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Solid wire electrodes, solid wires and rods for fusion welding of magnesium and magnesium alloys

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(ISO 19288:2016, Welding consumables - Solid wire electrodes, solid wires and rods for fusion welding of magnesium and magnesium alloys - Classification, MOD)

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1 Scope

This Standard specifies the models, technical requirements, test methods, re-inspection and supply technical conditions of solid wire electrodes, solid wires and rods for fusion welding of magnesium and magnesium alloys.

This Standard applies to magnesium and magnesium alloy solid welding wire and filler wire (hereinafter referred to as "welding wire") used for molten inert gas arc welding (MIG), tungsten inert gas arc welding (TIG), plasma arc welding, laser welding, laser-MIG hybrid welding and other fusion welding.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 25775, *Technical delivery conditions for welding consumables - Type of product dimensions tolerances and markings* (GB/T 25775-2010, ISO 544:2003, MOD)

GB/T 25778, *Procurement guidelines for welding consumables* (GB/T 25778-2010, ISO 14344:2010, MOD)

3 Terms and definitions

There are no terms and definitions that need to be defined in this Standard.

4 Models

4.1 Model division

Welding wire models are divided by chemical composition. Refer to Annex C for comparison on the wire models between this document and other relevant standards.

4.2 Model preparation method

Annex D

(informative)

Description of chemical composition classification

D.1 Mg1611

The alloy contains 6.5% Al-0.3%Mn-1%Zn and a small amount of Be. It is used to weld base metals of similar composition and AZ61A/UNSM11610. Mg1611 is generally suitable for welding forgings of such alloys because of its low crack sensitivity.

D.2 Mg1922

The alloy contains 9% Al-0.3%Mn-2%Zn and a small amount of Be. It is used to weld base metals of similar composition. Crack susceptibility is extremely low when welding Mg-Al-Zn and AM100A/UNSM10100 castings with Mg1922 filler wire. Welds usually have a precipitation heat treatment effect when repairing castings.

D.3 Mg1101

The alloy contains 10% Al-0.3%Mn-1%Zn and a small amount of Be. It can be used to weld AZ92A/UNSM11920 castings.

D.4 Mg2331

The alloy does not contain Al and Mn but contains 2.5% Zn-0.75%Zr-3.2% rare earth elements and a small amount of Be. It is used to weld wrought iron and cast materials for high temperature service, such as UNSM12330. Such alloys are not suitable for welding magnesium alloys containing aluminum due to severe cracking problems.

D.5 Mg1313, Mg1611A, Mg1911A

For welding magnesium-aluminum-zinc alloys such as:

- MgAl3Zn1/UNS M11311, UNS M11312 and UNS M11313;
- MgAl6Zn1/UNS M11610 and UNS M11611;
- MgAl9Zn1/UNS M11910, UNS M11911, UNS M11912, UNS M11913, UNS M11914, UNS M11915, UNS M11916, UNS M11917, UNS M11918 and UNS M11919.

They are used in electrodes and printed circuit boards. Aluminum is beneficial to improve its strength.

D.6 Mg0602A

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