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AGMA Information Sheet

Aerospace Bevel Gears

American Gear
Manufacturers Association

Aerospace Bevel Gears
AGMA 937-A12

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Approved October 25, 2012

ABSTRACT

This information sheet covers aerospace bevel gears for power, accessory and actuation applications. This information sheet provides additional information on the design, manufacturing and quality control unique to the aerospace environment.

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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 Information Sheet, 937-A12, *Aerospace Bevel Gears*.]

This information sheet was created by reviewing existing practices specific to aerospace bevel gearing. In general, this information sheet is a consolidation of the most common practices and standards currently in existence.

AGMA 431.01 was prepared by the Aerospace Gearing Committee. Its purpose was to correlate and record available data to serve as a guide in the design, fabrication and inspection of aircraft bevel gears used primarily for the transmission of power. It was released to the membership in December, 1960.

AGMA 937-A12 was developed to fill the void following the withdrawal of AGMA 431.01. AGMA 937-A12 expands the scope to include all applications of aerospace bevel gearing.

The first draft of AGMA 937-A12 was made in September, 2000. It was approved by the AGMA Technical Division Executive Committee in October 25, 2012.

Suggestions for improvement of this standard will be welcome. They may be submitted to tech@agma.org.

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American National Standard - Aerospace Bevel Gears

1 Scope

This information sheet covers aerospace bevel gears for power, accessory and actuation applications. This information is to be used in conjunction with ANSI/AGMA 2003-C10 and ANSI/AGMA 2005-D03. This information sheet provides additional information unique to the aerospace environment.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this information sheet. At the time of publication, the editions were valid. All publications are subject to revision, and the users of this information sheet are encouraged to investigate the possibility of applying the most recent editions of the publications listed.

AGMA 911-A94, *Design Guidelines for Aerospace Gearing*

AGMA 923-B05, *Metallurgical Specifications for Steel Gearing*

AGMA 925-A03, *Effect of Lubrication on Gear Surface Distress*

ANSI/AGMA 1012-G05, *Gear Nomenclature, Definitions of Terms with Symbols*

ANSI/AGMA 2001-D04, *Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth*

ANSI/AGMA 2003-C10, *Rating the Pitting Resistance and Bending Strength of Generated Straight Bevel, Zerol Bevel and Spiral Bevel Gear Teeth*

ANSI/AGMA 2004-C08, *Gear Materials and Heat Treatment Manual*

ANSI/AGMA 2005-D03, *Design Manual for Bevel Gears*

ANSI/AGMA 2009-B01, *Bevel Gear Classification, Tolerances, and Measuring Methods*

ANSI/AGMA 2015-1-A01, *Accuracy Classification System - Tangential Measurements for Cylindrical Gears*

ANSI Y14.7.2:1978, *Gear and Spline Drawing Standards, Part 2 - Bevel and Hypoid Gears*

ISO/TR 13989-1:2000, *Calculation of scuffing load capacity of cylindrical, bevel and hypoid gears - Part 1: Flash temperature method*

ISO 1940-1:2005, *Mechanical vibration - balance quality requirements for rotors in a constant (rigid) state - Part 1: Specification and verification of balance tolerances*

ANSI S2.19:2004, *Balance Quality Requirements of Rigid Rotors - Part 1: Determination of Possible Unbalance, Including Marine Applications*

3 Symbols and definitions

The symbols used in this standard are shown in Table 1.

NOTE: The symbols and terms contained in this document may vary from those used in other AGMA standards. Users of this standard should assure themselves that they are using these symbols and terms in the manner indicated herein.

The terms used, wherever applicable, conform to ANSI/AGMA 1012-G05, *Gear Nomenclature, Definitions of Terms with Symbols*.

Equations are shown in two formats: the first is with SI units, constants and ISO symbols, designated by "M" in the equation number and the second is non-metric.