Guidance on noise in Type C - Safety standards

This guidance on noise has been developed by CEN-CENELEC COG on Machinery to support Technical Bodies developing harmonised standards in support of Machinery Directive and Machinery Regulation. It explains how to address two Essential Health and Safety Requirements (EHSRs) on noise from the Machinery Directive and Machinery Regulation i.e. EHSR 1.5.8 and EHSR 1.7.4.2 u) in Type C safety standards. This document is written as a template for technical committees: it describes all the clauses of the standard that need to contain requirements on noise.

This document is not applicable for Sound Power Level L_{WA}measurements or noise emission declaration for machinery in the scope of the Outdoor Noise Directive.

1 Scope

If there are sub-families of machines for which noise hazards are not covered or not sufficiently covered by the safety standard, write: "for xxx machines, noise hazards are not covered/not sufficiently covered by this standard".

If noise is not at all covered by the safety standard although it is identified as a significant hazard for the family of machinery, nothing is written in the scope: the information in Annex Z is sufficient.

Where noise is considered to be irrelevant for the family of machinery, write: "Noise is considered to be irrelevant for the family of machinery". In this case, the instructions shall state either the emission sound pressure level or the fact that the emission sound pressure level is less than or equal to 70 dB. A noise test code may be provided or not.

4 Safety requirements and/or measures

4.X Noise reduction (this subclause shall not appear in the standard if noise is not considered as a relevant hazard)

When designing machines covered by this standard, information on technical measures to control noise at source given in EN ISO 11688-1:2009 shall be taken into account.

In this clause of the type C-Standard, a description shall be given of the internal sound sources of the specific family or group of machinery covered. If applicable, a list of examples of possible technical measures for noise reduction at source may be given. When a list is given, the type C-Standards should state that "This list is not exhaustive, alternative technical measures for noise reduction with identical or greater efficacy may be used by a manufacturer". The above-mentioned list of technical measures for noise reduction at source should be derived from the recommendations given in EN ISO/TR 11688 and the current practice of manufacturers. It is recommended to list in this clause the major sound sources for the specific kind of machine in order to give some guidance for the noise reduction. Care must be taken that the technical information given in the list does not discourage innovation with respect to machinery safety.

The criterion for assessing the efficiency of these measures is the actual noise emission values from the machine in relation to other machines of the same family and not the nature of the reduction measures themselves.

If it is not possible to achieve the noise reduction at the source by design methods then this clause must indicate that, whenever practical, it will be necessary to equip the machine with devices such as noise enclosures, screens fitted to the machinery, silencers etc. Reference can be made to the following standards: EN ISO 11546, EN ISO 11691, EN ISO 11820, EN ISO 11821.

EXAMPLE :

Noise reduction shall be an integral part of the design process thus specifically taking into account measures at source as given in EN ISO 11688-1:1998. The success of the applied noise reduction measures may be assessed on the basis of the actual noise emission values determined in accordance with Annex X in relation to other machines of the same family with comparable performance.

NOTE ISO/TR 11688-2: 1998 provides useful information on noise generation mechanisms in machinery and ISO 14163: 1998 gives guidelines for noise control by mufflers.

Major sound sources are……..

Typical noise reduction measures, for the respective machine, are ….

5 Verification of safety requirements and/or measures

5.1 General

This clause contains the methods of testing for the presence and adequacy of the safety requirements stated in Clause 4 (see Table 2). All safety measures of Clause 4 contain self-evident criteria of acceptance.

Verification of the requirements can be made by means of inspection, calculation, or testing. These shall be applied to a machine in a fully commissioned condition, but partial dismantling may be necessary for the purpose of some checks. Such partial dismantling shall not invalidate the result of the verification.

