弹簧加压电磁制动器工作原理

How spring applied electromagnetic brake works

弹簧加压电磁安全制动器是单片式制动器，有两个摩擦表面，轴过通平键与花键套联接，花键套通过花键与摩擦盘组件联接。

当定子断电时，弹簧所产生的力作用在衔铁上，将轴带动旋转的摩擦盘组件紧紧夹在衔铁与盖板之间，从而产生制动力矩。此时，在衔铁与定子之间会产生一个间隙Z。

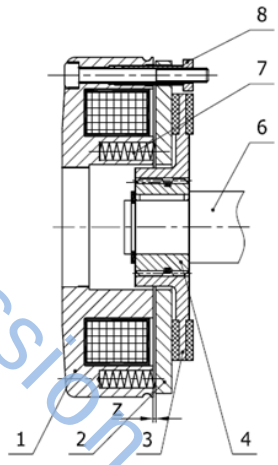
当需要放松制动时，定子接通直流电，所产生的磁场吸引衔铁向定子移动，衔铁移动时压缩弹簧，此时摩擦盘组件被松开，制动解除。在A型制动器中，制动力矩的大小可通过调整环进行调整。

spring-applied electromagnetic brake is a single-disk brake with two friction surfaces. The motor shaft is connected with the spline hub via flat key, and the spline hub is connected with friction disk components through spline.

When stator is powered off, the spring generates forces upon armature, then the friction disk components will be clamped between armature and flange to generate braking torque. At that time, a gap Z is created between armature and stator.

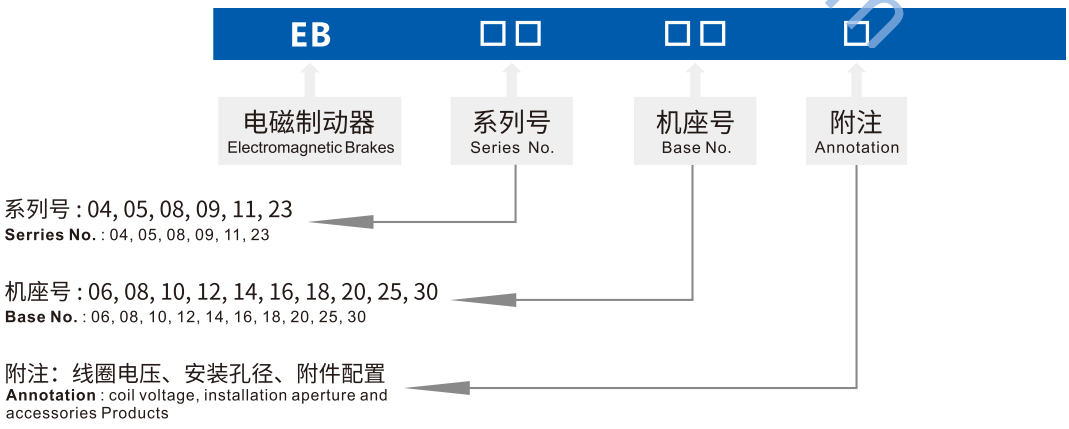
When brakes need to be released, the stator should be connected DC power, then the armature will move to the stator by electromagnetic force. At that time, the armature presses the spring while moving and the friction disk components are released to disengage the brake. The braking torque can be adjusted by adjusting ring in A-Type brake.

1 定子	1 Stator
2 衔铁	2 Armature
3 摩擦盘组件	3 Friction Disk Components
4 花键套	4 Splined Hub
5 盖板	5 Flange
6 轴	6 Shaft
7 弹簧	7 Spring
8 空心螺钉	8 Hollow Screws
9 调整环	9 Adjusting Ring
Z 间隙	Z Air Gap



型号说明

Product Model



制动电机制动器

Brake Motor Brake

1 EB04系列 弹簧加压电磁制动器

EB04 Series Spring-applied Electroma gnetic Brakes

产品特点

- EB04系列是一种弹簧加压的干式摩擦电磁制动器，具有可靠的制动力和保持力，广泛应用于各种需要减速制动和保持制动的场合。
- REB04系列是瑞迪最早研发量产的制动器，有A型可调节力矩和B型不可调节力矩两种结构
- 制动器额定电压（VDC）：24V、45V、96V、103V、170V、180V、190V、205V
- 电网电压范围（VAC）：42~460V
- 制动器扭矩范围：3~1350N.m
- 获得国家起重运输机械质量监督检验中心型式实验合格证
- 根据不同附件模块选择，防护等级最高可达IP65

Product Features

- EB04 series product are spring-applied and dry-friction electromagnetic brakes (releasing when energized and braking when cut off). The brakes are used wherever masses in motion have to be decelerated or held in a defined position
- REB04 series is the first generation brake product which is divided into two types : A-type (adjustable braking torque) and B type (non-adjustable braking torque)
- Rated voltage of Brake (VDC): 24V,45V,96V,103V,170, 180V,190V,205V
- Adaptable to various network Voltage(VAC):42~460V
- Braking torque scope: 3~1350N.m
- Certificated by national hoisting and conveying machinery quality supervision and inspection center type test
- By selecting different modules, the highest protection level can reach to Ip65

应用范围

- 塔机起升
- 制动电机
- 起重设备
- 仓储设备
- 减速电机
- 自动立体车库
- 建筑机械
- 包装机械
- 木工机械
- 自动卷闸门
- 制动力矩控制设备
- 电动车
- 代步车

Application

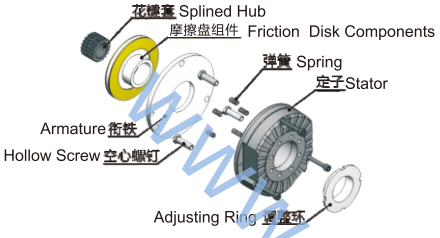
- Tower crane hosting mechanism
- Braking Motor
- Hoisting Equipment
- Storage Facilities
- Gear Motor
- Automatic Tridimensional Garage
- Construction Machinery
- Packaging Machinery
- Carpenter Machinery
- Automatic Rolling Gate
- Braking Toque Control equipment
- Electric Vehicle
- Electric Scooter

模块化的产品设计

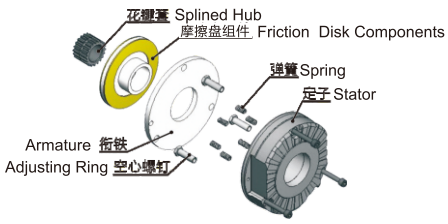
A型制动器与B型制动器通过不同的附件搭配组合 满足客户不同的需求。

Modular Design

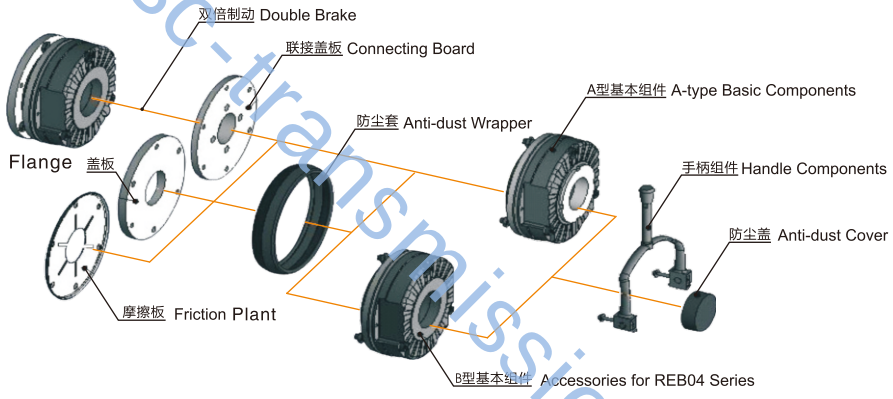
A-type and B-type brakes can meet customers' different demands by using different accessories.



Basic Components of A-type Products



Basic Components of B-type Products



制动器扭矩选择表

Torque Selection List for Brakes

机座号 BASE NO.	06	08	10	12	14	16	18	20	25	30
电机机座号 Motor NO.	56,63,71	80	90	100	112	132	160	180	200	225
额定力矩 (转速100r/min) Rated Torque (Rotation Speed 100r/min)	3	6	11	23	45	60	115	200	300	600
	3.5	7	14	27	55	70	130	230	350	
	4	8	16	32	60	80	150	260	400	1000
	5	10	20	40	65	90	185	290	445	
	6	12	23	46	75	100	200	345	530	1350
					80	125	235	400	600	

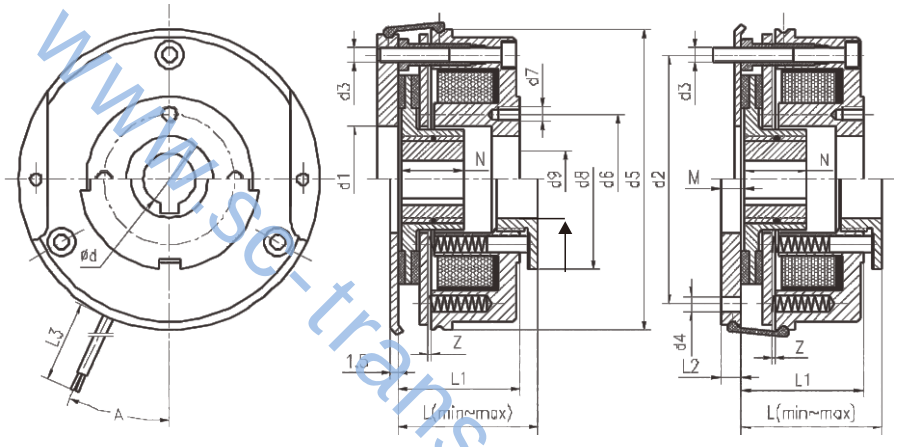
(单位：N.m)

保持制动 Holding Bracke　减速制动 Decelrating Brake　额定制动力矩 Rated Braking Torque

技术参数 Technical Data

A/B型制动器基本组件+盖板/摩擦板

Basic Components of A/B-type Brakes+Flange/Friction Plate



单位为毫米（mm）

机座号 Size NO.	d	d1	d2	d3	d4	Lmin	Lmax	d5	d6	d7	d8	M	N	Z	A	L3	L2	L1	d9
06	11	31	72	3×M4	3×Φ4.5	39.5	43.5	87	37.7	4×M4	52	7	18	0.2	25°	400	6	37.3	25
08	15	41	90	3×M5	3×Φ5.5	47.7	51.7	105	49	4×M5	60	8.5	20	0.2	25°	400	7	44	32
10	15	45	112	3×M6	3×Φ6.5	52.5	56.5	130	54	4×M5	68	11	20	0.2	25°	400	9	48.4	42
12	20	52	132	3×M6	3×Φ6.5	59.9	64.9	150	64	4×M5	82	11	25	0.3	25°	400	9	54.9	50
14	25	55	145	3×M8	3×Φ9	72.5	78.5	165	75	4×M6	92	13	30	0.3	25°	1000	11	67.8	60
16	30	70	170	3×M8	3×Φ9	79.3	87.3	190	85	4×M6	102	13.25	30	0.3	25°	1000	11	74.5	68
18	40	77	196	6×M8	4×Φ9	91	99	217	95	4×M8	116	13.75	35	0.4	25°	1000	11	85.1	75
20	40	90	230	6×M10	4×Φ11	108.1	118.1	254	110	4×M10	135	14.5	40	0.4	25°	1000	11	99.6	85
25	50	120	278	6×M10	6×Φ11	117.2	129.2	302	140	4×M10	165	17	50	0.5	25°	1000	13	109	115
30	70	145	325	6×M10	6×Φ11	144	156	363	180	4×M10	200	25	75	0.6	25°	1000	20	134.5	140

- 此安装尺寸可按客户需求定制
- L3为产品的标准导线长度，可以根据客户的不同要求定制。

- The mounting size can be ordered by the customers.
- L3 represents standard lead length of the product and could also be ordered to satisfy customers' requirements.

