

Rosemount™ 214C Sensor



NOTICE

This guide provides basic guidelines for Rosemount 214C Sensor models.

If the sensor was ordered assembled to a temperature thermowell or transmitter, see the appropriate product literature for information on configuration and hazardous locations certifications.

⚠ WARNING

Explosions could result in death or serious injury.

Installation of this sensor in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices.

Conduit/cable entries

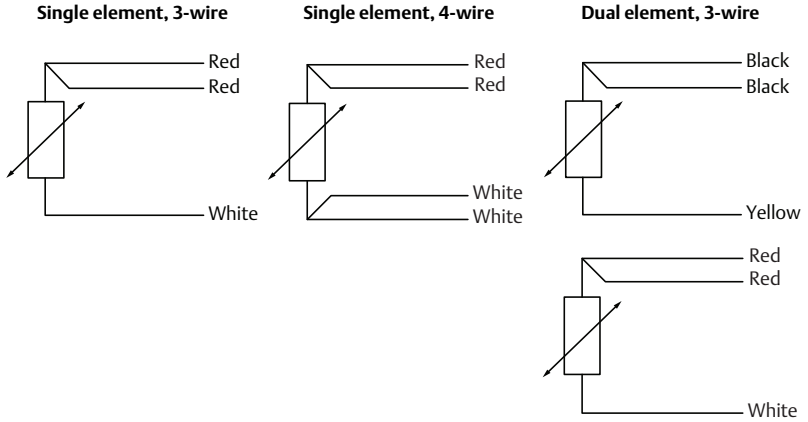
- Unless marked, the conduit/cable entries in the transmitter housing use a $1/2-14$ NPT thread form. Entries marked "M20" are $M20 \times 1.5$ thread form. On devices with multiple conduit entries, all conduit entries will have the same thread form.
- When installing in a hazardous location, use only appropriately listed or Ex certified flameproof/dust plugs, adapters, or glands in cable/conduit entries.
- Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these entries.

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1.0 Wiring diagram for RTDs

Figure 1. RTD Lead Wire Configuration per IEC 60751

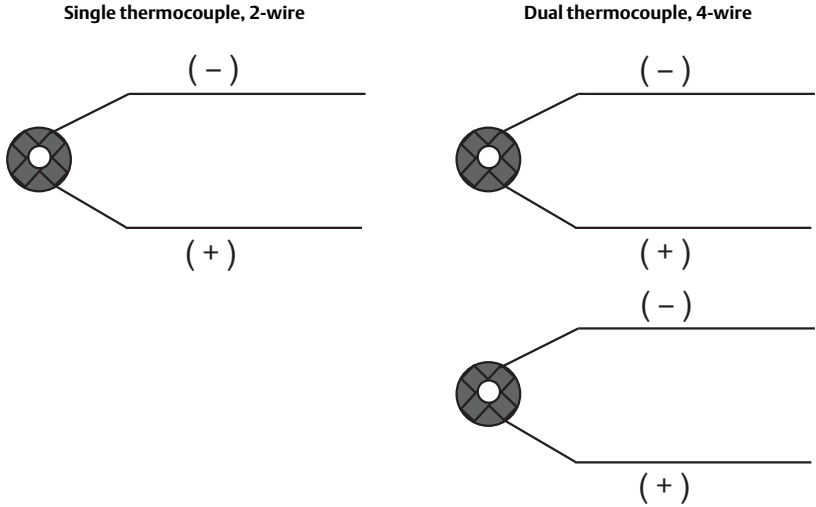


Note

To configure a single element, 4-wire RTD as a 3-wire system, connect only one white lead. Insulate or terminate the unused white lead in a manner that prevents shorting to the ground. To configure a single element, 4-wire RTD as a 2-wire system, connect matching colored wires first and then connect the paired wires to the terminal.

2.0 Wiring diagram for thermocouples

Figure 2. Thermocouple Lead Wire Configuration



Type	IEC 60584 thermocouple colors		ASTM E- 230 thermocouple colors	
	POS (+)	NEG (-)	POS (+)	NEG (-)
J	Black	White	White	Red
K	Green	White	Yellow	Red
T	Brown	White	Blue	Red

Note

Dual thermocouple sensors are shipped with one pair of the wires shrink wrapped together.

