RULEBOOK ON TECHNICAL AND OTHER REQUIREMENTS FOR ROLLER BEARINGS

”Official Gazette of RS”, No 98/2016 and 66/2018

INTRODUCTION

Subject
Article 1

This Rulebook prescribes technical and other requirements that must be met for placing roller bearings on the market, the conformity assessment procedure, the requirements that must be met by conformity assessment bodies, the type and content of the certificate of conformity and the mark of conformity.

The meaning of certain expressions
Article 2

Certain terms used in this rulebook have the following meanings:

1) *roller bearings* are mechanical elements whose task is to enable the relative movement of rotating parts while transferring loads between them and to ensure the accuracy of their position;

2) *type of roller bearing* in the sense of this Rulebook means a roller bearing marked with letters, ie numerical markings which unambiguously determine a certain type of roller bearing;

3) *manufacturer* is a legal entity, entrepreneur or natural person who makes roller bearings or a person who presents himself as a manufacturer by putting on the bearing his business name, name or title, trademark, some other recognizable mark or otherwise;

4) representative is a legal entity or entrepreneur registered in the Republic of Serbia, or a natural person residing in the Republic of Serbia, who is authorized by the manufacturer to undertake actions on his behalf, and in connection with the placement of bearings on the market of the Republic of Serbia;

5) *importer* is a legal entity or entrepreneur registered in the Republic of Serbia, or a natural person residing in the Republic of Serbia who places on the market bearings from other countries;

6) *certificate of conformity for a roller bearing* is a document confirming conformity with the prescribed requirements;

7) *placing on the market* is the first delivery of a roller bearing to the market of the Republic of Serbia;

8) *delivery to the market* is any making available of a roller bearing, to which this Rulebook applies, on the market of the Republic of Serbia for distribution, consumption or use, with or without compensation.

Other terms used in this Rulebook, and not defined in paragraph 1 of this Article, have the meaning defined by the law governing technical requirements for products.

Application of the Rulebook
Article 3

The Rulebook applies to roller bearings that are placed on the market of the Republic of Serbia.

The Rulebook does not apply to roller bearings that are used as spare parts for emergency installation during repairs, failures or other defects caused by accidents on machinery, equipment and facilities in commercial, public and other facilities.

TECHNICAL AND OTHER REQUIREMENTS

Technical requirements for roller bearings
Article 4

This rulebook defines:

1) measures and deviations of the roller bearing;
2) hardness of the material from which the elements of the roller bearing are made;
3) vibrations in rings of conically rolled and single-row radial ball bearings.

Measures and deviations of the roller bearing
Article 5

Measures and deviations of roller bearings are defined by following Serbian standards:

SRPS ISO 1132-1, Rolling bearings — Tolerances — Part 1: Terms and definitions;
SRPS ISO 1132-2, Rolling bearings — Tolerances — Part 2: Measuring and gauging principles and methods;
SRPS ISO 492, Rolling bearings — Radial bearings — Geometrical product specifications (GPS) and tolerance values;
SRPS ISO 15, Rolling bearings — Radial bearings — Boundary dimensions, general plan;
SRPS ISO 104, Rolling bearings — Thrust bearings — Boundary dimensions, general plan;
SRPS ISO 199, Rolling bearings — Thrust bearings — Geometrical product specification (GPS) and tolerance values;
SRPS ISO 246, Rolling bearings — Cylindrical roller bearings, separate thrust collars — Boundary dimensions;
SRPS ISO 355, Rolling bearings — Tapered roller bearings — Boundary dimensions and series designations;
SRPS ISO 1206, Rolling bearings — Needle roller bearings, dimension series 48, 49 and 69 — Boundary dimensions and tolerances — Amendment 1: Tolerances for shaft raceway;
SRPS ISO 5753-1, Rolling bearings — Internal clearance — Part 1: Radial internal clearance for radial bearings;
SRPS ISO 5753-2, Rolling bearings — Internal clearance — Part 2: Axial internal clearance for four-point-contact ball bearings.

