

RULEBOOK
ON THE NOISE EMISSIONS BY EQUIPMENT FOR USE OUTDOORS

(Official Gazette of Republic of Serbia No. 1/13)

I. INTRODUCTION

Article 1.

This Rulebook prescribes: requirements and other conditions that must be met prior to placing on the market and/or putting into service of equipment for use outdoors emitting noise in the environment, for the purpose of protection of human health and well-being and free movement of that equipment on the market in the Republic of Serbia; presumption of conformity of equipment for use outdoors; conformity assessment procedures; contents of the Declaration of conformity; contents of technical documentation; conformity mark and conformity marking, including the indication of the guaranteed sound power level of the equipment for use outdoors emitting noise in the environment; method of measurement of noise emissions and Serbian standards that must be used for measurement of noise emissions; collection of equipment noise data and the requirements that must be met by a conformity assessment body in order to be designated for conformity assessment.

Application

Article 2.

This Rulebook shall apply to equipment referred to in articles 9 and 10 of this Rulebook.

This Rulebook shall apply only to equipment for use outdoors emitting noise in the environment, that is intended to be placed on the market and/or put into service as a complete and functional unit suitable for the intended use.

Products to which this Rulebook does not apply

Article 3.

This Rulebook shall not apply to the following products:

- 1) non-powered attachments that are separately placed on the market and/or put into service, except for hand-held concrete-breakers and picks for hydraulic hammers;
- 2) all the equipment primarily intended for the transport of goods or persons by road or rail or by air or on waterways;
- 3) equipment specially designed and constructed for military and police purposes and for emergency services.

Meanings of certain expressions

Article 4.

Certain expressions that are used in this Rulebook have the following meanings:

- 1) *equipment for use outdoors* means all machinery within the scope of the rulebook stipulating requirements for safety of machinery which is either self-propelled or can be moved and which, irrespective of the driving element(s), is intended to be used, according to its type, in the open air and which contributes to environmental noise exposure. The use of equipment in an ambience where the transmission of sound is not or not significantly affected (for instance under tents, under roofs for protection against rain or in the shell of houses) is regarded as use in the open air.

Equipment for use outdoors also means nonpowered equipment for industrial or environmental applications which is intended, according to its type, to be used outdoors and which contributes to environmental noise exposure.

2) *sound power level L_{WA}* means the A-weighted sound power in dB in relation to 1 pW as defined in Serbian standards SRPS EN ISO 3744:2008 and SRPS EN ISO 3746:2008;

3) *measured sound power level* means a sound power level as determined from measurements as laid down in Annex 3 - Method of measurement of airborne noise emitted by equipment for use outdoors, which is printed together with this Rulebook as its integral part.

Measured values of the sound power level may be determined either from a single machine representative for the type of equipment or from the average of a number of machines;

4) *guaranteed sound power level* means a sound power level determined in accordance with the requirements laid down in Annex 3 which includes the uncertainties due to production variation and measurement procedures and where the manufacturer, or his authorised representative, confirms that according to the technical instruments applied and referred to in the technical documentation it is not exceeded;

5) *placing on the market* means the first making available of a product to which this Rulebook applies on the market in the Republic of Serbia, for distribution or use, in return for payment or free of charge;

6) *making available on the market* means any supply of a product to which this Rulebook applies on the market in the Republic of Serbia, for distribution, consumption or use, in return for payment or free of charge;

7) *representative* means any entrepreneur or legal person registered in the Republic of Serbia or natural person residing in the Republic of Serbia who has received an authorisation from a manufacturer to act on his behalf in relation to specified tasks stipulated by this Rulebook;

8) *putting into service* means the first use in the Republic of Serbia of a product to which this Rulebook applies, in accordance with its intended purpose.

Other expressions used in this Rulebook which are not defined under Paragraph 1 of this article, have meanings defined by laws governing technical requirements for products and conformity assessment, general safety of products and standardisation.

II. PLACING ON THE MARKET AND/OR PUTTING INTO SERVICE

Placing on the market and/or putting into service

Article 5.

Equipment for use outdoors (hereinafter: equipment) may be placed on the market and/or put into service, only if:

1) the equipment satisfies the requirements concerning the noise emission in the environment of this Rulebook;

2) the conformity assessment procedures referred to in articles 11 and 12 have been completed;

3) the equipment bears conformity mark and the indication of the guaranteed sound power level stipulated in Annex 4 – Conformity mark and indication of the guaranteed sound power level, which is printed together with this Rulebook as its integral part;

4) the equipment is accompanied by a declaration of conformity stipulated in Annex 2 – Declaration of conformity, which is printed together with this Rulebook as its integral part.

Free movement

Article 6.

The equipment referred to in Article 2 of this Rulebook conforming to the requirements and other conditions of this Rulebook, which bears the conformity mark and the indication of the guaranteed sound power level and which is accompanied by a declaration of conformity may be placed on the market and/or put into service freely, without further restrictions.

The equipment which is not conforming to the requirements and other conditions of this Rulebook may be shown at trade fairs, exhibitions, demonstrations, and similar events, provided that a visible sign clearly indicates that such equipment does not conform to the requirements of this Rulebook and that it shall not be placed on the market or put into service until it has been brought into conformity.

During the demonstrations referred to in paragraph 2 of this article, adequate safety measures shall be taken to ensure the protection of persons.

III. PRESUMPTION OF CONFORMITY AND DOCUMENTATION ACCOMPANYING THE EQUIPMENT

Presumption of conformity

Article 7.

The equipment is presumed to conform to all the requirements of this Rulebook if it bears the conformity mark and the indication of the guaranteed sound power level and if it is accompanied by a declaration of conformity.

Documentation accompanying the equipment when being placed on the market and/or put into service

Article 8.

The manufacturer or his authorised representative or the importer, if neither the manufacturer or his representative are registered in the Republic of Serbia, placing on the market or putting into service the equipment referred to in Article 2 of this Rulebook, shall provide together with the equipment, an instruction manual in Serbian language.

In addition to instruction manual, the person referred to in Paragraph 1 of this article making available on the market the equipment referred to in Article 2 of this Rulebook, shall provide a declaration of conformity stipulated in Annex 2 and its translation into Serbian language, if the equipment isn't manufactured in the Republic of Serbia.

IV. TYPES OF EQUIPMENT FOR USE OUTDOORS EMITTING NOISE IN THE ENVIRONMENT

Equipment subject to noise limits

Article 9.

Definition of each type of equipment is given in Annex 1 – Types and definitions of equipment for use outdoors, which is printed together with this Rulebook as its integral part.

Methods for measurement of airborne noise, for all individual types of equipment referred to in Paragraph 1 of this article, are stipulated in Annex 3 Part B.

Types of equipment subject to noise limits shall be:

- 1) builders' hoists for the transport of goods, combustion-engine driven (Definition: Annex 1, item 3. Measurement: Annex 3, Part B, item 3);
- 2) compaction machines, only vibrating and non-vibrating rollers, vibratory plates and vibratory rammers) (Definition: Annex 1, item 8; Measurement: Annex 3, Part B, item 8);

- 3) compressors (< 350 kW) (Definition: Annex 1, item 9; Measurement: Annex 3, Part B, item 9);
- 4) concrete-breakers and picks, hand-held (Definition: Annex 1, item 10; Measurement: Annex 3, Part B, item 10);
- 5) construction winches, combustion-engine driven (Definition: Annex 1, item 12; Measurement: Annex 3, Part B, item 12);
- 6) dozers (< 500 kW) (Definition: Annex 1, item 16; Measurement: Annex 3, Part B, item 16);
- 7) dumpers (< 500 kW) (Definition: Annex 1, item 18; Measurement: Annex 3, Part B, item 18);
- 8) excavators, hydraulic or rope-operated (< 500 kW) (Definition: Annex 1, item 20; Measurement: Annex 3, Part B, item 20);
- 9) excavator-loaders (< 500 kW) (Definition: Annex 1, item 21; Measurement: Annex 3, Part B, item 21);
- 10) graders (< 500 kW) (Definition: Annex 1, item 23; Measurement: Annex 3, Part B, item 23);
- 11) hydraulic power packs (Definition: Annex 1, item 29; Measurement: Annex 3, Part B, item 29);
- 12) landfill compactors, loader-type with bucket (< 500 kW) (Definition: Annex 1, item 31; Measurement: Annex 3, Part B, item 31);
- 13) lawnmowers, excluding agricultural and forestry equipment, and multi-purpose devices, the main motorised component of which has an installed power of more than 20 kW (Definition: Annex 1, item 32; Measurement: Annex 3, Part B, item 32);
- 14) lawn trimmers/lawn edge trimmers (Definition: Annex 1, item 33; Measurement: Annex 3, Part B, item 33);
- 15) lift trucks, combustion-engine driven, counterbalanced, excluding 'other counterbalanced lift trucks' as defined in Annex I, item 36, second indent with a rated capacity of not more than 10 t (Definition: Annex 1, item 36; Measurement: Annex 3, Part B, item 36);
- 16) loaders (< 500 kW) (Definition: Annex 1, item 37; Measurement: Annex 3, Part B, item 37);
- 17) mobile cranes (Definition: Annex 1, item 38; Measurement: Annex 3, Part B, item 38);
- 18) motor hoes (< 3 kW) (Definition: Annex 1, item 40; Measurement: Annex 3, Part B, item 40);
- 19) paver-finishers, excluding paver-finishers equipped with a high compaction screed (Definition: Annex 1, item 41; Measurement: Annex 3, Part B, item 41);
- 20) power generators (< 400 kW) (Definition: Annex 1, item 45; Measurement: Annex 3, Part B, item 45);
- 21) tower cranes (Definition: Annex 1, item 53; Measurement: Annex 3, Part B, item 53);
- 22) welding generators (Definition: Annex 1, item 57; Measurement: Annex 3, Part B, item 57).

The guaranteed sound power level of equipment referred to in Paragraph 1 of this article shall not exceed permissible sound power level laid down in the following table of limit values:

Type of equipment	Net installed power P (in kW) Electric power P_{el} (¹) in kW Mass of appliance m in kg Cutting width L in cm	Permissible sound power level in dB/ 1 pW

Compaction machines (vibrating rollers, vibratory plates, vibratory rammers)	$P \leq 8$	108
	$8 < P \leq 70$	109
	$P > 70$	$89 + 11 \lg P$
Tracked dozers, tracked loaders, tracked excavator-loaders	$P \leq 55$	106
	$P > 55$	$87 + 11 \lg P$
Wheeled dozers, wheeled loaders, wheeled excavatorloaders, dumpers, graders, loader-type landfill compactors, combustion-engine driven counterbalanced lift trucks, mobile cranes, compaction machines (non-vibrating rollers), paver-finishers, hydraulic power packs	$P \leq 55$	104
	$P > 55$	$85 + 11 \lg P$
Excavators, builders' hoists for the transport of goods, construction winches, motor hoes	$P \leq 15$	93
	$P > 15$	$80 + 11 \lg P$
Hand-held concrete- breakers and picks	$m \leq 15$	105
	$15 < m < 30$	$94 + 11 \lg m$
	$m \geq 30$	$94 + 11 \lg m$
Tower cranes		$96 + \lg P$
Welding and power generators	$P_{el} \leq 2$	$95 + \lg P_{el}$
	$2 < P_{el} \leq 10$	$96 + \lg P_{el}$
	$P_{el} > 10$	$95 + \lg P_{el}$
Compressors	$P \leq 15$	97
	$P > 15$	$95 + 2 \lg P$
Lawnmowers, lawn trimmers/lawn-edge trimmers	$L \leq 50$	96
	$50 < L \leq 70$	98
	$70 < L \leq 120$	100
	$L > 120$	105

(¹) P_{el} for welding generators: conventional welding current multiplied by the conventional load voltage for the lowest value of the duty factor given by the manufacturer.

P_{el} for power generators: prime power according to ISO 8528-1:1993, clause 13.3.2

The permissible sound power level shall be rounded up or down to the nearest integer number (less than 0,5, use lower number; greater than or equal to 0,5, use higher number)

Equipment subject to noise marking only

Article 10.

Definition of each type of equipment is given in Annex 1.

Methods for measurement of airborne noise, for all individual types of equipment referred to in Paragraph 1 of this article, are stipulated in Annex 3 Part B.

Types of equipment subject to noise marking only shall be:

- 1) aerial access platforms with combustion engine (Definition: Annex 1, item 1; Measurement: Annex 3, Part B, item 1);
- 2) brush cutters (Definition: Annex 1, item 2; Measurement: Annex 3, Part B, item 2);
- 3) builders' hoists for the transport of goods, with electric motor (Definition: Annex 1, item 3; Measurement: Annex 3, Part B, item 3);
- 4) building site band saw machines (Definition: Annex 1, item 4; Measurement: Annex 3, Part B, item 4);
- 5) building site circular saw benches (Definition: Annex 1, item 5; Measurement: Annex 3, Part B, item 5);
- 6) chain saws, portable (Definition: Annex 1, item 6; Measurement: Annex 3, Part B, item 6);
- 7) combined high pressure flushers and suction vehicles (Definition: Annex 1, item 7; Measurement: Annex 3, Part B, item 7);
- 8) compaction machines (explosion rammers only) (Definition: Annex 1, item 8; Measurement: Annex 3, Part B, item 8);
- 9) concrete or mortar mixers (Definition: Annex 1, item 11; Measurement: Annex 3, Part B, item 11);
- 10) construction winches with electric motor (Definition: Annex 1, item 12; Measurement: Annex 3, Part B, item 12);
- 11) conveying and spraying machines for concrete and mortar (Definition: Annex 1, item 13; Measurement: Annex 3, Part B, item 13);
- 12) conveyor belts (Definition: Annex 1, item 14; Measurement: Annex 3, Part B, item 14);
- 13) cooling equipment on vehicles (Definition: Annex 1, item 15; Measurement: Annex 3, Part B, item 15);
- 14) drill rigs (Definition: Annex 1, item 17; Measurement: Annex 3, Part B, item 17);
- 15) equipment for loading and unloading silos or tanks on trucks (Definition: Annex 1, item 19; Measurement: Annex 3, Part B, item 19);
- 16) glass recycling containers (Definition: Annex 1, item 22; Measurement: Annex 3, Part B, item 22);
- 17) grass trimmers/grass edge trimmers (Definition: Annex 1, item 24; Measurement: Annex 3, Part B, item 24);
- 18) hedge trimmers (Definition: Annex 1, item 25; Measurement: Annex 3, Part B, item 25);
- 19) high pressure flushers (Definition: Annex 1, item 26; Measurement: Annex 3, Part B, item 26);
- 20) high pressure water jet machines (Definition: Annex 1, item 27; Measurement: Annex 3, Part B, item 27);
- 21) hydraulic hammers (Definition: Annex 1, item 28; Measurement: Annex 3, Part B, item 28);
- 22) joint cutters (Definition: Annex 1, item 30; Measurement: Annex 3, Part B, item 30);
- 23) leaf blowers (Definition: Annex 1, item 34; мерење: Прилог 3 одељак Б тачка 34);
- 24) leaf collectors (Definition: Annex 1, item 35; Measurement: Annex 3, Part B, item 35);
- 25) lift trucks, combustion-engine driven, counterbalanced, only 'other counterbalanced lift trucks' as defined in Annex I, item 36, second indent, with a rated capacity of not more than 10 t (Definition: Annex 1, item 36; Measurement: Annex 3, Part B, item 36);
- 26) mobile waste containers (Definition: Annex 1, item 39; Measurement: Annex 3, Part B, item 39);

- 27) paver-finishers equipped with a high-compaction screed (Definition: Annex 1, item 41; Measurement: Annex 3, Part B, item 41);
- 28) piling equipment (Definition: Annex 1, item 42; Measurement: Annex 3, Part B, item 42);
- 29) pipelayers (Definition: Annex 1, item 43; Measurement: Annex 3, Part B, item 43);
- 30) piste caterpillars (Definition: Annex 1, item 44; Measurement: Annex 3, Part B, item 44);
- 31) power generators (≥ 400 kW) (Definition: Annex 1, item 45; Measurement: Annex 3, Part B, item 45);
- 32) power sweepers (Definition: Annex 1, item 46; Measurement: Annex 3, Part B, item 46);
- 33) refuse collection vehicles (Definition: Annex 1, item 47; Measurement: Annex 3, Part B, item 47);
- 34) road milling machines (Definition: Annex 1, item 48; Measurement: Annex 3, Part B, item 48);
- 35) scarifiers (Definition: Annex 1, item 49; Measurement: Annex 3, Part B, item 49);
- 36) shredders/chippers (Definition: Annex 1, item 50; Measurement: Annex 3, Part B, item 50);
- 37) snow-removing machines with rotating tools, self-propelled, excluding attachments (Definition: Annex 1, item 51; Measurement: Annex 3, Part B, item 51);
- 38) suction vehicles (Definition: Annex 1, item 52; Measurement: Annex 3, Part B, item 52);
- 39) trenchers (Definition: Annex 1, item 54; мерење: Прилог 3 одељак Б тачка 54);
- 40) truck mixers (Definition: Annex 1, item 55; Measurement: Annex 3, Part B, item 55);
- 41) water pump units (not for use under water) (Definition: Annex 1, item 56; Measurement: Annex 3, Part B, item 56).

V. CONFORMITY ASSESSMENT PROCEDURES

Conformity assessment procedures for equipment subject to noise limits

Article 11.

Before placing on the market or putting into service any equipment subject to noise limits the manufacturer, or his authorised representative, shall subject each type of equipment to one of the following conformity assessment procedures:

- 1) the internal production control with assessment of technical documentation and periodical checks procedure referred to in Annex 6 - Internal control of production with assessment of technical documentation and periodical checks, which is printed together with this Rulebook as its integral part;
- 2) the conformity based on unit verification procedure referred to in Annex 7 - Conformity based on unit verification, which is printed together with this Rulebook as its integral part;
- 3) the conformity based on full quality assurance procedure referred to in Annex 8 - Conformity based on full quality assurance, which is printed together with this Rulebook as its integral part.

