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**Synchronous belt drives — Imperial  
pitch trapezoidal profile system —  
Belts and pulleys**

*Transmissions synchrones par courroies — Système de profil  
trapézoïdal pour pas impérial — Courroies et poulies*



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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](http://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](http://www.iso.org/patents)).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 4, *Synchronous belt drives*.

# Synchronous belt drives — Imperial pitch trapezoidal profile system — Belts and pulleys

## 1 Scope

This International Standard specifies the principal characteristics of synchronous endless belts and pulleys for use in synchronous endless belt drives<sup>1)</sup> for mechanical power transmission and where positive indexing or synchronization is required.

The principal characteristics includes the following:

- a) belt nominal tooth dimensions;
- b) belt length and width dimensions and tolerances;
- c) belt length-measurement specifications;
- d) pulley grooves dimensions and tolerances;
- e) pulley dimensions and tolerances;
- f) pulley quality specification.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 1101, *Geometrical product specification (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

## 3 Profiles

Seven profiles for synchronous drives are standardized: MXL, XXL, XL, L, H, XH, XXH.

The profiles and the corresponding belt pitches are given in [Table 1](#).

1) These drives have been known under various names in the past, for example: timing belt drives, positive belt drives, gear belt drives.