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

GB/T 46419-2025

**Petroleum and natural gas industries - Titanium alloy induction
bends**

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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 involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Petroleum and Natural Gas (SAC/TC355). This document was drafted by: China Petroleum Engineering Materials Research Institute Co., Ltd., Baoji Titanium Equipment Manufacturing (Baoji) Co., Ltd., and Henan Xin Open Source Petrochemical Pipeline Co., Ltd., Nanjing Pret Titanium Industry Co., Ltd., Nanjing Maichi Titanium Industry Co., Ltd., Xi'an Unite Container Manufacturing Co., Ltd. The company, Nanjing Baose Co., Ltd., Luoyang Shipbuilding Materials Research Institute (725th Research Institute of China Shipbuilding Group Co., Ltd.), China Petroleum Tian Oil and Gas Technology Research Institute of Changqing Oilfield Branch of China National Gas & Natural Gas Corporation

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1 Scope

GB/T 46419-2025 is the Chinese national standard covering the titanium induction bend - the heating and forming parameters and the thinning at the extrados they cause, the microstructure and the properties after bending, the contamination that titanium picks up when heated in air, and the inspection. First edition, in force from 1 May 2026. Issued on 5 October 2025, it has been in force since 1 May 2026.

This document specifies the material, manufacturing, and technical requirements for titanium and titanium alloy induction heating bends (hereinafter referred to as "bends") used in the oil and gas industry. Inspection and testing, acceptance, labeling, packaging, transportation, and storage. This document applies to seamless and welded bends of DN15~DN750 manufactured from titanium and titanium alloy materials for the oil and gas industry.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 228.1 Metallic materials - Tensile testing - Part