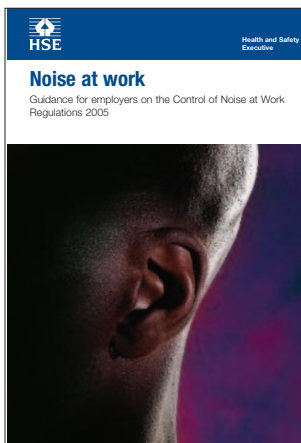


# Noise at work

## Guidance for employers on the Control of Noise at Work Regulations 2005



*This is a web-friendly version of leaflet INDG362(rev1), revised 10/05, reprinted 10/08*

## Introduction

### What is this leaflet about?

Loud noise at work can damage your hearing. This leaflet is to help you as an employer understand what you need to do under the Control of Noise at Work Regulations 2005 (the Noise Regulations 2005) and how you can protect your employees from noise. It will also be useful to employees and safety representatives.

This leaflet tells you about:

- how loud noise can damage hearing;
- what you have to do under the Noise Regulations 2005 to protect the hearing of your workers;
- how to assess and control noise at work;
- choosing quieter equipment and machinery;
- different types of hearing protection;
- when to inform and consult your workers;
- health surveillance.

### The Control of Noise at Work Regulations 2005

The Noise Regulations 2005 require employers to prevent or reduce risks to health and safety from exposure to noise at work. Employees have duties under the Regulations too.

The Regulations require you as an employer to:

- assess the risks to your employees from noise at work;
- take action to reduce the noise exposure that produces those risks;
- provide your employees with hearing protection if you cannot reduce the noise exposure enough by using other methods;
- make sure the legal limits on noise exposure are not exceeded;
- provide your employees with information, instruction and training;
- carry out health surveillance where there is a risk to health.

The Regulations do not apply to:

- members of the public exposed to noise from their non-work activities, or making an informed choice to go to noisy places;
- low-level noise which is a nuisance but causes no risk of hearing damage.

From 6 April 2008, the Noise Regulations 2005 also apply to the music and entertainment industry. See *Sound advice* (ISBN 978 0 7176 6307 1) or look at <http://soundadvice.info>.

## Do you have a noise problem at work?

This will depend on how loud the noise is and how long people are exposed to it. As a simple guide you will probably need to do something about the noise if any of the following apply:

- Is the noise intrusive – like a busy street, a vacuum cleaner or a crowded restaurant – for most of the working day?
- Do your employees have to raise their voices to carry out a normal conversation when about 2 m apart for at least part of the day?
- Do your employees use noisy powered tools or machinery for more than half an hour each day?
- Do you work in a noisy industry, eg construction, demolition or road repair; woodworking; plastics processing; engineering; textile manufacture; general fabrication; forging, pressing or stamping; paper or board making; canning or bottling; foundries?
- Are there noises due to impacts (such as hammering, drop forging, pneumatic impact tools etc), explosive sources such as cartridge-operated tools or detonators, or guns?

Noise can also be a safety hazard at work, interfering with communication and making warnings harder to hear.

### How is noise measured?

Noise is measured in decibels (dB). An 'A-weighting' sometimes written as 'dB(A)', is used to measure average noise levels, and a 'C-weighting' or 'dB(C)', to measure peak, impact or explosive noises.

You might just notice a 3 dB change in noise level, because of the way our ears work. Yet every 3 dB doubles the noise, so what might seem like small differences in the numbers can be quite significant.

Some examples of typical noise levels are shown in Figure 1. This shows that a quiet office may range from 40-50 dB, while a road drill can produce 100-110 dB.



**Figure 1** Examples of typical noise levels

# The health effects of noise at work

## Hearing loss

Noise at work can cause hearing loss which can be temporary or permanent. People often experience temporary deafness after leaving a noisy place. Although hearing recovers within a few hours, this should not be ignored. It is a sign that if you continue to be exposed to the noise your hearing could be permanently damaged. Permanent hearing damage can be caused immediately by sudden, extremely loud, explosive noises, eg from guns or cartridge-operated machines.

