International Standard

ISO 19426-5

Structures for mine shafts —

Part 5: Shaft system structures

Structures de puits de mine —

Partie 5: Structures des réseaux de puits

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 82, *Mining*.

This second edition cancels and replaces the first edition (ISO 19426-5:2018), which has been technically revised.

The main changes are as follows:

— boxfront section removed;

— additional clarity on pipe support loads;

— construction tolerances updated.

A list of all parts in the ISO 19426 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Many mining companies and many of the engineering companies which provide designs for mines, operate globally, so ISO 19426 series was developed in response to a desire for a unified global approach to the safe and robust design of structures for mine shafts. The characteristics of ore bodies, such as their depth and shape, vary in different areas so different design approaches have been developed and proven with use over time in different countries. Bringing these approaches together in ISO 19426 series will facilitate improved safety and operational reliability.

The majority of the material in ISO 19426 series deals with the loads to be applied in the design of structures for mine shafts. Some principles for structural design are given, but for the most part, it is assumed that local standards will be used for the structural design. It is also recognized that typical equipment varies from country to country, so the clauses in ISO 19426 series do not specify the application of the principles to specific equipment. However, in some cases, examples demonstrating the application of the principles to specific equipment are provided in informative annexes.

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Structures for mine shafts —

Part 5:
Shaft system structures

1 Scope

This document specifies the loads, the load combinations and the design procedures for the design of shaft system structures in both vertical and decline shafts. The shaft system structures covered by this document include buntons, guides and rails, station structures, rock loading structures, brattice walls, conveyance and vehicle arresting structures and dropsets, services supports, rope guide anchor supports and box fronts.

Rock support is excluded from the scope of this document.

This document does not cover matters of operational safety, or the layout of the shaft system structures

This document adopts a limit states design philosophy.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2394, *General principles on reliability for structures*

ISO 3010, *Bases for design of structures — Seismic actions on structures*

ISO 12122, *Timber structures — Determination of characteristic values*

ISO 19338, *Performance requirements for standards on concrete structures*

ISO 19426-1, *Structures for mine shafts — Part 1: Vocabulary*

ISO 19426-4, *Structures for mine shafts — Part 4: Conveyances.*

ISO 22111, *Bases for design of structures — General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19426-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org

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