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900101000451  
Date 2026-03-31  
CN 安装说明  
EN Instruction Sheet

## 1. 安全注意事项 (Safety precautions)

本说明书涉及产品为工业产品，并且均为开放式外壳设计。要求用户使用产品时，务必将产品安装于具有防尘、防潮以及免于电击/冲击等意外的控制柜内，并且需要设置保护措施以防止非维护人员不当操作或意外导致设备故障或损坏，造成不可避免的人员危险和财产损失。

The products in this manual are industrial products and are all open-type housing designs. It is essential to install these products within a control cabinet that is safeguarded against dust, moisture, and accidents such as electric shocks or physical impacts. Additionally, protective measures must be taken to prevent malfunctions or damage caused by improper operation or accidents involving non-maintenance personnel. Failure to do so may lead to serious risks to personnel safety and potential loss of property.

更详细的信息请参考 SV-D5 系列总线伺服用户手册。

Please refer to the SV-D5 Series Bus Servo Instruction Manual.

## 2. 命名规则 (Model identification)

**SV-D5 B D - 1R0 - 0 A Y - 0000**

1      2   3      4      5   6   7      8

<b>1</b>	<b>产品系列 (Product series)</b>
SV-D5	D5带旋转伺服系列 (D5 rotary servo series)
<b>2</b>	<b>控制方式 (Control mode)</b>
A	脉冲型/RS485 (Pulse type / RS485)
B	EtherCAT总线型 (EtherCAT bus type)
N	CANopen型* (CANopen type*)
<b>3</b>	<b>电压等级 (Voltage class)</b>
D	DC 24~60V

<b>4</b>	<b>额定电流 (Rated current)</b>
1R0	1A
3R5	3.5A
015	15A
021	21A

<b>5</b>	<b>功能安全配置 (Functional safety configuration)</b>
0	无STO (No STO)
S	STO机种 (STO model)

<b>6</b>	<b>产品类型 (Product type)</b>
A	标准 (Standard)

<b>7</b>	<b>接口类型 (Interface type)</b>
Y	端子侧出/不带外壳 (Terminal side outlet / Without housing)
V	端子正出/RJ45网口 (定制) * (Terminal front outlet / RJ45 Ethernet port (customized) *)
U	端子侧出/带外壳 (定制) (Terminal side outlet / With housing (customized) )

<b>8</b>	<b>软件/固件定制代码 (Customized software/firmware code)</b>
X	0~9/A-Z/空 (N/A)

\*注：该型号待发布。

Note: This model is to be released.

## 3. 适用型号 (Applicable model)

额定功率 (Rated power)	型号 (Model)	额定功率 (Rated power)	型号 (Model)
10W	SV-D5BD-1R0-SAY/SV-D5BD-1R0-0AY/ SV-D5BD-1R0-SAU/SV-D5BD-1R0-0AU	400W	SV-D5BD-015-SAY/SV-D5BD-015-0AY/ SV-D5BD-015-SAU/SV-D5BD-015-0AU
100W	SV-D5BD-3R5-SAY/SV-D5BD-3R5-0AY/ SV-D5BD-3R5-SAU/SV-D5BD-3R5-0AU	750W	SV-D5BD-021-SAY/SV-D5BD-021-0AY/ SV-D5BD-021-SAU/SV-D5BD-021-0AU

## 4. 通用电气及环境规格 (General electrical and environmental specifications)

### 4.1 通用电气规格 (General electrical specifications)

项目 (Item)	参数规格 (Parameter specifications)			
SV-D5BD-***-S (0) AY (U)	1R0	3R5	015	021
额定功率 (Rated power) [W]	10	100	400	750
额定电流 (Rated current) [Arms]	1	3.5	15	21
最大输出电流 (Max. output current) [Arms]	2.5	8.75	37.5	52.5
输入电源 (Input power supply)	主回路电源 (Main circuit power supply)	DC 24~60V		
	控制电源 (Control circuit power supply)	从主电源取电 (Powered from the main power supply)		
DI输入 (DI input)	电压 (Voltage)	DC24V±10%		
	电流 (Current)	10mA		
DO输出 (DO output)	电压 (Voltage)	DC24V±10%		
	电流 (Current)	40mA		
外接再生电阻选型 (External regenerative resistor selection)	功率 (Power)	≥80W		≥100W
	阻值 (Resistance)	≥7Ω		

\*注：1. 驱动器需使用外接再生电阻，将电阻连接到 DC+ 和 R 端子。

2. 上表中推荐使用的再生电阻规格，并不能够保证满足所有使用场合，如果再生电阻发热温度过高，请更换使用更大功率的电阻，且保证电阻值符合上表允许阻值范围内。

\*Note: 1. The drive must use an external regenerative resistor; connect the resistor to the DC+ and R terminals.