Conformity assessment procedure for equipment subject to noise marking only

Article 12.

Before placing on the market or putting into service any equipment subject to noise marking only, the manufacturer, or his authorised representative, shall subject each type of equipment to the conformity assessment procedure referred to in Annex 5 – Internal production control, which is printed together with this Rulebook as its integral part.

Submission of notices and information in relation to conformity assessment

Article 13.

On a reasoned request from competent inspector and/or the ministry competent for designation of conformity assessment bodies under this Rulebook, the manufacturer, or his authorised representative, or the importer when neither the manufacturer nor his authorised representative are registered in the Republic of Serbia, as well as the designated conformity assessment body, shall submit notices and provide all the information in relation to conformity assessment that was carried out, and in particular the technical documentation referred to in relevant annexes of this Rulebook, in accordance with the law governing technical requirements for products and conformity assessment.

VI. DESIGNATED CONFORMITY ASSESSMENT BODY

Designated body

Article 14.

The conformity assessment body may perform conformity assessment of products referred to in Article 2 of this Rulebook, if it fulfills the requirements for conformity assessment laid down in Annex 9 - Requirements that must be met by a conformity assessment body in order to be designated for conformity assessment, which is printed together with this Rulebook as its integral part, and if it is designated in accordance with the law governing technical requirements for products and conformity assessment and with the regulation adopted pursuant to that law (hereinafter: Designated body).

VII. DECLARATION OF CONFORMITY AND TECHNICAL DOCUMENTATION

Declaration of conformity

Article 15.

The Declaration of conformity of equipment referred to in Article 2 of this Rulebook shall be drawn up by the manufacturer, or his authorised representative, before placing the equipment on the market and/or putting the equipment into service in the Republic of Serbia.

The minimum content of the Declaration of conformity is laid down in Annex 2.

Declaration of conformity referred to in Paragraph 1 of this article shall be drawn up in Serbian language, or if the equipment isn't manufactured in the Republic of Serbia, the manufacturer, or his authorised representative, or the importer, shall provide a translation of the Declaration of conformity into Serbian language.

A copy of the Declaration of conformity shall accompany the equipment referred to in Paragraph 1 of this article when being placed on the market and/or put into service in the Republic of Serbia, or the Declaration of conformity in the original language together with a copy of its translation into Serbian language, for the equipment that isn't manufactured in the Republic of Serbia.

The manufacturer, or his authorised representative, or the importer when neither the manufacturer nor his authorised representative are registered in the Republic of Serbia, shall keep the Declaration of conformity, and its translation into Serbian language, for 10 years after the

equipment referred to in Article 2 of this Rulebook has last been manufactured, or after it has been imported in the Republic of Serbia.

Technical documentation

Article 16.

Technical documentation for the equipment referred to in Article 2 of this Rulebook shall be drawn up by the manufacturer of that equipment.

The technical documentation shall make it possible to assess the equipment's conformity with the requirements of this Rulebook.

The content of the technical documentation is stipulated in Annexes 5, 6, 7 and 8 depending on the conformity assessment procedure.

Technical documentation may not be kept on the territory of the Republic of Serbia nor it must be kept at disposal in physical form.

Manufacturer or his authorised representative shall keep the technical documentation for 10 years from the date on which the equipment referred to in Article 2 of this Rulebook was last manufactured and shall at all times during this period be obliged to present it on a request from competent inspector, or any other competent authority in accordance with this Rulebook.

The person named in the Declaration of conformity as the person responsible for keeping the technical documentation for equipment referred to in Article 2 of this Rulebook, shall be able to compile the technical documentation and present it on a request from competent inspector, or any other competent authority in accordance with this Rulebook.

If neither manufacturer nor his authorised representative are registered in the Republic of Serbia, i.e. the responsible person named in the Declaration of conformity isn't registered or doesn't reside in the Republic of Serbia, the importer shall be responsible for making available the technical documentation referred to in Paragraphs 5 and 6 of this article, in accordance with the law governing technical requirements for products and conformity assessment.

VIII. MARKING

Conformity mark and the indication of the guaranteed sound power level

Article 17.

To equipment within the scope of this Rulebook, complying with the requirements of this Rulebook, the conformity mark referred to in Annex 4 shall be affixed.

Where equipment referred to in Paragraph 1 of this Article, or certain aspects thereof, are subject to other technical regulations which also provide for the affixing of conformity mark, the affixing of the conformity mark shall indicate that those products are also complying with the requirements of those other regulations.

In addition to the conformity mark, to equipment within the scope of this Rulebook, the indication of the guaranteed sound power level referred to in Annex 4, shall also be affixed.

To equipment referred to in Paragraph 1 of this article, the conformity mark shall be affixed by the manufacturer or his representative, or by the importer, if neither the manufacturer nor his representative are registered on the territory of Republic of Serbia, and the indication of the guaranteed sound power level shall be affixed by the manufacturer or his authorised representative, in such way that they are visible, legible and indelible, in accordance with the regulation governing the affixing and use of conformity markings.

To equipment referred to in Paragraph 1 of this article, other marks, symbols, letterings and other markings may be affixed, provided that the visibility, legibility and/or meaning of the conformity mark and the indication of the guaranteed sound power level is not thereby reduced.

It is prohibited to affix to the equipment referred to in Paragraph 1 of this article, the marks, symbols, letterings or other markings the affixing of which is prohibited in accordance with the law governing technical requirements for products and conformity assessment.

Improper marking

Article 18.

Improper marking means affixing of mark, symbol, lettering or other marking affixing of which is prohibited under the law governing technical requirements for products and conformity assessment, as well as:

- 1) affixing of conformity mark and the indication of the guaranteed sound power level to the equipment to which this Rulebook doesn't apply to;
- 2) absence of the conformity mark and of the indication of the guaranteed sound power level on equipment complying with the requirements of this Rulebook.

Affixing and use of the conformity mark, as well as of other marks, letterings, symbols or other markings referred to in Article 17 of this Rulebook and Paragraph 1 of this article, shall be in accordance with the law governing technical requirements for products and conformity assessment.

IX. COLLECTION OF NOISE DATA AND SAFEGUARD CLAUSE

Collection of noise data

Article 19.

The manufacturer or his authorised representative, or the importer that intends to place on the market and/or put into service in the Republic of Serbia the equipment referred to in Article 2 of this Rulebook, shall for each such product send a copy of the Declaration of conformity to the Designated body of his choice, as well to the European Commission.

European Commission collects the data made available for each type of equipment referred to in paragraph 1 of this article, publishes it periodically and makes it available to Designated bodies, on request.

Safeguard clause

Article 20.

Making available on the market or putting into service of equipment referred to in Article 2 of this Rulebook that is placed on the market of Republic of Serbia, and that is complying with the requirements of this Rulebook, bearing the conformity mark and the indication of the guaranteed sound power level, accompanied by Declaration of conformity and used in accordance with its intended purpose and in conditions that can be reasonably foreseen, may be restricted or prohibited in accordance with the law governing technical requirements for products and conformity assessment.

Alignment to the EU acquis

Article 21.

This Rulebook is aligned to all the principles and essential requirements of the Directive 2000/14/EC of the European Parliament and the Council of 8 May 2000 as amended by the Directive 2005/88/EC of the European Parliament and the Council of 14 December 2005, on the

approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors.

X. TRANSITIONAL AND FINAL PROVISIONS

Article 22.

From the date of entry into force of ratified Agreement on Conformity Assessment and Acceptance of Industrial Products between EU and Republic of Serbia (ACAA) for equipment within the scope of this Rulebook, wordings: „Declaration of conformity” in Art. 1, 5, 6, 7. and 8, in the title of the section and the title above Article 15. and in Article 15, in Art. 19. and 20. of this Rulebook, as well as in the title of Annex 2 and in Annexes 2, 5, 6, 7 and 8 of this Rulebook shall have the meaning: „EC Declaration of conformity”, and wordings: „conformity mark” in Art. 1, 5, 6, 7, title above Article 17. and in Art. 17, 18. and 20. of this Rulebook, as well as in Annexes 2, 5, 6, 7 and 8 of this Rulebook shall have the meaning: „CE marking”.

If the agreement referred to in Paragraph 1 of this article shall not be concluded, the meanings of wordings: „Declaration of conformity” and „Conformity mark” referred to in Paragraph 1 of this article shall apply from the date of the Republic of Serbia’s EU accession.

Article 23.

From the date of entry into force of this Rulebook until the date of entry into force of ratified Agreement on Conformity Assessment and Acceptance of Industrial Products between EU and Republic of Serbia for equipment within the scope of this Rulebook, conformity shall be indicated by affixing of the Serbian conformity mark, in accordance with the provisions of this Rulebook and other regulations.

If the agreement referred to in Paragraph 1 of this article shall not be concluded, indication of conformity by affixing of the Serbian conformity mark shall apply until the date of the Republic of Serbia’s EU accession.

From the date of entry into force of ratified Agreement on Conformity Assessment and Acceptance of Industrial Products between EU and Republic of Serbia for equipment within the scope of this Rulebook, conformity shall be indicated by affixing of CE marking, in accordance with the provisions of this Rulebook and other regulations.

If the agreement referred to in Paragraph 3 of this article shall not be concluded, indication of conformity by affixing of CE marking shall apply from the date of the Republic of Serbia’s EU accession.

Article 24.

The provisions of Article 19. of this Rulebook shall apply from the date of the Republic of Serbia’s EU accession.

Article 25.

This Rulebook shall enter into force on the eighth day following its publication in the „Official Gazette of the Republic of Serbia”, and shall start to apply on 1 July 2015.

Number: 110-00-42/2012-33
In Belgrade, 20 December 2012

MINISTER
Mladen Dinkić

ANNEX 1

TYPES AND DEFINITIONS OF EQUIPMENT FOR USE OUTDOORS

1. *Aerial access platforms with combustion engines* means the equipment consisting of a minimum of a work platform, an extending structure and a chassis. The work platform is a

fenced platform or a cage which can be moved under load to the required working position. The extending structure is connected to the chassis and supports the work platform; it allows movement of the work platform to its required position.

2. *Brush cutter* means a combustion-engine driven portable hand-held unit fitted with a rotating blade made of metal or plastic intended to cut weeds, brush, small trees and similar vegetation. The cutting device operates in a plane approximately parallel to the ground.

3. *Builders' hoist for the transport of goods* means a power-operated, temporarily installed builders' hoist intended for use by persons who are permitted to enter engineering and construction sites, serving

(1) defined landing levels, having a platform

— designed for the transportation of goods only

— which permits the access of persons during loading and unloading

— which permits the access and travel by authorised persons during erection, dismantling and maintenance

— guided

— travelling vertical or along a path within 15° max. of the vertical

— supported or sustained by: wire, rope, chain, screwed spindle and nut, rack and pinion, hydraulic jack (direct or indirect), or an expanding linkage mechanism

— where masts may or may not require support from separate structures, or

(2) either one upper landing or a work area extending to the end of the guide (e.g. a roof),

having a load-carrying device:

— designed for the transportation of goods only

— designed that there is no need to step on it for loading or unloading purposes or for maintenance, erection and dismantling

— from which persons are prohibited at any time

— guided

— which is designed to travel at an angle of at least 30° to the vertical but may be used at any angle

— sustained by steel wire rope and a positive drive system

— controlled by constant pressure type controls

— which does not benefit from the use of any counterweight

— having a maximum rated load of 300 kg

— having a maximum speed of 1m/s

— and where the guides require support from separate structures.

4. *Building site band saw machine* means a hand-fed powered machine weighing less than 200 kg fitted with a single saw blade in the form of a continuous band mounted on and running between two or more pulleys.

5. *Building site circular saw bench* means a hand-fed machine weighing less than 200 kg fitted with a single circular sawblade (other than a scoring saw) with a diameter of 350 mm or more, up to a maximum diameter of 500 mm, which is fixed during the normal cutting operation, and a horizontal table, all or part of which is fixed during operation. The sawblade is mounted on a horizontal non-tilting spindle, the position of which remains stationary during machining. The machine may have any of the following features:

— the facility for the sawblade to be raised and lowered through the table

— machine frame below the table may be open or enclosed

— the saw may be fitted with an additional, manually operated travelling table (not adjacent to the sawblade).

6. *Chain saw, portable* means a power-driven tool designed to cut wood with a saw chain and consisting of an integrated compact unit of handles, power source and cutting attachment, designed to be supported with two hands.

7. *Combined high pressure flusher and suction vehicle* means a vehicle which may work either as a high pressure flusher or as a suction vehicle. See high pressure flusher and suction vehicle.

8. *Compaction machine* means a machine which compacts materials, e.g. rock fills, soil or asphalt surfacing, through a rolling, tamping or vibrating action of the working tool. It may be self-propelled, towed, walk-behind or an attachment to a carrying machine. Compaction machines are subdivided as follows:

- rollers for ride-on operators: self-propelled compaction machines with one or more metallic cylindrical bodies (drums) or rubber tyres; the operator's station is an integral part of the machine
- walk-behind rollers: self-propelled compaction machines with one or more metallic cylindrical bodies (drums) or rubber tyres in which the operation facilities for travelling, steering, braking and vibrating are disposed in such a way that the machines have to be operated by an attending operator or by remote control
- towed roller: compaction machines with one or more metallic cylindrical bodies (drums) or rubber tyres which do not possess an independent drive system and where the operator's station is to be found on a tractor unit
- vibratory plates and vibratory rammers: compaction machines with mainly flat base plates which are made to vibrate. They are operated by an attending operator or as an attachment to a carrier machine
- explosion rammers: compaction machines with mainly a flat pad as the compacting tool which is made to move in a predominantly vertical direction by explosion pressure. The machine is operated by an attending operator.

9. *Compressor* means any machine for use with interchangeable equipment which compresses air, gases or vapours to a pressure higher than the inlet pressure. A compressor comprises the bare compressor itself, the prime mover and any component or device supplied, which is necessary for safe operation of the compressor.

Excluded are the following categories of device:

- fans, i.e. devices producing air circulation at a positive pressure of not more than 110 kPa
- vacuum pumps, i.e. devices or appliances for extracting air from an enclosed space at a pressure not exceeding atmospheric pressure
- gas turbine engines.

10. *Concrete-breakers and picks, hand held* means powered (by any method) concrete-breakers and picks used to perform work on civil engineering and building sites.

11. *Concrete or mortar mixer* means a machine to prepare concrete or mortar, irrespective of the loading, mixing and emptying process. It may be operated intermittently or constantly. Concrete mixers on trucks are called truck mixers (see definition 55 of this Annex).

12. *Construction winch* means a power-operated, temporarily installed lifting appliance which is equipped with means for raising and lowering a suspended load.

13. *Conveying and spraying machine for concrete and mortar* means items of plant pumping and spraying concrete or mortar, with or without agitator, whereby the material to be transported is conveyed to the placing position through pipelines, distribution devices or distribution booms.

Conveyance is carried out:

- for concrete mechanically, by piston or rotor pumps
- for mortar mechanically by piston, worm, hose and rotor pumps or pneumatically by compressors with or without air chamber.

These machines may be mounted on trucks, trailers or special vehicles.

14. *Conveyor belt* means a temporarily installed machine suitable for transporting material by means of a power-driven belt.

15. *Cooling equipment on vehicles* means a cargo space refrigeration unit on vehicle categories N2, N3, O3 and O4 as defined by regulations on categorization of motor vehicles and their trailers as well as the technical conditions for motor vehicles intended for use on the road.

The refrigeration unit may be powered by means of an integral part of the refrigeration unit, a separate part attached to the vehicle body, a driving engine of the vehicle, or by an independent or standby power source.

16. *Dozer* means a self-propelled wheeled or crawler machine used to exert a push or pull force through mounted equipment.

17. *Drill rig* means a machine which is used for drilling holes on construction sites by

- percussive drilling
- rotary drilling
- rotary percussive drilling.

Drill rigs are stationary during drilling. They may move from one place of work to another, under their own power. Self-propelled drill rigs include those mounted on lorries, wheeled chassis, tractors, crawlers, skid bases (pulled by winch). When drill rigs are mounted on lorries, tractors and trailers, or a wheel-based, transportation may be carried out at higher speeds and on public roads.

18. *Dumper* means a self-propelled machine wheeled or crawler machine having an open body, which either transports and dumps or spreads material. Dumpers may be equipped with integral self-loading equipment.

19. *Equipment for loading and unloading of silos or tanks on trucks* means powered devices attached to silo or tanker trucks for loading or unloading of liquids or bulk material by means of pumps or similar equipment.

20. *Excavator, hydraulic or rope-operated* means a self-propelled crawler or wheeled machine having an upper structure capable of a minimum of 360° rotation, which excavates, swings and dumps material by the action of a bucket fitted to the boom and arm or telescopic boom, without moving the chassis or undercarriage during any one cycle of the machine.

21. *Excavator-loader* means a self-propelled wheeled or crawler machine having a main structural support designed to carry both a front-mounted bucket loading mechanism and a rear-mounted backhoe. When used in the backhoe mode, the machine normally digs below ground level with bucket motion towards the machine. The backhoe lifts, swings and discharges material while the machine is stationary. When used in the loader mode, the machine loads or excavates through forward motion of the machine, and lifts, transports and discharges material.

22. *Glass recycling container* means a container, built of whatever material, that is used for the collection of bottles. It is equipped with at least one opening for filling in bottles and another one for emptying the container.

23. *Grader* means a self-propelled wheeled machine having an adjustable blade, positioned between front and rear axles, which cuts, moves and spreads material usually to grade requirements.

24. *Grass trimmer/grass edge trimmer* means a combustion-engine driven portable hand-held unit fitted with flexible line(s), string(s), or similar non-metallic flexible cutting elements, such as pivoting cutters, intended to cut weeds, grass or similar soft vegetation. The cutting device operates in a plane approximately parallel (grass trimmer) or perpendicular (grass edge trimmer) to the ground.

