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

GB/T 43898-2024

**Seamless precision steel tubes for construction machinery
hydraulic cylinders**

工程机械液压缸用精密无缝钢管

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Foreword

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Huimin, Yao Xiaole, Dai Minming, Mi Yongfeng, Li Qi: Precision seamless steel pipe for hydraulic cylinders of construction machinery

1 Scope

China's national standard for the seamless precision steel tube used for construction machinery hydraulic cylinder barrels. The cylinder barrel is a pressure vessel whose bore is also a bearing and a sealing surface, and the tube has to arrive with that bore finished or nearly so - honed to a fine surface with a controlled cross-hatch that retains oil, round and straight within close limits, and hard enough to resist the scoring that a particle in the fluid would otherwise cause. Any departure shows up as a leaking seal, and a leaking cylinder on an excavator is both a failure and an environmental release. The tube must also take the pressure, which on a modern machine reaches several hundred bar with peaks well above, and it must do so with a wall thin enough that the cylinder is not absurdly heavy. Supplying it as a precision tube rather than machining a cylinder from a thick one is what makes the component affordable.

This document specifies the brand naming method, ordering content, size, shape, weight and allowable Deviations, technical requirements, test methods, inspection rules, packaging, marking and quality certificates: This document applies to cold-drawn or cold-rolled precision seamless steel tubes with an inner diameter of 80mm~500mm for hydraulic cylinders of engineering machinery (hereinafter referred to as "Steel Pipe"):

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:

GB/T 222 Permissible deviation of chemical composition of finished steel products GB/T 223:

5 Determination of acid-soluble silicon and total silicon content of iron and steel - Reduced molybdenum silico-silicic acid spectrophotometric method GB/T 223:

9 Determination of aluminum content in steel and alloys - Chrome azurol S spectrophotometric method GB/T 223:

12 Methods for chemical analysis of iron, steel and alloys - Sodium carbonate separation-diphenylcarbazine photometric method for the determination of chromium content GB/T 223:

14 Chemical analysis methods for iron, steel and alloys - Tantalum extraction

spectrophotometric method for determination of vanadium content GB/T 223:

23 Determination of nickel content in steel and alloys - Dimethylglyoxime spectrophotometric method GB/T 223:

26 Determination of molybdenum content in steel and alloys - Thiocyanate spectrophotometric method GB/T 223:

37 Determination of nitrogen content in iron, steel and alloys - Spectrophotometric method using indophenol blue distillation separation GB/T 223:

40 Determination of niobium content in iron, steel and alloys - Chlorosulfonphenol S spectrophotometric method GB/T 223:

53 Chemical analysis methods for iron, steel and alloys - Determination of copper content by flame atomic absorption spectrophotometry GB/T 223:

59 Determination of phosphorus content in iron, steel and alloys - Bismuth phosphomolybdenum blue spectrophotometric method and antimony phosphomolybdenum blue spectrophotometric method GB/T 223:

63 Determination of manganese content in iron, steel and alloys - Sodium (potassium) periodate spectrophotometric method GB/T 223:

84 Determination of titanium content in steel and alloys - Diantipyryl methane spectrophotometric method GB/T 223: