

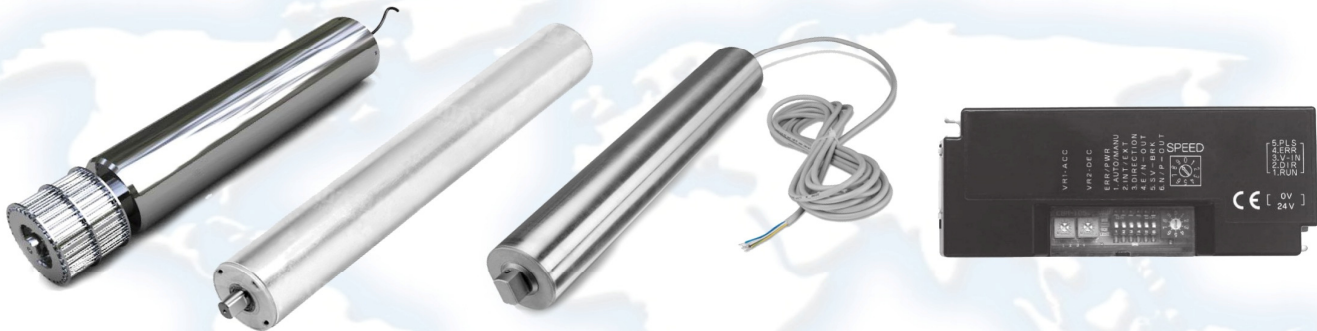


## CHANGZHOU SPARK MOTORS CO. LTD.

*World of Engineering Solutions*

AN ISO 9001 - 2008 CERTIFIED COMPANY

Spark Group Of companies established in Year 2000. **We are manufacturing of high Quality, reliable and cost effective BLDC Drum Motor / Roller Motor for Roller Conveyor Applications** in industries. Our Product range of supply of BLDC Drum Motor is Rated Power **10 W to 150 W (10, 40, 90, 120, 150 watts)** and Rated Torque **(0.10 - 84.00 Nm)**, Rated Speed Range **(7.60 - 821 RPM)** & Rated Voltage **(24- 36-48VDC)**.



### Factory

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## DRUM MOTOR DEVELOPMENT HISTORY

### 1) Use

compared with the traditional drive system, the installation of drum motor easier, simpler. which means lower cost of designing and purchasing.

### 2) Durable

Even under severe conditions, full of water, dust, chemicals, oil, grease, even during high-pressure water washing, 113, 138, 165 series drum Motors can normally Operate.

### 3) Sanitary Design

Due to the smooth stainless steel material, and tightly sealed and fully enclosed design, drum motor is easier to clean, thus reducing the risk of contamination in food processing.

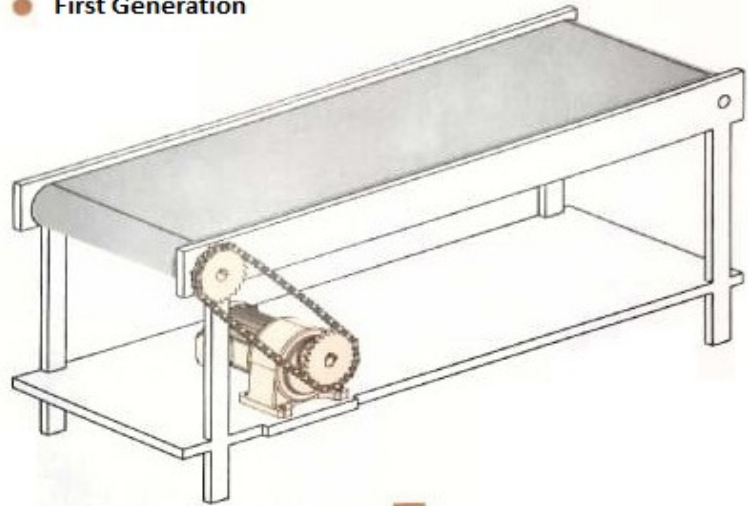
### 4) Save Space

Because the motor, gearbox and bearings are installed inside of the drum motor occupies less space.

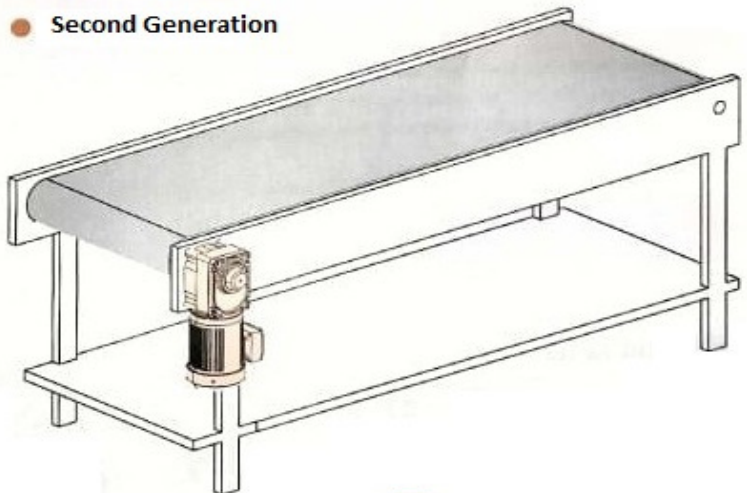
### 5) Security

As a complete unit with no protruding parts and fixed by external axial, drum motor is the safest drive system used for firstclass transporting equipments.

### ● First Generation

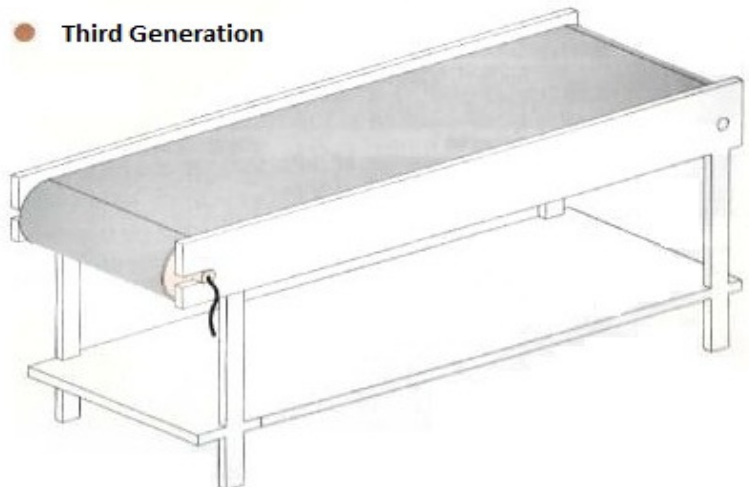


### ● Second Generation



Conveyor with Drum Motor

### ● Third Generation



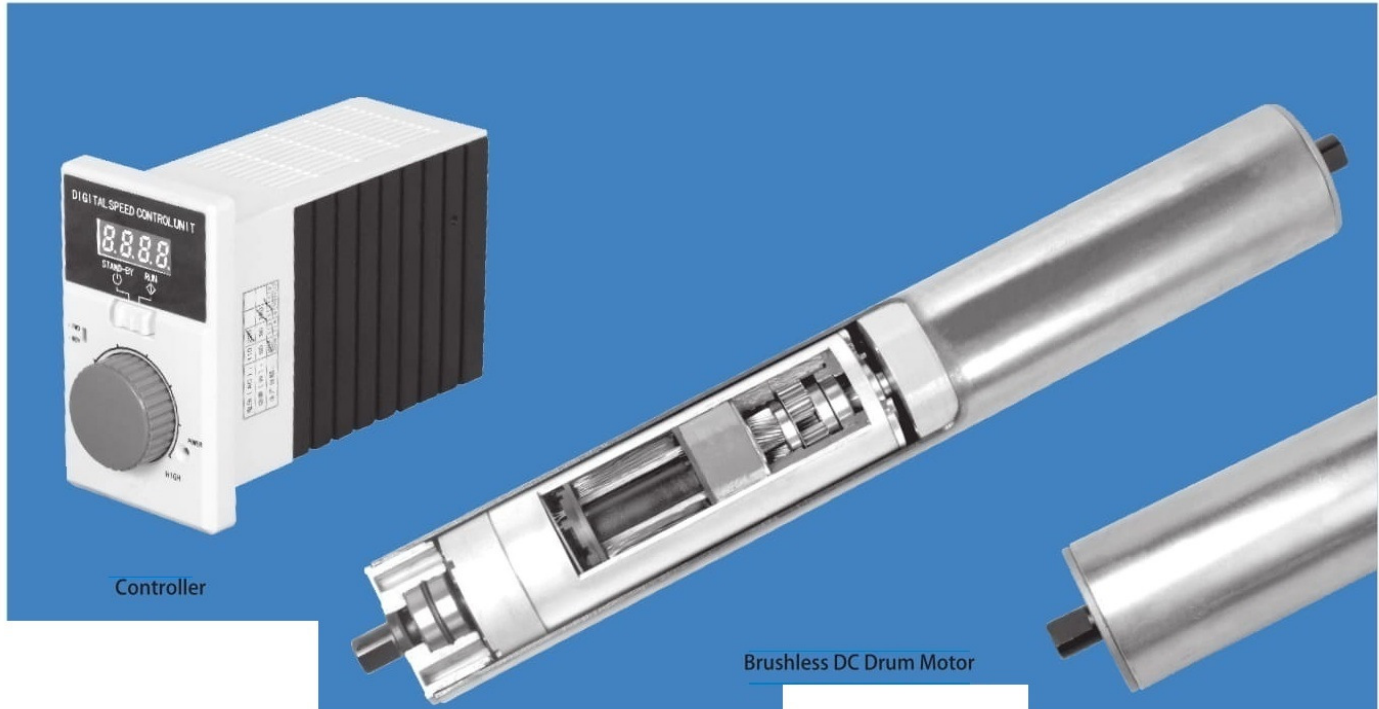
**Application of BLDC Drum Motor:- BLDC Drum Motor using for Roller Conveyor Application.**



**Old System Of Roller Conveyor Application:-**



# BRUSHLESS DC DRUM MOTOR



## MODEL NO. CODING

Motor

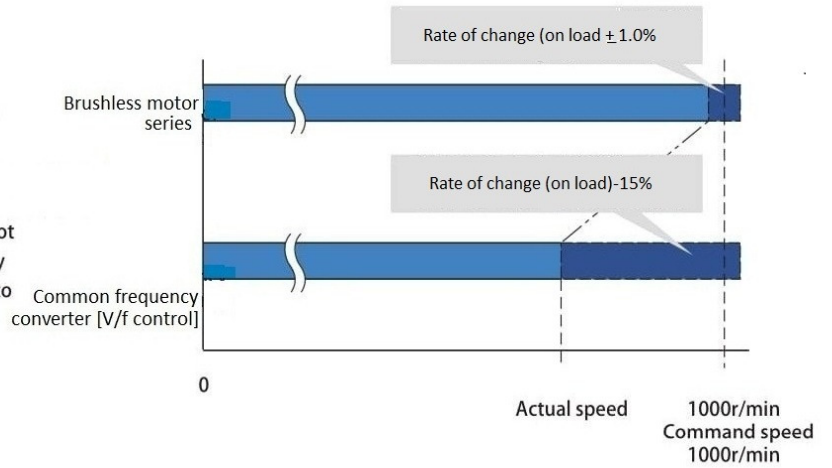
ZD BL T 50 - A - 25 - 380 - 40 - D - 24 - G1  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

Comany		
Model & Dimension		
②	Motor type	BL Brushless motor
③	Drum material	T: Carbon steel pipe (which) S: 304 Stainless steel pipe
④	Drum diameter	50mm (Example) 50: Drum diameter 50mm
⑤	Drum shape	A: A: cylindrical tube
⑥	Linear speed	25m/min (Example) 25: Rotary line speed 25m/min
⑦	Drum length	(Example) 400: Total length 400mm (not included)
⑧	Rated power	40W (Example) 40: Motor rated power 40W
⑨	Voltage type	D: DC power supply      1: Single phase AC
⑩	Voltage	24:24V (Example) 24:24V
⑪	Lead wire type	Vacancy representation (which)

# GENERAL TECHNICAL INFORMATION—DC DRUM MOTOR

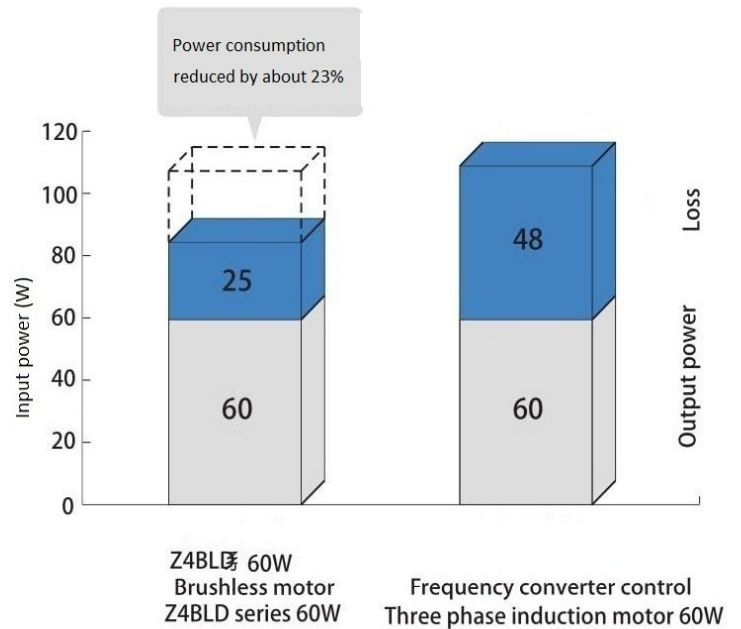
## Stable Speed Control

Brushless motor continues to set speed and a feedback signal are compared from the speed of the motor to adjust the voltage applied the motor; therefore, even if the load change, still can set the speed from slow instantaneous adjustment to, and in order to stabilize the running speed. Three phase induction motor with inverter control is not feedback control, so the load becomes larger, the speed will be greatly reduced; for the high speed stability requirements, it is recommended to use brushless motor.