25. *Hedge trimmer* means hand-held, integrally driven powered equipment which is designed for use by one operator for trimming hedges and bushes utilising one or more linear reciprocating cutter blades.

26. *High pressure flusher* means a vehicle equipped with a device to clean sewers or similar installations by means of a high pressure water jet. The device may be either mounted on a proprietary vehicular truck chassis or incorporated into its own chassis embodiment. The equipment may be fixed or demountable as in the case of an exchangeable bodywork system.

27. *High pressure water jet machine* means a machine with nozzles or other speed-increasing openings which allow water, also with admixtures, to emerge as a free jet. In general, high pressure jet machines consist of a drive, a pressure generator, hose lines, spraying devices, safety mechanisms, controls and measurement devices. High pressure water jet machines may be mobile or stationary:

- mobile high pressure water jet machines are mobile, readily transportable machines which are designed to be used at various sites, and for this purpose are generally fitted with their own undergear or are vehicle-mounted. All necessary supply lines are flexible and readily disconnectable
- stationary high pressure water jet machines are designed to be used at one site for a length of time but capable of being moved to another site with suitable equipment. Generally skid or frame-mounted with supply line capable of being disconnected.

28. *Hydraulic hammer* means equipment which uses the hydraulic power source of the carrier machine to accelerate a piston (sometimes gas-assisted), which then hits a tool. The stress wave generated by kinetic action flows through the tool into the material, which causes the material to break. Hydraulic hammers need a supply of pressurised oil to function. The complete carrier/hammer unit is controlled by an operator, usually seated in the cabin of the carrier.

29. *Hydraulic power pack* means any machine for use with interchangeable equipment which compresses liquids to a pressure higher than the inlet pressure. It means an assembly of a prime mover, pump, with or without reservoir and accessories (e.g. controls, pressure relief valve).

30. *Joint cutter* means a mobile machine intended for the production of joints in concrete, asphalt and similar road surfaces. The cutting tool is a rotating high speed disc. The forward motion of the joint cutter can be

- manual
- manual with mechanical assistance
- power-driven.

31. *Landfill compactor, loader-type with bucket* means a self-propelled wheeled compaction machine having a front-mounted loader linkage with a bucket having steel wheels (drums) primarily designed to compact, move, grade, and load soil, landfill or sanitary (refuse) materials.

32. *Lawnmower* means a walk-behind or ride-on grass cutting machine or a machine with grass-cutting attachment(s) where the cutting device operates in a plane approximately parallel to the ground and which uses the ground to determine the height of cut by means of wheels, air cushion or skids, etc., and which utilises an engine or an electric motor for a power source. The cutting devices are either

- rigid cutting elements, or
- non-metallic filament line(s) or freely pivoting non-metallic cutter(s) with a kinetic energy of more than 10 J each; the kinetic energy is determined using EN 786:1997, Annex B.

Also a walk-behind or ride-on grass cutting machine or a machine with grass-cutting attachment(s) where the cutting device is rotating about a horizontal axis to provide a shearing action with a stationary cutter bar or knife (cylinder mower).

33. *Lawn trimmer/lawn edge trimmer* means an electrically powered walk-behind or hand-held grass cutting machine with cutting element(s) of non-metallic filament line(s) or freely pivoting non-metallic cutters with a kinetic energy of not more than 10 J each, intended to cut grass or similar soft vegetation. The cutting element(s) operate(s) in a plane approximately parallel (lawn trimmer) or perpendicular (lawn edge trimmer) to the ground. The kinetic energy is determined using EN 786:1997, Annex B.

34. *Leaf blower* means a powered machine appropriate to clear lawns, paths, ways, streets, etc. of leaves and other material by means of a high velocity air flow. It may be portable (hand-held) or not portable but mobile.

35. *Leaf collector* means a powered machine suitable for collecting leaves and other debris using a suction device consisting of a power source which produces a vacuum inside the machine and a suction nozzle and a container for the collected material. It may be portable (hand-held) or not portable but mobile.

36. *Lift truck, combustion-engine driven, counterbalanced* means a wheeled, internal combustion-engine driven lift truck with counterweight and lifting equipment (mast, telescopic arm or articulated arm):

- rough terrain trucks (wheeled counterbalanced trucks intended primarily for operation on unimproved natural terrain and on disturbed terrain of, e. g., construction sites)
- other counterbalanced lift trucks, excluded are those counterbalanced lift trucks that are specifically constructed for container handling.

37. *Loader* means a self-propelled wheeled or crawler machine having an integral front-mounted bucket-supporting structure and linkage, which loads or excavates through forward motion of the machine, and lifts, transports and discharges material.

38. *Mobile crane* means a self-powered jib crane capable of travelling, loaded or unloaded, without the need for fixed runways and relying on gravity for stability. It operates on tyres, crawlers or with other mobile arrangements. In fixed positions it may be supported by outriggers or other accessories increasing its stability. The superstructure of a mobile crane may be of the type of full-circle slewing, of limited slewing or non-slewing. It is normally equipped with one or more hoists and/or hydraulic cylinders for lifting and lowering the jib and the load. Mobile cranes are equipped either with telescopic jibs, with articulated jibs, with lattice jibs, or a combination of these, of such a design that may readily be lowered. The loads suspended from the jib may be handled by hook block assemblies or other load-lifting attachments for special services.

39. *Mobile waste container* means an appropriate designed container fitted with wheels intended to store waste temporarily, and which is equipped with a cover.

40. *Motor hoe* means a self-propelled machine designed to be pedestrian-controlled
- with or without support wheel(s), in such a way that its working elements act as hoeing tools to ensure propulsion (motor hoe), and
 - propelled by one or various wheel(s) directly actuated from the engine and equipped with hoeing tools (motor hoe with drive wheel(s)).

41. *Paver-finisher* means a mobile road construction machine used for the purpose of applying layers of construction material, such as bituminous mix, concrete and gravel on surfaces. Paver-finishers may be equipped with a high-compaction screed.

42. *Piling equipment* means pile installation and extraction equipment, e.g. impact hammers, extractors, vibrators or static pile pushing/pulling devices of an assembly of machines and components used for installation or extraction of piles, which also includes:

- piling rig consisting of carrier machine (crawler, wheel or rail mounted, floating leader attachment, leader or guiding system)
- accessories, e.g. pile caps, helmets, plates, followers, clamping devices, pile handling devices, pile guides, acoustic shrouds and shock/vibration absorbing devices, power packs/generators and personal lifting devices or platforms.

43. *Pipelayer* means a self-propelled crawler or wheeled machine specifically designed to handle and lay pipes and carry pipeline equipment. The machine, the design of which is based on a tractor, has especially designed components such as undercarriage, main frame, counterweight, boom and load-hoist mechanism, and vertically pivoting side boom.

44. *Piste caterpillar* means a self-propelled crawler machine used to exert a push or pull force on snow and ice through mounted equipment.

45. *Power generator* means any device comprising an internal combustion engine driving a rotary electrical generator producing a continuous supply of electrical power.

46. *Power sweeper* means a sweeping collection machine having equipment to sweep debris into the path of a suction inlet that would then pneumatically by way of a high velocity airstream or with a mechanical pick-up system convey the debris to a collection hopper. The sweeping and collecting devices may either be mounted to a proprietary vehicular truck chassis or incorporated into its own chassis embodiment. The equipment can be fixed or demountable as in the case of an exchangeable bodywork system.

47. *Refuse collection vehicle* means a vehicle designed for the collection and transportation of domestic and bulky waste based on loading via containers or by hand. The vehicle may be equipped with a compaction mechanism. A refuse collection vehicle comprises a chassis with cab onto which the bodywork is mounted. It may be equipped with a container lifting device.

48. *Road-milling machine*

A mobile machine used for removing material from paved surfaces using a power-driven cylindrical body, on which surface the milling tools are fitted; the cutter drums rotate during the cutting operation.

49. *Scarifier* means a walk-behind or ride-on powered machine which uses the ground to determine the depth of cut and which is equipped with an assembly appropriate to slit or scratch the surface of the lawn in gardens, parks and other similar areas.

50. *Shredder/chipper* means a powered machine designed for use in a stationary position having one or more cutting devices for the purpose of reducing bulk organic materials to smaller pieces. Generally it consists of a feed intake opening through which material (which may be held by an appliance or not) is inserted, a device which cuts up the material by whatever method (cutting, chopping, crushing or other methods) and a discharge chute through which the cut material is discharged. A collecting device may be attached.

51. *Snow-removing machine with rotating tools* means a machine with which snow can be removed from traffic areas by rotating means, accelerated and ejected by blower means.

52. *Suction vehicle* means a vehicle equipped with a device to collect water, mud, sludge, refuse or similar material from sewers or similar installations by means of a vacuum. The device may be either mounted on a proprietary vehicular truck chassis or incorporated into its own chassis embodiment. The equipment may be fixed or demountable as in the case of an exchangeable bodywork system.

53. *Tower crane* means a slewing jib crane with the jib located at the top of a tower which stays approximately vertical in the working position. This power-driven appliance is equipped with means for raising and lowering suspended loads and for the movement of such loads by changing the load-lifting radius, slewing, travelling of the complete appliance. Certain appliances

perform several but not necessarily all of these movements. The appliance can be installed in a fixed position or equipped with means for displacing or climbing.

54. *Trencher* means a self-propelled, ride-on or pedestrian-controlled, crawler or wheeled machine, having a front- or rear-mounted excavator linkage and attachment, primarily designed to produce trenches in a continuous operation, through a motion of the machine.

55. *Truck mixer* means a vehicle which is equipped with a drum to transport ready-mixed concrete from the concrete mixing plant to the job site; the drum may rotate when the vehicle is driving or stand still. The drum is emptied on the job site by rotating the drum. The drum is driven either by the driving engine of the vehicle or by a supplementary engine.

56. *Water pump unit* means a machine consisting of a water pump itself and the driving system. Water pump means a machine for the raising of water from a lower to a higher energy level.

57. *Welding generator* means any rotary device which produces a welding current.

ANNEX 2

DECLARATION OF CONFORMITY

Declaration of conformity shall contain at least the following:

- 1) name and address of the manufacturer and, where applicable, his authorised representative;
- 2) a description of the equipment, as well as information allowing for its identification (i.e. type, model, etc.);
- 3) conformity assessment procedure followed, and, where appropriate, name and address and Registry number of the designated body involved, or the identification number of foreign conformity assessment body that carried out the conformity assessment, as well as the number of the Certificate of conformity, if it was issued in accordance with Annex 7;
- 4) measured sound power level on an equipment representative for that type;
- 5) guaranteed sound power level for the equipment;
- 6) reference to this Rulebook and, where appropriate, other rulebooks to which product is complying with or, exceptionally for imported products, reference to the act referred to in Article 21 of this Rulebook;
- 7) identification, i.e. name and address of the person authorised to compile and keep at disposal the technical documentation;
- 8) the last two digits of the year when the conformity mark was affixed;
- 9) the place and date of the declaration;
- 10) identification and signature of person authorised to sign the declaration of conformity on behalf of the manufacturer or his authorised representative.

ANNEX 3

METHOD OF MEASUREMENT OF AIRBORNE NOISE EMITTED BY
EQUIPMENT FOR USE OUTDOORS

Scope

This Annex lays down the methods of measurement of airborne noise that shall be used for the determination of the sound power levels of equipment covered by this Rulebook with a view to the conformity assessment procedures of this Rulebook.

Part A of this Annex for each type of equipment referred to in Article 2, for measuring the sound pressure level on a measurement surface enveloping the source and for calculating the sound power level produced by the source, lays down:

- basic noise emission standards;
- general supplements to these basic noise emission standards.

Part B of this Annex for each type of equipment referred to in Article 2(1) lays down

- 1) a recommended basic noise emission standard including:
 - (1) a reference to the basic noise emission standard chosen from Part A,
 - (2) the test area,
 - (3) the value of the constant K_{2A} ,
 - (4) the shape of the measurement surface,
 - (5) the number and position of microphones to be used,
- 2) operating conditions including:
 - (1) the reference to a standard, if any,
 - (2) requirements relating to mounting of the equipment,
 - (3) a method to calculate the resulting sound power levels in the event that several tests with different operating conditions are to be used,
- 3) further information.

When testing specific types of equipment, the manufacturer or his authorised representative may in general choose one of the basic noise emission standards of Part A and apply the operating conditions of Part B for this specific type of equipment. In the event of a dispute, however, the recommended basic noise emission standard laid down in Part B has to be used together with the operating conditions of Part B.

PART A

BASIC NOISE EMISSION STANDARDS

For the determination of the sound power level of equipment referred to in Article 2 the basic noise emission standards may generally be used:

SRPS EN ISO 3744:2008 (reference harmonised standard EN ISO 3744:1995),

SRPS EN ISO 3744:2008 (reference harmonised standard EN ISO 3746:1995),

subject to the following general supplements:

1. Measurement uncertainty

Measurement uncertainties are not taken into account in the framework of conformity assessment procedures in the design phase.

2. Operation of source during test

2.1. Fan speed

If the engine of the equipment or its hydraulic system is fitted with (a) fans(s) it (they) must operate during the test. The fan speed is, in accordance with one of the following

conditions, stated and set by the manufacturer of the equipment and must appear in the test report, this speed being used in further measurements.

(a) Fan drive directly connected to the engine

If the fan drive is directly connected to the engine and/or hydraulic equipment (e.g. by belt drive) it must operate during the test.

(b) Fan drive with several distinct speeds

If the fan can work at several distinct speeds the test shall be carried out either

— at its maximum working speed, or

— in a first test with the fan set at zero speed and in a second test the fan set at maximum speed. The resulting sound pressure level L_{pA} shall then be calculated by combining both test results using the following equation:

$$L_{pA} = 10 \lg \{ 0,3 \times 10^{0,1 L_{pA,0\%} + 0,7} \times 10^{0,1 L_{pA,100\%}} \}$$

where:

$L_{pA,0\%}$ is the sound pressure level determined with the fan set at zero speed

$L_{pA,100\%}$ is the sound pressure level determined with the fan set at maximum speed.

(c) Fan drive with continuous variable speed

If the fan can work at continuous variable speed, the test shall be carried out either according to 2.1(b) or with the fan speed set by the manufacturer at no less than 70 % of the maximum speed.

2.2. Test of powered equipment free of load

For these measurements, the engine and hydraulic system of the equipment must be warmed up in accordance with the instructions, and safety requirements must be observed.

The test is carried out with the equipment in a stationary position without operating the working equipment or travelling mechanism. For the purpose of the test, the engine will idle at no less than the rated speed corresponding to the net power¹.

If the machine is powered by a generator or from the mains, the frequency of the supply current, specified for the motor by the manufacturer, shall be stable at ± 1 Hz if the machine is equipped with an induction motor, and the supply voltage at ± 1 % of the rated voltage if the machine is equipped with a commutator motor. The supply voltage is measured at the plug of a non-detachable cable or cord, or at the inlet of the machine if a detachable cable is provided. The waveform of the current supplied from the generator shall be similar to that obtained from the mains.

If the machine is powered by battery, the battery shall be fully charged.

The speed used and the corresponding net power are stated by the manufacturer of the equipment and must appear in the test report.

If the equipment is fitted with several engines, they must work simultaneously during the tests. If this is not possible, each possible combination of engine(s) is to be tested.

¹ Net power means the power in 'EC kW' obtained on the test bench at the end of the crankshaft, or its equivalent, measured in accordance with the EC method of measuring the power of internal combustion engines for road vehicles, except that the power of the engine cooling fan is excluded.

2.3. Test of powered equipment under load

For these measurements, the engine (driving device) and hydraulic system of the equipment must be warmed up in accordance with the instructions, and safety requirements must be observed. No signalling device such as a warning horn or reversing alarm is to be operated during the test.

The speed or velocity of the equipment during the test must be recorded and appear in the test report.

If the equipment is fitted with several engines and/or aggregates they must work simultaneously during the tests. If this is not possible, each possible combination of engine(s) and/or aggregates is to be tested.

For each type of equipment that is to be tested under load, specific operating conditions must be laid down which shall, in principle, produce effects and stresses similar to those encountered under actual working conditions.

2.4. Test of hand-operated equipment

Conventional operating conditions for each type of hand-operated equipment shall be laid down that produce effects and stresses similar to those undergone under actual working conditions.

3. Calculation of surface sound pressure level

The surface sound pressure level shall be determined at least three times. If at least two of the determined values do not differ by more than 1 dB, further measurements will not be necessary; otherwise the measurements shall be continued until two values differing by no more than 1 dB are obtained. The A-weighted surface sound pressure level to be used for calculating the sound power level is the arithmetic mean of the two highest values that do not differ by more than 1 dB.

4. Information to be reported

The A-weighted sound power level of the source under test shall be reported to the nearest whole number (less than 0,5 use the lower number; greater than or equal to 0,5 use the higher number).

The report shall contain the technical data necessary to identify the source under test as well as the noise test code and the acoustical data.

5. Additional microphone positions on the hemispherical measurement surface (SRPS EN ISO 3744:2008)

In addition to clauses 7.2.1 and 7.2.2 of SRPS EN ISO 3744:2008 a set of 12 microphones on the hemispherical measurement surface may be used. The location of 12 microphone positions distributed on the surface of a hemisphere of radius r are listed in the form of Cartesian coordinates in the following table. The radius r of the hemisphere shall be equal to or greater than twice the largest dimension of the reference parallelepiped. The reference parallelepiped is defined as the smallest possible rectangular parallelepiped just enclosing the equipment (without attachments) and terminating on the reflecting plane. The radius of the hemisphere shall be rounded to the nearest higher of the following values: 4, 10, 16 m.

The number (12) of microphones may be reduced to six, but the microphone positions 2, 4, 6, 8, 10 and 12 following the requirements of clause 7.4.2 of SRPS EN ISO 3744:2008 have to be used in any case.

