



American  
Gear Manufacturers  
Association

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Technical Resources

Metric Edition of ANSI/AGMA 9003-B08

## **American National Standard**

# **Flexible Couplings – Keyless Fits (Metric Edition)**

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## **Flexible Couplings - Keyless Fits (Metric Edition)**

ANSI/AGMA 9103-B08

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Approved May 20, 2008

### **ABSTRACT**

This standard presents information on design, dimensions, tolerances, inspection, mounting, removal, and equipment that is in common use with keyless tapered and keyless straight (cylindrical) bore hubs for flexible couplings.

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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 ANSI/AGMA 9103-B08, *Flexible Couplings - Keyless Fits (Metric Edition)*.]

This standard was developed after intensive study of existing practices, standards and literature. The intent of this document is to offer to rotating equipment designers and users a standard for design practice and dimensions regarding keyless fits for flexible couplings. In general, the information in this standard is a consolidation of the most common practices and standards currently in existence.

This AGMA standard and related publications are based on typical or average data, conditions, or applications.

Work was begun on ANSI/AGMA 9003-A91 in 1985 and was approved by the AGMA membership in February 1991. It was approved as an American National Standard on May 20, 1991.

ANSI/AGMA 9103-B08 split the original standard into inch (ANSI/AGMA 9003-B08) and metric versions, updated annex B and added an example calculation as annex D.

The first draft of ANSI/AGMA 9103-B08 was made in October, 2004. It was approved by the AGMA membership in October, 2007. It was approved as an American National Standard on May 20, 2008.

Suggestions for improvement of this standard 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 National Standard – Flexible Couplings – Keyless Fits (Metric Edition)

## 1 Scope

This standard presents information on design, dimensions, tolerances, inspection, mounting, removal, and equipment that is in common use with keyless tapered and keyless straight (cylindrical) bore hubs for flexible couplings. Calculated hub stress values and hub to shaft torque capacities are nominal values. This standard does not present a rigorous analysis of the components.

### 1.1 Applicability

This standard applies only to hubs and solid shafts made of steel, which generally have material properties of modulus of elasticity equal to  $2.07 \times 10^5$  MPa, density equal to  $7830 \text{ kg/m}^3$ , and thermal expansion coefficient equal to  $11.4 \times 10^{-6} \text{ mm/mm/}^\circ\text{C}$ .

### 1.2 Exclusions

This standard does not apply to couplings attached to shafts with keyways, splines, split hubs or polygon bores.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI/AGMA 9112-A04, *Bores and Keyways for Flexible Couplings (Metric Series)*

ANSI/AGMA 9009-D02, *Flexible Couplings – Nomenclature for Flexible Couplings*

## 3 Terms and symbols

### 3.1 Terms

The terms used, wherever applicable, conform to the following Standards:

ANSI Y10.3-1968, *Letter Symbols for Quantities Used in Mechanics of Solids*

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

### 3.2 Symbols

The symbols used in the formulas are shown in table 1.

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

## 4 Responsibility

The purchaser has the sole responsibility for specifying the peak torque and all other pertinent loading and operating information affecting the hub-to-shaft juncture. The machine designer is totally responsible for the design of the hub-to-shaft juncture. The sole responsibility of the coupling manufacturer is to provide hubs designed and manufactured according to the purchaser's specifications.

Compliance with this standard does not constitute a warranty of the rating of the hub to shaft juncture under installed conditions. This standard only applies to the hub design. There can be personal injury or catastrophic failure of the shaft or hub-to-shaft juncture as a result of incorrect design, installation, or removal error, or other factors unrelated to the hub design.

**WARNING:** When working with hydraulic mounting and removal equipment **EXTREME** care and caution must be used to prevent personal injury and damage to equipment due to explosive axial movement at the time of hub release.