2. The recommended regenerative resistor specifications in the above table do not guarantee suitability for all applications. If the regenerative resistor overheats, replace it with a resistor of higher power and ensure the resistance value is within the allowable range specified in the above table.

4.2 环境规格 (Environmental requirements)			
项目	Item	规格	Specifications
海拔高度	Altitude	≤1000m	≤1000m
使用环境	Operating environment	控制柜内安装, 开放式及室内使用	Installation within a control cabinet, open-type and indoor use
环境空气	Ambient air	无腐蚀性气体、易燃性气体、潮气、油雾、粉尘	No corrosive gases, flammable gases, moisture, oil mist, or dust
耐热等级	Heat resistance class	Class B	Class B
单装使用环境温度	Single installation ambient operating temperature	-5~55°C	-5~55°C
叠装使用环境温度	Stacked installation ambient operating temperature	-5~45°C	-5~45°C
保存环境温度	Storage ambient temperature	-20~65°C	-20~65°C
环境湿度	Ambient humidity	20~80%RH (无结露)	< 20~80%RH (non-condensing)
振动耐受	Vibration resistance	<5.8m/s <sup>2</sup> (0.6g) 10~60Hz (共振频率时不可连续使用)	<5.8 m/s <sup>2</sup> (0.6g) 10~60 Hz (continuous operation prohibited at resonance frequency)
污染等级	Pollution degree	污染度2	Pollution degree II
冷却方式	Cooling method	自然冷却	Natural air cooling
防护等级	IP rating	SV-D5BD-***-0/SAY	IP00
等级		SV-D5BD-***-0/SAU	IP20
外壳材质	Enclosure material	阻燃材料	Self-extinguishable

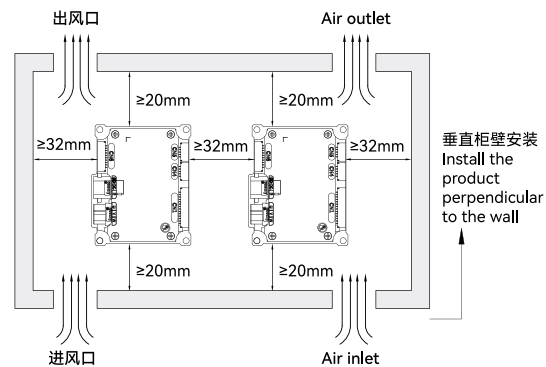
\*注: 若设备未依制造商指定方式使用, 设备所提供的保护可能会被减弱。

\*Note: If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

## 5. 安装说明 (Installation instructions)

### 5.1 控制柜安装 (Installation within a control cabinet)

CN	<p>请保证安装方向与墙壁垂直。安装 100W~750W 功率的驱动器时, 请使用 4 个 M3 螺丝固定, 锁紧扭矩为 0.9N.m。</p> <p>为了散热, 需要使用自然对流或风扇对设备进行冷却, 通过螺钉固定安装在控制柜并在设备周围留有足够的空间, 工作运行环境需符合产品环境标准要求, 另根据实际情况增加二级散热板。安装到控制箱等密封的箱体时, 为了确保内部各基板周围温度不超过 55°C, 需要安装风扇或冷却器进行降温。散热板的表面会比周围温度高出 30°C 以上。另根据实际情况增加二级散热板。</p>
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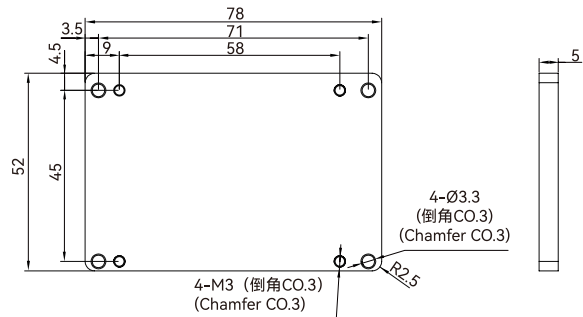


\*注: 无线缆状态下建议最小间距。

\*Note: Recommended minimum clearance in cableless state.

