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

GB/T 32338-2015

**Petroleum and natural gas industries - Drilling and well
servicing equipment - Mud pumps**

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by the National Petroleum Drilling Equipment and Tools Standardization Technical Committee (SAC/TC96). The drafting unit of this standard. Baoji Petroleum Machinery Co., Ltd., Lanzhou Lan Shi Petroleum Equipment Engineering Co., Ltd., Nanyang two machine oil (Group) Co., Ltd., Sichuan Honghua Petroleum Equipment Co., Ltd., China Petroleum Group Bohai Petroleum Equipment Zhongcheng Machinery Manufacturing Co., Ltd., Shengli Oilfield Plateau Petroleum Equipment Co., Ltd., Chuanqing Drilling Changqing Drilling Company. The main drafters of this standard. Pu Rongchun, Liu Hongfang, Zu Huiling, Fan Yamin, Dong Hui, Liu Jian, Zhou Xiaodong, Xu Lintao, Wu Miaofa, Qin Jianzhong. Oil and gas industry Drilling and Workover Drilling Pumps

1 Scope

China's national standard for the mud pumps used in drilling and well servicing. It specifies the design, the design verification, the material requirements, the welding requirements, the quality control, the marking, the documentation, and the storage, packaging and transport of these pumps, with informative annexes giving the input shaft end dimensions, the names of the main parts of a piston mud pump, the basic configuration of a mud pump and a method for assessing its reliability. The mud pump is the heart of a drilling rig. It circulates drilling fluid down the drill string, out through the bit and back up the annulus, and that circulation does everything: it carries the cuttings out of the hole, cools and lubricates the bit, holds back the formation pressure with the weight of the column, and drives the downhole motor where one is used. If it stops, drilling stops immediately, and if it stops for long the hole is at risk. It is also an extreme piece of machinery. A modern triplex pump develops several thousand horsepower and discharges at pressures up to about fifty megapascals, pumping an abrasive slurry full of solids, through valves and liners that are consumable items changed on the rig. Its fluid end is a thick steel forging subjected to a fully reversing pressure cycle at a hundred and fifty strokes a minute, which makes it one of the classic fatigue problems in oilfield equipment. That is why the standard is built as it is: a design clause, then a design verification clause requiring finite element analysis and strain-gauged stress testing, then material and welding requirements, then a quality control

clause with non-destructive examination, hydrostatic testing and a factory running test. Issued on 31 December 2015 and in force since 1 April 2016.

This standard specifies the terms and definitions, design, design verification, material, welding, quality of drilling and drilling wells for the oil and gas industry. Quantity control, documentation, product marking, storage, packaging and shipping requirements. This standard is applicable to the design, manufacture, testing and inspection of piston/plunger single acting drilling pumps.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 191 packaging and storage icon

GB/T 229 Metallic materials Charpy pendulum impact test method

GB/T 307 (all parts) Rolling bearings

GB/T 3077 alloy structural steel

GB/T 3480 (all parts) Calculation method for load capacity of involute cylindrical gears

GB/T 4604 (all parts) Rolling bearing clearance

GB/T 6388 shipping package collection and delivery mark Oil Drilling Equipment and Special Pipe Vocabulary Magnetic particle testing of

GB/T 9444 steel castings General specification for packaging of electromechanical products GB/T 13384

GB/T 13799 double circular cylindrical gear bearing capacity calculation method Oil and gas industry drilling and workover equipment GB/T 17744-2015

GB/T 19001 quality management system requirements

GB/T 22513 Oil and gas industry Drilling and oil recovery equipment Wellhead equipment and tree Non - destructive testing of pressure equipment - Part 4. Magnetic particle testing

JB/T 7927 valve steel castings appearance quality requirements Code for painting of oil rig and workover rig SY/T 6919

3 Terms and definitions

The definitions and definitions of the following terms and definitions apply to this document.

3.1 Cylinder fluid cylinder Pump head Valve box For the installation of valve assembly, cylinder, suction pipe and discharge pipe and other parts, and to withstand high-pressure

liquid shell, is the most important hydraulic Components.

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