



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS B 1859 : 2020

(JBMA/JSA)

**Synchronous belt drives—
Vocabulary**

ICS 01.040.21;21.220.10

Reference number : JIS B 1859 : 2020 (E)

Date of Establishment: 2009-09-24
Date of Revision: 2020-08-20
Date of Public Notice in Official Gazette: 2020-08-20
Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area

JIS B 1859:2020, First English edition published in 2021-01

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

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

© JSA 2021

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

Contents

	Page
Introduction	1
1 Scope	1
2 Classification	1
3 Terms and definitions	1
3.1 General	2
3.2 Synchronous belt	3
3.3 Tooth profile of synchronous belt	4
3.4 Type of synchronous belt	4
3.5 Structure of synchronous belt	5
3.6 Tooth of synchronous belt	6
3.7 Synchronous pulley	8
3.8 Groove of synchronous pulley	11
3.9 Groove-generating tools	15
Annex JA (informative) Comparison table between JIS and corresponding International Standard	19
Alphabetical index	21

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Japan Belting Manufacturers Association (JBMA)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS B 1859:2009**), which has been technically revised.

This **JIS** document is protected by the Copyright Act.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, published patent application or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, published patent application or utility model rights.

Synchronous belt drives—Vocabulary

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 5288:2017**, Edition 3, with some modifications of the technical contents.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

1 Scope

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

NOTE The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 5288:2017 *Synchronous belt drives—Vocabulary* (MOD)

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 21-1**.

2 Classification

The classification of vocabulary for synchronous belt drives shall be as follows.

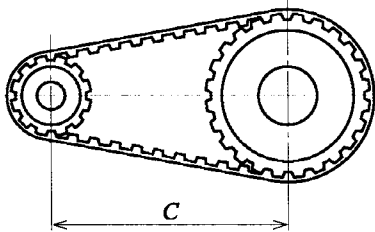
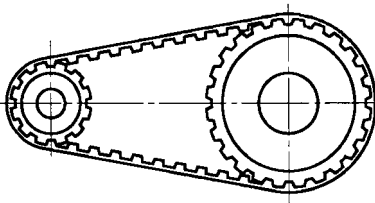
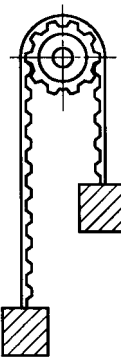
- a) General
- b) Synchronous belt
- c) Tooth profile of synchronous belt
- d) Type of synchronous belt
- e) Structure of synchronous belt
- f) Tooth of synchronous belt
- g) Synchronous pulley
- h) Groove of synchronous pulley
- i) Groove-generating tools

3 Terms and definitions

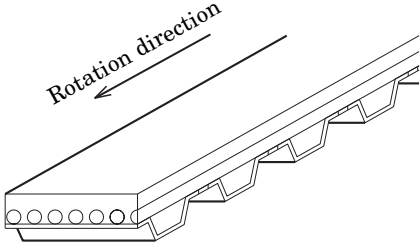
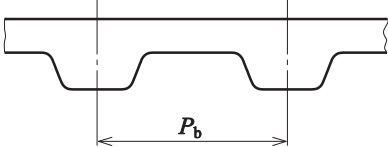
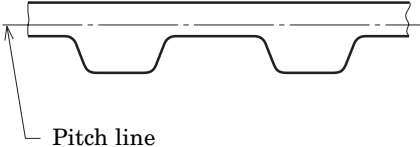
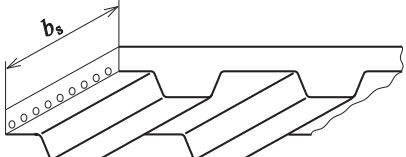
The terms and definitions relevant to synchronous belt drives shall be as follows.

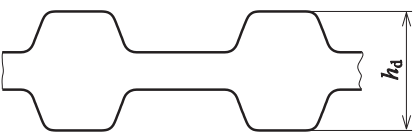
In addition, English equivalent is shown for reference.