Hardness of the material from which the elements of the roller bearing are made
Article 6

The hardness of the material from which the roller bearing is made is tested according to following Serbian standard:

SRPS EN ISO 6508-1, Metallic materials - Rockwell hardness test - Part 1: Test method.

Limit values for the material hardness of the roller bearing elements are given in Table 1.

Table 1. Limit values for material hardness

The name of the bearing element	*Hardness HRc*
Outer ring	58 to 65
Inner ring	58 to 65
Disc rests	58 to 65
Rolling body	58 to 66

Vibrations in rings, conical rollers and single-row balls
radial bearings
Article 7

Methods of measuring vibrations caused by geometric irregularities of elements in ring, conically rolled and single-row deep groove ball bearings is performed in accordance with following Serbian standards:
SRPS ISO 15242-1, Rolling bearings — Measuring methods for vibration — Part 1: Fundamentals;
SRPS ISO 15242-2, Rolling bearings — Measuring methods for vibration — Part 2: Radial ball bearings with cylindrical bore and outside surface;
SRPS ISO 15242-3, Rolling bearings — Measuring methods for vibration — Part 3: Radial spherical and tapered roller bearings with cylindrical bore and outside surface.

Vibration level limit values are given in Annex 1. - Maximum permissible vibration levels, which is printed with this Rulebook and forms an integral part thereof.

PLACING ON THE MARKET

Placing on the market
Article 8

The roller bearing can be placed on the market, freely, without any restrictions:
1) if it meets the technical requirements referred to in Art. 5-7. of this Rulebook;
2) if it is accompanied by an appropriate certificate of conformity;
3) if it is marked with the Serbian mark of conformity.

Notwithstanding paragraph 1, item 1) of this Article, a roller bearing with an outer diameter of nominal dimension D> 150 mm shall be placed on the market if it meets the technical requirements of Article 6 of this Rulebook, which refers to the hardness of the material from which the roller bearing elements are made.

CONFORMITY ASSESSMENT

Internal production control
Article 9

Internal production control includes all measures taken by the manufacturer, which are necessary for the production process and monitoring of that process to ensure conformity of the product with the prescribed requirements.
The manufacturer implements the internal production control procedure in order to ensure the conformity of the roller bearing with the technical documentation, ie the requirements of this Rulebook, during the production process.

Conformity assessment body
Article 10

Testing of the roller bearing in accordance with the technical requirements of Art. 5-7. of this Rulebook, at the choice and at the request of the manufacturer, representative and/or importer, conducts an accredited conformity assessment body that meets the requirements set out in the standard SRPS ISO/IEC 17025.

Manner of testing

Article 11

The test is carried out at the request of the manufacturer, representative and/or importer for the same type of roller bearing.

The request shall contain in particular:

1) name and address of the manufacturer, representative and/or importer of the roller bearing;
2) rolling bearing type mark from the same manufacturer;
3) size of production batch/import batch.

The test referred to in paragraph 1 of this Article shall be performed on samples submitted by the manufacturer, agent and / or importer of roller bearings to the conformity assessment body, and for which the date of manufacture or import date is not older than six months from the date of application for testing.

The number of test specimens, in relation to the size of the batch or batch produced, is determined in Table 2.

Table 2. The number of specimen

Size of produced batch / batch of import [pieces]	The number of specimen
Up to 50	1
51 to 1000	3
>1000	5

If the submitted sample (s) does not meet any of the prescribed technical requirements, the applicant shall submit the application referred to in paragraph 1 of this Article, as well as the prescribed number of samples from the same production batch or import batch for re-testing.

The importer signs a statement that the data on roller bearings from the requirements of paragraph 1 and 5 of this Article correspond to the data from the invoice of the foreign supplier.

The tested rolling bearing sample (s) shall be returned by the conformity assessment body at the request of the applicant for testing within ten days from the day of submitting the request for return of the sample.

In case of non-submission of the request for return of the sample, the body keeps the tested samples for 90 days from the day of issuing the test report.

Following the test, the conformity assessment body shall issue a test report together with a conclusion stating that the requirements for the tested samples have been met.