B型制动器+联接盖板+ B型制动器+盖板

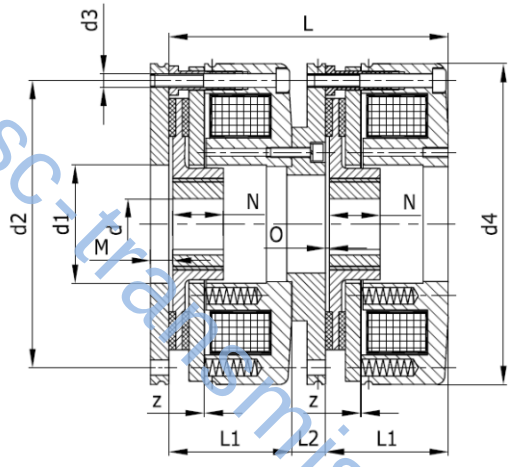
B-type Brakes+Connecting Flange+B-type Brakes+Flange

EBO4系列的双倍制动器特别适用于自动立体车库、轻型电梯等涉及人且对安全要求非常高的领域。

两个制动器可以独立控制，以确保各种机械可靠的保持或制动，具有很高的安全性。

EB-04 Series Double-Brakes are highly qualified in terms of safety.The products are particularly applied to the areas involving person and strict safety circumstances, such as automatic spatial carport and light elevator.

The two brakes are controlled independently to ensure reliable holding or braking for the machinery.



▸ 单位为毫米（mm）Unit:mm

机座号 Size NO.	d1	d2	d3	d4	M	N	O	L	L1	L2	z	L3
06	31	72	3×M4	87	7	18	1	84.6	36.3	12	0.2	400
08	41	90	3×M5	105	8.5	20	1.5	97.6	42.8	12	0.2	400
10	45	112	3×M6	130	11	20	2	109.8	48.4	13	0.2	400
12	52	132	3×M6	150	11	25	2	125.8	54.9	16	0.3	400
14	55	145	3×M8	165	13	30	2	148	65.5	17	0.3	1000
16	70	170	3×M8	190	13.25	30	2.25	165	72.5	20	0.3	1000
18	77	196	6×M8	217	13.75	35	2.75	186.2	83.1	20	0.4	1000
20	90	230	6×M10	254	14.5	40	3.5	215.2	97.6	20	0.4	1000
25	120	278	6×M10	302	17	50	4.5	236.4	105.7	25	0.5	1000
30	145	325	6×M10	363	25	75	5	304	134.5	35	0.6	1000

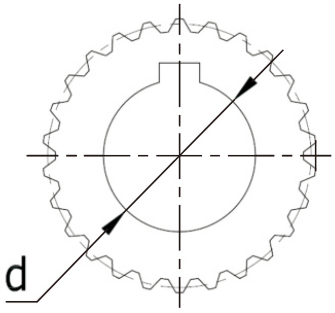
- 表中L3为导线长度，特殊要求可以定制
- 可根据需要选配手动释放手柄
- L3represents standard lead length of the product and could be ordered to satisfy customers' requirements.
- Customers are able to select manual release handle

花键套内孔可选安装尺寸

Optional Mounting Sizes for the Inner Bore of the Splined Hub

安装孔公差为H7，键槽尺寸符合DIN6885/1(GB/T1095-79)JS9，其中加粗的孔径为基本尺寸。

The mounting hole tolerance is H7. The dimension of keyway satisfies DIN6885/1(GB/T1095-79)JS9. The apertures presented in bold letters are basic dimensions.

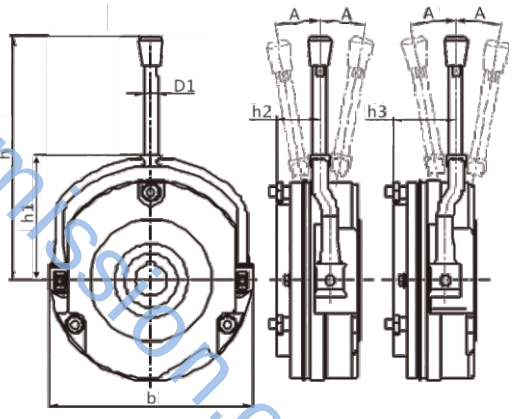


机座号 Size NO.	d
06	10/**11**/12/14/15
08	11/12/14/**15**/20
10	11/12/14/**15**/20
12	15/17/**20**/25/27
14	20/**25**/30/31
16	25/**30**/35/38
18	30/35/**40**/45
20	35/**40**/45/50
25	**50**/55/60/65/70
30	65/70/75/80

手动释放手柄安装尺寸

Mounting Size for Manual Release Handle

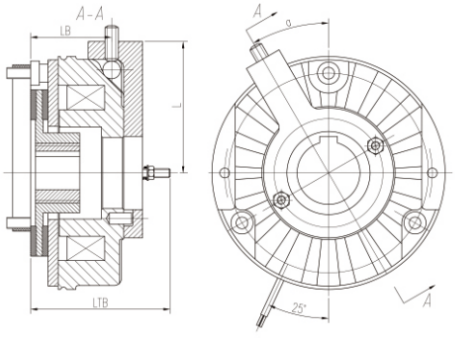
机座号 Size NO.	h	b	h1	h2	h3	D1	A
06	107	88	56.3	15	32	8	12
08	116	107	65.0	16	41	8	10
10	133	132	77.8	27	42	10	9
12	162	152	88.5	29.1	47.1	10	10
14	197	169	101.5	32	49	12	12
16	242	195	115.0	36.4	55.6	12	12
18	282	222	128.5	41.5	59.5	14	11
20	321	258	149.5	48	69	14	10
25	444	302	182	60	91	16	15
30	832	362	226	67.4	124.6	20	14



螺钉释放安装尺寸(自锁功能)

Mounting Dimensions for Releasing Screws (Self-Locking)

机座号 Size No.	LTB	LB	L	a
06	50.5	22.1	50.25	30°
08	63	28.6	59.25	30°
10	65	34.2	72.25	30°
12	72.6	40.7	83	30°
14	89.5	50	92.75	30°
16	102.5	56.2	105	30°
18	111	65.7	119.5	30°
20	131	75.7	140	30°
25	143	85.2	166	30°
30	177	110.9	202	30°



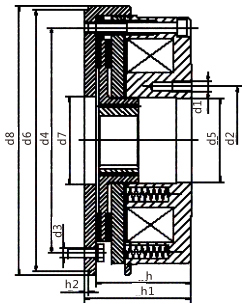
B型制动器+定心盖板

B-type Brake+Centering Flange

适用于安装速度或位置传感器，安装孔位置还可以根据客户要求定制。

The parts are applicable for speed or position sensors. Customers are also able to order the position of the installation bore.

机座号 Size No.	h	h1	h2	d1	d2	d3	d4	d5	d6	d7	d8
06	36.3	42.3	2	4×M4	37.7	3×M4	72	25	95	40	98
08	42.8	49.8	2	4×M5	49	3×M5	90	32	115	50	116
10	48.4	57.4	2	4×M5	54	3×M6	112	42	140	60	141
12	54.9	63.9	2	4×M5	64	3×M6	132	50	162	60	165
14	65.5	76.5	2	4×M6	75	3×M8	145	60	177	80	181
16	72.5	83.5	2	4×M6	85	3×M8	170	68	204	85	206
18	83.1	94.1	2	4×M8	95	4×M8	196	75	233	90	237
20	97.6	108.6	2	4×M10	110	4×M10	230	85	271	90	274
25	105.7	118.2	2	4×M10	140	6×M10	278	115	321	120	324



制动扭矩与转速的关系及最高工作转速

Relation between the braking torque and rotation speed;maximum working speed

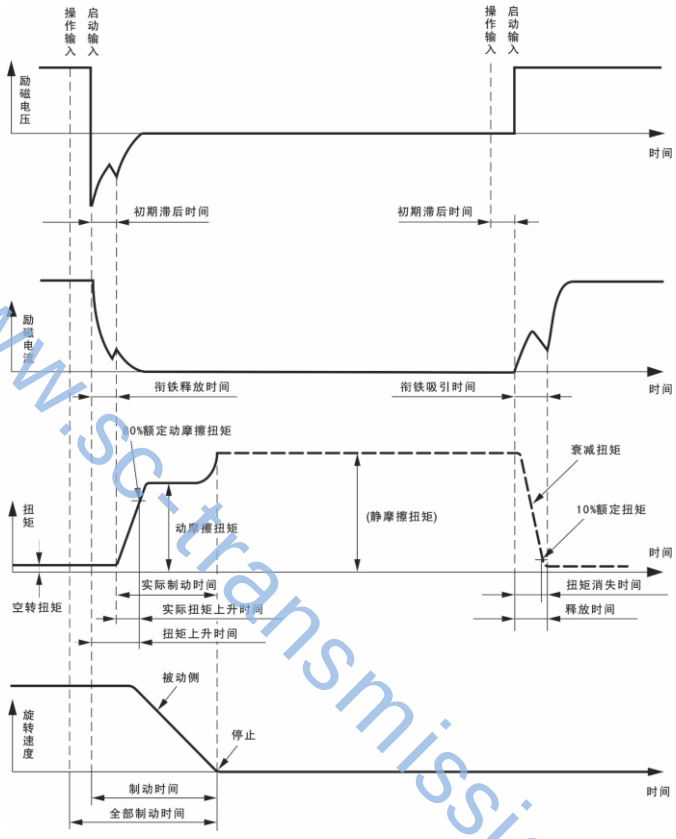
产品规格 Product Size	额定扭矩[%](转速100r/min) Rated Torque[%](Rotation Speed 100r/min)	制动力矩与转速的关系[%] Relationship between braking torque and rotation speed[%]			最高工作转速 (r/min) Maximum Rotation Speed in Working(r/min)
		1500	3000	max	
REB0406	100%	86%	79%	74%	6000
REB0408	100%	84%	77%	73%	5000
REB0410	100%	82%	76%	73%	4000
REB0412	100%	80%	74%	73%	3600
REB0414	100%	79%	72%	70%	3600
REB0416	100%	78%	71%	67%	3600
REB0418	100%	76%	69%	67%	3600
REB0420	100%	74%	67%	67%	3600
REB0425	100%	72%	67%	67%	3000
REB0430	100%	70%	67%	67%	3000