Table 2 — Verification

Clause	Method of verification					
	Measurement	**Visual examination**	**Functional examination**	**Assessment of documentation**	**Calculation by the manufacturer**	**Sample test by the manufacturer**
4.2						
4.3						
4.4	x					

5.X Verification based on noise emission values

If a noise test code is included in the standard, write :

"Measurement of noise emission values shall be made in accordance with Annex X, including declaration of dual-number noise emission values in accordance with EN ISO 4871."

If a noise test code is included in a separate standard, write :

"Measurement of noise emission values shall be made in accordance with EN XXXX:20XX, including declaration of dual-number noise emission values in accordance with EN ISO 4871."

If the noise test code for the family or group of machinery concerned is not yet available, write :

"In the absence of a noise test code, the noise emission declaration shall indicate precisely:

- the mounting and operating conditions of the machinery during noise emission measurement,

- the work station position(s) where noise emission sound pressure levels have been determined,

- the noise emission measurement methods used, (i.e. chosen from the EN ISO 3740 series (guidance for the selection given in EN ISO 3740), the EN ISO 9614 series, and the EN ISO 11200 series (guidance for the selection given in EN ISO 11200),

- the criteria on which the noise emission declaration is made (i.e. EN ISO 4871)."

5.x Assessment of noise reduction

This subclause should provide means by which the designer or any other user of the standard can verify that the technical noise reduction measures have been successfully implemented. An assessment of the noise reduction achieved can be performed by comparing the actual noise emission values to the range of noise emission values from other machines of the family concerned. Where available, these emission values from the family of machines should be published for comparison with the actual noise emission value for the machine.

EXAMPLE :

The success of the applied noise reduction measures may be assessed on the basis of the actual noise emission values determined in accordance with Annex X in relation to other machines of the same family with comparable performance.

6 Information for use

6.X Instruction handbook

- give the declared noise emission values of the machinery in accordance with with machinery regulation, by dual-number noise emission values.

- give the reference to the noise test codes upon which the determination of these values is based,

- if relevant and if not covered by the noise test code, give the way to correctly assemble and install the machine

Additionally, if further protection of the operator is necessary, the instruction handbook shall:

- give information on possible special noise enclosures, screens fitted to the machinery, silencers etc.,

- if relevant, recommend additional noise reduction measures (see EN ISO 11690-1 and 2), for example the use of noise cabins (see EN ISO 11957) as well as necessary requirements relating to installation and assembly for reducing noise (e.g. use of dampers, type and mass of foundation block, etc.),

- if relevant, recommend the use of low-noise operating modes, or limited time of operation,

- if relevant, recommend/require the wearing of personal hearing protectors.

EXAMPLE FOR A FAMILY OF MACHINERY NOT COVERED BY OND

The instruction handbook shall at least contain the following information:

a) Information relating to transport, installation and storage:

   — xx

b) Information relating to the machine:

   — description of hazards, e.g. generation of noise etc.

   — the instruction handbook and any sales literature describing the performances of the machine shall contain the following information on airborne noise emissions, determined and declared in accordance with Annex A of this document:

— the A-weighted emission sound pressure level L_{pA}at workstations, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact shall be indicated;

— the A-weighted sound power level L_{WA}emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).

— the C-weighted peak emission sound pressure level $L_{pC,peak}$ at workstations, where this exceeds 130 dB.

Whenever sound emission values are indicated the uncertainties "*K*" (dual number declaration: L_{pA} and K_{pA}; L_{WA} and K_{WA}) surrounding these values shall be specified. The operating conditions of the machinery during measurement and the measuring methods used shall be described.

d) Information relating to normal operating conditions:

— recommendation to wear hearing protectors if the A-weighted emission sound pressure level of 80 dB(A) is exceeded;

Annex A
(normative)

Noise test code for xx machines

A.1 General

This noise test code specifies all the information necessary to carry out efficiently and under standardized conditions the determination, declaration and verification of the noise emission values of XXX machine.