Generally the arrangement with six microphone positions on a hemispherical measurement surface has to be used. If there are other specifications laid down in a noise test code in this Directive for a specific equipment, these specifications shall be used.

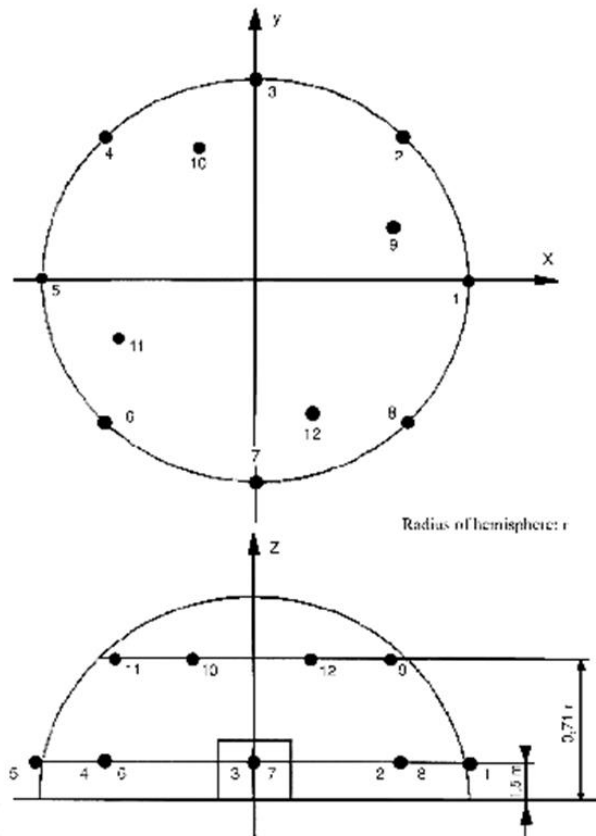
TABLE
Coordinates of the 12 microphone positions

Number of microphone	x/r	y/r	z
1	1	0	1,5 m
2	0,7	0,7	1,5 m
3	0	1	1,5 m
4	-0,7	0,7	1,5 m
5	-1	0	1,5 m
6	-0,7	-0,7	1,5 m
7	0	-1	1,5 m
8	0,7	-0,7	1,5 m
9	0,65	0,27	0,71 r
10	-0,27	0,65	0,71 r
11	-0,65	-0,27	0,71 r
12	0,27	-0,65	0,71 r

6. Environmental correction K_{2A}

Equipment shall be measured on a reflecting surface of concrete or non-porous asphalt, then the environmental correction K_{2A} is set to $K_{2A} = 0$. If there are other specifications laid down in a noise test code of this Rulebook for a specific equipment, these specifications shall be used.

Figure
Additional microphone array on the hemisphere (12 microphone positions)



PART B

NOISE TEST CODES FOR SPECIFIC EQUIPMENT

0. EQUIPMENT THAT IS TESTED FREE OF LOAD

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

Reflecting surface of concrete or non-porous asphalt

Environmental correction K_{2A}

$K_{2A} = 0$

Measurement surface/number of microphone positions/measuring distance

(1) If the largest dimension of the reference parallelepiped does not exceed 8 m:

hemisphere/six microphone positions according to Part A item 5/ according to Part A item 5

(2) If the largest dimension of the reference parallelepiped exceeds 8 m: parallelepiped according to SRPS EN ISO 3744:2008 with measuring distance

$d = 1 \text{ m}$

Operating conditions during test

Test free of load:

The noise tests shall be carried out according to Part A item 2.2

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

The period of observation shall at least be 15 seconds

1. AERIAL ACCESS PLATFORMS WITH COMBUSTION ENGINE

See No 0

2. BRUSH CUTTERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 10884:1995

Measurement surface/number of microphone positions/measuring distance

ISO 10884:1995

Operating conditions during test

Test under load

ISO 10884:1995, point 5.3

Period(s) of observation

ISO 10884:1995

3. BUILDERS' HOISTS FOR THE TRANSPORT OF GOODS

See No 0

The geometrical centre of the engine shall be positioned above the centre of the hemisphere; the lift shall move without load and leave the hemisphere — if necessary — in direction of point 1

4. BUILDING SITE BAND SAW MACHINES

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/number of microphone positions/measuring distance

ISO 7960:1995, Annex J with $d = 1$ m

Operating conditions during test

Test under load

Corresponding to ISO 7960:1995, Annex J (point J2(b) only)

Period of observation

Corresponding to ISO 7960:1995, Annex J

5. BUILDING SITE CIRCULAR SAW BENCHES

Basic noise emission standard

EN ISO 3744:1995

Measurement surface/number of microphone positions/measuring distance

ISO 7960:1995, Annex A, measurement distance $d = 1 \text{ m}$

Operating conditions during test

Test under load

ISO 7960:1995, Annex A (point A2(b) only)

Period of observation

ISO 7960:1995, Annex A

6. CHAIN SAWS, PORTABLE

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 9207:1995

Measurement surface/number of microphone positions/measuring distance

ISO 9207:1995

Operating conditions during test

Test under load/Test free of load

Full load sawing wood/engine at maximum revolution without load

(a) combustion-engine driven: ISO 9207:1995 points 6.3 and 6.4

(b) electric-motor operated: a test corresponding to ISO 9207:1995 point 6.3 and a test with the motor at maximum revolution without load

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

ISO 9207:1995 points 6.3 and 6.4

The resulting sound power level L_{WA} is calculated by:

$$L_{WA} = 10 \lg_2 \left[10^{0,1LW1} + 10^{0,1LW2} \right]$$

where LW1 and LW2 are the average sound power levels of the two different modes of operation defined above

7. COMBINED HIGH PRESSURE FLUSHERS AND SUCTION VEHICLES

If it is possible to operate both items of equipment simultaneously, this shall be done according to Nos 26 and 52. If not, they shall be measured separately and the higher values are to be stated

8. COMPACTION MACHINES

(1) NON-VIBRATING ROLLERS

See No 0

(2) VIBRATING ROLLERS FOR RIDE-ON OPERATORS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Mounting of equipment

The vibrating roller shall be installed on one or more appropriate elastic material(s) such as air-cushion(s). These air-cushions shall be made of a supple material (elastomer or similar) and shall be inflated to a pressure ensuring that the machine is elevated by at least 5 cm; resonance effects shall be avoided. The dimension of the cushion(s) shall be such that the stability of the machine under test is ensured

Test under load

The machine shall be tested in a stationary position with the engine at rated speed (stated by the manufacturer) and the moving mechanism(s) disconnected. The compacting mechanism shall be operated using the maximum compaction power corresponding to the combination of the highest frequency and the highest possible amplitude for that frequency as declared by the manufacturer

Period of observation

The period of observation shall be at least 15 seconds

(3) VIBRATORY PLATES, VIBRATORY RAMMERS, EXPLOSIVE RAMMERS AND WALK-BEHIND VIBRATING ROLLERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

EN 500-4 rev. 1:1998, Annex C

Operating conditions during test

Test under load

EN 500-4 rev. 1:1998, Annex C

Period of observation

EN 500-4 rev. 1:1998, Annex C

9. COMPRESSORS

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/number of microphone positions/measuring distance

hemisphere/six microphone positions according to Part A item 5/according to Part A item 5

or

parallelepiped according to SRPS EN ISO 3744:2008 with measurement distance $d = 1$ m

Operating conditions during test

Mounting of equipment

The compressors shall be installed on the reflecting plane; skid-mounted compressors shall be placed on a support 0,40 m high, unless otherwise required by the manufacturer's conditions of installation.

Test under load

The compressor under test shall have been warmed up and be operating in stable conditions as for continuous operation. It shall be properly serviced and lubricated as specified by the manufacturer

The determination of the sound power level shall be made at full-load or in an operating condition that is reproducible and is representative of the noisiest operation of typical usage of the machine under test, whichever is the noisier

Should the layout of the complete plant be such that certain components, e.g. inter-coolers are mounted away from the compressor, endeavours shall be made to separate the noise generated from such parts when performing the noise test. Separation of the various noise sources may require special equip- ment for the attenuation of the noise from these sources during the measurement. The noise characteristics and description of the operating conditions of such parts shall be given separately in the test report

During the test the gas exhausted from the compressor shall be piped clear of the test area. Care shall be taken to ensure the noise generated by the gas being exhausted is at least 10 dB lower than the noise to be measured at all measurement locations (e.g. by the fitting of a silencer)

Care shall be taken that air discharge does not introduce any extra noise due to turbulence at the compressor discharge valve

Period of observation

The period of observation shall be at least 15 seconds

10. CONCRETE-BREAKERS AND PICKS, HAND-HELD

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/number of microphone positions/measuring distance

Hemisphere/six microphone positions according to Part A item 5 and the following table/according to mass of equipment as given in the following table:

Mass of equipment m in kg	Radius of hemisphere	z for microphone positions 2, 4, 6 and 8
$m < 10$	2 m	0,75 m
$m \geq 10$	4 m	1,50 m

Operating conditions during test

Mounting of equipment

All appliances shall be tested in the vertical position

If the test appliance has got an air exhaust, its axis shall be equidistant from two microphone positions. The noise of the power supply shall not influence the measurement of the noise emission from the tested appliance

Support of the appliance

The appliance shall be coupled during the test run to a tool embedded in a cube-shaped concrete block placed in a concrete pit, sunk into the ground. An intermediate steel piece may be inserted during tests between the appliance and the support tool. This intermediate piece shall form a stable structure between the appliance and the support tool. Figure 10.1 incorporates these requirements

Block characteristics

The block shall be in the shape of a cube $0,60 \text{ m} \pm 2 \text{ mm}$ long at the edge and as regular as possible; it shall be made of reinforced concrete and thoroughly vibrated in layers of up to $0,20 \text{ m}$ to avoid excessive sedimentation

Quality of the concrete

The quality of the concrete shall correspond to C 50/60 of ENV 206

The cube shall be reinforced by 8 mm-diameter steel rods without ties, each rod being independent of the other; the design concept is illustrated in Figure 10.2

Supporting tool

The tool shall be sealed into the block and shall consist of a rammer of no less than 178 mm or no more than 220 mm diameter and a tool chuck component identical to that normally used with the appliance being tested and complying with ISO 1180:1983, but sufficiently long to enable the practical test to be carried out

Suitable treatment shall be carried out to integrate the two components. The tool shall be fixed in the block so that the bottom of the rammer is $0,30 \text{ m}$ from the upper face of the block (see Figure 10.2)

The block shall remain mechanically sound, particularly at the point where the supporting tool and the concrete meet. Before and after each test, it shall be established that the tool sealed in the concrete block is integrated with it

Positioning of the cube

The cube shall be set in a pit cemented throughout, covered by a screening slab of at least 100 kg/m^2 , as indicated in Figure 10.3, so that the upper surface of the screening slab is flush with the ground. To avoid any parasitic noise, the block shall be insulated against the bottom and sides of the pit by elastic blocks, the cut-off frequency of which shall not be more than half the striking rate of the appliance tested, expressed as strokes per second

The opening in the screening slab through which the tool chuck component passes shall be as small as possible and sealed by a flexible sound-proof joint

Test under load

The appliance tested shall be connected to the supporting tool

The test appliance shall be operated in stable conditions having the same acoustical stability as in normal service

The test appliance shall be operated at the maximum power specified in the instructions supplied to the purchaser

Period of observation

The period of observation shall at least be 15 seconds

Figure 10.1

Schematic diagram of intermediate piece

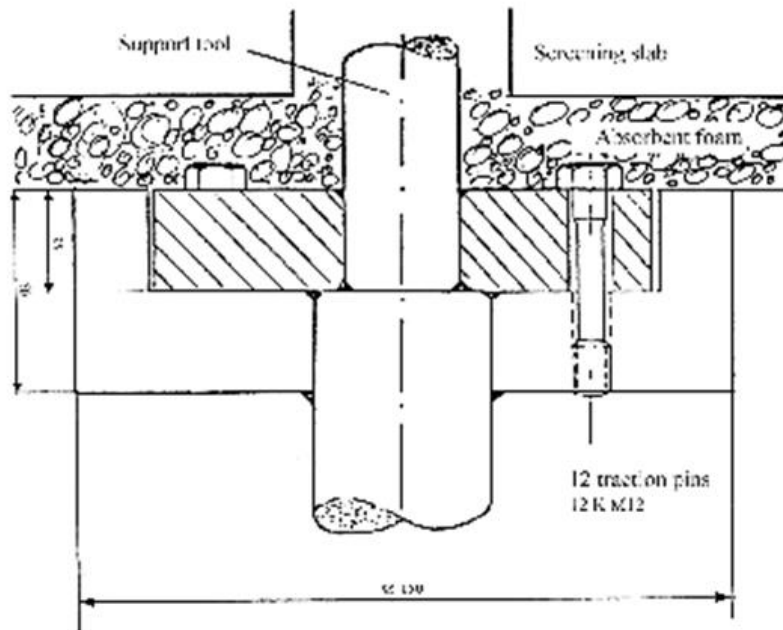


Figure 10.2

Test block

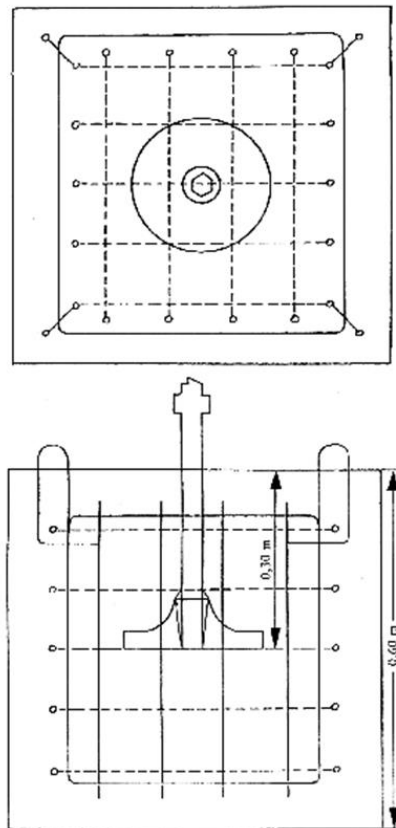
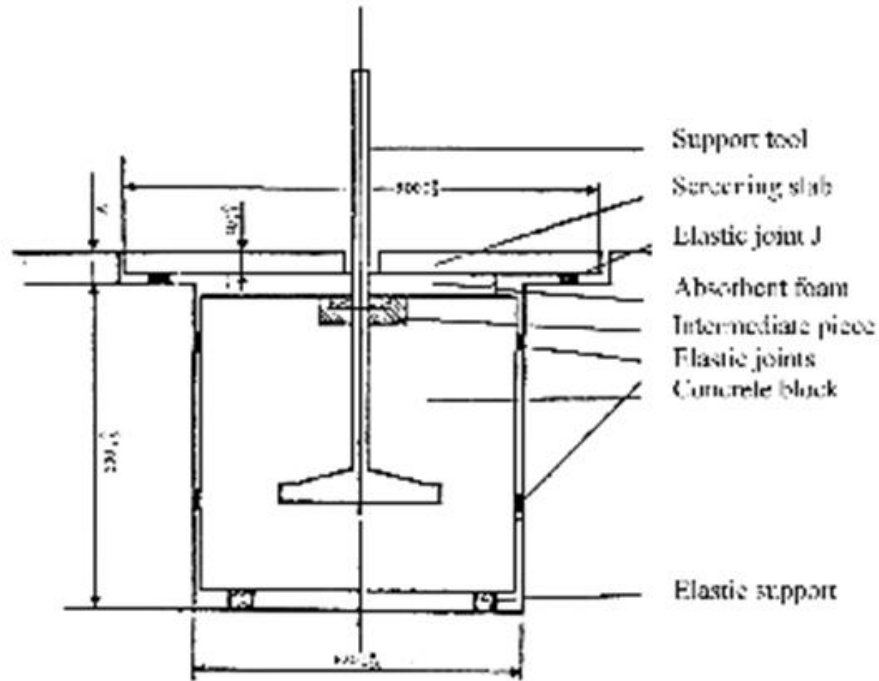


Figure 10.3

Testing device



The value of A should be such that the screening slab resting on the elastic joint J is flush with the ground

11. CONCRETE OR MORTAR MIXERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The mixing device (drum) shall be filled to its rated capacity with sand of granulation 0 to 3 mm, the humidity shall be 4 to 10 %

The mixing device shall be operated at least at the rated speed

Period of observation

The period of observation shall be at least 15 seconds

12. CONSTRUCTION WINCHES

See No 0

The geometrical centre of the engine shall be positioned above the centre of the hemisphere; the winch shall be connected but no load shall be applied

13. CONVEYING AND SPRAYING MACHINES FOR CONCRETE AND MORTAR

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

If the machine is equipped with a boom, this is set upright and the pipe shall be lead back to the filler funnel. If this is not the case the machine shall be equipped with a horizontal pipe of at least 30 m leading back to the filler funnel

Test under load

(1) For machines conveying and spraying concrete:

The conveying system and the pipe shall be filled with a medium similar to concrete, the cement being replaced by an admixture, e.g. finest ash. The machine shall operate at its maximum output, the period of one working cycle being not more than 5 seconds (if this period is exceeded, water shall be added to the 'concrete' in order to reach this value).