制动器使用额定参数

Relation between the braking torque and rotation speed;maximum working speed

机座号 Size NO.	额定间隙z(+0.1/-0.05) (mm)	Zmax 保持制动 (mm)	Zmax 减速制动 (mm)	摩擦盘组件厚度(mm)		额定功率 20℃ (W)	安装位置圆 (mm)	安装螺钉规格
				min	Max			
06	0.2	0.3	0.5	4.5	6	20	72	3×M4
08	0.2	0.3	0.5	5.5	7	25	90	3×M5
10	0.2	0.3	0.5	7.5	9	30	112	3×M6
12	0.3	0.45	0.75	8	10	40	132	3×M6
14	0.3	0.45	0.75	7.5	10	50	145	3×M8
16	0.3	0.45	0.75	8.5	11.5	55	170	3×M8
18	0.4	0.6	1	10	13	85	196	6×M8
20	0.4	0.6	1	12	16	100	230	6×M10
25	0.5	0.75	1.25	15.5	20	110	278	6×M10
30	0.6	1	1.2	18.5	23	200	325	6×M10

动作时间 Operation time



产品规格	额定扭矩T(Nm) (转速100r/min)	制动时间t_1(ms)			释放时间 t_2(ms)
		t_{11}	t_{12}	t_1	
REB0406	4	15	15	30	40
REB0408	8	15	17	32	50
REB0410	16	25	20	45	69
REB0412	32	26	30	56	108
REB0414	60	27	30	57	190
REB0416	80	30	30	60	200
REB0418	150	35	43	78	260
REB0420	260	65	100	165	340
REB0425	400	110	120	230	390
REB0430	1000	200	180	380	420

- T11 衔铁释放时间
- T12 扭矩上升时间
- T1制动时间
- T2 释放时间（衔铁吸合时间）
- 以上所有时间参数均为直流侧控制所得参数

- T11 Armature release time
- T12 Rising Time of Braking Torque
- T1 Braking Time
- T2 Releasing Time(Armat ure Attracting Time)
- All the above time-parameters are obtained through control at the DC side

2 EB05系列 大规格弹簧加压电磁制动器
EB05 Large-sized Spring-applied Electromagnetic Brakes

产品特点

- EB05大规格系列是一种弹簧加压的干式摩擦电磁制动器，具有可靠的制动力和保持力，广泛应用于各种需要减速制动和保持制动的场合。
- 制动器额定电压（VDC）：24V、45V、96V、103V、170V、180V、190V、205V
- 电网电压范围（VAC）：42~460V
- 制动器扭矩范围：4~125N.m
- 获得国家起重运输机械质量监督检验中心型式实验合格证
- 根据不同附件模块选择，防护等级最高可达IP67

Product Features

- EB-05 series of large-sized products are spring-applied and dry-friction electromagnetic brakes, with reliable braking and holding forces. They are widely used in various of holding braking and deceleration braking occasions
- Rated voltage of Brake (VDC): 24V,45V,96V,103V,170, 180V, 190V,205V
- Adaptable to various network Voltage(VAC):42~460V
- Large scope of the braking torque: 4~125N.m
- Certificated by national hoisting and conveying machinery quality supervision and inspection center type test
- By selecting different modules, the highest protection level can reach to Ip65

应用范围

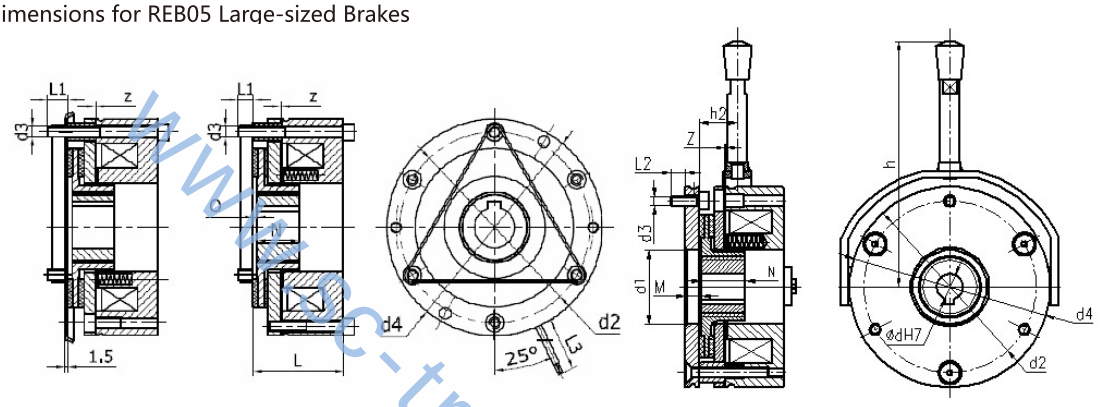
- 制动电机
- 木工机械
- 自动化技术
- 减速电机
- 包装机械
- 伺服电机
- 起重设备
- 电动车
- 代步车

Application

- Brake Motor
- Carpenter Machinery
- Automatic technology
- Gear Motor
- Package machinery
- Servo motor
- Hoisting Equipment
- Electric Vehicle
- Electric Scooter

技术参数 Technical Data

EB05系列大规格制动器各配置尺寸
Dimensions for REB05 Large-sized Brakes



机座号	T	Tmax	d	d1	d2	d3	d4	M	N	O	L	L1	L2	h	h2	z	L3
06	4	6	11	31	72	3×M4	84	7.5	18	1	35.3	9.7	6	102	15.8	0.2	400
08	8	12	15	42	90	3×M5	102	8.5	20	1.5	42.8	12.2	9	114	16.3	0.2	400
10	16	23	15	44	112	3×M6	130	10	20	2	48.4	11.2	12	129	27.4	0.2	400
12	32	46	20	52	132	3×M6	150	10	25	2	54.4	11	12	162	30	0.3	400
14	60	95	25	60	145	3×M8	165	13	30	2	66.3	14	14	201	33	0.3	1000
16	80	125	30	70	170	3×M8	190	13.3	30	2.25	72.5	12.5	14	250	37.4	0.3	1000

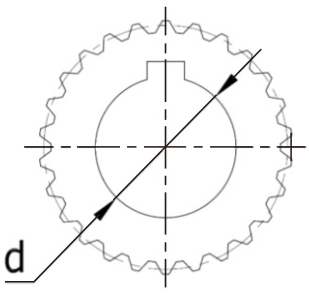
- T为额定扭矩（N.m）
- 表中L3为导线长度，特殊要求可以定制。

- T represents rated torque(N.m)
- L3 listed in the Table represents the length of the conductor, which could be ordered.

花键套内孔可选安装尺寸 Optional Mounting Sizes for the Inner Bore of the Splined Hub

安装孔公差为H7，键槽尺寸符合DIN6885/1(GB/T1095-79)JS9，其中加粗的孔径为基本尺寸。

The mounting hole tolerance is H7. The dimension of keyway satisfies DIN6885/1(GB/T1095-79)JS9. The apertures presented in bold letters are basic dimensions.



机座号 Size NO.	d
06	**11**/12/14/15
08	11/12/14/**15**/20
10	**15**/20
12	**20**/25
14	20/**25**/30
16	25/**30**/35/38

3 EB09系列 电动车驱动轮制动器
EB09 Forklift Driving Unit Brake

产品特点

- EB09系列是一种弹簧加压的干式摩擦(通电时释放、失电时制动)电磁制动器
- REB09系列电动车驱动轮制动器具有可靠性高、安全性好、使用方便、性能稳定的特点
- 针对不同的应用环境，我们有不同的解决方案：我们有为增加回转半径的大斜角设计，有为提高防护等级的封闭设计，有为适应不同工作环境的防护附件
- 制动器的额定电压（VDC）：24V、45V
- 制动器扭矩范围4~95N.m
- 我们的制动器工作气隙在到达寿命气隙后可以进行至少3次调节，等于延长3倍使用寿命

Product Features

- EB09 series products are spring-applied and dry-friction electromagnetic brakes (releasing when energized and braking when cut off)
- REB09 series features high reliability and good safety. It's easy to be applied and maintained
- Customized solution, different application have different product design: We added the large oblique angle for radius of gyration, apply enclosing design to improve the protection level, and design protection accessories adapting to different working conditions
- Rated voltage of Brake (VDC): 24V,45V
- Braking torque scope: 4~95N.m
- The working gap can be adjusted at least 3 times after reaching to its life to extend its service 3 times

