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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Synchronous belt drives — Automotive belts

Transmissions synchrones par courroies — Courroies pour la construction automobile

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Reference number
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9010 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts).*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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1 Scope and field of application

This International Standard specifies the principal characteristics of synchronous endless belts for use in automotive applications such as engine camshaft drives.

The principal characteristics include

a) nominal tooth dimensions;

b) pitch spacing;

c) width tolerances;

d) pitch length tolerances;

e) pitch length measuring specifications.

2 Belt types

Two belt types for synchronous drives for automotive application are standardized :

— type ZA light-duty automotive belt;

— type ZB heavy-duty automotive belt.

Both types of belt are characterized by their tooth dimensions (profile), the pitch p_b being 9,525 mm [1].

3 Designation

A belt is designated by a series of numbers and letters as follows :

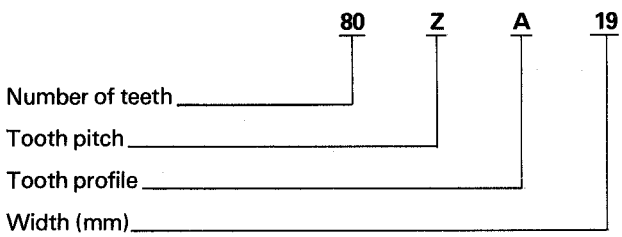
a) the first set of numbers indicates the number of teeth;

b) the first letter indicates tooth pitch;

c) the second letter indicates tooth profile;

d) the second set of numbers indicates the width in millimetres.

Example :



1) Carried to the third decimal place because belt pitch is a defined value.

4 Dimensions and tolerances

4.1 Belt tooth dimensions

The nominal belt tooth dimensions are shown in figure 1 and given in table 1.

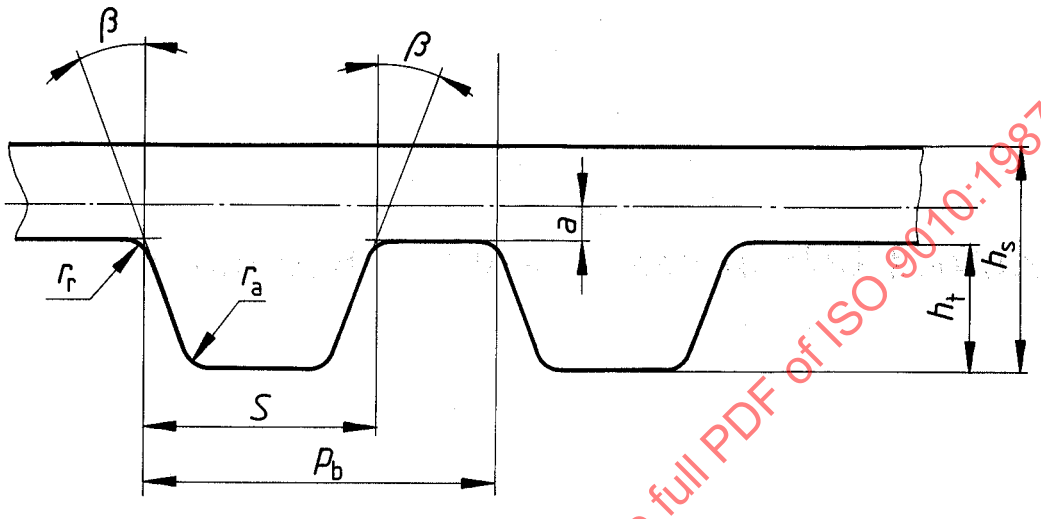


Figure 1 — Nominal tooth dimensions (profile)

Table 1 — Nominal tooth dimensions

Dimensions in millimetres, angle in degrees

Term	Symbol	Nominal profile	
		Type ZA	Type ZB
Pitch	p_b	9,525	9,525
Tooth angle	2β	40	40
Height	h_s	4,1	4,5
Pitch line differential	a	0,686	0,686
Root radius	r_r	0,51	1,02
Tip radius	r_a	0,51	1,02
Tooth height	h_t	1,91	2,29
Tooth width	S	4,65	6,12

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4.2 Belt pitch length and tolerances

The number of teeth, z, i.e., the belt pitch length, L_p, shall be agreed between the parties concerned. Pitch length tolerances are given in table 2.

Table 2 — Pitch length tolerances

Dimensions and tolerances in millimetres

Number of teeth z	Belt pitch length L_p	
	Range	Tolerance
$z \leqslant 40$	$L_p \leqslant 381$	± 0,45
$41 \leqslant z \leqslant 53$	$390{,}525 \leqslant L_p \leqslant 504{,}825$	± 0,5
$54 \leqslant z \leqslant 80$	$514{,}35 \leqslant L_p \leqslant 762$	± 0,6
$81 \leqslant z \leqslant 104$	$771{,}525 \leqslant L_p \leqslant 990{,}6$	± 0,65
$105 \leqslant z \leqslant 128$	$1\,000{,}125 \leqslant L_p \leqslant 1\,219{,}2$	± 0,75
$129 \leqslant z \leqslant 160$	$1\,228{,}725 \leqslant L_p \leqslant 1\,524$	± 0,8
$161 \leqslant z \leqslant 187$	$1\,533{,}525 \leqslant L_p \leqslant 1\,781{,}175$	± 0,85
$188 \leqslant z \leqslant 213$	$1\,790{,}7 \leqslant L_p \leqslant 2\,028{,}825$	± 0,9
$214 \leqslant z \leqslant 240$	$2\,038{,}35 \leqslant L_p \leqslant 2\,286$	± 0,95
$241 \leqslant z \leqslant 267$	$2\,295{,}525 \leqslant L_p \leqslant 2\,543{,}175$	± 1

4.3 Belt widths and tolerances

The belt width, b_s, shall be agreed between the parties concerned. Width tolerances are given in table 3.

Table 3 — Width tolerances

Dimensions and tolerances in millimetres

Range	Width, b_s	
	Tolerances	
	Range of belt pitch lengths	
	$L_p < 840$ ($z < 88$)	$L_p \geqslant 840$ ($z \geqslant 89$)
$b_s < 40$	± 0,8	± 0,8
$b_s \geqslant 40$	± 0,8	+ 0,8 − 1,3

NOTE — For special applications, smaller tolerances can be adopted.

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