



American
Gear Manufacturers
Association

AGMA 905-A17

AGMA Information Sheet

Inspection of Molded Plastic Gears

**American
Gear
Manufacturers
Association**

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AGMA 905-A17

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ABSTRACT

Due to their specification, design, and manufacture, plastic gears have unique issues that can affect the measurement methods and results obtained. This information sheet describes industry accepted practices to inspect molded plastic gears. It identifies the unique characteristics of molded plastic gears that influence the accuracy and/or repeatability of gear measurements.

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Contents

| | |
|--|-----|
| Foreword | vii |
| 1 Scope..... | 1 |
| 1.1 Inspection methods included in this document..... | 1 |
| 1.2 Types of gears | 1 |
| 2 Normative references | 1 |
| 3 Definitions and symbols..... | 2 |
| 4 Tooth flank labeling | 3 |
| 4.1 Applications..... | 3 |
| 4.2 Labeling systems | 3 |
| 5 Conditioning..... | 4 |
| 5.1 Time | 4 |
| 5.2 Temperature | 4 |
| 5.3 Humidity | 4 |
| 5.4 Other considerations..... | 4 |
| 6 Distortions..... | 5 |
| 6.1 Out-of-round..... | 5 |
| 6.2 Taper, “hour-glass”, and barrel shape | 6 |
| 6.3 Wobble | 7 |
| 6.4 Banana..... | 8 |
| 6.5 Internal gear distortions | 8 |
| 6.6 Sector gear distortions | 8 |
| 6.7 Rack distortions | 9 |
| 7 Datum surfaces..... | 9 |
| 7.1 Identification of datum surfaces | 9 |
| 7.1.1 Datums for external gears, sectors and worms | 9 |
| 7.1.2 Datums for internal gears..... | 11 |
| 7.1.3 Datums for racks | 13 |
| 7.2 Adaptation for inspection | 13 |
| 7.2.1 Substitute datum surfaces..... | 13 |
| 7.2.2 Special arbors or fixtures | 14 |
| 8 Inspection instruments..... | 14 |
| 8.1 Pins | 14 |
| 8.1.1 Bores and datum | 14 |
| 8.1.2 Measurement over/between pins..... | 15 |
| 8.2 Ring gages..... | 15 |
| 8.3 Calipers..... | 15 |
| 8.3.1 Standard calipers | 15 |
| 8.3.2 Gear tooth calipers..... | 16 |
| 8.4 Micrometers | 16 |
| 8.4.1 Standard micrometers..... | 16 |
| 8.4.2 Ball anvil micrometers | 17 |
| 8.4.3 Disc micrometer | 17 |
| 8.5 Visual inspection..... | 18 |
| 8.6 Optical methods..... | 18 |
| 8.6.1 Optical comparator..... | 18 |
| 8.6.2 Video measuring systems | 18 |
| 8.7 Indicators | 18 |

| | | |
|--------|--|----|
| 8.8 | Double flank inspection..... | 18 |
| 8.8.1 | Principle of measurement | 18 |
| 8.8.2 | Advantages and disadvantages..... | 20 |
| 8.8.3 | Limitations to use of double flank composite measurements | 20 |
| 8.8.4 | Master gear design considerations | 21 |
| 8.9 | Single flank inspection | 22 |
| 8.10 | Coordinate measuring machine, CMM | 24 |
| 8.10.1 | Conventional CMM..... | 24 |
| 8.10.2 | Gear checking CMM | 24 |
| 9 | Features to be measured | 26 |
| 9.1 | Datum features | 26 |
| 9.2 | Number of teeth | 27 |
| 9.3 | Normal module..... | 27 |
| 9.4 | Normal pressure angle | 27 |
| 9.5 | Helix angle/lead angle | 27 |
| 9.6 | Hand | 28 |
| 9.7 | Reference diameter | 28 |
| 9.8 | Axial pitch..... | 28 |
| 9.9 | Lead | 28 |
| 9.10 | Tooth thickness..... | 28 |
| 9.10.1 | Gear tooth thickness measurement methods | 30 |
| 9.10.2 | Influences on the tooth thickness measurement for plastic gears | 40 |
| 9.11 | Measurement of gear tip diameters or tip height on a rack | 41 |
| 9.11.1 | Outside tip diameter for external gears with even numbers of teeth | 41 |
| 9.11.2 | Outside diameter for external gears with odd numbers of teeth | 42 |
| 9.11.3 | External sector gears | 43 |
| 9.11.4 | Minor tip diameter for internal gears | 43 |
| 9.11.5 | Rack tip height | 44 |
| 9.12 | Measurement of gear root diameters..... | 44 |
| 9.13 | Tip radius | 44 |
| 9.14 | Root fillet radius | 45 |
| 9.15 | Runout over a ball or pin..... | 45 |
| 9.16 | Double flank composite inspection | 45 |
| 9.16.1 | Tight mesh center distance | 46 |
| 9.16.2 | Test radius..... | 46 |
| 9.16.3 | Functional tooth thickness..... | 47 |
| 9.16.4 | Total composite deviation | 47 |
| 9.16.5 | Tooth-to-tooth composite deviation..... | 47 |
| 9.16.6 | Total composite deviation over k teeth | 47 |
| 9.16.7 | Eccentricity | 48 |
| 9.17 | Single flank inspection | 48 |
| 9.17.1 | Single flank total composite deviation..... | 48 |
| 9.17.2 | Single flank tooth-to-tooth composite deviation | 48 |
| 9.18 | Analytical, or elemental, inspection | 48 |
| 9.18.1 | Single pitch deviation | 49 |
| 9.18.2 | Cumulative pitch deviation | 49 |
| 9.18.3 | Functional tooth thickness..... | 51 |
| 9.18.4 | Measurement over pins or balls by analytical inspection..... | 51 |
| 9.18.5 | Runout by analytical inspection | 51 |
| 9.18.6 | Total profile deviation | 51 |
| 9.18.7 | Profile form deviation | 53 |
| 9.18.8 | Profile slope deviation | 53 |
| 9.18.9 | Total helix deviation | 53 |

