



SLOVENSKI STANDARD

SIST ISO 12046:2013

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Nadomešča:
SIST ISO 12046:1997

Jermenski pogoni - Zobati jermenski pogoni - Avtomobilski jermeni - Ugotavljanje fizikalnih lastnosti

Synchronous belt drives - Automotive belts - Determination of physical properties

iTeh STANDARD PREVIEW

Transmissions synchrones par courroies - Courroies pour la construction automobile - Détermination des caractéristiques physiques

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Ta slovenski standard je istoveten z: ISO 12046:2012

ICS:

21.220.10	Jermenski pogoni in njihovi deli	Belt drives and their components
43.060.10	Blok motorja in notranji deli motorja	Engine block and internal components

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en

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**Synchronous belt drives — Automotive
belts — Determination of physical
properties**

*Transmissions synchrones par courroies — Courroies pour la
construction automobile — Détermination des caractéristiques physiques*

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Contents	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Principle	1
4 Test methods	1
5 General conditions for testing	2
5.1 Standard environmental conditions	2
5.2 Standard conditions of test specimens	2
5.3 Rounding off the test results	2
5.4 Test report	3
6 Static property tests	3
6.1 Test for hardness of rubber core	3
6.2 Tensile strength test	3
6.3 Fabric adhesion test	4
6.4 Tension-cord adhesion test	5
6.5 Tooth-shear test	6
6.6 Test for resistance to high temperature	8
6.7 Test for resistance to low temperature	9
6.8 Test for resistance to oil	9
6.9 Test for resistance to ozone	9
6.10 Test for resistance to water	9
Bibliography	10

SIST ISO 12046:2013

<https://standards.iteh.ai/catalog/standards/sist/bc8611a4-3c90-43bd-9bd9-3ca862d1ac27/sist-iso-12046-2013>

ISO 12046:2012(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12046 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 4, *Synchronous belt drives*.

This second edition cancels and replaces the first edition (ISO 12046:1995), which has been technically revised.

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Synchronous belt drives — Automotive belts — Determination of physical properties

1 Scope

This International Standard specifies test methods for determining the physical properties of synchronous belts used in driving engine parts, such as camshafts, fuel injection pumps, balancing shafts. These test methods are intended to provide a means of characterizing synchronous belt properties for belts which are evaluated and qualified by dynamic laboratory and field testing.

NOTE The dimensional characteristics of these belts are the subject of ISO 9010.

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.

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 7619-1, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 1: Durometer method (Shore hardness)*

ISO 7619-2, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 2: IRHD pocket meter method*

3 Principle

Evaluation of the physical properties of automotive synchronous belts through standardized test methods. These test methods are independent of tooth profiles.

4 Test methods

The tests are listed in Table 1.

Table 1 — Tests

Test	Subclause No.
Hardness of rubber core	6.1
Tensile strength	6.2
Fabric adhesion	6.3
Tension-cord adhesion	6.4
Tooth shear	6.5
Resistance to high temperature	6.6
Resistance to low temperature	6.7
Resistance to oil	6.8
Resistance to ozone	6.9
Resistance to water	6.10

5 General conditions for testing

5.1 Standard environmental conditions

Standard conditions in the laboratory shall be maintained at a temperature of (25 ± 5) °C, a relative humidity of (65 ± 20) % and an atmospheric pressure of 86 kPa to 106 kPa. The test conditions should be recorded.

5.2 Standard conditions of test specimens

The test specimens shall be tested at least 24 h after vulcanization and shall be kept for at least 1 h prior to test in a room maintained under standard conditions.

5.3 Rounding off the test results

The results of each test shall be rounded off and shall be recorded according to the number of figures specified in Table 2.

Table 2 — Rounding off of results

Test	Unit	Measured test value	Test results to be obtained
Hardness of rubber core	Shore A or IRHD	Integer	Integer
Tensile strength	N	Nearest 10	Nearest 100
Fabric adhesion	N	Integer	Integer
Tension-cord adhesion	N	Nearest 10	Nearest 10
Tooth shear	N	Nearest 10	Nearest 10
EXAMPLES	Nearest tens	Nearest hundreds	
	3 474 → 3 470	3 440 → 3 400	
	3 475 → 3 480	3 450 → 3 500	

5.4 Test report

For each test, the test report shall include the following information:

- a) number of teeth, pitch, tooth profile and width of specimen;
- b) constituent materials of specimen;
- c) production code of specimen;
- d) date of test;
- e) number of specimens;
- f) test temperature, relative humidity and atmospheric pressure;
- g) type of test apparatus.

6 Static property tests

6.1 Test for hardness of rubber core

6.1.1 Test specimens

The test specimen shall be either an endless belt or a cut belt with a minimum length of 100 mm.

6.1.2 Procedure

Place the specimen, with teeth pointing downward, on a flat surface and measure the flat portion of the belt above a tooth, using a Shore type A durometer as described in ISO 7619-1, or an IRHD tester as described in ISO 48 or ISO 7619-2, or an equivalent apparatus.

6.1.3 Expression of results

Record the average of five different measurements along the belt, rounded off as in the following examples.

EXAMPLE 1

$$\frac{74 + 75 + 75 + 74 + 74}{5} = 74,4 \longrightarrow 74$$

EXAMPLE 2

$$\frac{75 + 75 + 75 + 74 + 74}{5} = 74,6 \longrightarrow 75$$

6.2 Tensile strength test

6.2.1 Test specimens

The test specimen shall be either an endless belt or two cut belts with a minimum length of 250 mm each.

6.2.2 Procedure

Mount an endless-belt test specimen, with teeth pointing upward, on two flat pulleys having an equivalent diameter ranging between 100 mm and 175 mm and which are free to rotate. Apply a tension force to the specimen at the speed of (50 ± 5) mm/min until belt separation occurs.