



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 6368 : 1999

**Narrow V belts for
power transmission**

ICS 53.040.20

Descriptors : power transmission belts, belt drives, natural rubber, synthetic rubber,
power transmission belts

Reference number : JIS K 6368 : 1999 (E)

K 6368 : 1999

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS K 6368 : 1977** is replaced with **JIS K 6368 : 1999**.

This Standard specifies only narrow V-belts while **ISO 4184 : 1992** specifies both classical and narrow V-belts. **JIS K 6323 : 1995** specifies classical V-belts.

Date of Establishment: 1977-03-01

Date of Revision: 1999-01-20

Date of Public Notice in Official Gazette: 1999-01-20

Investigated by: Japanese Industrial Standards Committee
Divisional Council on Chemical

JIS K 6368:1999, First English edition published in 1999-10

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

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

© JSA 1999

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

Narrow V belts for power transmission

Introduction : This Japanese Industrial Standard specifies on narrow V belts, the contents specified in the former Japanese Industrial Standard in this text, and the items specified in the corresponding ISO 4184 : 1992, *Belt drives—Classical and narrow V-belts—Lengths in datum system* in Annex 1 without any change of technical contents.

1 Scope : This standard specifies endless narrow V belts for power transmission, hereinafter referred to as the belt. And the belts for automobiles are not included.

Annex 1 specifies the length of belts by datum system, and each requirement of the text is not applied immediately.

2 Normative references : The following Standards consist a part of this Standard by being quoted to this Standard. These applicable standards shall be applied the newest edition.

JIS B 1855 *Grooved pulleys for narrow V-belts*

JIS Z 8401 *Rules for rounding off of numerical values*

3 Definitions : Definitions of the main terms used in this Standard shall be as follows.

a) **effective circumference :** The circumferential length of the V-belt, set on two length-measuring pulleys, applied the specified load, and measured the circumferential length running on the effective diameter circumference of pulleys.

b) **effective pulley diameter :** The diameter (d_e) specified in 4.2 of JIS B 1855.

4 Classification : V-belts shall be classified into the following three classes according to the dimensions of the cross section :

3V, 5V and 8V.

5 Performance : When tested the tension according to 10.2, the tensile strength and elongation of one belt shall conform to the requirements specified in Table 1.

Table 1 Tensile characteristics

Item	Class			Applied clause
	3V	5V	8V	
Tensile strength per one belt kN	2.3 or over	5.4 or over	12.7 or over	10.2
Elongation ⁽¹⁾ %	4 or under			

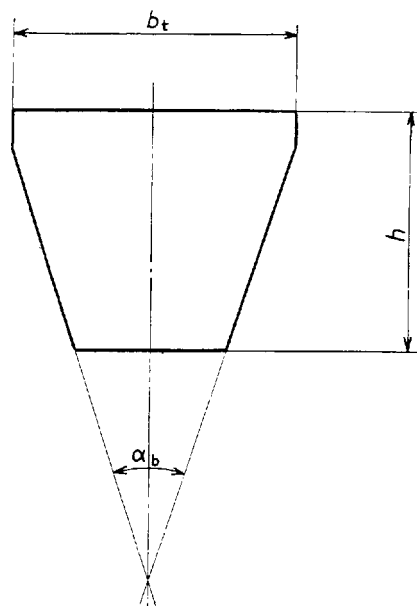
Note ⁽¹⁾ : Elongation applied the load specified in Table 5.

6 Structure : For the structure of V-belts, using the materials specified in 9, it shall have the structure which is covered with the rubber coated fabric on the surrounding of the cross section of the trapezium including the core, or the one which is worked by lapping with the rubber coated fabric on the both top and bottom surfaces or the top surface of the trapezium including rubber and the core.

7 Shapes and dimensions

7.1 Cross section and dimensions: The cross section of V-belt shall be a trapezium with a bilateral symmetry, and the principal dimensions shall be in accordance with Table 2, and shall be in accordance with the V groove section specified in 4.2 of JIS B 1855.

Table 2 Cross section and principal dimensions



Class	b_t mm	h mm	α_b degree
3V	9.5	8.0	40
5V	16.0	13.5	
8V	25.5	23.0	

7.2 Length: The belt length of V-belt shall be measured in accordance with 10.1, and shall be expressed as the effective circumference.