应用范围

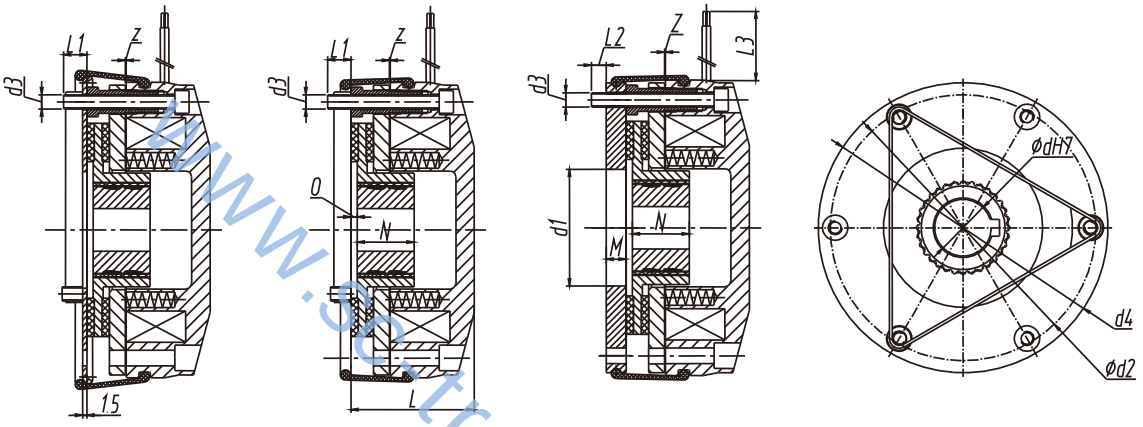
- AGV
- 电动车驱动轮

Application

- AGV
- Forklift driving unit

技术参数 Technical Data

EB09系列制动器各配置尺寸
Dimensions



机座号 Model No.	T	Tmax	d	d_1	d_2	d_3	d_4	M	N	O	L	L1	L2	z	L3
06	4	6	11	31	72	3×M4	84	7.5	18	1	35.3	9.7	6	0.2	400
08	8	12	15	41	90	3×M5	104	8.5	20	1.5	43.5	12.2	9	0.2	400
10	16	23	15	44	112	3×M6	130	10	20	2	48.4	11.2	12	0.2	400
12	32	46	20	52	132	3×M6	150	10	25	2	54.4	11	12	0.3	400
14	60	95	25	60	145	3×M8	165	13	30	2	66.3	14	14	0.3	1000

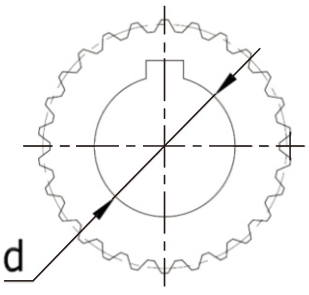
- T为额定扭矩（N.m）
- 表中L3为导线长度，特殊要求可以定制。

- T represents rated torque(N.m)
- L3 listed in the Table represents the length of the conductor, which could be ordered.

花键套内孔可选安装尺寸 Optional Mounting Sizes for the Inner Bore of the Splined Hub

安装孔公差为H7，键槽尺寸符合DIN6885/1(GB/T1095-79)JS9，其中加粗的孔径为基本尺寸。

The mounting hole tolerance is H7. The dimension of keyway satisfies DIN6885/1(GB/T1095-79)JS9. The apertures presented in bold letters are basic dimensions.



机座号 Size NO.	d
06	**11**/12/14/15
08	11/12/14/**15**/20
10	**15**/20
12	**20**/25
14	20/**25**/30

风电制动器

Wind-power Fully Sealed Brake

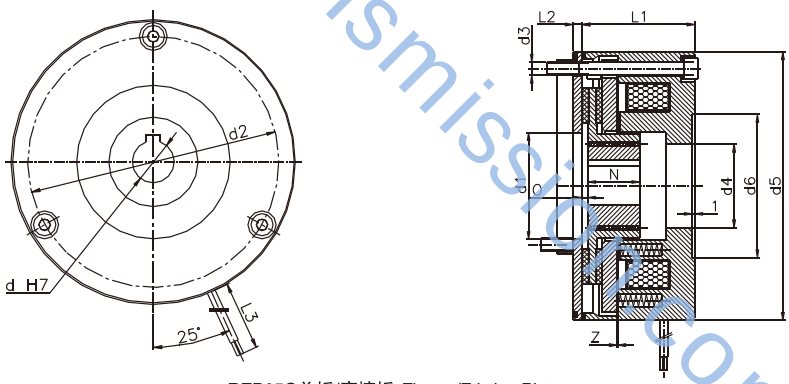
1 EB05C系列 电磁制动器
EB05C Electromagnetic Brakes

产品特点

- 全封闭结构和良好的引线封装，具备良好的防水防尘性能，防护等级IP65，最高可达IP66，防腐等级最高可达WF2。
- 使用环境温度-40°C~50°C
- 耐压2100VAC 1Min，绝缘等级F级特殊要求可以达到H级
- 用户可根据风场工况选用摩擦板、盖板、开关组件等配件

Product Features

- With the characteristics of full sealed construction and good Lead Package, REB05C series products have better waterproof and dustproof performance. The highest protection level can reach to IP66, and the highest anti-corrosion grade can reach to Wf2
- Operating ambient temperature -40°C~50°C
- Withstand 2100VAC; Insulation Grade: F,or H in special cases
- Optional components including friction plant, flange, switch unit can fit for the different conditions of wind power plant



REB05C盖板/摩擦板 Flange/Friction Plate

单位为毫米（mm）Unit: mm

电机基座	机座号	T	Tmax	d1	d2	d3	L1	L2	L2max	d5	d6	L3	O	Z	N	P(20℃)
90	10	16Nm	23Nm	44	112	3XM6	48.5	1.5	5	130	44	400	1.7	0.2	20	30W
100	12	32Nm	46Nm	52	132	3XM6	55	5		148	52	400	2.3	0.3	25	40W
112	14	60Nm	80Nm	64	145	3XM8	67.1	6		165	100	1000	1.9	0.3	30	50W
132	16	80Nm	125Nm	70	170	3XM8	72	6		200(199)	100	1000	2.6	0.3	30	55W
160	18	150Nm	370Nm	95	196	6XM8	83	6		226	125	1000	2.6	0.4	35	90W

- T为额定扭矩（N.m）
- 表中L3为导线长度，特殊要求可以定制。

- T represents rated torque(N.m)
- L3 listed in the Table represents the length of the conductor, which could be ordered.

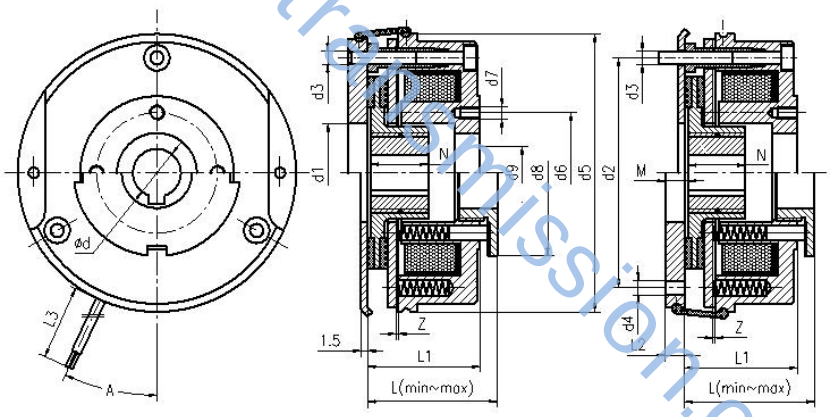
2 EB23系列 电磁制动器
EB23 Electromagnetic Brakes

产品特点

- 优化的结构设计和良好的引线封装，具备优良的电器防潮防尘性能，壳体部分、轴封部分防护等级可达IP54。
- 使用环境温度-40°C~50°C
- 耐压2100VAC 1Min，绝缘等级F级特殊要求可以达到H级
- 有A型制动力矩可调节和B型制动力矩不可调节两种结构，用户可根据风场工况选用手动释放、摩擦板、盖板、防尘罩、开关组件等配件。

Product Features

- With the characteristics of full sealed construction and good Lead Package, REB23 series products have better waterproof and dustproof performance. The protection level of housing and shaft seal is Ip54.
- Operating ambient temperature -40°C~50°C
- Withstand 2100VAC; Insulation Grade: F,or H in special cases.
- Two optional types: A-type (adjustable braking torque) and B type (non-adjustable braking torque). Optional components including manual release, friction plant, flange, dust helmet and dust cover, switch unit, can fit for the different conditions of wind power plant



A型 B型

单位为毫米（mm）Unit: mm

电机基座	机座号	T	Tmax	P(20℃)	d1	d2	d3	d4	L1	L2	d5	d6	d7	d8	M	N	Z	L3
90	10	16Nm	23Nm	30W	45	112	3XM6	3XΦ6.5	48.4	9	130	54	4XM5	68	11	20	0.2	400
100	12	32Nm	46Nm	40W	52	132	3XM6	3XΦ6.5	54.9	9	150	64	4XM5	82	11	25	0.3	400
112	14	60Nm	80Nm	50W	55	145	3XM8	3XΦ9	67.8	11	165	75	4XM6	92	13	30	0.3	1000
132	16	80Nm	125Nm	55W	70	170	3XM8	3XΦ9	74.5	11	190	85	4XM6	102	13.25	30	0.3	1000
160	18	150Nm	235Nm	85W	77	196	6XM8	4XΦ9	85.1	11	217	95	4XM8	116	13.75	35	0.4	1000
180	20	260Nm	400Nm	100W	90	230	3XM10	4XΦ10	99.6	11	254	110	4XM10	135	14.5	40	0.4	1000
200	25	400Nm	600Nm	110W	120	278	3XM10	6XΦ10	109	13	302	140	4XM10	165	17	50	0.5	1000

- T为额定扭矩（N.m）
- 表中L3为导线长度，特殊要求可以定制。

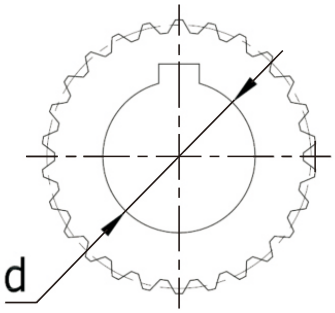
- T represents rated torque(N.m)
- L3 listed in the Table represents the length of the conductor, which could be ordered.

花键套内孔可选安装尺寸

Optional Mounting Sizes for the Inner Bore of the Splined Hub

安装孔公差为H7，键槽尺寸符合DIN6885/1(GB/T1095-79)JS9，其中加粗的孔径为基本尺寸。

The mounting hole tolerance is H7. The dimension of keyway satisfies DIN6885/1(GB/T1095-79)JS9. The apertures presented in bold letters are basic dimensions.

