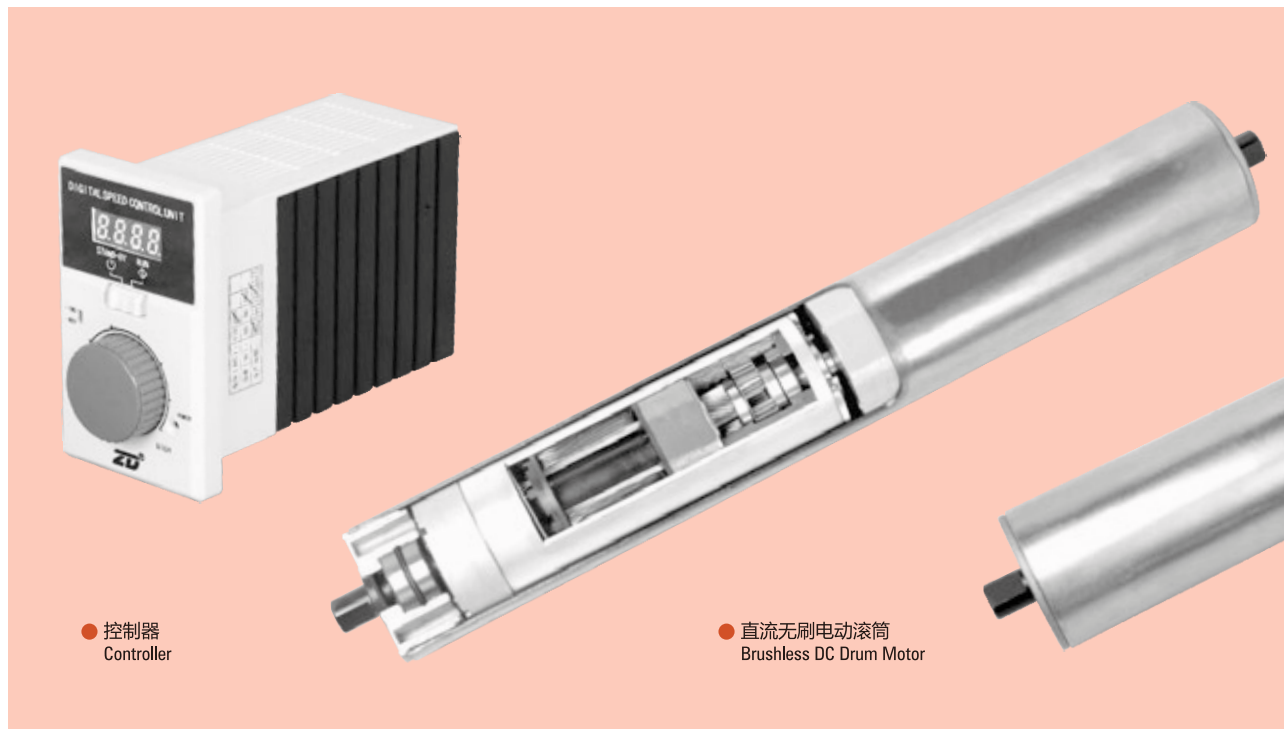


直流无刷电动滚筒 BRUSHLESS DC DRUM MOTOR



● 控制器
Controller

● 直流无刷电动滚筒
Brushless DC Drum Motor

品名的阅读方法 MODEL NO. CODING

电动机 Motor

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

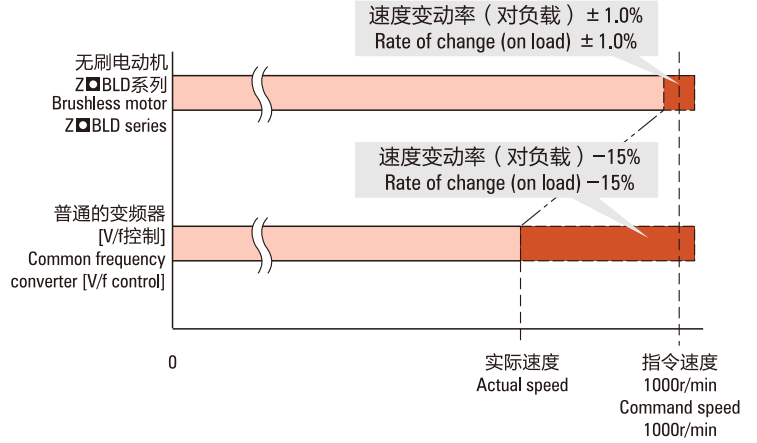
①	公司名称 Company	中大电机 ZD Motor
②	型号尺寸 Model&Dimension	
②	电机种类 Motor type	BL 无刷电机 Brushless motor
③	滚筒材质 Drum material	T: 碳钢管 (可省略) T: Carbon steel pipe (which) S: 304不锈钢管 S: 304 Stainless steel pipe
④	滚筒直径 Drum diameter	(例) 50: 滚筒外径50mm (Example) 50: Drum diameter 50mm
⑤	滚筒形状 Drum shape	A: 圆柱形筒体 A: cylindrical tube
⑥	线速度 Linear speed	(例) 25: 滚筒转动线速度25m/min (Example) 25: Rotary line speed 25m/min
⑦	滚筒长度 Drum length	(例) 380: 总长度380mm (不包括出轴) (Example) 400: Total length 400mm (not included)
⑧	额定功率 Rated power	(例) 40: 电机额定功率 40W (Example) 40: Motor rated power 40W
⑨	电压类型 Voltage type	D: 直流电源 1: 单相交流 D: DC power supply 1: Single phase AC
⑩	电压 Voltage	(例) 24:24V (Example) 24:24V
⑪	出线方式 Lead wire type	空缺表示直出 (可省略) Vacancy representation (which)

一般技术信息——直流电动滚筒 GENERAL TECHNICAL INFORMATION——DC DRUM MOTOR

可进行稳定的速度控制 Stable Speed Control

无刷电动机持续对设定速度和来自电动机的速度反馈信号进行对比，来调节施加到电动机上的电压；因此，即使负载状况发生变化，仍可以从低速瞬间调整到设定速度，并以此稳定的速度运行。使用变频器控的三相感应电动机不进行反馈控制，因此负载变大时，速度会大幅下降；对于速度稳定性要求较高的用途，建议使用无刷电动机。

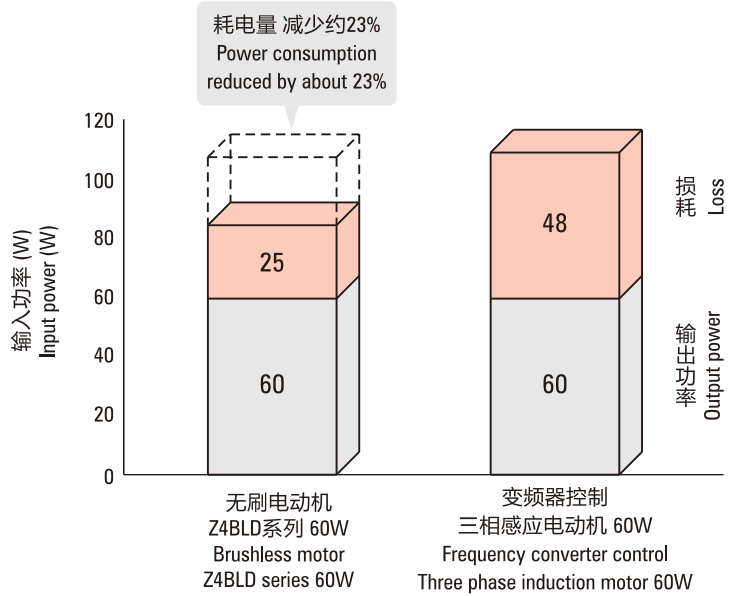
Brushless motor continues to set speed and a feedback signal are compared from the speed of the motor to adjust the voltage applied to the motor; therefore, even if the load change, still can set the speed from slow instantaneous adjustment to, and in order to stabilize the running speed. Three phase 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.






有助于节能 Contribute To Energy Saving

无刷电动机的转子使用了永磁铁，可减少转子的二次损耗，因此与采用变频控制的三相感应电动机相比，耗电量减少20%以上，有助于装置的节能。

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.



滚筒的一般规格——产品种类 Drum Motor Spec——Product Type

电动滚筒 Drum Motor	滚筒直径 Roller Diameter	输出功率 Output Power	机型 Model	驱动器 Driver	电源电压 Voltage Supply
	42	10	标准型 Standard type IP40 或 Or Ip54 (特殊处理) (Special treatment)		直流 DC 24~48V 单相 Single phase 110~220V
	50	40			
	60	90			
	70	120			
	80	150			直流 DC 24V

BL42电动滚筒

BL42 DRUM MOTOR



产品信息 Product Information

此款电动滚筒式空间极其有限的情况下，仍可以安装得到要求的力矩。采用高合金钢精磨齿轮和行星传动结构为主体设计，具有性能可靠、免维护、免加油、适合较小的安装空间等诸多优点。适用于多个领域：

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:

- 超市收银台 Supermarket cashier
- 包装机械 Packaging machinery
- 皮带输送线 Belt conveyor line

BL42电动滚筒特征 BL42 Characteristics Of Drum Motor

● 筒体 Drum Shell

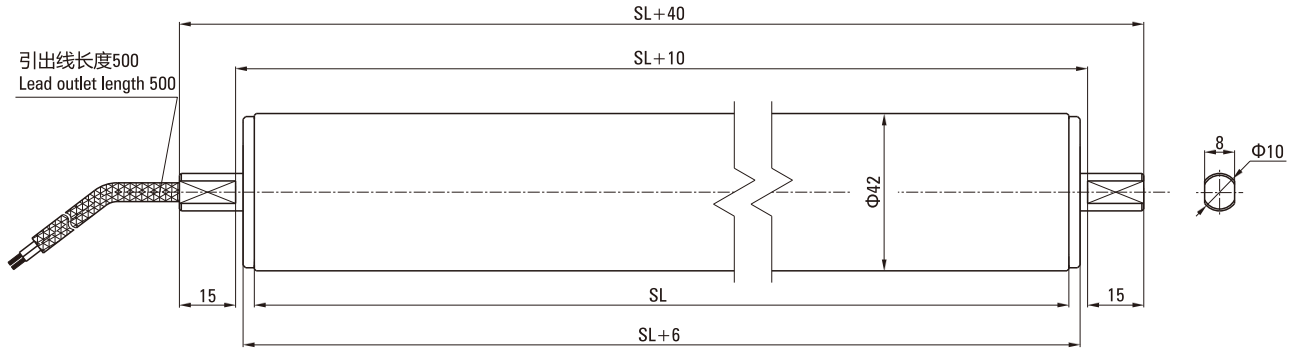
- 标准筒体为低碳钢材质 • 食品级筒体为304不锈钢 • 标准筒体表面加工有防滑滚花 • 齿轮传动 • 高合金钢精磨齿轮，确保传动时低噪音 • 行星齿轮传动
- Material of standard drum shell is mild steel • Food grade shell is 304 stainless steel • Standard cylinder rolling mill gear slip flower - gear • High alloy steel precision, ensures low noise transmission when the • Planetary gear transmission

电机基本特性 Basic Characteristics Of Motor

● 外径42滚筒 (DC电源时适用于24VDC/36VDC/48VDC) External diameter 42 drum motor (DC power supply when applied to 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (continuous)	W	10		
额定转速 Rated speed	r/min	3000		
额定转矩 Rated torque	N.m	0.032		
瞬时最大转矩 Instantaneous maximum torque	N.m	0.048		
速度控制范围 Speed control range	RPM	200~3000		
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature		
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature		
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed		
电源输入 Power input	额定电压 Rated voltage	V	/	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range			±10%
	频率 Frequency	Hz	/	/
	频率容许范围 Frequency tolerance range		/	/
	额定输入电流 Rated input current	A	/	/
瞬时最大输入电流 Instantaneous maximum input current	A	/	/	1.4

BL42尺寸图 BL42 Outlining Dimensions



- 管径: Φ42 • 壁厚: t1.5 • 电源: DC24V • 材质: 20#碳钢 • 表面处理: 镀锌
- Diameter: Φ42 • Wall thickness: t1.5 • Power supply: DC24V • Material: 20# carbon steel • Surface treatment: zinc plating

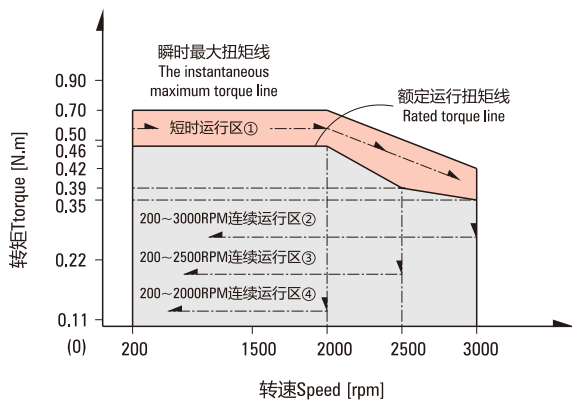
BL42机械参数 BL42 Mechanical Parameters

额定功率P Rated Power P W	齿轮箱级数 Gear Box Series	减速比i Reduction Ratio i	最高线速度V Max Speed V m/min	额定转速n Rated Speed n RPM	额定扭矩T Rated Torque T Nm	牵引力F Traction F N	长度SL Length SL mm
10W	一级 One Stage	3.70	107	810.8	0.10	4.760	≥240~600
		4.29	92.3	699.3	0.12	5.710	
		5.18	76.4	579.2	0.15	7.140	
		6.75	58.6	444.4	0.19	9.050	
	二级 Two Stage	13.69	28.9	219.1	0.35	16.67	≥260~600
		18.40	21.5	163.0	0.47	22.38	
		19.17	20.6	156.5	0.49	23.33	
		24.98	15.8	120.1	0.64	30.48	
		26.83	14.7	111.8	0.69	32.86	
		28.96	13.6	103.6	0.75	35.71	
		34.97	11.3	85.80	0.90	42.86	
		45.56	8.70	65.80	1.17	55.71	
	三级 Three Stage	50.65	7.80	59.20	1.17	55.71	≥280~600
		70.91	5.50	42.30	1.65	78.57	
		78.95	5.00	38.00	1.83	87.14	
		92.41	4.30	32.50	2.15	102.4	
		107.14	3.70	28.00	2.49	118.6	
		129.37	3.00	23.20	3.00	142.9	
		168.58	2.30	17.80	3.91	186.2	
		236.01	1.60	12.70	4.00	190.5	
		307.55	1.20	9.700	4.00	190.5	

• 此参数为电机使用转速范围在200~300RPM时 This parameter is used for motor speed range in 200~300RPM

运动特性曲线 Motion Characteristic Curve

- (取二段减速, 减速比为13.7K的滚筒为例)
Take the two stage of the reduction, the reduction ratio of 13.7K for the roller as an example

