

0CV2 系列粉尘防爆型三相异步电动机
0CV2 series dust explosion-proof three-phase
asynchronous motor

使用维护说明书

INSTRUCTIONS

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1.0 概述 Overview

0CV2 系列粉尘防爆型三相异步电动机是全封闭、自扇冷电动机，具有性能优良，使用安全可靠，振动小、噪声低、运行安全可靠等特点。

0CV2 series dust explosion-proof three-phase asynchronous motor is totally enclosed fan cooled, owns the features of high performance, safe and reliable use, small vibration, low noise, etc.

本系列电动机符合 GB12476.1 – 2013 《可燃性粉尘环境用电气设备—第 1 部分：通用要求》、GB12476.5-2013 《可燃性粉尘环境用电气设备—第 5 部分：外壳保护型“ tD” 》，适用于具有爆炸性粉尘混合物的场所。

This series motor is in compliance with the GB12476.1-2013 and GB3836.5-2013 , it can be applied in the area of explosive dust mixture.

本系列电动机符合 GB18613-2012 《中小型三相异步电动机能效限定值及能效等级》标准，能效等级 3 级，具体规格的能效指标参见铭牌。

The series motor comply with GB18613-2012 《Minimum allowable values of energy efficiency and the energy efficiency grades for small and medium three-phase asynchronous motors》. Energy efficiency grade of the motors are grade 3 and the value of energy efficiency are shown on rating plate.

2.0 技术条件 Technical condition

(1)电压和频率 Voltage and Frequency:

220VD / 380VY 50Hz
380VD / 660VY 50Hz
230VD / 400VY 50Hz
400VD / 690VY 50Hz
240VD / 415VY 50Hz
415VD 50Hz
440VY 60Hz
440VD 60Hz
460VY 60Hz
460VD 60Hz

(2) 工作制 Duty operation: 连续 (continuous) S1

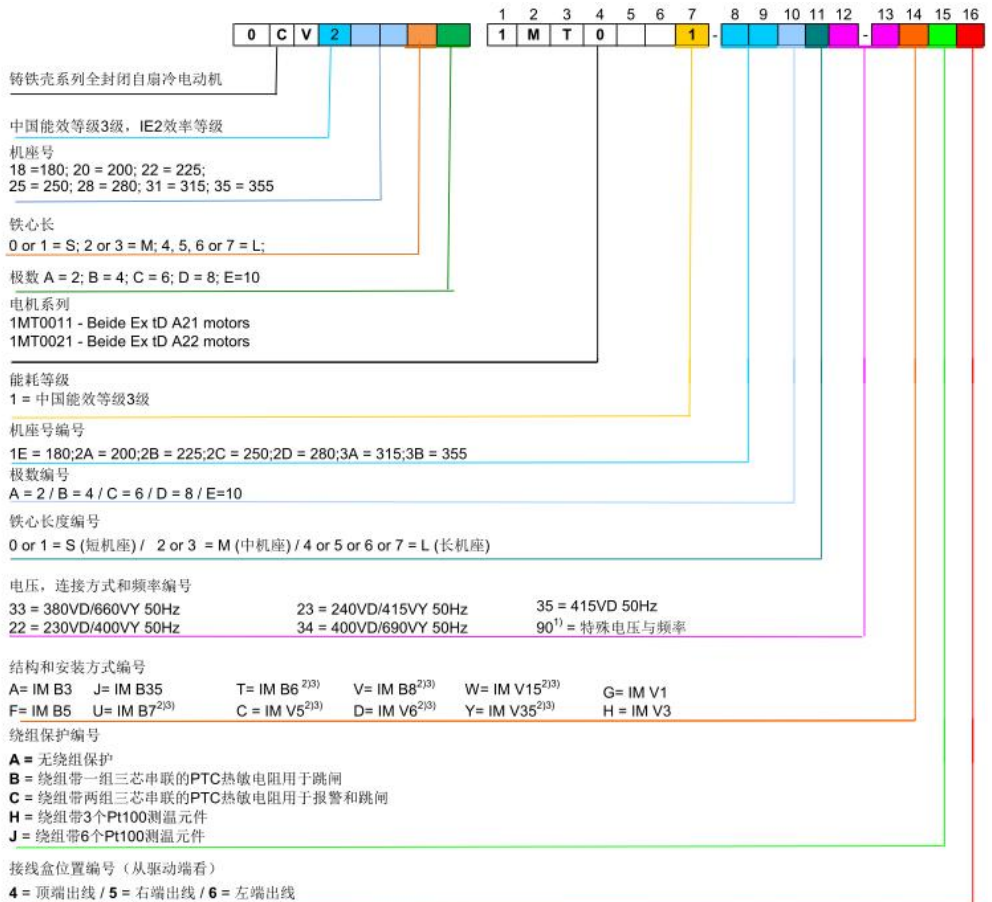
(3) 绝缘等级 Degree of insulation: 155 (F)