3.0 Product certifications

Rev 1.12

3.1 European Directive information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

3.2 Ordinary Location Certification

The Rosemount 214C has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

3.3 North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

E5 Explosionproof (XP) and Dust-Ignitionproof (DIP)

Certificate: 70044744

Standards: FM 3600:2011, FM 3615:2006, UL 50E:2007, UL 61010-1:2010, ANSI/ISA 60529:2004

Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T6 ($-50^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T5 ($-50^{\circ}\text{C} \leq T_a \leq +95^{\circ}\text{C}$); Seal not required; installed per Rosemount drawing 00214-1030; Type 4X†; V_{max} 35 VDC, 750 mW_{max}

Special Conditions for Safe Use (X):

1. Flameproof joints are not intended for repair.
2. Cable entries must be used which maintain the ingress protection of the enclosure. Unused cable entries must be filled with suitable blanking plugs.

N5 Division 2 (NI)

Certificate: 70044744

Standards: FM 3600:2011, FM 3611:2004, UL 50E:2007, UL 61010-1:2010, ANSI/ISA 60529:2004

Markings: NI CL I, DIV 2, GP A, B, C, D; T6 ($-50^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T5 ($-50^{\circ}\text{C} \leq T_a \leq +95^{\circ}\text{C}$); installed per Rosemount drawing 00214-1030; Type 4X†; V_{max} 35 VDC, 750 mW_{max}

E6 Explosionproof and Dust-Ignitionproof

Certificate: 70044744

Standards: CAN/CSA C22.2 No. 0:2010, CAN/CSA No. 25-1966, CAN/CSA C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M1991, CAN/CSA C22.2 No. 61010-1:2012

Markings: Explosionproof CL I, DIV 1, GP B, C, D; Dust-Ignitionproof CL II, DIV 1, GP E, F, G; CL III; T6 ($-50^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T5 ($-50^{\circ}\text{C} \leq T_a \leq +95^{\circ}\text{C}$); Seal not required; installed per Rosemount drawing 00214-1030; Type 4X†; V_{max} 3 5VDC, 750 mW_{max}

Special Conditions for Safe Use (X):

1. Flameproof joints are not intended for repair.
2. Cable entries must be used which maintain the ingress protection of the enclosure. Unused cable entries must be filled with suitable blanking plugs.

N6 Division 2

Certificate: 70044744

Standards: CAN/CSA C22.2 No. 0:2010, CAN/CSA C22.2 No. 94-M1991, CAN/CSA No. 213-M1987, CAN/CSA C22.2 No. 61010-1:2012

Markings: CL I, DIV 2, GP A, B, C, D; T6; ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +80\text{ }^{\circ}\text{C}$), T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +95\text{ }^{\circ}\text{C}$); installed per Rosemount drawing 00214-1030; Type 4X[†]; $V_{\max} 35\text{ VDC}$, 750 mW_{\max}



[†]Spring loaded indicator has reduced ingress and dust ratings. Spring loaded sensors must be installed in a thermowell to maintain dust and ingress ratings. Un-painted aluminum enclosures are Type 4 rated.

3.4 Europe

E1 Flameproof

Certificate: DEMKO 16 ATEX 1677X

Standards: EN 60079-0:2012+A11 2013, EN 60079-1:2014

Markings:   II 2 G Ex db IIC T6...T1 Gb $V_{\max} = 45\text{ Vdc}$, $P_{\max} = 750\text{ mW}$ **Installation Instructions:**

1. Use field wiring suitable for both the minimum and maximum service temperatures.
2. These devices are provided without cable glands/conduit sealing devices/blanking elements. Proper selection of suitable cable glands/conduit sealing/blanking elements should occur in the field.
3. Unused apertures shall be closed with suitable blanking elements.
4. The enclosures may be provided with up to three 1/2–14 NPT, 3/4–14 NPT, or M20 x 1.5 entries, with location of the entries specified in the installation instructions document.