But hearing loss is usually gradual because of prolonged exposure to noise. It may only be when damage caused by noise over the years combines with hearing loss due to ageing that people realise how deaf they have become. This may mean their family complains about the television being too loud, they cannot keep up with conversations in a group, or they have trouble using the telephone. Eventually everything becomes muffled and people find it difficult to catch sounds like 't', 'd' and 's', so they confuse similar words.

Hearing loss is not the only problem. People may develop tinnitus (ringing, whistling, buzzing or humming in the ears), a distressing condition which can lead to disturbed sleep.

**Remember: Young people can be damaged as easily as the old**

## Noise levels

### What are the action levels and limit values?

The Noise Regulations require you to take specific action at certain action values. These relate to:

- the levels of exposure to noise of your employees averaged over a working day or week; and
- the maximum noise (peak sound pressure) to which employees are exposed in a working day.

The values are:

- lower exposure action values:
  - daily or weekly exposure of 80 dB;
  - peak sound pressure of 135 dB;
- upper exposure action values:
  - daily or weekly exposure of 85 dB;
  - peak sound pressure of 137 dB.

The actions you need to take are described in the rest of this leaflet. Figure 2 will also help you decide what you need to do.

There are also levels of noise exposure which must not be exceeded:

- exposure limit values:
  - daily or weekly exposure of 87 dB;
  - peak sound pressure of 140 dB.

These exposure limit values take account of any reduction in exposure provided by hearing protection.

# Risk assessment

## How do I get started?

If you answered 'yes' to any of the questions in the section 'Do you have a noise problem', you will need to assess the risks to decide whether any further action is needed, and plan how you will do it.

The aim of the risk assessment is to help you decide what you need to do to ensure the health and safety of your employees who are exposed to noise. It is more than just taking measurements of noise – sometimes measurements may not even be necessary. Your risk assessment should:

- identify where there may be a risk from noise and who is likely to be affected;
- contain a reliable estimate of your employees' exposures, and compare the exposure with the exposure action values and limit values;
- identify what you need to do to comply with the law, eg whether noise-control measures or hearing protection are needed, and, if so, where and what type; and
- identify any employees who need to be provided with health surveillance and whether any are at particular risk.

It is essential that you can show that your estimate of employees' exposure is representative of the work that they do. It needs to take account of:

- the work they do or are likely to do;
- the ways in which they do the work; and
- how it might vary from one day to the next.

Your estimate must be based on reliable information, eg measurements in your own workplace, information from other workplaces similar to yours, or data from suppliers of machinery.

You must record the findings of your risk assessment. You need to record in an action plan anything you identify as being necessary to comply with the law, setting out what you have done and what you are going to do, with a timetable and saying who will be responsible for the work.

Review your risk assessment if circumstances in your workplace change and affect noise exposures. Also review it regularly to make sure that you continue to do all that is reasonably practicable to control the noise risks. Even if it appears that nothing has changed, you should not leave it for more than about two years without checking whether a review is needed.

### Competence

You need to make sure that your risk assessment:

- has been drawn up by someone who is competent to carry out the task; and
- is based on advice and information from people who are competent to provide it.

You, or people within your company, may well be competent in some or all areas. You may, however, choose or need to go to external consultants.

# Control the risks

## How do I control the risks from noise?

The purpose of the Noise Regulations 2005 is to make sure that people do not suffer damage to their hearing – so controlling noise risks and noise exposure should be where you concentrate your efforts.

Wherever there is noise at work you should be looking for alternative processes, equipment and/or working methods which would make the work quieter or mean people are exposed for shorter times. You should also be keeping up with what is good practice or the standard for noise control within your industry.

Where there are things you can do to reduce risks from noise, that are reasonably practicable, they should be done. However, where noise exposures are below the lower exposure action values, risks are low and so you would only be expected to take actions which are relatively inexpensive and simple to carry out.

Where your assessment shows that your employees are likely to be exposed at or above the upper exposure action values, you must put in place a planned programme of noise control.

