

AS 2938—1993

Australian Standard[®]

**Gears—Spur and helical—Guide to
specification and rating**

This Australian Standard was prepared by Committee ME/11, Gears and Splines. It was approved on behalf of the Council of Standards Australia on 2 September 1993 and published on 13 December 1993.

The following interests are represented on Committee ME/11:

Australian Sugar Milling Council
Bureau of Steel Manufacturers of Australia
CSIRO, Division of Applied Physics
German-Australian Chamber of Industry and Commerce
Institution of Engineers, Australia
Metal Trades Industry Association
Sugar Industry Manufacturers and Services Group of Australia
University of Wollongong

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

AS 2938—1993

Australian Standard[®]

Gears—Spur and helical—Guide to specification and rating

First published as AS B61—1941 (being BS 436—1940 endorsed without amendment).

Revised and redesignated AS B61.1—1974 (being BS 436.1—1967 endorsed without amendment) and AS B61.2—1975 (being BS 436.2—1970 endorsed with amendment).

AS B61.1—1974 and AS B61.2—1975 revised, amalgamated and redesignated AS 2938—1987.

AS B61—1941 withdrawn 1987.

Second edition AS 2938—1993.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 8565 X

PREFACE

This Standard was prepared by the Standards Australia Committee on Gears and Splines to supersede AS 2938—1987, *Gear—Spur and helical—Guide to specification and rating*.

When AS 2938 was first published in 1987 it was based on American Gear Manufacturers Association (AGMA) Standard 218.01—1982, *Rating and pitting resistance and bending strength of spur and helical involute gear teeth*. In 1988 ANSI/AGMA 2001-B88, *Fundamental rating factors and calculation methods for involute spur and helical gear teeth*, was published to supersede AGMA 218.01. The new Standard was examined by the Committee and it was decided that ANSI/AGMA 2001-B88 should replace AGMA 218.01 as the base document for AS 2938.

The changes introduced include an update of the list of referenced documents given in Appendix A, updating the list of AGMA documents given in Appendix B, and editorial modifications to align with Standards Australia style.

There are many changes in the new American Standard most of which are minor. The two most significant changes which may affect users are a more rigorous assignment of the material factors s_{ac} and s_{at} and the introduction of a new factor K_B for rim thickness below the teeth. Brief descriptions of these changes are given in this edition. Users of AS 2938 should review ANSI/AGMA 2001-B88 to become familiar with other changes.

AGMA policy is moving towards metrication and most equations are being presented in revised AGMA documents in Imperial units with the metric unit equivalent in parenthesis. This presentation is not universal and some quantities will require conversion to Imperial units when using some equations in ANSI/AGMA 2001-B88.

AGMA agreed to the use of their Standards as a basis for Australian Standards and acknowledgment is made of this assistance.

Copies of AGMA Standards may be purchased from any office of Standards Australia.

The Committee acknowledges the contribution by the Coated Products Division and the Slab and Plate Products Division of BHP International Steel of the original material on geometry factors as well as the co-operation of the University of Wollongong, and wishes to record its appreciation for their permission to include material relating to this subject.

A software program (SAA SP 001) is available to calculate the geometry factors for pitting resistance and bending strength for external spur and helical involute gears in accordance with this Standard. The listing of the program has not been included in this edition.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

CONTENTS

	<i>Page</i>
FOREWORD	4
1 SCOPE	5
2 REFERENCED DOCUMENTS	5
3 NOMENCLATURE	5
4 NOTATION	5
5 BASIC RACK TOOTH PROFILE	5
6 NORMAL MODULES AND NORMAL DIAMETRAL PITCHES	6
7 GEAR QUALITY	7
8 MATERIALS	8
9 ADDENDUM MODIFICATION	9
10 POWER RATING OF GEARS	10
11 GEOMETRY FACTORS	11
12 SERVICE, APPLICATION, LIFE AND RELIABILITY FACTORS	13
13 GEAR SUPPORT SYSTEM	15
14 LUBRICATION	17
15 NOISE	18
16 GEAR MEASURING METHODS AND PRACTICES	18
17 GEAR DESIGN DATA	19
 APPENDICES	
A LIST OF REFERENCED DOCUMENTS	20
B LIST OF AGMA STANDARDS	23
C NOTATIONS	26
D GRAPHS FOR GEOMETRY FACTORS <i>I</i> AND <i>J</i>	29
E CALCULATION FOR GEOMETRY FACTORS <i>I</i> AND <i>J</i>	62
F GRAPHS FOR PARABOLA WIDTH AND HEIGHT FOR TEETH CUT WITH AN ISO 53 CUTTER	78
G ACCURACY OF MESHING	87
H INFORMATION TO BE SUPPLIED WITH ENQUIRY, ORDER AND TENDER	89

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-