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

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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The committee responsible for this document is ISO/TC 41, *Pulleys and belts (including veebelts),* SC 1, *Veebelts and grooved pulleys*.

This third edition cancels and replaces the second edition (ISO 1081:1995), which has been technically revised.

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

0 Scope

This International Standard specifies the terms and definitions, in English and French, relating to aromatic natural raw materials.

This International Standard defines terms relating to V-belt drives, V-belts, hexagonal belts, joined V-belts and the corresponding V-grooved pulleys, V-ribbed belt drives, V-ribbed belts and V-ribbed pulleys, as well as the corresponding symbols.

The general definitions are valid irrespective of the system describing the pulleys.

The dimensions of pulley grooves can be defined either on the basis of the datum width or on the basis of the effective width. As a result, two systems for the definition and description of the dimensions of pulleys and belts have been developed. The two systems are independent of each other.

1 Terms and definitions relating to V-belts and grooved pulleys

1.1 General terms and definitions

1.1.1 Belts

1.1.1.1
V-belt
belt, the cross-section of which is shaped roughly like a regular trapezium

Note 1 to entry: On a cross-section of a straight-sided belt, the trapezium is outlined by the base, sides and top of the belt.

Note 2 to entry: The intersection of the extended profiles of the base, side and top is considered when edges are cut short or rounded.

Note 3 to entry: See Figure 1.

1.1.1.1.1
hexagonal belt
special belt with hexagonal cross-section consisting of two equal isosceles trapezia joined at their wider base

1.1.1.1.2
joined V-belt
two or more equal trapezoidal V-belts placed side by side in a definite distance and joined by a covering band

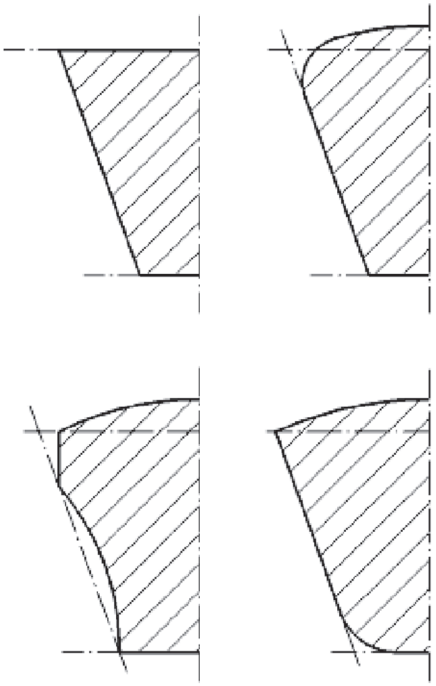
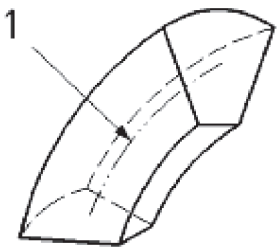


Figure 1 — V-belts

1.1.1.2
pitch line
any 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 2.

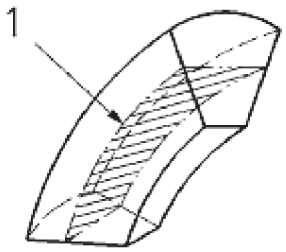


Key
1 pitch line

Figure 2 — Pitch line

1.1.1.3
pitch zone
geometrical zone containing all of the pitch lines

Note 1 to entry: See Figure 3.



Key
1 pitch zone

Figure 3 — Pitch zone

1.1.1.4
pitch width
w_p
width of the belt at its pitch zone (neutral zone)

Note 1 to entry: The width remains unchanged when the belt is bent perpendicularly to its base.

Note 2 to entry: See Figure 4.

1.1.1.5
top width
w
larger width of the trapezium outlined on a cross-section

Note 1 to entry: See Figure 4.

1.1.1.6
height
T
height of the trapezium outlined on a cross-section

Note 1 to entry: See Figure 4.

1.1.1.7
relative height
non-dimensional characteristic calculated as the ratio of height to pitch width (T/w_p)

Note 1 to entry: The approximate relative height of the four types of V-belt is as follows:

— narrow V-belt: 0,9;

— classical V-belt: 0,7;

— half wide V-belt: 0,5;

— wide V-belt: 0,3.

