

AMERICAN GEAR MANUFACTURERS ASSOCIATION

***Accuracy Classification System -
Tangential Measurement Tolerance Tables
for Cylindrical Gears***



AGMA INFORMATION SHEET

(This Information Sheet is NOT an AGMA Standard)

American Gear Manufacturers Association ***Accuracy Classification System - Tangential Measurement Tolerance Tables for Cylindrical Gears***
Supplemental Tables for AGMA 2015/915-1-A02

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Approved October 20, 2002

ABSTRACT

This information sheet provides tolerance tables as a supplement to AGMA 2015-1-A01, *Accuracy Classification System - Tangential Measurements for Cylindrical Gears*.

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Foreword

This Information Sheet (supplement) is provided for informational purposes only, and should not be construed to be part of American Gear Manufacturers Association Standard ANSI/AGMA 2015-1-A01.

This supplement provides tables of tolerances for all the different gear accuracy grades. While the tables may be used to estimate the tolerances, the actual tolerance should be calculated and rounded according to the formulas in ANSI/AGMA 2015-1-A01.

The range of gear sizes covered by the standard is generally shown in the tables. The tolerances are calculated at convenient combinations of module and tolerance diameter, d_T . The tables are limited to the range of 5 to 1000 teeth, using the simple spur gear relationship that tolerance diameter is approximately equal to the number of teeth times the module. The tolerance diameter of helical gears may be significantly higher. The helix tables are arbitrarily limited to a minimum facewidth of $d_T/40$ and a maximum face width of $3 \times d_T$, values outside of which are generally beyond normal practice. Some combinations of module and diameter or facewidth that are beyond the range shown in these tables may be valid. Therefore, limits of application implied by these tables should not be relied upon; the actual limits given in ANSI/AGMA 2015-1-A01 should be used.

The tables with inch units cover a slightly narrower range than those given in the metric tables. The inch tables are just within the limits given in ANSI/AGMA 2015-1-A01. The diameter of 98 inches is used because the composite tolerances are limited to a tolerance diameter of 2500 mm (98.425 inches).

It should be noted that ANSI/AGMA 2015-1-A01 uses a fundamentally different evaluation method for tooth-to-tooth single flank composite tolerances than was used in prior standards; therefore these tolerances should not be directly compared to those in prior standards.

The first draft of the Supplemental Tables for AGMA 2015/915-1-A02 was made in January, 2002. It was approved by the AGMA membership in October, 2002.

Suggestions for improvement of this information sheet will be welcome. They should be sent to the American Gear Manufacturers Association, 1500 King Street, Suite 201, Alexandria, Virginia 22314.

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Accuracy Classification System - Tangential Measurement Tolerance Tables for Cylindrical Gears

1 Scope

This information sheet contains tolerance tables dealing with the tangential measurements of cylindrical involute gear tooth flanks. While the tables may be used to estimate the tolerances, the actual tolerance should be calculated and rounded according to the formulas in ANSI/AGMA 2015-1-A01. It supplements the standard ANSI/AGMA 2015-1-A01, *Accuracy Classification System - Tangential Measurements for Cylindrical Gears*.

2 References

The following standards contain provisions which are referenced in the text 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 this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated.

AGMA 915-1-A02, *Inspection Practices - Part 1: Cylindrical Gears - Tangential Measurements*

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

ISO 701:1998, *International gear notation - Symbols for geometrical data*

3 Symbols and corresponding terms

The symbols and terms used throughout this document are in basic agreement with the symbols and terms given in ISO 701:1998, *International gear notation - Symbols for geometrical data*. See table 1.

NOTE: The symbols and definitions used in this document may differ from other AGMA standards. The user should not assume that familiar symbols can be used without a careful study of their definitions.

Table 1 - Symbols and definitions

Symbols	Definition	Units	
		SI	Inch
b	Facewidth (axial)	mm	in
d_T	Tolerance diameter	mm	in
F_{isT}	Single flank composite tolerance, total	μm	0.0001 in
F_{pT}	Cumulative pitch deviation tolerance, total	μm	0.0001 in
$F_{\alpha T}$	Profile tolerance, total	μm	0.0001 in
$F_{\beta T}$	Helix tolerance, total	μm	0.0001 in
$f_{i\alpha T}$	Profile form tolerance	μm	0.0001 in
$f_{i\beta T}$	Helix form tolerance	μm	0.0001 in
$f_{H\alpha T}$	Profile slope tolerance	μm	0.0001 in
$f_{H\beta T}$	Helix slope tolerance	μm	0.0001 in
f_{isT}	Single flank composite tolerance, tooth-to-tooth	μm	0.0001 in
f_{pT}	Single pitch deviation tolerance	μm	0.0001 in
m_n	Normal module	mm	- -
P_{nd}	Normal diametral pitch	- -	in^{-1}