| | |
|--|----|
| 9.18.10 Helix form deviation..... | 53 |
| 9.18.11 Helix slope deviation | 55 |
| 9.18.12 Tip relief..... | 55 |
| 10 Statistical techniques in measuring plastic gears..... | 55 |
| 10.1 Inside and outside diameters..... | 55 |
| 10.2 Total composite deviation | 55 |
| 10.3 Tooth-to-tooth deviation..... | 56 |
| 10.4 Tight mesh center distance or test radius..... | 56 |
| 11 Measurement system analysis | 56 |
| 11.1 Issues with Gage R&R results for total composite deviation on plastic gears | 57 |
| 11.2 Uncertainty analysis for double flank composite inspection systems..... | 58 |
| 11.2.1 The U_{95} measurement for uncertainty..... | 58 |

Annexes

| | |
|---|----|
| Annex A (informative) A case study of statistical techniques during plastic gear development..... | 61 |
| Annex B (informative) A case study of measurement system analysis using ANOVA method Gage..... | 70 |
| Annex C (informative) Bibliography | 75 |

Tables

| | |
|--|----|
| Table 1 – Symbols and terminology..... | 2 |
| Table 2 – Pin gage tolerance chart based on ANSI/ASME B89.1.5..... | 14 |
| Table 3 – Tooth thickness specification system and corresponding measurement methods | 30 |
| Table 4 – Ball or pin measurement usage | 34 |
| Table A.1 – Probability values N_{β} | 66 |

Figures

| | |
|--|----|
| Figure 1 – Notation and numbering for external gears | 3 |
| Figure 2 – Notation and numbering for internal gears | 3 |
| Figure 3 – Out-of-round gear | 5 |
| Figure 4 – Out-of-round caused by fiber orientation | 6 |
| Figure 5 – Taper in cluster gears | 6 |
| Figure 6 – Taper in gear blanks with offset webs | 6 |
| Figure 7 – Hour glass..... | 7 |
| Figure 8 – Barrel shape..... | 7 |
| Figure 9 – Wobble..... | 7 |
| Figure 10 – Banana shape worm..... | 8 |
| Figure 11 – Twist in plastic sector gear | 8 |
| Figure 12 – Rack distortion | 9 |
| Figure 13 – Datum axis defined by bores and counterbores | 10 |
| Figure 14 – Datum axis defined by journal(s) on external gears | 10 |
| Figure 15 – Datum axis defined by journal and counterbore | 11 |

