

Methods for Testing of Solid and Rigid Centralizers

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Upstream Department

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Contents

	Page
1 Introduction	1
2 Description of Rigid and Solid Centralizers	1
2.1 Rigid Centralizer	1
2.2 Semi-rigid Centralizer	1
2.3 Solid Centralizer	2
3 Solid and Rigid Centralizer Testing Methods	2
4 Measurement of Friction Factor Using Pin-on-Disk Method	2
4.1 Test Apparatus and Description of the Test	2
4.2 Test Parameters	3
4.3 Example Test Parameters	4
4.4 Calculating the Friction Factor	4
5 Measurement of Wear Using the Pin-on-Disk Method	5
5.1 Test Description	5
5.2 Example Test Parameters	5
6 Impact Test Consisting of Dynamic Loading Applicable to Hinged-type Rigid Centralizers	6
6.1 Test Apparatus and Description of the Test	6
6.2 Significant Test Parameters	6
6.3 Recommended Test Parameters for Different Size Centralizers	6
7 Static Axial Loading Simulating Running the Centralizer Through Restrictions	10
7.1 Test Apparatus and Description of the Tests	10
7.2 Testing the Centralizer Through the Recommended Hole Diameter	10
7.3 Total Circumferential Loading Test (Rigid Centralizer Only)	10
7.4 Partial Circumferential Loading Test (Rigid Centralizer Only)	11
7.5 Reporting of Test Results	11
8 Test to Simulate Side Loading of the Centralizer	14
8.1 Test Apparatus	14
8.2 Test Procedure	15
9 Test to Simulate Static Loading of Centralizer and Stop Collar	15
9.1 Test Apparatus	15
9.2 Test Procedure	15
10 Pull-apart Test for Centralizers with End Rings	16
Figures	
1 Example of Rigid Centralizer	1
2 Example of Semi-rigid Centralizer	2
3 Pin-on-Disk Test Device	5
4 Typical Test Apparatus Used to Apply a Dynamic Load to the End Rings of a Hinged Rigid Centralizer	7
5 Installation of Centralizer in the Test Apparatus	8
6 Weight Being Raised a Preset Distance Before Being Dropped	9
7 Typical Test Set-up with a Rigid Centralizer Being Forced into a Smooth Bore Diameter	12
8 Typical Test Set-up with a Rigid Centralizer Being Forced into a Bore with a Full Circumferential Restriction	13
9 Components That Make Up the Partial Bore Test Fixture	13

10	Typical Test Set-up with a Rigid Centralizer Being Forced into a Bore with a 90° Partial Restriction . .	14
11	Side Loading Testing of Centralizers	15
12	Centralizer on a Test Mandrel with a Limit Clamp or Stop Collar	16

Tables

1	Example Test Parameters.	4
2	Example Test Parameters.	5
3	Recommended Test Parameters for Different Size Centralizers	6

Methods for Testing of Solid and Rigid Centralizers

1 Introduction

Solid and rigid centralizers have been used by the petroleum industry for many years to assist with running casing to the bottom of the wellbore and with improving mud displacement. The purpose of this document is to provide the industry with methods for testing rigid and solid centralizers.

The API and ISO standardization committees have produced specifications, testing, and recommended practices for the use of bow-type centralizers, but to date, the petroleum industry does not have standards for the selection and use of solid or rigid centralizers, even though those devices are widely used. Additionally, the industry does not have standardized testing methods to verify functionality and reliability of centralizers. This is a problem for the operator in making an intelligent selection for centralizers to use in the well. Some testing procedures are available, but because they are not standardized, they tend to hinder communication between manufacturers and end users.

2 Description of Rigid and Solid Centralizers

2.1 Rigid Centralizer

This centralizer is composed of rigid, non-flexible bands or bars fixed to two end collars. These devices have a smaller outside diameter (OD) than the casing or hole through which the centralizers are run and, therefore, generate zero starting forces. Because these devices do not have a solid body, they are capable of experiencing deformation when run through restrictions.

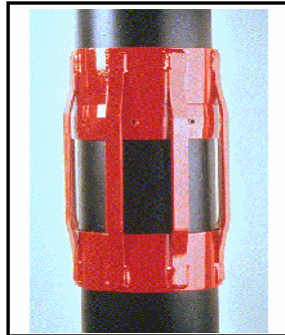


Figure 1—Example of Rigid Centralizer

2.2 Semi-rigid Centralizer

This centralizer is a subclass of the rigid centralizer category. This device is composed of flexible spring bows attached to two end collars, but the springs are manufactured such that they form two equal-length bows between the end rings. These double-bow springs flex under load, but under large loads become essentially rigid.