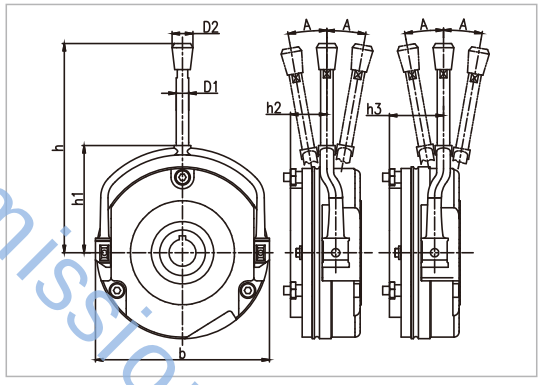


机座号 Size NO.	d
10	11/12/14/**15**/20
12	15/17/**20**/25/27
14	20/**25**/30/31
16	25/**30**/35/38
18	30/35/**40**/45
20	35/**40**/45/50
25	**50**/55/60/65/70

手柄组件安装尺寸

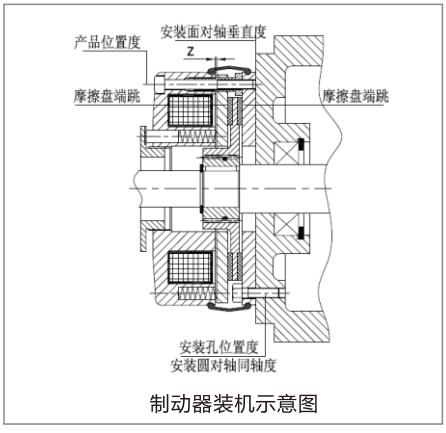
Mounting Dimensions of Handle Lever

机座号	h	b	h1	h2	h3	d1	A
10	133	132	77.8	27	41	10	9
12	162	152	88.5	29.1	47.1	10	10
14	197	169	101.5	32	49	12	12
16	242	195	115.0	36.4	55.6	12	12
18	282	222	128.5	41.5	59.5	14	11
20	321	258	149.5	48	69	14	10
25	444	302	182	60	91	16	15



手柄组件安装尺寸

Mounting Dimensions of Handle Lever



制动器装机示意图

机座号	摩擦盘跳动 (mm)	产品位置度 (mm)	安装孔位置度 (mm)	安装圆对轴同轴度 (mm)	安装面对轴垂直度 (mm)
10	0.04	0.15	0.25	0.4	0.05
12	0.05	0.15	0.25	0.6	0.06
14	0.05	0.15	0.25	0.6	0.06
16	0.05	0.15	0.25	0.6	0.07
18	0.08	0.15	0.25	0.8	0.07
20	0.08	0.15	0.25	0.8	0.08
25	0.1	0.15	0.25	0.8	0.08

风电制动器安装面粗糙度：Ra1.6~ Ra 3.2。

端盖一体式制动器

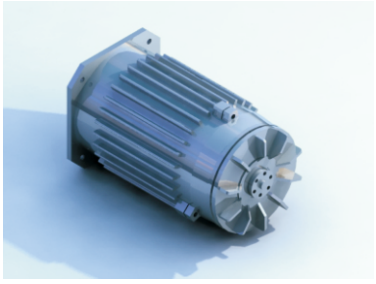
End-cover integrated brake

产品特点

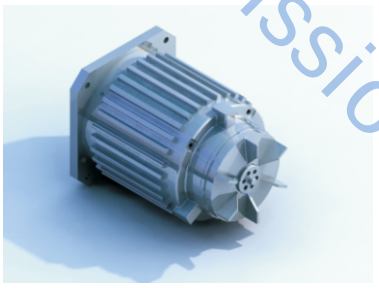
- REB08系列制动器是一种弹簧加压的干式摩擦（通电时释放、失电时制动）电磁制动器，具有可靠的制动力和保持力,可应用于紧急停止及启动、制动频率高的场合
- 该系列制动器巧妙地将电机后端盖与制动器定子合二为一，在不改变原有电机长度、性能的基础上，将电机与制动器融为一体；精巧的结构设计使电机外型尺寸保持不变，特别适用空间受限制场所
- 设计生产的整流器电源，采用无接点电压控制输出适合高频度使用，利用交流开关接线，缩短制动时间
- 该系列产品具有较大的选择范围，各项性能指标及尺寸可根据客户的需要进行组合调整

Product Features

- REB08 series is a spring-applied and dry-friction electromagnetic brake, with reliable braking and holding forces. This series is specifically developed for emergency stop and start, and High braking frequency occasions
- The design of REB08 integrated the end cover of the motor and the brake stator into one, without changing original length and performance of the motor. This ingenious structurer is particularly suitable for limited space
- The rectifier is designed by no contact voltage control output technology, is particularly suitable for high frequency usage. AC switch connection can reduce the braking time
- It could be tailored to customers' needs in terms of performance metrics and appropriate demand



三个安装孔 3 Mounting Holes



四个安装孔 4 Mounting Holes

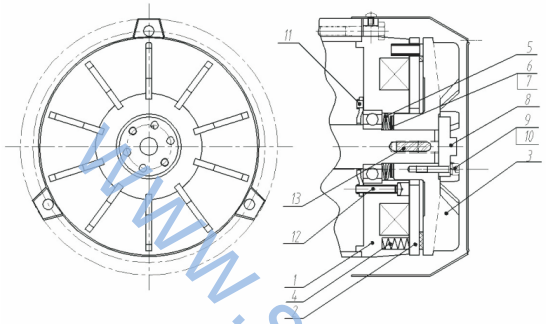
应用范围

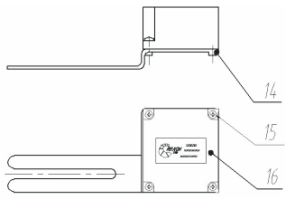
- 齿轮减速电机
- 立体车库

Application

- Gear Motor
- Mechanical Parking Garage

1 EB08系列
弹簧加压电磁制动器
Spring-applied Electromagnetic Brake-REB 08

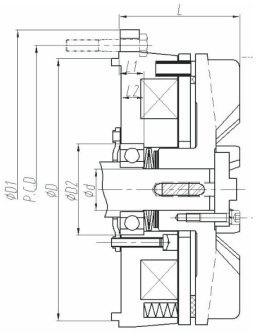




1.锁紧法兰
2.调整垫片
3.调整垫片
4.蝶形弹簧
5.压缩弹簧
6.转子
7.衔铁组件
8.定子
9.内六角圆柱头螺钉
10.弹簧垫圈
11.轴承压板
12..十字槽盘头螺钉
13.平键
14.电源安装支架
15.电源安装螺钉
16.整流器

1.Locking Flange
2. Adjustment Shim
3.Adjustment Shim
4.Disk Spring
5.Compression Spring
6.Rotor
7.Armature Assembly
8.Stator
9.Socket-head Cylindrical Screw
10.Spring Gasket
11.Bearing Pressing Plate
12.Plus Screw
13.Flat Key
14.Brace for Mounting Power Supply
15.Screw for Mounting Power Supply
16.Rectifier

功率 (4级)(KW) Power (Grade 4) (KW)		0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
机座号 Base #		56	63	71	80	90	100	112	132	132
制动器规格 Brake Specification		REB0805	REB0806	REB0808	REB0810	REB0312	REB0814	REB0816	REB0818	REB0818
额定力矩 (Nm) Rated Torque (Nm)		1	2	4	8	15	22	37	55	75
励磁电压 DC(V) Excitation Voltage DC (V)		24 / 96 / 180								
吸引时间 (sec) Time of Attraction (sec)		0.03	0.03	0.03	0.06	0.09	0.09	0.08	0.05	0.05
释放时间 (sec) Time of Releasing (sec)		0.08	0.08	0.1	0.12	0.14	0.15	0.1	0.12	0.12
间隙 Gap	标准值(mm) Standard (mm)	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5
	极限值(mm) Limits (mm)	0.7	0.7	0.7	1	1	1	1.2	1.2	1.2



D1	风罩安装尺寸	D1	Mounting dimensions of wind cover
P.C.D.	制动器安装位置圆	P.C.D.	Positioning circle for brake installation
D	制动器安装止口外经	D	Outer diameter of the stop for brake installation
L1	安装面与轴承孔底距离	L1	Distance between the mounting face and the bottom of the bearing hole
d	安装轴伸直径	d	Diameter of the mounting shaft
D2	轴承型号	D2	Model No.of the bearing

微电机制动器
Micromotor Brake

产品特点

- 电机制动器是一种弹簧加压的干式摩擦电磁制动器，具有可靠的制动力和保持力，广泛应用于各种需要减速制动和保持制动的场合。
- 制动器额定电压（VDC）：12V、24V、45V、96V、103V、170V、180V、190V、205V
- 电网电压范围（VAC）：42~460V
- 制动器扭矩范围：0.05~4N.m
- 可选配用于安装调速器的连接板
- 可选配简易整流器，安装于制动器端面或外圆面，结构紧凑，适用方便

Product Features

- micromotor brake is spring-applied and dry-friction electromagnetic brakes. With reliable braking and holding forces, they are widely used in various of holding braking and deceleration braking occasions
- Rated voltage of Brake (VDC): 24V,45V,96V,103V,170, 180V,190V,205V
- Adaptable to various network Voltage(VAC):42~460V
- Large scope of the braking torque: 0.05~4N.m
- Optional governor connection plate
- Optional simplified rectifier installed on the end surface or outer circle of the brake, compact and easy to operate

应用范围

- 木工机械
- 制动电机
- 减速电机
- 包装机械
- 自动化技术
- 微型电机
- 航空高铁

Application

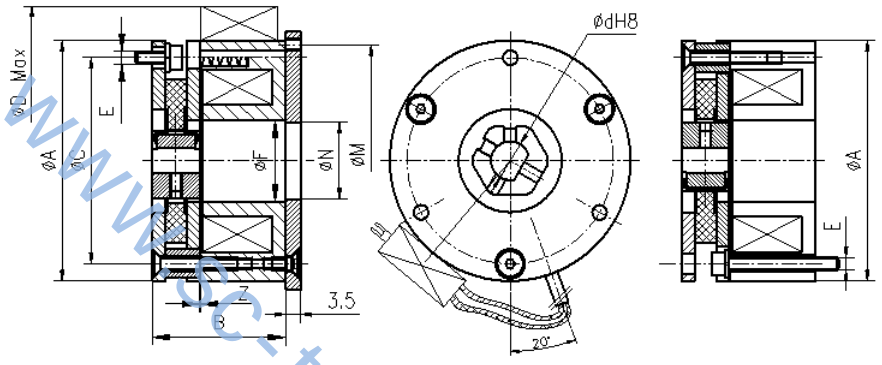
- Carpenter Machinery
- Braking Motor
- Decelerating Motor
- Packing Machinery
- Automation Technology
- Micromotor
- Aviation and high-speed rail

技术参数

- 基本组件+内置整流器

Technical Data

- Small-sized Components+inner Rectifier



机座号	T	Tmax	d(标准)	C	E	A	B	D	F	Z
0501	0.12	0.24	6	32	2×M2.5	37	32		13.5	0.1
0502	0.25	0.5	7	40	2×M3	47	30	67	16	0.1
0503	0.5	1	6	48	3×M3	56	31.5	76	19	0.15
0504	1	2	8	58	3×M3①	65	31.8	85	24	0.2
0505	2	4	8	66	3×M4	75	34.4	95	28	0.2
1136	0.12	0.24	4	31	3×M3	36	22.4		7	0.1
1152	0.5	1	6	45	3×M3	52	32	66	17	0.15
1162	1	2	10	54	3×M4	62	31.4	84	21	0.2

- 单位为mm，T为额定扭矩（N.m）
- 安装结构尺寸可根据客户提供的特殊要求定制
- ¢M及¢N尺寸可根据客户需求提供，默认¢M为¢54，¢N为¢18
- 根据不同安装结构标记为①的安装螺钉可为3×M4

- Unit;mm,T represents rated torque(N.m)
- The installation sizes and dimensions could be ordered to satisfy customers' special requirements.
- ¢M and ¢N can be provided according to customers' demands.The default values are ¢54 and ¢18.
- The installation screws can be 3×M4 according to the installation structure①.