Special Conditions for Safe Use (X):

1. Refer to certificate for details regarding process and ambient temperature limits.
2. When the Rosemount 214C sensor is provided with an enclosure with a display cover, the maximum ambient shall be 95 °C.
3. The non-metallic label on the device may store an electrostatic charge and become a source of ignition in Group III atmospheres. Care shall be taken to reduce electrostatic build-up. For example, the non-metallic label may be rubbed with a damp cloth.
4. The display covers were impacted at 4 J according to a low risk of mechanical danger. Guard the display covers against impact energies greater than 4 J.
5. Flameproof joints are not intended for repair.
6. The stand-alone Rosemount 214C sensors without an enclosure must be assembled to a suitable Ex certified enclosure of a volume no greater than 0.55 L to maintain the types of protection “db” and “tb”.
7. The spring loaded sensors and DIN sensors must be installed in a thermowell to maintain IP6X ratings.
8. Contact indicating sensors do not meet requirements for protection type “tb” and therefore are not “tb” rated.

I1 ATEX Intrinsic Safety

Certificate: Baseefa16ATEX0101X

Standards: EN 60079-0:2012+A11:2013, EN 60079-11:2012

Markings:  II 1 G Ex ia IIC T5/T6 Ga (SEE CERTIFICATE FOR SCHEDULE)

Thermocouples; Pi = 500 mW	T6 60 °C ≤ T _a ≤ +70 °C
RTDs; Pi = 192 mW	T6 60 °C ≤ T _a ≤ +70 °C
RTDs; Pi = 290 mW	T6 60 °C ≤ T _a ≤ +60 °C
	T5 60 °C ≤ T _a ≤ +70 °C

Special Condition of Use (X):

1. The equipment must be installed in an enclosure which affords it a degree of ingress protection of at least IP20.

N1 ATEX Type n – with enclosure


Certificate: BAS00ATEX3145

Standards: EN 60079-0:2012+A11:2013, EN 60079-15:2010

Markings:  II 3 G Ex nA IIC T5 Gc T5(-40 °C ≤ T_a ≤ 70 °C)**ND** Dust

Certificate: DEMKO 16 ATEX 1677X

Standards: EN 60079-0:2012+A11 2013, EN 60079-31:2014

Markings:  II 2 D Ex tb IIIC T 130 °C DbV_{max} = 45 Vdc, P_{max} = 750 mW**Installation Instructions:**

1. Use field wiring suitable for both the minimum and maximum service temperatures.
2. These devices are provided without cable glands/conduit sealing devices/blanking elements. Proper selection of suitable cable glands/conduit sealing/blanking elements should occur in the field.
3. Unused apertures shall be closed with suitable blanking elements.
4. The enclosures may be provided with up to (3) 1/2–14 NPT, 3/4–14 NPT, or M20 × 1.5 entries, with location of the entries specified in the installation instructions document.

Special Conditions for Safe Use (X):

1. Refer to certificate for details regarding process and ambient temperature limits.
2. When the Rosemount 214C sensor is provided with an enclosure with a display cover, the maximum ambient shall be 95 °C.
3. The non-metallic label on the device may store an electrostatic charge and become a source of ignition in Group III atmospheres. Care shall be taken to reduce electrostatic build-up. For example, the non-metallic label may be rubbed with a damp cloth.
4. The display covers were impacted at 4 J according to a low risk of mechanical danger. Guard the display covers against impact energies greater than 4J.
5. Flameproof joints are not intended for repair.
6. The stand-alone Rosemount 214C sensors without an enclosure must be assembled to a suitable Ex certified enclosure of a volume no greater than 0.55 L to maintain the types of protection “db” and “tb”.
7. The spring loaded sensors and DIN sensors must be installed in a thermowell to maintain IP6X ratings.
8. Contact indicating sensors do not meet requirements for protection type “tb” and therefore are not “tb” rated.

