



American  
Gear Manufacturers  
Association

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Technical Resources

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## **American National Standard**

# **Bores and Keyways for Flexible Couplings (Metric Series)**

**ANSI/AGMA 9112-A04**

# American National Standard

## **Bores and Keyways for Flexible Couplings (Metric Series)**

ANSI/AGMA 9112-A04

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[Tables or other self-supporting sections may be referenced. Citations should read: See ANSI/AGMA 9112-A04, *Bores and Keyways for Flexible Couplings (Metric Series)*, published by the American Gear Manufacturers Association, 500 Montgomery Street, Suite 350, Alexandria, Virginia 22314, <http://www.agma.org>.]

Approved May 5, 2005

### **ABSTRACT**

This standard describes sizes and tolerances for straight and tapered bores and the associated keys and keyways, as furnished in flexible couplings. The data in the standard considers commercially standard coupling bores and keyways, not special coupling bores and keyways that may require special tolerances.

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## Contents

	Page
Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Symbols and definitions .....	1
4 Straight (finished) bored hubs .....	2
5 Tapered bore hubs .....	5
6 Keys .....	5
7 Hub keyways .....	7

Bibliography .....	33
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## Annexes

A Straight bore inspection methods .....	12
B Tapered bore inspection procedure and plug gauge accuracy requirements .....	13
C Recommended design practice for conical shafts used with flexible couplings .....	16
D Keyway measurement .....	19
E Other bore/shaft tolerance combinations found in industry and the resulting fits .....	24

## Figures

1 Tapered bore requirements .....	5
2 Tapered bore drawing dimensions .....	5
3 Types of keys .....	7
4 Keyway dimensions .....	7
5 Keyway offset .....	9
6 Keyway lead .....	10
7 Keyway parallelism .....	10
8 Multiple keyway index .....	11

## Tables

1 Symbols .....	1
2 Recommended bores for metric shafts from ISO/R775:1969 .....	3
3 Key sizes for cylindrical shafts from ISO R773:1969 .....	6
4 Key dimensions from ISO R773:1969 .....	6
5 Recommended hub keyway dimensions .....	8
6 Hub keyway/key fits .....	9
7 Maximum keyway lead values .....	10
8 Multiple keyway index tolerances .....	10

## 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 9112-A04, *Bores and Keyways for Flexible Couplings (Metric Series)*.]

This standard incorporates information from the following International Organization for Standardization (ISO) and American National standards Institute (ANSI) standards:

- ISO 286-1, *ISO System of limits and fits - Bases of tolerances, deviations and fits*
- ISO 286-2, *ISO System of limits and fits - Tables of standard tolerance grades and limit deviations for holes and shafts*
- ISO R773 (withdrawn 1998), *Rectangular or Square Parallel Keys and their Corresponding Keyways*
- ISO R775 (withdrawn 1998), *Cylindrical and 1/10 Conical Shaft Ends*
- ANSI/AGMA 9002-B04, *Bores and Keyways for Flexible Couplings (Inch Series)*

The intent of this document is to offer designers and users of flexible couplings preferred dimensions, tolerances and fits for metric bores and keyways.

This standard incorporates a small portion of the numerous variations of shaft/bore fits. These fits and tolerances have been determined to be the preferred fits and tolerances that most closely relate to the bore and keyway fit classes from ANSI/AGMA 9002-A86. A study of the existing metric standards indicated that the many possible combinations of shaft/bore fits would be impractical to adopt as an all encompassing standard. Therefore, this standard does not intend to replace any existing metric standards, but to define what is preferred.

The first draft of ANSI/AGMA 9112-A04 was made in May, 2001. It was approved by the AGMA membership in October 23, 2004. It was approved as an American National Standard on May 5, 2005.

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 – Bores and Keyways for Flexible Couplings (Metric Series)

## 1 Scope

This standard presents metric dimensions, tolerances, sizes and fits for straight bores, tapered bores, keys and keyways for unmounted industrial flexible couplings. The keys and keyways followed the recommendations of ISO R773:1969 and shaft tolerances followed ISO R775:1969. Shaft keyseat dimensions and tolerances were given in ISO R773:1969. This specification includes index tolerances for multiple keyways.

Inspection methods for straight and tapered bores and keyways are included in the annexes. The annexes also include the recommended design practice for tapered shafts for use with flexible couplings.

### 1.1 Application area

This standard is applicable to couplings as defined in ANSI/AGMA 9009-D02, *Nomenclature for Flexible Couplings*, with metric bores and keyways.

## 1.2 Excluded area

This standard does not apply to couplings attached to shafts without keys (see ANSI/AGMA 9003-A91), shafts and bores with tapered keys, inch bores with metric keyways, metric bores with inch keyways, inch bores with inch keyways, or shaft keyseat tolerances. See ANSI/AGMA 9002-B04 for inch bores with inch keyways.

## 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 the American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed.

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

## 3 Symbols and definitions

### 3.1 Symbols

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

Table 1 – Symbols

Symbol	Description	Units	First used
$b$	Key width	mm	Table 3
$D_b$	Large end diameter of hub bore	mm	Figure 1
$D_g$	Gauge line diameter of hub bore	mm	Figure 2
$D_{se}$	Small end diameter of hub bore	mm	5.3
$d$	Cylindrical shaft diameter	mm	Table 3
$h$	Key height	mm	Table 3
$I_{kw}$	Multiple keyway index tolerance	mm	7.3.7
$L_{kw}$	Maximum keyway lead	mm	7.3.5
$l$	Axial length of the tapered feature	mm	5.3

(continued)