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1 Scope

This standard specifies the terms and definitions, structural types and basic parameters, technical requirements, inspection methods, inspection rules, marking, packaging, transportation, storage of pay-off reel mandrel and tension reel mandrel for metal strip.

This standard applies to the manufacture of pay-off reel mandrel and tension reel mandrel for metal strip; other similar reel mandrels may also be used as a reference.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document;

for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 191 Packaging - Pictorial marking for handling of goods (GB/T 191-2008, ISO 780.1997, MOD)

GB/T 228.1 Metallic materials - Tensile testing - Part 1. Method of test at room temperature (GB/T 228.1-2010, ISO 6892-1.2009, MOD)

GB/T 229 Metallic materials - Charpy pendulum impact test method (GB/T 229-2007, ISO 148-1.2006, MOD)

GB/T 230.1 Metallic materials - Rockwell hardness test - Part 1. Test method (scales A, B, C, D, E, F, G, H, K, N, T) (GB/T 230.1-2009, ISO 6508-1.2005, MOD)

GB/T 231.1 Metallic materials - Brinell hardness test - Part 1. Test method (GB/T 231.1-2009, ISO 6506-1:2005, MOD)

GB/T 1176 Casting copper and copper alloys

GB/T 1184-1996 Geometrical tolerancing - Geometrical tolerance for features without individual tolerance indications (ISO 2768-2:1989, EQV)

GB/T 1220 Stainless steel rod

GB/T 1221 Heat-resistant steel bars

GB/T 1348 Spheroidal graphite iron castings (GB/T 1348-2009, ISO 1083:2004,

JB/T 5000.3 Heavy mechanical general techniques - Part 3. And standards welding

JB/T 5000.4 Heavy mechanical general techniques and standards - Part 4. Iron casting

JB/T 5000.6 Heavy mechanical general techniques and standards - Part 6. Steel castings

JB/T 5000.7 Heavy mechanical general techniques and standards - Part 7. Repair welding for steel castings

JB/T 5000.8 Heavy mechanical general techniques and standards - Part 8. Forging

JB/T 5000.10 Heavy mechanical general techniques and standards - Part 10.

Assembly

JB/T 5000.12-2007 Heavy mechanical general techniques and standards - Part 12.

Paint

JB/T 5000.13 Heavy mechanical general techniques and standards - Part 13. Packing

JB/T 5000.14-2007 Heavy mechanical general techniques and standards - Part 14.

Non-destructive inspection of cast steel

JB/T 5000.15-2007 Heavy mechanical general techniques and standards - Part 15.

Non-destructive inspection of forged steel

JB/T 6040 Construction machinery - Test methods of tightening torque for bolts

JB/T 6396 Specification for the heavy alloy structural steel forgings

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Pay-off reel

Receives the strip coil from the upper winding equipment and unwinds it by expanding and rotating the reel mandrel.

3.2

Tension reel

An equipment, which is located at the unit's outlet and winds the finished strip into a coil using a winding aid or its own jaws by expanding and rotating the mandrel.

4.1 Structural types

4.1.1

The main structural types of pay-off reel mandrels are shown in Table 1.

4.1.2

The main structural types of tension reel mandrels are shown in Table 2.

negotiation between the supplier and the buyer.

5.1 Main component materials

5.1.1

Hollow shafts and pyramid shafts are generally made of 42CrMo, 40CrNiMo, 30Cr2Ni2Mo, 50CrMo.

5.1.2

Pyramid sleeves are generally made of QT500-7, QT600-3, ZG310-570, ZG35CrMo, ZG42CrMo.

5.1.3

Segments generally use ZG310-570, ZG35CrMo, ZG42CrMo, 42CrMo, 40CrNiMo, 22Cr12NiWMoV.

5.1.4

Grippers generally use 38CrMoAl or 40CrNiMo.

5.1.5

Tension rods generally use 42CrMo or 40Cr.

5.1.6

Closing wedges generally use 42CrMo or 40CrNiMo.

5.1.7

Expansion wedges generally use ZCuAl9Fe4Ni4Mn2, ZCuAl10Fe3Mn2, 42CrMo (matrix material).

5.1.8

Skate plates generally use ZCuAl9Fe4Ni4Mn2, ZCuAl10Fe3Mn2, ZCuSn10Zn2.

5.1.9

Wedges are generally made of ZCuAl9Fe4Ni4Mn2, ZCuAl10Fe3Mn2, 42CrMo (matrix material).

5.1.10

Connecting rods are generally made of 30Cr13, 35CrMo, 42CrMo.

5.1.11

Extension shafts are generally made of 45, 42CrMo, 50CrMo, 40CrNiMo.

5.2.1 Forged steel (stainless steel, heat-resistant steel, alloy structural steel)

5.2.1.1

The chemical composition shall conform to the provisions of GB/T 1220, GB/T 1221, GB/T 3077, JB/T 6396.

5.2.1.2

The permissible deviation of the chemical composition of the finished steel shall conform to the provisions of JB/T 5000.8.

5.2.1.3

The mechanical properties shall conform to the provisions of GB/T 1220, GB/T 1221, GB/T 3077, JB/T 6396.

5.2.2 Cast steel

5.2.2.1

The chemical composition of cast steel shall conform to the provisions of JB/T 5000.6.

5.2.2.2

The mechanical properties of alloy cast steel parts after final heat treatment shall conform to the requirements of JB/T 5000.6.