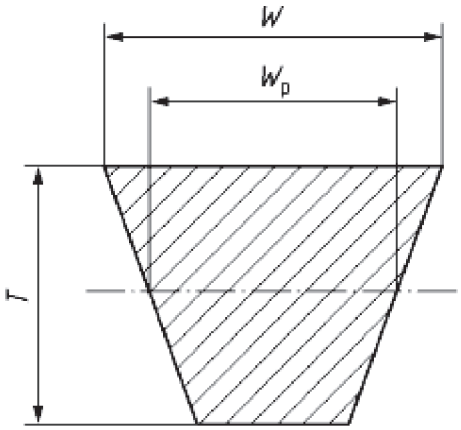


Figure 4 — Pitch width, top width, height

1.1.2 Pulleys

1.1.2.1
V-grooved pulley
pulley with one or more grooves obtained by rotation of a profile in the shape of a truncated or non-truncated symmetrical V around the pulley axis

Note 1 to entry: A round groove bottom is acceptable. In most cases, all the grooves of a pulley have identical profiles.

1.1.2.2
angle of pulley groove
α
angle included by the sides of the groove cross-section

Note 1 to entry: For any given profile, the pulley groove angle may have several different values depending upon the pulley diameter.

Note 2 to entry: See Figure 5.

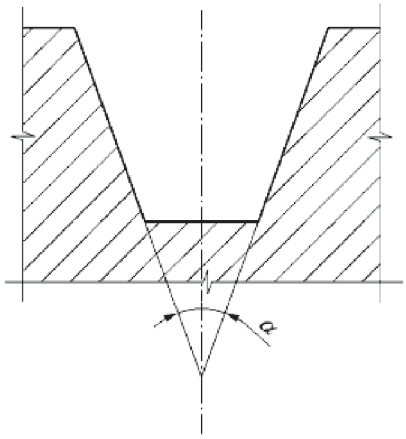


Figure 5 — Angle of pulley groove

1.1.2.3
pitch width of pulley groove
w_p
width of the pulley groove which has the same dimension as the pitch width of the belt used with this pulley

1.1.2.4
pitch diameter
d_p
diameter of the pulley at the pitch width of pulley groove

1.1.2.5
pitch circumference
C_p
circumference of a circle with a diameter equal to the pitch diameter

1.1.3 Drives

1.1.3.1
V-belt drive
drive which consists of one or more V-belts mounted on grooved pulleys

Note 1 to entry: The profiles of the belts and of the pulley grooves are such that the belts come into contact only with the sides of the pulley grooves and not with the bottom of the grooves.

1.1.3.2
speed ratio
R
ratio of the angular velocities of the pulleys, as calculated from the ratio of the pitch diameters of the pulleys, making no allowance for slip and creep

1.2 Terms and definitions relating to the system based on data widths

1.2.1 Pulleys

1.1.1.1
datum width
w_d

groove width characterizing the groove profile

Note 1 to entry: It is a defined value not subject to tolerance and is usually located at the level of the pitch zone of the V-belt for which the pulley groove is preferably intended. It should coincide with the pitch width of that V-belt within reasonable tolerances.

Note 2 to entry: The datum width of a pulley groove was previously designated as *pitch width* (l_p). However, the datum width is equal to the pitch width only when the pitch zone on the V-belt is located at the level of the datum width of the pulley groove.

Note 3 to entry: If different *angles of pulley groove* (1.1.2.2) are required, the groove flanks shall be assumed to hinge round both ends of the datum width.

Note 4 to entry: See Figure 6.

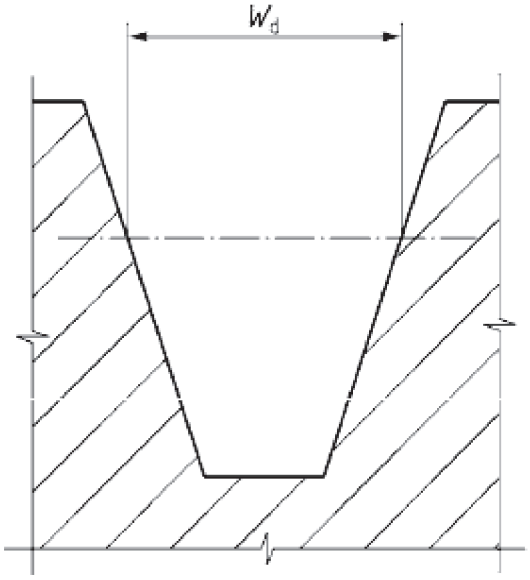


Figure 6 — Datum width

1.2.1.2
datum diameter
d_d
diameter of the pulley at the datum width of the pulley groove

Note 1 to entry: See Figure 7.

