



ISO 12925-1

Lubricants, industrial oils and related products (class L) — Family C (gears) —

**Part 1:
Specifications for lubricants for enclosed gear systems**

Lubrifiants, huiles industrielles et produits connexes (classe L) — Famille C (engrenages) —

Partie 1: Spécifications des lubrifiants pour systèmes d'engrenages sous carter

**Third edition
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This is a preview of ISO 12925-1:2024. [Click here to purchase the full version from the ANSI store.](#)



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*, Subcommittee SC 4, *Classifications and specifications*.

This third edition cancels and replaces the second edition (ISO 12925-1:2018), which has been technically revised. It also incorporates the Amendment ISO 12925-1/Amd1:2020.

The main changes are as follows:

- in [Table 6](#), a specification regarding the protection level against micro-pitting for category CKSMP has been added;
- the environmental requirements for environmentally acceptable products have been updated.

A list of all the parts of ISO 12925 can be found on the ISO website.

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Lubricants for gear systems are used in diverse types of gear designs, ranging from simple parallel spur gears to bevel gears (spur, skew or spiral), worm gears and hypoid gears. Industrial gear systems, which are either of open type or enclosed type, vary in size from small enclosed systems used in machine tools to very large systems used in mining, steel mills and cement plants.

Lubricants for these applications vary in composition from refined straight mineral oils to more complex blends, based on mineral oils, synthetic oils (e.g. poly α -olefins, esters, poly-glycols), to vegetable oils and derivatives and friction-modifying additives and/or extreme-pressure. ISO 3448 viscosity grades vary depending on the type of application. They can range from the low viscosity ISO VG 32 to high viscosity ISO VG 1 500. These grades can vary even more for the very low velocities and very high loads. In exceptional cases, viscosity grades may be even higher. Temperature conditions to which the gear systems are exposed also vary considerably, not only due to the ambient conditions of operation, but also depending on the sliding between the gear teeth, on the size of the casings, on the presence on the circulating systems of heat exchangers, on the vicinity of heat sources as in the cement industry or in the steel industry.

Greases may also be used for the splash lubrication of enclosed gears or for the application on open gear teeth.

This document covers the lubricants applied in enclosed gear systems which, at the time of publication, are the most current encountered in the industry. Since the first edition of this document (ISO 12925-1:1996), the requirements for lubricants for enclosed gear systems have largely changed to suit new gear technologies and applications. More demanding requirements have emerged with respect to extreme pressure properties (i.e. resistance to micro-pitting, ability to lubricate low velocity mechanisms, resistance to pitting), foaming and air release characteristics. In addition, there is a greater need for environmentally acceptable products.

This document does not cover the extreme cases of use in terms of gear design, temperature and extreme conditions. For use in exceptional conditions, suppliers and purchasers of lubricants can mutually agree on the testing methods and the acceptability criteria of the products, which is not covered in this document.