3.5 International

E7 Flameproof

Certificate: IECEx UL 16.0048X

Standards: IEC 60079-0:2011, IEC 60079-1:2014

Markings: Ex db IIC T6...T1 Gb

$V_{\max} = 45 \text{ Vdc}$, $P_{\max} = 750 \text{ mW}$

Installation Instructions:

1. Use field wiring suitable for both the minimum and maximum service temperatures.
2. These devices are provided without cable glands/conduit sealing devices/blanking elements. Proper selection of suitable cable glands/conduit sealing/blanking elements should occur in the field.
3. Unused apertures shall be closed with suitable blanking elements.
4. The enclosures may be provided with up to three $1/2-14 \text{ NPT}$, $3/4-14 \text{ NPT}$, or $M20 \times 1.5$ entries, with location of the entries specified in the installation instructions document.

Special Conditions for Safe Use (X):

1. Refer to certificate for details regarding process and ambient temperature limits.
2. When the Rosemount 214C sensor is provided with an enclosure with a display cover, the maximum ambient shall be $95 \text{ }^\circ\text{C}$.
3. The non-metallic label on the device may store an electrostatic charge and become a source of ignition in Group III atmospheres. Care shall be taken to reduce electrostatic build-up. For example, the non-metallic label may be rubbed with a damp cloth.
4. The display covers were impacted at 4 J according to a low risk of mechanical danger. Guard the display covers against impact energies greater than 4 J .
5. Flameproof joints are not intended for repair.
6. The stand-alone Rosemount 214C sensors without an enclosure must be assembled to a suitable Ex certified enclosure of a volume no greater than 0.55 L to maintain the types of protection "db" and "tb".
7. The spring loaded sensors and DIN sensors must be installed in a thermowell to maintain IP6X ratings.
8. Contact indicating sensors do not meet requirements for protection type "tb" and therefore are not "tb" rated.

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 16.0077X

Standards: EN 60079-0:2012+A11:2013, EN 60079-11:2012

Markings: Ex ia IIC T5/T6 Ga (SEE CERTIFICATE FOR SCHEDULE)

Thermocouples; $P_i = 500 \text{ mW}$	$T6 \text{ } 60 \text{ }^\circ\text{C} \leq T_a \leq +70 \text{ }^\circ\text{C}$
RTDs; $P_i = 192 \text{ mW}$	$T6 \text{ } 60 \text{ }^\circ\text{C} \leq T_a \leq +70 \text{ }^\circ\text{C}$
RTDs; $P_i = 290 \text{ mW}$	$T6 \text{ } 60 \text{ }^\circ\text{C} \leq T_a \leq +60 \text{ }^\circ\text{C}$
	$T5 \text{ } 60 \text{ }^\circ\text{C} \leq T_a \leq +70 \text{ }^\circ\text{C}$

Special Condition of Use (X):

1. The equipment must be installed in an enclosure which affords it a degree of ingress protection of at least IP20.

N7 IECEx Type n – with enclosure

Certificate: IECEx BAS 07.0055

Standards: IEC 60079-0:2011, IEC 60079-15:2010

Markings: Ex nA IIC T5 Gc; $T5(-40 \text{ }^\circ\text{C} \leq T_a \leq +70 \text{ }^\circ\text{C})$

NK Dust

Certificate: IECEx UL 16.0048X

Standards: IEC 60079-0:2011, IEC 60079-31:2013

Markings: Ex tb IIIC T 130 °C Db

 $V_{\max} = 45 \text{ Vdc}$, $P_{\max} = 750 \text{ mW}$ **Installation Instructions:**

1. Use field wiring suitable for both the minimum and maximum service temperatures.
2. These devices are provided without cable glands/conduit sealing devices/blanking elements. Proper selection of suitable cable glands/conduit sealing/blanking elements should occur in the field.
3. Unused apertures shall be closed with suitable blanking elements.
4. The enclosures may be provided with up to three $1/2$ -14 NPT, $3/4$ -14 NPT, or M20 \times 1.5 entries, with location of the entries specified in the installation instructions document.