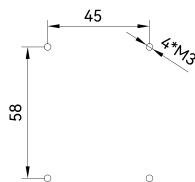
EN	<p>Please ensure the installation direction is perpendicular to the wall. When installing a drive with a power rating of 100W~750W, use 4 M3 screws for fixation, with a locking torque of 0.9 N · m.</p> <p>For effective heat dissipation, the equipment requires cooling through natural convection or the use of a fan. Install it in the control cabinet with screws and leave sufficient clearance around the equipment. The operating environment must comply with the product's environmental standard requirements; additionally, install a secondary heat sink as needed. When installing into a sealed enclosure such as a control cabinet, install a fan or cooler to reduce the temperature to ensure that the temperature around each base plate inside does not exceed 55°C .</p> <p>The surface temperature of the heat sink will be more than 30°C higher than the surrounding temperature. Additionally, install a secondary heat sink as needed.</p>
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二级散热板推荐尺寸图 (Recommended dimensional drawing of secondary heat sink)



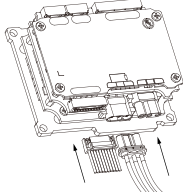
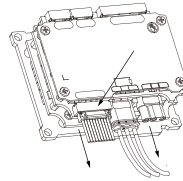
### 5.2 机柜背板安装 (Cabinet backplane mounting)

CN	<p>按孔位图在机柜背板上开孔, 使用 4 个 M3 螺丝固定, 锁紧扭矩为 0.9 N.m; SV-D5BD-1R0-S (0) AY (U) 与 SV-D5BD-3R5-S (0) AY (U) 使用 M3*23.5+6 的螺钉, 仅 1R0、3R5 机型 (100W 及以下) 支持叠装, 最多支持 3 个叠装</p>
EN	<p>Drill holes on the cabinet backplane according to the hole position diagram, fix with 4 M3 screws, with a locking torque of 0.9 N.m; SV-D5BD-1R0-S(0)AY(U) and SV-D5BD-3R5-S(0)AY(U) use M3 * 23.5+6 studs. Only 1R0 and 3R5 models (100W and below) support stacked installation, with a maximum of 3 stacked installations.</p>

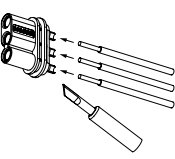
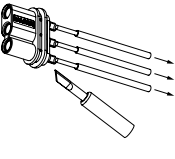


单体安装 (Individual installation)	叠式安装 (Stackable installation)

### 5.3 端子拆装 (Terminal block mounting and dismounting)

<p>CN 设备外部接口为接插件形式，参考右图进行设备主要接口的接插。</p>	 <p>沿箭头所示方向插入端子 Insert the terminal block along the direction indicated by the arrow</p>	 <p>按压锁扣并拔出端子 Press the latch and detach the terminal block</p>
<p>EN The external interfaces of the equipment are in the form of connectors. Please refer to the figures on the right side for instructions on connecting and inserting.</p>		