Noise emission values include emission sound pressure levels at workstations and the sound power level. The determination of these quantities is necessary for:

- manufacturers to declare the noise emission,

- comparing the noise emissions of machines in the family concerned,

- purposes of noise control at the source at the design stage.

- helping machine users make a risk assessment

The use of this noise test code ensures reproducibility of the determination of the noise emission values within specified limits determined by the accuracy grade of the basic noise emission measurement method used.

A.2 Emission sound pressure level determination

Define precisely workstations where this quantity is to be determined. If no workstation can be defined, define precisely positions where this quantity shall be determined. If the machine is very large, the MD says that the determination of sound power level can be substituted with measurements of emission sound pressure levels on a path around the machine. Decide whether noise emission is impulsive (in the sense of the MD). If it is, the C-weighted peak emission sound pressure level must be determined. Identify the basic standards that can be used (from the IS0 11201 to IS0 11204 series). Frame standard EN ISO 11200 will help. Preferred methods are those providing results of accuracy grade 2. Methods of accuracy grade 3 are allowed if it can be shown that none of the methods of accuracy grade 2 is feasible for the family of machinery.

EXAMPLE :

EN ISO 11201:2010, accuracy grade 2 or EN ISO 11202:2010 and EN ISO 11202:2010/A1:2021, accuracy grade 2 shall be applied in order to determine the A-weighted emission sound pressure level. If it is not possible to apply one of the methods of accuracy grade 2, the method of accuracy grade 3 according to EN ISO 11202:2010 and EN ISO 11202:2010/A1:2021 shall be used, and the reasons why a accuracy grade 2 method could not be applied shall be reported.

The measurement is carried out at the normal operator position, without the operator being present and at a distance of 1 m ± 0,05 m from the outlet of the machine and at a height of 1,55 m ± 0,075 m above the floor. The microphone placed at this position shall be directed towards the machine.

A.3 Sound power level determination

Identify the basic standards that can be used (methods based on sound pressure level measurements : from ISO 3741 to ISO 3747 and methods based on sound intensity measurements : parts 1 and 2 of EN ISO 9614). The choice of the method is dependent on the type (dimensions and size), measurement environment available, background noise levels, directivity of the source, frequency range of noise emission etc. Frame standard EN ISO 3740 (when text being revised is available) will help.

Preferred methods are those providing results of accuracy grade 2. Methods of accuracy grade 3 are allowed if it can be shown that none of the methods of accuracy grade 2 is feasible for the family of machinery.

Where an enveloping surface method is used (EN ISO 3744 or EN ISO 3746), the shape of the measurement surface and the measurement distance must be specified in the noise test code.

EXAMPLE :

If required, the A-weighted sound power level shall be determined in accordance with EN ISO 3744:2010. If it is not possible to apply a method of accucary grade 2, the method of accuracy grade 3 EN ISO 3746:2010, shall be used, and the reasons why the method of accuracy grade 2 could not be applied shall be reported.

The measurement surface shall be a rectangular parallelepiped. The distance between the measurement surface and the reference box shall be about 1,0 m ± 0,05 m.

A.4 Installation and mounting conditions

Installation and mounting conditions are in principle those specified by the manufacturer in the instructions. They may differ significantly from one machine family to the other. For hand-held tools for instance machines may be suspended or hand-held by a test person operating the machine.

Machines are normally placed:

- on a reflective ground or

- on a test table which itself is placed above a reflecting surface.

The installation and mounting conditions must be identical for the determination of both sound power levels and emission sound pressure levels at specified positions, and for declaration purposes.

Care must be taken to ensure that any electrical conduits, piping or air ducts which are connected to the machinery do not radiate significant amounts of sound energy.

EXAMPLE :

The test environment shall comply with the requirements given in EN ISO 11201:2010, accuracy grade 2, or if applied EN ISO 11202:2010 and EN ISO 11202:2010/A1:2021, accuracy grade 2, for determining the A-weighted emission sound pressure level. If the A-weighted sound power level is determined according to EN ISO 3744:2010, the respective requirements of this standard apply. This also applies in case of using accuracy grade 3 measurements methods.

