

STANDARD

ANSI B92.1b-1996

Addendum to ANSI B92.1-1970
(including ANSI B92.1a-1976)

Approved by the American
National Standards Institute

Involute Splines

Published by:
Society of Automotive Engineers, Inc.
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Warrendale, PA 15096-0001
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FOREWORD

The B92.1 inch and companion metric converted spline standards were first released in 1970. Addendum B92.1a was released in 1976 where the only change was to add a definition paragraph 2.1.1 "Effective Spline." Editorial and mathematical corrections to tabular dimensions have been made several times since that first printing without affecting interchangeability with previous versions and without change to the original dimensioning and tolerancing concepts. The converted metric version is no longer available due to the release of the B92.2M Metric Module Spline Standard in 1980.

This B92.1b addendum has been developed by a subcommittee of the B92 SAE Involute Spline Committee to provide guidance for application of four classes of effective fit patterned after the B92.2M Metric Module Spline Standard. Additional application oriented tolerancing and dimensioning concepts have been added in order to allow dimensioning and tolerancing practices consistent with the more modern B92.2M standard. The B92.1b addendum will be maintained only in a U.S. non-metric version.

The effect of the B92.1b addendum is to provide splines that can have different and sometimes wider tolerances than those provided with the B92.1 standard. It is not intended for these changes to affect interchangeability with the B92.1 standard, but if interchangeability is required, the user should verify that interchangeability will not be affected. Splines conforming to B92.1 dimensions are presumed to be used unless both the user and the supplier specifically agree that dimensions are to be according to B92.1b.

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I. SPLINES

1.1 GENERAL

The requirements for an involute spline are described in ANSI B92.1 as published by the Society of Automotive Engineers, Inc. This addendum lists all dimensions and tolerances as formulas, and includes several modifications required to bring it into technical equivalence with its metric counterpart, ANSI B92.2M.

1.2 PURPOSE

The purpose of this addendum to B92.1 is to expand the capability of the standard. All numbers are connected to a formula to enable an easier use of the standard. Minimum effective clearance is defined. Form clearance is controlled by tooth size and minimum fillet radius is specified for a flat root spline. Some drawing callouts are added for clarification and the tolerances are limited for splines with a large number of teeth.

1.3 SCOPE

1.3.1 This document is an extension of the current B92.1 standard. It does not supersede the B92.1 standard. All splines currently meeting the requirements of the B92.1 standard are still in compliance with that standard. A table of the variables and the formula that calculates its value is included. Splines conforming to B92.1 will mate with splines conforming to B92.1b. Splines conforming to B92.1 shall be used unless B92.1b is specified or otherwise agreed to by the purchaser and the supplier. This addendum does not apply to major diameter fit splines.

1.3.2 Units of Measurement Linear dimensions are expressed in inches, and angular dimensions are expressed in degrees.

II. REFERENCE

ANSI B92.1-1970(R1992)	U.S. Standard	Involute Splines and Inspection
ANSI B92.2M-1980(R1989)	U.S. Standard	Metric Module Involute Splines

III. SPLINE TERMS AND DEFINITIONS

- 3.1 Definitions for an involute spline are given in the ANSI B92.1 standard. The following definitions are added to clarify terms which are not covered by B92.1. For comparison to international standards, follow the metric national standard ANSI B92.2M.
- 3.2 backlash a term used for gearing (for splines see effective clearance definition in B92.1)
- 3.3 basic dimension a numerical value to describe the theoretically exact size, shape, profile, orientation, or location of a feature or datum
- 3.4 tooth flank or side that surface of the tooth limited by the major diameter and the form diameter on the external spline, and the minor diameter and form diameter on the internal spline and having an involute profile for the specified spline length

IV. SYMBOLS

Symbols for an involute spline are given in the ANSI B92.1 standard. The following symbols are added to clarify terms which are not covered by B92.1. For comparison to international standards, follow the metric national standard B92.2M.

F_{β}	maximum allowable lead variation
F_{fp}	maximum allowable positive profile variation
F_{fm}	maximum allowable negative profile variation