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Wind energy generation systems -
Part 4-2: Lubrication of drivetrain components in wind turbines

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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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Wind energy generation systems - Part 4-2: Lubrication of drivetrain components in wind turbines

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IEC TR 61400-4-2 has been prepared by IEC technical committee 88: Wind energy generation systems, in co-operation with ISO technical committee 60: Gears. It is a Technical Report.

It is published as a dual logo technical report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
88/1132/DTR	88/1162/RVDTR

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 61400 series, published under the general title *Wind energy generation systems*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

This corrected version of IEC TR 61400-4-2:2026 incorporates the following correction:

– addition in the foreword that this is a double logo technical report prepared in cooperation with ISO/TC 60

INTRODUCTION

The purpose of this IEC Technical Report (TR) is to provide a common reference for lubrication related matters for wind turbine drive trains. ISO/TR 18792 provides information for lubrication of industrial gearboxes. Some information is similar or identical to this document.

The contents are non-normative but useful to wind turbine system and component designers, wind turbine manufacturers, and owners/operators to ensure that lubricant related matters are addressed in the gearbox design and operation phases.

This current edition of the document covers oil lubricated gearboxes and is developed based on experience with predominantly gearboxes with rolling bearings. It can be applied to gearboxes with plain bearings, but possibly does not yet address all aspects of this technology. The document structure is prepared to receive further content related to other components in the wind turbine drivetrain and include additional types of lubricants.

1 Scope

This document, which is a Technical Report, provides non-binding information regarding the lubricant, lubrication system layout, and performance for wind turbine gearboxes. This document covers oil lubricated gearboxes. Additionally, guidance for selected lubricant parameters as well as for monitoring and maintaining lubricant characteristics is offered.

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.

IEC 61400-1, *Wind energy generation systems - Part 1: Design requirements*

IEC 61400-3 (all parts), *Wind energy generation systems - Part 3: Design requirements*

IEC 61400-4, *Wind energy generation systems - Part 4: Design requirements for wind turbine gearboxes*

3 Terms, definitions, abbreviated terms, units and conventions

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61400-1, IEC 61400-3 series, IEC 61400-4 and the following apply.

NOTE In case of conflict, the definitions in this document take precedence.

3.1.1
lubricant supplier
entity supplying lubricants for the wind turbine gearbox

Note 1 to entry: The lubricant supplier is responsible for the performance of the lubricant and the blending specifications, but will not necessarily produce any of the components, or blend the final product.

3.1.2
nacelle
turbine structure above the tower that holds the drivetrain, generator, other subcomponents, and parts of the controls and actuation systems

3.1.3
oil
fluid used to lubricate, flush away debris, and regulate heat transfer in the gearbox

Note 1 to entry: The word oil is ambiguous but is used in this document in addition to other common terms such as: lubricant, lubricating oil, fluid, gear oil.

3.1.4
line
rigid or flexible means to convey fluids, such as pipes, tubes or hoses, including related fixtures, fittings, couplings, valves or connectors