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

GB/T 21972.1-2023

Replacing GB/T 21972.1-2008

Technical specification for variable-frequency adjustable-speed three-phase induction motors for crane and metallurgical applications - Part 1: YZP series variable-frequency adjustable-speed three-phase induction motors for crane and metallurgical applicati

起重及冶金用变频调速三相异步电动机技术条件 第1部分：YZP系列起重及冶金用变频调速三相异步电动机（机座号100～400）

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting: This document is the first part of GB/T 21972 "Technical Specifications for Three-phase Induction Motors with Variable-Frequency Regulation for Hoisting and Metallurgy": GB/T 21972 The following parts have been published:

- Part 1: YZP series hoisting and metallurgy frequency conversion speed regulation three-phase asynchronous motor (frame size 100~400);
- Part 2: YZP series hoisting and metallurgical frequency conversion speed regulation three-phase asynchronous motor (cooled by axial fan);
- Part 3: YZP series hoisting and metallurgical frequency control three-phase asynchronous motor (cooled by centrifugal fan): This document replaces GB/T 21972:1-2008 "Technical Conditions for Frequency Control Three-phase Asynchronous Motors for Hoisting and Metallurgy Part 1: YZP series three-phase asynchronous motors with variable frequency speed regulation for hoisting and metallurgy", compared with GB/T 21972:1-2008, except for structural adjustment and editing In addition to sexual changes, the main technical changes are as follows:
 - Increase the motor model and example description (see 4:1);
 - Added protection class IP55 (see 4:2);
 - Changed the constant torque frequency range from "5~50" Hz to "3~50" Hz (see Table 2, Table 3 of the:2008 edition);
 - Changed the D1 dimension of table 3~table 5 frame size 180L, and changed the K basic

size of table 3 frame size 160M~225M and positional tolerances, changed the basic dimensions and positional tolerances of S in Table 4 and Table 5 for frame sizes 100L~280M, and added Table 4 and Table 5 T limit deviation of frame size 100L~315M (see Table 3~Table 5, Table 4~Table 6 of the:2008 edition);

--- Changed the limit deviation of bond width (see Table 6, Table 7 of the:2008 edition);

--- Added "The deviation of any phase of the DC resistance of the three-phase stator winding of the motor in the actual cold state and the average value of the three phases should not exceed $\pm 2\%$ of the average value" (see 5:9);

--- Added "cold insulation resistance value should not be lower than 5M Ω " (see 5:10);

--- Changed the overspeed test requirements (see 5:12, 4:13 of the:2008 edition);

--- Added 1s withstand voltage test (see 5:13);

--- Changed the inter-turn impulse withstand voltage test requirements (see 5:14, 4:15 of the:2008 edition);

1 Scope

GB/T 21972.1-2023 is the Chinese national standard on technical specification for variable-frequency adjustable-speed three-phase induction motors for crane and metallurgical applications - part 1: yzp series variable-frequency adjustable-speed three-phase induction motors for crane and metallurgical applications, in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 17 March 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2023. Classification: ICS 29.160.30, CCS K26. 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 document specifies the type, basic Parameters and dimensions, technical requirements, test methods, inspection rules, marks, packaging and warranty period: This document is applicable to three-phase asynchronous motors (frame size 100~400): Refer to the various series of motors derived from this series of motors:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for

undated reference documents, the latest version (including all amendments) is applicable to this document:

GB/T 191 Packaging, storage and transportation icon marks

GB/T 755 Rating and performance of rotating electrical machines

GB/T 756 Cylindrical shaft extension of rotating electrical machines

GB/T 757 Conical shaft extension of rotating electrical machines

GB/T 997 Classification of structural types, installation types and terminal box positions of rotating electrical machines (IM code)

GB/T 1032 Three-phase asynchronous motor test method

GB/T 1096 Common Type Flat Keys

GB/T 1958 Product Geometric Specifications (GPS) Geometric Tolerance Testing and Verification

GB/T 1971 Rotating motor wire end marking and direction of rotation

GB/T 1993 Cooling methods for rotating electrical machines GB/T 2423:

4 Environmental testing for electric and electronic products - Part 2: Test method Test Db: Alternating damp heat (12h 12h cycle) GB/T 4772:

1 Dimensions and output power levels of rotating electrical machines Part 1: Frame size 56~400 and flange size 55~1080

GB/T 4942 Degree of protection (IP code) for the overall structure of rotating electrical machines Classification

3 Terms and Definitions

This document does not have terms and definitions that need to be defined: