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JIS B 1857-1 : 2001
(RBMA/JSA)

**Curvilinear toothed synchronous
belt drive systems for general
power transmission—Part 1 : Belt**

ICS 21.220.10

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal of establishing a Japanese Industrial Standard from the Rubber Belting Manufacturer's Association (RBMA)/ the Japanese Standards Association (JSA), with a draft of Industrial Standard based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard has been made based on **ISO 13050 : 1999** *Curvilinear toothed synchronous belt drive systems* for the purposes of making easy to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of International Standard which is based on Japanese Industrial Standard.

Being in conformance with this Standard may come under the use of the following patent rights:

Denomination of invention	Toothed belt (Patent No. 1832590)
Date of registration	March 29, 1994
Denomination of invention	Toothed belt and pulley for synchronous drive system including relative power transmission system (Patent No. 1858634)
Date of registration	July 27, 1964
Denomination of invention	Toothed belt (Patent No. 2573662)
Date of registration	October 24, 1996

Besides, this description does not affect to any extent the validity, the scope and the like of the above patent rights.

The holders of these patent rights give guarantee to the Japanese Industrial Standards Committee with respect to his willingness to permit anyone to exercise the relevant patent right under the nondiscriminatory and reasonable conditions.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

JIS B 1857 consists of the following two parts with the general title *Curvilinear toothed synchronous belt drive systems for general power transmission*.

Part 1 : Belt

Part 2 : Pulley

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Curvilinear toothed synchronous belt drive systems for general power transmission— Part 1 : Belt

Introduction This part of **JIS B 1857** has been established based on the provisions regarding the belt in the first edition of **ISO 13050** *Curvilinear toothed synchronous belt drive systems* published in 1999, without modifying the technical contents of the corresponding sections of the original International Standard, but with some additions of contents or items that are not specified in the said International Standard.

In this part of **JIS B 1857**, portions with sidelines or dotted underlines are items that are not included in the original International Standard. List of modifications with their explanations is shown in Annex (informative).

1 Scope This part of **JIS B 1857** specifies the seamless looped curvilinear toothed synchronous belt generally used in power transmission (hereafter referred to as “belt”). However, synchronous belts for automobiles and curvilinear toothed synchronous pulleys for general power transmission are excluded.

Note : The International Standard corresponding to this Standard is as follows.

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21**.

ISO 13050 : 1999 *Curvilinear toothed synchronous belt drive systems*
(MOD)

Information : The curvilinear toothed synchronous pulleys for general power transmission are specified in **JIS B 1857-2**.

2 Normative references The following standards contain provisions which, through reference in this part of **JIS B 1857**, constitute provisions of this part of **JIS B 1857**. For these references, only the versions of the specified year constitute the provisions of this part of **JIS B 1857** and subsequent amendments to, or revisions of, any of these publications do not apply.

JIS B 7507 : 1993 *Vernier, dial and digital callipers*

ISO 5228 : 1982 *Synchronous belts drives—Vocabulary*

3 Definitions Definitions of main terms used in this part of **JIS B 1857** are given below.

Terms **a)** and **b)** shown below are those used in this part of **JIS B 1857** extracted and quoted from **ISO 5288**.

- a) **PLD (pitch line differential)** Radial distance between the pitch circle and the root circle of belts.

- b) **tooth pitch** Basic distance between centres of two consecutive teeth on the pitch line of a synchronous belt.
- c) **nominal pitch length** Product of number of teeth and the tooth pitch of a belt.

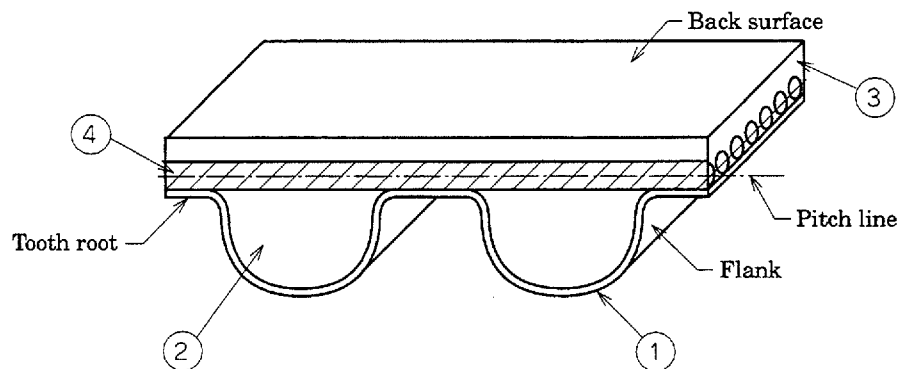
4 Models Belts are classified into following 16 models according to the tooth profile and the tooth pitch.

