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JJG

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

JJG 831-2021

**Verification Regulation of Hardness Testers for Casting Moulds
of Sand
(English Translation)**

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Introduction

This procedure is drafted in accordance with JJF1002-2010 "Rules for Compilation of National Metrology Verification Regulations":

This regulation replaces JJG 831-1993 "Wet Surface Hardness Tester for Foundry":
Compared with JJG 831-1993, this regulation the main technical changes in the regulations are as follows:

---The name of the regulation is changed from "Wet Mold Surface Hardness Tester for Foundry" to "Sand Mold Hardness Tester for Foundry":

Increase HCSd, HCSg, etc: scales with range;

--- Change the test force tolerance from a relative value to an absolute value (see 6.4:7):

The release status of previous versions of this regulation:

---JJG 831-1993:

Verification rules for sand mold hardness tester for foundry

1 Scope

This regulation applies to the initial verification, follow-up verification and use of sand mold hardness testers for casting that are hand-held or equipped with fixed brackets:

Check in use:

2 References

This regulation refers to the following documents:

JJG 144 Standard force measuring instrument GB/T 4340.1 Vickers hardness test for metallic materials - Part 1: Test method for dated references, only the dated version applies to this regulation; for undated references document, its latest version (including all amendments) applies to this regulation:

3 Overview

The sand mold hardness tester for foundry (hereinafter referred to as the hardness tester) is used to measure the hardness of various castings when sand molds are formed:

It is mainly composed of pressure head, spring and indicating mechanism: The principle of the test is to place a certain shape of the indenter on the spring Under the action of the test force, with 0.025mm as a hardness unit, press into the sand mold and make the presser foot close to the surface of the tested sample, the indicating mechanism displays its measurement results: Check the compactness of the foundry sand mold by hardness value:

The relationship between the protruding length of the indenter and the indicated value of the hardness tester should meet the requirements of formula (1):

$HCS=100-$

0.025

In the formula:

HCS---casting sand mold hardness;

L --- the extension length of the indenter, mm:

There are five scales for the shape of the pressing head and the test force: HCSa, HCSb, HCSc, HCSd, and HCSg: parameter See Table 1 and Table 2:

Table 1 Geometric parameters and applicable categories of indenter

Applicable categories of hardness scale graphic geometric parameters HCSa SR

(2.5±0.1)mm L (2.5±0.04)mm fine sand: high density, low strength casting mold HCSb SR

(12.7±0.2)mm L (2.5±0.04)mm coarse sand: low density, high strength casting mold