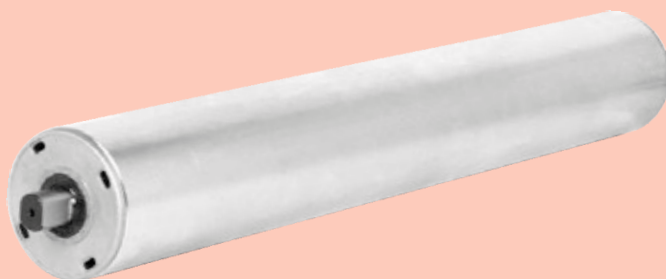


引出线说明 Lead Out Outlet

蓝(粗)	黄(粗)	绿(粗)	红(细)	黄(细)	绿(细)	蓝(细)	黑(细)
Blue(thick)	Yellow(thick)	Green(thick)	Red(fine)	Yellow(fine)	Green(fine)	Blue(fine)	black(fine)
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

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

BL50电动滚筒 BL50 DRUM MOTOR



产品信息 Product Information

此款电动滚筒式空间极其有限的情况下，仍可以安装得到要求的力矩。采用高合金钢精磨齿轮和行星传动结构为主体设计，具有性能可靠、免维护、免加油、适合较小的安装空间等诸多优点。适用于多个领域：

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:

- 超市收银台 Supermarket cashier
- 包装机械 Packaging machinery
- 皮带输送线 Belt conveyor line

BL50电动滚筒特征 BL50 Characteristics Of Drum Motor

● 筒体 Drum Shell

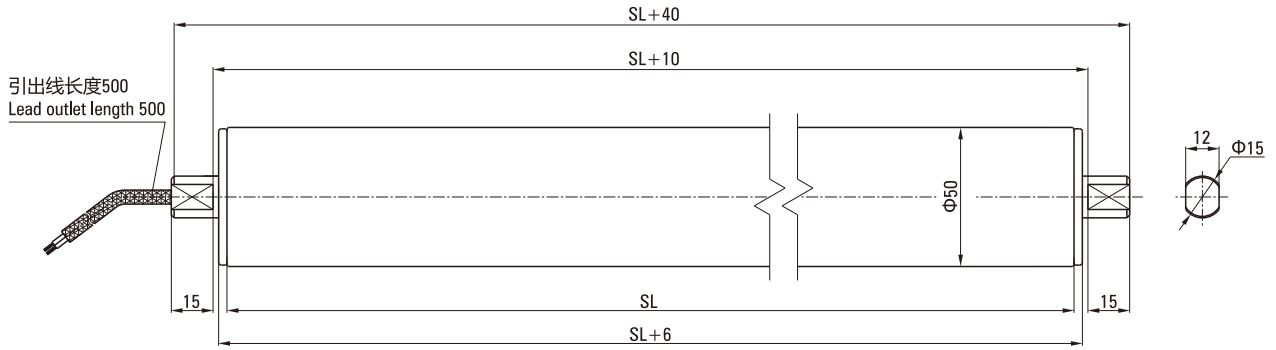
- 标准筒体为低碳钢材质 • 食品级筒体为304不锈钢 • 标准筒体表面加工有防滑滚花 • 齿轮传动 • 高合金钢精磨齿轮，确保传动时低噪音 • 行星齿轮传动
- Material of standard drum shell is mild steel • Food grade shell is 304 stainless steel • Standard cylinder rolling mill gear slip flower - gear • High alloy steel precision, ensures low noise transmission when the • Planetary gear transmission

电机基本特性 Basic Characteristics Of Motor

● 外径50滚筒 (DC电源时适用于24VDC/36VDC/48VDC) External diameter 50 drum motor (DC power supply when applied to 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (continuous)	W	40		
额定转速 Rated speed	r/min	3000		
额定转矩 Rated torque	N.m	0.127		
瞬时最大转矩 Instantaneous maximum torque	N.m	0.191		
速度控制范围 Speed control range	RPM	200~2500		
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature		
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature		
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed		
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V
	电压容许范围 Voltage tolerance range		±10%	
	频率 Frequency	Hz	50/60	/
	频率容许范围 Frequency tolerance range		±5%	/
	额定输入电流 Rated input current	A	0.72	0.36
瞬时最大输入电流 Instantaneous maximum input current	A	1.40	0.55	5.60

BL50尺寸图 BL50 Outlining Dimensions



- 管径: Φ50
- 壁厚: t1.5
- 电源: DC24V/AC220V
- 材质: 20#碳钢
- 表面处理: 镀锌
- Diameter: Φ50
- Wall thickness: t1.5
- Power supply: DC24V/AC220V
- Material: 20# carbon steel
- Surface treatment: zinc plating

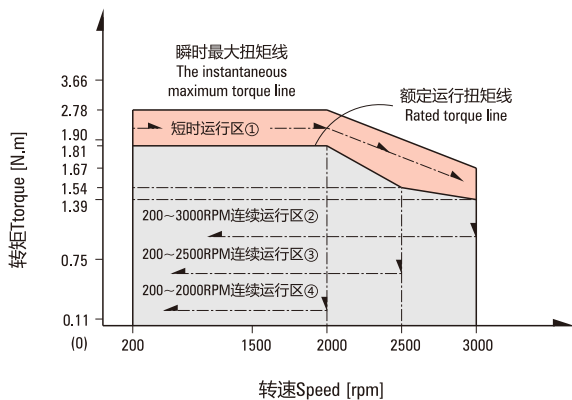
BL50机械参数 BL50 Mechanical Parameters

额定功率P Rated Power P W	齿轮箱级数 Gear Box Series	减速比i Reduction Ratio i	最高线速度V Max Speed V m/min	额定转速n Rated Speed n RPM	额定扭矩T Rated Torque T Nm	牵引力F Traction F N	长度SL Length SL mm
40W	一级 One Stage	3.65	129	821.9	0.420	16.80	≥260~800
		5.36	88.0	559.7	0.610	24.40	
		6.55	72.0	458.0	0.750	30.00	
		8.63	54.6	347.6	0.990	39.60	
	二级 Two Stage	13.53	35.0	221.7	1.390	55.60	≥270~800
		18.92	25.0	158.6	1.950	78.00	
		24.65	19.0	121.7	2.540	101.6	
		28.05	16.8	106.9	2.890	115.6	
		33.92	14.0	88.40	3.500	140.0	
		44.69	10.5	67.10	4.610	184.4	
	三级 Three Stage	58.22	8.00	51.50	6.000	240.0	≥290~800
		67.08	7.00	44.70	6.240	249.6	
		81.11	5.80	37.00	7.540	301.6	
		91.36	5.00	32.80	8.490	339.6	
		102.88	4.60	29.20	9.560	382.4	
		118.98	4.00	25.20	11.06	442.4	
		145.36	3.20	20.60	13.51	540.4	
		165.64	2.80	18.10	15.00	600.0	
231.61	2.00	12.90	15.00	600.0			
301.68	1.50	9.900	15.00	600.0			

• 此参数为电机使用转速范围在200~300RPM时 This parameter is used for motor speed range in 200~300RPM

运动特性曲线 Motion Characteristic Curve

- (取二段减速, 减速比为13.53K的滚筒为例)
Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example

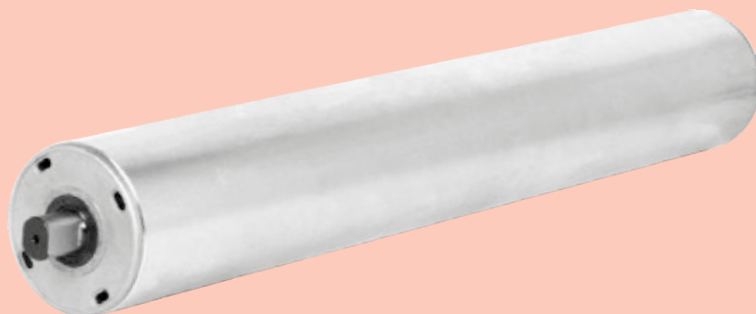


引出线说明 Lead Out Outlet

蓝(粗)	黄(粗)	绿(粗)	红(细)	黄(细)	绿(细)	蓝(细)	黑(细)
Blue(thick)	Yellow(thick)	Green(thick)	Red(fine)	Yellow(fine)	Green(fine)	Blue(fine)	black(fine)
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

- ◀ 注: ① Short-time operation area
- ② 200~300RPM Continuous operation area
- ③ 200~300RPM Continuous operation area
- ④ 200~2000RPM Continuous operation area

BL60电动滚筒 BL60 DRUM MOTOR



产品信息 Product Information

此款电动滚筒式空间极其有限的情况下，仍可以安装得到要求的力矩。采用高合金钢精磨齿轮和行星传动结构为主体设计，具有性能可靠、免维护、免加油、适合较小的安装空间等诸多优点。适用于多个领域：

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:

- 超市收银台 Supermarket cashier
- 包装机械 Packaging machinery
- 皮带输送线 Belt conveyor line

BL60电动滚筒特征 BL60 Characteristics Of Drum Motor

● 筒体 Drum Shell

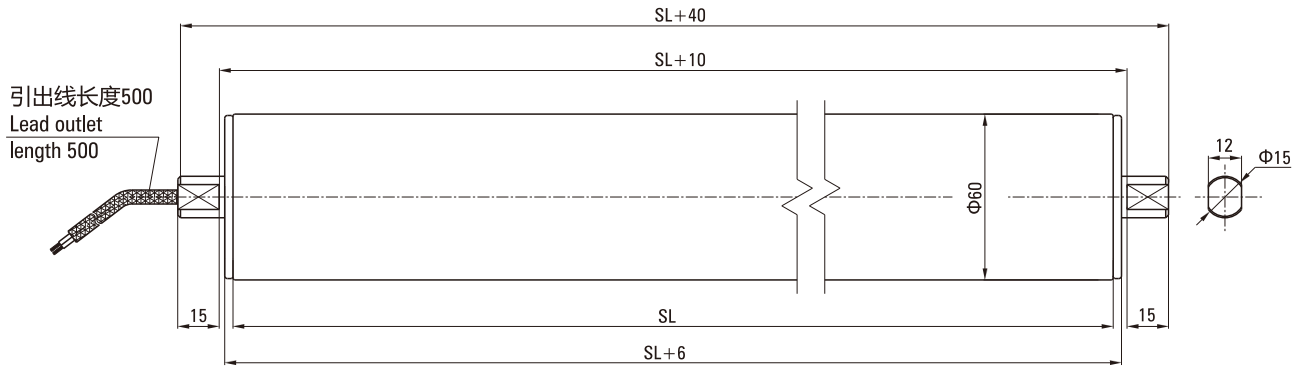
- 标准筒体为低碳钢材质 • 食品级筒体为304不锈钢 • 标准筒体表面加工有防滑滚花 • 齿轮传动 • 高合金钢精磨齿轮，确保传动时低噪音 • 行星齿轮传动
- Material of standard drum shell is mild steel • Food grade shell is 304 stainless steel • Standard cylinder rolling mill gear slip flower - gear • High alloy steel precision, ensures low noise transmission when the • Planetary gear transmission

电机基本特性 Basic Characteristics Of Motor

● 外径60滚筒 (DC电源时适用于24VDC/36VDC/48VDC) External diameter 60 drum motor (DC power supply when applied to 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (continuous)	W	90			
额定转速 Rated speed	r/min	3000			
额定转矩 Rated torque	N.m	0.286			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.570			
速度控制范围 Speed control range	RPM	200~3000			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	2.3	1.2	5.3
瞬时最大输入电流 Instantaneous maximum input current	A	3.5	1.75	8.0	

BL60尺寸图 BL60 Outlining Dimensions



- 管径: Φ60 • 壁厚: t1.5 • 电源: DC24V/AC220V • 材质: 20#碳钢 • 表面处理: 镀锌
- Diameter: Φ60 • Wall thickness: t1.5 • Power supply: DC24V/AC220V • Material: 20# carbon steel • Surface treatment: zinc plating

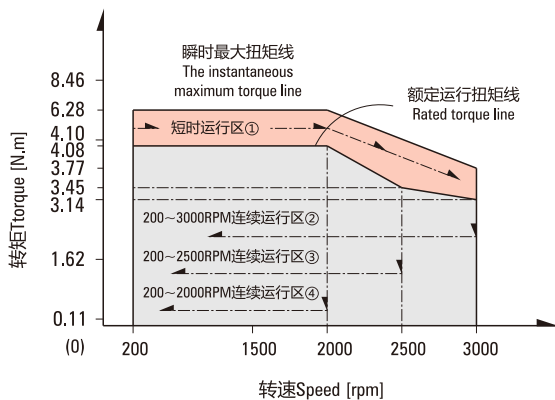
BL60机械参数 BL60 Mechanical Parameters

额定功率P Rated Power P W	齿轮箱级数 Gear Box Series	减速比i Reduction Ratio i	最高线速度V Max Speed V m/min	额定转速n Rated Speed n RPM	额定扭矩T Rated Torque T Nm	牵引力F Traction F N	长度SL Length SL mm
90W	一级 One Stage	3.65	155	821.9	0.940	31.33	≥270~1000
		5.36	105	559.7	1.380	46.00	
		6.55	86.0	458.0	1.690	56.33	
		8.63	65.0	347.6	2.230	74.33	
	二级 Two Stage	13.53	42.0	221.7	3.140	104.7	≥290~1000
		18.92	30.0	158.6	4.390	146.3	
		24.65	23.0	121.7	5.720	190.7	
		28.05	20.0	106.9	6.510	217.0	
		33.92	17.0	88.40	7.870	262.3	
		44.69	13.0	67.10	10.37	345.7	
		58.22	10.0	51.50	12.00	400.0	
	三级 Three Stage	67.08	8.00	44.70	14.03	467.7	≥305~1000
		81.11	7.00	37.00	16.96	565.3	
		91.36	6.00	32.80	19.11	637.0	
		102.88	5.50	29.20	21.52	717.3	
		118.98	5.00	25.20	24.88	829.3	
		127.74	4.40	23.50	25.00	833.3	
		145.36	4.00	20.60	25.00	833.3	
		165.64	3.40	18.10	25.00	833.3	
191.56		3.00	15.70	25.00	833.3		
231.61		2.40	12.90	25.00	833.3		
301.68		2.00	9.900	25.00	833.3		
392.98		1.44	7.600	25.00	833.3		

• 此参数为电机使用转速范围在200~300RPM时 This parameter is used for motor speed range in 200~300RPM

运动特性曲线 Motion Characteristic Curve

- (取二段减速, 减速比为13.53K的滚筒为例)
Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example



