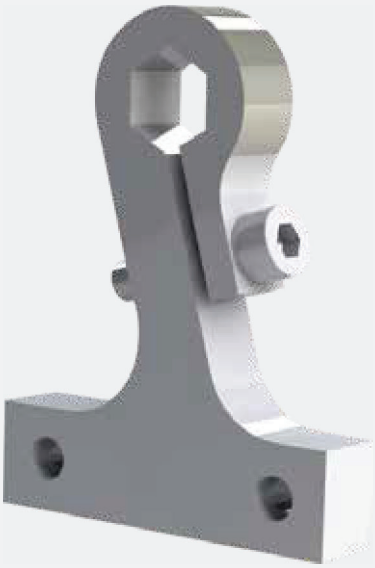
Right

PRODUCT INTRODUCTION

BRACKET (Part number:8FP87003)

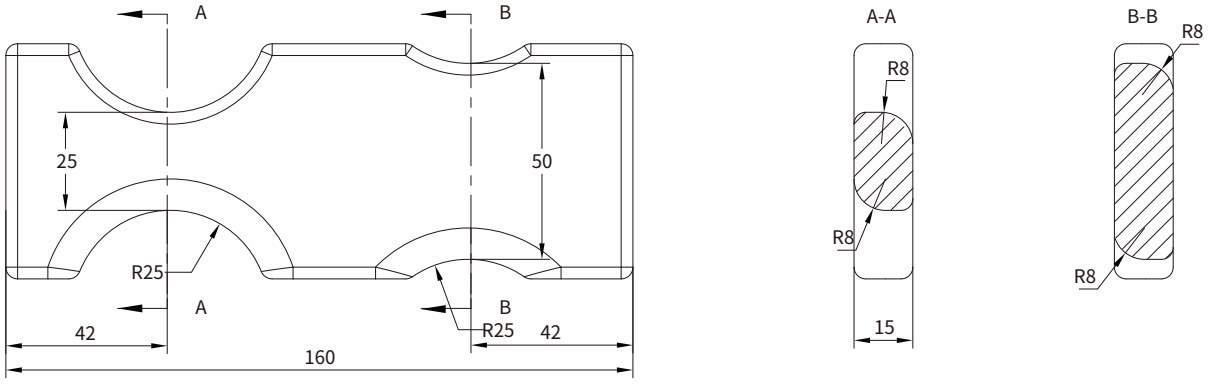
When the profile material is soft or the surface is painted, the risk of loosening the lock nut will be greatly increased. You can use a fixed bracket to replace the outside lock nut to fix the roller drive, so as to avoid damage to the roller drive strand caused by loosening the nut.





TENSIONING TOOL(Part number:8FP87002)

The distance between the rollers (50mm in diameter) normally used by customers is 75 or 100mm. This tool can help customers to install the ployV belt. At the same time, we can also provide the customized for other pitches.



CABLE ADAPTER

The outgoing line of the Roller drive is a quick connector (male), and we will provide a female adapter to connect the controller.

Part number：5FP85009 (length 200mm)

Part number：5FP85010 (length 1500mm)

Rated voltage	60VAC/DC
Rated current	Power 10A / Signal 2A
Product outer diameter	13mm
Contact terminal	Copper alloy gold plating
Wire specification	3*1.0mm^2+6*0.20mm^2

