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If a whole or part of a paragraph has been amended, the date of the amending regulation appears in square brackets at the end of the paragraph. If a whole paragraph or sub-paragraph has been deleted, the date of the deletion appears in square brackets beside the deleted paragraph or sub-paragraph.

Republic of Latvia

Cabinet

Regulation No. 156

Adopted 25 March 2014

**Procedures for the Market Surveillance of Construction Products**

*Issued pursuant to*

*Section 7, Paragraph two of the law On Conformity Assessment and Section 5, Paragraph one, Clause 10 of the Construction Law*

**I. General Provisions**

1. This Regulation prescribes the authority which carries out the market surveillance of construction products (production and trading sites, construction sites), and also prescribes the procedures for surveillance, but for construction products to which Regulation (EU) No 305/2011 of the European Parliament and of the Council laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC (hereinafter – Regulation (EU) No 305/2011) does not apply – also the procedures by which requirements for the conformity of construction products are to be defined, samples of construction products are to be requested and received, laboratory expert-examinations or expert-examinations of another kind are to be performed and the cases when the expenses of performing respective expert-examinations shall be covered by the manufacturer, importer or distributor of construction product.

[*10 February 2015*]

2. The Consumer Rights Protection Centre (hereinafter – the Centre) shall perform the market surveillance of construction products by verifying the conformity of construction products to the requirements specified in laws and regulations in the field of construction and technical regulations, and with the performance declared by the manufacturer.

[*10 February 2015*]

**II. Market Surveillance of Construction Products**

2.1 The Centre shall carry out the market surveillance of construction products:

2.1 1. for the construction products to which harmonised technical specifications apply – in accordance with Regulation (EU) No 305/2011, Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93 (hereinafter – Regulation (EC) No 765/2008), and the procedures laid down in this Regulation;

2.1 2. for the construction products to which the Latvian national standards referred to in Annex 1 to this Regulation apply – in accordance with Regulation (EC) No 765/2008 and the procedures laid down in this Regulation;

2.1 3. for the construction products to which the harmonised technical specifications and the Latvian national standards referred to in Annex 1 to this Regulation do not apply – by verifying the existence of the documentation indicated in Sub-paragraph 30.8 2 of this Regulation in accordance with the procedures specified in this Regulation;

2.14. for the reinforcing steel – by verifying the conformity to the requirements referred to in Chapter IV3 of this Regulation in accordance with the procedures laid down in this Regulation.

[*10 February 2015; 21 November 2017*]

3. In addition to the rights determined in the Construction Law for a market surveillance authority, the Centre has the following rights in order to perform the market surveillance of construction products:

3.1. to provide instructions to the respective economic operator within the meaning of Article 2(18) of Regulation (EU) No 305/2011 (hereinafter – the economic operator) regarding the activities necessary for the elimination of non-compliances after construction products have been inspected;

3.2. to visit construction sites;

3.3. to request and receive information and documentation from the conformity assessment bodies and notified bodies within the meaning of Article 39 of Regulation (EU) No 305/2011 which is related to the conformity assessment of the construction product to be expert-examined or assessment and verification of constancy of performance.

[*10 February 2015*]

4. The documents referred to in Article 7(4), Article 11(6), Article 13(4) and Article 14(2) of Regulation (EU) No 305/2011, and also in Sub-paragraphs 30.2 4, 30.8 2 and 30.10 4 of this Regulation shall be provided in the official language.

[*10 February 2015; 21 November 2017; 2 October 2018*]

5. The Centre shall carry out sample taking and expert-examination of the construction product in accordance with the procedures laid down in Chapter IV of this Regulation in the cases laid down in Article 56(1) of Regulation 305/2011 and Article 19(1) and Article 27(1) of Regulation (EU) No 765/2008, and also if there is a justified reason to consider that the construction product to which the Latvian national standards referred to in Annex 1 to this Regulation apply fails to comply with the requirements of the law or regulation or the relevant standard.