## How do I use the information from my risk assessment?

Your risk assessment will have produced information on the risks and an action plan for controlling noise. Use this information to:

- tackle the immediate risk, eg by providing hearing protection;
- identify what is possible to control noise, how much reduction could be achieved and what is reasonably practicable;
- establish priorities for action and a timetable (eg consider where there could be immediate benefits, what changes may need to be phased in over a longer period of time and the number of people exposed to the noise in each case);
- assign responsibilities to people to deliver the various parts of the plan;
- ensure the work on noise control is carried out;
- check that what you have done has worked.

## How do I reduce noise?

There are many ways of reducing noise and noise exposure – often a combination of methods works best. First think about how to remove the loud noise altogether. If that is not possible, do all you can to control the noise at source, consider redesigning the workplace and reorganising working patterns. Take measures to protect individual workers if you need to. Consider the following:

- Use a different, quieter process or quieter equipment, eg:
  - can you do the work in some other quieter way?
  - can you replace whatever is causing the noise with something that is less noisy?
  - introduce a low-noise purchasing policy for machinery and equipment.
- Introduce engineering controls:
  - avoid metal-on-metal impacts, eg line chutes with abrasion-resistant rubber, and reduce drop heights;
  - vibrating machine panels can be a source of noise – add material to reduce vibration ('damping');

- isolate vibrating machinery or components from their surroundings, eg with anti-vibration mounts or flexible couplings;
- fit silencers to air exhausts and blowing nozzles.
- Modify the paths by which the noise travels through the air to the people exposed, eg:
  - erect enclosures around machines to reduce the amount of noise emitted into the workplace or environment;
  - use barriers and screens to block the direct path of sound;
  - position noise sources further away from workers.
- Design and lay out the workplace for low noise emission, eg:
  - use absorptive materials within the building to reduce reflected sound, eg open cell foam or mineral wool;
  - keep noisy machinery and processes away from quieter areas;
  - design the workflow to keep noisy machinery out of areas where people spend most of their time.
- Limit the time spent in noisy areas – every halving of the time spent in a noisy area will reduce noise exposure by 3 dB.

Proper and regular maintenance of machinery and equipment is essential as it will deteriorate with age and can become noisier. Listen out for changes in noise levels – it may be time to replace worn or faulty parts.

Specific guidance for particular industries and machines can be found in other HSE publications (look at [www.hse.gov.uk](http://www.hse.gov.uk)). Also look at [www.hse.gov.uk/noise](http://www.hse.gov.uk/noise) for good practice solutions.

## A low-noise purchasing policy

### How can I choose quieter equipment and machinery?

Introducing a positive purchasing and hire policy can be the most cost-effective long-term measure you take to reduce noise at work. Choosing quieter equipment and machinery, whether it is bought or hired, from the start can save you the cost of introducing noise-reduction measures once it is installed or in use. You could do the following:

- Consider at an early stage how new or replacement machinery could reduce noise levels in the workplace – set a target to reduce the noise levels if possible.
- Ensure you specify a realistic noise output level for all new machinery, and check that tenderers and suppliers are aware of their legal duties.
- Ask the suppliers about the likely noise levels under the particular conditions in which you will operate the machinery, as well as under standard test conditions. If you ask the same question to all suppliers you can compare information. Noise output data will only ever be a guide as many factors affect the noise levels experienced by employees, but it will help you to buy quieter machines.
- Try to purchase or hire only from suppliers who can demonstrate a low-noise design, with noise control as a standard part of the machine, not as a costly optional extra.
- Keep a record of your decision process, to help show that you have met your legal duties to reduce workplace noise.

Remember to ask your supplier about:

- installation arrangements, eg methods of mounting and location, to ensure machinery operates as quietly as possible;
- anything about how the machine operates which could affect the noise it produces;
- maintenance arrangements to ensure the machine continues to operate properly and does not get louder over time.

Under the Health and Safety at Work etc Act 1974 and the Supply of Machinery (Safety) Regulations 1992 (as amended) a supplier of machinery must do the following:

- Provide equipment that is safe and without risk to health, with the necessary information to ensure it will be used to meet those aims.
- Design and construct machinery so that the noise produced is as low as possible.
- Provide information about the noise the machine produces under actual working conditions.

