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Synchronous belt drives — Vocabulary

Transmissions synchrones par courroies — Vocabulaire

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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).

Field Code Changed

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This document was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 4, *Synchronous belt drives*.

This ~~third~~fourth edition cancels and replaces the ~~second~~third edition (ISO 5288:2001), of which ~~has been technically revised~~it constitutes a minor revision. The ~~main~~change is as follows:

— ~~Inclusion of Clause 4~~compared.

~~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~~previous edition is the inclusion of include terms related to curvilinear synchronous belts.

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Synchronous belt drives — Vocabulary

1 Scope

This document specifies the terms and definitions related to the use of synchronous belt drives for mechanical power transmission and where positive indexing or synchronization is required.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain ~~terminological~~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/>

3.1 ~~3.1~~ General

3.1.1 synchronous belt drive

system composed of a *synchronous belt* (3.2.1.1(3.2.1.1)) and at least one *synchronous pulley* (3.3.1.1(3.3.1.1))

Note 1 to entry: Synchronized motion and/or power is transmitted through the engagement of teeth on the belt with *grooves* (3.3.2.1(3.3.2.1)) on the pulleys.

Note 2 to entry: This belt drive has been known in the past by various names such as “timing belt drive”, “positive belt drive” or “gear belt drive”.

3.1.2 centre distance

C
shortest distance between the axes of two *synchronous pulleys* (3.3.1.1(3.3.1.1)) when the belt is under the prescribed measuring force

Note 1 to entry: See [Figure 1](#)Figure 1.

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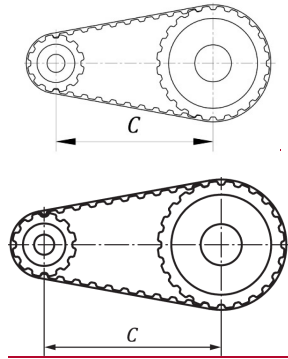


Figure 1

3.1.3

endless synchronous belt drive

synchronous belt drive (3.1.1 (3.1.1)) with applied endless synchronous belt

Note 1 to entry: See [Figure 2](#) [Figure 2](#).

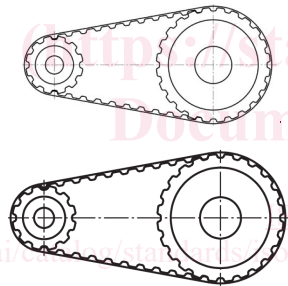


Figure 2

3.1.4

open synchronous belt drive

synchronous belt drive (3.1.1 (3.1.1)) with applied open synchronous belt

Note 1 to entry: See [Figure 3](#) [Figure 3](#).

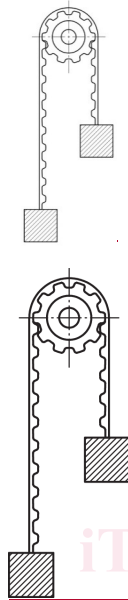


Figure 3

3.2 Synchronous belts

3.2.1 General

3.2.1.1

synchronous belt

belt with transverse teeth of rectangular or curvilinear cross-section extending from the base at regularly spaced intervals

Note 1 to entry: Consult synchronous belt dimensional standards for the full details of belt profiles.

3.2.1.2

tooth pitch

P_b
linear distance between the axes of two consecutive teeth in a section of belt loaded to the prescribed measuring force

Note 1 to entry: See [Figure 4](#).

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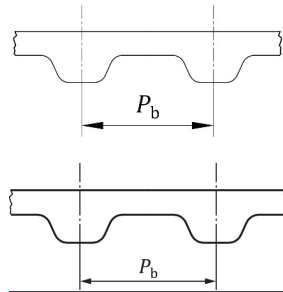


Figure 4

3.2.1.3

pitch line

circumferential line in the belt which keeps the same length when the belt is bent perpendicularly to its base

Note 1 to entry: See [Figure 5](#).

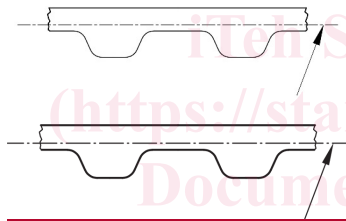


Figure 5

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pitch line differential

a
<belts> radial distance between the *pitch line* (3.2.1.3) and the *root line* (3.2.5.3)

Note 1 to entry: See [Figure 6](#).

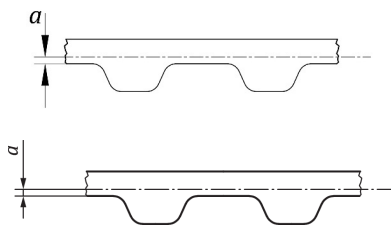


Figure 6

**3.2.1.5
belt pitch length**

L_p
length of the *pitch line* (3.2.1.3) of a belt

**3.2.1.6
width**

b_s
transverse dimension of the back of the belt

Note 1 to entry: See Figure 7.

