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

GB/T 29047-2021

Replacing GB/T 29047-2012

**Prefabricated directly buried insulating pipes and fittings with
rigid polyurethane foam and high density polyethylene casing**

高密度聚乙烯外护管硬质聚氨酯泡沫塑料预制直埋保温管及管件

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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 of Standardization Documents" Drafting. This document replaces GB/T 29047-2012 "High-density polyethylene outer protective pipe, rigid polyurethane foam plastic prefabricated direct buried insulation pipe and pipe Compared with GB/T 29047-2012, in addition to structural and editorial changes, the main technical changes are as follows:

- a) The requirements for working steel pipes have been changed (see 5.1, 5.1 of the 2012 edition);

- b) The requirements for steel pipe fitting materials have been changed (see 5.2.1, 5.2.1 of the.2012 edition);
- c) The requirements for the appearance of the bent part of the elbow have been changed (see 5.2.2.2, 5.2.2.1 of the.2012 edition);
- d) The requirements for the three links have been changed (see 5.2.3, 5.2.3 of the.2012 edition);
- e) The requirements for reducers have been changed (see 5.2.4, 5.2.4 in the.2012 edition);
- f) The requirements for fixed sections have been changed (see 5.2.5, 5.2.5 of the.2012 edition);

1 Scope

China's national standard for prefabricated directly buried insulating pipes and fittings. It specifies the product structure, the requirements for the working steel pipe, the steel fittings, the outer casing, the insulation layer and the assembled pipes and fittings, together with the test methods, the inspection rules and the identification, transport and storage. This is the pipe that carries district heating. A steel service pipe is centred inside a high density polyethylene casing and the annulus is filled with rigid polyurethane foam, and the assembly is buried directly in the ground without a duct or a chamber. That last point is what the whole product is for: a directly buried system costs a fraction of a ducted one to install, and it is the reason district heating is economic at the scale China builds it. The consequence is that everything has to last in the ground, unexamined, for thirty years. The foam is not only insulation; it is the structural bond between the steel and the casing, and it transfers the axial forces of thermal expansion from the pipe to the soil. If it debonds, the pipe moves inside its casing and the system fails mechanically as well as thermally. The casing is not only a jacket; it is the water barrier, and foam that gets wet loses its insulation value and stops holding. So the standard specifies the three components and then the assembly as a system, with a normative annex on the actual continuous working conditions and the expected life, and another on the welding and inspection of the casing - the joints made in the trench being where a factory-made product meets site workmanship. The 2021 revision changes the requirements for the working steel pipe and for the fitting materials among a series of technical updates. Issued on 20 August 2021 and in force since 1 March 2022, it replaces GB/T 29047-2012.

This document stipulates that the high-density polyethylene outer protective pipe (hereinafter referred to as the outer protective pipe) and the rigid polyurethane foam

insulation layer (hereinafter referred to as the protective Temperature layer), prefabricated direct-buried thermal insulation pipes composed of working steel pipes or steel pipe fittings (hereinafter referred to as thermal insulation pipes) and the product structure and requirements of thermal insulation pipe fittings, Test methods, inspection rules and labels, transportation and storage. This document is applicable to the prefabricated direct delivery medium whose temperature (long-term operating temperature) is not more than 120°C, and the occasional peak temperature is not more than 130°C. Buried insulation pipe and its insulation pipe fittings.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to This document.

GB/T 3091 Welded steel pipe for low pressure fluid transportation

GB/T 8163 Seamless steel pipe for conveying fluid

GB/T 8923.1-2011 Visual assessment of surface cleanliness of steel surface treatment before coating-Part

1.Uncoated The corrosion level and treatment level of the steel surface and the steel surface after the original coating has been completely removed

GB/T 9711 Steel Pipe for Pipeline Transportation System of Petroleum and Natural Gas Industry Types and parameters of

GB/T 12459 steel butt welding pipe fittings

GB/T 13401 Technical Specification for Steel Butt Welding Pipe Fittings

GB/T 18475-2001 Thermoplastic pressure pipes and pipe fittings material classification and naming overall use (design) coefficient

GB/T 29046 Testing method for technical indicators of prefabricated direct-buried thermal insulation pipelines for urban heating

GB 50236 Construction specification for welding engineering of field equipment and industrial pipelines

GB 50683 Code for Acceptance of Construction Quality of Field Equipment and Industrial Pipeline Welding Engineering CJJ/T 254 Technical Specification for Leakage Monitoring System of Directly Buried Hot Water Pipes for Urban Heating NB/T 47013.2-2015 Non-destructive testing of pressure equipment Part

2.Radiographic testing NB/T 47013.3-2015 Non-destructive testing of pressure equipment

Part

3.Ultrasonic testing NB/T 47013.5-2015 Non-destructive testing of pressure equipment Part

3 Terms and definitions

The following terms and definitions apply to this document.

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