附件说明

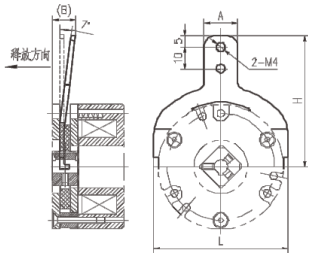
Accessories Instructions

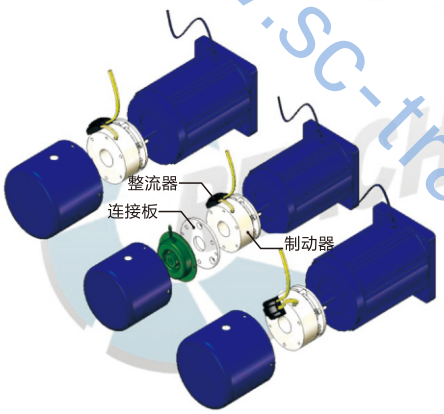
手动释放手柄 Manual Release Handle

- 释放手柄用于安装调试设备时靠人工手动释放制动器

- The handle is released manually in installing and adjusting the equipments

机座号 Model No.	H	L	A	B
02	50	51	13	9
03	60	60	15	11
04	70	70	15	12
05	80	80	20	14





连接板 Connecting Board

- 便于客户在电机壳内部安装调速器等电机附件，连接板之安装尺寸可根据客户需求定制。
- The part is used to help the customer to install the governor and other motor accessories. The installation sizes of the connection board can be ordered acc. To customers' demands.

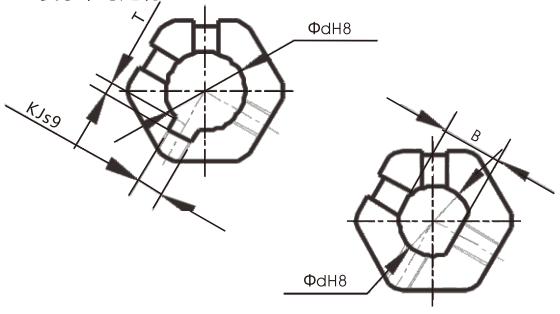
整流器 Rectifier

- 为便于客户设计结构紧凑的微型电机，可提供内置整流器安装于制动器端面及外圆面。
- The part is convenient for the customer to design the compact-structure micro-motor. We are able to provide inner rectifier which can be installed upon the ending face and outer circular surface of the brakes.

方轮孔径 Aperture of Fly-wheel

- 除特殊规定外，安装孔公差为H8
- 除特殊规定外，键槽尺寸符合DIN6885/1(GB/T1095-79)JS9, 带＊号的孔径没有键槽
- 可选择扁孔连接，B尺寸可定制
- 表中为可选安装孔尺寸，其中加粗字体为标准尺寸有特殊要求，可定制

- The tolerance of installation hole is H8, unless provided otherwise.
- Unless provided otherwise, the dimension of keyway satisfies DIN688/1(GB/T1095-79) JS9 and,the aperture with symbol of ＊ has no keyway.
- The apertures presented in bold letter are basic dimensions.
- Customer can select the flat hole for connection. The dimensions of B can be ordered.
- The values in the list are optional dimensions for installation hole. The standard dimensions are presented in bold letters.
- Customers are able to order for their requirements.



机座号	d
1*	**6**
2*	6/**7**
3	**6**/7/8/9
4	6/7/**8**/9/10/12
5	**8**/9/10/11/12/14/15

安装使用说明
Installation Instructions

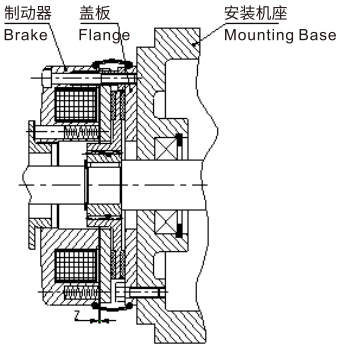
安装事项

- 制动器的安装平面的粗糙度不超过Ra3.2，材料为铸铁或钢，安装端面对轴的垂直度不大于0.05mm
- 摩擦面不能有锐利的尖角；若无合适的摩擦面时，可选用盖板或摩擦板。
- REB04系列制动器的工作环境温度为-10˚C～40˚C，应避免在极高的温度或湿度下存放与使用。海拔高度不超过2000m。防止润滑脂和润滑油占染在摩擦面上。（如工作环境温度不在此范围，请与我司联系）。
- 在湿气、雾气很重的情况下，请选用防尘套和防尘盖来密封制动器；防尘罩和防尘盖还可以防止铁屑、粉尘等可能进入间隙。
- 在轴上用C形弹簧挡圈与轴肩固定花键套，花键套与安装面之间必须有大于1.0mm的间隙，避免花键套与制动器安装面接触（见制动器安装简图）。
- 请勿强力敲击花键套或倾斜安装；固定花键套的键的长度尽量与花键套键槽的总长相同。

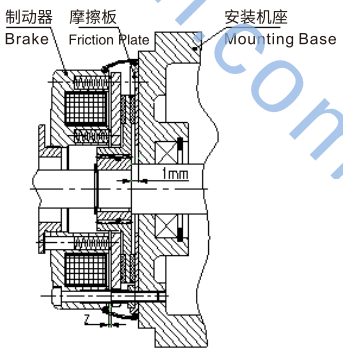
Installation Notes

- The roughness of brake mounting surface should not excess Ra3.2. The materials are cast steel or steel. The verticality of the mounting surface to the shaft is less than 0.05mm
- There should be no sharp angle upon friction surface. The flange or friction board is applicable if there isn't any appropriate friction surface.
- The working temperature of REB-04 Series Brakes is -10˚C~40˚C. Please do not store or use the product under pretty high temperature or humid. Further, the altitude should not excess 2000m. Don't stain the grease or lubricant upon the friction surface.
- Use anti-dust wrapper or cap to seal the brakes if the environment is very humid or foggy; plus, these two parts can be applied to protect the air gap from iron chips and dust.
- Fix the splined hub upon the shaft by C-shape spring collar and shoulder. To avoid contacting between splined hub and mounting surface, the air gap between these two should be larger than 1.0.mm(Please see the Brake Installation Sketch).
- Please do not knock the splincd hub heavily or mount the products slantingly. The length of the key used to fix the splined hub and the total length of keyway of splinde hub are as same as possible.

制动器安装简图



Brake Installation Sketch



间隙的调节

- 在制动器断电的情况下，通过调整空心螺钉，借助塞尺将间隙调节到额定值“z”，注意保证各个方向的间隙相同。

Adjust the Gap

- While the brake is power-off, adjust the hollow screw and use feeler gauge to adjust the air gap to nominal calue Z. Please pay attention to guarantee the air gaps at every direction are same.

间隙的重调

额定间隙z会因磨损而变大。为确保制动器有足够的制动扭矩，必须在间隙达到最大间隙值前重调间隙。间隙可以多次调节，当摩擦制动片的厚度达到允许的最小厚度时，必须更换摩擦制动盘。制动器的噪音与间隙值大小有关，在要求噪音最低的应用中，建议您在间隙达最大值范围内重调间隙。（最大间隙值见制动器使用额定参数调整方法见使用说明书）

间隙超过最大间隙值，可能导致制动器无法释放、摩擦制动片烧坏、制动力或保持力减小，甚至导致重大事故。所以必须定期检查并重调间隙，注意必须断开设备的总电源。

RE-adjust the Air Gap

The nominal air gap z will be larger because of wear,therefore,the air gap should be Re-adjusted before reaching its maximum value to guarantee sufficient braking torque.The air gap is able to be adjusted several times,with friction disk of minimum thickness,the braking plate Should be replaced.Further,the noise generated by brake is related to the air gap .please re-adjust the air gap within its maximum range while using in areas requiring pretty low noise （for the maximum air gap,please see the nominal parameters using in brakes in page7 and instruction for adjustment.）

Please check and readjust the air gap regularly after cutting off the general power.Otherwise,the brakes might not be released,the friction disk might be burnt out,the braking or holding might be decreased and,even occurring worse serious accident.

花键套的安装

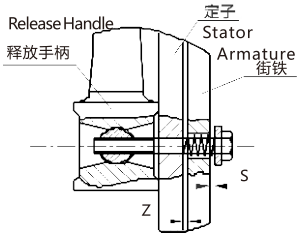
花键套与安装面的距离通常为1mm以上，避免花键套与制动器安装面的摩擦干涉轴的正常转动。

Splined hud installation

The distance between the splined hub and mounting surface usually excesses 1mm to avoid the interference gencrated by the friction between splined and mounting surface of the brake.

释放手柄的安装

释放手柄可由客户自由安装，安装结构参见右图。安装间隙S的调节必须是在额定扭矩和额定电压下，衔铁被吸引的情况下进行的。安装间隙S调节不当会阻碍衔铁正常释放，影响制动效果，尤其是在制动扭矩减小或定子在欠压下工作时。不同规格的S值见下表。



Release handle installation

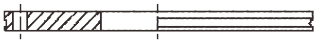
Customers are able to mount the release lever on their own..for the mounting structure,please see the right drawing .the fit air gap S should be adjusted at nominal torque and voltage,as well as the armature is attracted.Inappropriate adjustment of air gap S will obstruct normal relcasing of the armature and affect the braking,particularly in cases that the torque decreases or the voltage is not sufficicnt.for a value of different specification.please see the following table.

