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# GB

## NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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#### **Technical Delivery Conditions for Welding Consumables - Type of Product, Dimensions, Tolerances and Markings**

焊接材料供货技术条件

产品类型、尺寸、公差和标志

(ISO 544: 2003, Welding Consumables - Technical Delivery  
Conditions for Welding Filler Materials - Type of Product,  
Dimensions, Tolerances and Markings, MOD)

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**Standardization Administration Committee of the People's  
Republic of China.**

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## Foreword

The modification of this Standard adopts the international standard ISO 544: 2003 Welding Consumables - Technical Delivery Conditions for Welding Filler Metals - Type of Product, Dimensions, Tolerances and Markings.

In consideration of the practical situation of the production and application of welding consumables in China, the following technical changes are made in the adoption of ISO 544: 2003:

- Normative references EN 10204 and EN ISO 4063 are deleted; EN ISO 4063, which is quoted in ISO 544: 2003, is already replaced by an equivalent Chinese standard GB/T 5185;
- Applicable welding method in Table 1 directly adopts GB/T 5185 for textual presentation; English symbols in ISO standard are not quoted;
- In the form of delivery in Table 4, the form of disk with the external diameter of 270 mm is added;
- The width of two forms (code: S300 and S350) in Table 4 is modified from “103+0/-3” into “100+3/-3”.

In order to make it convenient for the application, the following editorial modifications are also made in this Standard:

- The name of this Standard is modified into “Technical Delivery Conditions for Welding Consumables - Type of Product, Dimensions, Tolerances and Markings”;
- In accordance with domestic habits, the order of Chapter 6 “Markings” and Chapter 7 “Packaging” is reversed;
- Chapter 8 “Inspection Documents” is modified into “Quality Certificate”.

This Standard was proposed and shall be under the jurisdiction of National Technical Committee 55 on Welding of Standardization Administration of China (SAC/TC 55).

The drafting organizations of this Standard: Harbin Welding Institute Limited Company, Tianjin Bridge Welding Materials Group Co., Ltd., Tianjin Golden Bridge Welding Materials Group, Jiande Xinanjiang Welding Electrode Factory, Changzhou Huatong Welding Wire Co., Ltd., Wuhan TEMO Welding Consumables Co., Ltd.

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# Technical Delivery Conditions for Welding Consumables - Type of Product, Dimensions, Tolerances and Markings

## 1 Scope

This Standard specifies the type of product, dimensions, tolerances, delivery status, packaging, marking and quality certificate of fusion welding consumables.

This Standard is applicable to welding consumables, such as welding rod, welding wire, filling wire and welding strip, etc.

This Standard is not applicable to auxiliary welding consumables, such as protective gas and pad, etc.

## 2 Normative References

Through the reference in this Standard, the provisions in the following documents become provisions of this Standard. All the subsequent modification lists (excluding the corrected content) or modified versions of references with a date are not applicable to this Standard. However, all parties that reach an agreement in accordance with this Standard are encouraged to explore whether the latest versions of these documents can be adopted. The latest version of references without a specified date is applicable to this Standard.

GB/T 5185 Welding and Allied Processes - Nomenclature of Processes and Reference Numbers (GB/T 5185-2005, ISO 4063: 1998, IDT)

## 3 Type of Product and Applicable Welding Method

Please refer to Table 1 for the type of product and applicable welding method included in this Standard. The codes in the brackets shall comply with GB/T 5185.

**Table 1 -- Type of Product and Applicable Welding Method**

| Type of Product                    | Applicable Welding Method <sup>a</sup>                                                                                     |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Welding Rod                        | Welding rod electrode arc welding (111)                                                                                    |
| Solid Filling Wire                 | Tungsten inert gas shielded arc welding TIG (141), oxygen gas welding (31), plasma arc welding (15)                        |
| Solid Welding Wire (non-electrode) | Tungsten inert gas shielded arc welding TIG (141), plasma arc welding (15), laser welding (52), electron beam welding (51) |
| Solid Welding Wire                 | Gas-electric vertical welding (73), electro-slag welding (72), molten                                                      |

**NOTE:** in accordance with the negotiation between both sides, other dimensions of solid welding strip are allowed to be manufactured.

### 4.3 Core Welding Strip and Metal Foil

Relevant product standards shall stipulate the dimensions and tolerances of core welding strip and metal foil.

## 5 Delivery Status

### 5.1 Welding Rod

The coating of welding rod shall be evenly and tightly coated around the welding core, so that fusion can be even during the welding. The surface of the coating shall be smooth; there shall be no crack or other surface defects that might affect the welding operation. The coating of welding rod shall manifest sufficient strength; it shall not be damaged during normal transport or usage. The length of the clamping end of welding rod shall be at least 15 mm. Arcing agent is allowed to be used on the arc striking end of welding rod.

### 5.2 Welding Wire, Filling Wire and Welding Strip

The surface of welding wire, filling wire and welding strip shall be smooth; there shall be no defects like burr, scratch, corrosion and oxide skin, etc. In addition, there shall be no impurities that are not advantageous to welding operation or impurities that might exert adverse influence on the welding metal. Any surface treatment method that would not affect the welding operation or the performance of the welding metal is allowed. Core welding wire, filling wire and core filling of welding strip shall be evenly distributed along the direction of length, so that the chemical composition and mechanical properties of deposited metal would not be affected.

Welding wire and welding strip shall be delivered in accordance with the form of disk or roll that is stipulated in Figure 1 and Table 4. The winding shall not manifest knots, waves, bending and other defects that might affect continuous wire delivery. The initial end and the tail end of welding wire shall be firmly and stably fixated.

Rolled welding consumables without a bracket shall at least be fastened in three equidistant positions around the roll.

The pitch between the solid welding wire and filling wire of steel shall comply with the stipulation of relevant product standards. If it is not stipulated in product standards, the following stipulation shall be complied with: when the external diameter of the welding wire disk is not more than 200 mm, the pitch shall be not more than 25 mm; in terms of welding wire disks with other diameters, the pitch shall be not more than 50 mm. The relaxation diameter, pitch and other states of welding wire shall guarantee continuous wire delivery on automatic welding equipment and semi-automatic welding

### **7.1.1 Welding rod**

On the surface of the coating on the clamping end or near the clamping end of welding rod, the model or/and nameplate of welding rod shall be indicated. The indication shall be clear and discernible before and after normal welding operation.

### **7.1.2 Welding wire and welding strip**

In terms of welding wire and welding strip that are delivered in the form of disk or roll, there shall be firm indication on the disk or roll, which guarantees product information that can trace back to manufacturers or suppliers.

### **7.1.3 Filling wire**

Filling wire used in each piece of TIG welding and plasma arc welding shall be clearly indicated, which guarantees product information that can trace back to manufacturers or suppliers. The indication of standard model or colors is recommended here.

## **7.2 Packaging Indication**

The minimum package of each piece of welding consumables shall at least indicate the following content:

- Standard number, product model and nameplate;
- Manufacturer's name and trademark;
- Specification and net weight;
- Batch number and date of production;
- Electric current and polarity that are applicable to operation;
- Drying specification or relevant information (if necessary);
- Certification mark (if necessary);
- Health and safety warning.

## **8 Quality Certificate**

In terms of each batch of welding consumables, manufacturers, dealers or a third-party institution shall issue a quality certificate.

\_\_\_\_\_ **END** \_\_\_\_\_

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