Test report

Article 12

The test report shall contain in particular:

1) business name, ie name or title and address of the conformity assessment body;
2) the number under which the test report was made, the identification of each page of the report that allows it to be identified as part of the report, and the precise identification of the end of the report;
3) business name and address of the applicant for testing the roller bearing;
4) mark of the type of roller bearing, size and number of the produced batch or batch of import;
5) test results;
6) identification and signature of the authorized person responsible for compiling the report;
7) conclusion of the report stating that the request for the examined sample (s) has been met;
8) place and date of issuing the report.

DOCUMENTS AND CONFORMITY MARK

Document of conformity
Article 13

Before placing a roller bearing for which a valid test report exists, the manufacturer or representative shall draw up a declaration of conformity.

The declaration of conformity shall contain in particular:

1) business name, ie name or title and address of the manufacturer, ie roller bearing representative;
2) roller bearing type mark;
3) date of testing and number of test report;
4) an explicit statement confirming that the type of roller bearing meets the requirements of this Rulebook;
5) identification and signature of the authorized person responsible for drawing up the declaration of conformity;
6) place and date of making the declaration of conformity.

The Representative may make a Declaration of Conformity, without re-conducting the testing procedure if the laboratory that conducted the test is accredited by a foreign national accreditation body that has signed an agreement with the Accreditation Body of Serbia recognizing the equivalence of the accreditation system to the extent determined by the signed agreement, as well as the reliability of conformity assessment results.

For new deliveries of roller bearings of the same manufacturer and type, for which a conformity assessment has been carried out, ie a test report not older than six months has been obtained, the manufacturer or representative may draw up a Declaration of Conformity without re-testing.

If the manufacturer or representative is not registered in the territory of the Republic of Serbia, the importer shall draw up a Declaration of Conformity for each import lot, accordingly applying para. 2-4. of this article.

The Declaration of Conformity must also contain the business name, ie the name or title and address of the bearing importer.

A supplier who places roller bearings on the market of the Republic of Serbia may make the Declaration of Conformity/Statement of conformity available on its website.

Conformity mark
Article 14

Rolling bearing that complies with the requirements of this Ordinance, before being placed on the market, shall be marked with the conformity mark in the form prescribed in Annex 2 - Conformity Mark, which is printed with this Rulebook and forms an integral part thereof, in accordance with the regulations governing manner of affixing the mark of conformity.

The mark of conformity shall be affixed by the manufacturer or his representative, ie the importer if the manufacturer is not registered in the territory of the Republic of Serbia.

SAFEGUARD CLAUSE
Article 15

The delivery of roller bearings to the market of the Republic of Serbia, which are marked with the conformity mark, accompanied by a certificate of conformity that is found

not to meet the requirements of this Rulebook may be restricted or prohibited in accordance with the law governing technical requirements for products and conformity assessment.

MUTUAL RECOGNITION CLAUSE

Article 16

The requirements of this regulation do not apply to a roller bearing that is legally placed on the market of other countries of the European Union or Turkey, or legally produced in a state party to the EFTA Agreement.

Notwithstanding paragraph 1 of this Article, the placing on the market or withdrawing the roller bearing referred to in paragraph 1 of this Article may be restricted or withdrawn from the market, if after the procedure referred to in EC Regulation no. 764/2008, determines that such a roller bearing cannot meet the requirements equivalent to the requirements prescribed by this regulation.

TRANSITIONAL AND FINAL PROVISIONS

Article 17

On the day this Rulebook enters into force, the Order on Mandatory Attestation of Rolling Bearings ("Official Gazette of the SFRY", No. 62/83 and 85/87 and "Official Gazette of the FRY", No. 12/93 and 68/93) shall cease to be valid.

