



Making quieter machinery

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The risks

Risk of damage to hearing

- noisy machinery is one of the main sources of occupational risk

Nuisance and risks to health due to noise in the environment

- noisy machinery makes a significant contribution to environmental noise

European regulations on noise from machinery

Occupational risks:

- Machinery Directive 98/37/EC - 2006/42/EC

Environmental risks:

- Outdoor Equipment Directive 2000/14/EC

Principles of safety integration applied to noise

1. Eliminate or reduce risks
 - *reducing noise emission at source*
2. Protect against risks that cannot be sufficiently reduced
 - *enclosure*
3. Inform users of residual risks
 - *workplace design - PPE*

Essential health and safety requirements of the Machinery Directive

NOISE REDUCTION

Machinery must be designed and constructed in such a way that risks resulting from the emission of airborne noise are reduced to the lowest level, taking account of technical progress and the availability of means of reducing noise, in particular at source

Relevant standards

- EN ISO 11688-1 & 2 - *Design of low-noise machinery*
- EN 1746 - *Guidance for the drafting of the noise clauses*
- “Noise clauses” in standards for each category of machinery

Noise benchmarking

COMPARATIVE EMISSION DATA

The level of noise emission may be assessed with reference to comparative emission data for similar machinery

- Requires collection of reliable data
- The comparative data should be included in the “noise clauses” of machinery standards

Instructions

NOISE DECLARATION

The instructions must contain the following information on airborne noise emissions:

- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact must be indicated,*
- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 μ Pa),*
- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A)*

Relevant standards

- EN ISO 12001 Noise emitted by machinery and equipment - Rules for the drafting and presentation of a noise test code
- Test codes for particular categories of machinery

Informing the potential purchaser

SALES LITERATURE

Sales literature describing the performance characteristics of machinery must contain the same information on emissions as is contained in the instructions