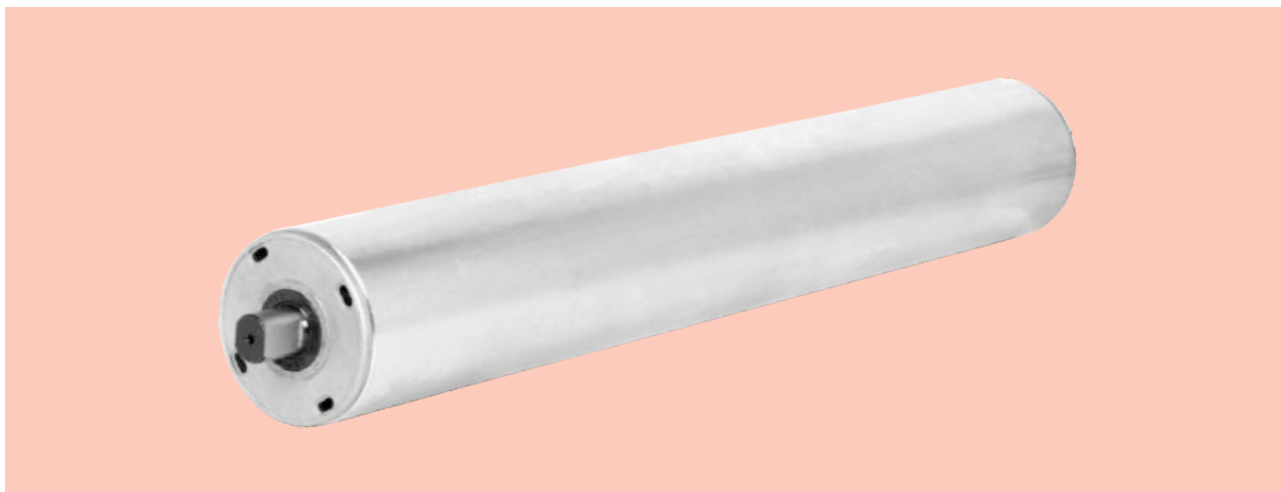
引出线说明 Lead Out Outlet

蓝(粗)	黄(粗)	绿(粗)	红(细)	黄(细)	绿(细)	蓝(细)	黑(细)
Blue(thick)	Yellow(thick)	Green(thick)	Red(fine)	Yellow(fine)	Green(fine)	Blue(fine)	black(fine)
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

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

BL70电动滚筒

BL70 DRUM MOTOR



产品信息 Product Information

此款电动滚筒式空间极其有限的情况下，仍可以安装得到要求的力矩。采用高合金钢精磨齿轮和行星传动结构为主体设计，具有性能可靠、免维护、免加油、适合较小的安装空间等诸多优点。适用于多个领域：

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:

- 超市收银台 Supermarket cashier
- 包装机械 Packaging machinery
- 皮带输送线 Belt conveyor line

BL70电动滚筒特征 BL70 Characteristics Of Drum Motor

● 筒体 Drum Shell

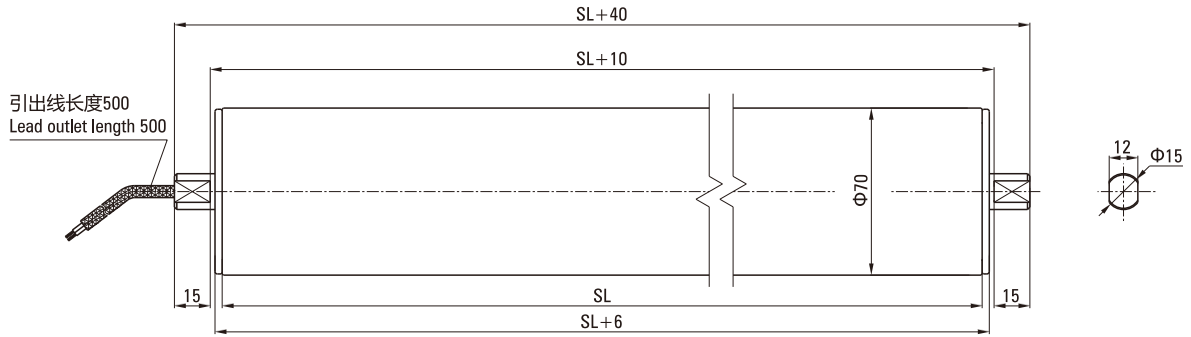
- 标准筒体为低碳钢材质 • 食品级筒体为304不锈钢 • 标准筒体表面加工有防滑滚花 • 齿轮传动 • 高合金钢精磨齿轮，确保传动时低噪音 • 行星齿轮传动
- Material of standard drum shell is mild steel • Food grade shell is 304 stainless steel • Standard cylinder rolling mill gear slip flower - gear • High alloy steel precision, ensures low noise transmission when the • Planetary gear transmission

电机基本特性 Basic Characteristics Of Motor

● 外径70滚筒 (DC电源时适用于24VDC/36VDC/48VDC) External diameter 70 drum motor (DC power supply when applied to 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (continuous)	W	120			
额定转速 Rated speed	r/min	3000			
额定转矩 Rated torque	N.m	0.382			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.760			
速度控制范围 Speed control range	RPM	200~3000			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	3.1	1.5	7.1
瞬时最大输入电流 Instantaneous maximum input current	A	4.7	2.3	10.7	

BL70尺寸图 BL70 Outlining Dimensions



- 管径: Φ70 • 壁厚: t1.5 • 电源: DC24V/AC220V • 材质: 20#碳钢 • 表面处理: 镀锌
- Diameter: Φ70 • Wall thickness: t1.5 • Power supply: DC24V/AC220V • Material: 20# carbon steel • Surface treatment: zinc plating

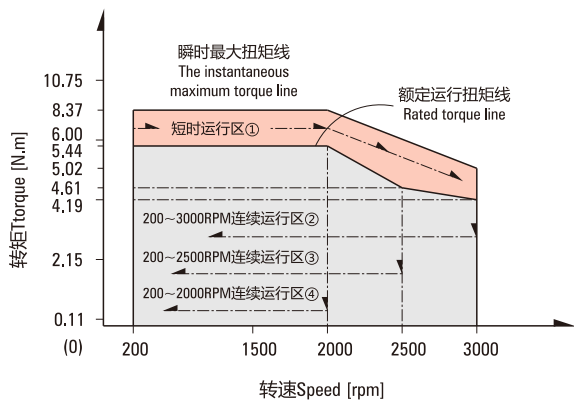
BL70机械参数 BL70 Mechanical Parameters

额定功率P Rated Power P W	齿轮箱级数 Gear Box Series	减速比i Reduction Ratio i	最高线速度V Max Speed V m/min	额定转速n Rated Speed n RPM	额定扭矩T Rated Torque T Nm	牵引力F Traction F N	长度SL Length SL mm
120W	一级 One Stage	3.65	180	821.9	1.250	35.71	≥320~1000
		5.36	123	559.7	1.840	52.57	
		6.55	100	458.0	2.250	64.29	
		8.63	76.0	347.6	2.960	84.57	
	二级 Two Stage	13.53	48.0	221.7	4.180	119.4	≥340~1000
		18.92	34.0	158.6	5.850	167.1	
		24.65	26.0	121.7	7.620	217.7	
		28.05	23.5	106.9	8.680	248.0	
		33.92	19.0	88.40	10.50	300.0	
		44.69	14.0	67.10	13.80	394.3	
		58.22	11.0	51.50	18.00	514.3	
		67.08	9.00	44.70	18.60	531.4	
	三级 Three Stage	81.11	8.00	37.00	22.58	645.1	≥360~1000
		91.36	7.00	32.80	25.44	726.9	
		102.88	6.00	29.20	28.64	818.3	
		118.98	5.00	25.20	33.13	946.6	
		127.74	5.00	23.50	35.57	1016.3	
		145.36	4.50	20.60	40.48	1156.6	
		165.64	4.00	18.10	46.12	1317.7	
		191.56	3.40	15.70	50.00	1428.6	
231.61		2.80	12.90	50.00	1428.6		
301.68		2.00	9.900	50.00	1428.6		
392.98		1.60	7.600	50.00	1428.6		

• 此参数为电机使用转速范围在200~300RPM时 This parameter is used for motor speed range in 200~300RPM

运动特性曲线 Motion Characteristic Curve

- (取二段减速, 减速比为13.53K的滚筒为例)
Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example

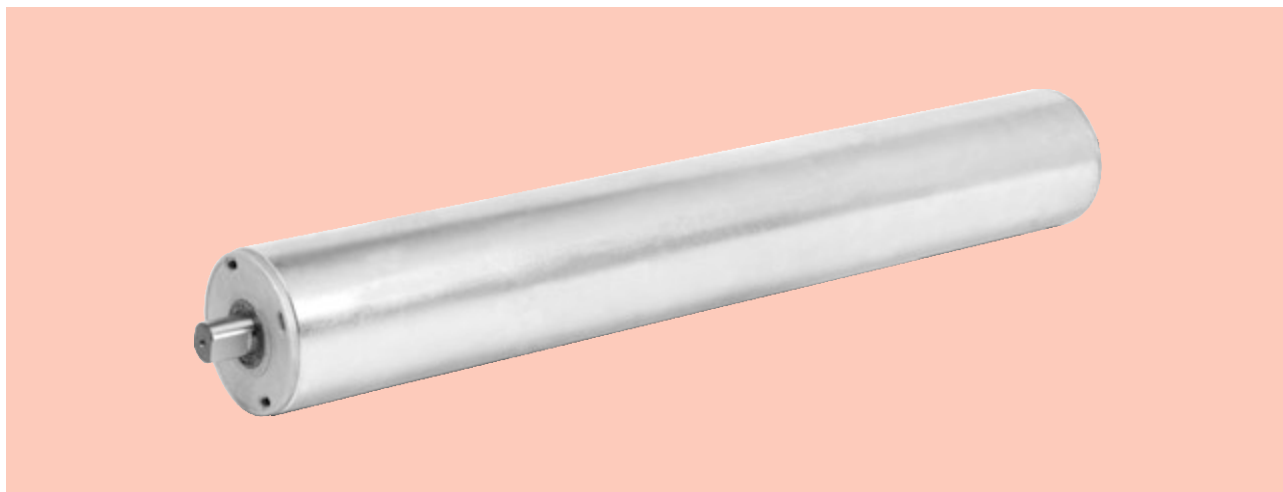


引出线说明 Lead Out Outlet

蓝(粗)	黄(粗)	绿(粗)	红(细)	黄(细)	绿(细)	蓝(细)	黑(细)
Blue(thick)	Yellow(thick)	Green(thick)	Red(fine)	Yellow(fine)	Green(fine)	Blue(fine)	black(fine)
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

- ◀ 注: ① Short-time operation area
- ② 200~300RPM Continuous operation area
- ③ 200~300RPM Continuous operation area
- ④ 200~200RPM Continuous operation area

BL80电动滚筒 BL80 DRUM MOTOR



产品信息 Product Information

此款电动滚筒式空间极其有限的情况下，仍可以安装得到要求的力矩。采用高合金钢精磨齿轮和行星传动结构为主体设计，具有性能可靠、免维护、免加油、适合较小的安装空间等诸多优点。适用于多个领域：

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:

- 超市收银台 Supermarket cashier
- 包装机械 Packaging machinery
- 皮带输送线 Belt conveyor line

BL80电动滚筒特征 BL80 Characteristics Of Drum Motor

● 筒体 Drum Shell

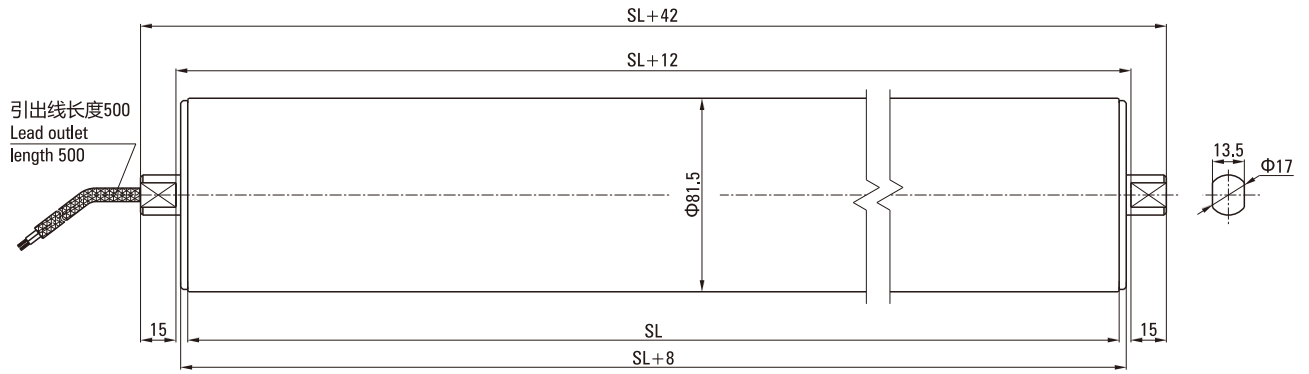
- 标准筒体为低碳钢材质 • 食品级筒体为304不锈钢 • 标准筒体表面加工有防滑滚花 • 齿轮传动 • 高合金钢精磨齿轮，确保传动时低噪音 • 行星齿轮传动
- Material of standard drum shell is mild steel • Food grade shell is 304 stainless steel • Standard cylinder rolling mill gear slip flower - gear • High alloy steel precision, ensures low noise transmission when the • Planetary gear transmission

电机基本特性 Basic Characteristics Of Motor

● 外径80滚筒 (DC电源时适用于24VDC/36VDC/48VDC) External diameter 80 drum motor (DC power supply when applied to 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (continuous)	W	150			
额定转速 Rated speed	r/min	3000			
额定转矩 Rated torque	N.m	0.478			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.72			
速度控制范围 Speed control range	RPM	200~3000			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	3.89	1.95	8.9
瞬时最大输入电流 Instantaneous maximum input current	A	5.84	3.0	13.4	

BL80尺寸图 BL80 Outlining Dimensions



- 管径: Φ80 • 壁厚: t2.0 • 电源: DC24V/AC220V • 材质: 20#碳钢 • 表面处理: 镀锌
- Diameter: Φ80 • Wall thickness: t2.0 • Power supply: DC24V/AC220V • Material: 20# carbon steel • Surface treatment: zinc plating