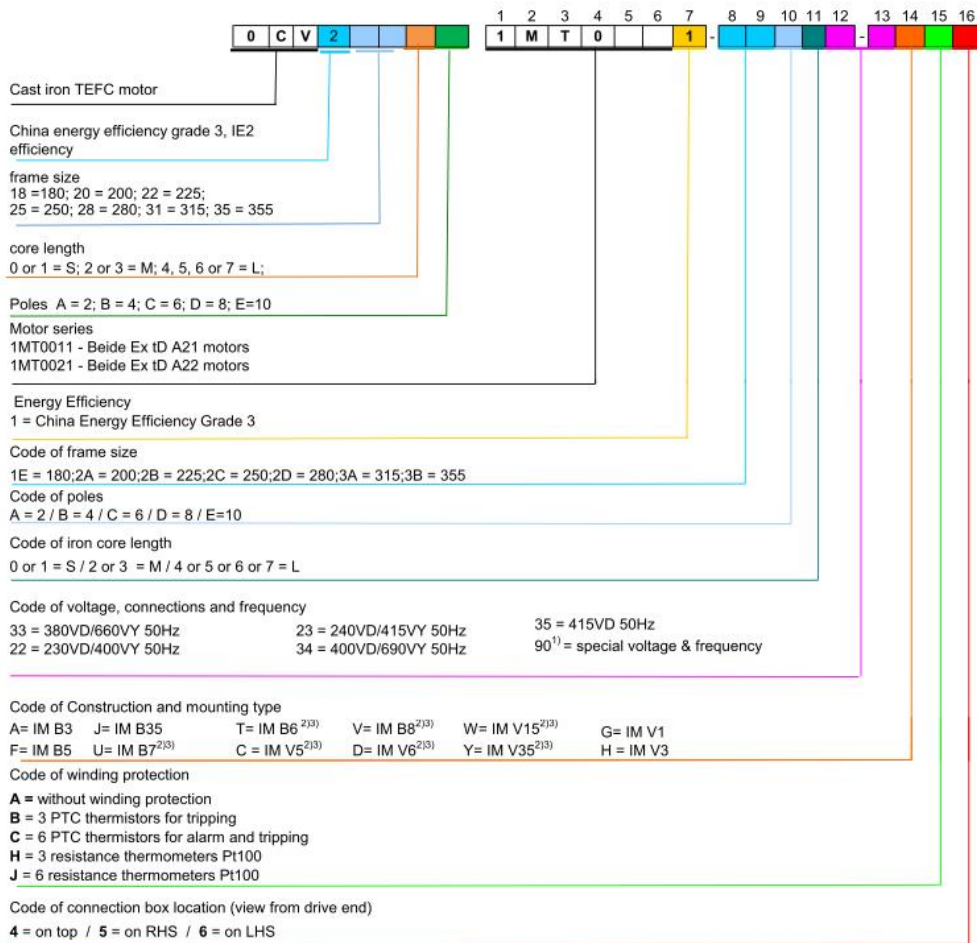
(4) 环境条件 Environment condition:

环境温度 Ambient temperature: -15℃~+40℃;

海拔高度 Installation Altitude: 不超过 1000 米 not exceed 1000 m

3.0 订货号 Order No.