Base-mounted machines shall be installed on a reflecting plane (floor). Table-top machines shall be mounted for the test on a test table above a reflecting floor. The test table is described in EN ISO 11201:2010, Annex E.

Resilient mounting shall be interposed between the table-top machine and the test-table, so that the transmission of vibrations and structure-borne sound to the test-table is minimized including any reaction of the source. The machine should stand on this horizontal surface and shall be sufficiently removed from any reflective walls or ceilings or any other objects.

The installation and mounting conditions shall be identical for the determination of the sound power level and emission sound pressure level.

A.5 Operating conditions

The noise test code shall specify the values to be set for each of the operating parameters that have a significant influence on the noise emission of the machine under test.

see details in EN ISO 12001

If noise emission measurement is only possible once the machine is installed at the user's place, the noise test code shall make it clear that measurements shall be made at the user's place during commissioning.

Operating conditions must be the same for the determination of the emission sound pressure level at workstations and specified positions and for the determination of the sound power level.

EXAMPLE :

The test shall be carried out by the following conditions:

— the machine shall be run-in for a period of 5 min (warm-up time) before starting the measurement;

— the set of tools only contains TYPE OF TOOL;

— the feed intake shall be filled to ≥ 50 %, but at least with a quantity sufficient for ≥ 25 sec operating time - PROVIDE DETAILS

The measuring shall be carried out under the following conditions:

— done by running at maximum machine speed;

— start measuring 5 sec after the product emerges in the discharge opening;

— the measuring period is ≥ 15 s.

The operating conditions shall be identical for the determination of the sound power level and emission sound pressure level.

A.6 Measurement uncertainty

It is necessary to give some information about the envisaged measurement uncertainty. This can easily be done by simply taking the information about the uncertainty from the applied basic standards. As these values are upper limits this should be made clear in the text under this clause.

EXAMPLE :

The total measurement uncertainty of the A-weighted emission sound pressure level respectively sound power level determined according to this standard is depending on the standard deviation σ_{R0} given by

the applied basic noise emission measurement method and the uncertainty associated with the instability of the operating and mounting conditions σ_{omc}.

The resulting total uncertainty is then calculated from:

$$\sigma_{\text{tot}} = \sqrt{\sigma_{R0}^2 + \sigma_{omc}^2}$$

The upper bound value of σ_{R0} is 1,5 dB for the accuracy grade 2 measurement methods, respectively 3 dB for those of accuracy grade 3, assuming noise sources which emit sound without significant tones. This value applies for the determination of the A-weighted emission sound pressure level, respectively – if determined – the A-weighted sound power level.

The method to determine σ_{omc} is described in specific clauses of the basic noise emission measurement standards applied.

NOTE 1 For machines with a rather constant noise emission a value of 0,5 dB for σ_{omc} can apply. In other cases, e.g. a large influence of the material flow into and out of the machine or material flow that varies in an unpredictable manner, it is possible that a value of 2 dB can be more appropriate.

The expanded measurement uncertainty U, in decibels, shall calculated from

$$U = k \times \sigma_{\text{tot}},$$

where *k* is the coverage factor. It depends on the degree of confidence that is desired. For the purpose of comparing the result with a limit value, it is appropriate to apply the coverage factor for a one-sided normal distribution. In that case, the coverage factor k = 1,6 corresponds to a 95 % confidence level. Further information is given in EN ISO 4871. The expanded measurement uncertainty *U* is denoted as *K* in EN ISO 4871:2009.

NOTE 2 The expanded measurement uncertainty *U* as described in this document does not include the standard deviation of production which is used in EN ISO 4871:2009 for the purpose of making a noise emission declaration for batches of machines.

It is not required to declare for a batch even for series production machinery. Technically comparable machinery which is representative of the machinery to be produced may be used for the declaration.

