
Gear hobs — Accuracy requirements

Fraises-mères — Exigences d'exactitude



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4468 was prepared by Technical Committee ISO/TC 60, *Gears*, Subcommittee SC 1, *Nomenclature and wormgearing*.

This second edition cancels and replaces the first edition (ISO 4468:1982), which has been technically revised.

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Gear hobs — Accuracy requirements

1 Scope

This International Standard specifies requirements for the accuracy of general-purpose hobs of 0,5 module to 40 module.

These hobs are intended for producing gears which conform to ISO 53 and ISO 54.

This International Standard applies to hobs for spur and helical gears. It applies to solid (monobloc) and inserted blade hobs.

The elemental features of hobs are graded according to accuracy, as follows:

- Grade 4A;
- Grade 3A;
- Grade 2A;
- Grade A;
- Grade B;
- Grade C;
- Grade D.

Grade 4A is the highest order of precision.

In addition to the elemental tests for hobs, this International Standard gives permitted tolerances for composite tests that are taken along the cutting edges on the line of action. The two groups of tests are not equivalent and one shall choose between one or the other. If there was no previous agreement, the hob is regarded as belonging to the precision class specified if it satisfies one or the other of the two methods of inspection.

NOTE The tolerances in this International Standard were determined for gear hobs whose dimensions conform to ISO 2490, but with certain precautions they can be applied to hobs not specified in this International Standard.

2 Normative references

The following referenced documents are indispensable for the application 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 53, *Cylindrical gears for general and heavy engineering — Standard basic rack tooth profile*

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

ISO 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

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

ISO 2490, *Solid (monobloc) gear hobs with tenon drive or axial keyway, 0,5 to 40 module — Nominal dimensions*

3 Terms and definitions

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

- 3.1 radial runout of hub diameter**
total deviation in radial distance of the hub periphery from the axis
- 3.2 axial runout of hub face**
total axial deviation of the hub face from a true plane of rotation
- 3.3 radial runout of tips of teeth**
total deviation in the radial distance from the axis to the tips of the hob teeth
- 3.4 straightness and radial alignment over cutting depth**
angular relationship between the tooth face and a radial line intersecting the tooth face at the hob outside diameter, measured in a plane perpendicular to the axis
- 3.5 adjacent spacing of cutting face of gashes**
maximum deviation between any two consecutive cutting face measurements
- 3.6 total spacing of cutting face of gashes**
maximum deviation between any two cutting face measurements
- 3.7 gash lead deviation per 100 mm**
maximum deviation as the probe contacts the tooth faces within axial region of the gash
- NOTE Allowable values for deviations are given per 100 mm of cutting face width.
- 3.8 tooth profile deviation**
maximum deviation of that portion of the hob tooth that generates an unmodified involute profile
- 3.8.1 tooth profile deviation when line of action test is used**
maximum deviation of that portion of the hob tooth that generates an unmodified involute profile when the line of action test is used

NOTE Test 8A is used for tooth profile deviation when the line of action test is used.