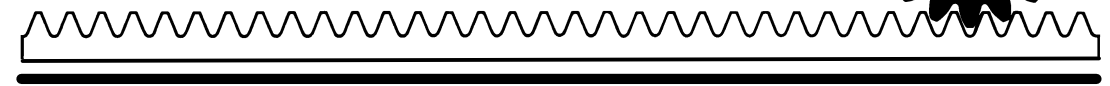


AMERICAN GEAR MANUFACTURERS ASSOCIATION

Specifications for Molded Plastic Gears

AGMA 909-A06



AGMA INFORMATION SHEET

(This Information Sheet is NOT an AGMA Standard)

American
Gear

Manufacturers
Association

Specifications for Molded Plastic Gears

AGMA 909-A06

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Approved July 18, 2006

ABSTRACT

The objective of this information sheet is to inform the plastic gear designer of the importance to clearly and thoroughly define the gear specifications to the plastic gear producer. This information sheet discusses the specifications for gear tooth geometry, inspection, other gear features and manufacturing.

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Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Symbols	1
4 Gear tooth geometry data	1
5 Inspection data	3
6 Other gear feature specifications	5
7 Manufacturing specifications	6
Bibliography	25

Annexes

A Plastic gear specifications	7
B Simplified approach to plastic gear specifications	15
C An alternative method for specifying molded plastic gears	23

Tables

1 Symbols	2
2 Basic gear data for external and internal spur gears	2
3 Basic gear data for external and internal helical gears	2
4 Tooth proportions data for external spur and helical gears	3
5 Tooth proportions data for internal spur and helical gears	3
6 Basic rack data for spur and helical gears	3
7 Composite inspection data	4
8 Master gear data	4
9 Alternate tooth thickness inspection data	5

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 909-A06, *Specifications for Molded Plastic Gears*.]

The committee, responding to the widely recognized need for improving the technical communication between molded plastic gear purchasers and producers, developed this specification information sheet. The primary objective of this information sheet is to increase understanding by the gear purchaser of the responsibility to thoroughly define the gear requirements to the gear producer.

Plastic gear transmission design and manufacturing must consider the relationship of gear geometry, layout, housings, shafts, bearings, and materials. Molded plastic gears offer considerable design flexibility. However, physical properties and dimensions will vary over the range of operating conditions. To accommodate these variations and the molding process, the plastic gear designer must create detailed gear specifications for producing prototype or production gears. This information must clearly communicate to the gear producer what the gear designer specifies.

The first draft of AGMA 909-A06 was made in June, 2001. It was approved by the AGMA membership in July 18, 2006.

Suggestions for improvement of this document will be welcome. They should be sent to the American Gear Manufacturers Association, 500 Montgomery Street, Suite 350, Alexandria, Virginia 22314.

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American Gear Manufacturers Association - Specifications for Molded Plastic Gears

1 Scope

This information sheet is intended to aid the designer to select an appropriate set of specifications that will clearly convey to the producer what is required. Implications and reasons for the design specifications are discussed. Suggested data forms are given in annexes A, B and C.

1.1 Types of gears and processes

These specifications cover the types of plastic gears commonly manufactured by injection molding. Specifications are described for involute external and internal spur and helical gears. Less common bevel and face gears are not covered here because their specifications are significantly different, although they can be injection molded. Gears made by methods other than injection molding may require other specifications or practices.

2 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 indicated were valid. All standards are subject to revision, and parties to agreements based on American National Standards are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI/AGMA 1106-A97, *Tooth Proportions for Plastic Gears (Metric Edition)*

AGMA 2000-A88, *Gear Classification and Inspection Handbook - Tolerances and Measuring Methods for Unassembled Spur and Helical Gears (Including Metric Equivalents)*

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

ANSI/ASME Y14.5M (1994), *Geometric Dimensioning and Tolerancing*

3 Symbols

The symbols used in this information sheet 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 information sheet should assure themselves that they are using these symbols and terms in the manner indicated herein.

4 Gear tooth geometry data

The common method of specifying gear tooth geometry is through a complete list of detailed data, which are unique to gear technology. In engineering drawings part geometry is described in a direct manner, usually with a combination of lines, arcs, and special curves described by a series of data point coordinates. In contrast to this, the size and shape of gear outlines are described by indirect means. These indirect data are based on traditional methods of manufacturing and inspecting gears with some changes or additions associated with the injection molding process. Omission of any of the essential data in the gear designer's specifications may affect performance, cost, and delivery.

Gear tooth geometry data is often supplied on gear drawings in special tables or formats. The data in such formats are often grouped in categories to convey the different functions of the data. The set of categories described in this section, as listed, and the data assigned to each category, represents one type of specification format among others in common use:

- basic gear data;
- tooth proportions data;
- basic rack data.

Adherence to these formats is optional provided adequate specifications are supplied. For additional information on these features, see ANSI/AGMA 1106-A97.