In the case of preparing a noise emission declaration for batches of machines σ_{tot} is replaced by σ_t (in fact the total standard deviation defined in EN ISO 4871:2009) which can be calculated by using the formula:

$$\sigma_t = \sqrt{\sigma_{tot}^2 + \sigma_P^2}$$

with σ_P the standard deviation of production.

A.7 Information to be recorded

The information to be recorded includes all the technical requirements laid down in a noise test code and must comply with the requirements of the basic measurement standards applied. The information to be included in the test report is at least that which the manufacturer requires to prepare a noise emission declaration or the user requires to verify the declared values.

EXAMPLE :

The information to be recorded covers all of the technical requirements of this noise test code.

Any deviations from this noise test code or from the basic standards upon which it is based are to be recorded together with the technical justification for such deviations.

Detailed requirements are given in Clause 12 of EN ISO 11201:2010, accuracy grade 2, or EN ISO 11202:2010 and EN ISO 11202:2010/A1:2021, accuracy grade 2, respectively accuracy grade 3, with respect to the determination of the emission sound pressure level.

For the sound power level determination EN ISO 3744:2010 or EN ISO 3746:2010 shall be observed.

A.8 Information to be reported

See details in EN ISO 12001

EXAMPLE :

The information to be included in the test report is at least that which the manufacturer requires to prepare a noise emission declaration or the user requires to verify the declared values.

As a minimum, the following information shall be included:

— reference to EN ISO 11201:2010, accuracy grade 2, respectively EN ISO 11202:2010 and EN ISO 11202:2010/A1:2021, accuracy grade 2;

— reference to EN ISO 3744:2010

— description of the operation and installation conditions during the measurement;

— location of the microphone position at workstation;

— determined noise emission values like the A-weighted emission sound pressure level at workstation respectively the A-weighted sound power level plus their respective uncertainties;

— confirmation that all requirements of this noise test code have been fulfilled, or, if this is not the case, any unfulfilled requirements shall be identified.

A.9 Declaration and verification of the noise emission values

The noise test code shall state that the noise emission declaration shall be made in such fashion that the values can be verified in accordance with IS0 4871. IS0 4871 offers two options for the format of declaring noise emission values: - the declared single-number noise emission value (measured value plus the associated measurement uncertainty giving one number), - the declared dual-number noise emission value (measured value and the associated measurement uncertainty given separately). The noise emission declaration shall provide the values of the noise emission quantities as required by 1.7.4.2 u) of the MD. These quantities are the A-weighted emission sound pressure level at work stations and its uncertainty, the A-weighted sound power level and its uncertainty and the C- weighted peak emission sound pressure level at work stations. The noise declaration shall state that the noise emission values have been obtained according to the applied noise test code and to the basic standards (e.g. EN ISO 3744: 2010 and EN ISO 11204: 2010) used among those allowed by the noise test code. In case of deviations from the noise test code these deviations have to be described in detail.

EXAMPLE :

The declaration of the noise emission values shall be made as a dual number noise emission declaration according to EN ISO 4871:2009.

It shall declare the A-weighted emission sound pressure level L_{pA} and the respective uncertainty K_{pA} and if required additionally the A-weighted sound power level L_{WA} and the uncertainty K_{WA}.

NOTE The uncertainty K_{pA} and K_{WA} are expected to have values as given in Table A.1.

Table A.1— Values of uncertainty

B-standard	**K_{pA} respectively K_{WA}**
EN ISO 3744:2010	3 dB
EN ISO 3746:2010	5 dB
EN ISO 11201:2010, grade 2	3 dB
EN ISO 11202:2010, grade 2	3 dB
EN ISO 11202:2010, grade 3	5 dB

The noise declaration shall state that the noise emission values have been obtained according to this noise test code and to the basic noise emission measurement standards applied. If this statement is not true, the noise emission declaration shall indicate clearly what the deviations are from this noise test code (Annex A of this document) and/or from the basic standards.