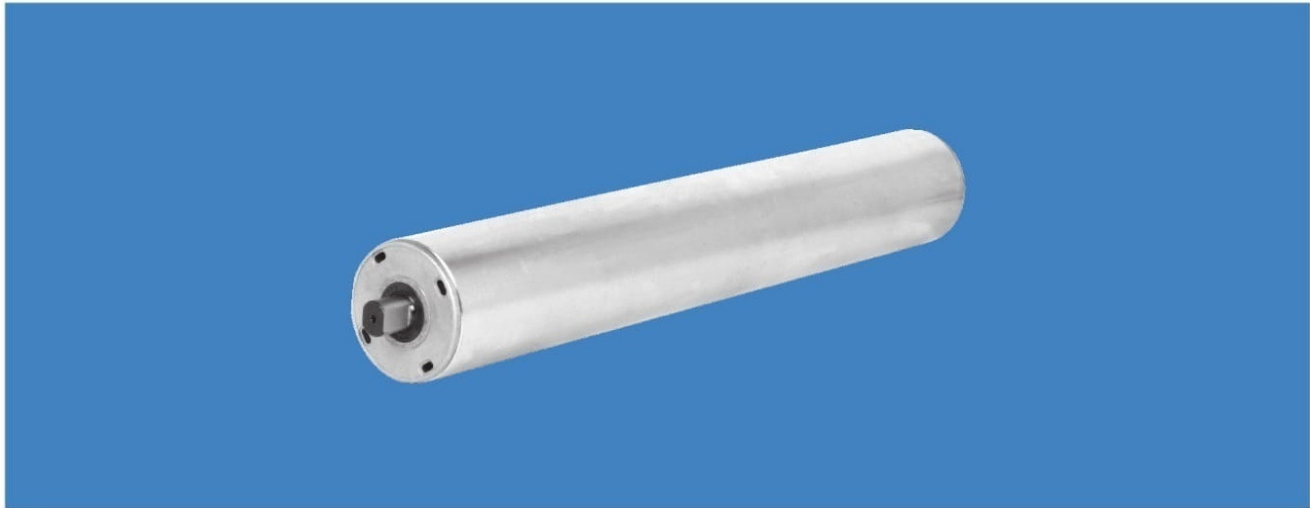
## Contribute To Energy Saving

The rotor of the brushless motor is used for the permanent magnet, which can reduce the two loss of the rotor, so the power consumption is reduced by more than 20% compared with the three phase induction motor with variable frequency control, which is helpful for the energy saving of the device.



Motor Model	Dimensions (mm)		Driver	Voltage supply	
	Length	Height		Supply	Ground
	42	10	Standard type IP40 Or Ip54  (Special treatment)		24~48V Single phase 110~220V
	50	40			
	60	90			
	70	120			
	80	150			
					DC 24V

# BL42 DRUM MOTOR



## Product Information

This type of drum motor can be installed in limited space and meet the torque requirement. Using alloy steel grinded gears and planetary transmission structure, reliable it is free of maintenance and oil-renewing, space-saving. It can be use in many fields:

- Supermarket cashier
- Packaging machinery
- Belt conveyer line

## BL42 Characteristics Of Drum Motor

Drum Shell

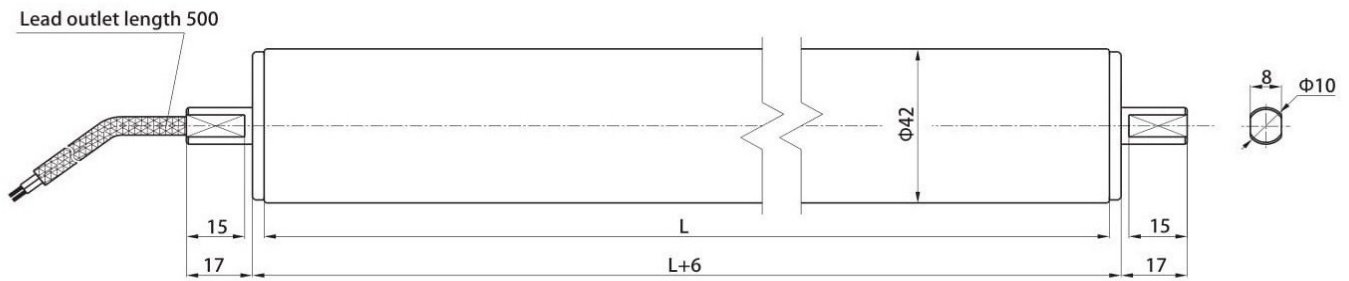
- Material of standard drum shell is mild steel garde shell is 304 stainless steel standard cylinder rolling mill gear slip flower high low noise transmission when the planetary gear transmission

## Basic Characteristics Of Motor

24VDC/36VDC/48VDC, ternal diameter 42 drum (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

Rated power (continuous)		W	10		
Rated speed		r/min	3000		
Rated torque		N.m	0.032		
Instantaneous maximum torque		N.m	0.048		
Speed control range		RPM	200-3000		
Speed control rang	On load	Below 1%:Condition rated tarque, rated speed, rated voltage, room temperature			
	On voltage	Below 1%: Condition rated voltage, rated speed, rated load, room temperature			
	On temperature	Below 1%: Conditions of ambient temperature rated voltage, rated load and rated speed			
Power input	Rated voltage	V	Single phase 110 V	Single phase 220 V	24VD Option (6 VDC/48VDC)
	Voltage tolerance range		±10%		
	Frequency	Hz	/	/	/
	Frequency tolerance range		/	/	/
	Rated input current	A	/	/	0.7
Instantaneous maximum input current	A	/	/	1.4	

## BL42 Outlining Dimensions



• DiameterΦ42 • Wall thickness: t1.5 • Power supply: DC24V • Material: 20# carbon steel • Surface treatment: zinc plating

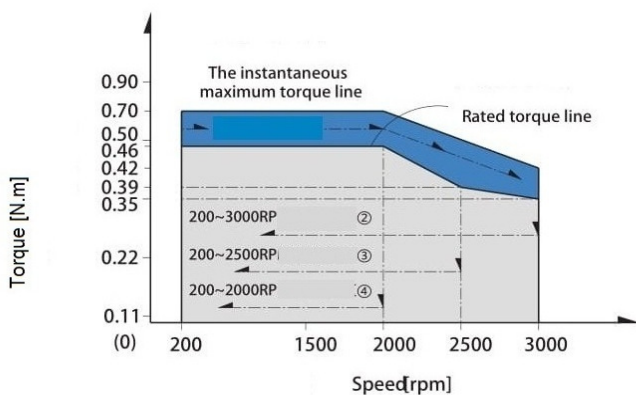
## BL42 Mechanical Parameters

Rated Power W	Gear Box Series	Reduction Ratio	Max Speed/ m/min	Rated Speed RPM	Allowable Torque Nm	Driving Force N	Length mm
10W	One Stage	3.70K	107	810.8	0.10	9.500	≥240~600
		4.29K	92.3	699.3	0.12	11.40	
		5.18K	76.4	579.2	0.15	14.30	
		6.75K	58.6	444.4	0.19	18.10	
	Two Stage	13.69K	28.9	219.1	0.35	33.30	≥260~600
		18.40K	21.5	163.0	0.47	44.70	
		19.17K	20.6	156.5	0.49	46.70	
		24.98K	15.8	120.1	0.64	60.90	
		26.83K	14.7	111.8	0.69	65.70	
		28.96K	13.6	103.6	0.75	71.40	
		34.97K	11.3	85.80	0.90	85.70	
	Three Stage	45.56K	8.70	65.80	1.17	111.4	≥280~600
		50.65K	7.80	59.20	1.17	111.4	
		70.91K	5.50	42.30	1.65	157.1	
		78.95K	5.00	38.00	1.83	174.3	
		92.41K	4.30	32.50	2.15	204.7	
		107.14K	3.70	28.00	2.49	237.1	
		129.37K	3.00	23.20	3.00	285.7	
		168.58K	2.30	17.80	3.91	372.4	
236.01K	1.60	12.70	4.00	380.9			
307.55K	1.20	9.700	4.00	380.9			

• 200-300RPM: This parameter is used for motor speed range in 200~300RPM

## Motion Characteristic Curve

Take the two stage of the reduction, the reduction ratio of 13.7K for the roller as an example

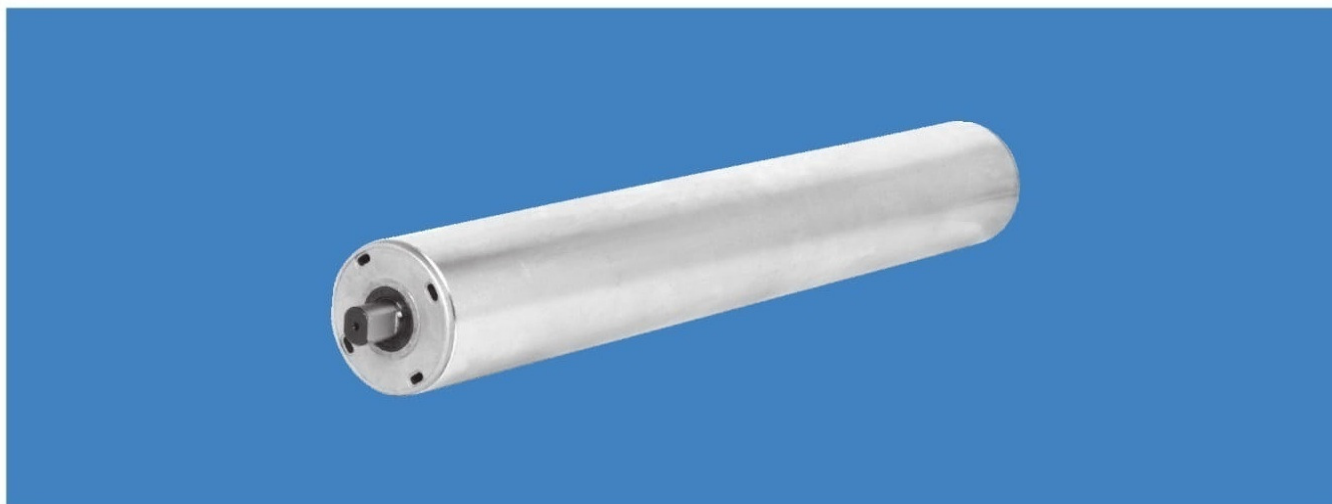


## Lead Out Outlet

Blue	Yellow	Green	Red	Yellow	Green	Blue	Black
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

- ① Short-time operation area
- ② 200~3000RPM Continuous operation area
- ③ 200~2500RPM Continuous operation area
- ④ 200~2000RPM Continuous operation area

# BL50 DRUM MOTOR



## Product Information

This type of drum motor can be installed in limited space and meet the torque requirement. Using alloy steel grinded gears and planetary transmission structure, reliable, free of maintenance and oil-renewing, space-saving. It can be use in many fields:

