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

GB 19815-2021

Replacing GB 19815-2005

Centrifuge - Safety requirements

离心机 安全要求

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1 Scope

GB 19815-2021 is the Chinese national standard on centrifuge - safety requirements, in the field of mining and minerals. 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 30 April 2021 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2022. Classification: ICS 73.120, CCS J77. 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 safety requirements for the design, manufacture, installation and use of various industrial centrifuges with metal drums (hereinafter referred to as centrifuges), as well as the inspection and determination methods of usage information and safety performance. This Standard applies to all centrifuges for industrial purposes (including industrial dehydrators).

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 3766, Hydraulic fluid power -- General rules and safety requirements for systems and their components

GB 3836.1, Explosive atmospheres -- Part

4.2.2 Manufacturing factors

4.2.2.1 The chemical composition and mechanical properties of the materials used in centrifuge manufacturing do not meet the design requirements.

4.2.2.2 The welding parts of the centrifuge are not welded and inspected according to regulations, or the welding quality does not meet the design requirements.

4.2.2.3 Centrifugal casting and forging parts do not meet the design requirements or are not inspected according to regulations.

4.2.2.4 The manufacturing and processing accuracy of centrifuge components does not meet the design requirements. The assembly of components or the entire machine does not meet the design requirements.

4.2.2.5 The dynamic balance of the rotating components of the centrifuge does not meet

the requirements of the product standard.

4.2.2.6 The centrifuge components that require process treatment do not meet the requirements.

4.2.2.7 The centrifuge can come into contact with parts with burrs, sharp corners, and sharp edges.

4.2.2.8 The purchased parts of the centrifuge do not meet the design requirements, or the quality of the purchased parts does not meet the relevant standard requirements.

4.3 Electrical hazards

4.3.1 The electrical system design of the centrifuge is unreasonable and poses safety risks.

4.3.2 The purchased electrical equipment and components do not meet safety requirements.

4.3.3 Fail to take effective measures for electric shock, overload. There is insufficient alarm for faults.

4.4 Noise hazards The centrifuge noise does not meet the requirements of the product standard.

4.5 Vibration hazards

4.5.1 The centrifuge does not have effective vibration reduction devices or measures. There is no vibration alarm or protection.

4.5.2 The vibration intensity of the centrifuge does not meet the requirements of the product standard.

4.5.3 Resonance generated by centrifuge operation.

4.6 Temperature and temperature rise hazards

4.6.1 Hazards caused by high temperature and temperature rise of centrifuge main bearings and other components.

4.6.2 Hazards caused by high oil temperature and oil temperature rise in hydraulic systems.

4.7 Material and material hazards

4.7.1 Hazards caused by contact with toxic or harmful materials.

4.7.2 Hazards caused by toxic or corrosive materials.

4.7.3 Hazards such as poisoning, allergies, burns, and explosions caused by volatile, motion that are easily accessible to the operator (such as gears, shafts, transmission belts,

etc.), or between moving and stationary parts. Protective devices or restrictive measures shall not pose additional hazards. The protective device shall comply with the requirements of

GB/T 8196. The restrictive measures shall comply with the requirements of GB/T 23821 and GB/T 12265.3.

5.2.1.5 The safety requirements of hydraulic systems shall comply with the requirements of GB/T 3766.

5.2.1.6 The safety requirements of pneumatic systems shall comply with the requirements of GB/T 7932.

5.2.1.7 The sealing parts of centrifuges that may pose a danger shall undergo a tightness test. The airtightness shall meet the design requirements.

5.2.1.8 Centrifugal machines and components that need to be lifted shall be equipped with lifting devices unless their shape is suitable for lifting.

5.2.2 Manufacturing requirements

5.2.2.1 The mechanical properties and chemical composition of the main components of the centrifuge (such as the drum, spindle, etc.) shall meet the design requirements. There shall be a material quality certificate from the material manufacturer. The centrifuge manufacturing unit shall inspect the materials according to this certificate.

5.2.2.2 Centrifugal casting drum shall comply with the requirements of JB/T 11874.

5.2.2.3 The forged and welded parts of the centrifuge shall meet the design requirements and be inspected according to regulations. The inspection method shall comply with the requirements of JB/T 9095 and JB/T 10411.

5.2.2.4 Drum welding shall be carried out by welders holding qualification certificates issued by legal departments.

5.2.2.5 The weld seam of the centrifuge drum liquid blocking plate shall be staggered with the longitudinal weld seam of the drum. The opening position of the drum shall avoid longitudinal welds.

5.2.2.6 The rotating components of the centrifuge shall be balanced according to the design requirements and the provisions of

GB/T 28696. The balance result shall meet the requirements of the product standard.

5.2.2.7 Centrifugal casting shall meet the design requirements and be inspected according to relevant standards.

5.2.2.8 The manufacturing and processing accuracy of centrifuge components shall meet the design requirements. The assembly of components or the entire machine shall meet the