The emission values shall be rounded to the nearest whole decibel.

If undertaken, verification shall be done according to EN ISO 4871:2009 by using the same mounting, installation and operating conditions as those used for the initial determination of noise emission values.

Annex B
(informative)

List of significant hazards

Annex B contains the hazards, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce risk (see Table B.1).

Table B.1 — List of significant hazards

Location or cause	**Hazards, hazardous situations and hazardous events**	**Clause/subclause in this document**
Mechanical hazards		
Noise hazards	Hazards generated by noise which may result in hearing loss, tinnitus, physiological disorders, stress, risks (accidents, reduced intelligibility of messages) due to interference with speech communication and perception of acoustic signals.	4.X

Noise shall be indicated in the List of significant hazards only if it is a significant hazard

Annex Z - WARNING

1. For the products **where noise is a relevant hazard**, noise shall be dealt with as follows in the informative Annex Z:

- EHSR 1.5.8 - shall be indicated in Annex Z because it is a relevant EHSR
- EHSR 1.7.4.2 u or the whole EHSR 1.7.4.2, if the whole EHSR 1.7.4.2 is covered by the standard, - shall be indicated in Annex Z because it is a relevant EHSR

2 For the products **where noise is not a relevant hazard**, noise shall be dealt with as follows in the informative Annex Z:

- EHSR 1.5.8 – shall not be indicated in Annex Z because it is not a relevant EHSR
- EHSR 1.7.4.2 u on noise in instructions. This EHSR shall be indicated in Annex Z. Even if the noise is not a relevant hazard, it should be dealt with in a standard as a noise test code to answer EHSR 1.7.4.2 u. a). In case the standard does not contain a test code, the mention 'not covered' shall be indicated in the last column of the Annex Z table b)

Example 1 : How to tackle noise aspects in the Annex Z under MD, where noise is a significant hazard and covered by the standard.

Note 1: Annex Z template for Machinery Directive can be downloaded from the CEN and CENELEC BOSS pages

Note 2: This is an example on how to address the Noise requirements, but all the other relevant essential requirements of MD are to be addressed.

Annex Z
(informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate to CEN and CENELEC for Standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table Z...1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table Z...1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential Requirements of Directive 2006/42/EC	**Clause(s)/sub-clause(s) of this EN**	**Remarks/Notes**
1.5.8 Noise	4.X	
1.7.4.2 Instructions	6.X	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.

Example 2 : How to tackle noise aspects in the Annex Z under MR, where noise is a significant hazard and covered by the standard.

Note 1: Annex Z template for Machinery Directive can be downloaded from the CEN and CENELEC BOSS pages

Note 2: This is an example on how to address the Noise requirements, but all the other relevant essential requirements of MR are to be addressed.

Annex Z
(informative)

Relationship between this European Standard and the essential requirements of Regulation (EU) 2023/1230 aimed to be covered

This European Standard has been prepared under a Commission's standardization request C(202X)XXXX [to be completed when SReq for MR is available] Commission Implementing Decision of DD Month YYYY to the European Committee for Standardization and to the European Committee for Electrotechnical Standardization as regards machinery in support of Regulation (EU) 2023/1230 of the European Parliament and of the Council (M/XXX) to provide one voluntary means of conforming to essential requirements of Regulation (EU) 2023/1230 of the European Parliament and of the Council of 14 June 2023 on machinery (OJ L 165, 29.6.2023).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table Z...1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table Z...1 — Correspondence between this European Standard and Annex III of Regulation (EU) 2023/1230

The relevant Essential Requirements of Regulation (EU) 2023/1230	**Clause(s)/sub-clause(s) of this EN**	**Remarks/Notes**
1.5.8 Noise	4.X	
1.7.4.2 Instructions	6.X	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.