### 5.4 线缆拆装 \* (Cable connecting and disconnecting\*)

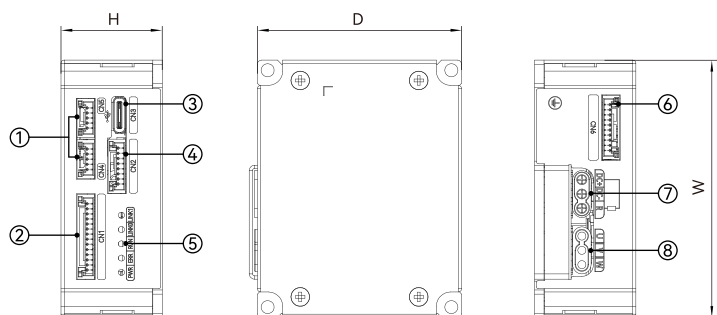
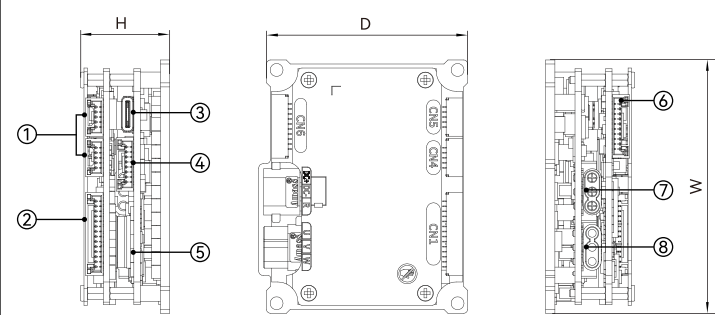
<p>CN 拆装带有主电源输入接口和电机动力输出接口的线缆需要使用电烙铁，拆装步骤如右图所示。</p>	 <p>将线缆插入端子，预热电烙铁后融化焊锡丝，可完成线缆安装 Insert the cable into the terminal, then preheat the soldering iron and melt the solder wire to complete the cable connection.</p>	 <p>预热电烙铁后融化焊锡丝，将线缆从端子拔出，可完成线缆拆卸 Preheat the soldering iron and melt the solder wire, then pull out the cable from the terminal to complete the cable disconnection.</p>
<p>EN The cable with the main power input interface and motor power output interface needs to be disconnected with a soldering iron, and the steps are shown in the right figure.</p>		

线缆 (Cable)	线径 (Wire width): AWG		耐热 (Heat resistance): °C
	10~100W	400~750W	
主回路电源输入接口 (Main circuit power supply input interface)	16	12	105
电机动力输出接口 (Motor power output interface) [UVW]		18	
STO接口 (STO interface)		18	
制动电阻接口 (Braking resistor interface)		18	120
功能I/O接口 (Functional I/O interface)		28	
通讯接口 (Communication interface)		28	
编码器接口 (Encoder interface)		28	

\*注：需要线缆配件可联系禾川下单。

\*Note: To order cable accessories, please contact HCFA to place an order.

## 6. 接口和尺寸说明 (Interface and dimension description)

SV-D5BD-***-0/SAU			SV-D5BD-***-0/SAY		
					










序号(No.)	名称	Name	功能	Function
1	CN4/CN5: RJ45接口	CN4/CN5: RJ45 interface	EtherCAT通讯接口	EtherCAT communication interface
2	CN1: 功能I/O接口	CN1: Function I/O interface	可配置的用户I/O接口	Configurable user I/O interface
3	CN3: Type-C接口	CN3: Type-C interface	连接PC进行通讯	Connects to PC for communication
4	CN2: STO接口*	CN2: STO interface*	安全扭矩关断	Safe Torque Off (STO)
5	系统状态指示灯	System status indicator	显示驱动器运行状态	Displays drive operating status
6	CN6: 编码器接口	CN6: Encoder interface	连接电机编码器	Connects to motor encoder
7	DC+/DC-: 主电源输入接口	DC+/DC-: Main power supply input interface	DC24V电源输入	DC24V power supply input
	DC+/R: 制动电阻接口	DC+/R: Power brake resistor interface	连接制动电阻	Connects to braking resistor
8	U/V/W: 电机动力输出接口	U/V/W: Motor power output interface	伺服电机连接接口	Servo motor connection interface

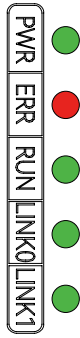
\*注：仅 SV-D5BD-\*\*\*-SAY (U) 型号支持 STO 接口功能。

\* Note: Only the SV-D5BD-\*\*\*-SAY(U) model supports STO interface function.

型号 (Model)	外形尺寸 (Dimension) : cm			孔径Φ (Hole diameter Φ):mm	重量 (Weight) : g
	W	H	D		
SV-D5BD-***-AU	52	63	24.8	3.2	74 approx.
SV-D5BD-***-AY			21.3		64 approx.