- Supermarket cashier
- Packaging machinery
- Belt conveyor line

## BL50 Characteristics Of Drum Motor

### Drum Shell

- Material of standard drum shell is mild **steel** garde shell is 304 stainless **steel standard** cylinder rolling mill gear slip flower **high alloy** steel precision, ensures low noise transmission when **the planetary transmission**

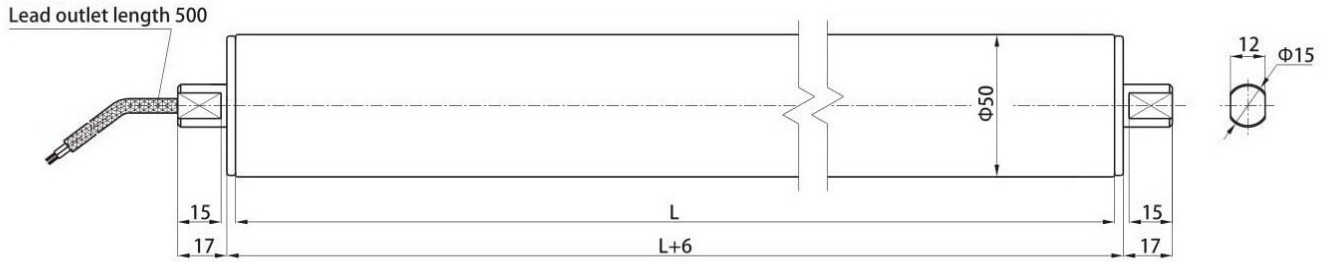
## Basic Characteristics Of Motor

24VDC/36VDC/48VDC external diameter 50 drum motor (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

Rated power (continuous)		W	40		
Rated speed		r/min	3000		
Rated torque		N.m	0.127		
Instantaneous maximum torque		N.m	0.191		
Speed control range		RPM	200-2500		
Speed control rang	On load	Below 1% : Condition rated torque, rated speed, rated voltage and room temperature.			
	On voltage	Below 1%: Condition rated voltage, rated speed, rated voltage, rated load, room temperature			
	On temperature	Below 1%: Condition of ambient temperature rated voltage, rated load and rated speed			
Power input	Rated voltage	V	Single phase 110 V	Single phase 220 V	24 VD option (6vdc/48VDC
	Voltage tolerance range		±10%		
	Frequency	Hz	50/60		/
	Frequency tolerance range		±5%		/
	Rated input current	A	0.72	0.36	2.70
	Instantaneous maximum input current	A	1.40	0.55	5.60



## BL50 Outlining Dimensions



• DC24V/AC220V

• Diameter:  $\Phi 50$  • Wall thickness: t1.5 • Power supply: DC24V/AC220V • Material: 20# carbon steel • Surface treatment: zinc plating

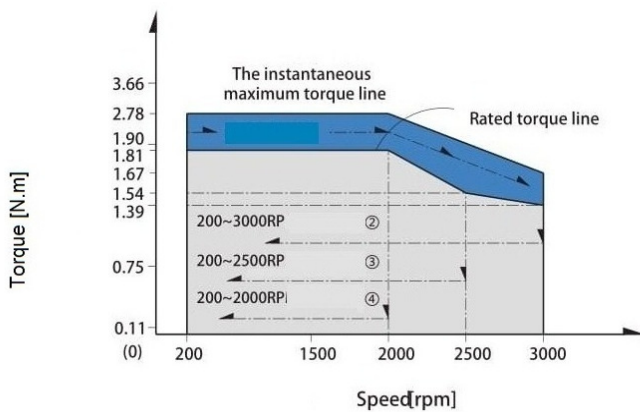
## BL50 Mechanical Parameters

Rated Power W	Gear Box Series	Reduction Ratio	Max Speed/ m/min	Rated Speed RPM	Allowable Torque Nm	Driving Force N	Length mm
40W	One Stage	3.65K	129	821.9	0.420	33.600	$\geq 260 \sim 800$
		5.36K	88.0	559.7	0.610	48.800	
		6.55K	72.0	458.0	0.750	60.000	
		8.63K	54.6	347.6	0.990	79.200	
	Two Stage	13.53K	35.0	221.7	1.390	111.20	$\geq 270 \sim 800$
		18.92K	25.0	158.6	1.950	156.00	
		24.65K	19.0	121.7	2.540	203.20	
		28.05K	16.8	106.9	2.890	231.20	
		33.92K	14.0	88.40	3.500	280.00	
		44.69K	10.5	67.10	4.610	368.80	
	Three Stage	58.22K	8.00	51.50	6.000	480.00	$\geq 290 \sim 800$
		67.08K	7.00	44.70	6.240	499.20	
		81.11K	5.80	37.00	7.540	603.20	
		91.36K	5.00	32.80	8.490	679.20	
		102.88K	4.60	29.20	9.560	764.80	
118.98K		4.00	25.20	11.06	884.80		
145.36K		3.20	20.60	13.51	1080.8		
165.64K	2.80	18.10	15.00	1200.0			
231.61K	2.00	12.90	15.00	1200.0			
301.68K	1.50	9.900	15.00	1200.0			

• This parameter is used for motor speed range in 200~300RPM

## Motion Characteristic Curve

Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example

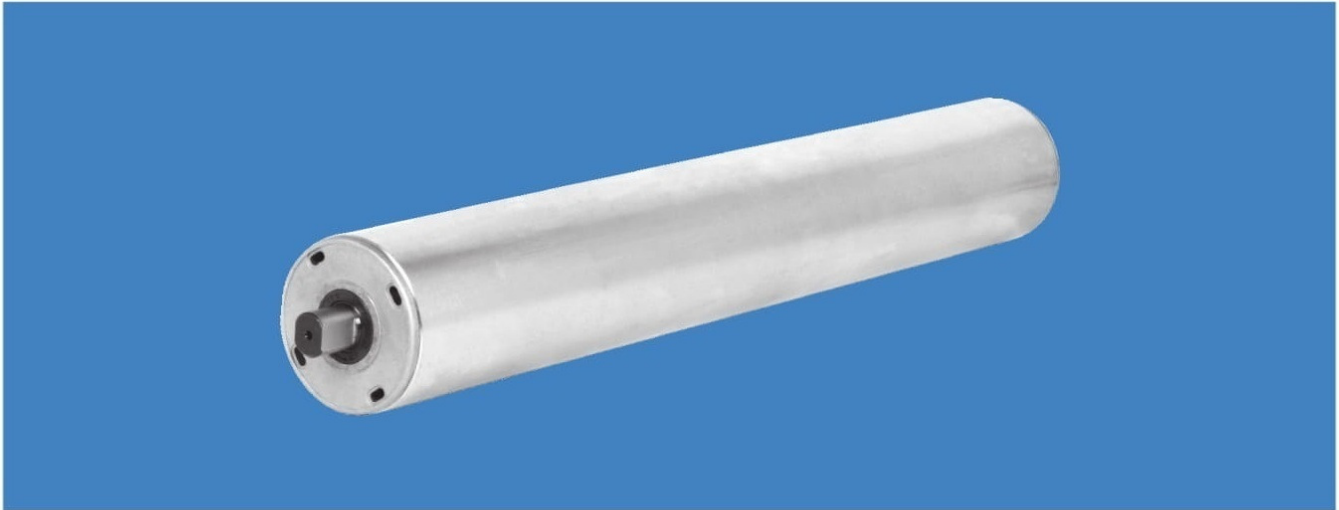


## Lead Out Outlet

Blue	Yellow	Green	Red	Yellow	Green	Blue	Black
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

- ① Short-time operation area
- ② 200~3000RPM Continuous operation area
- ③ 200~3000RPM Continuous operation area
- ④ 200~2000RPM Continuous operation area

# BL60 DRUM MOTOR



## Product Information

This type of drum motor can be installed in limited space and meet the torque requirement. Using alloy steel grinded gears and planetary transmission structure, **it is** free of maintenance and oil-renewing, space-saving. It can be use in many fields:

- Supermarket cashier
- Packaging machinery
- Belt conveyer line

## BL60 Characteristics Of Drum Motor

### Drum Shell

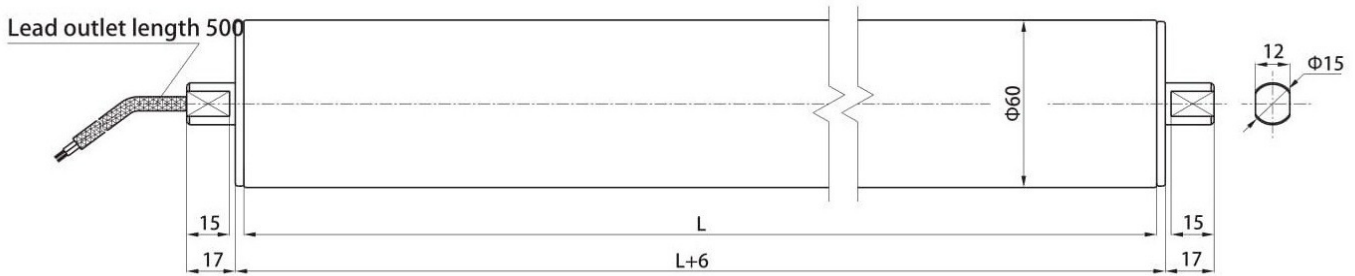
- Material of standard drum shell is mild **steel** garde shell is 304 stainless **steel** standard cylinder rolling mill gear slip flower **high alloy** steel precision, ensures low noise transmission when the **planetary gear** trnsmission

## Basic Characteristics Of Motor

24VDC/36VDC/48VDC ternal diameter 60 drum motor (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

Rated power (continuous)		W	90		
Rated speed		r/min	3000		
Rated torque		N.m	0.286		
Instantaneous maximum torque		N.m	0.570		
Speed control range		RPM	200-3000		
Speed control rang	On load	Below 1%: Condition rated tarqe, rated speed, rated voltage, room temperature			
	On voltage	Below 1%: Condition rated voltage, rated speed, rated load, room temperature			
	On temperature	Below 1%: Conditions of ambient temperature rated voltage, rated load and rated speed			
Power input	Rated voltage	V	Single phase 110 V	Single phase 220 V	24 VD option (6VDC/48VDC
	Voltage tolerance range		±10%		
	Frequency	Hz	50/60		/
	Frequency tolerance range		±5%		/
	Rated input current	A	2.3	1.2	5.3
	Instantaneous maximum input current	A	3.5	1.75	8.0

## BL60 Outlining Dimensions



- Diameter:  $\Phi 60$
- Wall thickness:  $t1.5$
- Power supply: DC24V/AC220V
- Material: 20# carbon steel
- Surface treatment: zinc plating

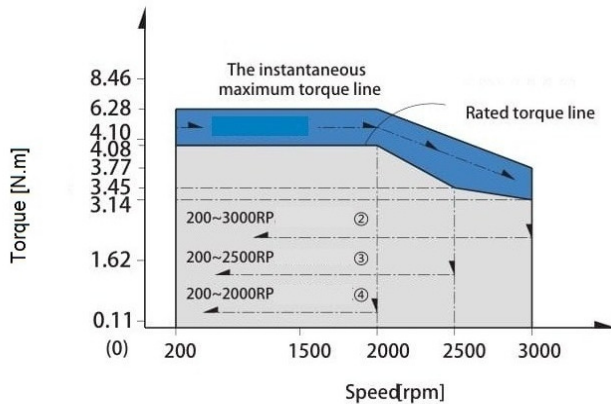
## BL60 Mechanical Parameters

Rated Power $P$ W	Gear Box Series	Reduction Ratio	Max Speed $v$ m/min	Rated Speed RPM	Allowable Torque Nm	Driving Force N	Length $l$ mm
90W	One Stage	3.65K	155	821.9	0.940	62.700	$\geq 270 \sim 1000$
		5.36K	105	559.7	1.380	92.000	
		6.55K	86.0	458.0	1.690	112.70	
		8.63K	65.0	347.6	2.230	148.70	
	Two Stage	13.53K	42.0	221.7	3.140	209.30	$\geq 290 \sim 1000$
		18.92K	30.0	158.6	4.390	292.70	
		24.65K	23.0	121.7	5.720	381.30	
		28.05K	20.0	106.9	6.510	434.00	
		33.92K	17.0	88.40	7.870	524.70	
		44.69K	13.0	67.10	10.37	691.30	
		58.22K	10.0	51.50	12.00	800.00	
		Three Stage	67.08K	8.00	44.70	14.03	
	81.11K		7.00	37.00	16.96	1130.7	
	91.36K		6.00	32.80	19.11	1274.0	
	102.88K		5.50	29.20	21.52	1434.7	
	118.98K		5.00	25.20	24.88	1658.7	
	127.74K		4.40	23.50	25.00	1666.7	
	145.36K		4.00	20.60	25.00	1666.7	
	165.64K		3.40	18.10	25.00	1666.7	
	191.56K	3.00	15.70	25.00	1666.7		
231.61K	2.40	12.90	25.00	1666.7			
301.68K	2.00	9.900	25.00	1666.7			
392.98K	1.44	7.600	25.00	1666.7			