[*10 February 2015*]

**III. Market Surveillance of Construction Products at Construction Sites**

6. In order to ensure the market surveillance of construction products at a construction site:

6.1. upon detecting a non-conformity of construction products with the requirements of laws and regulations in the field of construction, the Centre shall perform the activities laid down in Regulation (EU) No 305/2011, Regulation (EC) No 765/2008 and the Law on Safety of Goods and Services and the Construction Law and shall inform the respective building inspector and performer of construction works of the detected non-conformities in writing;

6.2. the building inspector shall inform the Centre of the non-conformities of a construction product detected during examination of the documentation certifying the conformity of construction products, providing information in writing about the construction product, as well as other information at the disposal thereof about the supplier and manufacturer of the construction product;

6.3. the responsible manager of construction works:

6.3.1. shall examine the documentation certifying the conformity of the construction products supplied at the construction site and ensure that only such construction products are worked in the structure, which have documentation certifying conformity and about which there is no information that they do not conform to the requirements laid down in laws and regulations in the field of construction or to the declared performance;

6.3.2. upona request of the Centre or building inspector, shall present the accompanying documents of the supplied and worked-in construction products and the documentation certifying conformity of construction products.

[*10 February 2015*]

**IV. Sampling and Expert-examination of Construction Products**

7. In the cases referred to in Paragraph 5 of this Regulation, the Centre shall take samples of construction products (hereinafter – the samples) at the location of construction products (hereinafter – the site of sampling). The samples of the construction products located at the construction site shall be taken, if they are to be identified and are not worked in.

8. The official of the Centre shall take random samples in representative (sufficient) quantity.

9. The economic operator or performer of construction works, from whose goods samples are taken, his or her authorised person or another financially liable person (hereinafter – the responsible person), but in urgent cases or in cases when the responsible person refuses to participate in the sampling procedure – two invited persons, shall participate in the sampling procedure.

10. A deed on the sampling shall be drawn up in two copies (one copy for the Centre and one for the responsible person). If two invited persons have participated in the sampling procedure, the relevant copy of the deed shall be sent by post to the legal address of the responsible person within three working days after drawing up thereof.

11. The following information shall be indicated in the deed of sampling:

11.1. the number, place, date and time of completion of the deed of sampling;

11.2. the address and telephone number of the Centre;

11.3. the name, registration number and address of the sampling site; for natural persons – the given name, surname and address;

11.4. the substantiation for sampling;

11.5. the description, identifying features if any, the number of samples or the number of sample units;

11.6. sample storage conditions if any;

11.7. expiry period of the sample if any;

11.8. selling price of the sample at the time and place of sampling, if necessary;

11.9. the identification code assigned to the sample;

11.10. a list of copies of the documents appended to the document, if any;

11.11. other information if such is necessary in accordance with the requirements of standards of the relevant construction products or laws and regulations in the field of construction;

11.12. the position, given name, surname and signature of the official of the Centre;

11.13. the position, given name, surname and signature of the responsible person, or the given name, surname, address and signature of the invited persons.

12. Samples (if the size and type of samples permits it) shall be packed so as not to be damaged, and the packaging shall be sealed. A label containing the identification code referred to in Sub-paragraph 11.9 of this Regulation shall be attached to the samples or their packaging. The label shall be signed by the persons who participate in the sampling procedure.

13. The Centre shall be responsible for ensuring that samples are not damaged or exchanged before being handed over for expert-examination.

14. Samples shall be stored in conformity with the storage provisions of the goods taken for sampling if such have been indicated.

15. Samples shall be handed over for expert-examination together with an application for expert-examination drawn up by the Centre. The application shall specify what the expert-examination needs to clarify.

16. The Centre and the performer of expert-examination (employee or expert of a laboratory) shall draw up a deed of sample delivery in two copies (one copy for each the Centre and one for the performer of expert-examination). The deed of sample delivery shall contain the following information:

16.1. the number, place, date and time of drawing up of the deed of sample delivery;

16.2. the address and telephone number of the Centre;

16.3. the name, registration number if any, address and telephone number of the performer of expert-examination (a laboratory or an expert) and a signature of the head of the laboratory or the expert;

16.4. the description of samples, the sample identifying features if any, and the quantity of samples or number of units;

16.5. the condition of the packaging and the seal of the packaging (whether damaged or not);

16.6. the identification code assigned to the sample;

16.7. the position, given name, surname and signature of the official of the Centre.

17. An expert-examination opinion (test report) shall provide written answers to the questions posed in the application for expert-examination, as well as indicate whether any damage has occurred as a result of expert-examination which reduces the safety of the samples, the quality of basic function performance or properties of use, as a result of which the samples may pose a risk to human life, health or the property of a person or do not conform to the declared performance.

18. The person who signed the expert-examination opinion shall be responsible for the objectivity of the expert-examination results. If an expert-examination opinion has been drawn up on the basis of the results of a test report, the person who has signed the test report shall be responsible for the test results. The performer of expert-examination shall submit two copies of the expert-examination opinion (test report) to the Centre not later than within five working days after completion of the expert-examination opinion (test report).