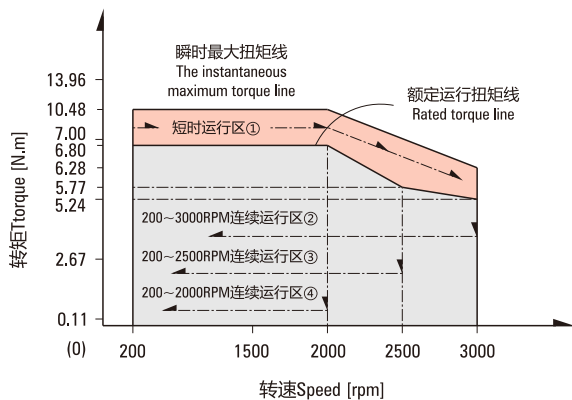
BL80机械参数 BL80 Mechanical Parameters

额定功率P Rated Power P W	齿轮箱级数 Gear Box Series	减速比i Reduction Ratio i	最高线速度V Max Speed V m/min	额定转速n Rated Speed n RPM	额定扭矩T Rated Torque T Nm	牵引力F Traction F N	长度SL Length SL mm
150W	一级 One Stage	3.65	211.7	821.9	1.570	39.25	≥360~1000
		5.36	144.0	559.7	2.300	57.50	
		6.55	118.0	458.0	2.810	70.25	
	二级 Two Stage	8.63	89.50	347.6	3.710	92.75	≥380~1000
		13.53	57.00	221.7	5.230	130.8	
		18.92	41.00	158.6	7.320	183.0	
		24.65	31.00	121.7	9.530	238.3	
		28.05	27.50	106.9	10.85	271.3	
		33.92	22.80	88.40	13.11	327.8	
	三级 Three Stage	44.69	17.00	67.10	17.28	432.0	≥400~1000
		58.22	13.00	51.50	22.52	563.0	
		67.08	11.50	44.70	23.35	583.75	
		81.11	9.500	36.90	28.23	705.75	
		91.36	8.500	32.80	31.80	795.00	
		102.88	7.500	29.10	35.81	895.25	
		118.98	6.500	25.20	41.41	1035.3	
		127.74	6.000	23.50	44.46	1111.5	
		145.36	5.000	20.60	50.60	1265.0	
		165.64	4.600	18.10	57.66	1441.5	
191.56	4.000	15.60	66.68	1667.0			
231.61	3.000	12.90	80.62	2015.5			
301.68	2.500	9.900	84.00	2100.0			
392.98	2.000	7.600	84.00	2100.0			

• 此参数为电机使用转速范围在200~300RPM时 This parameter is used for motor speed range in 200~300RPM

运动特性曲线 Motion Characteristic Curve

- (取二段减速, 减速比为13.53K的滚筒为例)
Take the two stage of the reduction, the reduction ratio of 13.53K for the roller as an example



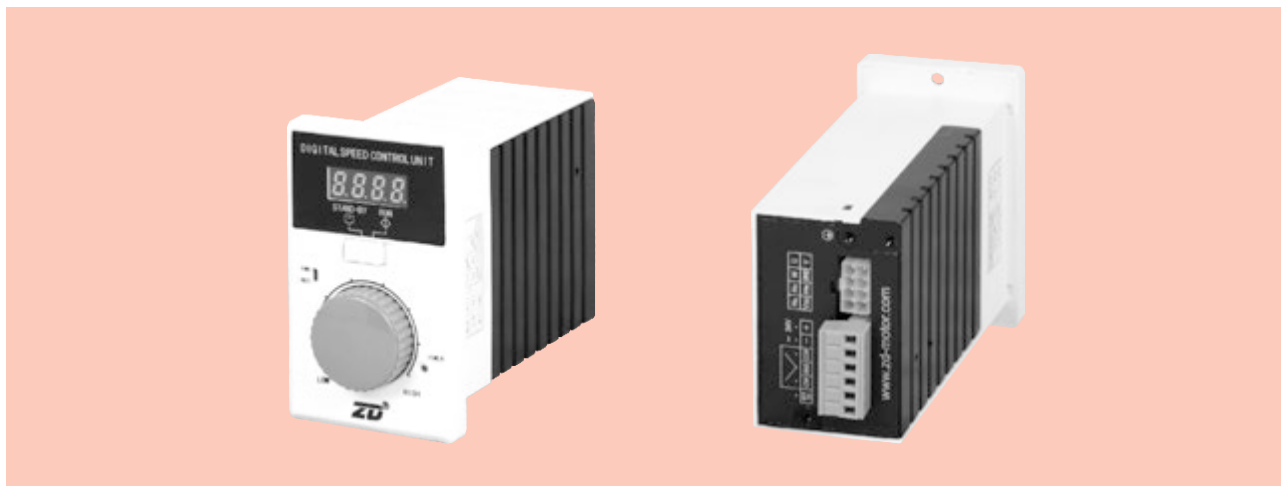
引出线说明 Lead Out Outlet

蓝(粗)	黄(粗)	绿(粗)	红(细)	黄(细)	绿(细)	蓝(细)	黑(细)
Blue(thick)	Yellow(thick)	Green(thick)	Red(fine)	Yellow(fine)	Green(fine)	Blue(fine)	black(fine)
W	U	V	Vcc+5V	Hu	Hv	Hw	GND

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

控制器 CONTROLLER

■ 控制器 Contoller



■ 控制器外形图纸 Drawing Of Controller

Z BLD.CON - 24 (A) 10 - V1
 ① ② ③ ④ ⑤ ⑥

电机参数 Motor Parameters	①	Z:	中大电机 ZD Motor
	②	BLD.CON:	直流无刷驱动器 BLDC Driver
	③	电压 Voltage:	24VDC
	④	A:	AC, 无A时为DC AC, without A is DC
	⑤	功率 Power:	10W
	⑥	V1:	驱动器特性 Feature of driver

■ 特点 Characteristic

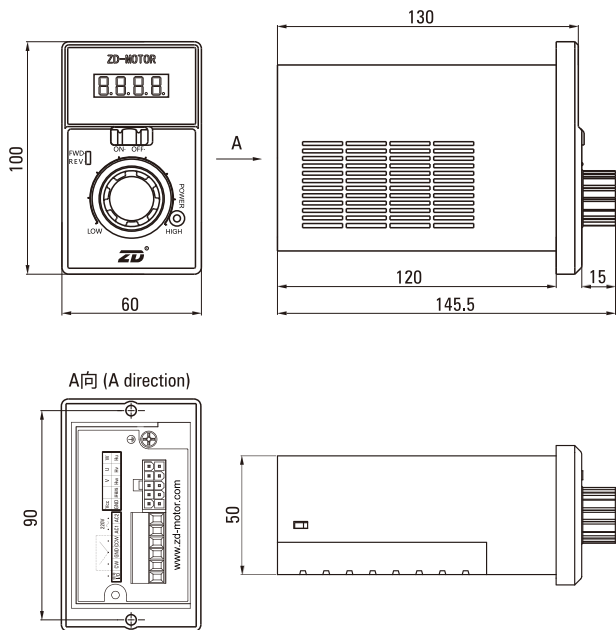
- 采用新型高压功率模块控制技术，功能齐全，性能优越。
- 采用霍尔信号进行速度闭环控制，系统控制稳定可靠。
- 采用数字显示转速及报警提示，简洁直观。
- 可实现启动加速度快慢调整，加速度时间0.1~1秒可调，出厂值。
- 为0.5秒/P可面板操作、外接开关操作或485通讯操作。
- 保护功能齐全、保护动作灵敏可靠。
- Use new high-voltage control of power, complete function, better performance.
- Use hall signal to closed-loop control the speed, making the control system more stable and reliable.
- Use digital display to show speed and alarm, simple and direct.
- Manage to adjust the accelerating speed, adjusting range 0.1-1s, default value.
- For 0.5 second / P panel control, external switch control, 485 communication control.
- Under fully protection, reliable and smart.

■ 注意事项 Note

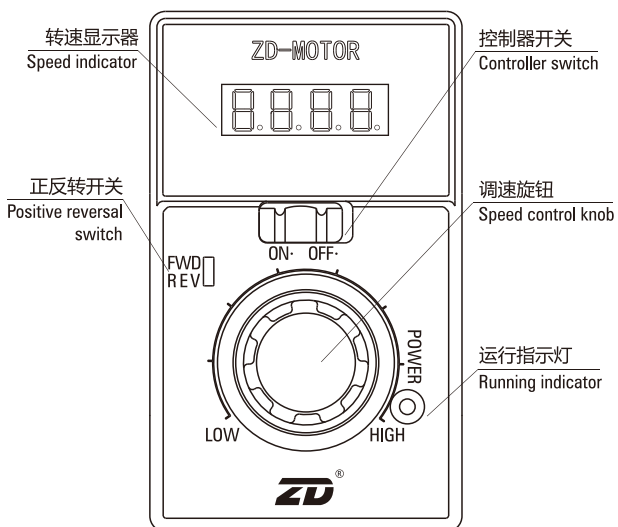
- 此驱动器尺寸适用于本册样本上所有无刷电机。
- 通电使用前必须保证驱动器及电机接地线接地良好。
- 驱动器应置于散热性能好，外在干扰小的场所。
- 驱动器使用环境温度-10°C~+10°C。
- 驱动器防护等级IP00，不得工作于有铁质等导体碎屑、潮湿等不良存在的场所；空气相对湿度不大于80%，无结冰及凝露。
- The speed controller is applicable for all brushless motor in this catalogue.
- Before power on, be sure to ground the motor and controller.
- Put the control in good heat dispersion and low interference environment.
- Working ambient temperature -10°C~+10°C.
- Protection Grade IP00, avoid scrap iron, Humidity lower than 80%, no freezing and frosting.

控制器 CONTROLLER

整体尺寸 Overall Size

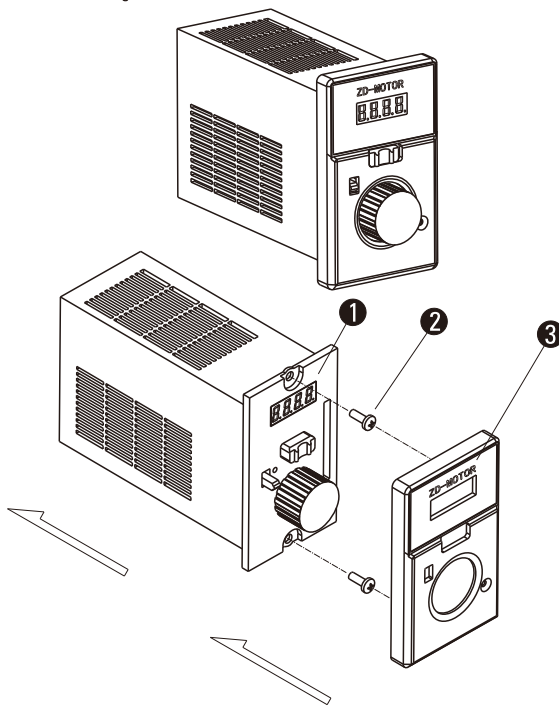


面板说明 Notes



安装固定 Fixed Installation

1. 打开面板 ③。 Open panel ③.
2. 将驱动器本体 ① 插入固定位置。 Insert drive body ① in a fixed position.
3. 用M4沉头螺钉(GB68-85) ② 固定连接。 M4 head screw (GB68-85) ② fixed connection.
4. 将面板 ③ 压扣到位如示意图。 Place the panel ③ button in place as a schematic diagram.



注意 Note :

- 如果电机方向为尾部控制，则面板无正反方向开关。
- 正反转开关只适用于调试时正反切换，不适用于工作过程中频繁切换，有频繁切换时用尾部控制模式。
- If the direction of the motor is the tail control, the panel has no positive or negative direction.
- The reverse switch is only suitable for the adjustment of the positive and negative switch, and is not suitable for frequent switching in the work process, the use of the tail control module when frequent switching type.

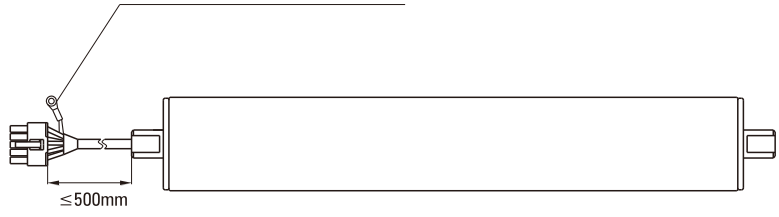
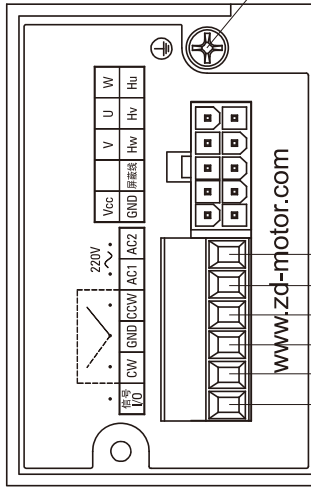
控制器 CONTROLLER

接线端口说明 Connection Port Description

驱动器接地螺钉，使用时一定要接地后方能使用
The grounding screw of drive, It must be connected when you use it

电机接地螺钉，使用时一定要接地后方能使用
The grounding screw of motor, It must be connected when you use it

HIGH VOLTAGE DRIVE WIRING
高压驱动接线说明



电源 AC220
Current AC220

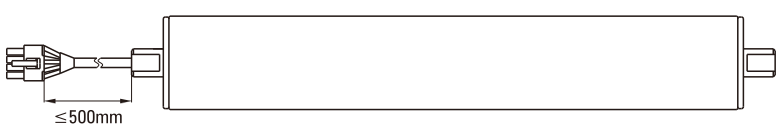
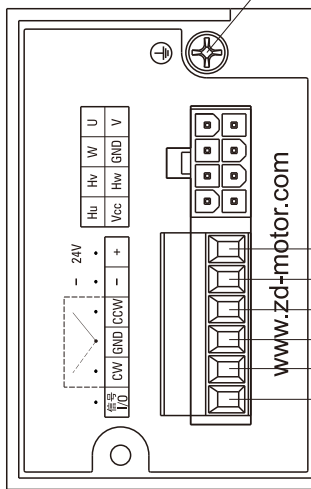
电机正转 Motor is forward
方向公共端 The direction of public side

电机反转 Motor reverse

外部模拟信号 External simulation model lamp

驱动器接地螺钉，使用时一定要接地后方能使用
The grounding screw of drive, It must be connected when you use it

LOW VOLTAGE DRIVE WIRING
低压驱动接线说明



电源 24V~48V+ Current 24V~48V+

电源 24V~48V- Current 24V~48V-

电机正转 Motor is forward
方向公共端 The direction of public side

电机反转 Motor reverse

外部模拟信号 External simulation model lamp

注意 Note :

- 如果电机方向需远程控制，则需通过继电器或485通讯控制方向切换。
- 通电使用前必须保证驱动器及电机接地线接地良好。
- If the direction of the motor needs to be controlled remotely, it is necessary to control the direction of the relay or 485 communication.
- Must ensure that the drive and the motor grounding wire is good before the power use.