The relations between the nominal number of V-belt and the effective circumference shall be given in Table 3.

The effective circumference, its tolerances and difference of length in one set ⁽²⁾ shall be in accordance with Table 3.

Note ⁽²⁾: The difference of each effective circumference of belt length in the case of multi-belt drive.

Table 3 The effective circumference, its tolerances and difference of length in one set

Unit : mm

Nominal number	Effective circumference			Tolerance	Difference of length in one set (max.)	Nominal number	Effective circumference			Tolerance	Difference of length in one set (max.)
	3V	5V	8V				3V	5V	8V		
250	635		—	± 8	3.0	1 060	2 692	2 692	2 692	± 15	7.5
265	673					1 120	2 845	2 845	2 845		
280	711					1 180	2 997	2 997	2 997		
300	762					1 250	3 175	3 175	3 175		
315	800					1 320	3 353	3 353	3 353		
335	851					1 400	3 556	3 556	3 556		
355	902					1 500	—	3 810	3 810		10.0
375	953					1 600		4 064	4 064		
400	1 016					1 700		4 318	4 318		
425	1 080					1 800		4 572	4 572		
450	1 143					1 900		4 826	4 826		
475	1 207					2 000		5 080	5 080		
500	1 270	1 270				2 120		5 385	5 385		
530	1 346	1 346	—	± 10	5.0	2 240		5 690	5 690		
560	1 422	1 422				2 360		5 994	5 994		
600	1 524	1 524				2 500		6 350	6 350		
630	1 600	1 600				2 650		6 731	6 731		
670	1 702	1 702				2 800		7 112	7 112		
710	1 803	1 803				3 000		7 620	7 620		
750	1 905	1 905				3 150	—	8 001	8 001	± 25	12.5
800	2 032	2 032				3 350		8 509	8 509		
850	2 159	2 159				3 550		9 017	9 017		
900	2 286	2 286				3 750		9 525	9 525		
950	2 413	2 413		± 13	6.5	4 000		10 160	10 160	± 30	15.0
1 000	2 540	2 540	2 540			4 250	—	—	10 795		
						4 500			11 430		
						4 750			12 065		
						5 000			12 700		

8 **Appearance** : The appearance of V-belt shall be free from such defects that can be observed with naked eye, as torsion, flaws and others which may impair the use.

9 Materials

9.1 **Rubber** : Rubber shall be blended for conforming to the application.

9.2 **Fabric** : Fabric shall be cotton, synthetic fibre or others suitable for conforming to the application.

9.3 **Core** : Core shall be synthetic fibre or others suitable for conforming to the application.

10 Measurements and testing methods

10.1 **Measurement of length** : The effective circumference of belt shall be measured by using the apparatus given in Fig. 1.

Hang the V-belt on the two pulleys given in Table 4, apply the load F_0 given in Table 4 on it, rotate at least two revolutions, obtain distance of axes of two pulleys, and calculate V-belt effective circumference of length according to the following formula (1).

K 6368 : 1999

$$L_e = 2C + K \dots\dots\dots (1)$$

where L_e : V-belt effective circumference (mm)

C : distance of axes of two pulleys (mm)

K : a constant (mm) (see Table 4)

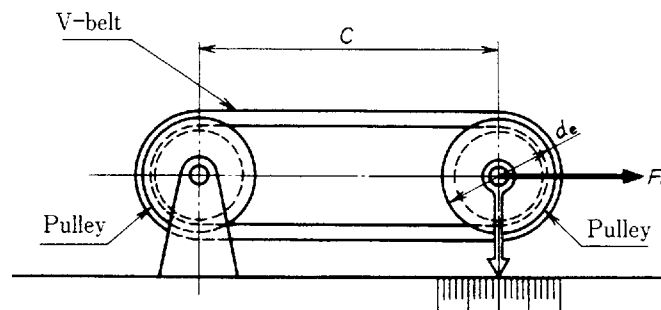
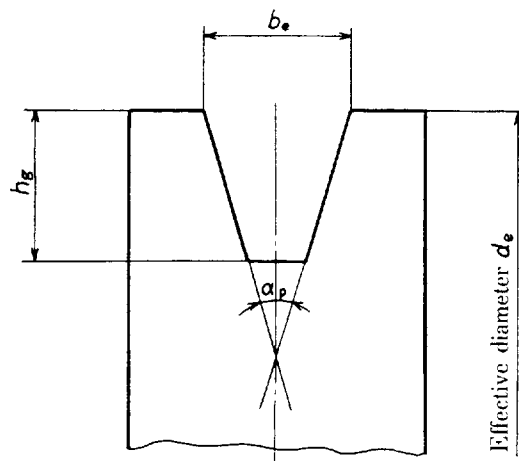