19. If during an expert-examination samples have not been used up or destroyed, the Centre after performance of the expert-examination shall accept back from the performer of expert-examination (a laboratory or an expert) the samples handed over for expert-examination and draw up a deed of sample acceptance in two copies (one copy for the Centre and one for the performer of expert-examination).

20. The deed of sample acceptance shall include the following information:

20.1. the number, place, date and time of completion of the deed of sample acceptance;

20.2. the address and telephone number of the Centre;

20.3. the name, registration number if any, address and telephone number of the performer of expert-examination (a laboratory or an expert) and a signature of the head of the laboratory or the expert;

20.4. the description of samples, the sample identifying features if any, and the quantity of samples or number of units;

20.5. the identification code assigned to the sample;

20.6. the position, given name, surname and signature of the official of the Centre.

21. If samples are not used up or destroyed during expert-examination, the Centre shall inform the economic operator or performer of construction works in writing of the returning of the sample (or its unused part) within three working days after drawing up of the expert-examination opinion, except in the case if the Centre recognises the sample as to be destroyed.

22. The Centre shall recognise the samples as to be destroyed if the expert-examination opinion (test report) indicates that the samples do not conform to the safety requirements, requirements of laws and regulations in the field of construction or the declared performance, or, during the performance of expert-examination, damage has occurred which reduces the safety of the samples, the quality of the basic function performance or properties of use, as a result of which the samples may pose a risk to human life, health or the property of a person.

23. A deed of return of samples shall be drawn up for the returning of samples (or their unused part) to the economic operator or performer of construction works in two copies (one copy for the Centre and one for the economic operator or performer of construction works).

24. The following information shall be indicated in the deed of return of samples:

24.1. the number, place, date and time of completion of the deed of return of samples;

24.2. the address and telephone number of the Centre;

24.3. the name, registration number and address of the site of sampling; for natural persons – the given name, surname and address;

24.4. the description of samples (or their unutilised parts), the sample identifying features if any, and the quantity of samples or number of units;

24.5. the identification code assigned to the sample;

24.6. the position, given name, surname and signature of the official of the Centre;

24.7. the given name, surname and signature of the economic operator or performer of construction works, from the goods of which samples are taken and to which samples are returned.

25. If the economic operator or performer of construction works refuses to accept back the samples (or their unused parts) referred to in Paragraph 21 of this Regulation, the Centre shall destroy the samples.

26. The Centre shall draw up a deed on the destruction of samples (or their unused parts) in respect of destruction of the samples referred to in Paragraphs 22 and 25 of this Regulation. The deed on the destruction of samples shall include the following information:

26.1. the number, place, date and time of completion of the deed regarding destruction of samples;

26.2. the address of the Centre;

26.3. the position, given name, surname and signature of the official of the Centre;

26.4. justification for sample destruction (Paragraphs 21 and 22 of this Regulation);

26.5. the number and date of the expert-examination opinion (test report);

26.6. description of samples to be destroyed, identifying features if any, quantity or number of units;

26.7. identification code assigned to the samples.

27. Expenses related to the laboratory expert-examination or expert-examination of other kind of the sample, moving of samples from the sites of sampling to the performer of expert-examination and back or to the place of sample destruction, as well as the expenses related to the destruction of the samples shall be paid by the Centre.

28. If an expert-examination opinion (test report) specifies that the samples do not conform to the requirements of laws and regulations or the declared performance, the economic operator shall pay to the Centre the expenses referred to in Paragraph 27 of this Regulation within five working days after receipt of the documents confirming expenses.

29. In the case referred to in Paragraph 28 of this Regulation the expenses referred to in Paragraph 27 of this Regulation shall be reimbursed by the manufacturer, authorised representative or importer who was the first to place such construction product on the market, which does not conform to the requirements of laws and regulations in the field of construction and to the declared performance. The distributor shall reimburse the expenses of the Centre for expert-examination of a construction product, if the manufacturer, authorised representative or importer or the respective construction product is not established in Latvia.

30. If in the case and within the time period referred to in Paragraph 28 of this Regulation the economic operator does not pay the expenses referred to in Paragraph 27 of this Regulation, the Centre shall recover the referred-to expenses according to civil procedures.