Anex 1

MAXIMUM PERMISSIBLE VIBRATION LEVELS

Maximum permissible vibration level for single row ball bearings series 60 and bore diameter 10-60 mm for class Q7

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
607 608 609	160 160 160	112 112 112	112 112 80
6000 6001 6002	160 180 180	112 125 125	80 90 90
6003 6004 6005	180 224 224	125 160 160	125 315 450
6006 6007 6008	224 280 400	160 200 200	450 560 800
6009 6010 6011	400 400 500	200 200 250	800 800 1000
6012	500	250	1000

Maximum permissible vibration level for single row ball bearings series 60 and bore diameter 10-60 mm for class Q6

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
607 608 609	80 80 80	56 56 56	56 56 40
6000 6001 6002	80 90 90	56 63 63	40 45 45
6003 6004 6005	90 112 112	63 80 80	63 160 224
6006 6007 6008	112 140 200	80 100 100	224 280 400
6009 6010 6011	200 200 250	100 100 125	400 400 500
6012	250	125	500

Maximum permissible vibration level for single row ball bearings series 60 and bore diameter 10-60 mm for class Q5

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
607	40	56	28
608	40	56	28
609	40	56	20
6000	40	56	20
6001	45	63	24,4
6002	45	63	22,4
6003	45	63	31,5
6004	56	80	80
6005	56	80	112
6006	56	80	112
6007	71	100	140
6008	100	100	200
6009	100	100	200
6010	100	100	200
6011	125	150	250
6012	125	150	250

Maximum permissible vibration level for single row deep groove ball bearings series 62 and bore diameter 10-60 mm for class Q7

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
623	140	100	100
624	140	100	100
625	140	100	100
626	140	100	100
627	160	112	112
629	160	112	80
6200	160	112	80
6201	180	125	125
6202	180	125	125
6203	180	125	180
6204	224	160	224
6205	224	160	450
6206	224	160	630
6207	280	200	800
6208	280	200	800

6209	280	200	800
6210	280	200	800
6211	355	250	1000
6212	355	250	1000

Maximum permissible vibration level for single row deep groove ball bearings series 62 and bore diameter 10-60 mm for class Q6

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
623	71	50	50
624	71	50	50
625	71	500	50
626	71	50	50
627	80	56	56
629	80	56	40
6200	80	56	40
6201	90	63	63
6202	90	63	63
6203	90	63	90
6204	112	80	112
6205	112	80	224
6206	112	80	315
6207	140	100	400
6208	140	100	400
6209	140	100	400
6210	140	100	400
6211	180	150	500
6212	180	150	500

Maximum permissible vibration level for single row deep groove ball bearings series 62 and bore diameter 10-60 mm for class Q5

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
623	35,5	25	25
624	35,5	25	25
625	35,5	25	25
626	35,5	25	25
627	40	28	28
629	40	28	20
6200	40	28	20
6201	45	31,5	31,5

6202	45	31,5	31,5
6203	45	31,5	45
6204	56	40	56
6205	56	40	112
6206	56	40	160
6207	71	50	200
6208	71	50	200
6209	71	50	200
6210	71	50	200
6211	90	63	250
6212	90	63	250

Maximum permissible vibration level for single row ball bearings series 63 and bore diameter 10-60 mm for class Q7

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
635	140	100	100
6300	160	112	80
6301	250	125	125
6302	250	125	125
6303	250	125	180
6304	224	224	224
6305	224	315	450
6306	224	315	630
6307	280	280	800
6308	280	200	800
6309	280	400	1600
6310	280	560	2240

Maximum permissible vibration level for single row ball bearings series 63 and bore diameter 10-60 mm for class Q6

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
635	71	50	50
6300	80	56	40
6301	125	63	63
6302	125	63	63
6303	125	63	90
6304	112	112	112
6305	112	160	224
6306	112	160	315

6307	140	140	400
6308	140	100	400
6309	140	200	800
6310	140	280	1120

Maximum permissible vibration level for single row ball bearings series 63 and bore diameter 10-60 mm for class Q5

Bearing mark	Vibration level YL (μm/s)		
	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
635	35,5	25	25
6300 6301 6302	40 63 63	28 31,5 31,5	20 31,5 31,5
6303 6304 6305	63 56 56	31,5 56 80	45 56 112
6306 6307 6308	56 71 71	80 71 50	160 200 200
6309 6310	71 71	100 140	400 560

Highest permissible vibration level for single row ball bearings series 1726… bore diameter 10-70 mm