Fig. 1 Example of measuring apparatus for length

Table 4. Length measuring pulleys



Class	b_e mm	d_e mm	h_g (min.)	α_p (°)	F_o (N)	K mm
3V	8.90 ± 0.03	97.08 ± 0.03	9.0	38 ± 0.17	440	305
5V	15.20 ± 0.03	202.13 ± 0.03	15.0		980	635
8V	25.40 ± 0.03	404.25 ± 0.03	25.0		2 210	1 270

10.2 Tensile test : Tensile test for V-belt shall be carried out as follows ; take three test pieces ⁽³⁾ of 250 mm or over in length from one sample, and measure the maximum tensile strength and elongations under the load given in Table 5 at a temperature of $25 \text{ }^{\circ}\text{C} \pm 5 \text{ }^{\circ}\text{C}$ by means of tensile testing machine. Tensile speed shall be measured to one place under the specification and round off according to JIS Z 8401.

Elongation test shall be carried out with the gauge length of 100 mm.

Grips which are constructed to catch completely the test piece shall be used.

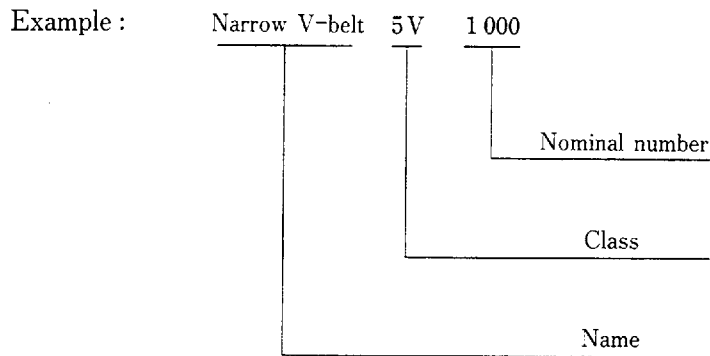
For class 5 V and 8 V, test may be carried out by peeling off the rubber of gripping part.

Note ⁽³⁾ : When it is impossible to take three test pieces, two test pieces may be taken and it shall be recorded.

Table 5 Measuring load

Class	3V	5V	8V
Load kN	0.8	2.0	5.0

11 Designation of products : The designation of products shall be in the order of name, class and nominal number.



12 Marking : V-belts shall be marked the following items.

- Class
- Nominal number ⁽⁴⁾
- Name of manufacturer or its abbreviation
- Year and month of manufacturing or its abbreviation

Note ⁽⁴⁾ : If necessary, the mark explaining the difference of length in one set to the nominal number shall be given.

Annex 1 (normative) Belt drives—Narrow V-belts—Lengths in datum system

Introduction : This Annex is prepared based on the corresponding part to Narrow V-belts of the text of this Standard from the corresponding ISO 4184 : 1992, *Belt drives—Classical and narrow V-belts—Lengths in datum system*.

In this Annex, “Reference” underlined with dotted line is not specified in the original international standard.

1 Scope : This Annex shall be applied to the following items concerning to narrow V-belts having the following sections.

- SPZ (for pulleys whose groove profile with datum width 8.5 mm),
- SPA (for pulleys whose groove profile with datum width 11 mm),
- SPB (for pulleys whose groove profile with datum width 14 mm),
- SPC (for pulleys whose groove profile with datum width 19 mm):
- the recommended datum lengths ;
- the tolerances for datum lengths ;
- the center distance variations ;
- the conditions of measuring the datum length and the center distance variation.

Narrow V-belts (hereinafter referred to as V-belts) are not used with pulleys uniquely designed for general purpose belts.

References : Datum width is for W_d given in Table 1 and Fig. 1 of ISO 4183 and Annex Table 3 of JIS B 1855.