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AMERICAN NATIONAL STANDARD

Cylindrical Gears - ISO System of Accuracy - Part 2: Definitions and Allowable Values of Deviations Relevant to Radial Composite Deviations and Runout Information

ANSI/AGMA ISO 1328-2

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American National Standard

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Approved November 17, 1999

ABSTRACT

This standard contains the ISO system of accuracy relevant to radial (double flank) composite deviations of individual cylindrical involute gears. It provides definitions for gear tooth accuracy terms, the structure of the gear accuracy system and the allowable values of radial composite deviations. An informative annex is included that provides equations for determining allowable values of runout.

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Contents

Page

Foreword iv
1 Scope 1
2 Normative references 1
3 Definitions 1
4 Symbols, terms and units 1
5 Gear tooth accuracy terms relevant to radial composite deviations 2
6 Structure of the gear accuracy system 3
7 Formulas for tolerances of accuracy grade 5 for radial composite deviations . 3

Tables

1 Symbols used within ISO 1328–2 2

Figures

1 Radial composite deviation diagram 2

Annexes

A Tables of allowable values of radial composite deviations 5
B Allowable values of runout with tolerance tables 8

Bibliography 11

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Foreword

[The foreword, footnotes and annexes, if any, in this document are provided for informational purposes only and are not to be construed as a part of ANSI/AGMA ISO 1328–1, *Cylindrical Gears – ISO System of Accuracy – Part 2: Definitions and Allowable Values of Deviations Relevant to Radial Composite Deviations and Runout Information.*]

This standard was developed by ISO Technical Committee 60 as an International Standard with ANSI/AGMA participation. It was first published on 1997–08–01. In general, the information in this standard covers similar subjects as are covered in ANSI/AGMA 2000–A88, *Gear Classification and Inspection Handbook – Tolerances and Measuring Methods for Unassembled Spur Helical Gears*, that currently exists.

The user of this American National Standard standard is alerted that differences exist between it and ANSI/AGMA 2000–A88. Differences include, but are not limited to:

- Accuracy grade numbering system is reversed, such that the smallest number represents the smallest tolerance;
- Relative magnitudes of the Total and the Tooth–to–tooth tolerances for a single grade are in a different proportion;
- Recommendations for Master gear engagement with the product gear are different.
- Runout is not included as one of the elements with a tolerance;

Therefore, the user of ANSI/AGMA ISO 1328–2 must be very careful when comparing composite tolerance values formerly specified using ANSI/AGMA 2000–A88.

Annexes A (tolerance tables) and B (runout) are for information only.

ANSI/AGMA ISO 1328–2 is an identical adoption of ISO 1328–2:1997.

This version was approved by the AGMA membership in June 1999. It was approved as an American National Standard on November 17, 1999.

Suggestions for improvement of this standard will be welcome. They should be sent to the American Gear Manufacturers Association, 1500 King Street, Suite 201, Alexandria, Virginia 22314.

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American National Standard –

Cylindrical Gears – ISO System of Accuracy – Part 2: Definitions and Allowable Values of Deviations Relevant to Radial Composite Deviations and Runout Information

1 Scope

This part of ISO 1328 establishes a system of accuracy relevant to radial (double flank) composite deviations of individual cylindrical involute gears. It specifies the appropriate definitions of gear tooth accuracy terms, the structure of the gear accuracy system and the allowable values of the above mentioned deviations.

The radial measurement accuracy system has different grade ranges than elemental ranges in ISO 1328–1. The diameter and module ranges for radial composite deviations and runout are also different.

a) The radial composite accuracy system comprises 9 accuracy grades for F_i I or f_i I of which grade 4 is the highest and grade 12 is the lowest. The module range extends from 0.2 to 10 mm and the diameter range from 5.0 to 1000 mm, see clauses 6 and 7. Annex A gives tables based on the formulae in clause 7.

b) Runout is defined in annex B and values are not given in the standard for determining accuracy grade 5. Annex B provides information on runout for use if agreed upon between purchaser and manufacturer.

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 701:1976, *International gear notation – Symbols for geometrical data.*

ISO 1122–1:1983, *Glossary of gear terms – Part 1: Geometrical definitions.*

ISO 1328–1:1995, *Cylindrical gears – ISO System of accuracy – Part 1: Definitions and allowable values of deviations relevant to corresponding flanks of gear teeth.*

ISO/TR 10064–1:1992, *Cylindrical gears – Code of inspection practice – Part 1: Inspection of corresponding flanks of gear teeth.*

ISO/TR 10064–2:1996, *Cylindrical gears – Code of inspection practice – Part 2: Inspection related to radial composite deviations, runout, tooth thickness and backlash.*

3 Definitions

For the purposes of this part of ISO 1328, the definitions given in ISO 1122–1 apply.

4 Symbols, terms and units

Symbols are based on those given in ISO 701. Only symbols for quantities used in this part of ISO 1328 are given in table 1.