Bearing mark		Vibration level YL (μm/s)			Vibration level YP (μm/s)
1800 o/min		Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz	
1726202		180	125	125	50
1726203		180	125	180	63
1726204		224	160	224	80
1726205	1726305	224	160	315	100
1726206	1726306	224	160	450	140
1726207	1726307	280	200	560	180
1726208	1726308	280	200	560	180
1726209	1726309	280	200	560	180
1726210		280	200	560	180
1726211		355	250	710	224
700 o/min		Lower frequency range 20-120 Hz	Middle frequency range 120–700 Hz	Higher frequency range 700–4000 Hz	
	1726310	112	80	160	56
1726212	1726311	140	100	200	71
1726213		140	100	200	71

Highest permissible vibration level for Y ball bearings series YAR, YET ... bore diameter 10–101.6 mm

Bearing mark	d	Vibration level YL (µm/s)			Vibration level YP (µm/s)
1800 o/min		Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz	
203	12–17,462	224	160	180	125
204	19,05–20	280	200	224	160
205	20,638–25,4	280	200	315	200
206	25–31,75	280	200	450	280
207–210	30–50	355	250	560	355
211	49,213–55,562	450	315	710	450
700 o/min	d	Lower frequency range 20–120 Hz	Middle frequency range 120–700 Hz	Higher frequency range 700–4000 Hz	
212–216	55–80	180	125	200	140
217–220	80–101,6	250	180	280	200

Highest permissible vibration level for bearings of series 42 and 43, bore diameter 45-90 mm

Bearing mark	d	Vibration level YL (µm/s)			Vibration level YP (µm/s)
700 o/min		Lower frequency range 20–120 Hz	Middle frequency range 120–700 Hz	Higher frequency range 700–4000 Hz	
4211A	55	200	140	280	100
4212A	60	200	140	280	100
4213A	65	200	140	280	100
4214A	70	200	140	280	100
4215A	75	200	140	280	100
4216A	80	200	140	280	100
4217A	85	280	200	400	125
4218A	90	280	200	400	125
4309A	45	160	112	224	71
4310A	50	160	112	224	71
4311A	55	200	140	280	100
4312A	60	200	140	280	100

Highest permissible vibration level for bearings of the RLS and RMS series for Q66, bore diameter 45-90 mm

Bearing mark	d		Vibration level YL (µm/s)			Vibration level YP (µm/s)
1800 o/min	inch	mm	Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz	
RLS 7	7/8	22,225	160	80	160	50
RLS 8	8/8	25,400	160	80	224	71
RLS 9	9/8	28,575	160	80	224	71
RLS 10	10/8	31,750	200	100	280	90
RLS 11	11/8	34,925	200	100	280	90
RLS 12	12/8	38,100	200	100	280	90
RMS 6	6/8	19,050	160	80	160	50
RMS 7	7/8	22,225	160	80	160	50
RMS 8	8/8	25,400	160	80	224	71
RMS 9	9/8	28,575	160	80	224	71
RMS 10	10/8	31,750	200	100	280	90
RMS 11	11/8	34,925	200	100	280	90
RMS 12	12/8	38,100	200	100	280	90
RMS 13	13/8	41,275	200	100	280	90

Maximum permissible vibration level for tapered roller bearings for class Q7

d		Vibration level YL (µm/s)					
		Lower frequency range 50–300 Hz		Middle frequency range 300–1800 Hz		Higher frequency range 1800–10000 Hz	
>	≤						
10	18	V15	355	V16	500	V17	710
18	30		450		630		900
30	50		560		800		1120
50	60		710		1000		1400
MPB		726 00 (1800 o/min)					

Maximum permissible vibration level for tapered roller bearings for class Q7

d		Vibration level YL (µm/s)					
		Lower frequency range 20–120 Hz		Middle frequency range 120–700 Hz		Higher frequency range 700–4000 Hz	
>	≤						
10	18	V12	125	V13	180	V14	250
18	30		160		224		315
30	50		200		280		400
50	80		250		355		500
80	120		315		450		630
MPB		726 00 (700 o/min)					

Maximum permissible vibration level for tapered roller bearings for class Q6

d		Vibration level YL (µm/s)		
		Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
>	≤			
10	18	250	250	355
18	30	315	315	450
30	50	400	400	560
50	60	500	500	710
MPB		726 00 (1800 o/min)		