Example 3 : How to tackle noise aspects in the Annex Z under MD, where noise is not a significant hazard and the standard contains a test code.

Note 1: Annex Z template for Machinery Directive can be downloaded from the CEN and CENELEC BOSS pages

Note 2: This is an example on how to address the Noise requirements, but all the other relevant essential requirements of MD are to be addressed.

Annex Z
(informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate to CEN and CENELEC for Standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table Z..1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table Z...1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential Requirements of Directive 2006/42/EC	**Clause(s)/sub-clause(s) of this EN**	**Remarks/Notes**
1.7.4.2 Instructions	6.X	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.

Example 4 : How to tackle noise aspects in the Annex Z under MR, where noise is not a significant hazard and the standard contains a test code.

Note 1: Annex Z template for Machinery Directive can be downloaded from the CEN and CENELEC BOSS pages

Note 2: This is an example on how to address the Noise requirements, but all the other relevant essential requirements of MD are to be addressed.

Annex Z
(informative)

Relationship between this European Standard and the essential requirements of Regulation (EU) 2023/1230 aimed to be covered

This European Standard has been prepared under a Commission's standardization request C(202X)XXXX [to be completed when SReq for MR is available] Commission Implementing Decision of DD Month YYYY to the European Committee for Standardization and to the European Committee for Electrotechnical Standardization as regards machinery in support of Regulation (EU) 2023/1230 of the European Parliament and of the Council (M/XXX) to provide one voluntary means of conforming to essential requirements of Regulation (EU) 2023/1230 of the European Parliament and of the Council of 14 June 2023 on machinery (OJ L 165, 29.6.2023).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table Z..1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table Z...1 — Correspondence between this European Standard and Annex III of Regulation (EU) 2023/1230

The relevant Essential Requirements of Regulation (EU) 2023/1230	**Clause(s)/sub-clause(s) of this EN**	**Remarks/Notes**
1.7.4.2 Instructions	6.X	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.

Example 5 : How to tackle noise aspects in the Annex Z under MD, where noise is not a significant hazard and the standard does not contain a test code.

Note 1: Annex Z template for Machinery Directive can be downloaded from the CEN and CENELEC BOSS pages

Note 2: This is an example on how to address the Noise requirements, but all the other relevant essential requirements of MD are to be addressed.

Annex Z
(informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate to CEN and CENELEC for Standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table Z...1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table Z..1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential Requirements of Directive 2006/42/EC	**Clause(s)/sub-clause(s) of this EN**	**Remarks/Notes**
1.7.4.2 u) Instructions		Not covered

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.

Example 6 : How to tackle noise aspects in the Annex Z under MR, where noise is not a significant hazard and the standard does not contain a test code.

Note 1: Annex Z template for Machinery Regulation can be downloaded from the CEN and CENELEC BOSS pages

Note 2: This is an example on how to address the Noise requirements, but all the other relevant essential requirements of MR are to be addressed.

Annex Z
(informative)

Relationship between this European Standard and the essential requirements of Regulation (EU) 2023/1230 aimed to be covered

This European Standard has been prepared under a Commission's standardization request C(202X)XXXX [to be completed when SReq for MR is available] Commission Implementing Decision of DD Month YYYY to the European Committee for Standardization and to the European Committee for Electrotechnical Standardization as regards machinery in support of Regulation (EU) 2023/1230 of the European Parliament and of the Council (M/XXX) to provide one voluntary means of conforming to essential requirements of Regulation (EU) 2023/1230 of the European Parliament and of the Council of 14 June 2023 on machinery (OJ L 165, 29.6.2023).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table Z...1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table Z..1 — Correspondence between this European Standard and Annex III of Regulation (EU) 2023/1230

The relevant Essential Requirements of Regulation (EU) 2023/1230	**Clause(s)/sub-clause(s) of this EN**	**Remarks/Notes**
1.7.4.2 u) Instructions		Not covered

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.