New machinery must be provided with:

- a 'Declaration of Conformity' to show that it meets essential health and safety requirements;
- a 'CE' mark;
- instructions for safe installation, use and maintenance;
- information on the risks from noise at workstations, including:
  - A-weighted sound pressure level, where this exceeds 70 dB;
  - maximum C-weighted instantaneous sound pressure level, where this exceeds 130 dB;
  - sound power (a measure of the total sound energy) emitted by the machinery, where the A-weighted sound pressure level exceeds 85 dB;
- a description of the operating conditions under which the noise tests were carried out.

## Hearing protection

### When should hearing protection be used?

Hearing protection should be issued to employees:

- where extra protection is needed above what has been achieved using noise control;
- as a short-term measure while other methods of controlling noise are being developed.

You should not use hearing protection as an alternative to controlling noise by technical and organisational means.

Give HSE's pocket card INDG363(rev1) *Protect your hearing or lose it!* to your employees to remind them to wear their hearing protection.



The problems of fitting earmuffs (eg with long hair, safety glasses or jewellery)



Correct



Incorrect

The correct and incorrect fitting of earplugs

## What does the law require employers to do?

You are required to:

- provide your employees with hearing protectors if they ask for them and their noise exposure is between the lower and upper exposure action values;
- provide your employees with hearing protectors and make sure they use them properly when their noise exposure exceeds the upper exposure action values;
- identify hearing protection zones, ie areas where the use of hearing protection is compulsory, and mark them with signs if possible;
- provide your employees with training and information on how to use and care for the hearing protectors;
- ensure that the hearing protectors are properly used and maintained.

## How can hearing protection be used effectively?

Do:

- make sure the protectors give enough protection – aim at least to get below 85 dB at the ear;
- target the use of protectors to the noisy tasks and jobs in a working day;
- select protectors which are suitable for the working environment – consider how comfortable and hygienic they are;
- think about how they will be worn with other protective equipment (eg hard hats, dust masks and eye protection);
- provide a range of protectors so that employees can choose ones which suit them.

Don't:

- provide protectors which cut out too much noise – this can cause isolation, or lead to an unwillingness to wear them;
- make the use of hearing protectors compulsory where the law doesn't require it;
- have a 'blanket' approach to hearing protection – better to target its use and only encourage people to wear it when they need to.

## What about maintenance?

You will need to make sure that hearing protection works effectively and check that:

- it remains in good, clean condition;
- earmuff seals are undamaged;
- the tension of the headbands is not reduced;
- there are no unofficial modifications;
- compressible earplugs are soft, pliable and clean.

## What checks do I have to make?

You need to make sure that employees use hearing protection when required to. You may want to:

- include the need to wear hearing protection in your safety policy. Put someone in authority in overall charge of issuing it and making sure replacements are readily available;



- carry out spot checks to see that the rules are being followed and that hearing protection is being used properly. If employees carry on not using it properly you should follow your normal company disciplinary procedures;
- ensure all managers and supervisors set a good example and wear hearing protection at all times when in hearing protection zones;
- ensure only people who need to be there enter hearing protection zones and do not stay longer than they need to.

## Information, instruction and training

### What do I need to tell my employees?

It is important that employees understand the risks they may be exposed to. Where they are exposed above the lower exposure action values you should at least tell them:

- the likely noise exposure and the risk to hearing this noise creates;
- what you are doing to control risks and exposures;
- where and how people can obtain hearing protection;
- how to report defects in hearing protection and noise-control equipment;
- what their duties are under the Noise Regulations 2005;
- what they should do to minimise the risk, such as the proper way to use hearing protection and other noise-control equipment, how to look after it and store it, and where to use it;
- your health surveillance systems.

Make sure you give information in a way the employee can be expected to understand (for example you might need to make special arrangements if the employee does not understand English or cannot read).

### Employee and safety representatives

Consulting with trade union-appointed safety representatives or other employee representatives is a legal requirement. Working with safety representatives and employees' representatives is a very useful means of communicating about health and safety matters in your workplace. For example, discuss with them your risk assessment and action plan, including any proposal to average exposure over a week, selection of hearing protection, any hearing protection zones and your health surveillance programme.