## 7. 指示灯和面板说明 (Indicator and LED panel description)

丝印 (Screen printing)	指示灯含义 (Indicator meaning)	颜色 (Color)	状态 (Status)	Status	说明 (Description)	Description
PWR	电源 (Power)	绿色 (Green)	 熄灭 Not lit	电源未接通	Power off	
			 常亮 Lit	电源接通	Power on	
ERR	系统故障 (System error)	红色 (Red)	 熄灭 Not lit	无故障发生	No error	
			 常亮 Lit	发生故障	Error	
RUN	运行 (Run)	绿色 (Green)	 熄灭 Not lit	停止状态	Stop	
			 闪烁 Blinking	正常运行	Run	
			 常亮 Lit	待机状态	Standby	
LINK0/LINK1	EtherCAT 通讯 (EtherCAT communication)	绿色 (Green)	 熄灭 Not lit	未建立物理连接	No physical connection	
			 闪烁 Blinking	建立物理连接且有通讯数据	Physical connection with communication data	

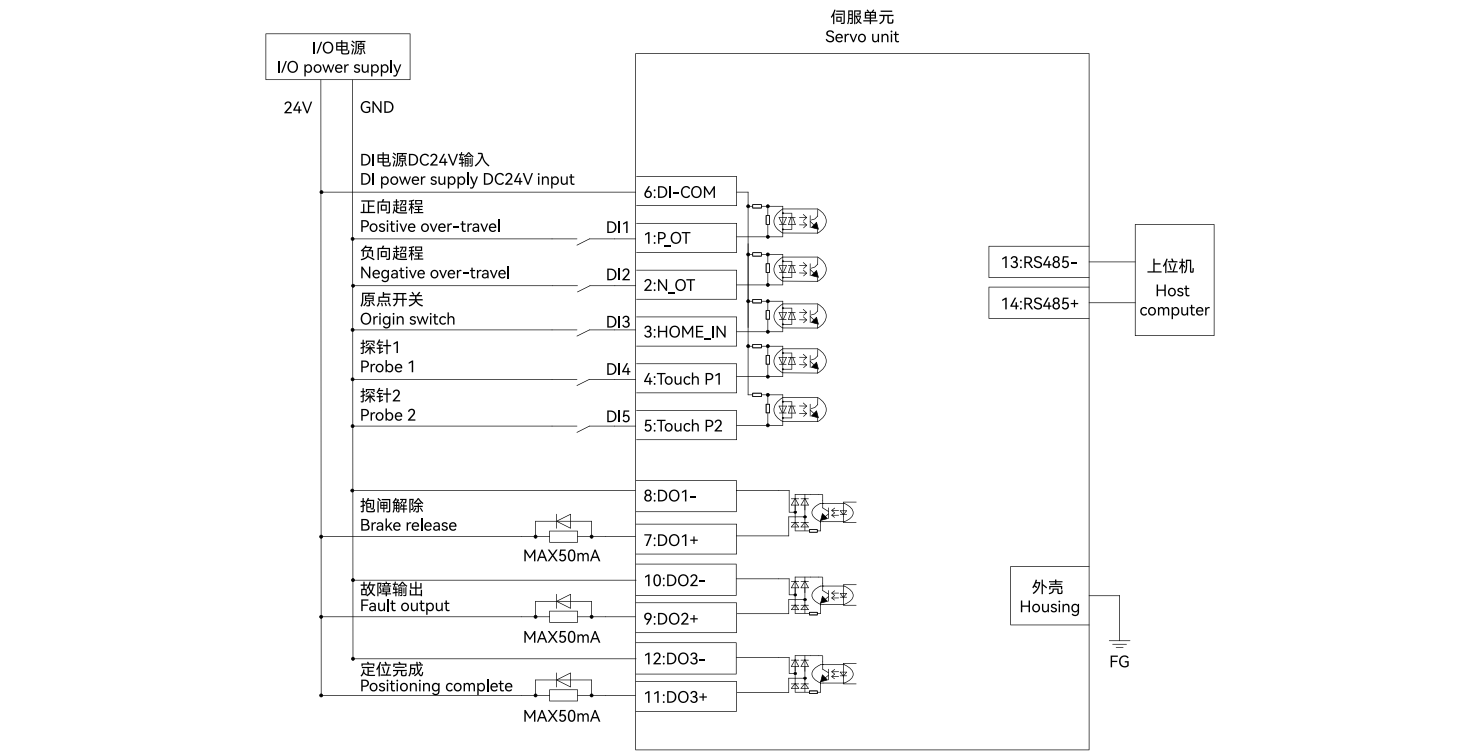


## 8. 端子及配线说明 (Terminal and wiring description)

### CN1(用户I/O)接口说明 (CN1 (User I/O) interface description)

针脚 (Pin)	信号 (Signal)	功能 (Function)
1	DI1	数字信号输入DI1 (正向超程)
2	DI2	数字信号输入DI2 (负向超程)
3	DI3	数字信号输入DI3 (原点开关)
4	DI4	数字信号输入DI4 (探针1)
5	DI5	数字信号输入DI5 (探针2)
6	DI_COM	DI电源输入公共端
7	DO1+	数字信号输出DO1 (抱闸解除)
8	DO1-	
9	DO2+	数字信号输出DO2 (故障输出)
10	DO2-	
11	DO3+	数字信号输出DO3 (定位完成)
12	DO3-	
13	RS485-	RS485通讯接口
14	RS485+	

### 接线 (Wiring)



**CN2接口说明 (CN2 interface description)**

针脚 (Pin)	信号 (Signal)	功能 (Function)		接线 (Wiring)
1	-			
2	-			
3	STO1+	2套独立的电路, 关闭功率模块的驱动信号, 切断电源	Two sets of independent circuits Shut down the power module drive signal, cut off the servo power supply	
4	STO1-			
5	STO2+			
6	STO2-			
7	STO_OUT+	安全功能信号的监视输出	Monitor the output of safety function signals	
8	STO_OUT-			

**CN4/CN5接口说明 (CN4/CN5 interface description)**

针脚 (Pin)	信号 (Signal)	功能 (Function)	
1	ECAT_TX-	数据发送负	Data transmission-
2	ECAT_TX+	数据发送正	Data transmission+
3	PE	屏蔽层	Shield
4	ECAT_RX-	数据接收负	Data receiving-
5	ECAT_RX+	数据接收正	Data receiving+