附注： 1) 用电压编号 90 及相应选项号来定制其它电压

2) 需要特殊询价

3) 仅有顶出线的电机

Foot note: 1) Order other voltages with voltage code 90 and the corresponding Option code

2) Possible on request

3) Only for the terminal box is on top (view from drive end)

4.0 防爆标志 Explosion protection marking

防爆标志应能够清晰地和持久地标注在电机的显著位置，防爆标志为 Ex tD A21 IP65

T130°C 和 Ex tD A22 IP55 T130°C，标志由以下四部分组成：

Ex tD: 防尘防爆外壳保护型

A21/A22: A 型设备工作在 21 区/22 区

IP65/IP55: 外壳防护等级

T130°C: 最高表面温度

Explosion-proof marking should be able to clear and lasting mark on the distinct position of the enclosure of motor, the mark is Ex tD A21 IP65 T130°C or Ex tD A22 IP55

T130°C, the mark is composed of the following four parts:

Ex tD: Type of dust-protected and explosion-proof enclosure protection

A21/A22: A type equipment working zone21 / zone22

IP65/IP55: Protection degree

T130°C: Maximum surface temperature

5.0 主要结构简述 Brief introduction of the main structure

5.1 电动机通过限制外壳最高表面温度和采用“尘密”或“防尘”外壳来限制粉尘进入电机内部。

By limiting the maximum surface temperature of the enclosure and using the "dust-tight" or "dust-protected" enclosure to limit the dust into the motor.

5.2 接线盒安装在电动机的顶部或侧面（左侧或右侧），接线盒座与机座出线口之间、接线盒盖与接线盒座之间用橡胶密封垫密封；端盖与机座之间、轴承外盖与端盖之间装有 O 型密封圈。

Terminal box is either top or side mounted (LHS or RHS) on the motor, there is sealed with rubber gasket between terminal box body and housing outlet, terminal box cover and terminal box body; there is sealed with o-seal ring between end-shield and housing, outer bearing cap and end -shield.

5.3 中心高 180~355 机座号设置了不停机注排油装置。

FS180~355 motors are supplied with Re-greasing device.

5.4 电动机主体结构见图 1。

The main structure is shown in Figure 1.

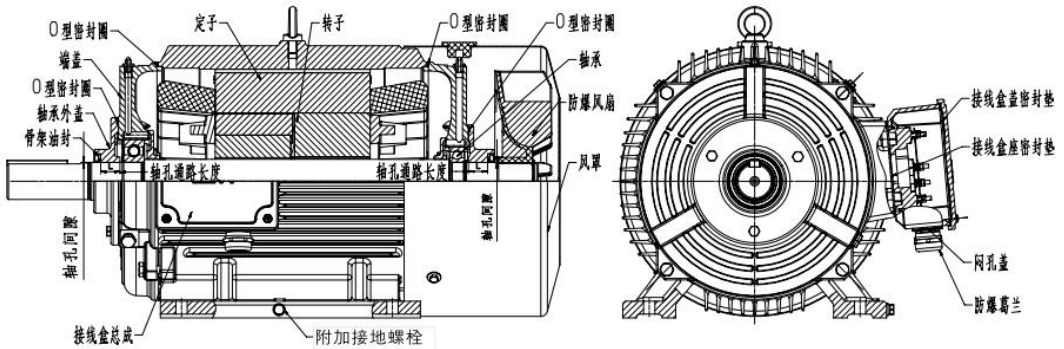
5.5 标准电动机 3kW 及以下为 Y 接（380V），其他功率电压为 380V 时△接、660V 时 Y 接，如有特殊要求，接法详见铭牌数据。

The standard motor is Y connection(380V) when it is below 3kW ,and other power is △ connection (380V) and Y connection(660V), if there are special requirements, see the nameplate data.

