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

GB/T 5118-2012

Replace GB/T 5118-1995

**Covered electrodes for manual metal arc
welding of creep-resisting steels**

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(ISO 3580:2010, Welding consumables-Covered electrodes for manual metal
arc welding of creep-resisting steels-Classification, MOD)

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Foreword

This Standard is drafted according to the rules specified in GB/T 1.1-2009.

This Standard is the revision of GB/T 5118-1995 *Low alloy steel covered electrodes*. Compared with GB/T 5118-1995, the main amendments of this Standard are shown as follows:

- This revision only retains carbon molybdenum electrode and chrome molybdenum steel electrode of the original standard, and makes the corresponding adjustment of model designation, the technical requirements. The technical requirements of E5515-03, E5516-03, E5518-03 in the electrode types of nickel steel, nickel molybdenum steel and manganese molybdenum in the original standard and E5018W, E5518W etc. in other low-alloy electrode types are transferred into the newly revised standard of GB/T 5117 *Covered electrodes for manual metal arc welding of non-alloy and fine grain steels*.

- The classification and model of covered electrode shall be carried out according to ISO3580:2010;

Increased classification of chemical composition of 2C1MV, 3C1MV, 5CM, 5CML, 5CMV, 7CM, 7CML, 9C1M, 9C1ML, 9C1MV, 9C1MV1, etc.;

- The special type "00" in the coating type is retained, which is revised into "40" according to ISO coating type;

- For 10 types of electrode including the retained E5500-B1 (model designation is E5540-CM) and E5503-B1 (model designation is E5503-CM) in GB/T5118 - 1995, the tensile strength and the yield strength of the deposited metal are raised according to the requirements of other types of electrodes, elongation at rupture is appropriately reduced, chemical composition of deposited metal shall be in accordance with requirements for other types of electrodes, S and P shall be adjusted to be less than 0.030%;

- Deleted technical requirements for water content in coating;

- Deleted impact test requirements;

- Made adjustments on technical requirements of covered electrode of corresponding model with ISO 3580:2010 according to ISO 3580:2010.

This Standard is redrafted and modified as per international standard ISO 3580:2010 *Welding consumables-Covered electrodes for manual metal arc welding of creep-resisting steels-Classification* (English Edition).

The technical differences and its reasons between this Standard and ISO 3580:2010 are as follows:

- Deleted international standard referenced in the normative references, and directly quoted the correspondingly transformed domestic standards in our country, to facilitate implementation of this Standard;
- According to the actual application situation in our country, the designation “49” of tensile strength of deposited metal is revised as “50”, in order to apply to technical conditions of our country;
- Retained 10 types of electrode, including E5500-B1 (model designation is E5540-CM) and E5503-B1 (model designation is E5503-CM), E5500-B2-V (model designation is E5540-1CMV), E5515-B2-V (model designation is E5515-1CMV), E5515-B2-VNb (model designation is E5515-1CMVNb), E5515-B2-VW (model designation is E5515-1CMWV), E5500-B3-VWB (model designation is E5540-2CMWVB), E5515-B3-VWB (model designation is E5515-2CMWVB), E5515-B3-VNb (model designation is E5515-2CMVNb), E6000-B3 (model designation is E6240-2C1M), correspondingly adjusted the technical requirements, in order to apply to technical conditions of our country;
- Increased type 03 and 04 in the types of coating in order to apply to technical conditions of our country;
- Increased eight types of chemical composition including 1CMV, 1CMVNb, 1CMWV, 2CMWVB, 2CMVNb, 5CMV, 7CM and 7CML, in order to apply to technical conditions of our country;
- Retained the requirements for radiographic inspection of weld metal, in order to apply

to technical conditions of our country;

- Retained technical data of eccentricity of covered electrode, to facilitate the operation.

In order to be convenient for use, this Standard also made the following editorial changes:

- The standard name is modified as “Covered electrodes for manual metal arc welding of creep-resisting steels”;
- The standard structure is prepared according to classification and model, technical requirements, test methods, inspection rules, packaging, mark and quality certificate.

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

The drafting organizations of this Standard are: Harbin Welding Institute, Sichuan Atlantic Welding Consumables Co., Ltd., Shanghai Power Equipment Manufacture Co., Ltd., Tianjin Bridge Welding Materials Group Co., Ltd., Jiande Xin'anjiang Welding Electrode Co., Ltd., Tianjin Golden Bridge Welding Materials International Trading Co., Ltd.

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This Standard replaces GB/T 5118-1995.

GB/T 5118-1995 replaces the following historical editions issued:

- GB/T 5118-1967, GB/T 5118-1976, GB/T 5118-1983.

Covered electrodes for manual metal arc welding of creep-resisting steels

1 Scope

This Standard specifies model, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of covered electrodes for manual metal arc welding of creep-resisting steels. This Standard applies to covered electrodes for manual metal arc welding of creep-resisting steels.

2 Normative references

The following documents are indispensable for the application of this Document. For the dated documents so quoted, only the dated editions shall be applicable to this document. For the undated documents so quoted, the latest editions (including all the modifications) shall be applicable to this document.

GB/T 2652 Test method of welding line and elongation of deposited metal (GB/T 2652-2008, ISO 5178:2001, IDT)

GB/T 3323 Radiographic Examination of Fusion Welded Joints in Metallic Materials

GB/T 3965 Method for determination of diffusion hydrogen in deposited metal (GB/T 3965-2012, ISO 3690:2000, MOD)

GB/T 16672 Definition of working position and angle of welding seam (GB/T 16672-1996, idt ISO 6947:1990)

GB/T 25774.1 Test methods for welding consumables - Part 1: Preparation and testing of deposited metal specimens for mechanical properties in steel nickel and nickel alloys (GB/T 25774.1-2010, ISO 15792-1:2000, MOD)

GB/T 25774.3 Test methods for welding consumables - Part 3: Preparation and testing of a fillet weld specimens for T-joint (GB/T 25774.3-2010, ISO 15792-3:2000, IDT)

GB/T 25775 Technical delivery conditions for welding consumables - Type of product,

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