Special Conditions for Safe Use (X):

1. Refer to certificate for details regarding process and ambient temperature limits.
2. When the Rosemount 214C sensor is provided with an enclosure with a display cover, the maximum ambient shall be 95 °C.
3. The non-metallic label on the device may store an electrostatic charge and become a source of ignition in Group III atmospheres. Care shall be taken to reduce electrostatic build-up. For example, the non-metallic label may be rubbed with a damp cloth.
4. The display covers were impacted at 4 J according to a low risk of mechanical danger. Guard the display covers against impact energies greater than 4J.
5. Flameproof joints are not intended for repair.
6. The stand-alone Rosemount 214C sensors without an enclosure must be assembled to a suitable Ex certified enclosure of a volume no greater than 0.55 L to maintain the types of protection “db” and “tb”.
7. The spring loaded sensors and DIN sensors must be installed in a thermowell to maintain IP6X ratings.
8. Contact indicating sensors do not meet requirements for protection type “tb” and therefore are not “tb” rated.

3.6 Combinations

KA Combination of E1 and E6**KB** Combination of E5 and E6**KC** Combination of E1 and E5**KD** Combination of E1, E5, and E6**KN** Combination of N1, N5, N6, and N7s

4.0 Installation drawings

Figure 3. Rosemount 214C Hazardous Location (00214-1030)