5.6 电缆引入装置用取得粉尘防爆合格证的金属防爆葛兰。

Cable entry device use metal explosion-proof gland that has been approved dust explosion-proof certification.

图 1 Figure 1



6.0 安装与调试 Installation and Commissioning

6.1 安装前的准备 pre-installation preparation

6.1.1 仔细检查电动机外观是否完好、核对电动机铭牌内容是否与实际需求相符。

Carefully check whether the appearance is intact and the information of nameplate is the actual demand.

6.1.2 电动机是否有防爆标志、防爆合格证编号和生产许可证。

Whether the motor has the explosion-proof mark, the explosion-proof certificate's

number and production license

6.1.3 电机外壳各零部件联接正确，紧固可靠无松动。

All parts are connected correctly and the fastening is reliable without loosening.

6.1.4 定子绕组与机壳间绝缘电阻：额定电压 380V 时，不低于 0.38MΩ；额定电压 660V 时，不低于 0.66 MΩ。

The insulation resistance between the stator windings and the enclosure: when rated at 380V, not less than 0.38M; the rated voltage of 660V is not less than 0.66 M.

6.2 安装 Installation

6.2.1 电动机的安装必须由经过严格培训且熟悉相关标准的专业人员完成。

The installation of the motor shall be completed by the professional and technical personnel who is stringent training and be familiar with relevant standard

6.2.2 电动机采用弹性联轴器传动，电动机轴与被传动的主机轴中心要保持一致，否则会引起轴承损坏和轴断裂。

The motor is driven by the elastic shaft coupling, the motor shaft and the drive shaft center must be consistent, otherwise it will cause bearing damage and shaft fracture.

6.2.3 对带底脚的电动机，安装平面应平整、坚固。

For the motor with feet, the mounting surface should be flat and solid.

6.2.4 连接电动机的电源线（电缆）应符合葛兰的电缆直径范围，建议采用 YJV（3+1）铜芯电缆。

Connect the motor's power line (cable) should meet gland cable diameter range, suggested use YJV (3+1) copper core cable.

6.2.5 一个防爆葛兰只能进一根多芯电缆，防爆葛兰技术参数见表 1。安装电缆时应把防爆葛兰金属堵塞件拿掉，拧紧防爆葛兰的金属螺帽，使橡胶密封圈内壁紧紧包裹住电缆外径，目测两者之间不得有间隙，否则将失去防爆性能。电机外部电源、控制线路接线时，外部电缆应固定，严禁拉、拽、移动电缆。葛兰外形图见图 2。

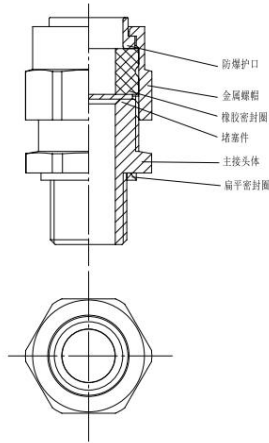
A explosion-proof gland can only entry a multi core cable, explosion-proof gland

technical data is shown in table 1. For the rubber sealing ring is tightly wrapped inside the outer diameter of the cable, Putting off metal blocking part and screwing down metal nut When installing cable, between of them must not have gaps exist by visual means ,otherwise the explosion-proof property of the enclosure would be lost. The external cable should be fixed when connecting line, do not pulling and moving. Gland drawing is shown in Figure 2.

