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Second edition
2020-05

Earthquake-resistant and subsidence-resistant design of ductile iron pipelines

Conception de canalisations en fonte ductile résistant aux tremblements de terre et aux phénomènes de subsidence



Reference number
ISO 16134:2020(E)

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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*, Subcommittee SC 2, *Cast iron pipes, fittings and their joints*.

This second edition cancels and replaces the first edition (ISO 16134:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the classification of pipelines components in [Table 3](#) is modified;
- the relationship between seismic intensity and ground surface acceleration in [Table B.1](#) is modified;
- the calculation method of checking the safety of pipeline against ground deformation is added in [5.3](#).

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Introduction

Buried pipelines are often subjected to damage by earthquakes. It is therefore necessary to take earthquake resistance into consideration, where applicable, in the design of the pipelines. In reclaimed ground and other areas where ground subsidence is expected, the pipeline design must also take the subsidence into consideration.

Even though ductile iron pipelines are generally considered to be earthquake-resistant, since their joints are flexible and expand/contract according to the seismic motion to minimize the stress on the pipe body, nevertheless there have been reports of the joints becoming disconnected by either a large quake motion or major ground deformation such as liquefaction.