AMERICAN GEAR MANUFACTURERS ASSOCIATION

Cylindrical Gears - Code of Inspection Practice - Part 2: Inspection Related to Radial Composite Deviations, Runout, Tooth Thickness and Backlash

AGMA ISO 10064-2

AGMA INFORMATION SHEET

(This Information Sheet is NOT an AGMA Standard)

American Gear Manufacturers Association

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Approved May 20, 1999

ABSTRACT

This information sheet provides a code of practice dealing with inspection relevant to radial composite deviations, runout, tooth thickness and backlash of cylindrical involute gears (measurements referred to double flank contact), and serves as a supplement to ANSI/AGMA ISO 1328–2, *Cylindrical gears – ISO system of accuracy – Part 2: Definitions and allowable values of deviations relevant to composite deviations and runout information.*

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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 AGMA ISO 10064-2, *Cylindrical Gears - Code of Inspection Practice - Part 2: Inspection Related to Radial Composite Deviations, Runout, Tooth Thickness and Backlash*.]

This document was developed by ISO Technical Committee 60 as a Technical Report with ANSI/AGMA participation. It was first published on 1996-03-01. In general, the information in this Information Sheet covers similar subjects as covered in ANSI/AGMA 2000-A88, *Gear Classification and Inspection Handbook - Tolerances and Measuring Methods for Unassembled Spur and Helical Gears*, and ANSI/AGMA 2002-B88, *Tooth Thickness Specification and Measurement*, that currently exist.

The user of this Information Sheet is alerted that differences exist between it and ANSI/AGMA 2000-A88 and ANSI/AGMA 2002-B88. Differences include, but are not limited to:

- Measuring methods refer to an accuracy grade numbering system that is reversed, such that the smallest number represents the smallest tolerance;
- Terminology used for tooth thickness, backlash, limits and fits are different;
- Recommendations for master gear engagement with the product gear are different;
- Runout measurements from CMM measurements are included.

Therefore, the user of AGMA ISO 10064-2 must be very careful when comparing measurement methods formerly specified using ANSI/AGMA 2000-A88 and ANSI/AGMA 2002-B88.

This version was approved by the Inspection Handbook Committee on April 16, 1999. It was approved by the Technical Division Executive Committee as an AGMA Information Sheet on May 20, 1999.

Suggestions for improvement of this Information Sheet 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 Gear Manufacturers Association –

Cylindrical Gears – Code of Inspection Practice – Part 2: Inspection Related to Radial Composite Deviations, Runout, Tooth Thickness and Backlash

1 Scope

This part of the ISO Technical Report constitutes a code of practice dealing with inspection relevant to radial composite deviations, runout, tooth thickness and backlash of cylindrical involute gears; i.e., with measurements referred to double flank contact.

In providing advice on gear checking methods and the analysis of measurement results, it supplements the standard ANSI/AGMA ISO 1328–2. Most of the terms used are defined in ANSI/AGMA ISO 1328–2.

Annex A provides a method to select gear tooth thickness tolerances and minimum backlash of a gear mesh. Suggested values for minimum backlash are included.

2 References

The following standards contain provisions which, through reference in this text, constitute provisions of AGMA ISO 10064–2. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on AGMA ISO 10064–2 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 53:1974, *Cylindrical gears for general and heavy engineering – Basic rack*.

ISO 54:1977, *Cylindrical gears for general engineering and heavy engineering – Modules and diametral pitches.*

AGMA 915–3–A99, *Inspection practices – Gear blanks, shaft center distance and parallelism.*

ANSI/AGMA 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.*

ANSI/AGMA ISO 1328–2:1997, *Cylindrical gears – ISO system of accuracy – Part 2: Definitions and allowable values of deviations relevant to radial composite deviations and runout information.*

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

3 Symbols, corresponding terms and definitions

3.1 Lower case symbols

Symbol	Definition	Units
a	center distance	mm
b	facewidth	mm
d	reference diameter	mm
d_b	base diameter	mm
d_a	tip diameter	mm
f_e	eccentricity	mm
f_i''	tooth–to–tooth radial composite deviation	μm
h_a	addendum	mm
h_c	reference chordal height	mm
m_n	normal module	–
s_n	normal tooth thickness	mm
s_{nc}	normal chordal tooth thickness	mm
x	profile shift coefficient	–
z	number of teeth	–