SHAPE SELECTION AND CALCULATION

$$T=m*g*\mu*D/2*S^{N}$$

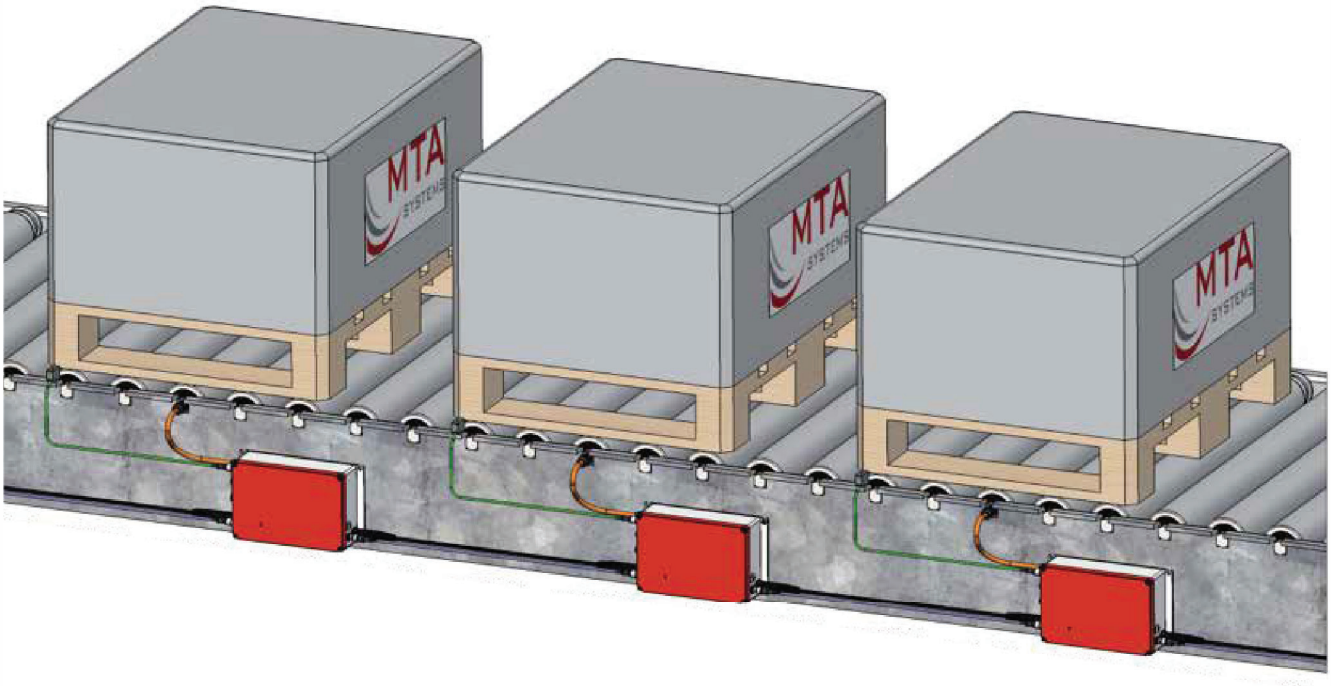
T=Required torque m=Load mass g=Gravitational acceleration 9.8m/s^2 μ=Friction coefficient

D=Roller diameter N=Number of slave rollers S=PolyVee：0.95，O belt：0.9

FRICTION COEFFICIENT μ

Object / Roller	Steel	Plastic	Wood	Carton
钢铁	0.02	0.04	0.05	0.1
2mm PVC	0.03	0.04	0.05	0.15
5mm PU	0.02	0.04	0.05	0.15

* As the number of slave rollers increases, the torque in the whole area will decrease. The maximum number of slave rollers cannot exceed 20. If necessary, please contact FinePower.



MODEL SELECTION SUGGESTIONS

CALCULATE POWER CAPACITY

In conventional applications, one power supply is generally used to supply power to multiple roller drive. When all roller drive are started at the same time, the current in the system will fluctuate greatly. Therefore, this situation must be considered when selecting the power supply easily. Therefore, the number of roller drive shall be considered when selecting the power supply, and the current when the electric rollers are started at the same time shall be used for selection.

For example

On site, there are 15PCS DM050G XXX, with rated current of 3.8A and starting current of 5A. In the actual field application, 70% of the electric rollers will be started at the same time, so the total power capacity is at least:

$$I_{Total}=5A*15*70\%=52.5A$$

As calculated above, the power supply should be at least 52.5A.

OBJECT WEIGHT AND WEIGHT DISTRIBUTION OF TRANSPORTED MATERIALS

The weight of the transported goods must be distributed on multiple rollers, and at least 3 rollers must be used to support the transported materials.

In principle, the weight distribution of materials should be as uniform as possible.

If the weight of the goods is mainly concentrated in the front end, the roller at the end can only support a small amount of weight. The rollers in the starting position may be overloaded.

It is recommended to use PloyVee belt to convey the material box or carton. Compared with the round belt, the service life and torque transmission of the PloyVee belt are obviously improved.

DRUM TURNING MACHINE

- The included angle between two adjacent rollers is recommended to be 5°.
- In order to ensure the smooth transfer of goods from the linear conveyor to the roller turning machine, the upper surface of the tapered roller should be horizontal and on the same plane as the linear conveyor.
- Since the roller curve has taper sleeve, in order to be the same speed as the straight section conveyor, the taper sleeve speed needs to be calculated.

$$S_{Taper}=2*S_{Straight\ line}/\Phi_{Small}+\Phi_{Large}*\Phi_{Straight\ line}$$

S_{Taper}=Cone sleeve roller speed $S_{Straight\ line}$=Linear roller speed Φ_{Small}=Diameter of taper sleeve small end

Φ_{Large}=Diameter of taper sleeve big end $\Phi_{Straight\ line}$=Roller diameter of straight section