(2) For machines conveying and spraying mortar:

The conveying system and the pipe shall be filled with a medium similar to finishing mortar, the cement being replaced by an admixture, e.g. methyl cellulose. The machine shall operate at its maximum output, the period of one working cycle being not more than 5 seconds (if this period is exceeded, water shall be added to the 'mortar' in order to reach this value)

Period of observation

The period of observation shall at least be 15 seconds

14. CONVEYOR BELTS

See No 0

The geometrical centre of the engine shall be positioned above the centre of the hemisphere; the belt shall move without load and leave the hemisphere, if necessary, in the direction of point 1

15. COOLING EQUIPMENT ON VEHICLES

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The cooling equipment shall be installed in a real or simulated cargo space and be tested in a stationary position where the height of the cooling equipment shall be representative of the intended installation requirements according to the instructions supplied to the purchaser. The power source of the cooling equipment shall operate at the rate that causes the maximum speed of the cooling compressor and the fan specified in the instructions. If the cooling equipment is intended to be powered by the driving engine of the vehicle the engine shall not be used during the test and the cooling equipment shall be connected to a suitable electrical power source. Removable tractor units shall be removed during the test

Cooling equipment installed in cargo-space refrigeration units which have a choice of different power sources shall be tested separately for each power source. The test result reported shall as a minimum reflect the mode of operation which leads to the maximum noise output

Period of observation

The period of observation shall at least be 15 seconds

16. DOZERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 6395:1988

Measurement surface/number of microphone positions/measuring distance

ISO 6395:1988.

Operating conditions during test

Mounting of equipment

Crawler dozers shall be tested on the test site corresponding to point 6.3.3 of ISO 6395:1988

Test under load

ISO 6395:1988, Annex B

Period(s) of observation and consideration of different operating conditions, if any

ISO 6395:1988, Annex B

17. DRILL RIGS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

EN 791:1995, Annex A

Period of observation

The period of observation shall at least be 15 seconds

18. DUMPERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 6395:1988

Measurement surface/number of microphone positions/measuring distance

ISO 6395: 1988

Operating conditions during test

Test under load

Equivalent ISO 6395:1998, Annex C, with the following amendment: C 4.3, second paragraph is replaced by:

‘The engine shall be operated at its maximum governed speed (high idle). The transmission control shall be set to neutral. Bring the bucket to the tipped position (emptying) up to about 75 % of its maximum movement and return it to its travelling position three times. This sequence of events is considered to be a single cycle for the stationary hydraulic mode.

If no engine power is used to tip the bucket, the engine shall be operated at idling speed with the transmission in neutral. The measurement shall be performed without tipping the bucket, the period of observation shall be 15 seconds.’

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

ISO 6395:1988, Annex C

19. EQUIPMENT FOR LOADING AND UNLOADING TANKS OR SILOS ON TRUCKS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The equipment shall be tested with the truck in a stationary position. The engine driving the equipment shall operate at the speed that causes the maximum output of the equipment specified in the instructions supplied to the purchaser

Period of observation

The period of observation shall at least be 15 seconds

20. EXCAVATORS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 6395:1988

Measurement surface/number of microphone positions/measuring distance

ISO 6395:1988.

Operating conditions during test

Test under load

ISO 6395:1988, Annex A

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

ISO 6395:1988, Annex A

21. EXCAVATORS-LOADERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 6395:1988

Measurement surface/number of microphone positions/measuring distance

ISO 6395:1988

Operating conditions during test

Test under load

ISO 6395:1988, Annex D

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

ISO 6395:1988, Annex D

22. GLASS RECYCLING CONTAINERS

Basic noise emission standard

SRPS EN ISO 3744:2008

For the purpose of this noise test code the single-event sound pressure level L_{p1s} as defined in SRPS EN ISO 3744:2008 point 3.2.2 is used in measuring the sound pressure level at the microphone positions

Environmental correction K_{2A}

Measurement in the open air

$K_{2A} = 0$

Measurements indoors

The value of the constant K_{2A} , determined in accordance with Annex A to SRPS EN ISO 3744:2008, shall be $\leq 2,0$ dB in which case K_{2A} shall be disregarded

Operating conditions during test

The noise measurement shall be carried out during a complete cycle beginning with the empty container and completed when 120 bottles have been thrown into the container

The glass bottles are defined as follows:

— capacity: 75 cl

— mass: 370 ± 30 g.

The testing operator holds each bottle by its neck and with its bottom towards the filling aperture and then he pushes it gently inside through the filling aperture in the direction of the centre of the container, avoiding if possible the bottle hitting against the walls. Only one filling aperture is used for throwing the bottles and it is the one nearest to microphone position 12

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

The A-weighted single-event sound pressure level is preferably simultaneously measured at the six microphone positions for each bottle thrown into the container

The A-weighted single-event sound power level averaged over the measurement surface is calculated according to SRPS EN ISO 3744: 2008, point 8.1

The A-weighted single-event sound pressure level averaged over all 120 throwings of bottles is calculated as the logarithmic mean of the A-weighted single-event sound pressure levels averaged over the measurement surface

23. GRADERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 6395:1988

Measurement surface/number of microphone positions/measuring distance

ISO 6395:1988

Operating conditions during test

Test under load

Corresponding to ISO 6395:1988, Annex B

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

ISO 6395:1988, Annex B

24. GRASS TRIMMERS/GRASS EDGE TRIMMERS

See No 2

The trimmer shall be positioned by a suitable device in such a way that its cutting device is above the centre of the hemisphere. For grass trimmers, the centre of the cutting device shall be held at a distance of about 50 mm above the surface. In order to accommodate the cutting blades, grass edge trimmers should be positioned as close as possible to the test surface

25. HEDGE TRIMMERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 11094:1991

In case of dispute, measurements shall be carried out in the open air on the artificial surface (point 4.1.2 of ISO 11094:1991)

Environmental correction K_{2A}

Measurement in the open air

$K_{2A} = 0$

Measurements indoors

The value of the constant K_{2A} , determined without the artificial surface and in accordance with Annex A to EN ISO 3744:1995, shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded

Measurement surface/number of microphone positions/measuring distance

ISO 11094:1991

Operating conditions during test

Mounting of equipment

The hedge trimmer shall be held in the natural manner for normal use either by a person or by a suitable device in such a way that its cutting device is above the centre of the hemisphere

Test under load

The hedge clipper shall be operated at its nominal speed with the cutting device working

Period of observation

The period of observation shall at least be 15 seconds

26. HIGH PRESSURE FLUSHERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The high pressure flusher shall be tested in a stationary position. The engine and auxiliary units operate at the speed provided by the manufacturer for the operation of the working equipment; the high pressure pump(s) is (are) operating at its (their) maximum speed and operating pressure provided by the manufacturer. Using an adapted nozzle the pressure reduction valve shall be just on the point of reacting. The flow noise of the nozzle shall not have any influence on the results of the measurements

Period of observation

The period of observation shall at least be 30 seconds

27. HIGH PRESSURE WATER JET MACHINES

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/number of microphone positions/measuring distance

Parallelepiped/according to SRPS EN ISO 3744:2008 with measurement distance $d = 1$ m

Operating conditions during test

Mounting of equipment

The high pressure water jet machine shall be installed on the reflecting plane; skid-mounted machines shall be placed on a support 0,40 m high, unless otherwise required by the manufacturer's conditions of installation

Test under load

The high-pressure cleaning machine shall be brought to its steady-state within the range specified by the manufacturer. During testing the nozzle shall be coupled to the high-pressure cleaning machine that causes the highest pressure if used according to the manufacturer's instructions

Period of observation

The period of observation shall at least be 15 seconds

28. HYDRAULIC HAMMERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/number of microphone positions/measuring distance

Hemisphere/six microphone positions according to Part A, item 5/r = 10 m

Operating conditions during tests

Mounting of the equipment

For the test the hammer is attached to a carrier and a special test block structure shall be used. Figure 28.1 gives the characteristics of this structure and Figure 28.2 shows the position of the carrier

Carrier

The carrier for the test hammer shall meet the requirements of the test hammer's technical specifications especially in weight range, hydraulic output power, supply oil flow and return line back pressure

Mounting

Mechanical mounting as well as connections (hoses, pipes ...) must correspond to specifications given in the hammer's technical data. All significant noise caused by pipes and various mechanical components needed for installation, ought to be eliminated. All component connections have to be well tightened

Hammer stability and static hold force

The hammer shall be firmly held down by the carrier in order to give the same stability as that existing under normal operating conditions. The hammer must be operated in an upright position

Tool

A blunt tool shall be used in the measurements. The length of the tool must meet the requirements given in Figure 28.1 (test block)

Test under load

Hydraulic input power and oil flow

Operating conditions of the hydraulic hammer shall be appropriately adjusted, measured and reported along with the corresponding technical specification values. The hammer under test must be used in such way that 90 % or more of the maximum hydraulic input power and oil flow of the hammer can be reached

Care shall be taken that the total uncertainty of the measurement chains of p_s and Q is kept within ± 5 %. This assures the hydraulic input power determination within ± 10 % accuracy. Assuming linear correlation between hydraulic input power and emitted sound power this would mean variation of less than $\pm 0,4$ dB in the determination of the sound power level

Adjustable components having effect on the hammer power

Pre-settings of all accumulators, pressure central valves and other possible adjustable components must meet the values given in technical data. If more than one fixed impact rate is optional, measurements have to be made using all settings. Minimum and maximum values are presented

Quantities to be measured

- p_s The mean value of the hydraulic supply line pressure during the hammer's operation including at least 10 blows
- Q The mean value of the breaker inlet oil flow measured simultaneously with p_s

- T The oil temperature must lie between + 40/ + 60 °C during measurements. The temperature of the hydraulic breaker body must have been stabilised to normal operating temperature before starting the measurements
- Pa The prefill gas pressures of all accumulators must be measured in static situation (breaker not operating) at stable ambient temperature of + 15/ + 25 °C. The measured ambient temperature shall be recorded with the measured accumulator prefill gas pressure

Parameters to be evaluated from the measured operating parameters:

P_{IN} Hydraulic input power of the breaker $P_{IN} = p_s \cdot Q$

Hydraulic supply line pressure measurement, p_s

- p_s must be measured as close to the breaker IN-port as possible
- p_s shall be measured with a pressure gauge (minimum diameter: 100 mm; accuracy class $\pm 1,0$ % FSO)

Breaker inlet oil flow, Q

- Q must be measured from the supply pressure line as close to the breaker IN-port as possible
- Q must be measured with an electric flowmeter (accuracy class $\pm 2,5$ % of the flow reading)

Measuring point of the oil temperature, T

- T must be measured from the oil tank of the carrier or from the hydraulic line connected to hammer. Measuring point shall be specified in the report
- accuracy of the temperature reading must lie within ± 2 °C of the actual value

Period of observation/determination of resulting sound power level

The period of observation shall be at least 15 seconds

The measurements are repeated three times, or more if necessary. The final result is calculated as the arithmetic mean of the two highest values that do not differ by more than 1dB

Figure 28.1

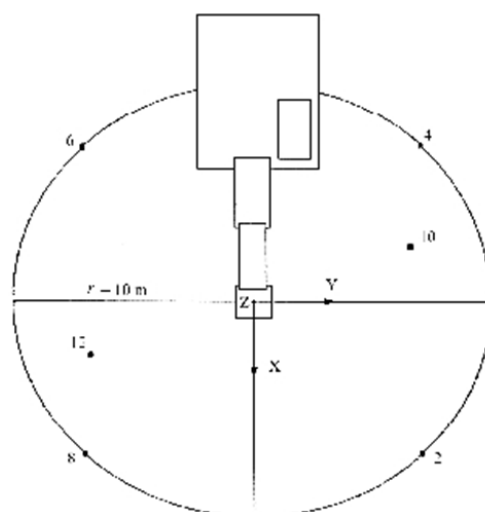
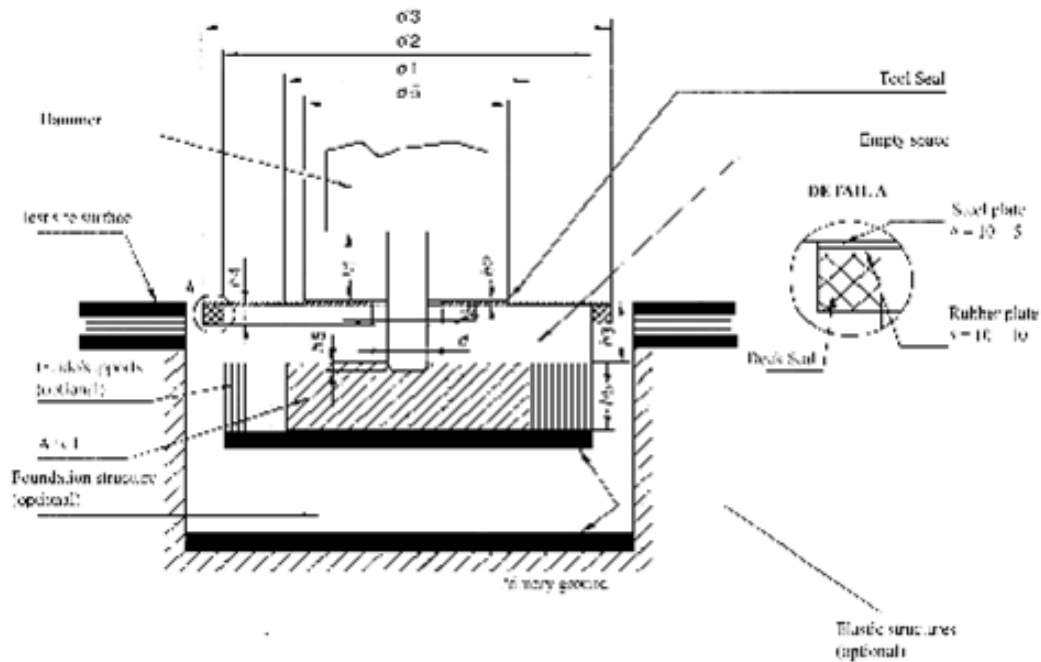


Figure 28.2



Definitions

- d Tool diameter (mm)
- d₁ Anvil diameter, (1200 ± 100) mm
- d₂ Inner diameter of the anvil support structure, ≤ 1800 mm
- d₃ Diameter of the test block deck, ≤ 2200 mm
- d₄ Diameter of the tool opening in the deck, ≤ 350 mm
- d₅ Diameter of the tool seal, ≤ 1000 mm
- h₁ Visible tool length between the lowest part of the housing and tool seal upper surface (mm), $h_1 = d \pm d/2$
- h₂ Tool seal thickness above the deck, ≤ 20 mm (if the tool seal is located below the deck, its thickness is not limited; it may be made of foam rubber)
- h₃ Distance between deck upper surface and anvil upper surface, (250 ± 50) mm
- h₄ Isolating foam rubber deck seal thickness, ≤ 30 mm
- h₅ Anvil thickness, (350 ± 50) mm
- h₆ Tool penetration, ≤ 50 mm

If the quadratic shape of the test block structure is used, the maximum length dimension equals 0,89 x corresponding diameter

The empty space between the deck and the anvil can be filled with elastic foam rubber or other absorption material, density < 220 kg/m³

29. HYDRAULIC POWER PACKS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Mounting of equipment

The hydraulic power pack shall be installed on the reflecting plane; skid-mounted hydraulic power packs shall be placed on a support 0,40 m high, unless otherwise required by the manufacturer's conditions of installation

Test under load

During testing, no tools shall be coupled to the hydraulic power pack

The hydraulic power pack shall be brought to its steady state within the range specified by the manufacturer. It shall operate at its nominal speed and its nominal pressure. The nominal speed and pressure are those appearing in the instructions supplied to the purchaser

Period of observation

The period of observation shall at least be 15 seconds

30. JOINT CUTTERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The joint cutter shall be equipped with the largest possible blade foreseen by the manufacturer in the instructions supplied to the purchaser. The engine shall operate at its maximum speed with the blade idling

Period of observation

The period of observation shall be at least 15 seconds

31. LANDFILL COMPACTORS

See No 37

32. LAWNMOWERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 11094:1991

In case of dispute, measurements shall be carried out in the open air on the artificial surface (point 4.1.2 of ISO 11094:1991)

Environmental correction K_{2A}

Measurement in the open air

$K_{2A} = 0$

Measurements indoors

The value of the constant K_{2A} , determined without the artificial surface and in accordance with Annex A to SRPS EN ISO 3744:2008 shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded

Measurement surface/number of microphone positions/measuring distance

ISO 11094:1991

Operating conditions during test

Mounting of equipment

If the wheels of the lawnmower could cause a compression of the artificial surface of more than 1 cm, the wheels shall be placed on supports so that they are level with the artificial surface before compression. If the cutting device cannot be separated from the driving wheels of the lawnmower, the mower shall be tested on supports with the cutting device operating at its maximum speed laid down by the manufacturer. The supports shall be made in such a way that they do not influence the measurement results

Test free of load

ISO 11094:1991

Period of observation

ISO 11094:1991

33. LAWN TRIMMERS/LAWN EDGE TRIMMERS

See No 32

The trimmer shall be positioned by a suitable device in such a way that its cutting device is above the centre of the hemisphere. For lawn trimmers, the centre of the cutting device shall be held at a distance of about 50 mm above the surface. In order to accommodate the cutting blades, lawn edge trimmers should be positioned as close as possible to the test surface

34. LEAF BLOWERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 11094:1991

In case of dispute, measurements shall be carried out in the open air on the artificial surface (point 4.1.2 of ISO 11094: 1991)

Environmental correction K_{2A}

Measurement in the open air

$K_{2A} = 0$

Measurements indoors

The value of the constant K_{2A} , determined without artificial surface and in accordance with Annex A to SRPS EN ISO 3744:2008, shall be $\leq 2,0$ dB in which case K_{2A} shall be disregarded

Measurement surface/number of microphone positions/measuring distance

ISO 11094:1991

Operating conditions during test

Mounting of equipment

The leaf blower shall be positioned in the natural manner for normal use in such a way that the outlet of its blowing device is situated (50 ± 25 mm) above the centre of the hemisphere; if the leaf blower is hand-held it shall be held either by a person or by a suitable device

Test under load

The leaf blower shall be operated at its nominal speed and the nominal air flow stated by the manufacturer

Period of observation

The period of observation shall at least be 15 seconds

Note :

If a leaf blower can be also used as a leaf collector it shall be tested in both configurations, in which case the higher value shall be used

35. LEAF COLLECTORS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area:

ISO 11094:1991

In case of dispute, measurements shall be carried out in the open air on the artificial surface (point 4.1.2 of ISO 11094:1991 standard).

