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

GB/T 21411.1-2014

Replacing GB/T 21411.1-2008

**Downhole equipment for petroleum and natural gas industries
-- Progressing cavity pump systems for artificial lift -- Part 1:
Pumps**

(English Translation)

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Foreword

GB/T 21411 "oil and gas industry with a screw pump artificial lift system" is divided into two parts.

--- Part 1. Pumps;

--- Part 2. Ground drive.

This section GB/T 21411 Part 1.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This Part replaces GB/T 21411.1-2008 "oil and gas industry equipment downhole artificial lift system with a portion of the first screw pump", compared with the GB/T 21411.1-2008, in addition to editorial changes outside the main technical changes are as follows.

- Increasing the normative references (see Chapter 2);
- Added "center deviation" and other terms (see Chapter 3);
- Adds abbreviations and symbols section (see Chapter 4);
- Added "Design Verification" performance specification "performance evaluation", "quality control level" content (see Chapter 5);
- Deleting the contents of the technical specifications "design effectiveness", adding "performance rating" and "design validation" of content (see Chapter 6, Section 5 of the 2008 edition);
- In suppliers and manufacturers requirements, modify the "Design Files" and "Random File" relevant content (see Chapter 7, Chapter 6 of the 2008 edition);
- In suppliers and manufacturers requirements, increasing the "quality" of "detection" content, modifying the "Product ID" tag Content (see Chapter 7, Chapter 6, 2008 edition);
- Increased maintenance of content (see Chapter 8);
- Increased content transport, handling and storage (see Chapter 9);
- Deleted the previous version in addition to the appendix "screw test report data tables" outside all the attachments (see Appendix I, the 2008 edition of Appendix B);
- Added "screw demand information table" (see Appendix A);
- Added "Installation Guide" (see Appendix B);
- Increased "Guide" (see Appendix C);
- Added "Design Verification" (see Appendix D);
- Increased "performance evaluation" (see Appendix E);
- Added "synthetic rubber screw pump technical requirements" (see Appendix F);
- Added "rubber screw pump selection and testing" (see Appendix G);
- Added "screw pump performance characteristics supplementary information" (see Appendix H);

- Added "repair and overhaul" (see Appendix J);
- Increased "after use analysis" (see Annex K);
- Added "auxiliary equipment" (see Appendix L);
- Added "screw driver to select and use the post" (see Appendix M).

This section uses redrafted Law Amendment uses ISO 15136-1:2009 "oil and gas industry with a screw pump artificial lift system Part 1. Pumps. " Technical differences exist compared to 2009, is given in Appendix N of the corresponding technical differences and point. This part of ISO 15136-1 List of reason.

For ease of use, this section also made the following editorial changes.

- Added Appendix I "screw test report Data Sheet";
- Added Appendix N "This part of ISO 15136.1:2009 technical differences and their causes";
- In metric units mainly consider the habits of some of the units have been adjusted.

Please note that some of the content of this section may involve patents. This part of the release mechanism does not assume the responsibility to identify these patents.

This part of the National Oil Drilling Equipment and Tools Standardization Technical Committee (SAC/TC96) and focal points.

This section is responsible for drafting the Beijing Petroleum Machinery Factory, Daqing Oilfield Company Limited Production Engineering Research Institute, Daqing Oilfield force have God Pump Limited, China Petroleum Exploration and Development Research Institute of Oil Gas Equipment Institute, Bohai Drilling Engineering Technology Research Institute, Chinese CNPC Bohai Petroleum Equipment Manufacturing Co., Ltd., the oil industry Machinery Products Quality Supervision and Inspection Station, Shengli Oilfield Highland Petroleum Equipment Co., Ltd. and other parameters Plus draft.

1 Scope

This section provides the oil and gas industry with a screw pump artificial lift design, verification, design validation, manufacturing and control data, of Performance evaluation, the relevant requirements of maintenance, operation and storage.

This section includes the normative appendix, test, design validation and performance evaluation of the stator rubber materials and other aspects of the request. this in addition, informative appendix contains the following information. screw demand information table, installation guide, operating instructions, rubber screw pump selection and testing, repair and inspection, evaluation screw after use, screw driver and auxiliary equipment selection rod string.

This section applies to artificial lift with screw design, manufacture, inspection, testing, maintenance and storage.

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 230.1 metallic materials - Rockwell hardness test - Part 1. Test methods (A, B, C, D, E, F, G, H, K, N, T standard Feet) (GB/T 230.1-2009, ISO 6508-1:2005, MOD) GB/T 231.1 metallic materials Brinell hardness test - Part 1. Test method (GB/T 231.1-2009, ISO 6506-1.

2005, MOD)

GB/T 528-2009 vulcanized rubber or thermoplastic rubber tensile stress strain properties (ISO 37:2005, IDT) GB/T 531.1-2008 vulcanized rubber or thermoplastic rubber indentation hardness test methods - Part 1. Shore hardness method [Shao Seoul hardness] (ISO 7619-1:2004, IDT) GB/T 1172-1999 ferrous metal hardness and strength conversion value GB/T 1690-2010 vulcanized rubber or thermoplastic rubber of resistance to liquids - Test methods (ISO 1817:2005, MOD) GB/T 2828.1-2012 Sampling procedures for inspection - Part 1. by acceptance quality limit (AQL) retrieval batch test sample Programme (ISO 2859-1:1999, IDT) GB/T 4340.1 metallic materials - Vickers hardness test - Part 1. Test method (GB/T 4340.1-2009, ISO 6507-1:2005, MOD) GB/T 9445-2008 NDT personnel qualification and certification (ISO 9712:2005, IDT) GB/T 19830-2011 oil and gas industry oil and gas well casing or tubing with a steel pipe (ISO 11960:2004, IDT) [ISO 15156 environmental hydrogen sulfide-containing materials GB/T 20972 (all parts) oil and gas industry for oil and gas exploration (the Part)] GB/T 21411.2-2009 oil and gas industry equipment downhole artificial lift with screw systems - Part 2. Ground drive Means (ISO 15136-2:2006, MOD) GB/T 27025-2008 testing and calibration laboratories General requirements (ISO/IEC 17025:2005, IDT) Specification Section V ASME Boiler and Pressure Vessel NDT [ASMEBoilerandPressureVesselCode (BPVC), SectionV, NondestructiveExamination] ASME Boiler and Pressure Vessel Code, Section VIII volumes of the first pressure vessel [ASMEBoilerandPressureVessel Code (BPVC), SectionVIII, Division1, RulesforConstructionofPressureVessels]