Maximum permissible vibration level for tapered roller bearings for class Q6

d		Vibration level YL (µm/s)		
		Lower frequency range 20–120 Hz	Middle frequency range 120–700 Hz	Higher frequency range 700–4000 Hz
>	≤			
10	18	90	90	125
18	30	112	112	160
30	50	140	140	200
50	80	180	180	250
80	120	224	224	315
MPB		726 00 (700 o/min)		

Maximum permissible vibration level for tapered roller bearings for class Q5

d		Vibration level YL (µm/s)		
		Lower frequency range 50–300 Hz	Middle frequency range 300–1800 Hz	Higher frequency range 1800–10000 Hz
>	≤			
10	18	125	125	180
18	30	160	160	224
30	50	200	200	280
50	60	250	250	355
MPB		726 00 (1800 o/min)		

Maximum permissible vibration level for tapered roller bearings for class Q5

d		Vibration level YL (µm/s)		
		Lower frequency range 20–120 Hz	Middle frequency range 120–700 Hz	Higher frequency range 700–4000 Hz
>	≤			
10	18	45	45	63
18	30	56	56	80
30	50	71	71	100
50	80	90	90	125
80	120	112	112	160
MPB		726 00 (700 o/min)		

Maximum permissible vibration level for radial barrel bearings

D (1800 o/min)		Vibration level YL (µm/s)		
		Lower frequency range	Middle frequency range	Higher frequency range
>	≤	50–300 Hz	300–1800 Hz	1800–10000 Hz
50	80	400	630	1120

Maximum permissible vibration level for radial barrel bearings

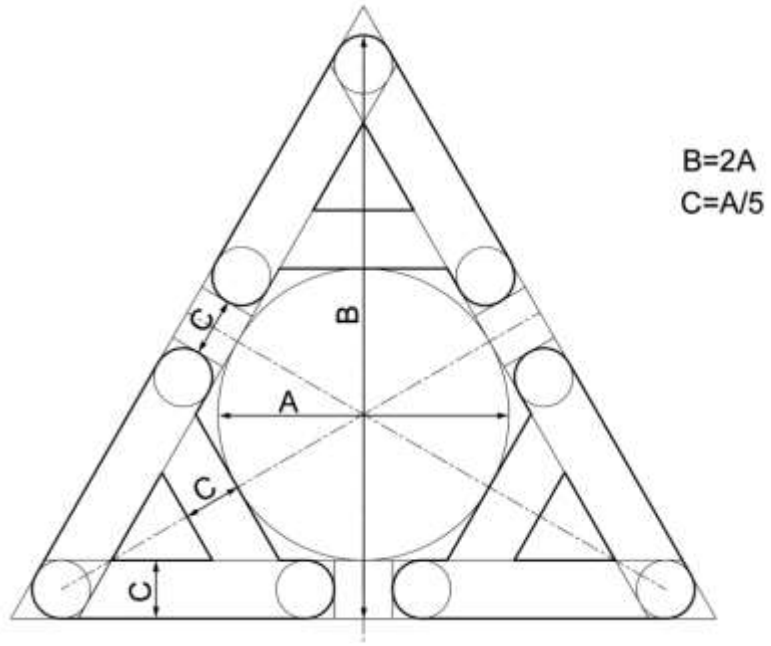
D (700 o/min)		Vibration level YL (µm/s)		
		Lower frequency range	Middle frequency range	Higher frequency range
>	≤	20–120 Hz	120–700 Hz	700–4000 Hz
	100	160	250	450
100	200	200	315	560
200	420	250	400	710

Anex 2

CONFORMITY MARK

Serbian conformity mark

The Serbian mark of conformity consists of three capital letters A connected in the form of an equilateral triangle (3A), with the appearance and content as in the picture:



The size of the sign is determined by the height V of the sign, which can only have rounded values of standard numbers according to the order of sizes R10 expressed in millimeters (mm) according to the Serbian standard SRPS A.A0.001 Standard numbers - Rows of standard numbers.

The height of the V sign is, as a rule, at least 5 mm.