Environmental correction K_{2A}

Measurement in the open air

$$K_{2A} = 0$$

Measurements indoors

The value of the constant K_{2A} , determined without artificial surface and in accordance with Annex A to SRPS EN ISO 3744:2008 shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded.

Measurement surface/ number of microphone positions/measuring distance:

ISO 11094:1991

Operating conditions during test

Mounting of equipment

The leaf collector shall be positioned in the natural manner for normal use in such a way that the inlet of the collecting device is situated (50 ± 25) mm above the centre of the hemisphere; if the leaf collector is hand-held it shall be held either by a person or by a suitable device.

Test under load

The leaf collector shall be operated at its nominal speed with the nominal air flow in the collecting device stated by the manufacturer.

Period of observation

The period of observation shall be at least 15 seconds.

Note: If a leaf collector can be also used as a leaf blower it shall be tested in both configurations, in which case the higher value shall be used.

36. LIFT TRUCKS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Safety requirements and the manufacturer's information shall be observed.

Lifting condition

With the truck stationary the load (non-sound absorbent material, e.g. steel or concrete; at least 70 % of the actual capacity stated in the manufacturer's instruction) shall be lifted, from the lowered position, at maximum speed to the standardised lift height applicable to that type of industrial truck in accordance with the relevant Serbian standard in the series "Safety of Industrial Trucks". If the actual maximum lift height is less, it may be used in individual measurements. The lift height shall be listed in the test report.

Drive condition

Drive the truck, without load, at full acceleration from standstill over a distance of three times its length to reach line A-A (line connecting microphone positions 4 and 6), continue driving the truck at maximum acceleration to line B-B (line connecting microphone positions 2 and 8). When the rear of the truck has crossed line B-B, the accelerator may be released.

If the truck has a multi-gear transmission, select the gear that ensures the highest possible speed over the measurement distance.

Period of observation (determination) of resulting sound power level if more than one operating condition is used

The periods of observation are:

-for lifting condition: the whole lift cycle;

-for drive condition: the time period starting when the truck's centre crosses the line A-A and ends when its centre reaches the line B-B.

The resulting sound power level for all types of lift trucks, however, is calculated by:

$$L_{WA} = 10\log(0,7 \times 10^{0,1LWAc} + 0,3 \times 10^{0,1LWAa})$$

where subscript "a" indicates "lifting mode" and subscript "c" indicates "driving mode".

37. LOADERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area:

ISO 6395:1988

Measurement surface/ number of microphone positions/measuring distance:

ISO 6395:1988

Operating conditions during test

Mounting of equipment

Crawler loaders shall be tested on the test site corresponding to point 6.3.3 of ISO 6395:1988 standard.

Test under load:

ISO 6395:1988, Annex C

Period of observation (determination) of resulting (final) sound power level if more than one operating condition is used:

ISO 6395:1988, Annex C

38. MOBILE CRANES

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Mounting of equipment

If the crane is equipped with outriggers, they shall be fully extended and the crane shall be levelled on its pads in mid position of possible support height.

Test under load

The mobile crane to be tested shall be presented in its standard version as described by the manufacturer. The engine power considered for determination noise limit is the nominal power of the engine used for crane motion. The crane shall be equipped with its maximum permitted counterweight mounted on the slewing structure.

Before carrying out any measurement, the engine and the hydraulic system of the mobile crane shall be brought to their normal working temperature following the instruction of the manufacturer and all relevant safety-related procedures given in the instruction handbook shall be carried out.

If the mobile crane is equipped with several engines, the engine used for the crane's function shall be run. The carrier engine shall be turned off.

If the engine of the mobile crane is fitted with a ventilator, it shall run during the test. If the ventilator can be operated at several speeds, the test shall be carried out with the ventilator running at the highest speed.

The mobile crane shall be measured under the following three ((a) to (c)) or four ((a) to (d)) conditions:

For all working conditions the following shall apply:

-engine speed at 3/4 of maximum speed specified for crane operation mode with a tolerance of $\pm 2\%$;

-acceleration and deceleration at the maximum value without dangerous movements of the load or the hook block;

-motions at maximum possible speed as given in the instruction manual under the conditions given

(a) Hoisting

The mobile crane shall be loaded with a load which creates 50 % of the maximum rope force. The test consists of hoisting of the load and the immediately following lowering to the starting position. The length of the boom shall be chosen so that the full test lasts 15 to 20 seconds

(b) Slewing

With the boom adjusted to an angle of 40° to 50° to the horizontal and without load the upper carriage shall be slewed 90° to the left immediately followed by slewing back to the starting position. The jib shall be at its minimum length. The observation period shall be the time needed to carry out the working cycle.

(c) Derricking

The test starts with raising the short jib from the lowest working position immediately followed by the lowering of the jib to its original position. The movement shall be executed without load. The duration of the test shall be at least 20 seconds.

(d) Telescoping (if applicable)

With the jib adjusted to an angle of 40° to 50° to the horizontal without load and the jib fully retracted, the telescoping cylinder for the first section only shall be extended together with the first section to its full length and immediately retracted together with the first section.

Period of observation (determination) of resulting (final) sound power level if more than one operating condition is used

The resulting sound power level is calculated by:

1) if telescoping is applicable:

$$L_{WA} = 10\log(0,4 \times 10^{0,1LWAa} + 0,25 \times 10^{0,1LWAb} + 0,25 \times 10^{0,1LWAc} + 0,1 \times 10^{0,1LWAd})$$

2) if telescoping is not applicable:

$$L_{WA} = 10\log(0,4 \times 10^{0,1LWAa} + 0,3 \times 10^{0,1LWAb} + 0,3 \times 10^{0,1LWAc})$$

where:

L_{WAa} is the sound power level for the hoisting cycle;

L_{WAb} is the sound power level for the slewing cycle;

L_{WAc} is the sound power level for the derricking cycle;

L_{WAd} is the sound power level for the telescoping cycle (if applicable).

39. MOBILE WASTE CONTAINERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

-Reflecting surface of concrete or non-porous asphalt;

-Laboratory room which provides a free field over a reflecting plane.

Environmental correction K_{2A}

Measurement in the open air

$$K_{2A} = 0$$

Measurement indoors

The value of the constant K_{2A} , determined in accordance with Annex A to SRPS EN ISO 3744:2008 standard, shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded.

Measurement surface/ number of microphone positions/measuring distance:

Hemisphere/six microphone positions according to Part A item 5 of this annex/r = 3 m.

Operating conditions during test

All the measurements shall be carried out with an empty container.

Test No 1: Free shutting down of the lid along the container body

To minimise his influence on the measurements, the operator shall stand at the back side of the container (hinge side). The lid shall be released by its middle, to prevent warping during its fall.

The measurement is carried out during the following cycle, repeated 20 times:

- initially, the lid is raised vertically;
- the lid is released forward, if possible without giving an impulse, with the operator at the back of the container, unmoving until the lid is shut;
- after complete shutting, the lid is raised to its initial position.

Note: If necessary the operator can move temporarily to raise the lid.

Test No 2: Complete opening of the lid

To minimise his influence on the measurements, the operator shall stand at the back side of the container (hinge side) for the four-wheel containers, or on the right side of the container (between microphone position 10 and microphone position 12) for the two-wheel containers. The lid shall be released by its middle or as near as possible to its middle.

To prevent any moving of the container, wheels shall be locked during the test. For the two-wheel containers, and to prevent any bounce of the container, the operator can maintain it by placing his hand on the top rim.

The measurement is carried out during the following cycle:

- initially, the lid is opened horizontally;
- the lid is released without giving an impulse;
- after complete opening, and before a possible rebound, the lid is raised to its initial position.

Test No 3: Rolling of the container over an artificial irregular track

For this test, an artificial test track, simulating irregular ground is used. This test track consists of two parallel strips of steel mesh (6 m long and 400 mm wide), fastened in the reflecting plane approximately every 20 cm. The distance between the two strips is adapted according to the type of container, in order to allow the wheels to roll all over the whole length of the track. The mounting conditions shall ensure a flat surface. If necessary, the track is fastened on the ground with resilient material to avoid emission of parasitic noise.

Note: Every strip can be composed of several 400 mm wide elements fitted together.

An example of adequate track is given in Figures 39.1 and 39.2 of this part.

The operator is situated at the lid hinge side.

The measurement is carried out while the operator draws the container along the artificial track, with a constant speed of approximately 1 m/s, between points A and B (4,24 m distance - see Figure 39.3 of this part) when the wheel axle, for a 2-wheel container, or the first wheel axle for a 4-wheel container, reaches point A or point B. This procedure is repeated three times in each direction.

During the test, for a 2-wheel container, the angle between the container and the track shall be 45°. For a 4-wheel container, the operator shall ensure an appropriate contact of all the wheels

with the track.

Period(s) of observation (determination) of resulting sound power level if more than one operating condition is used

Test Nos 1 and 2: Free shutting down of the lid along the container body and complete opening of the lid

If possible, the measurements are carried out simultaneously at the six microphone positions. Otherwise, the sound levels measured at each microphone position will be classified in increasing order and the sound power levels are calculated by associating the values at each microphone position according to their row.

The A-weighted single-event sound pressure level is measured for each of the 20 shuttings and the 20 openings of the lid at each measurement point. The sound power levels L_{WA} shutting and L_{WA} opening are calculated from the quadratic mean of the five highest values among those obtained.

Test No 3: Rolling the container over an artificial irregular track

The period of observation T shall be equal to the duration necessary to cover the distance between point A and point B on the track.

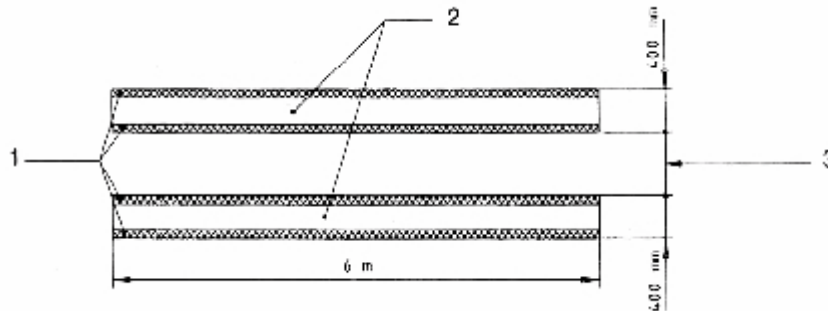
The sound power level L_{WA} rolling is equal to the mean of six values differing by less than 2 dB. If this criterion is not fulfilled with six measurements, the cycle is repeated as far as necessary.

The resulting sound power level is calculated by:

$$L_{WA} = 10 \log_{10} \frac{1}{3} (10^{0,1L_{WA} \text{ shutting}} + 10^{0,1L_{WA} \text{ opening}} + 10^{0,1L_{WA} \text{ rolling}})$$

Figure 39.1

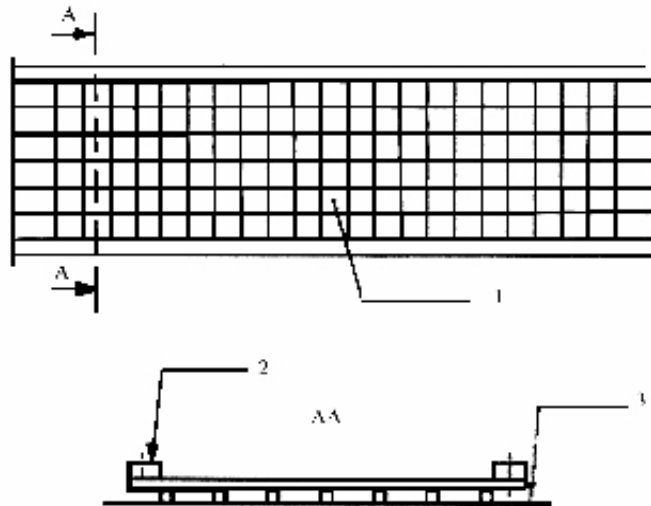
Drawing of the rolling track



- 1. wooden edge of wired network
- 2. Rolling parts
- 3. Adjusted to container

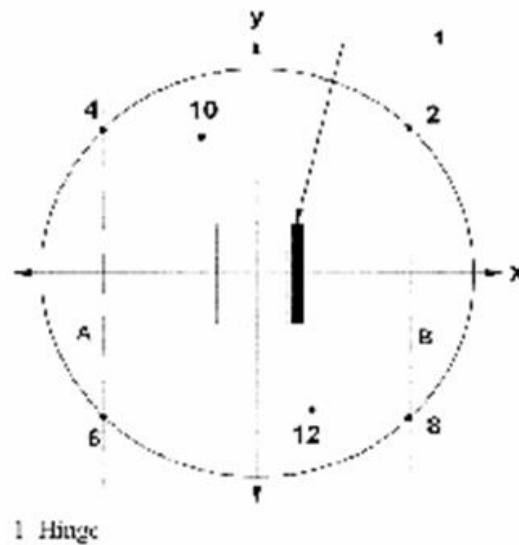
Figure 39.2

Detail of construction and mounting of the rolling track



1. solid iron wire (4 mm) 2. Wooden edge of wired network (20 mm x 25 mm) around network (50 mm x 50 mm) 3. Reflecting surface

Figure 39.3
Measurement distance



40. MOTOR HOES

See No 32 of this part.

The tool shall be disconnected during measurement.

41. PAVER-FINISHERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

Driving engine of the machine shall operate at nominal speed specified by the manufacturer. Other working units should be active and operate at following speeds:

Transmission system:	at least 10 % of maximum value
spraying system:	at least 40 % of maximum value
rammer (speed, hit):	at least 50 % of maximum value
vibrators (speed, unbalanced moment):	at least 50 % of maximum value
cylinders under pressure (frequency, pressure):	at least 50 % of maximum value

Period of observation

The period of observation shall at least be 15 seconds.

42. PILING EQUIPMENT

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area

ISO 6395:1988

Operating conditions during test

Test under load

The piling equipment is installed at the top of a pile which has sufficient resistance in the ground to allow the equipment to work at a steady speed. In the case of impact hammers, the cap must be supplied with a new, wooden filling. The head of the pile is 0,50 m above the test area.

Period of observation

The period of observation shall at least be 15 seconds.

43. PIPELAYERS

See No 0 of this part.

44. PISTE CATERPILLARS

See No 0 of this part.

45. POWER GENERATORS

Basic noise emission standard

SRPS EN ISO 3744:2008

Environmental correction K_{2A}

Measurement in the open air

$$K_{2A} = 0$$

Measurement indoors

The value of the constant K_{2A} , determined without artificial surface and in accordance with SRPS EN ISO 3744:2008, shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded.

Measurement surface/ number of microphone positions/measuring distance

Hemisphere/6 microphone positions according to Part A item 5 of this annex/according to Part A item 5 of this annex. If $l > 2$ m: a parallelepiped according to SRPS EN ISO 3744:2008 may be used with measuring distance $d = 1$ m.

Operating conditions during test

Mounting of equipment

The power generators shall be installed on the reflecting plane; skid-mounted power generators shall be placed on a support 0,40 m high, unless otherwise required by the manufacturer's conditions of installation.

Test under load:

ISO 8528-10:1998, point 9

Period of observation

The period of observation shall at least be 15 seconds.

46. POWER SWEEPERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The power sweeper shall be tested in a stationary position. The engine and auxiliary units operate at the speed provided by the manufacturer for the operation of the working equipment; the broom operates at its highest speed, it is not in contact with the ground; the suction system shall work at its maximum suction power with the distance between ground and mouth of the suction system not exceeding 25 mm.

Period of observation

The period of observation shall at least be 15 seconds.

47. REFUSE COLLECTION VEHICLES

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The refuse collection vehicle shall be tested in a stationary position for the following operating conditions:

1. The engine is running at maximum speed provided by the manufacturer. The equipment shall not be running. This test is not carried out for vehicles with electrical supply only.
2. The compaction system is running.

The refuse collection vehicle and the hopper receiving the waste are empty.

If the engine speed is automatically accelerated when the compaction system is running, this value shall be measured. If the measured value is lower than the speed provided by the

manufacturer by more than 5 % the test is carried out with the engine accelerated by the cab accelerator, to ensure the engine speed provided by the manufacturer.

If the engine speed for the compaction system is not provided by the manufacturer or if the vehicle is not provided with an automatic accelerator, then the engine speed, issued by the cab accelerator shall be 1200 rpm.

3. The lifting device is running up and down, without load and without container. The engine speed is obtained and controlled as for the compaction system running (point 2 of this part).

4. Material is falling into the refuse collection vehicle.

Materials are emptied in bulk with the lifting device into the hopper (initially empty). A two-wheeled container with a 240 l capacity, complying with EN 840-1:1997 shall be used for this operation. If the lifting device is not able to pick up such a container, a container with a capacity close to 240 l shall be used. The material shall consist of 30 tubes of PVC, each with a 0,4 kg approximate mass and with the following dimensions:

-length: 150 mm ± 0,5 mm;

-nominal external diameter: 90 mm + 0,3/- 0 mm;

-nominal depth: 6,7 mm + 0,9/- 0 mm;

Period(s) of observation/determination of resulting sound power level if more than one operating condition is used

The period of observation shall be:

1. at least 15 seconds. The resulting sound power level shall be L_{WA1} ;

2. at least three complete cycles, if the compaction system is running automatically. If the compaction system is not running automatically, but cycle by cycle, measurements are carried out at least during three cycles. The resulting sound power level (L_{WA2}) shall be the root mean square value of the three (or more) measurements;

3. at least three continuous complete work-cycles, including the entirety of lifting device up and lifting device down. The resulting sound power level (L_{WA3}) shall be the root mean square value of the three (or more) measurements;

4. at least three complete work-cycles, each including the falling of 30 tubes into the hopper. Each cycle shall not exceed 5 seconds. For these measurements $L_{pAeq,T}$ is replaced by $L_{pA,1s}$. The resulting sound power level (L_{WA4}) shall be the root mean square value of the three (or more) measurements.

