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

GB/T 45460-2025

**Steel wire ropes - Determination of the transverse rigidity of
steel wire ropes under no axial load condition**

钢丝绳 在无轴向载荷条件下钢丝绳径向刚度的测定

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is equivalent to ISO 16839:2013 "Steel wire ropes - Determination of radial stiffness of steel wire ropes under conditions without axial load". The following minimal editorial changes were made to this document.

--- For ease of use, the index symbols are added in Figures 2 and 3.

Introduction

The radial pressure on the wire rope during multi-layer winding is shown in Figure 1.

The cross section shows the pyramidal arrangement of the wire ropes on the drum (parallel sections) and the points where the wire ropes are in contact with the surrounding neighbors.

The radial pressure is transmitted to the wire rope at 4 contact points. These working and stress conditions can be carried out with the test rig shown in this document. simulation.

This document is intended to provide manufacturers, suppliers and inspection and testing agencies with a uniform test method for determining the The ability to resist radial deformation under load.

The radial deformation value depends on the state of the wire rope, so it is necessary to know the actual state of the deformation that will or has been determined. The three common states are as follows.

---Initial state (factory state);

--- Partially stable state; or ---Final stable state.

1 Scope

This document specifies a method for determining by test and calculation the ability of a wire rope to resist radial deformation under conditions without axial load. Used to verify the performance of wire ropes.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

ISO 463 Geometric Product Specifications (GPS) Design and metrological characteristics of mechanical indicators for length measuring instruments [Geomet- Note: GB/T 39547-2020 Design and metrological characteristics of mechanical indicators (ISO 463:2006, IDT)

ISO 7500-1 Inspection and calibration of static uniaxial testing machines for metallic materials Part 1: Testing of tension and/or compression testing machines chines-Part 1: Tension/compression testing machines-Calibration and verification of the force-measuring system)

Note: GB/T 16825.1-2022 Inspection and calibration of static uniaxial testing machines for metallic materials Part 1: Force measurement of tension and/or compression testing machines System verification and calibration (ISO 7500-1:2018, IDT)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

The theoretical diameter of the wire rope in the Y-axis direction is calculated using formula (1).

3.2 Lateral force

The theoretical diameter of the wire rope in the X-axis direction is calculated using formula (2). $d_x = d \Delta d_{x1m} \Delta d_{x2m}$ (2)