机座号 Model No.	额定间隙 z(+0.1/-0.05) (mm) Rated Air Gap z(+0.1/-0.05)(mm)	安装间隙 S(+0.1/0) (mm) Installation Air Gap S(+0.1/0)(mm)	Z+S （mm）
06	0.2	0.6	0.8
08	0.2	0.6	0.8
10	0.2	0.6	0.8
12	0.3	0.7	1
14	0.3	0.7	1
16	0.3	0.7	1
18	0.4	0.8	1.2
20	0.4	0.8	1.2
25	0.5	0.8	1.3
30	0.6	0.8	2

附件说明
Accessories Instructions

盖板

- 若安装机体上无合适的摩擦面可利用，可选盖板为摩擦面。



Flange

- Without any appropriate friction surface upon the mounting body, the flange can be used as the part.

摩擦板

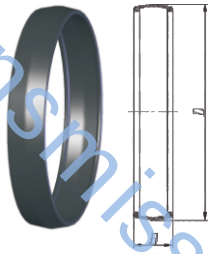
- 若安装机体有平面度较好的平面，但因材质原因不能作为摩擦面，如：铝合金外壳的电机等，可以选用摩擦板为摩擦面，如右图所示，用于机座号为16及以下的产品。

Friction Plate

- The plane surface upon the mounting body, such as motor with aluminum alloy shell etc, might not be used as friction surface because of its material. In this case, the friction board is able to be used as the part for the products up to size 16. For this case, please see the right drawing.

防尘套

- 防尘套可以有效地防止外部灰尘。水滴、湿气、污垢等其它异物进入制动器内部；使用防尘套时，应配用带环形凹槽的定子和盖板，防尘罩通过凹槽安装在制动器表面。
- The anti-dust wrapper can protect the brake from the foreign body, such as dust, water drop, moisture or dirt effectively. The wrapper shall be equipped with ring-groove flange and stator and mounted upon the surface of brake by using the ring groove.

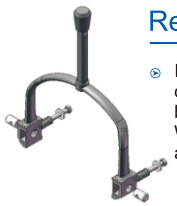


Anti-dust Wrapper

机座号 Motor No.	D	B
06	90	17.6
08	110	21.4
10	136	25
12	158	30
14	174	33
16	198	34.5
18	225	38
20	253	42.4
25	304	48.5
30	372	69

释放手柄

- 释放手柄用于安装调试制动器或设备出现故障时靠人工手动释放，拉动释放手柄可方便的解除制动；当开放释放手柄后，释放手柄可以自动回复到原来的位置，制动器恢复制动状态。



Release Handle

- If there is fault occurred in mounting and testing brakes or equipments, use the lever to brake manually. The brake can be released by just pulling the released lever. While releasing, the lever recovers to the original position automatically and the brake will be back to the braking.

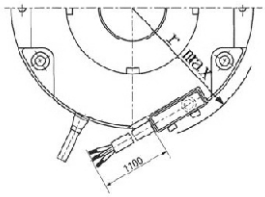
微动开关

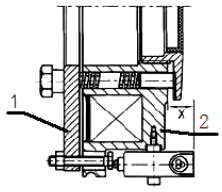
- 微动开关用于需要对间隙进行监控的场合。
- 当衔接1被定子2吸合时，制动器释放，微动开关感应到衔铁吸合，电机才由微动开关控制下启动；当间隙超过极限时，微动开关感应不到衔铁吸合，则电机不能启动。

机座号 Motor No.	12	14	16	18	20	25	30
X	2	2	2	2	0	0	0
R	80	85	98	111	127	151	182

Micro Swith

- The micro switch is used to monitor the air gap.
- The brakes are released once the armature 1 is engaged by stator 2, which is experienced by the micro switch. Then the motor is turned on controlled by the switch. Yet, the motor will not be turned on if the switch can not experience the armature engagement because of over-limited clearance.





电气附件
Spring-applied Electromagnetic Brake-REB 08

- 制动器工作电源为直流电源，若外接交流电源可选用如下规格整流器
- Electrical accessories are optional ϕ meet the specific conditions. Please refer to the instructions.

产品型号 Product Modle

4线半波整流器
4-Wire Half-Wave Rectifier

RZL241-170

过励磁电源
Over-excitation Power Supply

RKZL262-0.3S

RKZL262-0.6S

6线水平安装半波整流器
6-Wire Half-Wave Rectifier,
Horizontally Mounted

RZL262-170

4线全波整流器
4-Wire Full-Wave Rectifier

RZL141-170H

6线垂直安装半波整流器
6-Wire Half-Wave Rectifier,
Vertically Mounted

RZL261-170

6线水平安装全波整流器
6-Wire Full-Wave Rectifier,
Horizontally Mounted

RZL162-170

6线垂直安装全波整流器
6-Wire Half-Wave Rectifier,
Vertically Mounted

RZL161-170

快速电源（时间0.5~1.5S可调）
Fast Power Supply (0.5~1.5S, adjustable)

RKZL-1

快速制动整流器
Fast-braking Rectifier

RZLT145-96

产品特色 Characteristics

- 塑料外壳设计紧凑
- 可选的接线方式可以实现快速安装
- 可选的交流侧和直流侧切换
- 最大环境温度：70℃

- Designed in a compact structure
- Optional wiring methods to mount quickly
- Optional switching at AC and DC side
- Max. Ambient Temperature: 70℃

K—过励磁（部分规格有）
K-Over-excitation(only for some specifications)

ZL—整流器（产品规格）
ZL-Rectifier(product specifications)

1—输入电压：0~270V AC　**1**-Input Voltage: 0~270VAC
2—输入电压：0~460V AC　**2**-Input Voltage:0~460VAC

4—4个接线端子（输入，输出）
4-4 wiring terminals (input, output)
6—6个接线端子（输入，输出，开关控制）
6-6wiring terminals(input, output and switching control)

1—垂直安装　**1**-Vertically Mounted
2—水平安装　**2**-Horizontally Mounted
5—引线安装　**5**-Mounted with Leads

1—前0.5~1.5S（此时间可调）内输出电压340V DC，0.5~1.5S后输出电压170VDC输入电压380VAC时）
1-Output 340V DC within 0.5~1.5S (adjustable)and 170VDC after1.5S(input 380VAC)
170—输出电压170~203VDC
170-Output 170~203V DC
0.3S—过励磁时间0.3S（输入电压380VAC时）
0.3S-0.3S of over-excitation time (input 380V AC)
0.6S—过励磁时间0.6S（输入电压380VAC时）
0.6S-0.6S of over-excitation time (input 380V AC)

输入电压（AC） Input Voltage (AC)	整流方式 Rectification Method	4线整流器型号 4-Wire Rectifier Model	6线整流器型号 6-Wire Rectifier Model	线圈电压（DC） Coil Voltage (DC)
110V	全波 Full Wave	RZL141-170H	RZL16X-170	103V
220V/230V/240V	全波 Full Wave	RZL141-170H	RZL16X-170	205V
	半波 Half Wave	RZL241-170	RZL26X-170	103V
	过励磁 Over excitation		RKZL262-0.3S	103V
255V	全波 Full Wave	RZL141-170H	RZL16X-170	225V
277V/290V	半波 Half Wave	RZL241-170	RZL26X-170	127V
380V/400V/415V 420V/440V/460V	半波 Half Wave	RZL241-170	RZL26X-170	170V/180V 190V/205V
	过励磁 Over excitation		RKZL262-0.6S	
	快速电源 Fast Power Supply		RKZL-1	

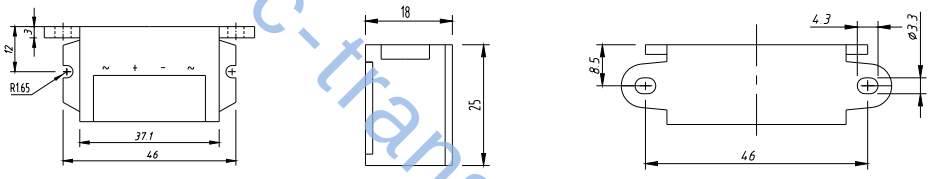
整流器性能及安装尺寸图

Rectifier Property and Mounting Sketch

4线半波或全波整流器

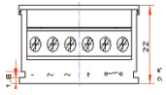
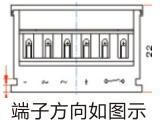
4-wire Half-/Full-wave Rectifier

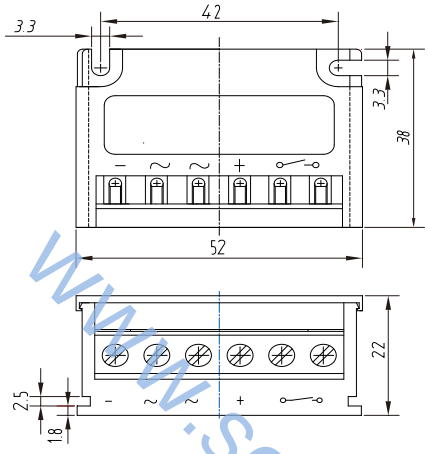
序号 No.	产品型号 Model	产品特性 Property	特点 Features		适用行业 Applications
1	RZL141-170H	最大输入270VAC,全波 Max. input 270VAC, full wave	体积小巧，接线快捷方便 Small volume, convenient wiring	橘色 Orange	对制动时间无特殊要求的行业 Sectors with no special request of braking time
2	RZL141-96	最大输入270VAC,半波 Max. input 270VAC, half wave		橘色 Orange	
3	RZL241-170	最大输入460VAC,半波 Max. input 270VAC, half wave		黑色 Black	