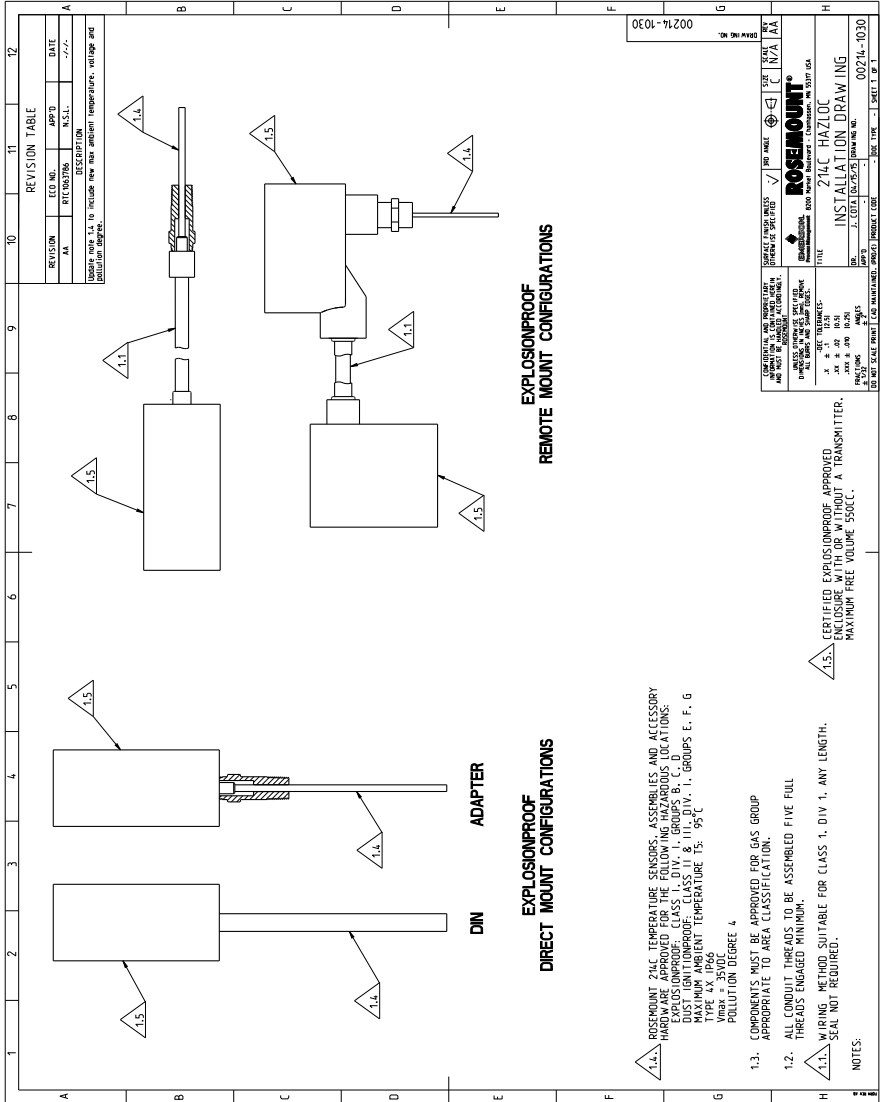





Figure 4. Rosemount 214C Declaration of Conformity

	<h2>EU Declaration of Conformity</h2> <p>No: RMD 1109 Rev. C</p>	
<p>We,</p>		
<p>Rosemount, Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p>		
<p>declare under our sole responsibility that the product,</p>		
<p>Rosemount™ 214C Temperature Sensor</p>		
<p>manufactured by,</p>		
<p>Rosemount, Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p>		
<p>to which this declaration relates, is in conformity with the provisions of the European Union Directives, including the latest amendments, as shown in the attached schedule.</p>		
<p>Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Union notified body certification, as shown in the attached schedule.</p>		
	<p>Vice President of Global Quality</p>	
<p>(signature)</p>	<p>(function)</p>	
<p>Chris LaPoint</p>	<p>31-July-2017</p>	
<p>(name)</p>	<p>(date of issue)</p>	
<p>Page 1 of 2</p>		



EU Declaration of Conformity

No: RMD 1109 Rev. C



ATEX Directive (2014/34/EU)

DEMKO 16ATEX1677X - Flameproof Certificate

Equipment Group II Category 2 G (Ex db IIC T6...T1 Gb)

Harmonized Standards:

EN 60079-0:2012+A11:2013, EN 60079-1:2014

DEMKO 16ATEX1677X - Dust Certificate

Equipment Group II Category 2 D (Ex tb IIC T130°C Db)

Harmonized Standards:

EN 60079-0:2012+A11:2013, EN 60079-31:2009

BAS00ATEX3145 - Type n Certificate

Equipment Group II Category 3 G (Ex nA IIC T5 Gc)

Harmonized Standards:

EN60079-0:2012+A11:2013, EN60079-15:2010

Baseefa16ATEX0101X – Intrinsic Safety Certificate

Equipment Group II Category 1 G (Ex ia IIC T5/T6)

Harmonized Standards:

EN 60079-0:2012+A11:2013, EN 60079-11:2012

RoHS Directive (2011/65/EU)

Harmonized Standard: EN 50581:2012

ATEX Notified Bodies

UL International Demko A/S [Notified Body Number: 0539]

Borupvang 5A
2750 Ballerup
Denmark

SGS Baseefa Limited [Notified Body Number: 1180]

Rockhead Business Park
Staden Lane
Buxton Derbyshire
SK17 9RZ United Kingdom

ATEX Notified Body for Quality Assurance

SGS Baseefa Limited [Notified Body Number: 1180]

Rockhead Business Park Staden Lane
SK17 9RZ Buxton
United Kingdom

含有 China RoHS 管控物质超过最大浓度限值的部件型号列表 Rosemount 214
List of Rosemount 214 Parts with China RoHS Concentration above MCVs

部件名称 Part Name	有害物质 / Hazardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr +6)	多溴联苯 Polybrominated biphenyls (PBB)	多溴联苯醚 Polybrominated diphenyl ethers (PBDE)
电子组件 Electronics Assembly	○	○	○	○	○	○
壳体组件 Housing Assembly	○	○	○	○	○	○
传感器组件 Sensor Assembly	○	○	○	○	○	○

本表格系依据 SJ/T11364 的规定而制作。

This table is proposed in accordance with the provision of SJ/T11364.

O: 意为该部件的所有均质材料中该有害物质的含量均低于 GB/T 26572 所规定的限量要求。

O: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

X: 意为在该部件所使用的均质材料里，至少有一类均质材料中该有害物质的含量高于 GB/T 26572 所规定的限量要求。

X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.



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