表 1 Table 1

机座号 Frame Size	葛兰尺寸 gland size	允许电缆直径范围 (mm) Allowable cable diameter range	单股引接线截面积 (mm ²) Single-strand connectable cross-section
180	M36x2.0	19~26.5	16/25/35
200	M48x2.0	25~32.5	35/50/70
225			
250	M64x2.0	31.5~42.5	95/120/150
280			
315			
355	M72x2.0	42.5~54.3	150/185/240

图 2 Figure 2



6.2.6 接线盒上闷盖孔是预留葛兰安装孔，闷盖不能拿掉，否则将失去防爆性能。

The Terminal box cover hole should be reserved for gland mounting holes, can not

be removed, otherwise it will lose the explosion-proof performance.

6.2.7 热保护方式 Motor protection

不同的电机热保护方式可以在订货号的第15位采用不同的字母（见章节3.0）或者选件号来表示

The order variants for motor protection are coded with letters in the 15th position(see chapter 3.0) of the Motor Order No., or ordered with Option code.

- Q5A ——轴承装两个PT100测温元件
- Q5A ——Installation of 2 PT100 screwed-in resistance thermometers for bearings
- Q04 ——防潮加热带保护
- Q04 ——Anti-condensation heaters

辅助接线端子技术参数见表 2

The auxiliary terminals technical data are shown in table 2

表 2 table 2

辅助端子进线孔尺寸 Auxiliary terminals entry size	允许电缆直径范围 Allowable cable diameter range	允许电缆的芯数范围 Allowable cable cores range	引接线截面积 Connectable cross- section
M16 x 1.5	8-11	2-7	1mm ²
M20 x 1.5	11-14.3	8-10	1mm ²
M27 x 2	13-20.2	12-27	1mm ²

注：①、控制电缆使用截面积为 1mm²KVV 铜芯电缆，引入电缆直径范围应符合外接电缆直径范围。

②、防潮加热带使用 2X1mm²KVV 铜芯电缆，单独从葛兰（M16X1.5）进线，其它的控制电缆从另一个葛兰进线

①、Control cable using cross-sectional area of 1 mm² KVV copper core cable, the cable diameter range should meet the outer cable diameter range.

②、Anti-condensation heater using 2X1mm² KVV copper core cable, separate from the gland (M16X1.5) entry, the other control cable from another entry.

辅助接线端子的接线图如表3所示

The auxiliary terminals connection is shown in table 3

表3 table 3

PTC		2PTC		PT100				2PT100								选件号 Option code Q5A		选件号 Option code Q04											
PTC 155℃		PTC 155℃		PTC 145℃		U		V		W		U		V		W		轴承测温元件 2 PT100 resistance thermo- meter for bearing		防潮加 热带 Heater									
2TP1	2TP2	2TP1	2TP2	1TP1	1TP2	1R1	1R2	2R1	2R2	3R1	3R2	1R1	1R2	2R1	2R2	3R1	3R2	4R1	4R2	5R1	5R2	6R1	6R2	10R1	10R2	11R1	11R2	1HE1	1HE2
												U1	U2	V1	V2	W1	W2			DE	NDE								

注： PTC-用于报警(145℃)或跳闸保护(155℃)

PT100-用于测定轴承或绕组温度

对于使用2个PT100的，端子2TP1、2TP2用于跳闸，1TP1、1TP2用于报警

Note: PTC- Used for temperature alarming (145℃) or tripping function (155℃)

PT100- Used for monitoring temperature of bearing or winding.

By usage of 2 PTC, terminal 2TP1 and 2TP2 are used for tripping, 1TP1 and 1TP2 are used for alarming.

6.2.8 接线盒内的六个端子通过连接片改变接法，见表 4 以及图 3。

电动机的相序 U、V、W 须与接入外电源相序 A、B、C 相对应，电动机转向从轴伸端视之为顺时针方向，否则电动机将反转。

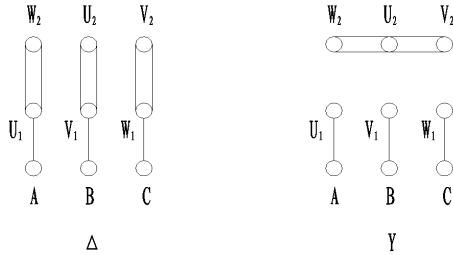
The terminal box with six terminals is suitable for two different voltages by changing the connection with the connecting plates. See table 4 and Figure 3.