**IV.1 Conformity Requirements for the Construction Products to which the Latvian National Standards Referred to in Annex 1 to this Regulation Apply**

[*10 February 2015*]

30.1 Conformity of the construction products to which the Latvian national standards referred to in Annex 1 to this Regulation apply shall be assessed in accordance with one of the conformity assessment systems indicated in Annex 2 to this Regulation which is specified in the relevant standard.

[*10 February 2015*]

30.2 A manufacturer of a construction product shall have the following obligations:

30.21. to offer on the market of Latvia only such construction products which are valid for the intended type of use, conform to the essential requirements laid down for a structure in the Construction Law (hereinafter – the essential requirements) and the standard referred to in Annex 1 to this Regulation;

30.22. to ensure that the type, lot or series number or any other identification element is available on the construction product or, if due to the size or nature of the product it is not possible, to ensure that the relevant information is provided on the packaging or in the attached document;

30.2 3. to assess the conformity of the construction product in accordance with the requirements of the standard referred to in Annex 1 to this Regulation;

30.24. to attach the document attesting the conformity specified in the product standard to each manufactured lot of construction products where at least the following information is provided:

30.24.1. the name, registered commercial name or registered trade mark and contact address of the manufacturer;

30.24.2. the identification element of the construction product;

30.24.3. the Latvian national standard to which the construction product conforms;

30.24.4. the guaranteed technical and physical properties;

30.24.5. the intended use;

30.24.6. the name of the conformity assessment body if such is involved;

30.24.7. the given name, surname and position of the person who signs the document attesting the conformity on behalf of the manufacturer;

30.24.8. the place and date of issue;

30.25. upon a substantiated request of the Centre, to provide the information and documentation necessary to prove the conformity of the construction product to the requirements of the standard and laws and regulations which are applicable to it;

30.2 6. upon a request of the Centre, to carry out the activities necessary to avoid the risk which may be caused by the construction products put on the market by the respective manufacturer.

[*10 February 2015; 15 May 2018*]

30.3The importer of the construction product, authorised representative of the manufacturer and distributor have the following obligations:

30.3 1. to offer on the market of Latvia only such construction products which are valid for the intended type of use, conforms to the essential requirements and the standard referred to in Annex 1 to this Regulation;

30.32. to ensure that the manufacturer has complied with the requirements referred to in Sub-paragraph 30.22 and 30.24 of this Regulation;

30.33. upon a substantiated request of the Centre, to provide the information and documentation necessary to prove the conformity of the construction product to the requirements of the standard and laws and regulations which are applicable to it;

30.34. upon a request of the Centre, to carry out the activities necessary to avoid the risk which may be caused by the construction products offered on the market.

[*10 February 2015*]

30.4 The conformity assessment bodies shall carry out the tasks of a third party in conformity with the conformity assessment systems referred to in Annex 2 of this Regulation.

[*10 February 2015*]

30.5 If upon the performance of the initial control of the production unit and production process the conformity assessment body finds that the manufacturer has not ensured the conformity of a construction product to the requirements of the standard and laws and regulations which are applicable to it, it shall request that the manufacturer carries out corrective measures and shall not issue a certificate.

[*10 February 2015*]

30.6 If upon the performance of the surveillance the conformity assessment body finds that technical or physical properties of the construction product are not the same anymore as of the product type, it shall request that the manufacturer carries out corrective measures and, where necessary, revoke or cancel a certificate.

[*10 February 2015*]

30.7 If corrective measures are not carried out or they do not give the desired result, the conformity assessment body shall restrict, suspend or revoke the relevant certificates accordingly.

[*10 February 2015*]

**IV.2 Conformity Requirements for the Construction Products to which Harmonised Technical Specifications, the Latvian National Standards and Standards for the Reinforcing Steel Referred to in Annex 1 to this Regulation are not Applicable**

[*10 February 2015; 21 November 2017*]

30.8 A manufacturer of a construction product shall have the following obligations:

30.81. to ensure that the type, lot or series number or any other identification element is available on the construction product or, if due to the size or nature of the product it is not possible, to ensure that the relevant information is provided on the packaging or in the attached document;

30.82. to attach the technical passport, instructions or other type of document to each manufactured lot of construction products in which at least the following information is provided:

30.82.1. the name, registered commercial name or registered trade mark and contact address of the manufacturer;

30.82.2. the identification element of the construction product;

30.82.3. the technical provisions with which a construction product complies, if any;

30.82.4. the guaranteed technical and physical properties;

30.82.5. the intended use.