**Remember: Involving your employees in decisions can help improve working relationships, make your employees more receptive to new ideas and help you control exposure to noise.**

## Health surveillance

### Providing health surveillance

You must provide health surveillance (hearing checks) for all your employees who are likely to be frequently exposed above the upper exposure action values, or are at risk for any reason, eg they already suffer from hearing loss or are particularly sensitive to damage.

The purpose of health surveillance is to:

- warn you when employees might be suffering from early signs of hearing damage;
- give you an opportunity to do something to prevent the damage getting worse;
- check that control measures are working.

Consult your trade union safety representative, or employee representative and the employees concerned before introducing health surveillance. It is important that your employees understand that the aim of health surveillance is to protect their hearing. You will need their understanding and co-operation if health surveillance is to be effective.

## **What is health surveillance?**

Health surveillance for hearing damage usually means:

- regular hearing checks in controlled conditions;
- telling employees about the results of their hearing checks;
- keeping health records;
- ensuring employees are examined by a doctor where hearing damage is identified.

Ideally you would start the health surveillance before people are exposed to noise (ie for new starters or those changing jobs), to give a baseline. It can, however, be introduced at any time for employees already exposed to noise. This would be followed by a regular series of checks, usually annually for the first two years of employment and then at three-yearly intervals (although this may need to be more frequent if any problem with hearing is detected or where the risk of hearing damage is high).

The hearing checks need to be carried out by someone who has the appropriate training. The whole health surveillance programme needs to be under the control of an occupational health professional (for example a doctor or a nurse with appropriate training and experience). You, as the employer, have the responsibility for making sure the health surveillance is carried out properly.

## **How can I arrange health surveillance?**

Larger companies may have access to in-house occupational health services who may be able to carry out the programme. Where there are no facilities in-house you will need to use an external contractor. You may be able to find out about occupational health services through your trade association, or through local business support organisations.

## **What should I expect from an occupational health service provider?**

A suitable occupational health service provider will be able to show you that they have the training and experience needed. They should be able to:

- advise you on a suitable programme for your employees;
- set up the programme;
- provide suitably qualified and experienced staff to carry out the work;
- provide you with reports on your employees' fitness to continue work with noise exposure.

## What do I have to do with the results of health surveillance?

Use the results to make sure your employees' hearing is being protected. You will need to:

- keep records of the health surveillance and fitness-for-work advice provided for each employee (but not the confidential medical records which are kept by the doctor). A health and safety inspector can ask to see the health records as part of their checks that you are complying with the Regulations;
- make employees' records available to them;
- act upon any recommendations made by the occupational health service provider about employees' continued exposure to noise;
- use the results to review and, if necessary, revise your risk assessment and your plans to control risks.

Analysing the results of your health surveillance for groups of workers can give you an insight into how well your programme to control noise risks is working. Use the results to target your noise reduction, education and compliance practices more accurately. Make this information available to employee or safety representatives.

### Remember

By law, as an employer, you must assess and identify measures to eliminate or reduce risks from exposure to noise so that you can protect the hearing of your employees.

Where the risks are low, the actions you take may be simple and inexpensive, but where the risks are high, you should manage them using a prioritised noise-control action plan.

Where required, ensure that:

- hearing protection is provided and used;
- any other controls are properly used; and
- you provide information, training and health surveillance.

Review what you are doing if anything changes that may affect the noise exposures where you work. Look at HSE's noise website: [www.hse.gov.uk/noise](http://www.hse.gov.uk/noise) for more information.

## Further information

HSE priced and free publications are available by mail order from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995 Website: [www.hsebooks.co.uk](http://www.hsebooks.co.uk) (HSE priced publications are also available from bookshops and free leaflets can be downloaded from HSE's website: [www.hse.gov.uk](http://www.hse.gov.uk).)

For information about health and safety ring HSE's Infoline  
Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577  
e-mail: [hse.infoline@natbrit.com](mailto:hse.infoline@natbrit.com) or write to HSE Information Services,  
Caerphilly Business Park, Caerphilly CF83 3GG.

**This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.**

This leaflet is available in priced packs of 10 from HSE Books, ISBN 978 0 7176 6165 7. Single free copies are also available from HSE Books.

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Figure 2 Managing noise risks

