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Steel wire ropes for deep-sea exploration

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Table of Contents

1 Scope	1
2 Normative reference documents	1
3 Terms and Definitions	1
4 Category	2
5 Order contents	3
6 Materials	4
7 Technical requirements	8
8 Inspection11 9 test	12
10 Acceptance method	13
11 Packaging, logo and quality certificate	13
25 Reference	27

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. Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed by the China Iron and Steel Industry Association. This document is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183). This document was drafted by: Jiangsu Langshan Steel Rope Co., Ltd., Xianyang Baoshi Steel Pipe and Steel Rope Co., Ltd., Jiangsu Saifutian Steel Rope Co., Ltd. Co., Ltd., Juli Rigging Co., Ltd., Jiangsu Shenwang Group Steel Cable Co., Ltd., Guizhou Steel Rope Co., Ltd., Chinese Academy of Sciences Foreign Research Institute, Metallurgical Industry Information Standards Research Institute. The main drafters of this document. Deng Haiyan, Gu Xiaojian, Ren Cuiying, Wang Lingjun, Yan Baoguo, Yang Yuemin, Yang Chao, Huang Weijie, Zheng Limao, Jiang Jinguang, Zhang Yi, Chen Yansong, Leng Mingjian, Zhang Xuan, Gao Zhengkai, Cui Haijing, Huang Jianming, Yang Zhengyan, Zhang Zongbing, Li Qingping, Lin Zhuying, Ai Jinteng, Su Diyao and Wang Yong. Wire rope for deep sea exploration

1 Scope

China's national standard for the steel wire ropes used in deep-sea exploration. A rope lowering equipment to several thousand metres faces a problem that shallow-water lifting

does not: at some depth the rope is carrying mostly itself, and beyond that depth it cannot lift anything at all. Everything about the design attacks that limit - high tensile wire to raise the strength per unit weight, compacted or locked coil constructions to put more steel in a given diameter, and tapered ropes with a heavier section at the top where the load is greatest. Corrosion is the second constraint, since the rope is immersed continuously and the galvanising is worn by the sheaves. And rotation is the third: a rope under thousands of metres of tension will unlay and spin its load unless the construction is torque-balanced, which for a camera or a sampler on the end is the difference between a usable instrument and an unusable one.

This document stipulates the classification of steel wire ropes (hereinafter referred to as "wire ropes") of different structures with a diameter of 6mm~25mm for deep sea exploration. Order content, materials, technical requirements, inspection, testing, acceptance methods, packaging, marking and quality certificates, arbitration, safety, use and maintenance. This document applies to wire ropes used in deep sea geological exploration, survey, observation and marine environment monitoring and surveillance.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 265 Petroleum products kinematic viscosity determination method and dynamic viscosity calculation method GB/T 470 Zinc Ingot

GB/T 1839 Test method for quality of galvanized layer of steel products

GB/T 2104 General provisions for packaging, marking and quality certificates of wire ropes

GB/T 2976 Metal material wire winding test method

GB/T 4354 High-quality carbon steel hot-rolled wire rod

GB/T 5972 Crane wire rope care, maintenance, inspection and scrapping

GB/T 8358 Method for determination of actual breaking tension of steel wire ropes

GB/T 8706 Wire rope terminology, marking and classification

GB/T 21965 Wire rope acceptance and defect terminology

GB/T 29086 Safe use and maintenance of wire ropes

GB/T 31979 Method for determination of rotation performance of wire ropes SH/T 0081 Salt spray test method for anti-rust grease YB/T 081 Numerical rounding of metallurgical

technical standards and determination of test data YB/T 4613-2017 Grease for wire ropes

3 Terms and definitions

The terms and definitions defined in GB/T 8706 apply to this document.

3.1 Uniformity of measured diameter over the delivery length of the wire rope.

3.2 When two different loads are applied to the wire rope in the axial direction, the change in the measured diameter is the ratio of the measured diameter of the wire rope at low load.

3.3 stabilizing treatment stabilizing treatment In order to reduce the internal stress of the steel wire rope and increase its structural stability and anti-rotation performance, short-term heat treatment, compaction or pre-tensioning are adopted.