The resulting sound power level is calculated by:

$$L_{WA} = 10\log(0,06 \times 10^{0,1L_{WA1}} + 0,53 \times 10^{0,1L_{WA2}} + 0,4 \times 10^{0,1L_{WA3}} + 0,01 \times 10^{0,1L_{WA4}})$$

Note: In the case of a refuse collection vehicle only electrically supplied, the coefficient associated to L_{WA1} is assumed to be equal to 0.

48. ROAD MILLING MACHINE

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Mounting of equipment

The longitudinal axis of the road milling machine shall be parallel to the y-axis.

Test under load

The road milling machine shall be brought to its steady state within the range specified in the instructions supplied to the purchaser. The engine and all attachments shall be running at their respective rated speeds in the idling mode.

Period of observation

The period of observation shall at least be 15 seconds.

49. SCARIFIERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area:

ISO 11094:1991

In case of dispute, measurements shall be carried out in the open air on the artificial surface (Point 4.1.2 of ISO 11094:1991 standard).

Environmental correction K_{2A}

Measurement in the open

$$K_{2A} = 0$$

Measurement indoors

The value of the constant K_{2A} , determined without artificial surface and in accordance with Annex A to SRPS EN ISO 3744:2008 standard, shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded.

Measurement surface/number of microphone positions/measuring distance:

ISO 11094:1991

Operating conditions during test

Test under load

The scarifier shall be operated with the engine at its nominal speed and its working device idling (operating, but not ripping).

Period of observation

The period of observation shall at least be 15 seconds.

50. SHREDDERS/CHIPPERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Test area:

ISO 11094:1991

Environmental correction K_{2A}

Measurement in the open air

$$K_{2A} = 0$$

Measurement indoors

The value of the constant K_{2A} , determined without artificial surface and in accordance with

Annex A to SRPS EN ISO 3744:2008 standard, shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded.

Measurement surface/number of microphone positions/measuring distance:

ISO 11094:1991

Operating conditions during test

Test under load

The shredder/chipper shall be tested chipping one or more pieces of wood.

The work-cycle consists of chipping a round piece of wood (dry pine or plywood) of at least 1,5 m length, that is sharpened at one end and has a diameter approximately equal to the maximum that the shredder/chipper is designed to accept specified in the instructions supplied to the purchaser.

Period of observation/determination of resulting sound power level

The period of observation shall end when there is no more material in the chipping area, but it shall not exceed 20 seconds. If both operation conditions are possible, the higher sound power level has to be given.

51. SNOW REMOVING MACHINES WITH ROTATING TOOLS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The snow blower shall be tested in a stationary position. The snow blower shall, according to the manufacturer's recommendations, operate with the working equipment at its maximum speed and the engine at the corresponding speed.

Period of observation

The period of observation shall at least be 15 seconds.

52. SUCTION VEHICLES

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The suction vehicle shall be tested in a stationary position. The engine and auxiliary units operate at the speed provided by the manufacturer for the operation of the working equipment; the vacuum pump(s) is (are) operating at its (their) maximum speed provided by the manufacturer. The suction equipment is operated in such a way that the internal pressure is equal to atmospheric pressure (0 % vacuum). The flow noise of the suction nozzle shall not have any influence on the results of the measurements.

Period of observation

The period of observation shall at least be 15 seconds.

53. TOWER CRANES

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/ number of microphone positions/measuring distance

Measurement at ground-level

Hemisphere/6 microphone positions according to Part A point 5 of this annex/according to Part A point 5 of this annex.

Measurements carried out at jib-height

Where the lifting mechanism is located at the jib-height, the measurement surface shall be a sphere of 4 m radius, the centre of which shall coincide with the geometrical centre of the winch.

Where the measurement is carried out with the lifting mechanism on the jib stay of the crane, the area of measurement surface is a sphere; S is equal to 200 m^2

The microphone positions shall be as follows (see Figure 53.1 of this part):

Four microphone positions on a horizontal plane passing through the geometric centre of the mechanism ($H = h/2$):

with $L = 2,80 \text{ m}$;

and $d = 2,80 - l/2$;

L = half-distance between two consecutive microphone positions;

l = length of mechanism (along axis of jib);

b = width of mechanism;

h = height of mechanism;

d = distance between microphone support and mechanism in direction of jib;

The other two microphone positions shall be located at the points of intersection of the sphere and the vertical line passing through the geometric centre of the mechanism.

Operating conditions during test

Mounting of equipment

Measurement of lifting mechanism

The lifting mechanism during the test shall be mounted in one of the following ways. (The position shall be described in the test report):

(a) Lifting mechanism at ground level,

The mounted crane shall be placed on a flat reflecting surface of concrete or non-porous asphalt;

(b) Lifting mechanism on the jib stay,

The lifting mechanism shall be at least 12 m above the ground;

(c) Lifting mechanism fixed to the ground,

The lifting mechanism shall be fixed to a flat reflecting surface of concrete or non-porous asphalt.

Measurement of the energy generator

Where the energy generator is attached to the crane, whether or not it is linked to the lifting mechanism, the crane shall be mounted on a flat reflecting surface of concrete or non-porous asphalt.

Where the lifting mechanism is situated on the jib stay, the noise measurement may be carried out with the mechanism either mounted on the jib stay or fixed to the ground.

Where the energy source powering the crane is independent from it (electrical power generator or mains, or hydraulic or pneumatic power source) only the noise level of the mechanism winch shall be measured.

Where the energy generator is attached to the crane, the energy generator and the lifting mechanism shall be measured separately if they are not combined. Where these two devices are combined, the measurement shall refer to the whole assembly.

During the test the lifting mechanism and the energy generator shall be installed and used in accordance with the manufacturer's instructions.

Test free of load

The energy generator incorporated in the crane shall operate at the full power rating indicated by the manufacturer.

The lifting mechanism shall operate free of load, with its drum turning at the rotation speed corresponding to the maximum hook-displacement speed, in the raising and lowering modes. This speed shall be specified by the manufacturer. The greater of the two sound power levels (raising or lowering) shall be used for the results of the test.

Test under load

The energy generator incorporated in the crane shall operate at the full power rating indicated by the manufacturer. The lifting mechanism shall operate with a cable tension at the drum corresponding to the maximum load (for the minimum radius) with the hook moving at the maximum speed. The load and speed figures shall be specified by the manufacturer. The speed shall be checked during the test.

Period of observation (determination) of resulting sound power level if more than one operating condition is used

For the measurement of the sound pressure level of the lifting mechanism, the measuring period shall be $(t_r + t_f)$ seconds:

t_r being the period in seconds prior to activation of the brake, with the lifting mechanism operating in the manner specified above. For the purpose of the test, $t_r = 3$ s;

t_f being the period in seconds between the moment when the brake is activated and that when the hook comes to a complete standstill.

If an integrator is used, the integration period shall be equal to $(t_r + t_f)$ seconds.

The root mean square value at a microphone position "i" shall be given by:

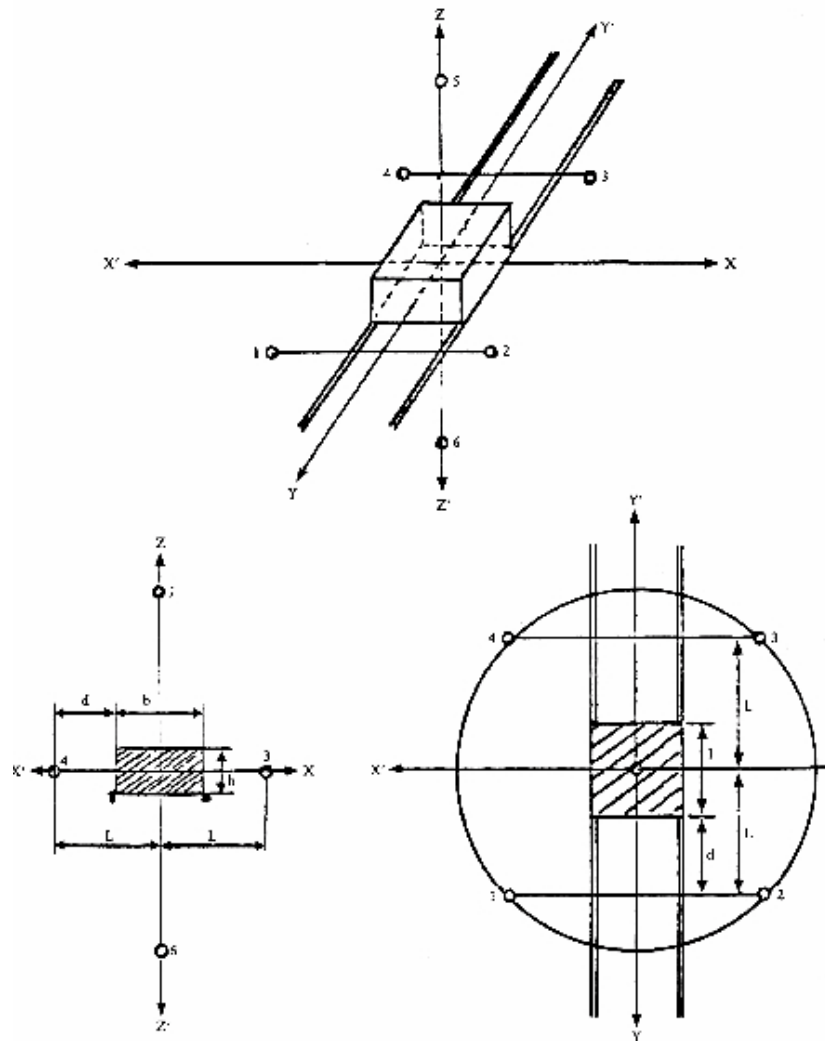
$$L_{pi} = 10 \lg[(t_r 10^{0,1L_{ri}} + t_f 10^{0,1L_{fi}})/(t_r + t_f)]$$

L_{pi} being the sound pressure level at microphone position "i" during period t_r

L_{fi} being the sound pressure level at microphone position "i" during breaking period t_f

Figure 53.1

Arrangement of microphone positions where the lifting mechanism is located on the jib stay



54. TRENCHERS

See No 0.

55. TRUCK MIXERS

Basic noise emission standard

SRPS EN ISO 3744:2008

Operating conditions during test

Test under load

The truck mixer shall be tested in a stationary position. The drum is filled with concrete of medium consistency (propagation measure 42 to 47 cm) complying to the rated capacity. The engine driving the drum shall operate at the speed that causes the maximum speed of the drum specified in the instructions supplied to the purchaser.

Period of observation

The period of observation shall at least be 15 seconds.

56. WATER PUMP UNITS

Basic noise emission standard

SRPS EN ISO 3744:2008

Measurement surface/ number of microphone positions/measuring distance

Parallelepiped/according to SRPS EN ISO 3744:2008 standard with measurement distance $d = 1$ m.

Operating conditions during test

Mounting of equipment

The water pump unit shall be installed on the reflecting plane; skid-mounted water pump units shall be placed on a support 0,40 m high, unless otherwise required by the manufacturer's conditions of installation.

Test under load

The engine must operate at the point of best efficiency given in the manufacturer's instructions.

Period of observation

The period of observation shall at least be 15 seconds.

57. WELDING GENERATORS

Basic noise emission standard

SRPS EN ISO 3744:2008

Environmental correction K_{2A}

Measurement in the open air

$K_{2A} = 0$

Measurement indoors

The value of the constant K_{2A} , determined in accordance with Annex A to SRPS EN ISO 3744:2008, shall be $\leq 2,0$ dB, in which case K_{2A} shall be disregarded.

Measurement surface/ number of microphone positions/measuring distance

Hemisphere/6 microphone positions according to Part A item 5 of this rulebook/according to Part A item 5 of this rulebook.

If $l > 2$ m: a parallelepiped according to SRPS EN ISO 3744:2008 may be used with measuring distance $d = 1$ m

Operating conditions during test

Mounting of equipment

The welding generators shall be installed on the reflecting plane; skid-mounted welding generators shall be placed on a support 0,40 m high, unless otherwise required by the manufacturer's conditions of installation.

Test under load:

ISO 8528-10:1998, point 9

Period of observation

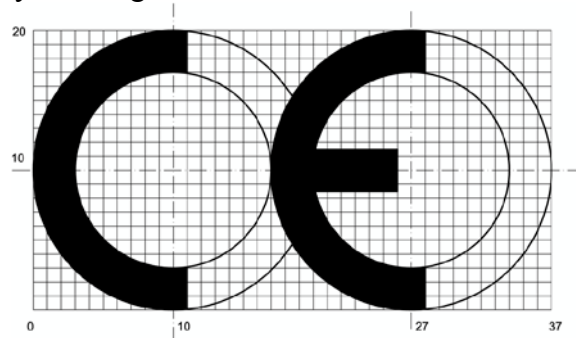
The period of observation shall at least be 15 seconds.

THE CONFORMITY MARKING AND THE INDICATION OF THE GUARANTEED SOUND POWER LEVEL

A. CONFORMITY MARKING

1. CE MARKING

The CE conformity marking shall consist of the initials 'CE' taking the following form:



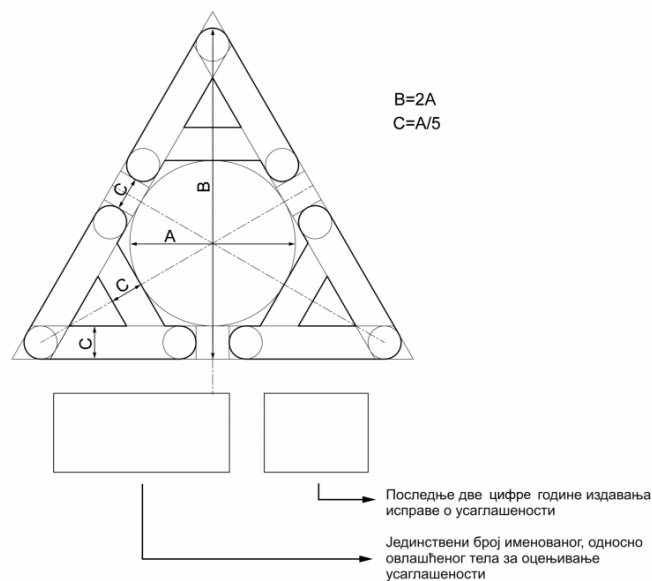
The vertical dimension of the CE marking shall be at least 5 mm.

If the CE marking is reduced or enlarged, proportions given in the above drawing must be respected.

This minimum dimension may be waived for small-scale products referred to in Article 2 of this Rulebook.

2. SERBIAN CONFORMITY MARK

Serbian conformity mark shall consist of three capital letters „A” forming an equilateral triangle shape (3A), the appearance and content of which is defined in the figure below:



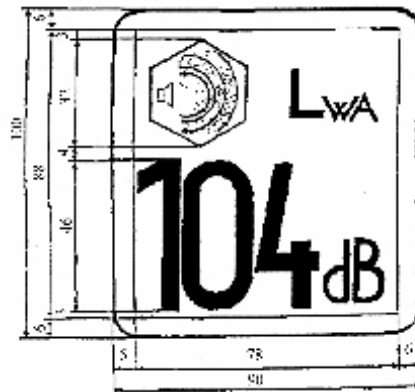
Size of the mark shall be determined by the height B of the mark which may only have values of standard numbers rounded up, to the order of magnitude R10 expressed in millimetres (mm), as referred to in Serbian standard SRPS A.A0.001 – Standard numbers, numerical values and definitions.

The height B of the mark must be, as a rule, at least five millimetres.

The unique Registry number of the designated conformity assessment body, and the last two digits of the year of issue of the document of conformity, if the designated body performed, or participated in, conformity assessment, shall be affixed next to the Serbian conformity mark.

B. THE INDICATION OF THE GUARANTEED SOUND POWER LEVEL

The indication of the guaranteed sound power level shall consist of the single-number of the guaranteed sound power in dB, the sign L_{WA} and a pictogram taking the following form:



If the indication is reduced or enlarged according to the size of the equipment the proportions given in the above drawing must be respected. However, the vertical dimension of the indication should, if possible, not be less than 40 mm.

INTERNAL PRODUCTION CONTROL

1. Internal production control is the conformity assessment procedure whereby the manufacturer fulfils the obligations laid down in points 2, 3 and 4, and ensures and declares on his sole responsibility that the equipment concerned satisfies the requirements of this Rulebook that apply to it.

2. Technical documentation

The manufacturer shall establish the technical documentation which shall make it possible to assess the equipment's conformity to the applicable requirements of this rulebook.

The technical documentation shall specify the applicable requirements and shall contain at least the following elements:

- the name and address of the manufacturer or the name and address of his authorised representative;
- the reference to this Rulebook or to the act referred to in Article 21 of this Rulebook if the equipment has not been manufactured in the Republic of Serbia;
- type and model of the equipment, including, if appropriate, its trade mark;
- the description of the equipment, as well as the technical data relevant for the identification of the equipment and the assessment of its noise emission, including, if appropriate, schematic drawings and any description and explanation necessary for their understanding;
- the technical instruments applied and the results of the evaluation of the uncertainties due to production variation and their relation to the guaranteed sound power level;
- the technical report of noise measurements carried out in accordance with the provisions of this rulebook.

3. Manufacturing

The manufacturer shall take all measures necessary so that the manufacturing process and its monitoring ensure compliance of the manufactured equipment with the technical documentation referred to in Point 2 of this annex and with the requirements of this Rulebook that apply to it.

4. The Conformity mark and the Declaration of conformity

4.1. The manufacturer shall affix the conformity mark and the indication of the guaranteed sound power level as stipulated in articles 17 and 18 of this Rulebook to each piece of equipment that satisfies the applicable requirements of this Rulebook.