电源、控制端 Power Supply, Control Terminal

电机连接端 Motor Connecting End

引角名 Lead Angle	中文定义 Definition of Chinese
AC1	交流220V火线 AC 220V live wire
AC2	交流220V零线 AC 220V zero line
信号I/O Signal I/O	外部模拟信号 External analog signal
CW	电机正转 Motor forward
GND	方向公共端 Direction common
GND	电机反转 Motor reverse

引角名 Lead Angle	中文定义 Definition of Chinese	颜色 Colour
U	电机U相 Motor U phase	灰(黄) Ash (yellow)
V	电机V相 Motor V phase	粉(绿) Powder (green)
W	电机W相 Motor W phase	蓝(蓝) Blue (blue)
Hu	霍尔信号U相输入端 Holzer signal U phase input	黄(黄) Yellow (yellow)
Hv	霍尔信号V相输入端 Holzer signal V phase input	绿(绿) Green (green)
Hw	霍尔信号W相输入端 Holzer signal W phase input	棕(蓝) Brown (blue)
Vcc	霍尔信号电源线 Holzer signal power line	红(红) Red (red)
GND	霍尔信号地线 Holzer signal ground	白(黑) White (black)
屏蔽线 Shielding wire	信号屏蔽线 Signal shielding line	银(银) Silver (silver)

控制器 CONTROLLER

故障报警 Fault Alarm

- 驱动器内部出现电流过流、温度过高或其他异常时，会进入保护状态，停止工作。同时数码管闪烁并且显示故障类型。
- 在断电情况下，根据故障类型参照故障事项说明，检查相应问题，排除故障重新上电，解除报警。
- 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 displayer will flash and show error type.
- Power Off, refer to fault-shooting instruction, check and solve the problem.

故障事项 Trouble

故障显示 Fault Display	故障内容 Fault Content	解决方案 Solution
ERR 1	短路异常 Short-circuit anomaly	检查驱动器、电机线是否短路 Check whether the drive, motor line is short circuit
ERR 2	霍尔异常 Holzer anomaly	检查电机连接端接触是否良好 Check motor connection end contact is good
ERR 3	电流异常 Current anomaly	检查电机是否堵转、超出额定负载 Check if the motor is locked up, beyond the rated load
ERR 4	电压异常 Voltage abnormality	检查输入电压是否正常 Check whether the input voltage is normal
ERR 5	方向异常 Direction anomaly	检查电机方向信号是否同时短路 Check motor direction signal is short circuit
ERR 6	过热保护 Overheat protection	检查驱动器散热环境是否良好 Check whether the drive cooling environment is good
ERR 7	系统异常 Abnormal system	内部系统出错 Internal system error
<p>▲ 检查、排除故障时务必切断输入交流总电源，然后重新上电，如仍有故障存在，请联系我们。 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.</p>		

注意事项 Notes

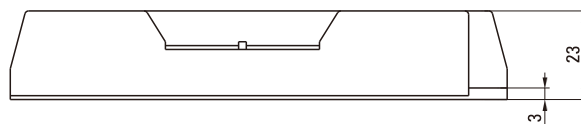
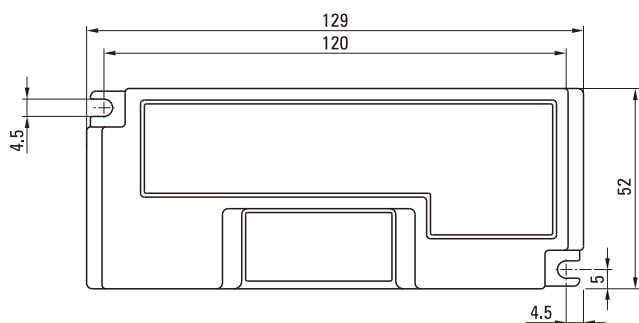
- 正确插接好电机引线，外接电源线并保证电机和驱动器接地线良好可靠。
- 打开电源开关，电源指示灯亮。
- 选择电机运行方向。
- 调整电位器旋钮位置至所需要转速，速电位器旋钮顺时针旋为速度增加。
- Right, well spliced lead wire of the motor, the external power line and ensure the motor and drive ground is good and reliable.
- Open the power switch, the power indicator light.
- Selection of motor running direction.
- Adjust the potentiometer knob to the desired speed, the speed potentiometer knob clockwise rotation to increase.

驱动卡 DRIVER CARD

■ ZD-24结构-实物图 ZD-24 Structure-Photo



■ ZD-24结构-尺寸图 ZD-24 Structure-Outlining Dimensions



■ 外形图 Outline Drawing

● 1.速度调节

- 调节范围：200rpm~3000rpm（仅代表电机运转速度）
- 调节方式：内部调节（31档可调）、外部模拟调节（0~10V）或485远程调节
- PID闭环稳速控制：采用自适应PID调节，稳速范围5%

● 2.加速度/减速度调节

- 加速度调节：16个档位0.1s~5s
- 减速度调节：16个档位0.1s~5s

● 3.运转方向

- 拨码开关设置默认运转方向
- 外部I/O输入控制运转方向

● 4.报警输出

当控制卡检测到报警信息后，会自动停止运行，并进行报警

- 控制卡运行指示灯闪烁
- 外部I/O报警输出（可与PLC等设备连接）
- 报警：电流报警、过压报警、欠压报警、霍尔报警、通讯异常等

● 5.速度/位置输出

- 外部I/O输出电机脉冲信号（单位为无刷电机一个电角度）

● 6.工作电源

- 电压：DC24V
- 电流：额定电流不超过3.4A，最大峰值电流5A

● 7.刹车

- 无刹车：断开控制卡内部电源电路，使得转子继续旋转直至机械负载让它自动停止
- 标准动力刹车：控制卡内部控制无刷电机三相分线接地，使其快速刹车
- 机械刹车：通过电机轴上的机械刹车盘进行刹车

● 8.外部传感器接口

- 控制卡设有一个外部传感器接口，方便用户快速使用

● 9.485总线控制

- ZD-24控制卡具有基于MODEBUS通讯协议的总线控制功能，一条总线可连接最多256台设备，可有一台支持MODEBUS协议的主机进行统一控制

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

危险 DANGER

在此查询电动滚筒运行时可能出现的各种危险或伤害信息
In this inquiry may appear when the electric roller various dangerous or harmful information

■ 人员伤害 Personnel Injury

- 只能由经过授权的专业人员在遵守有效规定的情况下执行设备的维护和维修作业。
- 接通电动滚筒之前确保没有未经授权的人员站立在输送带附近。
- 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.

■ 电动滚筒换油 Drum Motor Oil Renewing

- 只能在无电的状态下进行安装和维护作业。防止意外接通电动滚筒。
- 请勿吞咽油。通常情况下，使用的油是无毒的，但其中也可能含有有害物质。吞咽润滑油可能导致恶心、呕吐或腹泻。通常情况下，吞咽润滑油后无需医生治疗，除非咽了大量润滑油。尽管如此，仍应当征求医生的建议。
- 请避免润滑油接触皮肤和眼睛。如果皮肤与润滑油接触时间较长或一再接触到润滑油，若不按照规定进行清洁，可能导致皮肤毛囊堵塞或发生皮肤病，如油粉刺和毛囊炎。
- 不慎洒出的油应尽快擦去，以免产生光滑的表面。确保油不会进入环境中。被油弄脏的布或清洁材料应按照规定进行清理，以免发生自然或火灾。
- 如果油发生燃烧，请用泡沫、水沫或水雾、干燥的化学粉末或二氧化碳进行灭火。请勿使用喷出的水流灭火。请穿戴合适的防护服及呼吸面罩。
- Can only be installed and maintenance operations in the state of no electricity. Prevent accidentally 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.

■ 旋转零件 Rotating Parts

- 禁止触碰电动滚筒和传送带或滚筒链条周围区域。
- 扎起头发。
- 穿上紧身工作服。
- 禁止佩戴饰品，如手链或手镯。
- 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.

■ 发热的电机部件 Heated Parts

请勿触碰电动滚筒的表面。即使在普通运行温度条件下碰触，也有导致烧伤的可能。
Do not touch the surface of the electric roller. Even under normal operating temperature conditions, it also has the potential to cause burns.

■ 工作环境 Work Environment

- 禁止在易爆环境中使用本电动滚筒。
- 清楚工作区内不需要的物料和物品。
- 穿上安全鞋。
- 监控输送线上物品的放置情况。
- 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.

■ 运行故障 Running Fault

- 定期检查电动滚筒是否有可见的损坏。
- 出现烟雾、异常噪音、输送带受阻或损坏时，立即停止电动滚筒并防止意外接通。
- 立即联系专业人员，测定故障原因。
- 在运行时，请勿踩踏电动滚筒或装有电动滚筒的输送机或设备。
- 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.

■ 维护 Maintain

- 由于该产品为免维护产品，因此只需定期检查产品是否有明显的损坏，异常的噪音、配件、螺栓和螺母的紧固情况。
- 不要打开电动滚筒。
- 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.

■ 不正常的电机起动 Abnormal Motor Starting

安装和维护或当电动滚筒发生故障时请小心，电动滚筒可能会不正常起动。
Please be careful when installing and maintaining or when the electric drum is in trouble.

■ 与其他设备的接口 Interface With Other Devices

- 在安装电动滚筒到传输设备上时可能出现危险点。关于此危险点没有在目前的操作说明书上说明，必须在研发、安装、调试运送器时获取。
- 在安装电动滚筒到传输设备或类似的系统之后，必须在接通前检查整个设备是否存在潜在的新危险。
- 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 must be 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.

运输与存放 TRANSPORTATION AND STORAGE

运输 Transport

小心 Caution

错误运输有损坏产品的危险

- 只能由经过授权的专业人员执行运输作业。
- 托架不能重叠堆放。
- 运输前请确认，电动滚筒完全被固定好。

The danger of damage to the product by mistake

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

注意 Attention

运输不当可导致电动滚筒损坏

- 避免运输期间发生强烈冲击。
- 不要提拉电缆或接线盒来搬运电动滚筒。
- 禁止在冷热交替的环境中运输电动滚筒。因为这样有可能使电动滚筒内部凝结水珠。
- 运输完毕后，检查每个电动滚筒是否损坏。
- 如果发生损坏，请将损坏部位拍照。
- 出现运输损坏时立即通知经销商和ZD。

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 ZD immediately when the damage occurs.

存放 Deposit

小心 Caution

摆放不当会有受伤危险

- 托架不能重叠堆放。
- 最多可重叠堆放四个纸箱。
- 注意按照规定进行固定。

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.

- 请将电动滚筒存放在干净、干燥之处，存放温度为+15至+30摄氏度；防止电动滚筒接触湿气和水分。

- 当存放时间超过三个月时，请不时地转动轴，避免轴封损坏。

- 存放完毕后，检查每个电动滚筒是否有损坏。

- 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.

安装 Installation

小心 Caution

电机的旋转部件和无意开动有挤压手指的危险

- 禁止触碰电动滚筒和传送带或滚筒链条周边区域。
- 装上保护装置(例如，保护盖板)防止链带或滚条挤压手指。

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.

注意 Attention

物体损坏的危险可能造成电动滚筒运行中断或使用寿命缩短

- 不能摔落或不恰当地使用电动滚筒，以免内部受损。
- 安装前要检测每个电动滚筒是否受损。
- 不能在从电机轴中突出的电缆上固定、负载或加固电动滚筒，以避免内部焊点和密封的损坏。
- 不要扭转机电缆。
- 传送带不能过度绷紧。

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 damage.
- Don't turn the motor cable.
- Conveyor belt can not over tighten.

安装位置错误可导致滚筒损坏

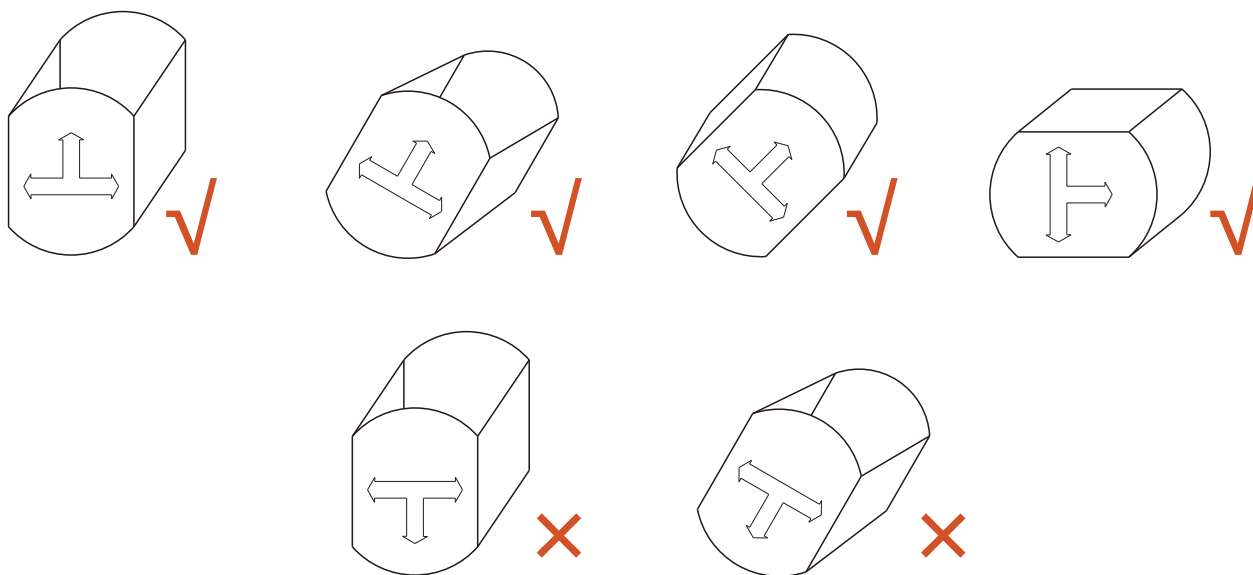
- 确保出轴所标箭头位置向上。

Installation position error can cause roller damage

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

■ 安装位置 Installation Position

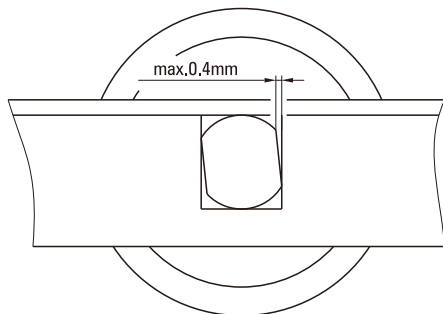
● 水平安装时电动滚筒的正确方向 The Correct Direction Of The Drum Motor When The Level Is Installed



● 滚筒安装支座必须足够坚固，以便承受电机扭矩 The Drum Motor Installation Must Be Strong Enough, In Order To Withstand Motor Torque

- 滚筒安装支座安装到传送架中，确保电动滚筒与滑轮平行，且与传送架成直角。
- 若必须将轴固定在安装支座上，应当仅固定无电缆线的一端，以便在发生热延伸时另一端能够轴向运动。
- 确保至少80%的电动滚筒安装轴扁平面面积固定在滚筒安装支座上。
- 如果电动滚筒经常正反转运行或启动/停止运行: 要确保安装轴扁平面和滚筒安装支座之间不存在间隙。
- 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.