Clockwise rotation will be viewed in the face of the shaft extension end if the motor's Phase sequence U.V.W, corresponds to the power supply phase sequence A.B.C, or else the motor turns in the opposition direction.

表 4 Table 4

Phase sequence 相序	A	B	C
Head 头	U1	V1	W1
Tail 尾	U2	V2	W2

图 3 Figure 3



6.2.9 电动机的内、外部接地螺栓要可靠地接地。

The internal and external grounding bolt should be earthed reliably.

7.0 维护 Maintenance

7.1 电机应安装在干燥的环境中，并保持表面清洁，外壳不得堆积灰尘，电机周围需有良好的通风。

Motors should be installed where atmosphere is relatively clean, dry, well ventilated.

7.2 当电动机的热保护及短路保护连续发生动作时，应判别故障来自电动机，还是超负荷，或是保护装置整定值太低。清除故障后，才可继续运行。

If the winding protecting device or short circuit protecting device comes to function continually, evaluation must be made to determine whether the motor is over-loaded or the protecting value is set too low. Only after the trouble is eliminated the motor is allowed to resume operation.

7.3 电动机运行时轴承允许温度不得超过 95℃(温度计法)，轴承每运行 5000 小时(约半年)至少检查一次，如发现轴承润滑脂变质必须及时更换，更换前，须将轴承外盖、贮油盒内的废油以及注排油装置的油管、油杯清理干净，并用汽油将轴承清洗干净，润滑脂填脂量 2 极电机为轴承室净容积的 1/2，4 级以上为 2/3。对于废旧的润滑脂应妥善处理，以防污染环境。轴承牌号见表 5。

During the operation, the maximum permissible temperature of the bearings should

not exceed 95°C (with a thermometer). The bearings must be inspected at least once for running 5000 hours (about half a year). And it is necessary to change for lubricating grease in time after cleaning them with gasoline if any degeneration is found. For 2 pole motors, an amount of grease to be filled up should be one half the net volumes of the bearing house and for 4 pole and above motors two thirds. For the waste grease should be properly handled to prevent environmental pollution. Bearing codes are indicated in table 5.

表 5 Table 5

Frame size 机座号	Pole 极数	DE bearing 驱动端轴承	NDE bearing 非驱动端轴承
180	2~8	6310 C3	6210 C3
200	2~8	6312 C3	6212 C3
225	2~8	6313 C3	6213 C3
250	2~8	6314 C3	6215 C3
280	2~8	6317 C3	6217 C3
315	2	6319 C3	6317 C3
	4~10	6319 C3	6319 C3
355	2	6319 C3	6319 C3
	4~10	6322 C3	6322 C3

7.4 当轴承寿命终了时，电动机运行的振动及噪声将明显增大，检查轴承的径向游隙如达到表 6 数值时即应更换轴承。

When the bearing is on the wear limit, motor vibration and noise will go up noticeably. Inspect bearing radial clearance and replace the bearing if the gap has reached the following Table 6 values:

表 6 table6

Bearing I.D 轴承内径(mm)	20-30	35-50	55-80	85-120
Max. Play allowed 极限磨损游隙(mm)	0.1	0.15	0.2	0.3

7.5 拆装电动机时请参照章节 9.0，此外，还应注意保护各零件安装配合面。转子必须从风扇端抽出。从定子中抽出转子时，应防止损坏定子绕组或绝缘。

Please refer to the chapter 9.0 while the motor being assembled or dismantled, In addition, the mating surfaces must be kept from mechanical damage or rusting. The rotor only is taken out from the fan end. Carefully handling is imperative in order not to damage the stator winding, If the rotor is taken out from the stator.