- This parameter is used for motor speed range in 200~300RPM

## Motion Characteristic Curve

Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example

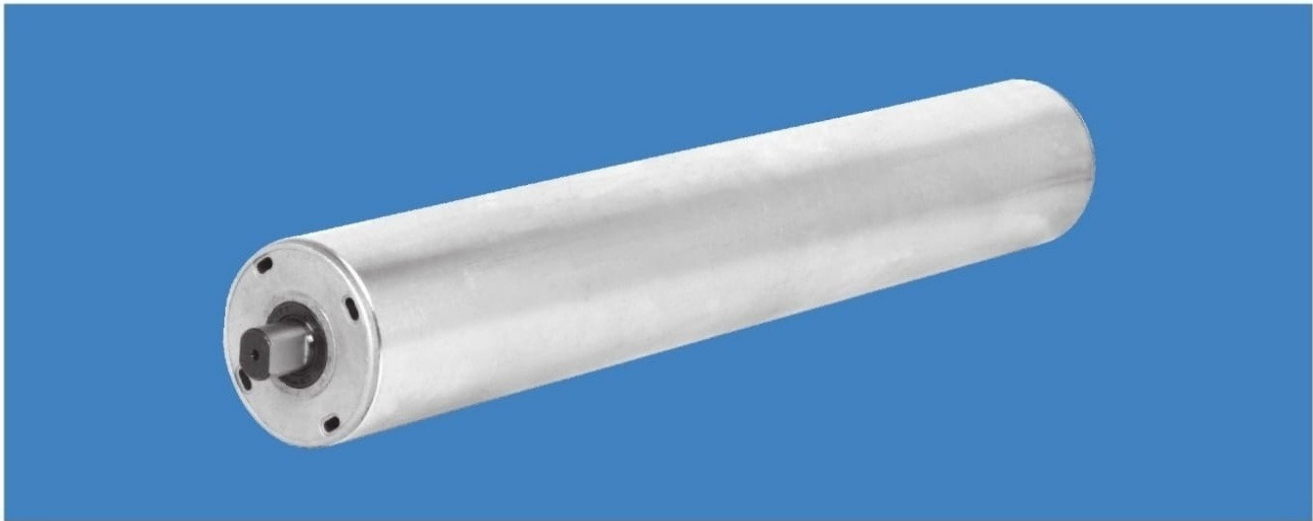


## Lead Out Outlet

Blue	Yellow	Green	Red	Yellow	Green	Blue	Black
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

- ① Short-time operation area
- ② 200~3000RPM Continuous operation area
- ③ 200~2500RPM Continuous operation area
- ④ 200~2000RPM Continuous operation area

# BL70 DRUM MOTOR



## Product Information

This type of drum motor can be installed in limited space and meet the torque requirement. Using alloy steel grinded gears and planetary transmission structure, reliable it is free of maintenance and oil-renewing, space-saving. It can be use in many fields:

- Supermarket cashier
- Packaging machinery
- Belt conveyor line

## BL70 Characteristics Of Drum Motor

Drum Shell

Material of standared drum shell is mild steel 2) Food Garde shell is 304 stainless steel 3) standard cylinder rolling mill gear slip flower - gear 4) high alloy steel precision, ensures low noise transmission when the 5) planetary geared transmission

## Basic Characteristics Of Motor

24VDC/36VDC/48VDC ternal diameter drummotor (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

Rated power (continuous)		W	120		
Rated speed		r/min	3000		
Rated torque		N.m	0.382		
Instantaneous maximum torque		N.m	0.760		
Speed control range		RPM	200-3000		
Speed control rang	On load	Below 1%: Condition rated torque, rated speed, rated voltag, room temperature			
	On voltage	Below 1%: Condition rated voltage, rated speed, rated load, room temperature			
	On temperature	Below 1%:Conditions of ambient temperature rated voltage, rated load and rated speed			
Power input	Rated voltage	V	Single phase 110 V	Single phase 220 V	Option (6 VDC/48VDC
	Voltage tolerance range		±10%		
	Frequency	Hz	50/60		/
	Frequency tolerance range		±5%		/
	Rated input current	A	3.1	1.5	7.1
	Instantaneous maximum input current	A	4.7	2.3	10.7

## BL70 Outlining Dimensions



• Diameter  $\phi 70$  • Wall thickness:  $t1.5$  • Power supply: DC24V/AC220V • Material: 20# carbon steel • Surface treatment: zinc plating

## BL70 Mechanical Parameters

Rated Power W	Gear Box Series	Reduction Ratio	Max Speed m/min	Rated Speed RPM	Allowable Torque Nm	Driving Force N	Length mm
120W	One Stage	3.65K	180	821.9	1.250	71.4000	$\geq 320 \sim 1000$
		5.36K	123	559.7	1.840	105.100	
		6.55K	100	458.0	2.250	128.570	
		8.63K	76.0	347.6	2.960	169.140	
	Two Stage	13.53K	48.0	221.7	4.180	238.850	$\geq 340 \sim 1000$
		18.92K	34.0	158.6	5.850	334.280	
		24.65K	26.0	121.7	7.620	435.420	
		28.05K	23.5	106.9	8.680	496.000	
		33.92K	19.0	88.40	10.50	600.000	
		44.69K	14.0	67.10	13.80	788.570	
	Three Stage	58.22K	11.0	51.50	18.00	1028.57	$\geq 360 \sim 1000$
		67.08K	9.00	44.70	18.60	1062.85	
		81.11K	8.00	37.00	22.58	1290.28	
		91.36K	7.00	32.80	25.44	1453.71	
		102.88K	6.00	29.20	28.64	1636.57	
		118.98K	5.00	25.20	33.13	1893.14	
		127.74K	5.00	23.50	35.57	2032.57	
		145.36K	4.50	20.60	40.48	2313.14	
		165.64K	4.00	18.10	46.12	2635.42	
191.56K		3.40	15.70	50.00	2857.14		
231.61K	2.80	12.90	50.00	2857.14			
301.68K	2.00	9.900	50.00	2857.14			
392.98K	1.60	7.600	50.00	2857.14			

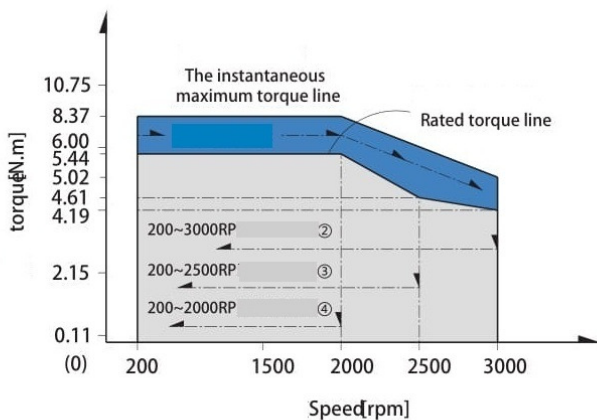
• This parameter is used for motor speed range in 200~300RPM

## Lead Out Outlet

Blue	Yellow	Green	Red	Yellow	Green	Blue	Black
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

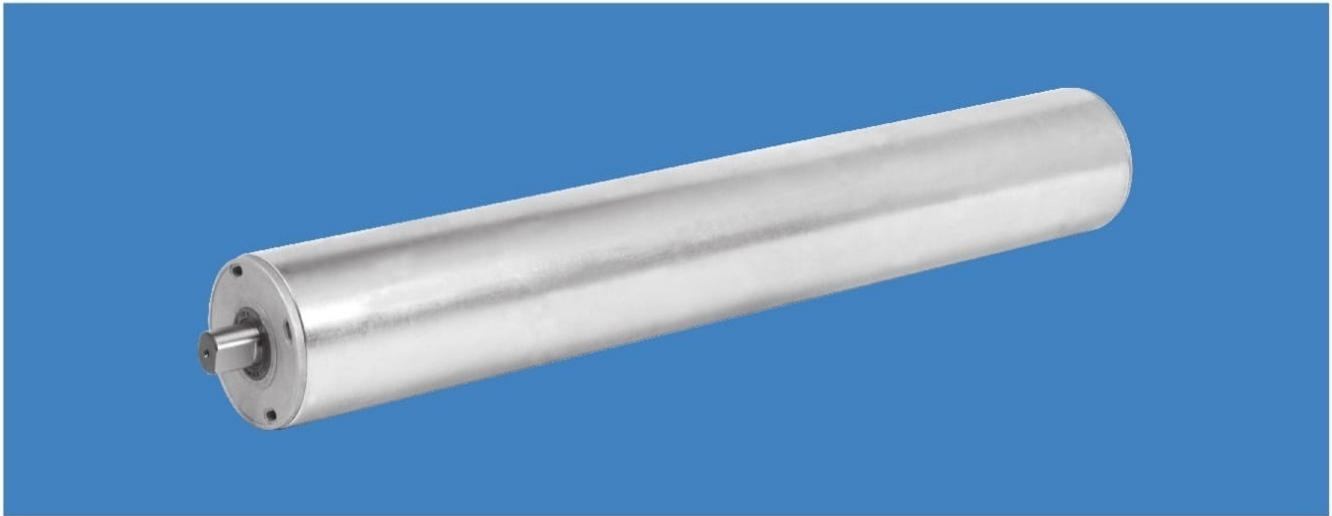
## Motion Characteristic Curve

Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example



- ① Short-time operation area
- ② 200~3000RPM Continuous operation area
- ③ 200~2500RPM Continuous operation area
- ④ 200~2000RPM Continuous operation area

# BL80 DRUM MOTOR



## Product Information

This type of drum motor can be installed in limited space and meet the torque requirement. Using alloy steel grinded gears and planetary transmission structure, it is reliable free of maintenance and oil-renewing, space-saving. It can be use in many fields:

- Supermarket cashier
- Packaging machinery
- Belt conveyor line

## BL80 Characteristics Of Drum Motor

### Drum Shell

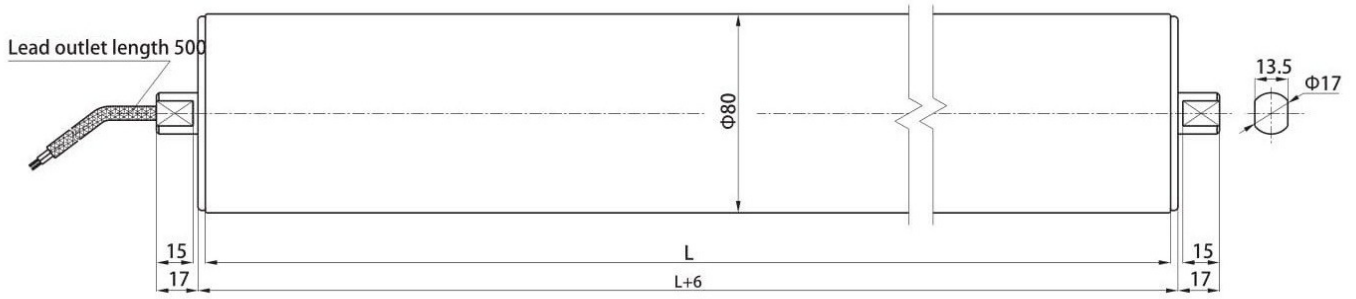
- Material of standard drum shell is mild steel garde shell is 304 stainless steel standard cylinder rolling mill gear slip flower high alloy steel precision, ensures low noise transmission when the planetary gear transmission

## Basic Characteristics Of Motor

24VDC/36VDC/48VDC External diameter 80 drum motor (DC Power Supply When Applied To 24VDC/ 36VDC/48VDC)

Rated power (continuous)		W	150		
Rated speed		r/min	3000		
Rated torque		N.m	0.478		
Instantaneous maximum torque		N.m	0.72		
Speed control range		RPM	200-3000		
Speed control rang	On load	Below 1%: Condition rated torque, rated speed, rated voltage, room temperature			
	On voltage	Below 1%: Condition rated voltage, rated speed, rated load, room temperature			
	On temperature	Below 1%: Conditions of ambient temperature rated voltage, rated load and rated speed			
Power input	Rated voltage	V	Single phase 110 V	Single phase 220V24VD	Option (6VDC/48VDC
	Voltage tolerance range		±10%		
	Frequency	Hz	50/60		/
	Frequency tolerance range		±5%		/
	Rated input current	A	3.89	1.95	8.9