● 正反转/启停 运转 Positive Inversion / Start Stop Operation



- 轴平键与安装支架之间的扭转间隙必须为0.4mm
The torsion gap between the shaft and the mounting bracket must be 0.4mm

■ 装配传送带 Assembly Conveyor Belt

注意 Attention

传送带过小时可能出现过热危险

- 确保用传送带运行电动滚筒，传送带覆盖电动滚筒宽度的至少70%。

Over the hours of the conveyor belt may appear to overheat

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

对于少于70%传送带接触面积的电动滚筒需要其他一种结构，请垂询ZD。

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

■ 传送带调整 Conveyor Belt Adjustment

注意 Attention

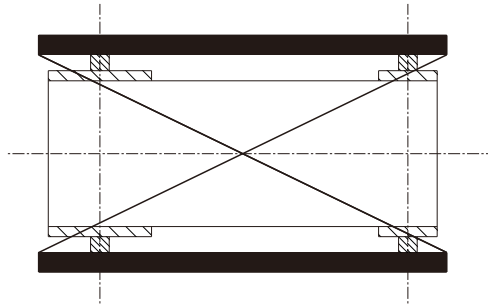
调整错误可能导致使用寿命缩短以及传送带和轴承损坏

- 检测对角尺寸，差别最大允许为0.5%。

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%.

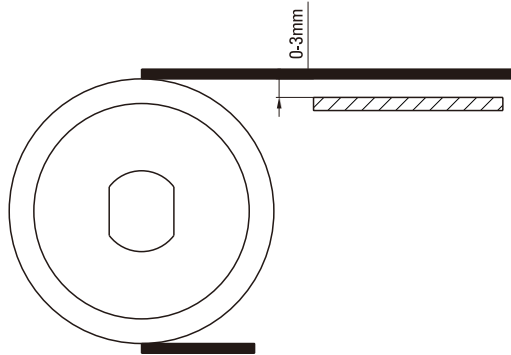
● 对角检测 Diagonal Detection



传送带和滑板之间的间距最大允许3mm。

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

● 传送带位置 Conveyor Belt Position



■ 传送带调整 Conveyor Belt Adjustment

注意 Attention

传送带绷得过紧可能导致使用寿命减短、轴承磨损或漏油

- 电动滚筒安装后，如何确认输送皮带张紧程度？从一般使用的经验上讲，以皮带足够传递牵引力，负载运行时皮带不打滑为适合标准，严禁皮带过度张紧，否则会导致电动滚筒噪声过大、电机过热及前后轴弯曲变形，或直接导致电动滚筒的完全损坏。当调整皮带时，应确保电动滚筒和从动滚筒平行，皮带张紧均匀，否则会引起皮带跑偏或皮带损坏。
- 电动滚筒完全依靠皮带散热，在未安装输送皮带时，严禁空转。否则筒体表面温度会迅速上升，电动滚筒内部热量无法及时散发，从而烧坏电机。
- 输送皮带的宽度，必须覆盖电动滚筒筒体宽度的2/3以上，以便防止电动滚筒内部的热量因无法及时散发而导致筒体过热。如果电动滚筒接触皮带的部分较少或完全没有皮带运行，则必须使用特制电动滚筒，关于特制电动滚筒，采购商应与本公司技术部门联系特配。

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.

■ 橡胶挂胶 Rubber Suspension

- 额外的使用橡胶挂胶会使电动滚筒过热。对于一些电动滚筒可能还有关于橡胶挂胶厚度的限制。
- 为了避免热过载，所需的功率应乘于1.2
如果您想安装一个这样的产品，请咨询中大技术部关于橡胶挂胶的类型和其最大的厚度。
- 外壳上的链轮
为了运行履带，必须在电动滚筒上安装足够数量的链轮，以支撑带的重量并拉动负载。与带啮合的链轮必须采用浮动轴承，以免带受热延伸。仅允许固定一个链轮，用于引导传送带；或者也可以从侧面引导传送带。
- 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 belt must adopt a 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.

● 注意 Be Careful

传送带的损坏，勿将固定好的链轮与侧面导轨同时使用。
The conveyor belt is damaged, do not use the fixed wheel and the side rail at the same time.

■ 电气安装的警告提示 Electrical Installation Warning Tips

警告 Warning

电击危险

- 只能由进过授权的专业人员执行电气安装。 • 在安装、移除电动滚筒或改变电动滚筒布线前切断电压。 • 请勿将交流电电动滚筒连接至直流电源----这将导致无法修复的损坏。
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.

■ 电动滚筒的电气连接 Electrical Connection Of Electric Roller

- 确保电机与符合电机基本数据表的正确线路电压进行连接。
- 确保电动滚筒通过一个黄绿色电缆线建立正确接地连接。
- 参照连接图来连接电动滚筒。
- 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.

电动滚筒的连接 CONNECTION OF DRUM MOTOR

接线盒选项 Junction Box Option

注意 Attention

由于接线盒的改变导致内部布线的损坏

- 不能拆卸、重装或更改接线盒。
- 取下接线盒的外壳盖。
- 确保电机与符合电机基本数据表的正确线路电压建立连接。
- 确保电动滚筒的接线盒正确接地。
- 按照接线图，连接电动滚筒。
- 重新盖上外壳盖

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

- Can not remove, reinstall or change the junction box.
- Take off the cover of 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

单相电机如果需要100%起动力矩，那么就必须连接电动滚筒到启动电容器和运行电容器。在没有启动电容器的条件下运行时，启动扭矩可降低到参数目录中给出值的70%以内的额定扭矩。

外部电机防护电机必须与合适的外部电机防护装配在一起，比如过电流继电器。必须按照各电机的额定电流对保护装置进行装置。

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 reduced 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.

变频器 Inverter

- 可用变频器运行异步电动滚筒，变频器自己提供，但必须根据给出的电机数据正确的给定参数。
- 必须阻止电线中的共振频率，因为它会制造电机中的电压峰值。
- 假设电缆太长，那么变频器就会引起变频器和电机之间电线的共振频率。
- 为连接变频器和电机应使用完全受保护的电缆。
- 如果电缆长度超过10米或者一个变频器要控制多个电机，那么就要装配正弦过滤器或一个电机节流阀。
- 根据电工规定和地方性的EMV建议确保电缆屏蔽与接地部分连接。
- 防倒转装置(单向转子轴承)。
- 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).

注意 Attention

由于错误的旋转方向连接，带单向装置的电动滚筒受损

按照接线图连接电动滚筒。末端外壳上指向电动滚筒的电气连接方显示出正确的转动方向。

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.

电磁制动器: 电动滚筒将与带整流器的、已安装好的电磁制动器一起提供（如果不包含24VDC制动器）。按照接线图连接整流器和制动器。整流器拥有一个用于制动作用的交流电端口和一个直流电端口。

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.

制动器启动注意要求 Brake Starting Attention Requirement

- 当电动滚筒带电磁制动器时，必须使用整流器并按接线图正确连接。整流器是交流输入，直流输出，控制电路是针对此电机和制动器设计的，两者不可相互干涉。应考虑到电磁制动器松开制动0.4-0.6秒的反应时间，电机运转时制动器不应动作，制动器制动时电机不应启动，推荐整流器到制动器的距离不应超过2M，主要避免电压变化。
- 只有切断对电机的供电，才能关闭制动器。
- 只有制动器已被解除，才可开启电机。
- 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.

调试和运行 DEBUGGING AND RUNNING

首次调试 First Debug

只有正确安装了电动滚筒并连接电源，且所有旋转部件都配备了安全装置和屏蔽，才能运行电动滚筒。本电动滚筒出厂时已添加了足够的润滑油并已装配好。首次调试前，您必须按照如下步骤操作：

- 确保电机基本数据表上的型号与所订购的型号相符。
- 确保周围物体与旋转部件或可移动的部件之间不会接触到。
- 确保电动滚筒和传送带能够顺畅移动。
- 确保传送带使用了ZD建议的张力。
- 确保按照说明将所有螺栓固定好。
- 确保通过接口连接的其他组件不会形成其他危险区域。
- 确保电动滚筒正确布线，且已连接电源。
- 检查所有安全装置。
- 确保输送机的危险区域内无人员逗留。
- 当电动滚筒带有防倒转装置时，必须确认电机连接到正确的旋转方向，否则通电会损坏电机。旋转方向一般标注在电动滚筒的一端端盖上。

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, you 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.

运行 Operation

小心 Caution

旋转零件和意外启动有损伤手指的危险

- 禁止触碰电动滚筒和传送带周边区域。 • 不要取下保护装置。 • 手指、头发和宽松的服装应远离电动滚筒和传送带。

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 device. • Fingers, hair and loose clothing should be far from the electric roller and conveyor belt.

维护和清洁 MAINTENANCE AND CLEANING

维护和清洁的警告提示 Tips For Maintenance And Cleaning

小心 Look Out

不恰当的运行环境或电机类型有可能造成人员伤亡

- 只能在不同点的状态下进行维护作业，防止意外接通电动滚筒。
- 防止显示维护作业的提示牌。

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.

维护 Maintain

一般来讲，ZD电动滚筒无需维护，并且在其使用寿命内无需特殊保养。当然，定期检查是必须要做的。

- 每天检查，确保电动滚筒运转顺畅。
- 每台检查电动滚筒是否有可见的损坏。
- 每天确保传送带得到正确调整，运行时以电动滚筒为中心，且平行于输送机框架。
- 每周检查传送架的电机轴和支架是否良好。
- 每周检查电缆、导线和接头有无异常，是否固定良好。
- 如果电机在敏感环境中运行，例如与水、盐、灰尘等经常接触，或者在持续负载状态下运行，请经常为电机润滑。

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, dust, etc., or in a continuous load state, please always lubricate the motor.

电动滚筒换油 Oil Renewing

一般情况下不必更换润滑油，但由于特殊原因可以进行换油作业。

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

警告 Warning

润滑油可能发生自燃，形成光滑的表面，也可能含有有害物质

- 请勿吞咽润滑油。吞咽润滑油后，应当征求医生的建议。
- 请避免润滑油接触皮肤和眼睛。
- 洒出的润滑油必须尽快处理掉，以避免形成光滑的表面或发生火灾。
- 如果润滑油发生燃烧，请用干燥的化学粉或二氧化碳进行灭火。

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 contact 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 fire.

注意 Attention

错误使用润滑油可能导致电动滚筒损坏

- 更换润滑油时，请咨询ZD确认润滑油的种类。
- 不要使用混有不明物质的润滑油，这样可能损坏电机绝缘部分和密封性。
- 禁止使用含有石墨或二硫化钼，或其他导电物质的润滑油。
- 取下润滑油塞。
- 排尽电动滚筒内剩余的润滑油。
- 将新的润滑油注入电动滚筒（润滑油型号和剂量咨询ZD）。
- 装回电动滚筒的润滑油塞并旋转固定好。

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.

清洁 Clean

只允许配有IP66的高品质钢和不锈钢电动滚筒使用高压清洁剂进行清洁。

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

注意 Attention

由于高压导致密封性下降

- 清洁密封件时，勿使喷嘴保持在轴密封环的同一位置。
- 使喷嘴绕着整个电动滚筒不停地、有规律的运行。

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 cleaning the seal.
- The nozzle is kept in the whole electric roller, and it has a regular operation.

在您使用高压清洁剂之前，请注意以下几点：

- 高压喷嘴到电动滚筒的距离必须至少保持30cm。
- 可使用的最大压力为50巴。
- 进行高压清洁时，电动滚筒必须为运行状态，否则会渗水或损坏密封件。

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.

卫生清洁 Sanitary Cleaning

注意 Attention

清洁不当可导致电动滚筒损坏

- 任何时候都禁止将含酸的清洁剂与含氧的清洁剂一同使用，因为所产生的有害物质氯可能损坏不锈钢和橡胶部件。
- 请勿在铝或镀锌的部件上使用含酸的清洁剂。
- 避免温度超过55摄氏度，以免蛋白淤积在表面上，请在较低的温度条件下用合适的清洁剂除去油脂。
- 避免水压超过20巴，以免产生气雾。
- 将喷嘴与要清洁的表面之间的距离保持在30cm。
- 请勿将喷嘴直接对准油封和其它密封件上。
- 擦去较大、松散的污物。
- 用水进行预清洁 (20巴，55摄氏度)。
- 使用喷嘴以45°角向下对准表面。
- 欲进行更彻底的清洁，请使用软刷清洁密封件，槽以及其它凹处。
- 如果脏污情况严重，请将软刷或熟料刮刀与水雾配合使用。
- 用冷的碱性或酸性清洁剂清洁约15分钟。
- 用水将清洁剂冲洗干净 (20巴，55摄氏度)。
- 用冷的消毒剂消毒约10分钟。
- 用水冲洗干净 (20巴，55摄氏度)。
- 完成清洁后，检查表面、槽以及其它凹处是否存在残留物。

Improper cleaning can lead to damage to electric roller

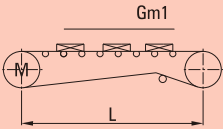
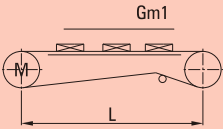
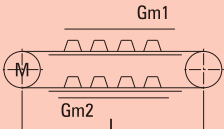

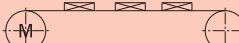
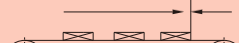
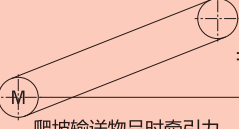
- Any time to prohibit the use of acid containing detergent and containing oxygen, because the harmful substances produced by chlorine may damage the stainless steel and rubber parts.
- Please do not use the clean agent containing acid on the aluminum or galvanized parts.
- To avoid the temperature more 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 the 30cm.
- Do not align the nozzle directly to the seal and other seals.
- Clean, loose dirt.
- Pre cleaning of water (20 bar, 55°C).
- Using 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.
- Rinse the detergent with water (20 bar, 55°C).
- Disinfection with cold disinfectant for about 10 minutes.
- Rinse with water (20 bar, 55°C).
- After the completion of the cleaning, check the surface, groove and other concave where there are residues.

- 如果要清洁沉积的钙我们建议使用酸性清洁剂每月实施1至4次清洁。
- 如果允许使用氯进行清洁，我们建议使用碱性清洁剂和消毒剂。在这种情况下，可视脏污程度的不同，实施或放弃使用最后一个消毒步骤。
- 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.

