Australian Standard™

Endless wedge belt and V-belt drives

Standards Australia

This Australian Standard was prepared by Committee ME-024, V-belt Drives. It was approved on behalf of the Council of Standards Australia on 31 July 2002 and published on 15 August 2002.

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Australian Chamber of Commerce and Industry

Department of Mineral Resources, NSW

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PREFACE

This Standard was prepared by the Standards Australia Committee ME-024, V-belt Drives, to supersede AS 2784—1985.

The objective of this Standard is to rationalize the range of endless wedge belts, V-belts and associated pulleys to facilitate correct initial selection and use of the belts and pulleys and to assist users in selection of replacement components for existing belt drives.

The format and much of the material in this Standard closely follows BS 3790:1995, *Specification for endless wedge belt drives and endless V-belt drives* and acknowledgement is made thereto.

The major differences between this Standard and the previous edition are as follows:

(a) Pulley side wobble and run out tolerances have been halved to match BS 3790.

(b) Addition of a centre distance variation requirement and test procedure to check for irregular running of V-belt drives arising from non-uniformities in the V-belt sections.

(c) Alignment of the test method for electrical resistance with ISO 1813:1998.

(d) Inclusion of the power rating calculations from ISO 5292:1995 (and BS 3790), in addition to retention of the Tables of power ratings for belts of common construction types and materials.

(e) Incorporation of a test method for the tension in a belt using two different deflections depending on the span length of the belt to improve the ease of measurement of deflections.

The test method for the electrical resistance of a belt is at variance to BS 3790. BS 3790 strains the belt prior to the determination of electrical resistance whereas this Standard now tests the belt without straining it, in accordance with the method in ISO 1813.

Belts of E and SPP sections, are not included in this Standard, owing to lack of demand for these sections in Australia.

Attention is drawn to the fact that this Standard does not contain dynamometer test or any other performance test data regarding power transmission.

The power ratings provided in Appendix A (Tables A2 to A11) are based on formulas in ISO 5292.

This Standard is in broad agreement with the following ISO Standards:

ISO 155 Belt drives— Pulleys—Limiting values for adjustment of centres

ISO 254 Belt drives—Pulleys—Quality, finish and balance

ISO 1081 Belt drives—V-belts and V-ribbed belts and corresponding grooved pulleys—Vocabulary

ISO 1813 Belt drives—V-ribbed belts, joined V-belts and V-belts including wide section belts and hexagonal belts—Electrical conductivity of antistatic belts: Characteristics and methods of test

ISO 4183 Belt drives—Classical and narrow V-belts—Grooved pulleys (system based on datum width)

ISO 4184 Belt drives—Classical and narrow V-belts—Lengths in datum system

ISO 5292 Belt drives—V-belts and V-ribbed belts—Calculation of power ratings

ISO 9608 V-belts—Uniformity of belts—Test method for determination of centre distance variation

While based on the listed ISO and British Standards, this Standard is not equivalent as it does not cover belts for the automotive industry. Major editorial changes to the text of the ISO Standards have also been made to combine the relevant requirements and test methods from several of these to suit the less diverse needs of the Australian V-belt market.

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.

CONTENTS

Page

STANDARDS AUSTRALIA

Australian Standard
Endless wedge belt and V-belt drives

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the dimensions and certain other properties of endless wedge belts and V-belts and their corresponding grooved pulleys for power transmission. Additional requirements are included for antistatic belts and fire-resistant belts.

NOTES:

1 Recommended power ratings for belts and information on the design, selection and installation of drive assemblies are given in Appendices A and B.

2 Recommendations on the storage of belts are provided in Appendix C.

This Standard does not apply to industrial variable speed drives employing pulleys with movable flanges.

NOTE: For belts for automotive use, additional requirements may apply. Industry standards should be consulted.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS
3709 Vibration and shock—Balance quality of rotating rigid bodies

ISO
340 Conveyor belts—Flame resistance—Specifications and test method

4287 Geometrical Product Specifications (GPS)—Surface texture: Profile method—Terms, definitions and surface texture parameters

1.3 DEFINITIONS

For the purpose of this Standard, the following definitions apply:

1.3.1 Angle of a belt (α)

The included angle obtained by extending the sides of the belt (see Figure 1).

1.3.2 Angle of pulley groove (α)

The angle included by the sides of the groove cross-section.

NOTE: For any given profile, the pulley groove angle may have several different values depending upon the pulley diameter (see Table 8).

1.3.3 Antistatic belt

A belt that has an electrical resistance that does not exceed a specified maximum (see Clause 2.8).

1.3.4 Effective diameter of pulley (d_e)

The diameter of the pulley at the effective width of the pulley groove (see Figure 2).