# BL80 Outlining Dimensions



• Diameter  $\Phi 80$  • Wall thickness: t2.0 • Power supply: DC24V/AC220V • Material: 20# carbon steel • Surface treatment: zinc plating

## BL80 Mechanical Parameters

Rated Power W	Gear Box Series	Reduction Ratio	Max Speed/ m/min	Rated Speed RPM	Allowable Torque Nm	Driving Force N	Length mm
150W	One Stage	3.65K	211.7	821.9	1.570	76.600	$\geq 360 \sim 1000$
		5.36K	144.0	559.7	2.300	112.20	
		6.55K	118.0	458.0	2.810	137.10	
		8.63K	89.50	347.6	3.710	180.90	
	Two Stage	13.53K	57.00	221.7	5.230	255.10	$\geq 380 \sim 1000$
		18.92K	41.00	158.6	7.320	357.10	
		24.65K	31.00	121.7	9.530	464.90	
		28.05K	27.50	106.9	10.85	529.30	
		33.92K	22.80	88.40	13.11	639.50	
		44.69K	17.00	67.10	17.28	842.90	
		58.22K	13.00	51.50	22.52	1098.5	
		67.08K	11.50	44.70	23.35	1139.0	
	Three Stage	81.11K	9.500	36.90	28.23	1377.1	$\geq 400 \sim 1000$
		91.36K	8.500	32.80	31.80	1551.2	
		102.88K	7.500	29.10	35.81	1746.8	
		118.98K	6.500	25.20	41.41	2020.0	
		127.74K	6.000	23.50	44.46	2468.8	
		145.36K	5.000	20.60	50.60	2468.3	
		165.64K	4.600	18.10	57.66	2812.7	
		191.56K	4.000	15.60	66.68	3252.7	
231.61K	3.000	12.90	80.62	3932.7			
301.68K	2.500	9.900	84.00	4097.6			
392.98K	2.000	7.600	84.00	4097.6			

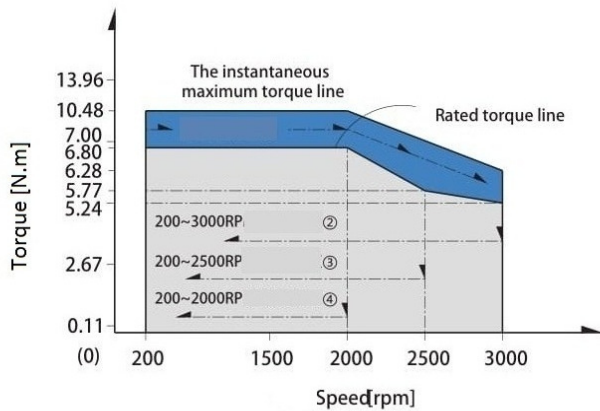
• This parameter is used for motor speed range in 200~300RPM

### Lead Out Outlet

Blue	Yellow	Green	Red	Yellow	Green	Blue	Black
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

### Motion Characteristic Curve

Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example



- ① Short-time operation area
- ② 200~3000RPM Continuous operation area
- ③ 200~3000RPM Continuous operation area
- ④ 200~2000RPM Continuous operation area

# CONTROLLER

## Fault Alarm

- When current too high, or overheating, or other abnormal situation happens, the speed control will enter protection status, and stop working, in the meantime the Digital display will flash and show error type.
- Power Off, refer to fault-shooting instruction, check and solve the problem.

## Trouble

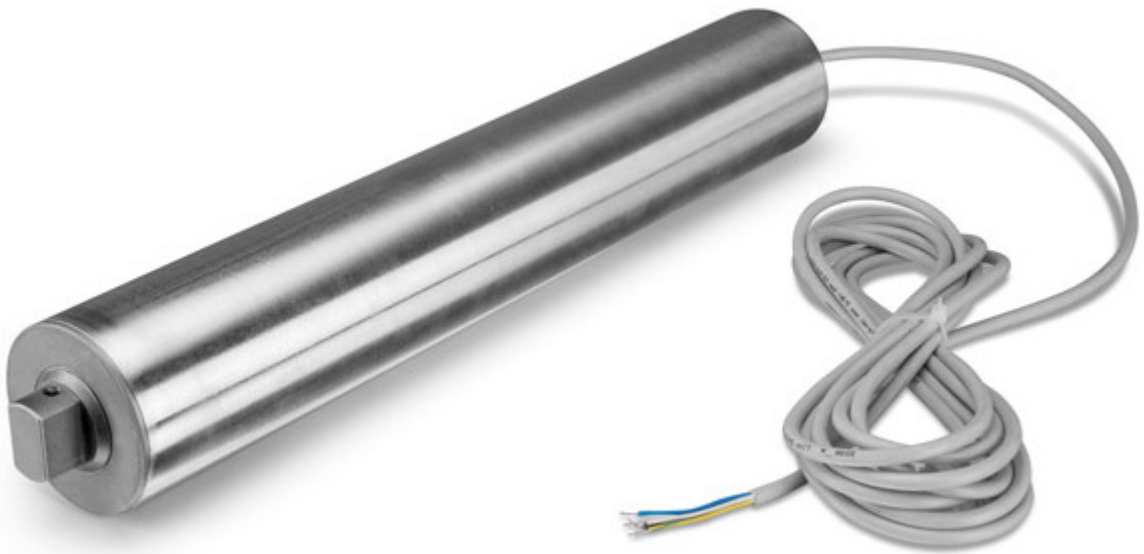
Fault Display	Fault Content	Solution
ERR 1	Short-circuit anomaly	Check whether the drive, motor line is short circuit
ERR 2	Holzer anomaly	Check motor connection end contact is good
ERR 3	Current anomaly	Check if the motor is locked up, beyond the rated load
ERR 4	Voltage abnormality	Check whether the input voltage is normal
ERR 5	Direction anomaly	Check motor direction signal is short circuit
ERR 6	Overheat protection	Check whether the drive cooling environment is <b>good</b>
ERR 7	Abnormal system	Internal system error

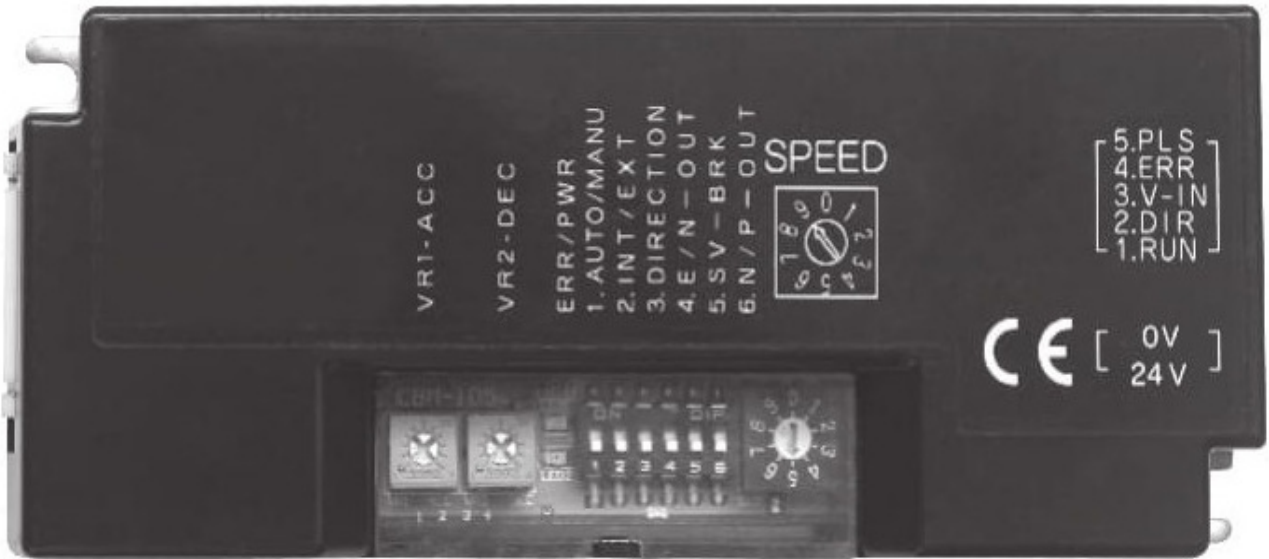
To check and eliminate the fault, we must cut off the total power supply, and then re power, if there is still a failure, please contact us.

## Notes

- Right, well spliced lead wire of the motor, the external power line and ensure the motor and drive ground is good and reliable.
- Open the power switch, the power indicator light.
- Selection of motor running direction.
- Adjust the potentiometer knob to the desired speed, the speed potentiometer knob clockwise rotation to increase.





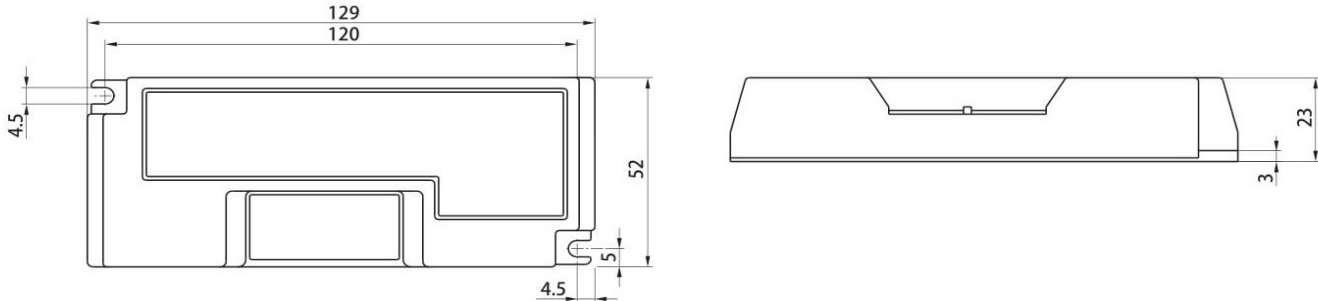


# DRIVER CARD

## ZD-24 Structure-Photo



## ZD-24 Structure-Outlining Dimensions



## Outline Drawing

### 1.Speed Regulation

- Adjustment range: 200rpm~3000rpm (only on behalf of the motor speed)
- Adjustment mode: internal regulation (adjustable 31 files), external analog adjustment (0~10V) or 485 remote control
- PID closed loop stable speed control: the use of adaptive PID adjustment, stable speed range 5%

### 2.Acceleration / Deceleration Regulation

- Acceleration adjustment: 16 stalls 0.1s~5s
- Minus speed adjustment: 16 gears 0.1s~5s

### 3.Running Direction

- Set the default running direction of the dial switch
- External I/O input control operation direction

### 4.signal Transfer Output

When the control card to detect the alarm information, it will automatically stop running, and alarm

- Control card running indicator flashing
- External I/O alarm output (can be connected with PLC and other equipment)
- Alarm: current alarm, overpressure alarm, under pressure alarm, Holzer alarm, communication abnormalities, etc.

### 5.Speed / Position Output

- External I/O output motor pulse signal (unit for brushless motor an electric angle)

### 6.Working Power Supply

- Voltage: DC24V
- Current: the rated current is not more than 5A, the maximum peak current is 3.4A

### 7.Brake

- No brake: disconnect the internal power supply circuit of the control card, so that the rotor continues to rotate until the mechanical load is automatically stopped
- Standard power brake: control card internal control of brushless motor three-phase shunt grounding, so that the rapid brake
- Mechanical brake: brake by the mechanical brake disc on the shaft of the motor

### 8.External Sensor Interface

- The control card is provided with an external sensor interface, which is convenient for users to use

### 9.485 Bus Control

- ZD-24 control card has a bus control function based on MODEBUS communication protocol, a bus can connect up to 256 sets of equipment, and can have a unified control of the host MODEBUS protocol

# DANGER

In this inquiry may appear when the electric roller various dangerous or harmful information

## Personnel Injury

- The maintenance and maintenance operations of the equipment can only be performed by authorized professionals in the condition of compliance with the effective requirements.
- Connect the electric roller to ensure that no unauthorized person is standing near the conveyor belt.

