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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 22512.1-2012

Petroleum and natural gas industries - Rotary drilling equipment - Part 1: Rotary drill stem elements

石油天然气工业 旋转钻井设备 第1部分：旋转钻柱构件

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Foreword

GB/T 22512 "Oil and gas industry rotary drilling equipment" is divided into the following two parts. - Part 1. Rotary drill string members; Part 2. Machining and measurement of rotary

shoulder thread connections. This part is part 1 of GB/T 22512. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part uses the re-drafting method to modify ISO 10424-1..2004 "Oil and gas industry rotary drilling equipment Part 1. Rotating drill string member ". The technical differences between this part and ISO 10424-1..2004 are as follows:

--- on the normative reference documents, this part has made a technical differences in the adjustment to meet China's technical conditions, adjust the situation The situation is reflected in Chapter 3, "Normative references", as follows: - GB 682 (see 6.5.2, 8.2.1.1, 8.3.2.1, 10.2.1.1); - GB/T 229 instead of ISO 148 (see 5.2.3.1, 6.5.3.1, 7.5.3.1, 8.2.1.3.1, 10.2.1.3.1); - Replace ISO 6506-1 with GB/T 231.1 with international standard (see 6.5.2, 7.5.2, 8.2.1.2, 8.3.2.2, 10.2.1.2); Replace GB 9303 (see 11.3.3, 11.4.2.1) with GB/T 5777 with international standard modifications; Replace ISO 9712 (see 11.2) with GB/T 9445 equivalent to international standards; Replace ISO 9934-1 (see 5.3.2.2, 11.3.4) with GB/T 15822.1 equivalent to the international standard; Replace GB 3452 (see 5.3.2.3, 11.3.5) with GB/T 18851.1 equivalent to the international standard; - Replace GB 15156 (all parts) with GB/T 20972 (all parts), the consistency between the two standard parts Degrees are as follows: GB/T 20972.1 Petroleum and natural gas industries Materials for hydrogen sulfide containing oil and gas exploration Part 1. General principles for the selection of anti - crack materials (GB/T 20972.1-2007, ISO 15156-1..2001, IDT); GB/T 20972.2 Petroleum and natural gas industries for oil and gas extraction for hydrogen sulfide-containing materials - Part 2. Anti - cracking carbon steel, low alloy steel and cast iron (GB/T 20972.2-2008, ISO 15156-2..2003, MOD); GB/T 20972.3 Petroleum and natural gas industries Materials for hydrogen sulfide-containing environments for oil and gas extraction Part 3. Anti-cracking corrosion resistant alloys and other alloys (GB/T 20972.3-2008, ISO 15156-3..2003, MOD). - Added reference to GB/T 22512.2 (see 6.3, 7.2.1, 7.3.1, 7.4.2, 7.7, 8.1.7.1.1, 8.1.7.1.2, 8.1.7.2, 8.1.7.3, 10.1.7.1, 10.1.7.2, 10.1.7.3); - Added reference to APISpec5DP (see Note 2, 7.2.2.1.1 in Figure 1); - The reference file APISpec7 was deleted. - increased the requirement for low torque structures when machining 75/8REG on drill collar with outside diameter greater than 241.3 mm (91/2 in) 8.1.7.4); - increased the contents of the increased drill pipe (HWDP) (see Chapter 10); - change the qualification of non-destructive testing personnel to "Level 1, Level 2 or 3" (see 11.2); Replace "ISO 10424-1" with the mark "GB/T 22512.1" (see 5.6, 6.7, 7.10, 8.2.2, 8.3.5, 9.1.4, 9.2.4). This section makes the following editorial changes. - the relevant statements in Chapter 2 of the International Standard are deleted;

--- Removed the international standard cover, PDF statement, preface and introduction. In addition, some of the errors in ISO 10424-1..2004 are corrected as follows:

--- removed the 5.3.1 "anti-wear treatment on the non-magnetic drill collar has no obvious effect, and therefore does not require." Statement; - Table 6 and Table 6, column 6, the value "133.3" is replaced by "133.4"; -

7.3.1 stipulates that "the upper and lower ends of the faucet adapter should be left-handed male thread connection", and in Figure 5 the type C conversion The lower end of the joint is indicated by "4", that is, "rotary shoulder type internal thread or male thread connection", should be changed to "5", that is, "left external thread Then ";

--- "7.5" in the "should meet the requirements of

7.2 in the drill collar of the tensile requirements" in the "7.2" to "8.2"; - "The sample should be taken from the thickened end" in 7.5.3.2, where the "thelowerupset" should be removed. Please note that some of the contents of this document may involve patents. The issuer of this document does not assume responsibility for the identification of these patents. This section is under the jurisdiction of the National Petroleum Drilling Equipment and Tools Standardization Technical Committee (SAC/TC96). This part is responsible for drafting units. Beijing Petroleum Machinery Factory. This part participates in the drafting unit. the oil industry well control equipment quality supervision and inspection center, China National Petroleum Corporation pipe research , Baoji Petroleum Machinery Co., Ltd. The main drafters of this part. Wang Ruixiao, Fan Yuzhao, Jiang Yu Gracilaria, Yang Yugang, Yang Lengeng, Xu Ting, Yang Xiaoyong. Oil and gas industry rotary drilling equipment Part 1. Rotary drill string members

1 Scope

GB/T 22512.1-2012 is Part 1 of the Chinese series on rotary drilling equipment, and covers the elements of the drill stem - kellys, subs, drill collars and the connections between them. The drill string is the longest slender structure in engineering practice, rotating in tension at the top and compression at the bottom, and its failures happen at the threaded connections, which is why the dimensions, the thread forms and the material requirements are specified so tightly: a connection that backs off or fatigues leaves the bottom of the string in the hole, and recovering it costs more than the well section. The standard sets the units and figures, the normative references, and the requirements on the drill stem elements, covering their dimensions, materials, mechanical properties, threads, marking and inspection. It took effect on 1 July 2012.

This part of GB/T 22512 specifies the requirements for the following drill string components. upper and lower side drill pipe plug valves, square drill pipe and hexagonal drill Rod, drill string adapter, standard steel drill collar and non-magnetic drill collar, drill bit and core drill bit, increased drill pipe (HWDP). This part does not apply to drill pipe and drill pipe joints, rotary shoulder connection design, thread measurement method or original gauge, proof gauge and work For gauges. The typical drill string assembly for this section is shown in Figure 1.

2 Consistency

2.1 units of measurement In this section, the data are expressed in International System of Units (SI) and US Common System (USC). For a particular order, only mining With a unit system, without giving the data expressed in another unit system. Products manufactured in accordance with any of the two units of the unit system are considered to be equivalent and fully interchangeable. Thus, in this part, the requirements expressed in a unit system are consistent with those expressed in another unit system. The data in this part of the text is represented by SI, followed by parentheses in USC.

2.2 tables and graphs Respectively, given the SI and USC two units that the data table. The tables in the text are expressed in SI units and are listed in Appendix A. Out of the form expressed in USC units. For a particular order, only one unit representation should be used. The chart is contained in the text of the chapter on the specific product and is represented by SI and USC units.