7.6 每年定期检查橡胶密封垫和 O 型密封圈是否老化（表面有龟裂、发粘、硬化、粉化等）如果老化，应及时更换密封件。O 型圈的规格如表 7 所示。

Regularly yearly check the rubber gasket and O-sealing ring whether aging (Cracked、sticky、hardening、powdered, etc.), if aging, should be replaced in time. The O-sealing ring size is indicated in table 7

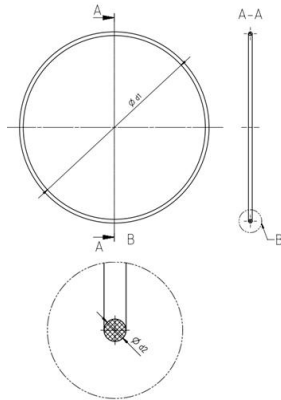


表 7 table 7

机座号 Frame size	用途 application	直径(mm)diameter	
		d1(mm)	d2(mm)
1E	端盖 end-shield	300	2.65
	前轴承外盖 outer bearing cap on DE	147.5	2.65
	后轴承外盖 outer bearing cap on NDE	125	2.65
2A	端盖 end-shield	335	2.65
	前轴承外盖 outer bearing cap on DE	165	2.65
	后轴承外盖 outer bearing cap on NDE	147.5	2.65
2B	端盖 end-shield	355	2.65
	前轴承外盖 outer bearing cap on DE	185	2.65
	后轴承外盖 outer bearing cap on NDE	155	2.65
2C	端盖 end-shield	395	2.65
	前轴承外盖 outer bearing cap on DE	195	2.65
	后轴承外盖 outer bearing cap on NDE	175	2.65
2D	端盖 end-shield	443	2.65
	前轴承外盖 outer bearing cap on DE	224	2.65
	后轴承外盖 outer bearing cap on NDE	195	2.65
3A	端盖 end-shield	493	3.55
	前轴承外盖, 3AB/3AC/3AD 后轴承外盖 outer bearing cap on DE, 3AB/3AC/3AD outer bearing cap on NDE	243	2.65
	3AA 后轴承外盖 3AA outer bearing cap on NDE	230	2.65
3B	端盖 end-shield	595	3.55
	3BA 前、后轴承外盖 3BA outer bearing cap on DE and NDE	243	2.65
	3BB/3BC/3BD 前、后轴承外盖 3BB/3BC/3BD outer bearing cap on DE and NDE	283	2.65

8.0 贮存和运输 Storage and transportation

8.1 电动机在运输过程中, 应防止电动机倾斜、倒置、碰撞、雨淋。

Avoid any tilt or upside down during storage and transportation

8.2 电动机应贮存在清洁、干燥、无酸或其它腐蚀性气体的库房内, 避免周围环境温度急剧变化。

The motor must be in a dry space where no sudden change of air temperature.

8.3 电动机贮存时不宜堆积太高，以免损坏下层电动机的包装。

Do not stack too high to damage the packages underneath.

9.0 警示 Warning



严禁带电开盖，所有工作必须有熟练的工人进行操作，电机做任何操作工作之前，确保电机与主线及辅助电源断开。并且确保电源不被意外开启。

Do not open with charged, all work must be carried out by a skilled worker. Before starting any work, be sure to isolate the machine from the main and auxiliary power supply as applicable. Mains must be secured against accidental switch on.

在运输过程中，电机须通过吊环或电机结构类型指定位置进行吊装搬运。

During transport, machines may only be hoisted in a position corresponding to their basic type of construction.

断电后，开盖前应延迟十分钟，开盖后确保粉尘不进入电机内部。

Opening the cover should be delayed for ten minutes after power off. Ensure dust does not enter the motor internal after the cover is opened.

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