## Drum Motor Oil Renewing

- Can only be installed and maintenance operations in the state of **no electricity** dentally connected electric roller.
- Do not swallow oil. Usually, the use of oil is not toxic, but it may also contain harmful substances. Swallowing oil may cause nausea, vomiting or diarrhea. often, no treatment is required after swallowing the lubricating oil, except for a large amount of oil. Still, it should be a doctor's advice.
- Please avoid contact with skin and eyes. If the skin with oil or repeated exposure to the longer exposure of lubricating oil, if not in accordance with the provisions of the clean, may cause skin hair embryo blockage or the occurrence of skin diseases, such as oil acne and folliculitis.
- The oil that is not carefully spilled should be cleaned as soon as possible so as not to produce a smooth surface. To ensure that the oil does not enter the environment. cloth or cleaning material contaminated by oil shall be cleaned in accordance with the regulations, in order to prevent the occurrence of spontaneous combustion or fire.
- If the oil combustion occurs, please use foam, spray or mist, dry chemical powder or carbon dioxide fire extinguishing. Do not use fire water spray fire. Please wear appropriate protective clothing and breathing masks.

## Rotating Parts

- Prohibit touching the electric roller and the conveyor belt or roller chain around the area.
- Tie up hair.
- Wear a tight fitting suit.
- Prohibition of wearing jewelry, such as bracelets or bracelets.

## Heated Parts

Do not touch the surface of the electric roller. Even under normal operating temperature conditions, it also has the potential to cause burns.

## Work Environment

- Prohibition of the use of the electric roller in explosive environment.
- Clear working areas do not need the material and goods.
- Wear safety shoes.
- Monitor the placement of goods on the line.

## Running Fault

- Regularly check whether the electric drum is visible damage.
- Smoke, abnormal noise, conveyor belt blocked or damaged, immediately stop the electric roller and prevent accidental connection.
- Immediately contact the professional staff to determine the cause of failure.
- At run time, do not trample on the electric roller or the electric roller conveyer or equipment.

## Maintain

- Since the product is free to maintain the product, it is necessary to check the product regularly for damage, abnormal noise, fittings, bolts and nuts.
- Don't turn on the electric roller.

## Abnormal Motor Starting

Please be careful when installing and maintaining or when the electric drum is in trouble.

## Interface With Other Devices

- There may be dangerous points on the installation of the electric roller to the transmission device. The danger point is not stated in the current operating instructions, and acquired in the development, installation and commissioning of the carrier
- In the installation of electric roller to the transmission device or similar system, it must be turned on before the entire device is a potential new risk.

# TRANSPORTATION AND STORAGE

## Transport

### Caution

The danger of damage to the product by mistake

- Can only be implemented by authorized professional transport operation bracket can not overlap stacking. Please make sure that the electric roller is completely fixed.

### Attention

Improper transportation can cause damage to electric roller

- Avoid strong impact during transportation Don't pull the cable or terminal box to carry electric drum transport of electric roller in cold and hot alternating environment. Because this is likely to make electric drum internal condensation water. after transport, check whether the electric drum is damaged or not. if damage occurs, please take a picture of the damaged part. Notify the dealer and immediately when the damage occurs.

## Deposit

### Caution

Improper placement will have a risk of injury

- Bracket can not overlap stacking, Stacking up to four cartons note in accordance with the provisions of fixed.

- Please store the electric roller in a clean, dry place, storage temperature of +15 to + 30 degrees Celsius; prevent electric roller contact moisture and moisture.
- When the storage time for more than three months, please from time to time to avoid damage to the rotating shaft, shaft seal.
- After storage, check whether the electric drum is damaged or not.

## Installation

### Caution

The rotating parts of the motor and the danger of having a crush on the finger

- Prohibition of touching the electric roller and conveyor belt or roller chain surrounding area. protection device installed (e.g., protection cover) to prevent belt or roll extrusion fingers.

### Attention

The danger of damage to the body may result in the interruption of the electric roller or the shortening of service life.

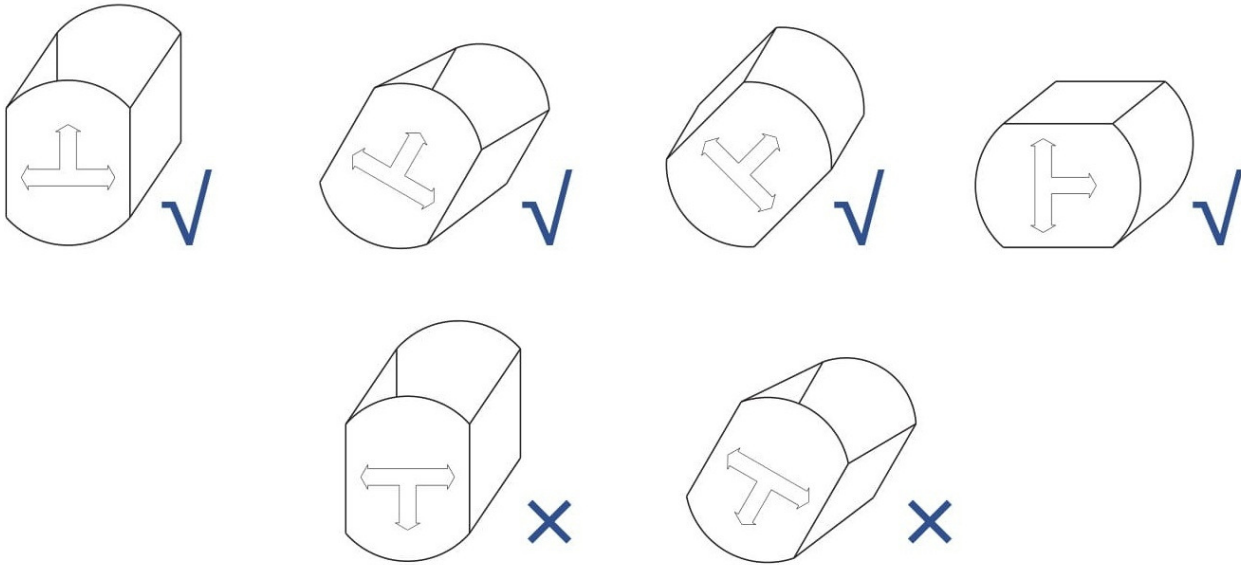
- Can not fall or inappropriate use of electric roller, so as to avoid damage to the internal. to detect whether each electric drum is damaged before installation the electric roller can not be fixed, load or reinforced on the cable from the motor shaft to avoid the internal solder joint and seal demagr. don't turn the motor cable. conveyor belt can not over tighten.

Installation position error can cause roller damage

- Ensure that the shaft is located in the direction of the arrow.

## Installation Position

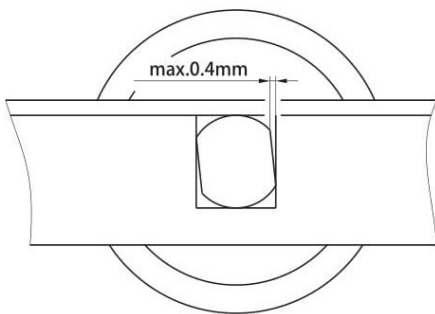
The Correct Direction Of The Drum Motor When The Level Is Installed



The Drum Motor Installation Must Be Strong Enough, In Order To Withstand Motor Torque

- The roller mounting bracket is arranged in the transmission frame to make sure that the electric roller is parallel to the pulley and the transmission frame is a right angle.
- If the shaft is fixed on the mounting bracket must be fixed, shall end only without a cable, so that in case of heat when the other end extends to the axial movement.
- Make sure that at least 80% of the electric roller is fixed on the roller mounting bracket.
- If the electric drum is often reversed to run or start / stop operation, there is no gap between the mounting shaft flat and roller mounting support.

Positive Inversion / Start Stop Operation



The torsion gap between the shaft and the mounting bracket must be 0.4mm

## Assembly Conveyor Belt

### Attention

Over the hours of the conveyor belt may appear to overheat

- To ensure that the transmission belt is running on an electric roller, and the conveyor belt covers at least 70% of the width of the electric drum.

For less than 70% of the transmission belt contact area of the electric roller need other structure, please contact ZD

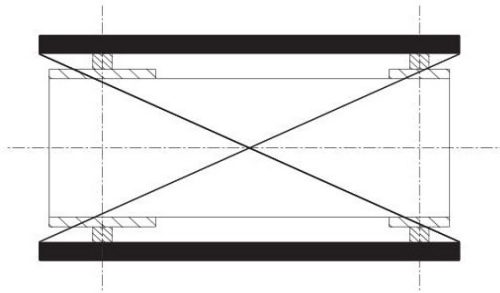
## Conveyor Belt Adjustment

### Attention

Adjustment errors may lead to the use of life shortening and the transmission of the belt and bearing damage

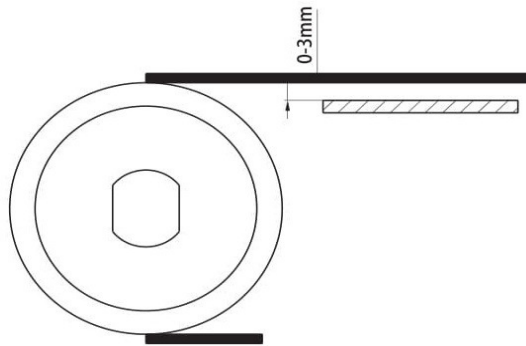
- Detect diagonal size, the difference between the maximum allowed for 0.5%.

### Diagonal Detection



The maximum spacing between the conveyor belt and the slide plate allows 3mm.

### Conveyor Belt Position



## Conveyor Belt Adjustment

### Attention

The conveyor belt stretched too tight may lead to short working life, bearing wear or oil leakage

- After the electric roller is installed, how to confirm the belt tension level? from the experience of the general use. the belt is enough to pass the traction load. the load running belt does not slip into the suitable standard, is strictly prohibited. belt tightening. otherwise it will lead to excessive electric drum noise, motor overheating and the bending deformation of the front and rear axle, or directly lead to the end of the electric roller. When the adjusting belt, should ensure that the electric roller and the driven roller in parallel, belt tension is uniform, otherwise it will cause the deviation of the belt or belt damage, Electric drum depends entirely on the belt conveyor belt is not installed in the heat, when no idling. Otherwise, the surface temperature of the cylinder will rise rapidly. the heat roller not timely dissemination, so as to burn out the motor. The width of the conveyor belt must be covered by the electric cylinder's width of 2/3 above, in order to prevent the electric drum internal heat due to the inability to send out in time and lead to overheating of the cylinder. If there is less or no belt operation of the electric roller contact belt, it is necessary to use a special electric roller, on the special electric roller, the buyer should contact with the technical department of the company.



## Rubber Suspension

- The extra use of rubber will cause the electric roller to overheat. For some of the electric roller may also have a limit on the thickness of rubber suspension.
- In order to avoid thermal overload, the required power should be multiplied by 1.2
- If you would like to install such a product, please consult the large technical department regarding the type of rubber and its maximum thickness.
- Sprocket on shell

In order to run the track, a sufficient number of sprocket must be installed on the electric roller to support the weight of the belt and pull the load. With the mesh be floating bearing, so as not to heat the extension. A chain wheel is only allowed to guide the conveyor belt; or it may lead to the conveyor belt from the side.

Be Careful

The conveyor belt is damaged, do not use the fixed wheel and the side rail at the same time.

## Electrical Installation Warning Tips

Warning

Electric shock hazard

- Electrical installation can only be performed by authorized professional staff. cut off voltage before installing, removing the electric roller or changing the electric roller. do not connect the AC electric drum to the DC power supply. This will cause the damage to be repaired.

## Electrical Connection Of Electric Roller

- Ensure that the motor is connected with the correct line voltage of the motor basic data sheet.
- Ensure the electric drum through the establishment of a yellow green cable grounding
- Connecting the electric roller with reference to the connection diagram.

# CONNECTION OF DRUM MOTOR

## Junction Box Option

### Attention

Because of the change of the junction box, the internal wiring is damaged

- Can not remove, reinstall or change the junction box. Take of the cover the junction box. Ensure that the motor is connected with the correct line voltage of the basic data table of the motor. Make sure that the connection box of the electric roller is correct. Connect the electric roller according to the wiring diagram. Cover the cover

---

We need 100% single-phase motor starting torque, so it must be connected to the drum motor starting capacitor and running capacitor. Starting torque can be reduce to 70% of the value of the parameters in the parameter list without the condition of the starting capacitor

The motor must be equipped with the appropriate external motor, such as over current relay. Must be carried out in accordance with the rated current of the motor to protect the device.