[*10 February 2015*]

30.9 The obligation of an importer, authorised representative of the manufacturer and distributor is to ensure that the manufacturer has fulfilled the requirements laid down in Paragraph 30.8 of this Regulation.

[*10 February 2015*]

**IV.3 Conformity Requirements for Reinforcing Steel**

[*21 November 2017*]

30.10 A manufacturer shall have the following obligations:

30.10 1. to offer on the market of Latvia only such reinforcing steel which is valid for the intended type of use, conforms to at least one national standard of the Member State of the European Economic Area and complies with the minimum requirements indicated in Annex 3 to this Regulation;

30.102. to ensure that the type, lot or series number or any other identification element is available on the reinforcing steel or, if it is not possible, to ensure that the relevant information is provided on the packaging or in the appended document;

30.10 3. [2 October 2018];

30.104. to attach the following to each lot of reinforcing steel:

30.104.1. the inspection certificate No. 3.1 in conformity with the standard LVS EN 10204:2006 L “Metallic products. Types of inspection documents”;

30.104.2. the conformity assessment certificate which in conformity with the national standard has been issued by the certification body and which attests that the manufacturer has received the right to manufacture reinforcing steel in conformity with the national standard.

[*21 November 2017*]

30.11 The obligation of the importer, authorised representative of the manufacturer and distributor is to offer on the market of Latvia only such reinforcing steel which conforms to the requirements referred to in Paragraph 30.10 of this Regulation and attach to the lot of reinforcement all of the documents referred to in Sub-paragraph 30.104 of this Regulation.

[*21 November 2017; 2 October 2018*]

**V. Closing Provisions**

31. Cabinet Regulation No. 701 of 27 August 2013, Procedures for the Market Surveillance of Construction Products (*Latvijas Vēstnesis*, 2013, No. 181), is repealed.

32. This Regulation shall come into force on 01 October 2014.

[*29 April 2014*]

Prime Minister Laimdota Straujuma

Minister for Economics Vjačeslavs Dombrovskis

**Annex 1**

Cabinet Regulation No. 156

25 March 2014

**List of Applicable Standards**

[*10 February 2015; 21 November 2017; 15 May 2018*]

|  |  |
| --- | --- |
| No. | Name |
| 1. | LVS 203-2:2005 “Glass products for building applications – glass fibre meshes for reinforcement of rendering and plastering mortars – Specification” |
| 2. | LVS 156-1:2017 “Concrete. National annex of Latvia to European standard EN 206:2013, Concrete – Specification, performance, production and conformity” |
| 3. | [21 November 2017] |

**Annex 2**

Cabinet Regulation No. 156

25 March 2014

**Conformity Assessment Systems of Construction Products**

[*10 February 2015*]

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Conformity Assessment System | Obligations of a manufacturer | Obligations of a conformity assessment body |
| 1. | 1+ | Factory production control.  Further control testing of the samples obtained in the production unit in conformity with the laid down testing plan | Initial testing of the type of the construction product.  Inspecting of the factory production control system.  Supervision of the factory production control system  Control testing of the samples selected at the production unit, trading sites or construction site |
| 2. | 1 | Factory production control.  Further control testing of the samples obtained in the production unit in conformity with the laid down testing plan | Initial testing of the type of the construction product.  Inspecting of the factory production control system.  Supervision of the factory production control system |
| 3. | 2+ | Initial testing of the type of the construction product.  Factory production control.  Further control testing of the samples obtained in the production unit in conformity with the laid down testing plan | Inspecting of the factory production control system.  Supervision of the factory production control system |
| 4. | 3 | Factory production control | Initial testing of the type of the construction product |
| 5. | 4 | Factory production control.  Initial testing of the type of the construction product | None |

**Annex 3**

Cabinet Regulation No. 156

25 March 2014

**Minimum Requirements for Reinforcing Steel**

[*21 November 2017*]

**1. General requirement**

The reinforcing steel the intended purpose of use of which is specified in accordance with LVS EN 1992 standard series has the following technical grades: B400B, B500A, B500B, B500C, B550B.

**2. Weldability and chemical composition**

The following weldability specifications are determined for all technical grades of the weldable reinforcing steel:

a) carbon equivalent;

b) content of certain chemical elements.

The maximum values of the content of certain chemical elements and carbon equivalent may not exceed the upper limit values indicated in Table 1.

Carbon equivalent value *C*eq shall be calculated by using the following equation:

Ceq = C + Mn / 6 + (Cr + Mo + V) / 5 + (Ni + Cu) / 15, where

the symbols of chemical elements indicate their content expressed as a percentage of mass.

