



## Reducing the risks from occupational noise

Every day, millions of employees in Europe are exposed to noise at work and all the risks this can entail. For European Week for Safety and Health 2005, the Agency has produced a report looking at how the European directive structure and the complementary standards ensure that risks to workers from noise are addressed to reduce the high personal, social and economic cost of ill health and accidents arising from noise exposure.

### European occupational noise policy

The 'framework directive' <sup>(1)</sup> and other workplace-orientated directives, such those on noise <sup>(2)</sup>, PPE <sup>(3)</sup> and pregnant workers <sup>(4)</sup>, provide a structure for dealing with all risks (not just the risk of noise-induced hearing loss) to all workers from noise. The framework directive sets out the general principles of prevention, and then the more specific directives, of which the 2003 noise directive is the most significant for noise, give greater detail.

### The general principles of prevention

- ☑ Avoiding risks
- ☑ Evaluating the risks which cannot be avoided
- ☑ Combating the risks at source
- ☑ Adapting the work to the individual
- ☑ Adapting to technical progress
- ☑ Replacing the dangerous by the non-dangerous or the less dangerous
- ☑ Developing a coherent overall prevention policy
- ☑ Giving collective protective measures priority over individual protective measures
- ☑ Giving appropriate instructions to the workers

Employers are required to control risks at source, eliminating or reducing noise risks to a minimum, taking account of technical progress and of the availability of preventive measures. There should not be a reliance on personal hearing protection such as earplugs when there are better measures available to remove or control the risk (e.g. by dealing with the source of the noise). The

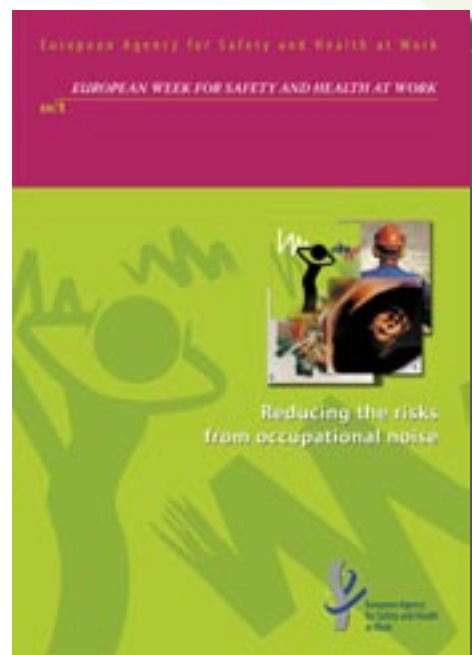
2003 noise directive identifies factors to consider when controlling noise risks:

- ☑ working methods that need less exposure to noise;
- ☑ the choice of work equipment emitting the least possible noise;
- ☑ the design and layout of workplaces and work stations;
- ☑ information, instruction and training of workers;
- ☑ noise reduction by technical means;
- ☑ maintenance programmes for work equipment, the workplace and its systems;
- ☑ noise reduction by better organisation of work;
- ☑ limiting the duration and intensity of the exposure by work scheduling.

### Case study: pneumatic impact press reduction

High peak noise emissions were being experienced from the release of compressed air at the actuator exhaust on a pneumatic impact press and from the impact of the metal actuator ram as it struck the metal tool ram. Fitting a silencer and passing the airflow through a porous polythene cap reduced the compressed air exhaust noise and the impact noise was reduced by use of an 8 mm thick cushion of a proprietary urethane elastomer between the metal surfaces. The result was an overall 9 dB reduction in noise levels without a significant effect on the overall working efficiency of the press <sup>(5)</sup>.

(1) Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.  
(2) Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise). This directive replaces the 1986 noise directive.  
(3) Council Directive 89/656/EEC of 30 November 1989 on the minimum health and safety requirements for the use by workers of personal protective equipment at the workplace.  
(4) Council Directive 92/85/EEC of 19 October 1992 on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding.  
(5) Case study from the Health and Safety Executive 'Sound solutions' (<http://www.hse.gov.uk/noise/soundsolutions/index.htm>).



Directives requiring workplace measures are not the only means by which workers' health is protected. The requirements in the 'machinery directive' <sup>(6)</sup> and 'outdoor machinery directive' <sup>(7)</sup>, whereby manufacturers are required to provide noise information about the machinery, and in some cases limit emissions, should also help reduce the risk to workers.

These directives also make it clear that prevention through design is vitally important in dealing with occupational noise. 'Machinery must be so designed and constructed 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' <sup>(8)</sup>.

Standards play a key role in the prevention of occupational noise exposure. The 2003 noise directive refers to ISO 1999:1990 for the assessment of workers' exposure, and many standards prepared by the technical committees of the European Committee for Standardisation (CEN) have provisions on noise to support the essential safety and health requirements on noise in the machinery directive.

### Noise in the entertainment sector

In order to draw up measures for the implementation of the 2003 noise directive in the music and entertainment sectors, Member States are entitled to use an additional two-year transitional period to comply with this directive with regard to these sectors. The challenge faced is that often the purpose of the work undertaken is to create sound, and the classical concepts of noise protection are not applicable. Yet there is no question that many workers are exposed to sound pressure levels in their daily work that can cause hearing damage.

There is no obvious solution to avoid temporary high sound exposure and to guarantee utmost artistic expression at the same time. Only with a combination of various measures for sound reduction can a practical solution be found. There are a number of case studies relating to this sector in the Agency's report, showing various approaches to protecting workers' hearing.

<sup>(6)</sup> Directive 98/37/EC of the European Parliament and of the Council of 22 June 1998 on the approximation of the laws of the Member States relating to machinery.

<sup>(7)</sup> Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors.

<sup>(8)</sup> Machinery directive essential health and safety requirements, Annex 1, Section 1.5.8

### Reducing the risks from occupational noise

The full report is available in English on the Agency's website (<http://osha.eu.int/publications/reports/>) and it can be downloaded free of charge. National legislation may require higher standards, so check with the relevant enforcing authority. There may be other relevant directives not mentioned in this brief list.

#### Relevant directives

- ☑ Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work
- ☑ Council Directive 89/656/EEC of 30 November 1989 on the minimum health and safety requirements for the use by workers of personal protective equipment at the workplace
- ☑ Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment
- ☑ Council Directive 92/85/EEC of 19 October 1992 on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding
- ☑ Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work
- ☑ Directive 98/37/EC of the European Parliament and of the Council of 22 June 1998 on the approximation of the laws of the Member States relating to machinery
- ☑ Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors
- ☑ Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise), which replaces Council Directive 86/188/EEC of 12 May 1986 on the protection of workers from the risks related to exposure to noise at work

#### Further information

This factsheet is part of the European Week for Safety and Health at Work 2005 campaign. Additional factsheets and information on noise are available at <http://ew2005.osha.eu.int>. Information on EU safety and health legislation can be found at <http://europa.eu.int/eur-lex/>

**European Agency for Safety and Health at Work**

Gran Vía, 33, E-48009 Bilbao

Tel. (34) 944 79 43 60, fax (34) 944 79 43 83

E-mail: [information@osha.eu.int](mailto:information@osha.eu.int)

