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Design and construction of backfilled and grouted borehole heat exchangers

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Design and construction of backfilled and grouted borehole heat exchangers

Conception et construction de sondes géothermiques verticales comblées et remplies de coulis

Planung und Bau von Erdwärmesonden

This European Standard was approved by CEN on 23 January 2023.

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European foreword

This document (EN 17522:2023) has been prepared by Technical Committee CEN/TC 451 “Water wells and borehole heat exchangers”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2023, and conflicting national standards shall be withdrawn at the latest by October 2023.

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1 Scope

This document covers standardization in the field of geological and environmental aspects, design, construction, operation, monitoring, maintenance and decommissioning of grouted borehole heat exchangers for uses in geothermal energy systems.

This document is only applicable for backfilled and grouted boreholes, it is not applicable for groundwater-filled boreholes.

Direct expansion and thermal syphon techniques are excluded from this document.

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.

EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1254-2, *Copper and copper alloys —Plumbing fittings — Part 2: Compression fittings for use with copper tubes*

EN 1254-3, *Copper and copper alloys — Plumbing fittings — Part 3: Compression fittings for use with plastics and multilayer pipes*

EN 1254-7, *Copper and copper alloys — Plumbing fittings — Part 7: Press fittings for use with metallic tubes*

EN 1254-8, *Copper and copper alloys — Plumbing fittings — Part 8: Press fittings for use with plastics and multilayer pipes*

EN 1965-2, *Structural adhesives — Corrosion — Part 2: Determination and classification of corrosion to a brass substrate*

EN 10216-5, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 5: Stainless steel tubes*

EN 12201-1:2011, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 1: General*

EN 12201-2, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 2: Pipes*

EN 12201-3, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 3: Fittings*

EN 12201-5, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN 12449, *Copper and copper alloys — Seamless, round tubes for general purposes*

EN ISO 15875-1, *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X) — Part 1: General (ISO 15875-1)*

EN ISO 15494, *Plastics piping systems for industrial applications — Polybutene (PB), polyethylene (PE), polyethylene of raised temperature resistance (PE-RT), crosslinked polyethylene (PE-X), polypropylene (PP) — Metric series for specifications for components and the system (ISO 15494)*

EN ISO 22391-1, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT) — Part 1: General (ISO 22391-1)*

EN 12168, *Copper and copper alloys — Hollow rod for free machining purposes*

EN ISO 1127, *Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length (ISO 1127)*