
**Belt drives — V-ribbed belts for the
automotive industry — Fatigue test**

*Transmissions par courroies — Courroies striées pour la construction
automobile — Essai de fatigue*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

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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 11749:2014), which has been technically revised.

The main changes are as follows:

- addition of [Table 1](#) with symbols;
- addition of the test condition with constant belt tensioning force in [8.1.2](#) and [8.2.1.3](#);
- change in pulley surface roughness R_a to $< 3,2 \mu\text{m}$;
- revision of test pulley dimensions ([Table 2](#)).

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.

Belt drives — V-ribbed belts for the automotive industry — Fatigue test

1 Scope

This document specifies a dynamic test method for the quality control of V-ribbed belts (PK profile) which are used predominantly for accessory drive applications in the automotive industry.

The dimensional characteristics of the belts and of corresponding pulleys are the subject of ISO 9981.

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 terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Symbols

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

Table 1 — Symbols

| Symbols | Designation | Unit |
|------------------------------------|--|------|
| b_e | effective line differential | mm |
| d_B | checking ball or rod diameter | mm |
| d_e | effective diameter | mm |
| d_{e1} | effective diameter of driving and driven pulleys | mm |
| d_{e2} | effective diameter of idler pulley | mm |
| d_p | pitch diameter | mm |
| d_{r3} | outside diameter of reverse bending idler pulley | mm |
| e | groove pitch | mm |
| f | lateral distance | mm |
| F | belt tensioning force | N |
| g | additional slip | % |
| i_f | rotational frequency ratio at measurement of the additional slip | — |
| i_o | rotational frequency ratio at the initial | — |
| k | standard value to calculate belt tensioning force | N/kW |
| K | diameter over balls or rods | mm |
| M | torque load | Nm |
| ^a Rotations per minute. | | |