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

GB 21501-2008

Replacing JB 10146-1999

Cupola and cupola charging machine - Safety requirements

冲天炉与冲天炉加料机 安全要求

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Foreword

This standard is mandatory terms, Chapter 3, which is recommended, others are mandatory provisions. The standard proposed by China Machinery Industry Federation. This standard by the National Foundry Machinery Standardization Technical Committee (SAC/TC186) centralized. This standard was drafted. Jinan Foundry and Metalforming Machinery Research Institute, Environmental Protection Equipment Co., Ltd. Qingdao Green, Qingdao Environmental Protection Melting provided Zhongzhida Preparation Ltd., Jiangyin City, casting plant, Suzhou Jin-casting plant flowers. The main drafters of this standard. Lu Jun, Ren first, gold segment very, Xiaru Ming, Qin Feng Wei. This standard was first formulated. Cupola and cupola charging machine safety requirements

1 Scope

GB 21501-2008 is the Chinese national standard on cupola and cupola charging machine - safety requirements, in the field of manufacturing engineering. It carries no /T suffix, which

in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 13 March 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 October 2008. Classification: ICS 25.120.30, CCS J61. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the cupola and the cupola feeding machine designers, manufacturers, suppliers can use the party should follow the safety requirements and Measures. This standard applies to the cupola and the cupola feeder.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard. GB 2893 Safety colors

GB/T 3098.1-2000 Mechanical properties of fasteners Bolts, screws and studs (idt ISO 898-1.1999)

GB/T 3323-2005 molten metal welded head radiography

GB 5083 production equipment with safety and health General

GB 5226.1 Safety of Machinery Industry machinery electrical equipment Part 1. General requirements (GB 5226.1-2002, IEC 60204-1.2000, IDT)

GB 9969.1 Instructions General Industrial Products

GB 12265.1 machinery Safety distances to prevent danger zones being reached upper limbs (

GB 12265.1-1997, eqvEN294. 1992)

GB 12265.3 Safety of machinery to avoid crushing of parts of the human body minimum spacing (

GB 12265.3-1997, eqvEN349. 1993)

GB/T 14776 Ergonomic design principles job size and value

GB/T 15706.1 Safety of machinery - Basic concepts, general principles for design - Part 1.

Basic terminology and methods (GB/T 15706.1- 2007, ISO 12100-1.2003, IDT)

GB/T 15706.2-2007 Safety of machinery - Basic concepts, general principles for design -
Part 2. Technical principles (

ISO 12100-2. 2003, IDT) Ergonomic principles

3 Terms and Definitions

GB/T 15706.1, GB/T 16855.1, GB/T 16856, GB 12265.1 and GB 12265.3 established
following terms And definitions apply to this standard.

3.1 Zero mechanical state Cupola, while feeder in the following mechanical state called
zero mechanical condition.

- a) each power source can produce mechanical motion have been disconnected and locked;
- b) After the pressure of the fluid power source is turned off, the fluid pressure in the system
has a relatively residual pressure release is zero;
- c) all of the pressure vessel are depressurized to atmospheric pressure;
- d) all the mechanical parts are potential device in its lowest actual value;
- e) remain in the pipeline equipment, cylinder, or other parts of the fluid pressure in the valve
does not cause any actions appear equipment movement;
- f) the kinetic energy of the device with the lowest part of the actual value;
- g) has been moved or loose pieces of equipment are fixed;
- h) the starter can not start machinery.

4 Important risk projects

The following items are important risk according to the provisions of GB/T 16856, and
equipment within the scope of this standard is the result of the risk assessment. These risks
may occur in the project under the conditions of use specified in the instructions by the
device or each ring transport, installation, adjustment, repair, demolition in Section.

4.1 Mechanical hazards

4.1.1 move the cupola, feeder mechanical strength, mainly the stability may have broken,
cracked, overturning and unpredictable Danger.

4.1.2 by the feeder parts and materials falling or thrown shock hazard generated.

4.1.3 generated by the feeder crushing, shearing, winding and dangerous.

4.1.4 by a cupola, surface feeder, the edges or corners produced stabbed or cut hazards.

4.1.5 or fall from the high-altitude operations generated around the device, slipping, tripping hazard.

4.2 Electrical Hazards

4.2.1 generated by the electrical systems of electric shock.

4.2.2 generated by lightning effect lightning hazard.

4.3 Thermal hazard Burns from the hot object, flames and heat radiation generated by the risk of scalding.

4.4 noise hazard Danger from the cupola blower, feeder noise hearing losses.

4.5 hazardous materials and substances produced

4.5.1 in the cupola melting and feeding area inhalation of carbon monoxide gas and dust caused danger.

4.5.2 liquid metal from the cupola, the hot coke, fire and explosion hazards of carbon monoxide produced.

4.6 cupola danger, feeder design principles ignore human learning ergonomics generated

4.6.1 In the cupola, feeder operation is not conducive to healthy posture or excessive force when monitoring or maintenance.

4.6.2 ignores the use of personal protective equipment at the time of melting.

4.6.3 not set clear warning in hazardous locations.

5.1 Basic requirements

5.1.1 cupola furnace, feeding machine should be maximized through design reduces the risk of making it intrinsically safe. Can not be effectively prevented by designing Risk or fully restricted, security guards should be used to protect people.

5.1.2 Cupola furnace safety design, feeder should be consistent with GB/T 15706.1, GB/T 15706.2 and GB 5083 regulations.

5.1.3 Control system components related to the safety and security requirements should be designed to comply with the relevant provisions of GB/T 16855.1 of.

5.1.4 cupola furnace, feeding machine should be designed to fully reflect ergonomic principles, and should be consistent with GB/T 16251, GB/T 14776 of Provisions.

5.1.5 Who can not be eliminated by design or sufficiently reduce the residual risks, should inform the user through the use of information. Safety requirements for mechanical hazards

5.2