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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 10413-2025**

Replacing GB/T 10413-2002

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**Belt drives - Grooved pulleys for narrow V-belts (system based  
on effective width)**

带传动 窄V带轮（有效宽度制）

**(English Translation)**

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### Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 10413-2002 "Narrow V-belt Pulleys (Effective Width System)". Compared with GB/T 10413-2002, the only differences are in the structural design.

Aside from integration and editorial changes, the main technical changes are as follows.

- Some dimensional terminology symbols have been changed (see Figure 1 and Table 1, Figure 1 and Table 1 in the 2002 edition);
  - Added deep wheel groove type and related content (see Figure 3, Table 2 and Table 6);
  - The minimum effective diameter of the pulley has been modified (see Table 3, Table 3 in the 2002 edition);
  - Added groove types and basic values for the effective diameter portion of the pulley series (see Table 4);
  - Added a calculation formula for the measurement correction term [see formula (3)];
  - An effective diameter verification calculation formula has been added [see formula (4)];
  - The diameter of the standard grooved measuring ball or gauge bar has been changed and corrections have been made (see Table 5, Table 5 in the 2002 edition).
- This document is modified to adopt ISO 5290:2001 "Belt drives - Narrow V-belt pulleys with grooves 9 N/J, 15 N/J and 25 N/J (effective width) system)".

This document has undergone significant structural adjustments compared to ISO 5290:2001. A table comparing the structural numbering changes between the two documents is provided.

See Appendix A.

The technical differences between this document and ISO 5290:2001, and the reasons therefor, are as follows.

- ISO 1081:1995 has been replaced with the normatively referenced GB/T 6931.2, increasing operability (see Chapter 3);
- ISO 9980:1990 has been replaced with the normatively referenced GB/T 11356.2-2023, increasing operability (see Chapter 6);
- ISO 254:1998 has been replaced with the normatively referenced GB/T 11357, increasing operability (see Chapter 7);
- Some dimensional terminology symbols have been changed (see Figure 1 and Table 1, Figure 1 and Table 1 of ISO 5290:2001), in accordance with existing national standards. coordination;
- Added deep groove type and related content (see Figure 3, Table 2 and Table 6), added new models, and expanded the scope of standard application;
- The pulley groove angle tolerance has been increased (see Table 1), making the expression more precise;
- The minimum effective diameter portion of the pulley dimensions has been revised (see Table 3, Table 5 of ISO 5290:2001) for greater completeness;
- The groove types and basic values for the effective diameter portion of the pulley have been added (see Table 4, Table 3 of ISO 5290:2001), making it more... Complete;
- The diameter of the standard grooved measuring ball or gauge bar and the correction terms have been changed (see Table 5, Table 6 of ISO 5290:2001), resulting in more accurate values;
- A circular jump label has been added (see Figure 5) for more precise expression.

The following editorial changes have been made to this document.

- The standard name has been changed to "Belt Drive Narrow V-belt Pulley (Effective Width System)".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Pulleys and Belts (SAC/TC428).

## Introduction

V-belt drive is one of the important transmission methods of belt drive. Ordinary and narrow V-belt drives are the most basic forms of V-belt drive.

Narrow V-belt drives can be divided into two series. standard width and effective width. They are widely used in machine tools, mining machinery, petroleum machinery, and coal mining machinery.

It is used in various fields such as machinery, woodworking machinery, garden machinery, and agricultural machinery. The effective width is the basic dimension describing the pulley groove, and the effective diameter of the pulley is the...

The basic diameter of the pulley. my country issued the national standard for "Narrow V-belt Pulleys" as early as 1989, and expanded the standard in 2002.(There are...) the effective diameter series is selected from the preferred number series R20 in GB/T 321-2005.When this is insufficient, it can be supplemented by the R40 and R10 series.

For charging, the R10 series is highly recommended.

The difference between metric and imperial dimensions is allowed within a tolerance range of 0% to 1.6%. This allows for the selection of dimensions to cover a wide range of needs.

The maximum effective diameter can be increased to the following dimensions based on the basic diameter. 12.8 mm for 9 N/J, and [the maximum increase is not specified] for 15 N/J.

Up to 28.8mm, 25N/J plus 1.6%. Since only positive deviation is required, the minimum effective diameter is equal to the basic effective diameter.

Belt drive narrow V-belt pulley (effective width system)

## 1 Scope

This document specifies the effective width of narrow V-belt pulleys (9N, 9NX, 9J, 9JX, 15N, 15NX, 15J, 15JX and 25N, 25J types).

Groove cross-sectional dimensions, effective diameter series, wheel groove inspection, pulley material, surface roughness, and balance.

The standard groove type in this document applies to pulleys for single and multi-strand narrow V-belts. Deep groove pulleys are not suitable for multi-strand V-belts and are primarily used for offset applications.

(Twisting, misalignment) drive, such as 1/4 circle drive or vertical shaft drive.

## 2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 6931.2 Belt Drives Terminology Part 2: V-Belts and Multi-Wedge Belt Drives (GB/T 6931.2-2020, ISO 1081.

2013, MOD)

GB/T 11356.2-2023 Belt drives - General and narrow V-belt pulley groove shape test - Part 2: Effective width system (ISO 9980.

2012, MOD)

GB/T 11357 Material, surface roughness and balance of pulleys (GB/T 11357-2020, ISO 254:2011, MOD)

## 3 Terms and Definitions

The terms and definitions defined in GB/T 6931.2 apply to this document.

## 4 Wheel groove cross-sectional dimensions

Wheel groove sections can be divided into two types. standard wheel groove sections and deep wheel groove sections. The dimensions of standard wheel groove sections are shown in Figure 1, Figure 2, and Table 1. Deep wheel groove sections...

The dimensions of the groove cross-section are shown in Figure 3 and Table 2. The pitch circle diameter of the standard wheel groove is approximately calculated using formula (1), and the pitch circle diameter of the deep wheel groove is approximately calculated using formula (2).

calculate.

$$d_p = d_e - 2b_e \quad (1)$$

In the formula.

$d_p$  --- Pitch circle diameter, in millimeters (mm);

$d_e$  --- Effective diameter, in millimeters (mm);