4.2. The manufacturer shall draw up a written Declaration of conformity for equipment in accordance with Article 15 of this Rulebook and shall keep it together with technical documentation referred to in point 2 of this annex at the disposal of the competent authorities for 10 years after the last piece of that equipment has been manufactured.

The Declaration of conformity shall contain the type and the model of the equipment for which it has been drawn up.

5. Representative

The manufacturer's obligations set out in Point 4 of this annex may be fulfilled by his representative, on his behalf and under his responsibility, provided that they are specified in the authorisation.

INTERNAL PRODUCTION CONTROL WITH ASSESSMENT OF TECHNICAL DOCUMENTATION AND PERIODICAL CHECKS

1. The internal production control with assessment of technical documentation and periodical checks is the conformity assessment procedure whereby the manufacturer fulfils the obligations laid down in points 2, 3 and 5 of this annex, and ensures and declares on his sole responsibility that the equipment concerned, which has been subject to checks referred in Point 4, satisfies the requirements of this rulebook that apply to it.

2. Technical documentation

The manufacturer shall draw up the technical documentation and shall present it to the Designated body referred to in the Point 4 of this annex.

The technical documentation shall make it possible to assess the equipment's conformity to the applicable requirements of this rulebook and shall contain at least the following elements:

- the name and address of the manufacturer or the name and address of his authorised representative;
- the reference to this Rulebook or to the act referred to in Article 21 of this Rulebook if the equipment has not been manufactured in the Republic of Serbia;
- type and model of the equipment, including, if appropriate, its trade mark;
- the description of the equipment, as well as the technical data relevant for the identification of the equipment and the assessment of its noise emission, including, if appropriate, schematic drawings and any description and explanation necessary for their understanding;
- the technical instruments applied and the results of the evaluation of the uncertainties due to production variation and their relation to the guaranteed sound power level;
- the technical report of noise measurements carried out in accordance with the provisions of this rulebook.

The manufacturer shall keep the technical documentation at the disposal of the competent authorities for 10 years after the last piece of that equipment has been manufactured.

3. Manufacturing

The manufacturer shall take all measures necessary so that the manufacturing process and its monitoring ensure compliance of the manufactured equipment with the technical documentation referred to in Point 2 of this annex and with the requirements of this Rulebook that apply to it.

4. Evaluation by the Designated body

4.1. Evaluation prior to placing the equipment on the market

The manufacturer shall present a copy of his technical documentation to a Designated body of his choice before the first piece of equipment is placed on the market or put into service.

If there are doubts about the plausibility of the technical documentation, the Designated body shall inform accordingly the manufacturer or his authorised representative and, if need be, carry out, or have carried out modifications to the technical documentation, or possibly, tests deemed necessary.

If technical documentation satisfies the provisions of this rulebook, the Designated body shall draw up a report to confirm the conformity of the technical documentation.

4.2. Evaluation during production

The manufacturer shall involve the Designated body in the production process of the

equipment, in accordance with one of the following procedures of the manufacturer's choice:

a) The Designated body shall carry out periodical checks in order to verify continuing compliance of the manufactured equipment with the technical documentation and with the requirements of this rulebook; the Designated body shall check, in particular:

- the correct and complete marking of the equipment according to Articles 17 and 18 of this rulebook;
- issuing of the Declaration of conformity according to Article 15 of this rulebook;
- the technical instruments applied and the results of the evaluation of the uncertainties due to production variation and their relation to the guaranteed sound power level.

The manufacturer shall give the Designated body free access to all the internal documentation supporting these procedures, the actual results of the internal audits and the corrective actions which have been taken, if any.

Only if the the checks give unsatisfactory results shall the Designated body carry out noise tests, which, on its own judgement and experience, may be simplified or completely carried out according to the provisions laid down in Annex 3 for the relevant type of equipment.

b) The Designated body shall carry out or have carried out equipment checks at random intervals. An adequate sample of the final equipment, chosen by the Designated body, must be examined and appropriate noise tests as set out in Annex 3, or equivalent tests, must be carried out to check the conformity of the product with the relevant requirements of the rulebook. The equipment checking must include the following aspects:

- the correct and complete marking of the equipment according to Articles 17 and 18 of this rulebook;
- issuing of the Declaration of conformity according to Article 15 of this rulebook.

In both procedures, the frequency of the checks shall be defined by the Designated body according to the results of previous evaluations, the need to monitor corrective actions and further guidance for the frequency of the checks that may be given by the yearly production and the general reliability of the manufacturer to maintain the guaranteed values; however a check shall be carried out at least once every three years.

If there are doubts about the plausibility of the technical documentation or the adherence during production, the Designated body shall inform accordingly the manufacturer.

In those cases where equipment checked does not conform to the provisions of this rulebook, the Designated body shall inform the competent authorities in accordance with the law governing technical requirements for products and conformity assessment.

5. The Conformity mark and the Declaration of conformity

5.1. The manufacturer shall affix the conformity mark and the indication of the guaranteed sound power level as stipulated in articles 17 and 18 of this Rulebook to each piece of equipment that satisfies the applicable requirements of this Rulebook.

5.2. The manufacturer shall draw up a written Declaration of conformity for equipment in accordance with Article 15 of this Rulebook and shall keep it at the disposal of the competent authorities for 10 years after the last piece of that equipment has been manufactured.

The Declaration of conformity shall contain the type and the model of the equipment for which it has been drawn up.

6. Representative

The manufacturer's obligations set out in Point 2 relating to obligation of keeping the technical documentation and in Point 5 may be fulfilled by his representative, on his behalf and under his responsibility, provided that they are specified in the authorisation.

CONFORMITY BASED ON UNIT VERIFICATION

1. Conformity based on unit verification is the conformity assessment procedure whereby the manufacturer fulfils the obligations laid down in points 2, 3 and 5, and ensures and declares on his sole responsibility that the equipment concerned, which has been subject to the provisions of Point 4, is in conformity with the requirements of this Rulebook that apply to it.

2. The manufacturer shall lodge an application for unit verification with single designated body of his choice.

The application shall include:

- the name and address of the manufacturer and, if the application is lodged by the authorised representative, his name and address as well;

- a written declaration that the same application has not been lodged with any other designated body;

- technical documentation that shall include, in particular:

- the reference to this Rulebook or to the act referred to in Article 21 of this Rulebook if the equipment has not been manufactured in the Republic of Serbia;

- general description of the equipment as well as the technical data relevant for the identification of the equipment and the assessment of its noise emission, including, if appropriate, schematic drawings and any description and explanation necessary for their understanding;

- the type and model of equipment, including the trade name, as well as the serial number of equipment or other appropriate number under which the particular equipment has been manufactured, in case of serial production;

3. Manufacturing

The manufacturer shall take all measures necessary so that the manufacturing process and its monitoring ensure compliance of the manufactured equipment with the requirements of this Rulebook that apply to it.

4. Verification

4.1. The Designated body chosen by the manufacturer shall:

- examine whether the equipment has been manufactured in conformity with the technical documentation;

- agree with the applicant the location where, in accordance with this rulebook, the noise test will be carried out;

- carry out or ensure that appropriate noise tests are carried out for the purpose of checking the conformity of equipment with the requirements of this rulebook that apply to that equipment.

4.2. Where the equipment meets the provisions of this rulebook, the Designated body shall issue a Certificate of conformity.

If the Designated body refuses to issue a Certificate of conformity, it shall state the detailed grounds for the refusal.

The manufacturer shall keep the Certificates of conformity and the technical documentation referred to in Point 2 of this annex at disposal of competent authorities for a period of at least 10 years after the last piece of that equipment has been manufactured.

5. The Conformity mark and the Declaration of conformity

5.1. The manufacturer shall affix the conformity mark and the indication of the guaranteed sound power level as stipulated in articles 17 and 18 of this Rulebook to each piece of equipment that satisfies the applicable requirements of this Rulebook.

5.2. The manufacturer shall draw up a written Declaration of conformity for equipment in accordance with Article 15 of this Rulebook and shall keep it at the disposal of the competent authorities for 10 years after the last piece of that equipment has been manufactured.

The Declaration of conformity shall contain the type and the model of the equipment for which it has been drawn up.

6. Representative

The manufacturer's obligations set out in Points 2 and 5 of this annex may be fulfilled by his representative, on his behalf and under his responsibility, provided that they are specified in the authorisation.

CONFORMITY BASED ON FULL QUALITY ASSURANCE

1. Conformity based on full quality assurance is the conformity assessment procedure whereby the manufacturer fulfils the obligations laid down in points 2 and 5 of this annex, and ensures and declares on his sole responsibility that the equipment concerned is in conformity with the requirements of this Rulebook that apply to it.

2. Manufacturing

The manufacturer shall operate an approved quality system for design, manufacture, final product inspection and testing of the equipment concerned as specified in Point 3 and shall be subject to surveillance by a designated body as specified in Point 4.

3. Quality system

3.1. The manufacturer shall lodge an application for assessment of his quality system with the designated body of his choice, for equipment concerned.

The application shall include:

- the name and address of the manufacturer and, if the application is lodged by the authorised representative, his name and address as well;
- a written declaration that the same application has not been lodged with any other designated body;
- the documentation concerning the quality system;
- all relevant information for the product category envisaged;
- the technical documentation for each model of the envisaged type of equipment, including in particular:
 - the reference to this Rulebook or to the act referred to in Article 21 of this Rulebook if the equipment has not been manufactured in the Republic of Serbia;
 - general description of the equipment as well as the technical data relevant for the identification of the equipment and the assessment of its noise emission, including, if appropriate, schematic drawings and any description and explanation necessary for their understanding;
 - instruments applied and the results of the evaluation of the uncertainties due to production variation and their relation to the guaranteed sound power level;
 - reports of noise measurements carried out in accordance with provisions of this rulebook;

3.2. The quality system shall ensure that the equipment complies with the applicable requirements of this rulebook.

All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic and orderly manner in the form of written policies, procedures and instructions.

The quality system documentation shall permit a consistent interpretation of the quality programmes, plans, manuals and records.

The quality system documentation shall contain, in particular, description of:

- the quality objectives and the organizational structure, responsibilities and powers of the management with regard to product quality;
- the technical documentation to be drawn up for each model of the equipment, containing at least the information indicated in point 3.1 for the technical documentations mentioned there;
- the manufacturing, quality control and quality assurance techniques, processes and

systematic actions which will be used;

- the examinations and tests which will be carried out before, during and after manufacture and the frequency with which they will be carried out;
- the quality records, such as inspection reports and test data, calibration data, reports on the qualifications of the personnel concerned, etc.;
- the means to monitor the achievement of the required design and product quality and the effective operation of the quality assurance system.

3.3. The designated body shall assess the quality system to determine whether it satisfies the requirements referred to in Point 3.2 of this annex.

The designated body shall presume conformity with the requirements referred to in Point 3.2 of this annex in respect of the elements of the quality system that comply with the corresponding specifications of the Serbian standard SRPS EN ISO 9001.

In addition to experience in quality management systems, the auditing team shall have at least one member with experience of evaluation in the relevant equipment field and technology concerned, and knowledge of the applicable requirements of this Rulebook.

The audit shall include an assessment visit to the manufacturer's premises and the review of the technical documentation referred to in Point 3.1 of this annex to verify the manufacturer's ability to identify the relevant requirements of this Rulebook and to carry out the necessary examinations with a view to ensuring compliance of the equipment with those requirements.

The decision on the quality system assessment shall be notified to the manufacturer. The notification shall contain the conclusions of the audit and the reasoned assessment decision.

3.4. The manufacturer shall fulfil the obligations arising out of the approved quality system and maintain it so that it remains adequate and efficient.

3.5. The manufacturer shall keep the designated body that has approved the quality system informed of any intended change to the quality system.

The designated body shall evaluate any proposed changes and decide whether the modified quality system will continue to satisfy the requirements referred to in Point 3.2 of this annex or whether a reassessment is necessary.

The designated body shall notify the manufacturer of its decision. The notification shall contain the conclusions of the examination and the reasoned assessment decision.

4. Surveillance of the approved quality assurance system under the responsibility of the Designated body

4.1. The purpose of surveillance is to ensure that the manufacturer duly fulfils the obligations arising out of the approved quality system.

4.2. The manufacturer shall, for surveillance purposes, allow the designated body access to the design, manufacture, inspection, testing and storage premises and shall provide it with all necessary information, in particular

- the quality system documentation;
- the quality records in relation to the design part of the quality system, such as results of analyses, calculations, tests, etc.
- the quality records in relation to the manufacturing part of the quality system, such as inspection reports and test data, calibration data, qualification reports of the personnel concerned, etc.

4.3. The designated body shall periodically carry out audits to ensure that the manufacturer maintains and applies the quality system and shall provide an audit report to the manufacturer.

4.4 The designated body may pay unexpected visits to the manufacturer during which it may, if necessary, carry out product tests, or have them carried out, in order to verify that the quality system is functioning correctly.

The designated body shall provide the manufacturer with a visit report and, if tests have been carried out, with a test report.

5. The Conformity mark and the Declaration of conformity

5.1. The manufacturer shall affix the conformity mark and the indication of the guaranteed sound power level as stipulated in articles 17 and 18 of this Rulebook to each piece of equipment that satisfies the applicable requirements of this Rulebook.

5.2. The manufacturer shall draw up a written Declaration of conformity for equipment in accordance with Article 15 of this Rulebook and shall keep it at the disposal of the competent authorities for 10 years after the last piece of that equipment has been manufactured.

The Declaration of conformity shall contain the type and the model of the equipment for which it has been drawn up.

6. The manufacturer shall, for a period ending at least 10 years after the last equipment has been manufactured, keep at the disposal of the national authorities:

- the technical documentation referred to in Point 3.1 of this annex;
- quality system documentation referred to in Point 3.2 of this annex;
- the information relating to the changes to the quality system referred to in Point 3.5. of this annex, as approved;
- the decisions and reports of the designated body referred to in points 3.5, 4.3 and 4.4 of this annex.

7. Each designated body shall inform its designating authority of quality system approvals issued or withdrawn, and shall, periodically or upon request, make available to its designating authority the list of quality system approvals refused, suspended or otherwise restricted in accordance with the law governing technical requirements for products and conformity assessment.

Each designated body shall inform the other designated bodies of quality system approvals which it has refused, suspended, withdrawn or otherwise restricted, and, upon request, of quality system approvals which it has issued.

8. Representative

The manufacturer's obligations set out in points 3.1, 3.5, 5 and 6 of this annex may be fulfilled by his authorised representative, on his behalf and under his responsibility, provided that they are specified in the authorisation.

REQUIREMENTS THAT MUST BE MET BY A CONFORMITY ASSESSMENT BODY IN ORDER TO BE DESIGNATED FOR CONFORMITY ASSESSMENT

1. For the purpose of designation for conformity assessment of equipment referred to in Article 2 of this Rulebook, a conformity assessment body shall meet the requirements laid down in points 2 to 10 of this annex.

2. A conformity assessment body shall be an entity with a legal personality, registered in the Republic of Serbia.

3. A conformity assessment body, its top level management and the personnel responsible for carrying out the conformity assessment tasks shall not be the designer, manufacturer, supplier or installer of the products which they assess, nor the representative of any of those parties. They shall not be directly involved in the design, manufacture or construction, the marketing, installation, use or maintenance of those products, or represent the parties engaged in those activities. This shall not preclude the possibility of exchange of technical informations between the manufacturer and conformity assessment body.

The conformity assessment body shall not engage in any activity that may conflict with their independence of judgement or integrity in relation to conformity assessment activities for which they are designated. This shall in particular apply to consultancy services.

Conformity assessment bodies shall ensure that the activities of their subsidiaries or subcontractors do not affect the confidentiality, objectivity or impartiality of their conformity assessment activities.

4. Conformity assessment bodies and their personnel shall carry out the conformity assessment activities with the highest degree of professional integrity and the requisite technical competence in the specific field and shall be free from all pressures and conflicts of interest, particularly financial, which might influence their judgement or the results of their conformity assessment activities, especially as regards persons or groups of persons with an interest in the results of those activities.

5. For each conformity assessment procedure and each type of equipment referred to in Article 2 of this Rulebook in relation to which it seeks designation, a conformity assessment body shall have at its disposal, before and after the designation, the necessary personnel with technical knowledge and sufficient and appropriate experience to perform the conformity assessment tasks.

The personnel responsible for carrying out conformity assessment tasks shall also have the following:

- 1) appropriate work experience or sound technical and vocational training covering all the conformity assessment activities, including the testing;
- 2) appropriate technical education as well as satisfactory knowledge of the requirements for the assessment of technical documentation and of the other requirements of this Rulebook;
- 3) competence and independence in drawing up the certificates, records and reports related to conformity assessment activities stipulated under this Rulebook that they carry out.

6. A conformity assessment body shall have, or have access to, the equipment and facilities necessary to perform the required tests.

A conformity assessment body shall have other means necessary to perform its technical and administrative tasks in relation to conformity assessment.

7. The impartiality of the conformity assessment bodies, their top level management, and of the personnel responsible for carrying out the conformity assessment tasks shall be guaranteed.

The remuneration of the personnel responsible for carrying out the conformity assessment tasks of a conformity assessment body shall not depend on the number of assessments carried out or on the results of those assessments.

8. Conformity assessment body shall adopt appropriate general act defining procedures relating to conformity assessment activities, including the procedure on dealing with formal complaints to its activities and decisions, ensuring the transparency as well as correct application of those procedures.

Procedures for the performance of conformity assessment activities shall take due account of the aspects of equipment, such as: type of equipment, size and structure of the undertaking applying for conformity assessment, the degree of complexity of the equipment or production technology in question and the mass or serial nature of the production process etc.

9. Conformity assessment body shall take out liability insurance for the damages incurred as a result of conformity assessment activities.

10. The conformity assessment body and its staff shall be bound to observe professional secrecy with regard to all information gained in carrying out conformity assessment activities.