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

GB/T 19831.1-2025

Replacing GB/T 19831.1-2005

**Petroleum and natural gas industries - Casing centralizers -
Part 1: Bow-spring casing centralizers
(English Translation)**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1 of GB/T 19831 "Casing Centralizers for the Oil and Gas Industry". GB/T 19831 has been published as follows.

Part 2.

---Part 1: Bow-shaped spring sleeve centralizer;

---Part 2: Placement of the centralizer and test of the stop ring;

---Part 3: Rigid and Semi-rigid Centralizers.

This document replaces GB/T 19831.1-2005 "Petroleum and Gas Industry Casing Centralizers Part 1: Bow Spring Casing Centralizers" Compared with GB/T 19831.1-2005, the main technical changes in the "Apparatus" are as follows, except for structural adjustments and editorial modifications.

a) The terminology and definitions of lowering force and resetting force have been changed (see 3.3, 3.6, 3.7, 3.5 in the 2005 edition), and restarting force and support force have been

added.

The terminology and definitions for the straightener short section are provided in sections 3.2 and 3.7, and the terms flexure, clamping device, clamping force, and rigid straightener have been removed.

Definitions (see 3.1, 3.2, 3.3, and 3.6 in the 2005 edition);

b) Added classification and model designation methods (see Chapter 4);

c) The function, reset force requirement, and test frequency requirement of the bow-shaped spring sleeve centralizer have been removed (see sections 4.1 and 4.3 of the 2005 edition).

d) Added requirements for appearance, dimensions, restart force, lowering force, clearance ratio, and clearance performance stability.

Qualitative requirements and overall strength requirements (see 5.1, 5.2, 5.4~5.8);

e) The specified values for the restoring force and starting force of the bow-shaped spring sleeve centralizer have been changed (see Table 1, Table 1 in the 2005 edition);

f) A calculation method for the starting force of non-standard sized bow-shaped spring sleeve centralizers has been added (see 5.3.2);

g) The requirements for testing equipment have been changed (see 6.1, Chapter 5 of the 2005 edition);

h) Additional test methods for appearance and dimensions have been added (see 6.2, 6.3);

i) A restart force test method has been added, and the starting force and lowering force test methods have been modified (see 6.4.1, 2005 version).

Chapter 6);

j) The requirements for the reset force test have been changed (see 6.4.2, see Chapter 7 of the 2005 edition);

k) A test method for the bow-shaped spring casing centralizer used in enlarged well sections has been added (see 6.5);

l) An evaluation of the performance stability of the clearance deviation has been added (see 6.6);

m) An overall strength test has been added (see 6.7);

n) Added inspection rules (see Chapter 7);

o) The tagging requirements have been changed (see 8.1, Chapter 8 of the 2005 edition);

p) Added requirements for random files, packaging, and storage (see 8.2~8.4);

q) Added requirements for evaluating the stability of the deviation clearance performance

(see Appendix B).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Petroleum Drilling Equipment and Tools (SAC/TC96).

Introduction

Casing centralizers are important cementing tools that ensure casing centering and play a crucial role in improving cementing quality. GB/T 19831 "Stone..." the proposed "Oil and Gas Industry Casing Centralizer" consists of three parts.

---Part 1: Bow-shaped Spring Sleeve Centralizer. The purpose is to constrain and standardize the quality of bow-shaped spring sleeve centralizers.

---Part 2: Placement of the centralizer and test of the retaining ring. The purpose is to determine the installation distance of the centralizer on the sleeve in order to achieve...

For optimal alignment, improve casing centering.

---Part 3: Rigid and Semi-rigid Centralizers. The purpose is to constrain and regulate the quality of rigid and semi-rigid centralizer products.

This document fully considers the operating environment of the bow-shaped spring casing centralizer from well entry to cementing completion, and simulates various operating environments.

By examining the stress conditions, the reliability of the product is fully demonstrated, thereby ensuring the casing centering and improving cementing quality.

Oil and gas industry casing centralizer Part 1: Bow-shaped spring sleeve centralizer

1 Scope

This document specifies the classification and model designation methods, technical requirements, test methods, and inspection procedures for bow-shaped spring sleeve centralizers used in oil and gas.

Inspection rules and marking, packaging and storage.

This document applies to the design and inspection of bow-shaped spring sleeve centralizers for oil and gas applications.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 9253 Machining, Measurement and Inspection of Casing, Tubing and Line Threads in the Oil and Gas Industry GB/T 19830 Steel pipes for oil and gas well casing or tubing in the petroleum and natural gas industry

3 Terms and Definitions

The following terms and definitions apply to this document.

Starting force

Given conditions and installation methods, the maximum force required for a bow-shaped spring casing centralizer mounted on the casing to enter a specific wellbore.

restarting force

Given conditions and installation methods, the required time for the bow-shaped spring casing centralizer mounted on the casing to restart its movement within a specific wellbore.

The maximum force.

running force

The average force required for a bow-shaped spring casing centralizer mounted on the casing to move within a specific wellbore.

Deviation gap standoff the minimum distance between the wellbore diameter and the outer diameter of the casing.

deviation gap ratio

The percentage ratio of deviation clearance to annular clearance.

Restoring force

The arc-shaped spring casing stabilizer installed on the casing exerts a force that causes the casing to move away from the wellbore. This force is equal to the force applied under given conditions and installation methods.

The load required to cause the bow-shaped spring sheet to flex.