## Invertor

- Can be used to run asynchronous electric drum, the inverter itself, but must be based on the given parameters of the motor data.
- The resonance frequency of the wire must be stopped, because it will produce a peak in the motor
- Assuming that the cable is too long, the frequency converter will cause the resonance frequency of the transducer and the motor.
- Fully protected cable for connecting inverter and motor.
- If the cable length is more than 10 meters or a frequency converter to control multiple motors, then to the assembly of a sinusoidal filter or a motor throttle valve.
- Make sure that the cable shield is connected with the grounding part according to the electrical regulations and the local EMV.
- Anti reversing device (unidirectional rotor bearing).

### Attention

The electric roller is damaged by the wrong direction of rotation

Connect the electric roller with the wiring diagram. The electrical connection of the electric roller on the end housing shows the correct direction of

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Electromagnetic brake: electric drum will be provided with a rectifier, which has been fitted with an electromagnetic brake (if not included in the 24VDC brake connect the rectifier and the brake according to the wiring diagram. The rectifier has a current port and a DC power port for braking.

## Brake Starting Attention Requirement

- When the electric drum with electromagnetic brake, must use the rectifier and the wiring diagram is correct connection. Rectifier is AC input, DC output, control circuit is designed for this motor and brake, the two can not interfere with each other. Should take into account the electromagnetic brake release 0.4 - 0.6 seconds of the reaction time, the motor running when the brake should not move, brake brake when the motor should not start, the recommended rectifier to the brake should not exceed the distance 2M, mainly to avoid voltage changes.
- Only by cutting off the power supply to the motor, can we turn off the brake.
- Only the brake has been lifted, the motor can be turned on.

# DEBUGGING AND RUNNING

## First Debug

Only the correct installation of the electric roller and connecting the power, and all the rotating parts are equipped with a safety device and shield, to run the electric roller. the electric roller has been added to the factory to have enough lubricating oil and has been fitted well. For the first time, must follow the following steps:

- To ensure that the model and the model are in line with the model order.
- Make sure that the surrounding body is not exposed to the rotating part or the movable part.
- Make sure that the electric roller and the conveyor belt can move smoothly.
- Make sure that the conveyor belt uses the ZD recommended tension.
- Make sure that all the bolts are fixed in accordance with the instructions.
- Ensure that other components are not formed by the other components of the interface.
- Make sure that the correct wiring of the electric drum, and connected power supply.
- Check all safety devices.
- To ensure that no staff in the hazardous area of the conveyor stay.
- When the electric drum with anti reverse device, must ensure that the motor is connected to the correct direction of rotation, or electricity will damage the motor. the rotating direction is generally marked on one end of the electric roller.

## Operation

### Caution

Rotating parts and accidental damage to the risk of damage to the fingers

- Prohibit touching the electric roller and the conveyor belt around the area. don't take off the protective hair and loose clothing should be far from the electric roller and conveyor belt.
-

# MAINTENANCE AND CLEANING

## Tips For Maintenance And Cleaning

### Look Out

Improper operation of the environment or motor type may cause damage to the personnel

- Can only be maintained at different points of the state to maintain the operation, to prevent accidentally connected electric roller. Tips for preventing display maintenance jobs.

## Maintain

Generally speaking, ZD electric drum without maintenance, and in its service life without special maintenance. Of course, regular checks are necessary.

- Check to ensure the smooth running of the electric roller.
- Check whether there is a visible damage to the electric drum.
- Ensure that the conveyor belt is adjusted, and the electric roller is the center, and the frame is parallel to the conveyor.
- Check the motor shaft and bracket of the transmission rack every week.
- Check cables, wires and connectors for a week, whether it is fixed well.
- If the motor is running in a sensitive environment, such as water, salt, etc., or in a continuous load state, please always lubricate the motor

## Oil Renewing

Generally do not need to replace the lubricating oil, but because of special reasons can change operations.

### Warning

Lubricating oil may cause spontaneous combustion, the formation of a smooth surface, it may contain harmful substances

- Do not swallow lubricating oil. After swallowing the lubricating oil, the doctor's advice should be sought. Please avoid with skin and eyes. spilled oil must be disposed of as soon as possible to prevent the formation of a smooth surface or a fire. If the lubricating oil is burning, please use the dry chemical powder or carbon dioxide to extinguish the

### Attention

Error using lubricating oil may cause damage to electric roller

- When changing the oil, please consult the ZD to confirm the type of lubricant. Do not use a mixture of oil, which may damage the insulation of the motor. prohibit the use of containing graphite or molybdenum disulfide, lubricating oil or other conductive material. take off oil plug. The remaining oil in the drum.
- Inject new lubricating oil into the electric cylinder (lubricant type and dosage of ZD). The lubricating oil which is loaded back to the electric roller and the rotary fixed.

## Clean

Only high quality steel and stainless steel electric drum IP66 equipped with a high-pressure cleaner for cleaning

### Attention

Due to high pressure lead to a decrease in sealing

- Do not keep the nozzle in the same position of the shaft seal ring when the seal. • the nozzle is kept in the whole electric roller, and it has a regular operation.

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Before you can use high pressure cleaners, please pay attention to the following points:

- The distance between the high pressure nozzle and the electric roller must be kept at least 30cm.
- Can use the maximum pressure of 50 bar.
- When the high pressure cleaning, electric roller must be running state, otherwise it will water seepage or damage to seal.

## Sanitary Cleaning

### Attention

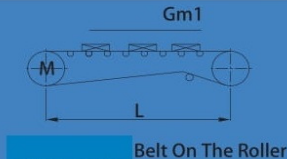
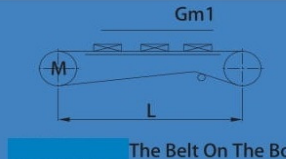
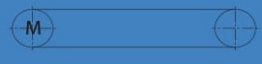



Improper cleaning can lead to damage to electric roller

- Any time to prohibit the use of acid containing detergent and containing oxygen, because the harmful substances produced by chlorine may damage the parts. • Please do not use the clean agent containing acid on the aluminum or galvanized parts. • To avoid the temperature more than 55°C, so as to avoid protein deposition on the surface, please use the appropriate cleaning agent to remove the oil in the lower temperature conditions. • Avoid water pressure over 20 bar, so as to avoid gas. • Keep the distance between the nozzle and the surface to clean 30cm. • Do not align the nozzle directly to the seal and other seals. • Clean, loose dirt. Pre cleaning of water (20 bar, 55°C). Ushing the nozzle to the surface of the 45° angle
- For more thorough cleaning, use a soft brush to clean the seal, the groove and the other concave. If the stain is serious, please use a soft brush or scraper clinker with water mist. Clean with cold alkaline or acid detergent for about 15 minutes. • Rings the detergent with water (20 bar, 55°C). • Disinfection with cold disinfectant for about 10 minutes. • Rines with water (20 bar, 55°C). After the completion of the cleaning, check the surface, groove and other concave where there are residues.

- 
- If you want to clean the deposition of calcium we recommend the use of acid cleaning agent to implement 1 to 4 times a month clean.
  - If we are allowed to use chlorine for cleaning, we recommend using alkaline detergent and disinfectant. In this case, the implementation of different degree of visible soiling, or abandon the use of the last step of disinfection.

# TRACTION FORCE CALCULATION OF DRUM MOTOR

∴ Traction Calculation Formula Of Electric Roller:

Belt Conveyor System	 Belt On The Roller	 The Belt On The Board	 To Return A Pallet
 Traction Force Without Load	$F_0=0.4*L*(2Gn+Gr)$	$F_0=11*L*Gn*f_2$	$F_0=10*L*Gn*(f_2+f_4)$
 Traction Force Of Horizontal Transportation	$F_1=0.4*L*Gm_1$	$F_1=11*L*Gm_1*f_2$	$F_1=10*L*(Gm_1*f_2+Gm_2*f_4)$
 Traction Force When The Product Is Transported	$F_2=10*L*Gm_1*f_1$	$F_2=10*L*Gm_1*f_1$	$F_2=10*L*(Gm_1*f_1+Gm_2*f_3)$
 Traction Force When The Climbing Conveyor	$F_3=10*H*Gm_1$	$F_3=10*H*Gm_1$	$F_3=10*H*(Gm_1-Gm_2)$

- F: Electric roller traction (N)
- L: Horizontal projection of center distance between driving drum and drum (m)
- H: Conveyor height (m)
- Gm1: Load weight per meter of belt conveyor, expressed as a process (kg/m)
- Gm2: Load weight per meter of belt conveyor, expressed return (kg/m)
- Gn: Weight per meter (kg/m)
- Gr: Total amount of rotating parts per meter of belt conveyor, including back and forth part (kg)
- f1: Coefficient of friction between the conveyor belt and the belt conveyor (Table 2)
- f2: The conveyor belt bearing plate and friction coefficient between surfaces (Table 2)
- f3: Coefficient of friction between the conveyor and the return belt (Table 2)
- f4: The pallet conveyor and return belt bearing friction coefficient between surface (Table 1)

Table 1

f2/f4	PE Belt	PP Belt	POM Belt	PVC Belt	Polyester	Rubber
PE sliding plate	0.30	0.15	0.11	-	-	0.40
Low carbon steel or stainless steel plate	0.15	0.26	0.22	0.48	0.28	0.40

Table 2

f1/f3	PE Belt	PP Belt	POM Belt	PVC Belt	Polyester	Rubber
Steel product	0.13	0.34	0.23	0.30	0.18	0.40
Glass product	0.09	0.19	0.15	-	-	-
Plastic product	0.08	0.18	0.15	0.30	0.17	0.40

## TROUBLESHOOTING HELP

Fault	Possible Reasons	Help
Motor can not start, or run during a sudden stop	No power supply	Check power supply
	Interface connection or cable connection loose/ error	Check the current connection status with the connection diagram. Check the cable is damaged or the interface is loose.
	Motor overheating	See fault "motor normal operation when heating".
	Motor overload	The main power supply interruption, determine the reason is the motor overload, and to be excluded.
	Built in thermal protector	Check for overloading or overheating. Check the flow of heat protection device after cooling. See fault "motor normal operation when heating".
	Tripping of external overload protection device	Check whether the overload or overheating, check the external overload protection device of the smooth and functional.
	Phase connection error of motor winding	If the wiring is correct, please connect directly to the Zhongda technical department for inquiry.
	Motor winding short circuit	Motor winding short circuit please directly contact the Zhongda Technology Department, or contact your local dealer replacement.
	Brake can not be loosened	Check if the brake can work normally, check the connection of the brake and the winding of the winding. If the connection and winding of the brake are normal, please check the rectifier.
	A reverse rotation direction error (non reversing device) for mechanical anti reverse gear	Please cut off the power immediately, and then rotate the drum manually to determine the mechanical anti reversing device has been damaged by mechanical. Check that the correct direction of rotation is correct, if you need to change the connection, so that the roller will rotate in the right direction, or if possible, install a new electric roller to ensure that the rotation direction is correct.
Motor can not start, or run during a sudden stop	Roller or conveyor belt stuck	Make sure that the conveyor belt and the electric roller are not disturbed by any obstacle, and all the sticks and rollers are free to rotate. If the electric roller is not free to rotate, it may be a gear box or a bearing is stuck. In this case please consulting Zhongda technology department.
	Working environment temperature is too low / high oil viscosity	Check whether the viscosity of lubricant oil is in conformity with the ambient temperature. If you do not match, please add the corresponding viscosity of oil. Install heating device or higher power electric roller. In this case, please consulting
	Gear box or bearing jammed	Manual inspection, the roller is capable of free rotation. If you can not, please replace the new electric drum, consulting Zhongda technology department
Motor normal operation, but the roller does not rotate or run during a sudden	Transmission damage	Direct consultation with the department of Zhongda technology.
Electric roller	The electric roller and the conveyor belt are not regular or in part.	Make sure that the conveyor belt and the electric roller are not disturbed by any obstacle, and all the sticks and rollers are free to rotate.
	Power cable connection error or loose connection	Check connection
	Gearbox damage	Manually check the rotation, please replace the electric or direct consultation with the department of Zhongda technology.

