American Gear Manufacturers Association

Technical Resources

Identical to ISO/TR 10064-6:2009

AGMA Information Sheet

Code of Inspection Practice - Part 6: Bevel Gear Measurement Methods

AGMA ISO 10064-6-A10

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[Tables or other self-supporting sections may be referenced. Citations should read: See AGMA ISO 10064-6-A10, *Code of Inspection Practice - Part 6: Bevel Gear Measurement Methods,* published by the American Gear Manufacturers Association, 1001 N. Fairfax Street, 5th Floor, Alexandria, Virginia 22314, http://www.agma.org.]

Approved August 24, 2010

ABSTRACT

This information sheet provides a discussion on measuring methods and practices of unassembled bevel and hypoid gears and gear pairs. It includes methods and practices, which permit the manufacturer and purchaser to conduct measuring procedures which are accurate and repeatable to a degree compatible with the specified tolerance grade of ISO 17485.

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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 Information Sheet 10064-6-A10, *Code of Inspection Practice - Part 6: Bevel Gear Measurement Methods.*]

The measurement and tolerance specification of bevel gears are very complex subjects that were in need of international standardization. For these and other reasons, ISO/TC 60 approved the project based on a proposed document, ANSI/AGMA 2009-B01, *Bevel Gear Classification, Tolerances, and Measuring Methods*.

At an early stage it was decided to develop two documents: ISO 17485, with accuracy grades and definitions, and a separate Technical Report, ISO/TR 10064-6, containing inspection practice and measuring methods. These practices and measuring methods included topics such as manufacturing considerations, CMM measurements, contact pattern checking, and advance topics such as bevel gear flank form analysis.

AGMA ISO 10064-6-A10 represents an identical adoption of ISO/TR 10064-6:2009.

The first draft of AGMA ISO 10064-6-A10 was made in March, 2010. It was approved by the AGMA Technical Division Executive Committee on August 24, 2010.

Suggestions for improvement of this document will be welcome. They should be sent to the American Gear Manufacturers Association, 1001 N. Fairfax Street, 5th Floor, Alexandria, Virginia 22314.

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American Gear Manufacturers Association -

Code of Inspection Practice - Part 6: Bevel Gear Measurement Methods

1 Scope

This part of ISO/TR 10064 provides information on measuring methods and practices of unassembled bevel and hypoid gears and gear pairs.

Tolerances are provided in Clause 5 of ISO 17485:2006, for calculating the maximum values allowed by the specific tolerance grade.

Measuring methods and practices are included in order to promote uniform inspection procedures (see Clause 5). These methods permit the manufacturer and purchaser to conduct measuring procedures which are accurate and repeatable to a degree compatible with the specified tolerance grade of ISO 17485.

See Clause 6 of ISO 17485:2006 for required and optional measuring methods.

This part of ISO/TR 10064 applies to bevel gear components as defined in ISO 17485. It does not apply to enclosed gear unit assemblies, including speed reducers or increasers, gear motors, shaft mounted reducers, high speed units, or other enclosed gear units which are manufactured for a given power, speed, ratio or application.

The use of the accuracy grades for the determination of gear performance requires extensive experience with specific applications. Therefore, users are cautioned against the direct application of tolerance values to a projected performance of unassembled gears when they are assembled.

Tolerance values for gears outside the limits stated in ISO 17485 are established by determining the specific application requirements. This possibly requires setting a tolerance smaller than that calculated by the formulae in ISO 17485.

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

ISO 17485:2006, *Bevel gears - ISO system of accuracy*

ISO 23509, *Bevel and hypoid gear geometry*

3 Terms, definitions and symbols

For the purposes of this document, the terms and definitions given in ISO 17485 and the following terms, definitions and symbols apply. See Figure 1.

NOTE 1 Some of the terms, definitions and symbols contained in this Technical Report may differ from those used in other documents. Users of this Technical Report can be assured that they are using the terms, definitions and symbols in the manner indicated herein.

NOTE 2 The general wording “gear” or “bevel gear”, depending on the context, can refer to the “wheel” or the “pinion”.

NOTE 3 For other geometric, measurement and tolerance terms and definitions related to gearing, see ISO 1122-1 and ISO 23509.

3.1 Terms and definitions

3.1.1 Toe

portion of the bevel gear tooth surface at the inner end.

