



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

GB/T 11357-2020

Quality, roughness and balance of transmission pulleys

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 11357-2008 "Material, roughness and balance of transmission pulleys". Compared with GB/T 11357-2008, the main technical changes except for editorial changes are as follows:

- MODIFY the normative references (see Clause 2);
- ADD commonly used materials of pulleys (see Table 1);
- ADD the specification of V-pulley and V-ribbed pulley grooves, all pulley bores, and working surface roughness under high-performance drives (see Table 2 of this Standard, Table 1 of the 2008 edition);
- ADD the schematic diagram of static balancing and dynamic balancing (see Figure 1);
- MODIFY the selection of balancing method (see 5.4 of this Standard, 5.4 of the 2008 edition);
- MODIFY the symbol of pulley rim edge width (see 5.4, 5.7 of this Standard,

5.7 of the 2008 edition).

This Standard uses the redrafting method to modify and adopt ISO 254:2011

"Belt drives - Pulleys - Quality, finish and balance".

Compared with ISO 254:2011, this Standard has many adjustments in structure,

adding Table 1, Figure 1, Figure 2, Annex B and Annex C.

Compared with ISO 254:2011, there are technical differences. The clauses involved in these differences have been marked by a vertical single line (|) on the outer margin of the standard. Annex A gives a list of the corresponding technical differences and their reasons.

This Standard has made the following editorial changes:

- MODIFY the standard name;
- Delete the third paragraph in Clause 1 of ISO 254:2011;
- ADD the key in Figure 3;
- ADD the informative annex B "Pulley balancing operation methods";
- ADD the informative annex C "Balance quality grade table".

Quality, roughness and balance of transmission
pulleys

1 Scope

This Standard specifies the material, quality requirements, surface roughness and balance of pulleys.

This Standard applies to V-pulleys, V-ribbed pulleys, flat pulleys and synchronous pulleys. It does not apply to variable-speed pulleys with movable rims.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 9239.1 Mechanical vibration - Balance quality requirements for rotors in a constant (rigid) state - Part 1: Specification and verification of balance tolerances (GB/T 9239.1-2006, ISO 1940-1:2003, IDT)

3 Material and quality requirements of pulleys

The pulley can be made of materials that can be processed to meet the dimensions and tolerance specified by the standard, and can withstand various working conditions (including heating, mechanical stresses, abrasion and other environments) without damage. The pulley material shall be suitable for dissipating the heat generated by the transmission. See Table 1 for commonly used materials for pulleys.

Table 1 -- Commonly used materials of pulleys

Pulley type	Commonly used materials
V-pulley, flat pulley	Cast iron, steel, aluminum alloy, copper alloy and engineering plastics, etc.
V-ribbed pulley	
Synchronous pulley	

Key:

l - the pulley rim edge width, in millimeters (mm);

d - the diameter (datum diameter or effective diameter) of the pulley, in millimeters (mm);

n - the revolving speed of the pulley, in thousand revolutions per minute (kr/min).

Figure 2 -- Diagram of Selection of balance method

5.5 For pulleys used for stock, since the conditions of use have not yet been determined, only static balancing is required.

5.6 Static balancing shall ensure that the eccentric residual imbalance mass of the pulley on the working diameter (datum diameter or effective diameter, which is determined by the pulley type) is not greater than the larger of the following two values:

a) 0.005 kg;

NOTE: This only applies to pulleys where there is adequate material to remove. Many light-

duty pulleys do not have adequate space to drill balancing holes or to add appropriate masses

by permanent means.

b) 0.2 % of the equivalent mass of the pulley and accessories.

The equivalent mass refers to the mass of a cast iron pulley with the same geometry as the tested pulley, in kilograms (kg).

5.7 If the pulley revolving speed is known, it shall determine whether dynamic balancing is required.

Determine the limit speed n_1 of the pulley from Figure 3 or according to formula

(1):

Revolving speed $n/(kr/min)$

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