电动滚筒的牵引力计算

TRACTION FORCE CALCULATION OF DRUM MOTOR

■ 电动滚筒牵引力计算公式：Traction Calculation Formula Of Electric Roller:

皮带输送系统 Belt Conveyor System	 皮带在托辊上 Belt On The Roller	 皮带在托板上 The Belt On The Board	 来回程都有托板 To Return A Pallet
 无负载时牵引力 Traction Force Without Load	$F_0 = 0.4 * L * (2G_n + Gr)$	$F_0 = 11 * L * G_n * f_2$	$F_0 = 10 * L * G_n * (f_2 + f_4)$
 水平输送物品时牵引力 Traction Force Of Horizontal Transportation	$F_1 = 0.4 * L * G_{m1}$	$F_1 = 11 * L * G_{m1} * f_2$	$F_1 = 10 * L * (G_{m1} * f_2 + G_{m2} * f_4)$
 积放输送物品时牵引力 Traction Force When The Product Is Transported	$F_2 = 10 * L * G_{m1} * f_1$	$F_2 = 10 * L * G_{m1} * f_1$	$F_2 = 10 * L * (G_{m1} * f_1 + G_{m2} * f_3)$
 爬坡输送物品时牵引力 Traction Force When The Climbing Conveyor	$F_3 = 10 * H * G_{m1}$	$F_3 = 10 * H * G_{m1}$	$F_3 = 10 * H * (G_{m1} - G_{m2})$

F: 电动滚筒牵引力 (N)
L: 驱动滚筒与改向滚筒中心距水平投影 (m)
H: 输送高度 (m)
Gm1: 每米皮带输送机上载荷重量, 表示来程 (kg/m)
Gm2: 每米皮带输送机上载荷重量, 表示回程 (kg/m)
Gn: 每米皮带重量 (kg/m)
Gr: 每米皮带输送机上回转件总量, 包括来回部分 (kg/m)
f1: 输送物品和皮带承载面之间的摩擦系数 (表2)
f2: 输送机托板和皮带承载面之间的摩擦系数 (表1)
f3: 输送物品和回程皮带承载面之间的摩擦系数 (表2)
f4: 输送机托板和回程皮带承载面之间的摩擦系数 (表1)

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/m)
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 1)
f3: Coefficient of friction between the conveyor and the return belt (Table 2)
f4: The pallet conveyor and return belt bearing friction coefficient between surfaces (Table 1)

● 表1 Table 1

f2/f4	PE皮带 PE Belt	PP皮带 PP Belt	POM皮带 POM Belt	PVC皮带 PVC Belt	聚酯纤维 Polyester	橡胶 Rubber
PE滑动板 PE sliding plate	0.30	0.15	0.11	-	-	0.40
低碳钢或者不锈钢托板 Low carbon steel or stainless steel plate	0.15	0.26	0.22	0.48	0.28	0.40

● 表2 Table 2

f1/f3	PE皮带 PE Belt	PP皮带 PP Belt	POM皮带 POM Belt	PVC皮带 PVC Belt	聚酯纤维 Polyester	橡胶 Rubber
钢制产品 Steel product	0.13	0.34	0.23	0.30	0.18	0.40
玻璃产品 Glass product	0.09	0.19	0.15	-	-	-
塑料产品 Plastic product	0.08	0.18	0.15	0.30	0.17	0.40

故障排除帮助 TROUBLESHOOTING HELP

故障 Fault	可能原因 Possible Reasons	帮助 Help
电机无法启动, 或运行期间突然停止 Motor can not start, or run during a sudden stop	无供电 No power supply	检查电源供给 Check power supply
	接口连接或电缆连接松动/错误 Interface connection or cable connection loose / error	参照连接图检查当前连接状况。检查电缆是否损坏或接口是否松动 Check the current connection status with the connection diagram. Check the cable is damaged or the interface is loose.
	电机过热 Motor overheating	参见故障“电机正常运行时升温”。 See fault "motor normal operation when heating".
	电机超载 Motor overload	主电源供电中断, 确定原因是电机超载, 并予以排除。 The main power supply interruption, determine the reason is the motor overload, and to be excluded.
	内置热保护器 Built in thermal protector	检查是否超载或过热。降温后检查内置热保护装置的畅通性。参见故障“电机正常运行时升温”。 Check for overloading or overheating. Check the flow of heat protection device after cooling. See fault "motor normal operation when heating".
	外置过载保护装置跳闸 Tripping of external overload protection device	检查是否超载或过热, 检查外置过载保护装置的畅通性和功能性。 Check whether the overload or overheating, check the external overload protection device of the smooth and functional.
	电机绕组的相连接错误 Phase connection error of motor winding	如果接线方式正确, 请直接连接中大技术部询问。 If the wiring is correct, please connect directly to the Zhongda technical department for inquiry.
	电机绕组短路 Motor winding short circuit	电机绕组短路请直接联系中大技术部, 或者垂询您所在地经销商更换 Motor winding short circuit please directly contact the Zhongda Technology Department, or contact your local dealer replacement.
电机无法启动, 或运行期间突然停止 Motor can not start, or run during a sudden stop	制动器无法松开 Brake can not be loosened	检查启动时制动器是否可以正常工作, 检查制动器的连接和绕组的畅通性, 如果制动器的连接和绕组均正常, 请再检查整流器。 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.
	机械防倒转装置旋转方向错误(非可逆转装置) A reverse rotation direction error (non reversing device) for mechanical anti reverse gear	请立即切断电源, 然后手动旋转滚筒, 以确定机械防倒转装置已经受到机械损坏。检查接口的旋转方向是否正确, 如需要更改相连接, 这样滚筒就会朝着正确的方向旋转, 或者可能的话安装新的电动滚筒, 以保证旋转方向正确。 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.
	滚筒或传送带卡住 Roller or conveyor belt stuck	确保传送带和电动滚筒不受任何障碍干扰, 且所有棍子和滚筒均可自由旋转。如果电动滚筒无法自由旋转, 可能是齿轮箱或轴承被卡住了。在这种情况下, 请咨询中大技术部。 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.
电机无法启动, 或运行期间突然停止 Motor can not start, or run during a sudden stop	工作环境温度过低/润滑油黏度过高 Working environment temperature is too low / high oil viscosity	检查润滑油黏度与环境温度是否相符。如果不相符, 请重新添加相应黏度的油。安装加热装置或更高功率的电动滚筒。在这种情况下, 请咨询中大技术部。 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 Zhongda technology department.
	齿轮箱或轴承卡住 Gear box or bearing jammed	手动检查, 滚筒是否能够自由旋转。如果不能, 请更换新的电动滚筒, 咨询中大技术部。 Manual inspection, the roller is capable of free rotation. If you can not, please replace the new electric drum, consulting Zhongda technology department.
电机正常运转, 但滚筒不旋转 Motor normal operation, but the roller does not rotate	传输损坏 Transmission damage	直接咨询中大技术部。 Direct consultation with the department of Zhongda technology.
电动滚筒运转中断 Electric roller	电动滚筒与传送带不定期或部分卡住 The electric roller and the conveyor belt are not regular or in part.	确保传送带和电动滚筒不受任何障碍干扰, 且所有棍子和滚筒均可自由旋转。 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.
	电源电缆连接错误或连接松动 Power cable connection error or loose connection	检查连接 Check connection
	齿轮箱受损 Gearbox damage	手动检查旋转, 请更换电动滚筒, 或者直接咨询中大技术部。 Manually check the rotation, please replace the electric drum, or direct consultation with the department of Zhongda technology.

故障 Fault	可能原因 Possible Reasons	帮助 Help
电动滚筒运转中断 Electric roller	电源供给不正确或不正常 Power supply is not correct or normal	检查电源供给。单相电机: 检查电容器。 Check power supply. Single phase motor: check capacitor.
电动滚筒和传送带运转速度比设定的要慢 Requirements for electric roller and conveyor belt running speed ratio	订购或供应了错误转速的电机 Order or supply of the motor with the wrong speed	检查电动滚筒详细说明和容差。请更换电动滚筒, 或者垂询您所在地的经销商或销售。 Check the electric drum for details and tolerances. Please change the electric roller, or contact your local dealer or sales.
	电动滚筒与传送带不定期或部分卡住 The electric roller and the conveyor belt are not regular or in part	确保传送带和电动滚筒不受任何障碍干扰, 且所有棍子和滚筒均可自由旋转。 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.
	变频器设置不正确 Inverter setup is not correct	检查变频器设置是否与电动滚筒说明相符合。如必要, 予以更改。 Check that the inverter is set up with the electric roller description. Change if necessary.
	传送带打滑 Belt slippage	参见故障“电动滚筒上的传送带打滑”。 See fault "conveyor belt slippage on the electric roller".
	滚筒表面的挂胶打滑 Surface of the roller surface	检查挂胶, 如需要将挂胶固定好, 更换挂胶对滚筒表面进行喷砂或打毛处理, 确保滚筒表面的挂胶能够产生一定的摩擦力。 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.
将60Hz的电机与一个50Hz电源连接 Connect 60Hz motor with a 50Hz power supply	检查电机详细说明和容差范围与电源供给频率是否相符。请更换电动滚筒, 或者直接咨询中大技术部。 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.	
电动滚筒运转比设定的要快 Electric roller running faster than setting	订购或供应了错误转速的电机 Order or supply of the motor with the wrong speed	检查电动滚筒详细说明和容差。请更换电动滚筒, 或者垂询您所在地的经销商或销售。 Check the electric drum for details and tolerances. Please change the electric roller, or contact your local dealer or sales.
	变频器设置不正确 Inverter setup is not correct	检查变频器设置是否与电动滚筒说明相符合。如必要, 予以更改。 Check that the inverter is set up with the electric roller description. Change if necessary.
	将50Hz的电机与一个60Hz电源连接 Connect 50Hz motor with a 60Hz power supply	检查电机详细说明和容差范围与电源供给频率是否相符。请更换电动滚筒, 或者直接咨询中大技术部。 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.
	橡胶挂胶的厚度会升高传送带速度, 超过电机的额定速度 The thickness of the rubber suspension will increase the speed of the conveyor belt, which exceeds the rated speed of the motor	测量橡胶挂胶的厚度, 并检查该测量值是否影响并被用于计算电动滚筒速度。降低橡胶挂胶的厚度, 或加装变频器, 或安装新的低速电动滚筒。 Measure the thickness of the rubber, and check whether the measured value is affected 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.
电机正常运行时升温 Normal operation of motor temperature rise	电动滚筒超载 Electric roller overload	检查额定电流是否过载 Check whether the current rating is over load
	环境温度超过40°C Ambient temperature over 40°C	检查环境温度。如果环境温度过高, 请加装冷却装置。或直接咨询中大技术部。 Check environmental temperature. If the ambient temperature is too high, please install cooling device, or direct consultation with the department of Zhongda technology.
	过多的或频繁停止/启动 Too much or too often stop / start	检查停止/启动次数是否符合电动滚筒详细说明中的要求, 如必要减少停止/启动次数, 安装变频器, 以达到优化电机工作效率的目的。 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.
	传送带张力过大 Belt tension is too large	检查传送带张力, 如必要降低张力。 Check the conveyor belt tension, such as the need to reduce tension.
	电机不适合用于该场合 Motor is not suitable for the occasion	检查电机用途是否与电动滚筒详细说明中的内容相符, 对于履带或无传送带运行, 必须使用降低功率的特殊电机。 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.
	挂胶过厚 Hanging glue thickness	请更换挂胶, 或直接联系中大技术部。 Please replace the hang glue, or direct consultation with the department of Zhongda technology.
错误的电源供给 Wrong power supply	检查电源供给, 单相电机: 可能是启动电容或运转电容器使用不正确。 Check power supply, single phase motor: it may be starting capacitor or running capacitor is not correct.	

故障 Fault	可能原因 Possible Reasons	帮助 Help
电机正常运行时升温 Normal operation of motor temperature rise	变频器设置不正确 Inverter setup is not correct	检查变频器设置是否与电动滚筒说明相符合。如必要，予以更改。 Check that the inverter is set up with the electric roller description. Change if necessary.
电动滚筒正常运转时声响过大 When the electric roller is normal, the sound is too large	变频器设置不正确 Inverter setup is not correct	检查变频器设置是否与电动滚筒说明相符合。如必要，予以更改。 Check that the inverter is set up with the electric roller description. Change if necessary.
	滚筒安装支座松动 Roller mounting bracket loose	检查滚筒安装支座、轴偏差和固定螺栓。 Check roller mounting bracket, shaft deviation and fixed bolt.
	传送带张力过大 Belt tension is too large	检查传送带张力，如必要降低张力。 Check the conveyor belt tension, such as the need to reduce tension.
	滚筒与传送带之间的搭配不正确/不匹配 Between the roller and the conveyor belt, collocation is not correct / does not match	请确保传送带与滚筒相互匹配，且连接正确，如需要，请更换。 Please make sure that the conveyor belt is matched with the roller and the connection is correct, if necessary, please change.
电动滚筒剧烈震动 Violent vibration of electric roller	变频器设置不正确 Inverter setup is not correct	检查变频器设置是否与电动滚筒说明相符合。如必要，予以更改。 Check that the inverter is set up with the electric roller description. Change if necessary.
	滚筒安装支座松动 Roller mounting bracket loose	检查传送带张力，如必要降低张力。 Check the conveyor belt tension, such as the need to reduce tension.
	电动滚筒旋转不均匀 Electric drum rotation is not uniform	检查电动滚筒详细说明中是否有关于。 Check whether there is a detailed description of the electric roller.
电机绕组-一个失灵 Motor winding - a failure	绕组绝缘部分不起作用/过载 Winding insulation part does not work / overload	检查每个相绕组的畅通性、电流和电阻。或者直接咨询中大技术部。 Check the flow, current and resistance of each phase winding. or direct consultation with the department of Zhongda technology.
电机绕组-两个失灵 Motor winding - two failure	一个相断电，可能导致其他两个相过载/断路 A phase failure that may result in other two phase overload / opening	检查所有项的电源供给，检查每个相绕组的畅通性、电流和电阻，请更换电动滚筒，或者直接联系中大技术部。 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.
电机绕组-三个失灵 Motor winding - three failure	电机过载或电源连接不正确 Motor overload or power connection is not correct	检查供电电源是否正常，检查每个相绕组的畅通性、电流和电阻。请更换电动滚筒，或者直接咨询中大技术部。 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 Zhongda technology.
电动滚筒上的传送带打滑 Belt slippage on the electric roller	传送带卡住 Master card	确保传送带和电动滚筒不受任何障碍干扰，且所有棍子和滚筒均可自由旋转。 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.
	电动滚筒和传送带间的摩擦过小 The friction between the electric roller and the conveyor belt is too small	检查传送带及张力: 检查滚筒或包裹摩擦材料: 检查传送带与电动滚筒之间是否还存在润滑油或润滑脂。 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.
	传送带和支架/滑板间的摩擦过大 The friction between the belt and the support / slider is too large	检查传送带和滑板背面的灰尘污染程度和表面磨损程度。检查传送带和滑板之间是否有水渗入，并因此产生了抽吸/拉伸效果。 The degree of dust pollution and surface wear of the conveyor belt and the back of 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.
	传送带张力过小 Belt tension is too small	检查传送带，并将其收紧或缩短。 Check the conveyor belt, and tighten it or shorten.
	使用模组网带方式滚筒过小或使用了错误的滚筒 The use of modular mesh belt way too small or use the wrong roller	请确保传送带与滚筒、滚齿连接正确，请确保传送带的高度和张力符合制造商说明。 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.
	传送带和滚筒间的润滑油、润滑剂或润滑脂 Lubricating oil, lubricating grease, or grease that is transmitted between the belt and the roller	清理掉过剩的润滑油、润滑剂或润滑脂，确保清洁装置使用正常。 Clean out excess oil, grease or lubricant, to ensure that the cleaning device is normal.
	用于传送带的入辊、出辊、中间辊直径过小 Used in the transmission of the roll, the roll, the diameter of the small diameter of the edge, the roller may cause friction to increase, which leads to an increase in current consumption.	检查用于传送带的最小滚筒直径，小直径的测量边缘、辊有可能使摩擦使摩擦增大，从而导致电流消耗加大。 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.
	滚筒表面的挂胶打滑 Surface of the roller surface	检查挂胶，如需要将挂胶固定好，更换挂胶对滚筒表面进行喷砂或打毛处理，确保滚筒表面的挂胶能够产生一定的摩擦力。 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.