**Chemical composition**

Table 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Testing object | Content of chemical elements and upper limit values of carbon equivalent, % of mass | | | | | |
| C\* | S | P | N\*\* | Cu | Ceq\* |
| 1. | Alloy analysis | 0.220 | 0.050 | 0.050 | 0.012 | 0.800 | 0.500 |
| 2. | Analysis of the product | 0.240 | 0.055 | 0.055 | 0.014 | 0.850 | 0.520 |

Notes.

1. \*It is allowed to increase the upper limit value of carbon content by 0.03 % (of mass) provided that carbon equivalent limit value is reduced by 0.02 % (of mass).

2. \*\*Higher nitrogen content limit values are permissible provided that the quantity of reactants with nitrogen is sufficiently increased.

**3. Mechanical properties**

**3.1. Tensile properties**

Requirements for the tensile properties of the reinforcing steel (Re, Rm/Re, Agt and Re, act./Re, nom.) are provided in Table 2.

The upper yield limit (ReH) shall be applied in the case of yield limit (Re). If the yield phenomenon is not observed, the notional yield limit shall be determined 0.2 % (Rp 0.2).

**Characteristic values of the tensile properties depending on technical class**

Table 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Technical class | Yield ultimate stress, Re (N/mm2) | Strength and yield ultimate stress ratio, Rm/Re (–) | Actual yield and nominal yield ultimate stress ratio, Re, act./Re, nom.(–) | Relative extension at maximum load, Agt (%) |
| 1. | B400B | 400 | ≥ 1.08\* | ≤ 1.30 | ≥ 5.0\*\* |
| 2. | B500A | 500 | ≥ 1.05\* | ≤ 1.30 | ≥ 2.5\*\* |
| 3. | B500B | 500 | ≥ 1.08 | ≤ 1.30 | ≥ 5.0 |
| 4. | B500C | 500 | ≥ 1.15  < 1.35 | ≤ 1.30 | ≥ 7.5 |
| 5. | B550B | 550 | ≥ 1.08 | ≤ 1.30 | ≥ 5.0 |

Notes.

1. \* For products with nominal diameter, which is less than 8 mm Rm/Re characteristic value may be reduced to 1.02 (including).

2. \*\* For products with nominal diameter, which is less than 8 mm, Agt characteristic value may be reduced to 1 % (including).

**3.2. Suitability for bending**

All technical grades of the reinforcing steel shall be suitable for bending.

Suitability for bending shall be approved in accordance with the requirements of the standard LVS EN 10080:2006 L “Steel for the reinforcement of concrete. Weldable reinforcing steel. General” and with the standard LVS EN ISO 15630-1:2011 “Steel for the reinforcement and prestressing of concrete. Test methods. Part 1: Reinforcing bars, wire rod and wire”.

**4. Weight of one meter and tolerances**

The nominal value for weight of one meter shall be calculated by taking into account the nominal cross-sectional area and using density value 7.85 x 10-6 kg/mm3.

The permissible deviations from the nominal weight of one meter may not exceed ± 4.5 %.

**5. Surface profile of reinforcing steel**

For the reinforcing steel which is used in accordance with LVS EN 1992 standard series surface ribbing or indentation shall be ensured. The surface ribbing and indentation shall comply with the requirements indicated in the standard LVS EN 10080:2006 L “Steel for the reinforcement of concrete. Weldable reinforcing steel. General.” The additional requirements for surface ribbing for the relative rib area are indicated in Table 3.

**Minimum relative rib area**

Table 3

|  |  |  |
| --- | --- | --- |
| Minimum relative rib area,  *f*R (–) | | |
| *d* ≤ 6 mm | *6 mm < d* ≤ 12 mm | *12 mm < d* |
| 0.035 | 0.040 | 0.056 |

**6. Comparison of used symbols with LVS EN 1992 standard series**

Table 4

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Used symbol | | LVS EN 1992 |
| symbol | description | symbol |
| 1. | Agt | relative extension at maximum load | Agt |
| 2. | Re | flow ultimate stress (flow limit) | εuk |
| 3. | Rm | strength ultimate stress (ultimate strength) | fy |
| 4. | Rm/Re | strength and flow ultimate stress ratio | ft/fy |
| 5. | Rp0,2 | 0.2 % notional flow limit | f0.2k |
| 6. | d | nominal diameter | Ø |
| 7. | fR | relative rib area | fR |