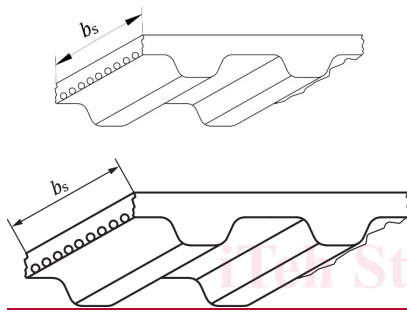
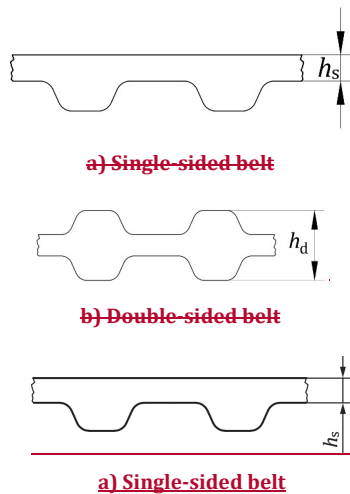


Figure 7

**3.2.1.7
height**

h_s/h_d
total height of a single-sided or double-sided belt

Note 1 to entry: See Figure 8.





b) Double-sided belt

Figure 8

3.2.2 ~~3.2.2~~ Tooth profile

3.2.2.1

trapezoidal profile

transverse *tooth* (3.2.5.1(3.2.5.1)) profile formed by a tooth *flank* (3.2.5.5) and tip with only straight lines

Note 1 to entry: See [Figure 9](#)Figure 9.

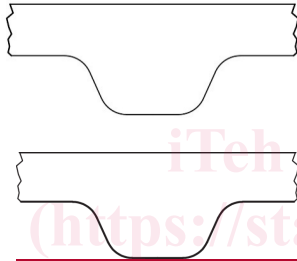


Figure 9

3.2.2.2

curvilinear profile

transverse *tooth* (3.2.5.1(3.2.5.1)) profile formed by a tooth *flank* (3.2.5.5) or tip that contains curved lines

Note 1 to entry: See [Figure 10](#)Figure 10.

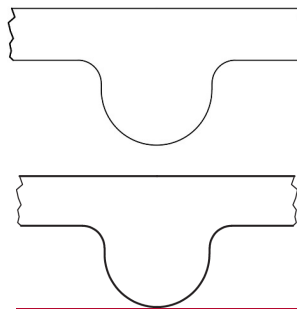


Figure 10

3.2.3 ~~3.2.3~~ Type of belt drive

3.2.3.1 endless synchronous belt

closed synchronous belt (3.2.1.1(3.2.1.1))

Note 1 to entry: See Figure 11Figure 11.

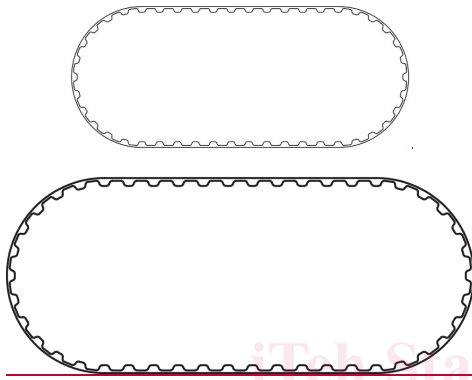


Figure 11

3.2.3.2 open synchronous belt

synchronous belt (3.2.1.1(3.2.1.1)) with two ends

Note 1 to entry: See Figure 12Figure 12.

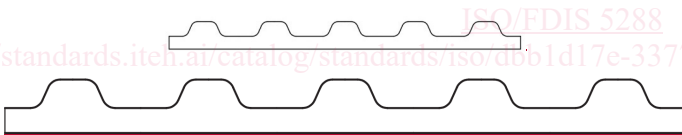


Figure 12

3.2.4 ~~3.2.4~~ Structure

3.2.4.1 single-sided synchronous belt

synchronous belt (3.2.1.1(3.2.1.1)) with teeth located inside of the pitch line (3.2.1.3(3.2.1.3)) at regularly spaced intervals

Note 1 to entry: See Figure 13Figure 13.

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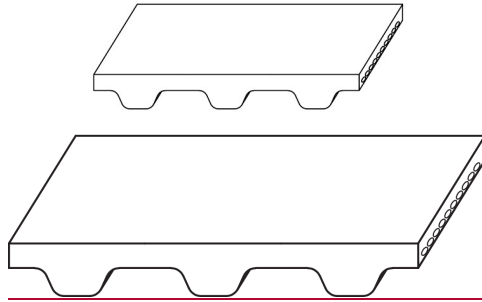
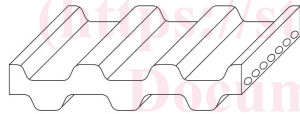


Figure 13

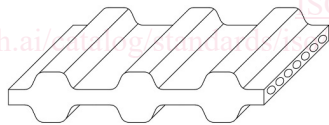
3.2.4.2 double-sided synchronous belt

synchronous belt (3.2.1.1(3.2.1.1)) with teeth located on both sides of the *pitch line* (3.2.1.3(3.2.1.3)) at regularly spaced intervals

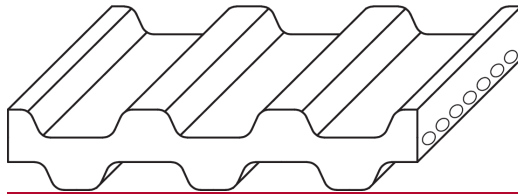
Note 1 to entry: See [Figure 14](#) ~~Figure 14.~~



a) Staggered double-sided synchronous belt



b) Symmetrical double-sided synchronous belt



a) Staggered double-sided synchronous belt