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

GB/T 31555-2015

Manipulators for foundry use

铸造用机械手

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Quarantine;
Standardization Administration of the PRC**

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. 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 Co., Ltd., Zhejiang Wanfeng Technology Development Co., Ltd., Yangzhou Weichai Power Diesel LLC. The main drafters of this standard. Stone Age by Lee to L, Wu Jun, Luding Fu, Wu Minghuai. Casting manipulator

1 Scope

China's national standard for foundry manipulators. It specifies the basic parameters, the technical requirements, the test methods, the inspection rules and the marking, packaging and transport of these machines, and it applies to master-slave controlled articulated manipulators for foundry use. A foundry manipulator is a heavy articulated arm used to handle what a person cannot: ladles of molten metal, hot castings straight from the mould, sand cores, and the flasks themselves. The standard specifies two sizes, rated by maximum gripping load at 500 kg and 1000 kg, each with not fewer than five degrees of freedom, a working radius from about 1.8 to 5.2 metres for the smaller and 2.0 to 5.5 metres for the larger, a column rotation of 165 degrees either side of centre, and a gripper opening up to 700 mm and 1200 mm respectively. The master-slave control in the definition is the distinguishing feature and the reason this is not an industrial robot standard. A master-slave manipulator is directed by an operator moving a control handle, and the arm follows: it is a strength amplifier under continuous human control rather than a machine executing a programme. That suits foundry work, where every casting is slightly different, the flash and the runners are never in the same place, and a hot casting must be judged as it is handled. It also means the operator is close to the work, which is why the standard is anchored to the foundry machinery safety standard GB 20905 and to the electrical safety of machinery standard GB 5226.1. Issued on 15 May 2015 and in force since 1 January 2016.

This standard specifies the basic parameters of the casting manipulator, technical requirements, test methods, inspection rules, marking, packaging and transportation. This

standard applies to the casting master - slave control articulated robot (hereinafter referred to as the robot).

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 1804-2000 General tolerances Tolerances for linear and angular dimensions without individual tolerance

GB/T 3766 Hydraulic System General technical conditions

GB 5226.1 mechanical and electrical safety of machinery - Electrical equipment - Part 1. General requirements

GB/T 9969 General Instructions industrial products GB/T 13306 signs

GB/T 14039-2002 Hydraulic fluid level of contamination by solid particles

GB 20905 Foundry machinery - Safety requirements

GB/T 23570 pieces of metal cutting machine tools welding General technical requirements

GB/T 25371 Foundry machinery noise level measurement method

GB/T 25711-2010 casting machinery - General requirements

GB/T 31552 Foundry machinery Model methodology

GB/T 32562 Determination casting machinery Cleanliness

JB/T 8356.1 Technical Conditions Packaging Machine

JB/T 8356.2 packing machine

3 Basic parameters

The main parameters of a maximum

3.1 robot crawl load.

3.2 The basic parameters of the robot are shown in Table 1. Table