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

GB/T 43311-2023

Design method for ductile iron pipes

球墨铸铁管设计方法

(English Translation)

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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:

This document is modified to adopt ISO 10803:2011 "Design Method for Ductile Iron Pipes":

Compared with ISO 10803:2011, this document has many structural adjustments:
Comparison list of structure number changes between the two files See Appendix A:

Compared with ISO 10803:2011, there are many technical differences between this document and the clauses involved in the outer margin of the page:

Single lines (I) are marked: A list of these technical differences and their causes is provided in Appendix B:

The following editorial changes have been made to this document:

---Added notes on some terms and definitions;

---Describe the basic regulations of ductile iron pipes in sections based on pressure and wall thickness classification, pipe wall thickness, and design of ductile iron pipes;

---Describe the calculations of the allowable working pressure, minimum wall thickness, and nominal wall thickness of pressure graded pipes in sections;

---Describe the interaction between pipe and soil in sections;

---Deleted the note about on-site hydraulic pressure testing;

---Deleted the preferred pressure class, other pressure classes and allowable soil covering depth for pipes complying with ISO 2531 and ISO 7186;

---Added Appendix C (Informative) Design Guidelines for Ductile Iron Pipes for Thermal Use:

Please note that some content in this document may be subject to patents: The publisher of

this document assumes no responsibility for identifying patents:

1 Scope

This document specifies the design methods for ductile iron pipes in compliance with GB/T 13295 and GB/T 26081, including basic regulations, internal pressure Force design and design based on external loads:

The scope of application of this document is as follows:

---Operation under pressure, no pressure or negative pressure conditions (or working conditions);

---With or without ground accumulation load and traffic load:

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 13295 Ductile iron pipes, fittings and accessories for water and gas (GB/T 13295-2019, ISO 2531:2009, MOD) GB/T 26081 Ductile iron pipes, fittings and accessories for drainage engineering (GB/T 26081-2022, ISO 7186:2011, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 13295 and GB/T 26081 and the following apply to this document:

PFA

The maximum internal pressure that a component can safely withstand for a long period of time, excluding impact pressure:

Note: This pressure is a theoretically calculated value under ideal conditions and $PMA=1:2PFA$:

[Source: GB/T 13295-2019,3:17] 3.2 PMA the maximum internal pressure, including impact pressure, that a component can safely withstand during use:

[Source: GB/T 13295-2019, 3:18, modified] 3.3 Upper backfill layer initialbackfil the backfill soil layer within 500mm above the top of the pipe is shown in Figure 1: