
**Cylindrical gears for general and heavy
engineering — Standard basic rack tooth
profile**

*Engrenages cylindriques de mécanique générale et de grosse
mécanique — Tracé de référence*



Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 53 was prepared by Technical Committee ISO/TC 60, *Gears*.

This second edition cancels and replaces the first edition (ISO 53:1974), which has been technically revised.

Annex A of this International Standard is for information only.

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Cylindrical gears for general and heavy engineering — Standard basic rack tooth profile

Scope

This International Standard specifies the characteristics of the standard basic rack tooth profile for cylindrical involute gears (external or internal) for general and heavy engineering.

This International Standard applies to the standardized modules specified in ISO 54.

The defined profile does not take into account the possible cut-off of the height of internal teeth. This height is to be calculated for each case.

The standard basic rack tooth profile defined in this International Standard constitutes a geometrical reference for a system of involute gears in order to fix the sizes of their teeth. It does not constitute a definition of a cutter, but a cutter may be defined from this standard basic rack tooth profile in order to realize a conforming profile.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 54:1996, *Cylindrical gears for general and for heavy engineering — Modules*.

ISO 1122-1:1998, *Vocabulary of gear terms — Part 1: Definitions related to geometry*.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 1122-1 and the following apply.

3.1

standard basic rack tooth profile

tooth profile normal section through the teeth of a basic rack which corresponds to an external gear with number of teeth $z = \infty$ and diameter $d = \infty$

Figure 1.

NOTE — The tooth of the standard basic rack tooth profile is bounded by the tip line at the top and by the parallel root line at the bottom. The fillet between the straight part of the profile and the root line is a circular arc with a radius equal to ρ_{IP} .