INTERNATIONAL STANDARD

ISO 9981

Third edition
2020-06

Belt drives — Pulleys and V-ribbed belts for the automotive industry — PK profile: Dimensions

Transmissions par courroies — Poulies et courroies striées pour la construction automobile — Profil PK: Dimensions

Reference number
ISO 9981:2020(E)

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Published in Switzerland

Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 1, *Friction*.

This third edition cancels and replaces the second edition (ISO 9981:1998), which has been technically revised. The main changes compared to the previous edition are as follows:

— the normative references list has been updated;

— clarification has been made where the standard is not for elastic belts;

— 5.3.5 has been revised to reference ISO 254 for pulley roughness;

— the current roughness values have been removed;

— the maximum pulley groove radius (Table 2) has been specified.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A V-ribbed belt drive is composed of an endless belt with a longitudinally ribbed traction surface which engages and grips, by friction, pulley grooves of similar shape. The belt ribbed surface fits the pulley grooves to make nearly total contact.

Belt drives — Pulleys and V-ribbed belts for the automotive industry — PK profile: Dimensions

1 Scope

This document specifies the principal dimensional characteristics of V-ribbed pulley groove profiles, together with the corresponding endless V-ribbed belts of PK profile which are used predominantly for automotive accessory drive applications.

This document does not apply to the complete array of V-ribbed belts and pulleys of PH, PJ, PK, PL and PM profile for industrial and other non-automotive applications which are covered by ISO 9982. PK belt profile dimensions and tolerances are the same in both International Standards.

6.2 and 6.3 of this document do not apply to elastic belts.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Symbols

For the purpose of this document, the symbols given in Table 1 apply.

Table 1 — Symbols

Symbol	Designation	Unit
b	nominal width of the belt	mm
b_e	effective line differential	mm
d_B	checking ball or rod diameter	mm
d_e	effective diameter	mm
d_o	outer diameter	mm
d_p	pitch diameter	mm
E	centre distance between the pulleys	mm
E_{max}	maximum centre distance between the pulleys	mm
E_{min}	minimum centre distance between the pulleys	mm
e	groove pitch	mm
F	measuring force per rib	N
f	distance between the outside of the rim and the axis of the first groove	mm

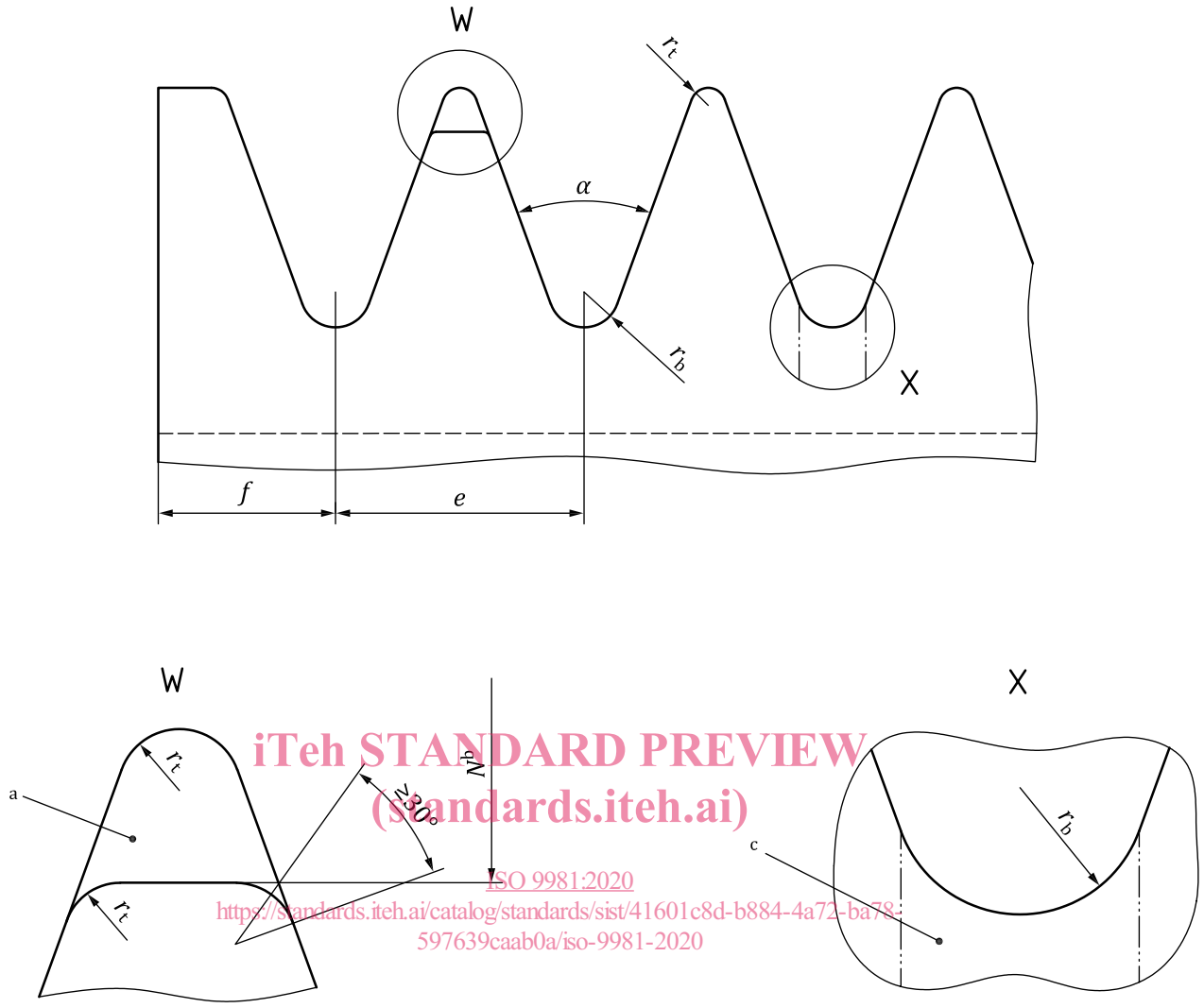
Table 1 *(continued)*

Symbol	Designation	Unit
h	belt height	mm
K	diameter over balls or rods	mm
L_e	effective length of the belt	mm
N	differential between diameter over balls or rods, K, and outer diameter, d_o (see Figure 2)	mm
n	number of ribs	—
p_b	rib pitch	mm
Ra	surface roughness	µm
r_b	groove radius	mm
r_t	transitional radius	mm
U_e	pulley effective circumference (at level of effective diameter)	mm
x	position of the ball or rod (see Figure 2)	mm
α	groove angle	°

5 Pulleys

5.1 Groove dimensions and tolerances

The groove dimensions of PK pulleys are shown in Figures 1 and 2, and given in Table 2.



a The actual configuration of the tip profile may lie anywhere between the maximum and minimum indicated. Any configuration shall have a transitional radius r_t corresponding to a 30° minimum arc tangent to the groove sidewall.

b See Figure 2.

c The configuration of the groove bottom below r_b is optional.

NOTE View W represents the pulley tip profile and view X represents the pulley groove bottom.

Figure 1 — Cross-section of pulley grooves