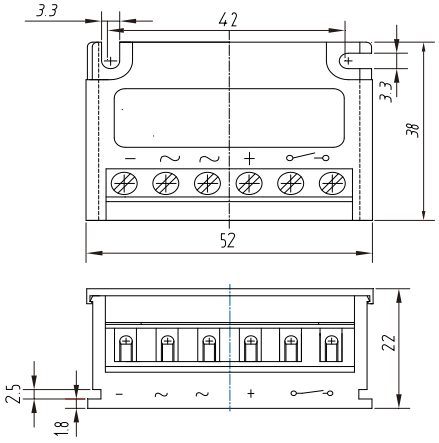
6线半波或全波整流器

6-wire Half-/Full-wave Rectifier

序号 No.	产品型号 Model	产品特性 Property	特点 Features			适用行业 Applications
1	RZL162-96	最大输入270VAC，半波 Max. input 270VAC, half wave	橘色 Orange	 端子方向如图示 Sketch of Terminal Direction	直流侧控制接线方式可实现快速制动 To achieve quick braking by controlling wiring at DC side	对制动时间有快速要求的行业 Sectors requiring quick braking
2	RZL262-170	最大输入460VAC，半波 Max. input 460VAC, half wave	黑色 Black			
3	RZL161-96	最大输入270VAC，半波 Max. 270VAC, half wave	橘色 Orange	 端子方向如图示 Sketch of Terminal Direction		
4	RZL261-170	最大输入460VAC，半波 Max. input 460VAC, half wave	黑色 Black			
5	RZL162-170	最大输入270VAC，全波 Max. input 270VAC, full wave	橘色 Orange	 端子方向如图示 Sketch of Terminal Direction		
6	RZL262-170H	最大输入电压575VAC，半波 Max. input 575VAC, half wave	黑色 Black			启动频繁的行业 Sectors requiring successive starting



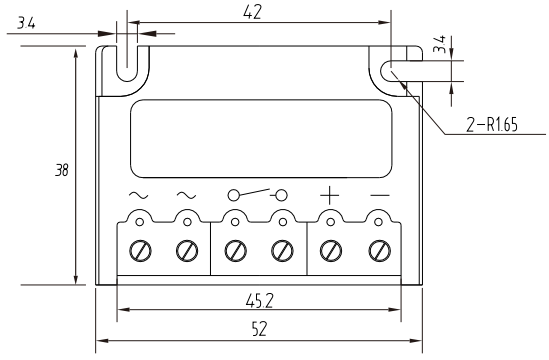
6线垂直安装整流器
6-wire half-wave rectifier, vertically-mounted

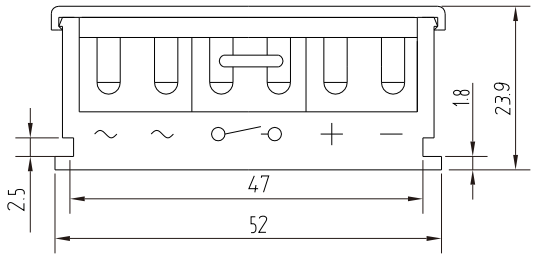


6线水平安装整流器
6-wire half-wave rectifier, horizontally-mounted

过励磁整流器 Over-excitation Rectifier

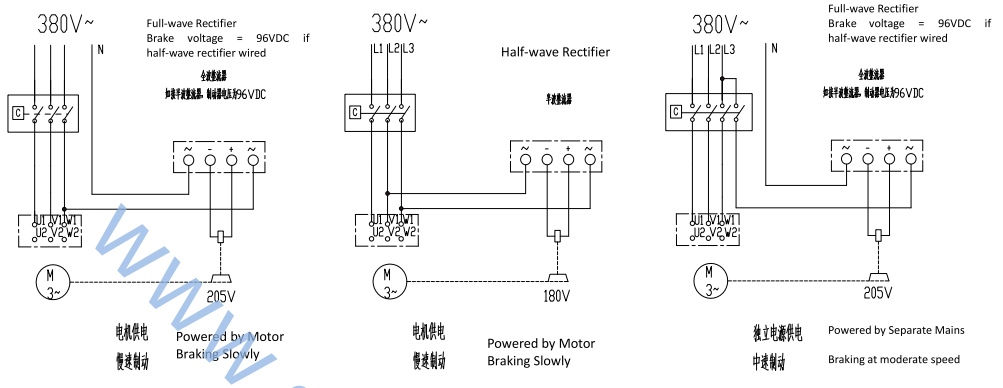
序号 No.	产品型号 Model	产品特性 Property	特点 Features		适用行业 Applications
1	RKZL262-0.6S	最大输入440VAC的过励磁整流器 Max. input 440VAC	缩短制动器吸合时间，通过直流侧控制接线方式可实现快速制动 Shorten the pull-in time and achieve quick braking by controlling wiring at DC side	过励磁（高电压）时间0.6S(输入380VAC时) Over-excitation (high voltage) time 0.6s (when input = 380VAC)	缓解电机堵转或需释放时间短的行业 Sectors easing motor blocking or requiring less releasing time
2	RKZL262-0.3S	最大输入440VAC的过励磁整流器 Max. input 440VAC		过励磁（高电压）时间0.3S(380VAC),输入电压 Over-excitation (high voltage) time 0.3s (when input = 380VAC)	缓解电机堵转或需释放时间短的行业 220VAC时可使用该款 Sectors easing motor blocking or requiring less releasing time: applicable when input = 220VAC





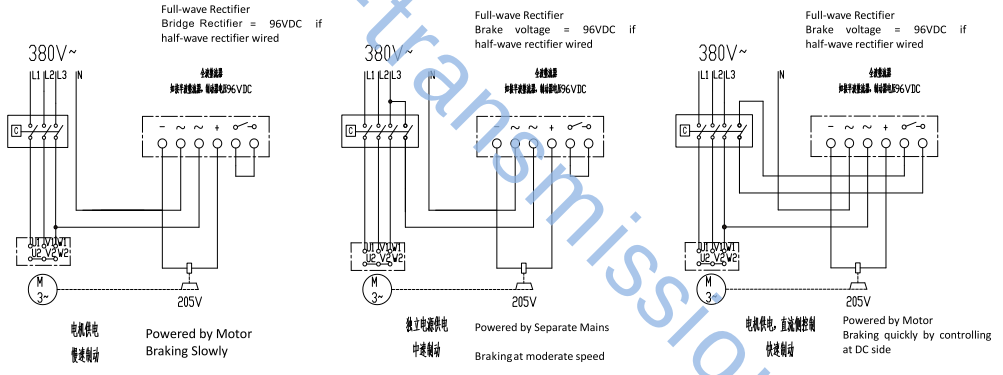
4线整流器

4-wire Rectifier



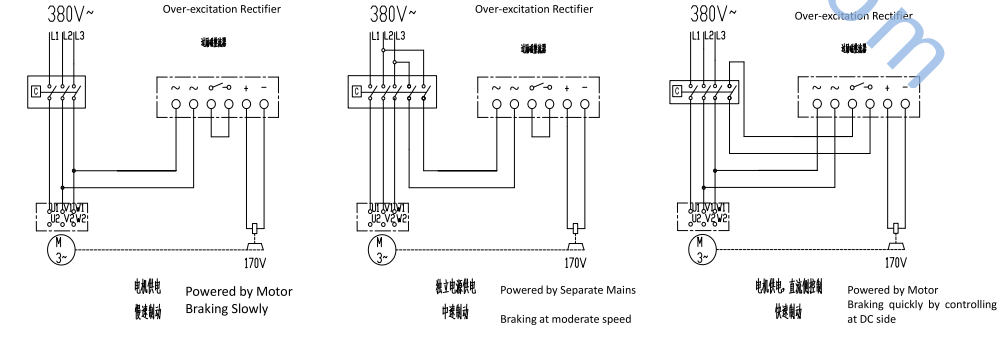
6线整流器

6-wire Rectifier



过励磁整流器

Over-excitation Rectifier



说明：6线半波整流器输入380VAC时接线请参考过励磁整流器接线示意图

Note: for 6-wire half-wave rectifier (when input = 380VAC), please refer to the sketch of over-excitation rectifier.

产品选型
Model Selection

保持负载所需的转矩分析

Analysis Of The Required Torque For Keeping The Load

$$T = T\ell max \times K\ [N \cdot m]$$

- Tℓmax: 最大负载转矩 [N·m]
- K: 安全系数（参阅下表）

- Tℓmax: Max load torque [N·m]
- K: Security coefficient (see table below)

负载状态 Load status	系数 Coefficient
低惯量· 负载变动小 Low inertia. Low load change	1.5
普通惯量的一般使用 Normal inertia for normal use	2
大惯量· 负载变动大 High inertia. High load change	3

暂定尺寸

Provisional Measurements

- 需要选择能使由上述算式计算出的转矩 T 满足以下算式的制动器尺寸。

- Use the Torque T which is calculated based on above equation to meet the brake measurement in below equation.

$$TS > T\ [N \cdot m]$$

- Ts: 制动器静摩擦转矩 [N·m]

- Ts: the brake's static friction torque [N·m]

做功分析

- 考虑以保持为目的的制动器时，制动仅限于紧急情况下。
- 通过以下算式计算紧急制动 1次的制动做功 Eb，并确认该计算结果充分小。
- 于所选制动器的允许制动做功 Eba ℓ。

$$Eb = \frac{J \times n^2}{182} \times \frac{Tb}{Tb \pm T\ell max} \quad [J]$$

- J: 负载侧的转动惯量合计 [kg·m2]
- n: 转速 [min - 1]
- Tb: 制动器转矩 [N·m]
- Tℓmax: 最大负载转矩 [N·m]
- 最大负载转矩 Tℓmax 的符号在负载朝帮助制动的方向动作时为 +(正)，朝妨碍的方向动作时为 -(负)。

$$Eb \ll Eba\ell \quad [J]$$

Power Output Analysis

- To consider the brake for keeping purpose, the brake is limited only to emergency conditions.
- Use below equation to calculate the brake power output Eb for one time emergency brake, and to check if the calculation result is sufficient small
- The allowable brake power output for the selected brake Eba ℓ.

- J: Rotation inertia sum on the load side [kg·m2]
- n: Rotation speed [min - 1]
- Tb: Brake torque [N·m]
- Tℓmax: Max. load torque [N·m]
- The symbol of the max. load torque Tℓmax is + when the load is aiding the brake, - when the load is hindering the brake.

动作次数分析

- 进行紧急制动时的总制动次数（寿命）L 通过以下算式计算，需要确认是否满足要求的规格。

$$L = \frac{ET}{Eb} \quad [次]$$

- 007ET: 总制动做功 [J]
- 虽然根据使用环境会有所不同，但紧急制动频率请控制在1分钟 1次左右。 1 次制动做功 Eb 超过允许制动做功 Eba ℓ 的70% 以上时，紧急制动后，请等待制动器充分冷却再使用。

Brake Frequency Analysis

- The total brake times(life) L can be calculated using below equation, need to check if the type can meet requirements.

- 007ET: Total brake power output [J]
- Though operation conditions may vary, the emergency brake should be less than about once per minute. if the one time brake power output Eb is bigger than 70% of Eba ℓ, then after emergency brake, the brake has to be fully cooling down before operation again.