



American
Gear Manufacturers
Association

AGMA 946-A21

AGMA Information Sheet

Test Methods for Plastic Gears

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Manufacturers
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ABSTRACT

This information sheet describes test methods and recommended documentation practices for determining load carrying capacity and wear performance of plastic gears. It describes test methods for plastic gears related to dynamic testing where two gears rotate against each other under controlled load and velocity, as well as static testing where a gear is held stationary while a load is applied to one or more of the gear's features, or pulsator testing where the test gear is not rotating, but the load is pulsed repeatedly until fatigue failure occurs.

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Contents

Foreword	iv
1 Scope.....	1
1.1 Types of tests covered	1
1.2 Exclusions	1
2 Normative references	1
3 Definitions	1
3.1 Dynamic testing	1
3.2 Pulsator testing.....	1
3.3 Static testing	2
3.4 Hysteresis.....	2
4 Testing methodology	2
4.1 General.....	2
4.2 Test objective	2
4.2.1 Material evaluation testing	2
4.2.2 Gear design geometry testing.....	2
4.2.3 Process control testing.....	2
4.2.4 Gear application testing	2
4.3 Dynamic testing	3
4.4 Static testing	3
4.5 Pulsator testing.....	3
5 Test equipment.....	3
5.1 Dynamic testing equipment	3
5.1.1 Open-loop tester	3
5.1.2 Closed-loop tester.....	4
5.2 Static testing	5
5.2.1 Manual load application	6
5.2.2 Machine or automated load application	6
5.3 Pulsator testing.....	6
6 Test specimens.....	7
6.1 Method of manufacture	7
6.2 Accuracy.....	7
6.3 Test sample conditioning.....	7
7 Test protocol	7
7.1 Failure criteria.....	7
7.2 Number of samples	7
7.3 Temperature	7
7.4 Test conditions	8
7.4.1 Speed selection.....	8
7.4.2 Load selection	8
7.4.3 Load rate	8
7.5 Data	9
7.5.1 Bending fatigue test	9
7.5.2 Wear test.....	10
7.5.3 Static test	11
7.6 Precautions.....	11
7.6.1 Stress calculations	11

Annexes

Annex A Bibliography 12

Figures

Figure 1 – Open-loop tester 4

Figure 2 – Closed-loop tester..... 5

Figure 3 – Static test configuration 6

Figure 4 – Fatigue plot 10

Figure 5 – Wear plot..... 11

Tables

Table 1 – Plastic gear test types 2

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 946-A21, *Test Methods for Plastic Gears*.]

The purpose of this document is to create a framework for communicating the information collected from various types of plastic gear material test programs. Although data describing the physical performance of plastic materials used for gear applications is available, this information is not always directly related to the performance of the material as a gear. Efforts made to characterize the performance of plastic gears and gear materials have been spread among different individuals and organizations, with little uniformity in the methods used or data supplied. In many instances tests that have been designed and deemed adequate for traditional metal gearing have been used without compensating for the unique physical performance characteristics of plastics, resulting in data that is limited in its usefulness.

The document outlines typical test configurations, suggest formats for presenting the data, and includes some recommendations and cautions peculiar to plastic gears.

This information sheet is dedicated to Irving Laskin. His inspiration, commitment and contributions to the Plastic Gearing Committee's work over many years led 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.

The first draft of AGMA 946-A21 was created in October 2014. It was approved by the membership in February 2021.

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

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