**CN6接口说明 (CN6 interface description)**

针脚 (Pin)	信号 (Signal)	功能 (Function)	
1	VCC	电源正	Power supply+
2	GND	电源负	Power supply-
3	DATA-	数据信号	Data signal
4	DATA+	数据信号	Data signal
5	A-	A相输入	A-phase input
6	A+		
7	B-	B相输入	B-phase input
8	B+		
9	Z-	Z相输入	Z-phase input
10	Z+		

**主回路电源及制动电阻输入接口说明 (Main circuit power supply and braking resistor input interface description)**

序号 (No.)	丝印 (Screen printing)	功能 (Function)		接线 (Wiring)
1	DC+	电源输入正	Power supply input+	
2	DC-	电源输入负	Power supply input-	
3	R	DC+/R制动电阻接入	DC+/R braking resistor connection	

电机动力线输出接口说明 (Motor power cable output interface description)			
序号 (No.)	丝印 (Screen printing)	功能 (Function)	
1	U	电机U相输出	Motor power U-phase output
2	V	电机V相输出	Motor power V-phase output
3	W	电机W相输出	Motor power W phase output

- \*注: 1. 供电电源容量需要预留驱动器额定电流 25% 以上, 例如 21A 的驱动器可以选 25A 或 30A 的电源。  
 2. 电源正负极两端需增加电解电容, 接反会有电容爆炸风险。缺少电容将可能出现报错, 无法正常运行。  
 3. 接入电源时请接入电解电容 10W-100W 机型请接入 100V/220μF 电解电容; 200W-750W 机型请接入 100V/470μF 电解电容。  
 4. 配线材料请选用耐热材料, 并与容易受到温度影响的机器和配线隔离。
- \*Note: 1. The power supply capacity needs to reserve more than 25% of the drive's rated current. For example, a 21A drive can choose a 25A or 30A power supply.  
 2. Electrolytic capacitors must be added across the positive and negative terminals of the power supply. Reverse connection poses a risk of capacitor explosion. Missing capacitors may lead to error reporting and failure to operate normally.  
 3. When connecting the power supply, please connect electrolytic capacitors: for 10W-100W models, use a 100V/220μF electrolytic capacitor; for 200W-750W models, use a 100V/470μF electrolytic capacitor.  
 4. Use heat-resistant materials for wiring, and isolate them from machines and wiring susceptible to temperature effects.