3.1 General

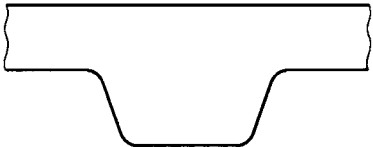
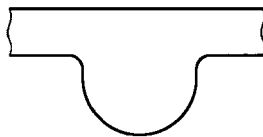
No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.1.1	歯付ベルト伝動	system composed of a synchronous belt and at least one synchronous pulley NOTE 1 Synchronized motion and/or power is transmitted through the engagement of teeth on the belt with grooves on the pulleys. NOTE 2 This belt drive has been known in the past by various names such as a timing belt drive, positive belt drive or gear belt drive.	—	synchronous belt drives
3.1.2	中心間距離	shortest distance between the axes of two synchronous pulleys when the belt is under the prescribed measuring force (see Figure 1)  Figure 1	C	centre distance
3.1.3	エンドレス歯付ベルト伝動	synchronous belt drive with applied endless synchronous belt (see Figure 2)  Figure 2	—	endless synchronous belt drive
3.1.4	オープンエンド歯付ベルト伝動	synchronous belt drive with applied open synchronous belt (see Figure 3)  Figure 3	—	open synchronous belt drive

3.2 Synchronous belt

No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.2.1	歯付ベルト	belt with transverse teeth of rectangular cross-section extending from the base, either inside (single-sided) or on both sides (double-sided) of the pitch line (3.2.3) at regularly spaced intervals (see Figure 4)  Figure 4	—	synchronous belt
3.2.2	歯ピッチ	linear distance between the axes of two consecutive teeth in a section of belt loaded to the prescribed measuring force (see Figure 5)  Figure 5	P_b	tooth pitch
3.2.3	ピッチライン	circumferential line in the belt which keeps the same length when the belt is bent perpendicularly to its base (see Figure 6)  Figure 6	—	pitch line
3.2.4	ベルトピッチ長さ	length of the pitch line of a belt	L_p	belt pitch length
3.2.5	ベルト幅	transverse dimension of the back of the belt (see Figure 7)  Figure 7	b_s	width

No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.2.6	ベルト厚さ	total height of a single-sided synchronous belt (see Figure 8) or total height of a double-sided synchronous belt (see Figure 9)  Figure 8  Figure 9	h_s h_d	height

3.3 Tooth profile of synchronous belt

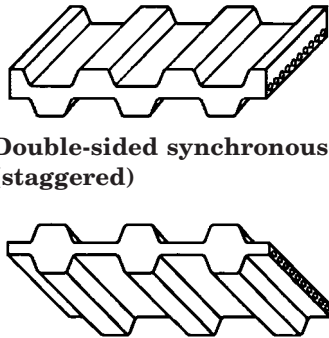
No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.3.1	台形歯形	tooth profile formed by a flank and tip with only straight lines (see Figure 10)  Figure 10	—	trapezoidal profile
3.3.2	円弧歯形	tooth profile formed by a flank and/or tip with curved lines (see Figure 11)  Figure 11	—	curvilinear profile

3.4 Type of synchronous belt

No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.4.1	エンドレス歯付ベルト	closed synchronous belt (see Figure 12)  Figure 12	—	endless synchronous belt

No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.4.2	オープンエンド 歯付ベルト	synchronous belt with two ends (see Figure 13)  Figure 13	—	open synchronous belt

3.5 Structure of synchronous belt

No.	Term (Japanese character)	Definition	Quantifier	English equivalent (informative)
3.5.1	片面歯付ベルト	synchronous belt with transverse teeth located inside (single-sided) of the pitch line (3.2.3) at regularly spaced intervals (see Figure 14)  Figure 14	—	single-sided synchronous belt
3.5.2	両面歯付ベルト	synchronous belt with transverse teeth located inside (single-sided) and outside (both sides) of the pitch line (3.2.3) at regularly spaced intervals (see Figure 15) There are a staggered double-sided synchronous belt and a symmetrical double-sided synchronous belt.  a) Double-sided synchronous belt (staggered) b) Double-sided synchronous belt (symmetrical) Figure 15	—	double-sided synchronous belt