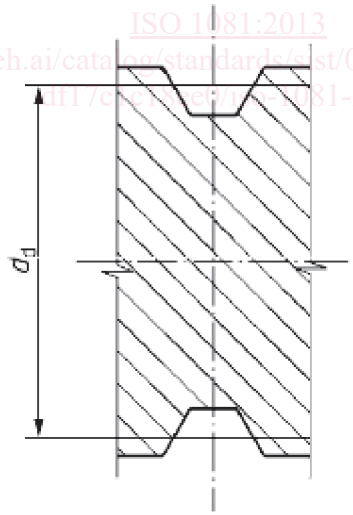


Figure 7 — Datum diameter

1.2.1.3
datum circumference
C_d
circumference of a circle with a diameter equal to the datum diameter

1.2.1.4
datum line differential
b_d
radial displacement between the levels of the pitch width and the datum width

Note 1 to entry: The datum line differential is a correction term used for calculating the speed ratio when the datum line is given.

Note 2 to entry: The datum line differential is zero if the pitch zone of the V-belt and the level of the datum width of the pulley are coincident.

Note 3 to entry: See Figure 8.

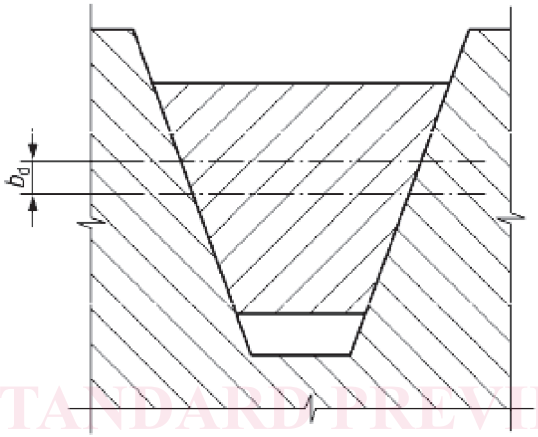


Figure 8 — Datum line differential

1.2.2 Belts

1.2.2.1
datum length
L_d
length of a line circumscribing a V-belt at the level of the datum diameter of the measuring pulleys whilst the V-belt is at a specified tension

Note 1 to entry: The datum length was previously designated as *pitch length*, L_p.

Note 2 to entry: The recommended method for measuring the datum length of a V-belt includes the use of a measuring fixture having two pulleys of the same datum diameter. The datum length is obtained by adding the datum circumference of one pulley to twice the measured distance between the pulley centres.

1.3 Terms and definitions relating to the system based on effective width

1.3.1 Pulleys

1.3.1.1
effective width
w_e
groove width characterizing the groove profile

Note 1 to entry: It is a defined value not subject to tolerance and is usually located at the outermost extremities of the straight side walls of the groove.

Note 2 to entry: For all belt-measuring pulleys and for most machined-type pulleys, it coincides with the actual top width of the groove within reasonable tolerances.

Note 3 to entry: If different *angles of pulley groove* (1.1.2.2) are required, the groove flanks shall be assumed to hinge round both ends of the effective width.

Note 4 to entry: See Figure 9.

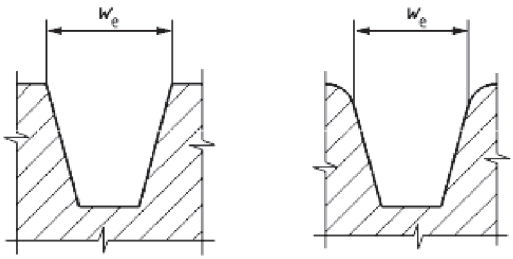


Figure 9 — Effective width

1.3.1.2
effective diameter
d_e
diameter of the pulley at the effective width of the pulley groove

Note 1 to entry: See Figure 10.

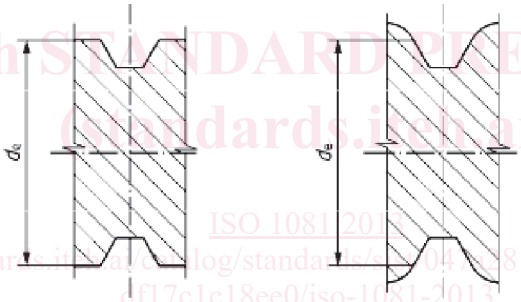


Figure 10 — Effective diameter

1.3.1.3
effective circumference
C_e
dircumference of a circle with a diameter equal to the effective diameter

1.3.1.4
effective line differential
b_e
radial displacement between the levels of the pitch width and the effective width

Note 1 to entry: The effective line differential is a correction term used for calculating the speed ratio when the effective diameter is given.

Note 2 to entry: See Figure 11.