| | |
|--|----|
| Figure 16 – Datum axis defined by a bore through the center of the gear web and a counterbore or an external hub | 11 |
| Figure 17 – Datum axis defined by journals on internal gears and a counterbore on the external hub | 12 |
| Figure 18 – Datum axis defined by counterbores or hub diameters at both ends | 12 |
| Figure 19 – Datum axis defined by back surface | 13 |
| Figure 20 – Datum axis defined by guiding grooves | 13 |
| Figure 21 – Datum axis defined by holes that engage complementary features | 13 |
| Figure 22 – Chordal tooth thickness measurement using a gear-tooth caliper | 16 |
| Figure 23 – Ball anvil micrometer | 17 |
| Figure 24 – Disc micrometer | 17 |
| Figure 25 – General arrangement of a double flank composite tester | 19 |
| Figure 26 – A double flank composite tester in tight mesh | 19 |
| Figure 27 – Double and single flank measurement comparison | 23 |
| Figure 28 – Measurement of functional tooth thickness, pitch, over balls and runout during analytical inspection | 24 |
| Figure 29 – Profile measurement during analytical inspection | 25 |
| Figure 30 – Helix measurement during analytical inspection | 26 |
| Figure 31 – Measurement of out of round surface with odd number of lobes (shown as three lobes) | 27 |
| Figure 32 – Right hand external helical gear | 28 |
| Figure 33 – Right hand internal helical gear | 28 |
| Figure 34 – Span measurement using a disc micrometer | 31 |
| Figure 35 – Span measurement geometry for external spur gears | 31 |
| Figure 36 – Span measurement of helical gears | 32 |
| Figure 37 – Tooth thickness measurement over pins | 33 |
| Figure 38 – Measurement with measuring blocks for even and odd numbers of teeth | 35 |
| Figure 39 – Female block | 36 |
| Figure 40 – Male block | 36 |
| Figure 41 – Chordal tooth thickness in plane of measurement | 38 |
| Figure 42 – Transverse chordal dimension | 39 |
| Figure 43 – Direct measurement of outside diameter of gears with even numbers of teeth | 41 |
| Figure 44 – Outside diameter measurement with arbor | 42 |
| Figure 45 – Measurement of sector gear outside radius with close fitting arbor | 43 |
| Figure 46 – Measuring error on an internal gears minor diameter using a flat tipped anvil | 44 |
| Figure 47 – Rack tip height measurement | 44 |
| Figure 48 – Runout over a ball or pin | 45 |
| Figure 49 – Sample of double flank test output | 46 |
| Figure 50 – Pitch, over pins (balls) and runout on a typical analytical inspection report | 50 |
| Figure 51 – Profile deviations from a typical analytical inspection report | 52 |
| Figure 52 – Profile deviation chart of left flank from an analytical inspection report | 52 |
| Figure 53 – Helix deviations from a typical analytical inspection report | 54 |

| | |
|--|----|
| Figure 54 – Helix deviation chart of left flank from an analytical inspection report..... | 54 |
| Figure A.1 – Over molded plastic gear on a metal shaft for the case study | 61 |
| Figure A.2 – Probability plot for the case study plastic gear before mold correction..... | 61 |
| Figure A.3 – Probability plot for the case study plastic gear after mold correction..... | 62 |
| Figure A.4 – Process capability plot for the case study plastic gear..... | 63 |
| Figure A.5 – Probability distribution plot | 64 |
| Figure A.6 – Typical control chart (in subgroups of ten) of in-process tooth-to-tooth deviation data | 67 |
| Figure A.7 – Minimum tight mesh center distance capability study | 68 |
| Figure A.8 – Maximum tight mesh center distance capability study..... | 68 |
| Figure B.1 – Apparatus use for Gage R&R case study | 70 |
| Figure B.2 – Gage R&R example for total composite deviation on an unfilled acetal gear | 71 |
| Figure B.3 – Total composite deviation data Xbar - R chart (in subgroups of two) of the same acetal plastic gear roll tested 100 times on a double flank tester..... | 72 |

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 905-A17, *Inspection of Molded Plastic Gears*.]

The first draft of AGMA 905-A17 was made in January 2001. It was approved by the AGMA membership in February 2017.

This information sheet was written to provide the plastics gearing community with a resource on how plastic gears are commonly measured. While many of the methods described apply to all gearing, this document provides added information specific to plastic gears.

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

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This information sheet is dedicated to Irving Laskin. His inspiration, commitment and contributions to the Plastic Gearing Committee's work over many years helped lead to the development of this information sheet. His thoroughness, enthusiasm and contributions to the Plastic Gearing Committee helped develop this and many other AGMA documents.

American Gear Manufacturers Association – Inspection of Molded Plastic Gears

1 Scope

This document describes industry accepted practices to inspect molded plastic gears. It identifies the unique characteristics of molded plastic gears that influence the accuracy and repeatability of gear measurements. This document does not establish a quality classification system or tolerances for plastic gear geometry.

This document describes the equipment commonly used in measuring plastic gears, the measurement techniques that can be employed, and statistical and system analysis issues that can be applied.

1.1 Inspection methods included in this document

The inspection methods described in this document are limited to those specifications that are typically defined on a plastic gear's drawing. These features are described in AGMA 909, *Specifications for Molded Plastic Gears*. Other aspects of gear quality are not considered here such as basic material strength, processing influences on strength, surface appearances, surface texture and the presence of flash.

1.2 Types of gears

Inspection methods described here are limited to the most common types of molded plastic involute gears, namely:

- spur;
- helical;
- cylindrical worm;
- external, internal, and rack forms;
- sector gears.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of the 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 909-A06, *Specifications for Molded Plastic Gears*

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

AGMA 915-2-A05, *Inspection Practices – Part 2: Cylindrical Gears – Radial Measurements*

ANSI/AGMA 2002-C16, *Tooth Thickness and Backlash Measurement of Cylindrical Involute Gearing*

ANSI/AGMA ISO 1328-1-B14, *Cylindrical Gears – ISO System of Flank Tolerance Classification – Part 1: Definitions and Allowable Values of Deviations Relevant to Flanks of Gear Teeth*

ANSI/AGMA 2015-2-B15, *Accuracy Classification System – Radial Measurements for Cylindrical Gears*