Fault	Possible Reasons	Help
Electric roller	Power supply is not correct or normal	Check power supply. Single phase motor: check capacitor.
Requirements for electric roller and conveyor belt running speed ratio	Order or supply of the motor with the wrong speed	Check the electric drum for details and tolerances. Please change the electric roller, or contact your local dealer or sales.
	The electric roller and the conveyor belt are not regular or in part	Make sure that the conveyor belt and the electric roller are not disturbed by any obstacle, and all the sticks and rollers are free to rotate.
	Inverter setup is not correct	Check that the inverter is set up with the electric roller description. Change if necessary.
	Belt slippage	See fault "conveyor belt slippage on the electric roller".
	Surface of the roller surface	Check the glue, such as the need to be fixed, the replacement of the roller surface of the roller or hair processing, to ensure that the surface of the roller can produce a certain friction.
	Connect 60Hz motor with a 50Hz power supply	Check the motor details and tolerance range and power supply frequency is consistent. Please replace the electric roller, or direct consultation with the department of technology.
Electric roller running faster than setting	Order or supply of the motor with the wrong speed	Check the electric drum for details and tolerances. Please change the electric roller, or contact your local dealer or sales.
	Inverter setup is not correct	Check that the inverter is set up with the electric roller description. change if necessary.
	Connect 60Hz motor with a 50Hz power	Check the motor details and tolerance range and power supply frequency is consistent. Please replace the electric roller, or direct consultation with the department of Zhongda technology.
	The thickness of the rubber suspension will increase the speed of the conveyor belt, which exceeds the rated speed of the motor	Measure the thickness of the rubber, and check whether the measured value and used to calculate the electric roller speed. Reduce the thickness of the rubber, or the installation of the inverter, or install a new low speed electric roller.
Normal operation of motor temperature	Electric roller overload	Check whether the current rating is over load
	Ambient temperature over 40°C	Check environmental temperature. If the ambient temperature is too high, please install cooling device. or direct consultation with the department of Zhongda technology.
	Too much or too often stop / start	Check to stop / start times to meet the requirements of the electric roller, such as the need to reduce the number of stop / start times, the installation of inverter, in order to achieve the purpose of optimizing the efficiency of motor.
	Belt tension is too large	Check the conveyor belt tension, such as the need to reduce tension.
	Motor is not suitable for the occasion	Check whether the motor use is in line with the contents of the electric drum, for the purpose of running the track or without the conveyor belt, the special motor must be used to reduce the power.
	Hanging glue thickness	Please replace the hang glue, or direct consultation with the department of Zhongda technology
	Wrong power supply	Check power supply, single phase motor: it may be starting capacitor or running capacitor is not correct.



Fault	Possible Reasons	Help
Normal operation of motor temperature rise	Inverter setup is not correct	Check that the inverter is set up with the electric roller description. Change if necessary.
When the electric roller is normal, the sound is too large	Inverter setup is not correct	Check that the inverter is set up with the electric roller description. change if necessary.
	Roller mounting bracket loose	Check roller mounting bracket, shaft deviation and fixed bolt.
	Belt tension is too large	Check the conveyor belt tension, such as the need to reduce tension.
	Between the roller and the conveyor belt, collocation is not correct / does not match	Please make sure that the conveyor belt is matched with the roller and the connection is correct, if necessary, please change.
	The line does not work	Check connection power supply.
Violent vibration of electric roller	inverter setup is not correct	Check that the inverter is set up with the electric roller description. Change if necessary.
	Roller mounting bracket loose	Check the conveyor belt tension, such as the need to reduce tension.
	Electric drum rotation is not uniform	Check whether there is a detailed description of the electric roller
Motor winding - a failure	Winding insulation part does not work / overload	Check the flow, current and resistance each phase winding or direct consultation with the department of technology.
Motor winding - two failure	A phase failure that may result in other too phase overload / opening	Check all of the power supply, check the flow of each phase winding, current and resistance, please replace the electric roller or direct consultation with the department of Zhongda technology
Motor winding - three failure	Motor overload or power connection is not correct	Check the power supply is normal, check the flow of each phase winding, current and resistance. Please replace the electric roller, or direct consultation with the department of technology.
Belt slippage on the electric roller	Master card	Make sure that the conveyor belt and the electric roller are not disturbed by any obstacle, and all the sticks and rollers are free to rotate.
	The friction between the electric roller and the conveyor belt is too small	Check the conveyor belt and tension: check the roller or the package friction material: check whether there is a lubricating oil or grease in the conveyor belt and the electric roller.
	The friction between the belt and the support / slider is too large	The degree of dust pollution and surface wear of the conveyor belt and the slide plate are examined. Check if there is water penetration between the conveyor belt and the slide plate, and thus produce a suction / draw effect.
	Belt tension is too small	Check the conveyor belt, and tighten it or shorten.
	The use of modular mesh belt way too small or use the wrong roller	Please make sure that the conveyor belt is connected with the roller and the roller teeth correctly. Please make sure that the height and the tension of the conveyor belt are in line with the manufacturer's instructions.
	Lubricating oil, lubricating grease, or grease that is transmitted between the belt and the roller	Clean out excess oil, grease or lubricant, to ensure that the cleaning device is normal.
	Used in the transmission of the roll, the middle roller diameter is too small	Check for the minimum diameter of the roller, the diameter of the small diameter of the edge, the roller may cause friction to increase, which leads to an increase in current consumption.
	Surface of the roller surface	Check the glue, such as the need to be fixed, the replacement of the roller surface of the roller or hair processing, to ensure that the surface of the roller can produce a certain friction.

Fault	Possible Reasons	Help
Conveyor belt on the electric roller	The transmission continuity of the conveyor belt, the main or the roller, is poor or the transmission of the transmission belt is poor or the friction between the belt and the sliding plate is too large	Ensure that the belt and the roller without any obstacles and interference, and can freely rotate all roller roller conveyor belt coherence check.
	Conveyor belt loose or damaged	Check the transmission and its tension, check the glue. Check conveyor belt and conveyor belt calibration.
	Error hanging glue or sprocket	See fault "conveyor belt slippage on the electric roller".
Not properly adjust the conveyor belt / conveyor belt running at the time not positive Center	Electric roller, roller, conveyor belt material accumulation	that the belt and the roller without any obstacles and interference, and can freely rotate all roller roller conveyor belt coherence check.
	The roll material accumulation	Check that the material is off, and make sure the cleaning device can be used correctly.
	A damaged or defective conveyor belt	Check the transmission belt and its coherence
	Belt tension is higher	Please make sure that the conveyor belt is equal in tension.
	Upper and lower roll adjustment is not correct	The adjustment of the supporting roller and the return roller.
	Into the stick, out of the roller, middle roll adjustment is not correct	Check the electric roller and roller adjustment.
	Transmission rack adjustment is not correct	To ensure that the transmission is vertical and parallel to each other in the whole length direction.
	Only on one side of the delivery of the goods	Check the tension or friction of the transfer point.
	Conveyor belt and drum does not match	Make sure that the conveyor belt is matched with the roller, and the connection is correct, such as the need to be adjusted.
	For the transmission of a small talk roller	View conveyor belt, electric roller slender description.
Shaft seal lubrication oil leakage	Shaft seal wear	Check the sealing ring in the vicinity of the use of chemical or chemical substances or after washing the remaining metal residue, check the service life of the seal.
	Shaft skeleton oil seal damage	To ensure that there is no metal around the seal, material accumulation or other material.
	Bearing damage and wear	Check the transmission belt tension is too large, and even overload, check whether there is water or chemical penetration.
Cable and terminal box have oil spill	Cable connection sleeve loose Built in cable seal damage	To ensure that the cable connection and seal is sealed, and will not lead to deformation due to heat or chemical substances.
	Cable connection sleeve loose Damage to the sealing member at the terminal box	To ensure that the terminal box is connected with the cable and the seal is sealed, and will not lead to deformation due to heat or chemical substances.
There is oil spill at the end of the cylinder	Loose ends of roller	Check whether there is a gap between the roller and the end housing, check the transmission belt tension is too large, and even the impact load.
	End shell, roller seal damage	Check the conveyor belt is over heat, the tension is too large, and even the impact load.
Oil color - metallic silver particles	Gear teeth or bearing wear	Please check the bearing and seal. Check for overloading.
Oil color - white	Contaminated by water or other liquids	Check the sealing of water, liquid caused by bad and pollution, replacement of oil.

Fault	Possible Reasons	Help
Oil color - black	Especially at the high operating temperature the transmission belt is not installed	Check whether the motor use, the use of the condition is consistent with the of the electric drum slender instructions, check whether there is an overload current or a higher ambient temperature.
Damage or damage to cables, junction boxes	Customer operation failure or damage installation	Check the damage, and try to find out the reasons, replace the wiring box.
	Damage during transportation	Check the damage, and try to find out the reasons, replace the wiring box.
Cover bearing off	Overloading	Check whether the motor overload is consistent with the contents f the electric roller.
	Bump stroke	Check whether the motor overload is consistent with the contents of the electric roller.
	Conveyor belt tension is too large	Chek the belt tension is too large, such as the need to reduce the transmission belt tension.
	Insufficient lubrication	Check the oil quantity and electric roller installation is correct, if it is vertical installation, please refer to the electric drum motor details.
	The shaft is not correct for load or adjustment	Check that the bolts are fixed, and the mounting bracket is not correct.
	Bearing seal ring damage, wear	Inspection of external dust pollution. Please contact Zhongda directly to the Department of technology.
	The shaft bearing loose or tight	Please contact Zhongda directly to the Department of technology..
Gear box failure	Overload, impact, or normal wear	Check whether the motor overload is consistent with the contents of the electric roller. Check service life.
Rotor bearing wear and failure	Insufficient lubrication	Check the lubrication position is correct, the amount of oil is sufficient.
Rotor bearing wear, failure of the rotor drive wear or meshing teeth fracture	Too much or too frequent to stop / start, a very high starting torque	Check whether the motor overload is consistent with the contents of the electric roller. Please check the oil, stop, start times and allow starting torque.
The top gear tooth wear or fracture, pin	Starting over load, impact load or stuck	Check whether the motor use and the load is consistent with the contents of the electric roller. Check for stuck.
Gear box and the bearing of the middle part of the wear and failure	Lubrication shortage or gear box, bearing wear	Check oil quantity, check the use life and deviation range of pivot pin and drive shaft.
The brake and the rectifier are fully or intermittent in the failure	Working voltage is not correct	Ensure that the rectifier is installed correctly, and the input voltage is correct.
	Connection error	Ensure that the brake is connected to the connection diagram.
	The external voltage peak of cable and external voltage is not enough	Too ensure that the brake, the rectifier and the power supply or all the connecting cables are shielded and grounded according to the suggestion of IEC.
The brake and the rectifier are fully or intermittent in the failure	Because the wire is too long and the voltage drops	Check if there is a voltage drop between these long wires, and make sure the cross section of the wire is in line with the relevant provision of the IEC.
	Too many stops and starts	Ensure that the brake and the rectifier are described in detail to meet the use requirements.
	Rectifier connection error	Please contact directly to the Department of technology, we will tell you what to use for your brake.

Fault	Possible Reasons	Help
The brake and the rectifier are fully or intermittent in the failure	The star connection mode of the motor connected when the over voltage / feedback	When the motor is a star connected phase voltage, the upward movement of the conveyor belt can cause the motor load, and the feedback is caused.
	Brake winding short circuit	Check the flow of windings and rectifier.
Slowly opening and closing brack and rectifier	Choose the wrong brake, the finishing device	Ensure that the brake and the rectifier are in detail in accordance with the requirements of the application.
	Ambient temperature is too low or oil viscosity is too high	Ensure the oil viscosity is consistent with the ambient temperature if not, please add the appropriate viscosity of the oil. Installation of heating device or higher power of the motor. In this case, please contact Zhongda directly to the department of technology

## STOP AND WASTE DISPOSAL

### Stopping The Service

#### Caution

The danger of damage to the product is not appropriate

- Can only be closed by authorized professional staff. Can only be in state of electrical power to stop the electric roller. Power supply and motor control motor cable. Release conveyor belt. Remove support plate from roller maunting support. Take out the electric roller from the conveyer.

### Waste Disposal

The user is responsible for handling the waste of the electric roller according to the regulations, and the regulations of the special local electric drum waste and the waste disposal of the packaging waste of the industry.

### Provide The Following Information When Ordering / Consulting:

#### Standard Requirements

Number  
Diameter  
Electric drum type (for example: DM80, DM113 and other models)  
Power (KW)  
Belt speed (m/s)  
Power supply and voltage: (1×220V, 1×110V, 3×380V, 3×220V or other)  
Frequency: 50HZ, 60HZ  
Drum surface width L (mm)  
Outlet mode (straight, curved, terminal box)

Belt overheat protector  
Electromagnetic brake  
Food or highly corrosive industries (stainless steel, copper plating, nickel plating treatment)  
Security machine, airport baggage handling (low noise, high protection level)  
Whether the tube body package  
Cable is lengthened  
Shaft size



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