故障 Fault	可能原因 Possible Reasons	帮助 Help
电动滚筒上的传送带跳起 Conveyor belt on the electric roller	传送带卡主或滚筒上面材料堆积 传送带的传输连贯性差或已损坏 传送带和滑动板间的摩擦过大 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	确保传送带和电动滚筒不受任何障碍干扰，且所有辊子和滚筒均可自由旋转检查传送带连贯性。 Ensure that the belt and the roller without any obstacles and interference, and can freely rotate all roller roller conveyor belt coherence check.
	传送带松动或损坏 Conveyor belt loose or damaged	检查传送及其带张力，检查挂胶。检查传送带运行和传送带校准。 Check the transmission and its tension, check the glue. Check conveyor belt and conveyor belt calibration.
	错误挂胶或链轮 Error hanging glue or sprocket	参见故障“电动滚筒上的传送带打滑”。 See fault "conveyor belt slippage on the electric roller".
未正确调整传送带/传送带运行时不在正中心 Not properly adjust the conveyor belt / conveyor belt running at the time not in the positive Center	电动滚筒、辊子、传送带出材料堆积 Electric roller, roller, conveyor belt material accumulation	确保传送带和电动滚筒不受任何障碍干扰，且所有辊子和滚筒均可自由旋转检查传送带连贯性。 Ensure that the belt and the roller without any obstacles and interference, and can freely rotate all roller roller conveyor belt coherence check.
	辊子上材料堆积 The roll material accumulation	检查材料是否脱落，并确保保洁装置能够正确使用。 Check that the material is off, and make sure the cleaning device can be used correctly.
	损坏或不良固定的传送带 A damaged or defective conveyor belt	检查传送带及其连贯性。 Check the transmission belt and its coherence
	传送带一侧张力较高 Belt tension is higher	请确保传送带两侧张力相等。 Please make sure that the conveyor belt is equal in tension.
	上、下辊调整不正确 Upper and lower roll adjustment is not correct	检查支撑辊和回程辊的调整。 The adjustment of the supporting roller and the return roller.
	入棍、出棍、中间辊调整不正确 Into the stick, out of the roller, middle roll adjustment is not correct	检查电动滚筒和辊子的调整。 Check the electric roller and roller adjustment.
	传送架调整不正确 Transmission rack adjustment is not correct	确保传送架在整个长度方向上各个边相互垂直，平行。 To ensure that the transmission is vertical and parallel to each other in the whole length direction.
	只在一侧传送货物 Only on one side of the delivery of the goods	检查传送点出的张力或摩擦力。 Check the tension or friction of the transfer point.
	传送带与滚筒不匹配 Conveyor belt and drum does not match	确保传送带与滚筒相互匹配，且连接正确，如需要进行调整。 Make sure that the conveyor belt is matched with the roller, and the connection is correct, such as the need to be adjusted.
对于传送带来讲滚筒凸度过小 For the transmission of a small talk roller	查看传送带、电动滚筒纤细说明。 View conveyor belt, electric roller slender description.	
轴密封处有润滑油渗漏 Shaft seal lubrication oil leakage	轴密封件磨损 Shaft seal wear	检查轴密封环附近是否有无用的化学物质或冲刷过后剩余的金属残渣，检查密封件的使用寿命。 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.
	轴骨架油封损坏 Shaft skeleton oil seal damage	确保密封处附近无金属残余、材料堆积或其他物质。 To ensure that there is no metal around the seal, material accumulation or other material.
	带盖轴承损坏、磨损 Bearing damage and wear	检查传送带张力是否过大，甚至超负荷，检查是否有水或化学物质渗入。 Check the transmission belt tension is too large, and even overload, check whether there is water or chemical penetration.
电缆、端子盒处有油溢出 Cable and terminal box have oil spill	电缆连接套松动 Cable connection sleeve loose 内置电缆密封件受损 Built in cable seal damage	确保电缆连接套和密封件绝对密闭，并且不会因加热或化学物质导致变形。 To ensure that the cable connection and seal is sealed, and will not lead to deformation due to heat or chemical substances.
	电缆连接套松动 Cable connection sleeve loose 端子盒处的密封件受损 Damage to the sealing member at the terminal box	确保端子盒处的电缆连接套和密封件绝对密闭，并且不会因加热或化学物质导致变形。 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.
滚筒末端外壳处有油溢出 There is oil spill at the end of the cylinder	滚筒末端外壳松动 Loose ends of roller	检查滚筒和末端外壳之间是否存在空隙，检查传送带张力是否过大，甚至有撞击负荷。 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.
	末端外壳、滚筒密封受损 End shell, roller seal damage	检查传送带是否过热，张力过大，甚至有撞击负荷。 Check the conveyor belt is over heat, the tension is too large, and even the impact load.
油变色-金属银色颗粒 Oil color - metallic silver particles	齿轮的齿或轴承磨损 Gear teeth or bearing wear	请检查轴承和密封件。检查是否超载。 Please check the bearing and seal. Check for overloading.
油变色-变白色 Oil color - white	受到水或其他液体污染 Contaminated by water or other liquids	检查由水、液体引起的密封不良和污染，更换油。 Check the sealing of water, liquid caused by bad and pollution, replacement of oil.

故障 Fault	可能原因 Possible Reasons	帮助 Help
油变色-变黑色 Oil color - black	特别是在较高的运行温度下超载，未安装传送带 Especially at the high operating temperature, the transmission belt is not installed	检查电机用途、使用条件是否与电动滚筒纤细说明中的内容相符，检查是否存在过电流或较高的环境温度。 Check whether the motor use, the use of the condition is consistent with the contents of the electric drum slender instructions, check whether there is an overload current or a higher ambient temperature.
电缆、接线盒受损或损坏 Damage or damage to cables, junction boxes	客户操作失误或安装期间受损 Customer operation failure or damage during installation	检查受损情况，并尽可能查出原因，更换接线盒。 Check the damage, and try to find out the reasons, replace the wiring box.
	运输期间受损 Damage during transportation	检查受损情况，并尽可能查出原因，更换接线盒。 Check the damage, and try to find out the reasons, replace the wiring box.
带盖轴承脱落 Cover bearing off	超载 Overloading	检查电机过载是否与电动滚筒详细说明中的内容相符。 Check whether the motor overload is consistent with the contents of the electric roller.
	撞击载荷 Bump stroke	检查电机过载是否与电动滚筒详细说明中的内容相符。 Check whether the motor overload is consistent with the contents of the electric roller.
	传送带张力过大 Conveyor belt tension is too large	检查传送带张力是否过大，如必要减小传送带张力。 Check the belt tension is too large, such as the need to reduce the transmission belt tension.
	润滑不足 Insufficient lubrication	检查油量和电动滚筒安装是否正确，如果是垂直式安装，请查阅电动滚筒的电机详细说明。 Check the oil quantity and electric roller installation is correct, if it is vertical installation, please refer to the electric drum motor details.
	轴上有负载或调整不正确 The shaft is not correct for load or adjustment	检查螺栓是否固定良好，且架子或滚筒安装支座是否调整不正确。 Check that the bolts are fixed, and the mounting bracket is not correct.
	轴承密封环损坏、磨损 Bearing seal ring damage, wear	检查外部灰尘污染情况。请直接联系中大技术部。 Inspection of external dust pollution. Please contact Zhongda directly to the Department of technology.
	轴上的轴承松动或过紧 The shaft bearing loose or tight	请直接联系中大技术部。 Please contact Zhongda directly to the Department of technology..
齿轮箱失灵 Gear box failure	超载、撞击在和在或正常磨损 Overload, impact, or normal wear	检查电机过载是否与电动滚筒详细说明中的内容相符。检查使用寿命。 Check whether the motor overload is consistent with the contents of the electric roller. Check service life.
转子轴承磨损、失灵 Rotor bearing wear and failure	润滑不足 Insufficient lubrication	检查润滑位置是否正确，油量是否足够。 Check the lubrication position is correct, the amount of oil is sufficient.
转子轴承磨损、失灵转子驱动磨损或啮合齿断裂 Rotor bearing wear, failure of the rotor drive wear or meshing teeth fracture	过多的或频繁停止/启动，极高的启动扭矩 Too much or too frequent to stop / start, a very high starting torque	检查电机过载是否与电动滚筒详细说明中的内容相符。请检查油，停止、启动次数和允许启动扭矩。 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.
齿顶磨损或齿、销钉断裂 The top gear tooth wear or fracture, pin	启动超载、撞击载荷或卡住 Starting over load, impact load or stuck	检查电机用途和载荷是否与电动滚筒详细说明中的内容相符。检查是否卡住。 Check whether the motor use and the load is consistent with the contents of the electric roller. Check for stuck.
齿轮箱和轴承的中间部分磨损、失灵 Gear box and the bearing of the middle part of the wear and failure	润滑不足或齿轮箱、轴承磨损 Lubrication shortage or gear box, bearing wear	检查油量，检查枢轴销和驱动、轴的使用寿命和偏差范围。 Check oil quantity, check the use life and deviation range of pivot pin and drive shaft.
制动器和整流器完全或间歇性的出现故障 The brake and the rectifier are fully or intermittent in the failure	工作电压不正确 Working voltage is not correct	确保整流器安装正确，并且输入电压无误。 Ensure that the rectifier is installed correctly, and the input voltage is correct.
	连接错误 Connection error	确保按照连接图连接制动器。 Ensure that the brake is connected to the connection diagram.
	针对电缆和外置这杯的外部电压峰值的屏蔽不够 The external voltage peak of cable and external voltage is not enough	确保制动器、整流器和电源供给的所有连接电缆均按照IEC的建议进行屏蔽和接地。 To ensure that the brake, the rectifier and the power supply of all the connecting cables are shielded and grounded according to the suggestion of IEC.
制动器和整流器完全或间歇性的出现故障 The brake and the rectifier are fully or intermittent in the failure	因为导线过长而引起的电压下降 Because the wire is too long and the voltage drops	检查在这些长导线之间是否存在电压下降，并确保导线横截面符合IEC的相关规定。 Check if there is a voltage drop between these long wires, and make sure that the cross section of the wire is in line with the relevant provisions of the IEC.
	过多的停止、启动 Too many stops and starts	确保制动器和整流器的详细说明符合使用要求。 Ensure that the brake and the rectifier are described in detail to meet the use requirements.
	整流器连接错误 Rectifier connection error	请直接咨询中大技术部，我们会告诉您该使用何种适合您制动器的整流器。 Please contact Zhongda directly to the Department of technology, we will tell you what to use for your brake.

故障 Fault	可能原因 Possible Reasons	帮助 Help
制动器和整流器完全或间歇性的出现故障 The brake and the rectifier are fully or intermittent in the failure	星型连接方式的电机整流器连接时产生的过电压/反馈 The star connection mode of the motor rectifier is connected when the over voltage / feedback	当电机为星形连接的相电压时，上升运动的传送带能够导致电机负载，并且造成反馈。 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.
	制动器绕组短路 Brake winding short circuit	检查绕组和整流器的畅通性。 Check the flow of windings and rectifier.
缓慢地开、关制动器和整流器 Slowly opening and closing brake and rectifier	选择了错误的制动器、整流器 Choose the wrong brake, the finishing device	确保制动器和整流器的详细说明符合使用要求。 Ensure that the brake and the rectifier are in detail in accordance with the requirements of the application.
	环境温度过低或油黏度过高 Ambient temperature is too low or oil viscosity is too high	确保油黏度与环境温度相符，如果不相符，请重新添加相应黏度的油。安装加热装置或更高功率的电机。在这种情况下，请直接咨询中大技术部。 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.

停机和废料处理 STOP AND WASTE DISPOSAL

■ 停止运行 Stopping The Service

小心 Caution

不适当环境有损坏产品的危险

- 只能由经过授权的专业人员关停设备。
- 只能在不通电的状态下才能使电动滚筒停止运转，防止意外接通电动滚筒。
- 从电源与电机控制中断开电机电缆。
- 松开传送带。
- 从滚筒安装支座中卸下支撑板。
- 从传送架中取出电动滚筒。

The danger of damage to the product is not appropriate

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

■ 废料处理 Waste Disposal

使用者负责按照规定处理电动滚筒的废料，同时遵守行业特有的本地电动滚筒废料及其包装废料处理的规定。

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.

■ 订货/咨询时提供以下详细信息： Provide The Following Information When Ordering / Consulting:

● 标准要求 Standard Requirements

数量	Number
直径	Diameter
电动滚筒型号 (例如: DM80、DM113及其他型号)	Electric drum type (for example: DM80, DM113 and other models)
功率 (KW)	Power (KW)
带速 (m/s)	Belt speed (m/s)
电源及电压: (1×220V、1×110V、3×380V、3×220V或其他)	Power supply and voltage: (1×220V, 1×110V, 3×380V, 3×220V or other)
频率: 50HZ、60HZ	Frequency: 50HZ, 60HZ
滚筒表面宽度L (mm)	Drum surface width L (mm)
出线方式 (直线、弯式、端子盒)	Outlet mode (straight, curved, terminal box)

● 特殊要求 Special Requirements

带过热保护器	Belt overheat protector
带电磁制动器	Electromagnetic brake
食品或强腐蚀性行业 (用不锈钢铜皮、端盖镀镍处理)	Food or highly corrosive industries (stainless steel, copper plating, nickel plating treatment)
安检机、机场行李处理 (低噪音、高防护等级)	Security machine, airport baggage handling (low noise, high protection level)
是否筒体包胶	Whether the tube body package
线缆是否加长	Cable is lengthened
出轴大小	Shaft size

CATALOGUE



PLANETARY GEAR BOX
ZDR/ZDGF(S)系列
高精度行星减速机

ZD 中大刀德



TRANSMISSION PLANETARY
传动行星减速电动机

ZD 中大刀德



DC BRUSHLESS GEAR MOTOR
直流无刷减速电机

ZD 中大刀德



PLANETARY GEAR BOX
ZB/ZE系列
高精度行星减速机

ZD 中大刀德



SMALL AC GEAR MOTOR
小型交流平行轴齿轮减速电机

ZD 中大刀德



PLANETARY GEAR BOX
ZDE/ZDF/ZDWE/ZDWF/ZDS系列
高精度行星减速机

ZD 中大刀德

DRUM MOTOR CATALOGUE

宁波中大力德智能传动股份有限公司
NINGBO ZHONGDA LEADER INTELLIGENT TRANSMISSION CO.,LTD.

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