H8M P8M R8M S8M H14M P14M R14M S14M

DH8M DP8M DR8M DS8M DH14M DP14M DR14M DS14M

Note : The letter D designates the double-sided toothed belts.

5 Structure Belts shall have the structure shown in Figure 1.



Number	Name
①	Tooth cloth
②	Tooth rubber
③	Back rubber
④	Core line

Figure 1 Example of a cross section of a curvilinear toothed synchronous belt

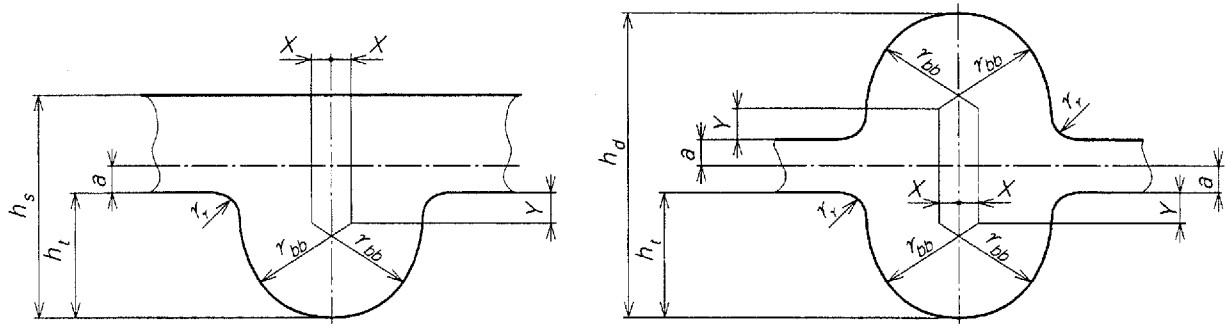
6 Profiles and dimensions

6.1 Tooth profile Profiles and dimensions of the belt tooth shall be basic dimensions and are given in Table 1, Table 2, Table 3 and Table 4.

a) H-type tooth profile

Table 1 Basic dimensions of H-type tooth profile

Unit : mm

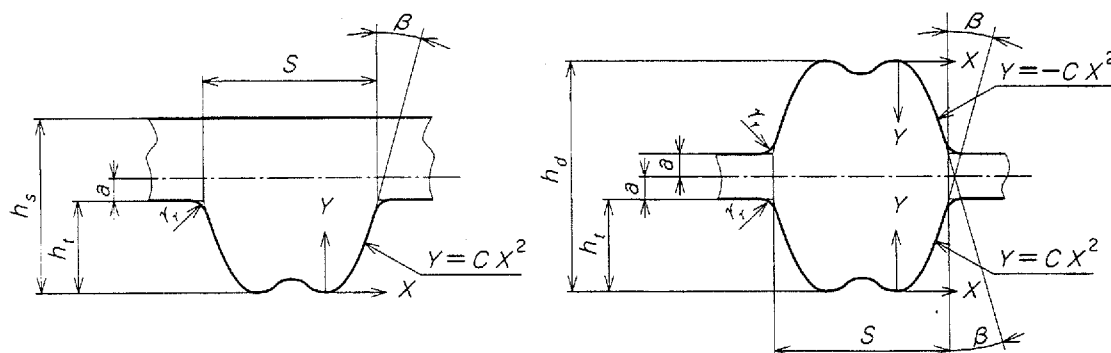


Belt model	Tooth pitch	h_s	h_d	h_t	X	Y	r_{bb}	r_r	a
H8M	8	6.0	—	3.38	0.089	0.787	2.59	0.76	0.686
DH8M	8	—	8.1	3.38	0.089	0.787	2.59	0.76	0.686
H14M	14	10	—	6.02	0.152	1.470	4.55	1.35	1.397
DH14M	14	—	14.8	6.02	0.152	1.470	4.55	1.35	1.397

b) P-type tooth profile

Table 2 Basic dimensions of P-type tooth profile

Dimensions in millimeters, Angles in degrees



Belt model	Tooth pitch	β	S	h_s	h_d	h_t	r_r	a	C
P8M	8	16	5.0	5.5	—	2.90	0.8	0.686	1.310
DP8M	8	16	5.0	—	7.17	2.90	0.8	0.686	1.310
P14M	14	16	8.75	9.1	—	5.08	1.4	1.397	0.748
DP14M	14	16	8.75	—	12.95	5.08	1.4	1.397	0.748