Casing Bow-spring Centralizers

API SPECIFICATION 10D
SEVENTH EDITION, APRIL 2021

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Introduction

This edition is based on API Specification 10D, 6th Edition, March 2002.

Users of this standard should be aware that further or differing requirements may be needed for individual applications. This standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this standard and provide details.

In this standard, quantities are expressed in international System of Units (SI) and/or in U.S. customary units (USC). The values associated with the different units do not necessarily represent a direct conversion of SI units to USC units, or USC units to SI units. Consideration has been given to the precision of the instrument making the measurement.

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Casing Bow-spring Centralizers

1 Scope

This specification provides testing, performance, and marking requirements for casing bow-spring centralizers to be used in oil and natural gas well construction. The procedures provide verification testing for the manufacturer's design, materials, and process specifications, and periodic testing to confirm the consistency of product performance. This specification is not applicable to other devices, such as rigid centralizers and cement baskets, or bow-spring centralizers used for other purposes (e.g., wireline tools, gravel pack, inner string).

2 Normative Reference

This document contains no normative references. For a listing of other articles associated with this publication, refer to the bibliography.

3 Terms and Definitions, Symbols, and Abbreviations

3.1 Terms and Definitions

For the purposes of this specification, the following terms and definitions apply.

3.1.1
annular clearance
Radial clearance between the outside diameter of the casing and the wellbore.

3.1.2
API test load
Specified normal force applied to a bow-spring centralizer to evaluate standoff performance.

3.1.3
bow-spring centralizer
An apparatus comprised of a plurality of bow-shaped springs biased outwardly from a tubular body, the outside diameter of which can vary under a change in applied load, and connected by two end collars, that is placed on the outside of a tubular (e.g., casing or tubing) and used to centralize the tubular in a wellbore.

3.1.4
bow-spring centralizer sub
A bow-spring centralizer installed on a tubular body having an integral holding method where the tubular body becomes its own section of the casing string.

3.1.5
casing nominal diameter
Theoretical outside diameter of the casing.

3.1.6
conventional application
An application where the smallest wellbore diameter that the bow-spring centralizer will pass through is at the centralizer setting depth (see Figure 1).

3.1.7
holding device
A device employed to limit the axial movement of the stop collar or bow-spring centralizer on the casing.

EXAMPLE Set screws, nails, machined tubular, mechanical dogs, epoxy resins, or machined features (integral).